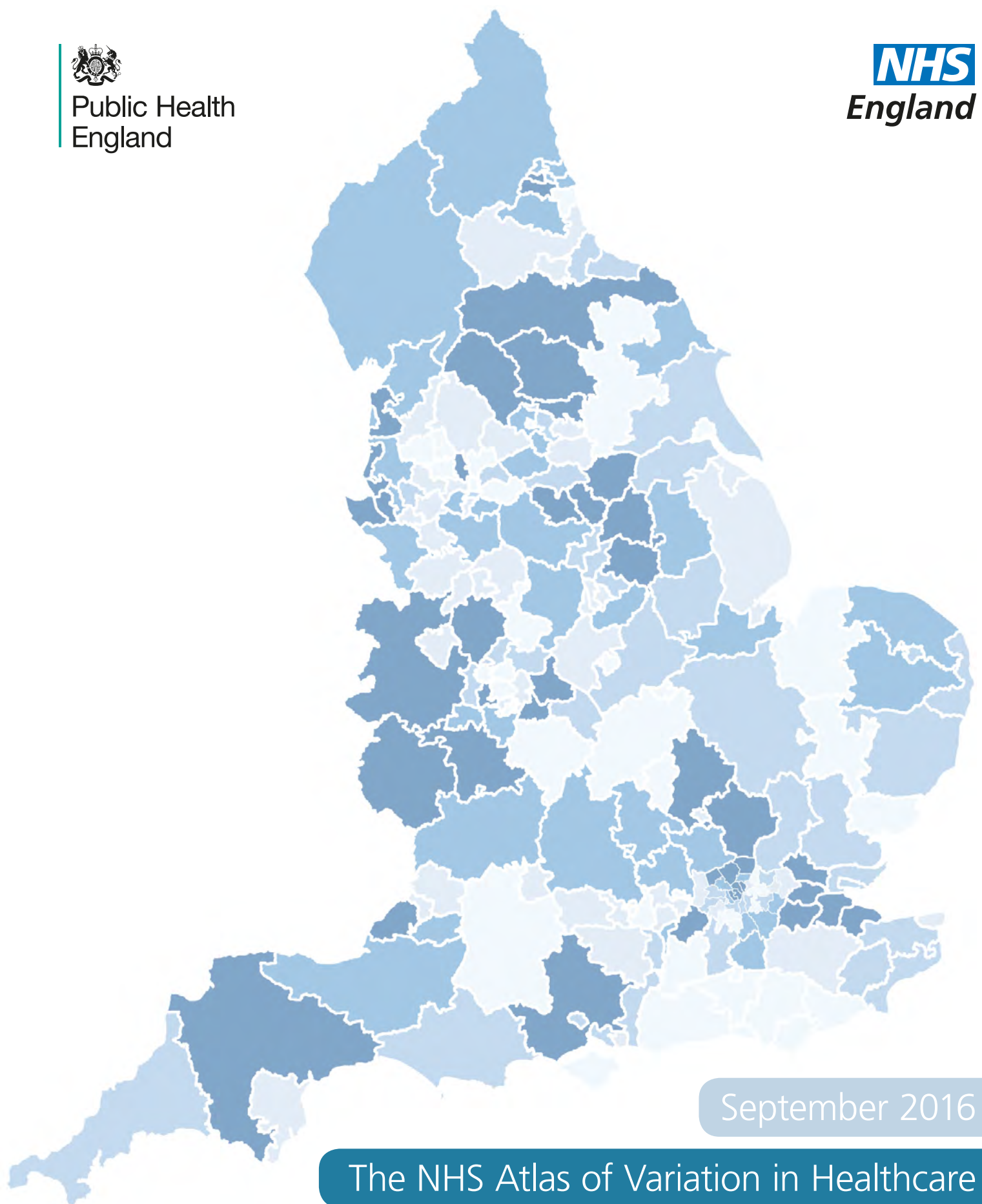Public Health England

NHS England

September 2016

The NHS Atlas of Variation in Healthcare

Reducing unwarranted variation to increase value and improve quality

RightCare

www.rightcare.nhs.uk

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

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Atlas 3.0 has been prepared in partnership with a range of organisations:

Public Health England (PHE). Public Health England's mission is to protect and improve the nation's health and to address inequalities through working with national and local government, the NHS, industry and the voluntary and community sector. Public Health England is an operationally autonomous executive agency of the Department of Health.

www.gov.uk/phe

NHS England works with NHS staff, patients, stakeholders and the public to improve the health outcomes for people in England. We create the culture and conditions for health and care services and staff to deliver the highest standard of care and ensure that valuable public resources are used effectively to get the best outcomes for individuals, communities and society for now and for future generations.

www.england.nhs.uk/

The **Care Quality Commission** is the independent regulator of health and adult social care in England. We make sure health and social care services provide people with safe, effective, compassionate, high-quality care and we encourage care services to improve. We are focussing on three key areas: how providers use the resources available to deliver high-quality care; factors that affect quality beyond individual providers, such as pathways of care and geographical regions; and refining our model to make it more efficient and effective.

www.cqc.org.uk/

The **Health and Social Care Information Centre** (HSCIC) is the national source of NHS, health and social care information. We collect, process, link, analyse and publish national information for health and social care communities in England. The HSCIC is an Executive Non-Departmental Public Body (ENDPB) incorporating functions from the previous HSCIC, IT systems delivery functions that were undertaken by NHS Connecting for Health, and Strategic Health Authority informatics functions.

www.ic.nhs.uk

The **Office for National Statistics** (ONS) is the UK's largest independent producer of official statistics and the recognised national statistical institute of the UK. Our main responsibilities as the Executive Office of the UK Statistics Authority include the collection, compilation, analysis and dissemination of economic, social and demographic statistics that serve the public good and meet our legal obligations (domestic and international); the provision of statistical leadership and methodological advice for the benefit of UK official statistics; representing the UK in the international arena; and the development and maintenance of definitions, methodologies, and classifications of statistics.

www.ons.gov.uk/ons/index.html

NHS Improving Quality (NHSIQ) is the driving force for improvement across the NHS in England. We are working to improve health outcomes for people by providing improvement and change expertise. Hosted by NHS England, we have created an improvement organisation that is in alignment with the needs and challenges of the NHS. We are doing this by working to the five domains of the NHS Outcomes Framework.

www.nhsiq.nhs.uk/

Public Health England

The **National Child and Maternal Health Intelligence Network** (ChiMat) is part of Public Health England (PHE) and provides information and intelligence that will help users examine and address questions which the NHS Atlas of Variation in Healthcare series may raise for your local area.

ChiMat's tool, DMIT (now part of Improving Services Toolkit) allows clinical commissioning groups (CCGs) to compare their emergency admission rates, bed-days, and lengths of stay with a range of different comparators for children with long-term conditions. It is designed to highlight variations at CCG level and allow benchmarking to inform the commissioning decision-making process for children's services.

Other useful tools include ChiMat Data Atlas, which brings together a range of data and statistics on child and maternal health into one easily accessible hub, and the Local Authority Child Health Profiles, which provide a snapshot of child health and well-being for each local authority in England using key health indicators, which enables comparison locally, regionally and nationally.

www.chimat.org.uk/

The **National Cardiovascular Health Intelligence Network** (NCVIN) is coordinated by PHE and brings together epidemiologists, analysts, clinicians and patient representatives. The NCVIN analyses information and data and turns it into meaningful timely health intelligence for commissioners, policy-makers, clinicians and health professionals to improve services and outcomes. The work of NCVIN includes coronary heart disease, stroke, hypertension (high blood pressure), hypercholesterolemia (excess cholesterol), diabetes, kidney disease, peripheral vascular disease (affecting blood vessels) and vascular dementia (caused by reduced blood flow to the brain).

www.ncvin.org.uk

The **National Cancer Intelligence Network** (NCIN) is a UK-wide initiative operated by PHE. The NCIN coordinates and develops analysis and intelligence to drive improvements in prevention, standards of cancer care and clinical outcomes for cancer patients. Our aims and objectives cover five core areas to improve the quality and availability of cancer data from its collection to use: promoting efficient and effective data collection throughout the cancer journey, providing a common national repository for cancer datasets, producing expert analyses, to monitor patterns of cancer care, exploiting information to drive improvements in cancer care and clinical outcomes, and enabling use of cancer information to support audit and research programmes.

www.ncin.org.uk/

The **National End of Life Care Intelligence Network** (NEoLCIN) is part of PHE. NEoLCIN aims to improve the collection and analysis of national data about end of life care for adults in England, providing knowledge and intelligence to drive improvements in the quality of end of life care services, supporting efficient use of resources and responding to the evidence collected on the wishes of dying people and their families.

www.endoflifecare-intelligence.org.uk/home

The **National Infection Service** is a newly established part of PHE which integrates PHE's specialist infectious diseases epidemiology services and Microbiology Service. Working with partners in the UK and internationally, the aim is to deliver a world class service to protect the population in England from infectious disease and reduce the burden of infectious disease.

www.gov.uk/phe

The **National Mental Health, Dementia and Neurology Intelligence Network** (NMHDNIN) analyses information and data and turns it into timely meaningful health intelligence for commissioners, policy-makers, clinicians and health professionals to improve services, outcomes and reduce the negative impact of mental health, dementia and neurology problems. The work of NMHDNIN complements NHS England's Strategic Clinical Network and includes mental health and wellbeing, dementia and neurology. The NMHDNIN helps commissioners, policy-makers and clinicians collate information and data on three pathways through health services that affect millions of people in England. This information is also available to the public, service users and their families.

http://www.yhpho.org.uk/mhdnin

The Public Health England **Learning Disabilities Observatory** team works to improve the availability of information about the health of people with learning disabilities and the health and social care they receive. They do this by bringing together existing sources of information and evidence, doing new analyses of existing data sources, working with care commissioners and providers to improve adjustments to services, and working with the Health and Social Care Information Centre to improve the scope of information collected.

www.improvinghealthandlives.org.uk/

The **Public Health England Obesity Knowledge and Intelligence Team** provides a single point of contact for wide-ranging authoritative information on data, evaluation, evidence and research related to weight status and its determinants. It maintains the PHE Obesity website. The Obesity Knowledge and Intelligence Team work closely with a wide range of organisations and provide support to policy-makers and practitioners involved in obesity and related issues.

https://www.noo.org.uk/

The **NHS Business Services Authority** (NHSBSA) is a Special Health Authority and an Arms Length Body of the Department of Health, which provides a range of critical central services to NHS organisations, NHS contractors, patients and the public. Our vision is to be the organisation of choice to provide business solutions that deliver service excellence and value for money.

www.nhsbsa.nhs.uk/

The **Royal College of Midwives** (RCM) is the only trade union and professional association dedicated to serving midwifery and the whole midwifery team. We provide workplace advice and support, professional and clinical guidance and information, and learning opportunities with our broad range of events, conferences and online resources.

https://www.rcm.org.uk/

The **Royal College of Obstetricians and Gynaecologists** (RCOG) works to improve healthcare for women everywhere, by setting standards for clinical practice, providing doctors with training and lifelong learning, and advocating for women's healthcare worldwide.

https://www.rcog.org.uk/

The **Sentinel Stroke National Audit Programme** (SSNAP) aims to improve the quality of stroke care by auditing stroke services against evidence-based standards, and national and local benchmarks. Building on 15 years of experience delivering the National Sentinel Stroke Audit (NSSA) and the Stroke Improvement National Audit Programme (SINAP), SSNAP is pioneering a new model of healthcare quality improvement through near real-time data collection, analysis and reporting on the quality and outcomes of stroke care.

www.rcplondon.ac.uk/projects/sentinel-stroke-national-audit-programme

For the latest SSNAP results: www.strokeaudit.org

From April 2013, NHS England took over commissioning responsibility for the commissioning of Adult Critical Care services linked to a specialised service spell. At the same time, NHS England established the **Adult Critical Care Clinical Reference Group** (ACC CRG). Chaired by Jane Eddleston, the group comprises clinicians from each of the Clinical Senates, patient representatives and professional organisations and colleges. The ACC CRG's main roles include advising NHS England on the commissioning of critical care services and the development of national products, including service specifications, clinical commissioning policies and quality dashboards.

The **National Diabetes Audit** (NDA) is the largest annual clinical audit in the world, integrating data from both primary and secondary care sources, making it the most comprehensive audit of its kind.

www.hscic.gov.uk/nda

The **National Paediatric Diabetes Audit** (NPDA) aims to improve the care provided to children with diabetes, their outcomes and experiences and that of their families. The NPDA is funded by the Department of Health through the Healthcare Quality Improvement Partnership (HQIP). It is delivered by the Royal College of Paediatrics and Child Health (RCPCH) Clinical Standards Team within the Research and Policy Division. The RCPCH has introduced several innovations and efficiencies to the audit, including measures of patient experience and the use of inventive approaches to data collection, which minimise the burden on clinicians.

www.rcpch.ac.uk/national-paediatric-diabetes-audit-npda

The **Neonatal Data Analysis Unit** (NDAU) is an independent academic unit based at the Chelsea & Westminster Hospital campus of Imperial College London. The NDAU aims to support UK neonatal units, networks, and NHS Trusts to improve the quality of care for newborns and their outcomes through health services support and research.

www1.imperial.ac.uk/departmentofmedicine/divisions/infectiousdiseases/paediatrics/neonatalmedicine/ndau/

The **UK Renal Registry** (UKRR) was established by the Renal Association to act as a resource in the development of patient care in renal disease. The Registry acts as a source of comparative data for audit, benchmarking, planning, policy and research. The collection and analysis of sequential biochemical and haematological data is a unique feature of the UKRR. The Registry is open to influence from all interested parties, including clinicians, NHS Trusts, commissioning authorities and patient groups.

www.renalreg.com

The **National Institute for Cardiovascular Outcomes Research** (NICOR) is part of the National Centre for Cardiovascular Preventions and Outcomes (NCCPO), within the Institute of Cardiovascular Science (ICS) at University College London (UCL). NICOR collects clinical information from UK hospitals into secure registries that were originally established by the cardiovascular specialist societies. We help the NHS and regulatory bodies improve quality of care by checking that the care received by heart disease patients meets good practice guidelines through conducting clinical audit and by comparing patient outcomes, such as casemix-adjusted survival and readmission rates. Our reports and online public portals help hospitals, consultants and health improvement bodies to monitor practice, inform patient choices about their place of care, and build public confidence in NHS cardiac care.

https://www.ucl.ac.uk/nicor

The **British Society for Interventional Radiology** (BSIR) is a charitable foundation established to promote and develop the practice of Interventional Radiology, and is now the largest radiological subspecialty society in the UK. The main objectives of the BSIR are: to support and develop access to high-quality information on Interventional Radiology for patients and all healthcare professionals; to support audit and research in Interventional Radiology; and to support education and training in Interventional Radiology.

www.bsir.org/

The **Joint Advisory Group on GI Endoscopy** (JAG) ensures the quality and safety of patient care by defining and maintaining the standards by which endoscopy is practised. The JAG was established in 1994 under the auspices of the Academy of Medical Royal Colleges (AMRC), and operates within the Clinical Standards Department of the Royal College of Physicians, with a UK-wide remit. The JAG's ore objectives are to agree and set acceptable standards for competence in endoscopic procedures, and to quality assure endoscopy units, endoscopy training, and endoscopy services.

www.thejag.org.uk/

Sport England is responsible for grassroots sport in England and committed to helping people and communities across the country create sporting habits for life. This means investing in organisations and projects that will get more people playing sport and creating opportunities for people to excel at their chosen sport. Sport England works with national and local partners including national governing bodies of sport, local authorities, charities and other sporting organisations.

https://www.sportengland.org/

Public Health England, NHS England and NHS RightCare,
continue to pay homage to the inspirational publication,
The Dartmouth Atlas of Health Care, and the vision and commitment
of Professor John Wennberg who first charted this territory.

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Foreword

Why publish an *NHS Atlas of Variation in Healthcare* at all, let alone a third compendium edition? It has been almost 80 years since Glover's 1938 paper revealed variation unexplained by illness rates in childhood tonsillectomy rates across English educational districts[1]. In the 30–40 years since researchers such as Wennberg and Gittelsohn[2] in the USA, and McPherson[3] in the UK, published journal articles on healthcare variation, there have been numerous research papers describing and investigating variation. *The Dartmouth Atlas of Health Care*[4] in the USA has now published over 50 reports, the Organisation for Economic Co-operation and Development (OECD) released its *Geographic Variations in Health Care*[5] with data from 13 countries (including England) in September 2014, and, for some years now, an international community of scholars studying variation has formed under the auspices of the Wennberg International Collaborative (WIC)[6].

Why continue to publish, indeed? For the simple reason that in healthcare, as in health, there is no meaningful accountability to our patients and to the population without ceaseless surveillance and public reporting. Accountability requires measurement at levels of geography, such as clinical commissioning groups (CCGs) or NHS Trusts, that are relevant to the organisation of services and actionable for improvement. Healthcare is like health in that local context holds both the determinants of outcomes, and the possibility of remediation. The NHS Atlas of Variation series illuminates a distinct English vista of variation caused by population differences, varying professional opinions, and disparate organisational performance. It is the latter two factors –

the idiosyncratic practices of clinicians and of healthcare organisations – that represent **unwarranted variation**.

England has risen to a singular position in the growing worldwide effort to understand health-system performance. Unlike many other countries, England is awash with healthcare data and measures[7] for tracking over time and place, making the NHS the most thoroughly measured healthcare system in the world. But data, by itself, is neither information nor intelligence. This third compendium of the NHS Atlas provides both, and in an understandable and accessible format.

A reader of this volume should be attuned to three specific themes. The first is the evaluation of **under-** and **over-use**. The variation, for example, in the percentage of patients with diabetes receiving evidence-based processes of care (Map 30) shows the potential for CCGs to provide care that is likely to improve patients' health and well-being. The metric helps to identify where existing resources should be directed, and the specific interventions are straightforward and within the current capacity of the NHS. At the same time, high rates of antibiotic prescribing in primary and secondary care are hard to explain by population differences in bacterial infection incidence (Map 1). Over-use is a more likely explanation, although it could be deemed a costly misuse, given the absence of benefit and a greater likelihood of antibiotic resistance and allergies.

The second topic that should draw the reader's attention is **preference-sensitive care**. This phenomenon is exemplified by surgery rates such as tonsillectomies (Map

1   Glover JA. The Incidence of Tonsillectomy in School Children. *Proc R Soc Med* 1938; 31: 1219-1236.
    http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2076749/
2   Wennberg J, Gittelsohn A. Small area variations in health care delivery. A population-based health information service can guide planning and regulatory decision-making. *Science* 1973; 182: 1102-1108. http://www.dartmouthatlas.org/downloads/papers/Science_1973.pdf
3   McPherson K, Wennberg JE, Hovind O, Clifford P. Small area variation in the use of common surgical procedures: an international comparison of new England, England and Norway. *N Engl J Med* 1982; 307: 1310-14. http://www.nejm.org/doi/full/10.1056/NEJM198211183072104
4   The Dartmouth Atlas of Health Care. http://www.dartmouthatlas.org/
5   Organisation for Economic Co-operation and Development. Geographic Variations in Health care. What Do We Know and What Can Be Done to Improve Health System Performance? 16 September 2014. doi: 10.1787/9789264216594-en
    http://www.oecd-ilibrary.org/social-issues-migration-health/geographic-variations-in-health-care_9789264216594-en
6   Wennberg International Collaborative. http://www.wennbergcollaborative.org/
7   Health and Social care Information Centre. Indicator portal. https://indicators.ic.nhs.uk/webview/
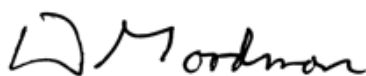
88), and joint replacement (Map 59), the percentage of deaths occurring in hospital (Maps 66 and 89), and the rate of emergency admissions in patients over the age of 65 years with dementia (Map 55). The right rate for these decisions is not obvious, and clinicians themselves will often recommend different options to treat the underlying illness. Shared decision-making with the use of decision aids is now well recognised as providing scientifically sound information to patients, while helping to clarify their goals and values. Do the NHS Atlas maps reflect care decisions that incorporate the preferences of informed patients? The answer is likely to be yes, but only partly so, and only in a few localities.

The third area is **better value** (quality and outcomes per person-cost) and links under- and over-use, and preference-sensitive care, to spending. In aggregate, the NHS represents a remarkable value for the nation but is likely to differ across the sites of care. Although costs are complicated to identify in the NHS, higher and lower values in healthcare are obvious in the NHS Atlas series. Improving value across the NHS landscape is the central aim of providing the information in Atlas 3.0. As in maps of health, these maps of healthcare show us where to focus efforts to improve health and healthcare while holding the line on costs.

David C Goodman, MD MS
The Dartmouth Atlas of Health Care
The Wennberg International Collaborative

August 2015

Preface

This Atlas is the latest in the series of the NHS Atlases of Variation in Healthcare, the first since the creation of two new organisations under the Health and Social Care Act: NHS England and Public Health England (PHE). Although the organisations are separate, the NHS Atlas series embodies our shared aims not only of improving the health of populations and individuals within England, but also of increasing the value obtained from public resources allocated to health based on the best available evidence.

The publication of the *Five Year Forward View*[1] and *From evidence into action: opportunities to protect and improve the nation's health*[2] emphasised that one of the main responsibilities of the NHS was prevention. Obviously many things need to be done to promote health, some of which are outwith the scope of the NHS, but we acknowledge that the NHS with support from PHE has a major role to play. In Atlas 3.0, for instance, the indicators presented in Maps 57 and 58 highlight the steps that can be taken to reduce the risk of falls and fragility fractures, but only if the NHS and PHE adopts a population-based approach as well as delivering high-quality healthcare to people when in need.

This Atlas also includes indicators relating to PHE's seven priorities: obesity (Maps 34, 80 and 81), smoking (Map 20), harmful drinking (Map 96), best start for children (Maps 68–72, and 75–91), dementia (Maps 50–55), antimicrobial resistance (Maps 1 and 2), and tuberculosis (Maps 3 and 4). Moreover, 21 of the indicators are by local authority, thereby recognising the importance of public health work at this level of governance and accountability.

In support of NHS England's valuable work on Commissioning for Value (C4V), Atlas 3.0 includes several maps of indicators which also appear in the C4V packs launched in March 2015.

In commending this publication of the NHS Atlas series, we are fully committed to the concept of reducing unwarranted variation as a means to increase value and focus on the quality of care provided by NHS organisations, including GP services, hospitals and health centres. We will continue to take decisive steps to break down the barriers in how care is provided between family doctors and hospitals, between physical and mental health, and between health and social care. The traditional divisions of primary care, community services and secondary care – largely unaltered since the inception of the NHS – are obstacles to the personalised and coordinated health services patients need. Our focus is now on building systems – networks of care – not simply on maintaining and developing organisations.

The NHS Atlas series is pivotal in the interrogation of routinely available data that relate investment, activity and outcome to the whole population in need and not just those who happen to make contact with a particular service. Only by taking this population perspective can we trigger the search for unwarranted variation and assess the value of the healthcare provided both to populations and to individuals. As such, we consider the NHS Atlas series as an important set of publications that has received a positive response from clinicians, commissioners and managers alike. In many localities across England, the *NHS Atlas of Variation in Healthcare*

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1 NHS England. Five Year Forward View. October 2014. https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

2 Public Health England. From evidence into action: opportunities to protect and improve the nation's health. October 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/366852/PHE_Priorities.pdf

has been used as a stimulus to start a search for unwarranted variation, and as a springboard to releasing resources for re-investment in higher-value healthcare for local patients and populations.

Atlas 3.0 is welcome as another key resource to help the NHS to identify waste in the system, and to catalyse the release those resources for higher-value interventions. The Right Care Programme, including the NHS Atlas series, will now have a firm foundation in the work of both NHS England and Public Health England through our endeavour to identify and reduce unwarranted variation thereby increasing value and equity not only for individuals but also populations across England.

Professor Sir Bruce Keogh
National Medical Director
NHS England

Duncan Selbie
Chief Executive
Public Health England

Professor John Newton
Chief Knowledge Officer
Public Health England

August 2015

Reducing unwarranted variation: right care for patients and populations

"When the approach in one town is major surgery and in another, it's watchful waiting, you know there's a problem."[1]

Health systems around the world are facing the twin pressures of an increasing need and an increasing demand for health services, largely caused by the consequences of ageing populations and a lack of resources following the global economic crisis.[2] The continuing challenge for the NHS in England is to deliver high-quality care within the available resources, as outlined in the *Five Year Forward View*[3] and *From evidence into action: opportunities to protect and improve the nation's health*[4]. Several key issues were highlighted.

› Even with increased investment, there will be a need for a substantial increase in efficiency in the provision of health services (efficiency is the term NHS England uses to describe the concept of "value)".

› An increase in efficiency of up to 3% or, to phrase it another way, obtaining at least 3% more value from the resources available, will need to be achieved by shifting resources from lower-value to higher-value activity.

› Greater priority needs to be given to prevention by all health and care services and not only by public health services.

In these circumstances, it is not surprising that there is an increased focus on identifying and reducing unwarranted variation in the provision, uptake, outcome and costs of healthcare, because unwarranted variation is an indicator of lower-value healthcare. If unwarranted variation is addressed, it could release resources to fund higher-value healthcare.

The contents of the *Five Year Forward View* and *From evidence into action* recognise that unless new models of care are introduced and unwarranted variation is tackled:

› it will not be possible to meet the changing needs of the population nor those of individual patients;

› people will be harmed who should have been cured;

› unwarranted variation will persist thereby wasting valuable healthcare resources.

Despite the drive to reduce unwarranted variation, there is an unwillingness among some healthcare professionals to acknowledge and understand the different types of variation. Failure to identify and reduce unwarranted variation can have negative impacts on individual patients, their families and the population as a whole because unwarranted variation increases costs, decreases quality and thus reduces value for patients, populations and tax-payers.

Exploring health service variation

The investigation of variation in healthcare is not a new undertaking, but is based on decades of research, particularly in the USA and the UK. It is also important to bear in mind that variation for certain reasons is positive; if all reasons for variation were negative, it would be easier to take action to remedy it[5]. Some variation is inevitable, some is random, and perhaps some is an outcome of innovation and improvement, both essential pillars of a modern healthcare system.

1 Sipkoff M. 9 ways to reduce unwarranted variation. *Managed Care* 2003; 12: 20-24. http://www.managedcaremag.com/archives/0311/0311.variation.html

2 Lewis RQ et al (2010) Where Next for Integrated Care Organisations in the English NHS? London: Nuffield Trust. http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/where_next_for_integrated_care_organisations_in_the_english_nhs_230310.pdf

3 NHS England. The NHS Five Year Forward View. http://www.england.nhs.uk/ourwork/futurenhs/

4 Public Health England. From evidence into action: opportunities to protect and improve the nation's health. October 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/366852/PHE_Priorities.pdf

5 Mulley AG (2009) Inconvenient truths about supplier induced demand and unwarranted variation in medical practice. *British Medical Journal*, 339, b4073. http://www.bmj.com/content/339/bmj.b4073

The concept of variation is usually classified into two types, between which it is important to make a distinction:

1. "warranted" variation;

2. "unwarranted" variation.

Warranted variation is described as differences that reflect patient-centred care and clinical responsiveness, based on the assessed need for the population served. Unwarranted variation is defined as:

> "… variation in the utilisation of health care services that cannot be explained by variation in patient illness or patient preferences."[6]

Unwarranted variation is unacceptable: it wastes resources, and it is the hallmark of poor-quality and lower-value healthcare. Investigating the causes of variation offers the opportunity of identifying and eliminating lower-value activity.

It could be argued that the NHS has adapted to, and learnt to tolerate, unwarranted variation rather than explore and address the problem. Clinicians and managers frequently dispute the existence of unwarranted variation, often claiming fault with the data, which could be seen as justification for maintaining current practice. Such responses are understandable but, in the context of increasing need and increasing demand for healthcare, together with calls for increased efficiency, those responses can no longer be supported. Indeed, a paradigm shift is required if the NHS is to face the challenges of identifying, classifying and reducing unwarranted variation in order to increase value for individual patients and populations.

A new paradigm: the shift to "value"

Since the first *NHS Atlas of Variation in Healthcare* was published in 2010, there has been increasing recognition of the need for a paradigm shift in healthcare. In 2014, the Academy of Medical Royal Colleges (AoMRC) published two landmark reports: *Decisions of Value*[7],

written jointly with the NHS Confederation, and *Protecting resources, promoting value*[8].

In *Decisions of Value*, the emphasis was on the need for:

> "… decisions with a clear and measurable impact on both finance (costs) and quality (care)".[7]

In *Protecting resources, promoting value*, the AoMRC highlighted that:

> "… avoiding waste and promoting value are about the quality of care provided to patients – which is a doctor's central concern. One doctor's waste is another patient's delay. Potentially, it could be that other patient's lack of treatment. There is a clinical cost to wasted resources and also, as the report shows, a cost to the environment."[8]

It usually takes decades from the advent of any paradigm shift in healthcare before there can be a full realisation of new ways of working. From the inception of the NHS in 1948, the dominant paradigm was free healthcare at the point of delivery through the NHS, a principle that has been upheld to this date. In 1972, Cochrane's book, *Effectiveness and Efficiency*[9], introduced a new paradigm, in which effectiveness became the driver for change. This paradigm evolved into the evidence-based healthcare movement. In the 1990s, as resources became limited, the focus was redirected toward cost-effectiveness, which became the driver for efficiency. In the first decade of the 21st century, stimulated by two important reports from the Institute of Medicine in Washington[10,11] issues of quality and safety in healthcare became pivotal. The findings of an expert group chaired by the Chief Medical Officer in the report *An Organisation with a Memory*[12] reinforced the need to make patient safety central to the NHS.

Towards the end of the first decade of the 21st century, however, the context in which health services were designed and delivered changed dramatically, partly as

6   Wennberg JE (2010) *Tracking Medicine: A Researcher's Quest to Understand Health Care.* Oxford: Oxford University Press. http://sgh.org.sa/Portals/0/Articles/Tracking%20Medicine%20-%20A%20Researcher's%20Quest%20to%20Understand%20Health%20Care.pdf

7   Academy of Medical Royal Colleges and NHS Confederation. Decisions of Value. Full Report and Findings. October 2014. http://www.aomrc.org.uk/general-news/decisions-of-value-report.html

8   Academy of Medical Royal Colleges. Protecting resources, promoting value: a doctor's guide to cutting waste in clinical care. November 2014. http://www.aomrc.org.uk/dmdocuments/Promoting%20value%20FINAL.pdf

9   Cochrane AL. Effectiveness and Efficiency. Random Reflections on Health Services. The Nuffield Provincial Hospitals Trust, 1972. http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/Effectiveness_and_Efficiency.pdf

10 Committee on the Quality of Health Care in America, Institute of Medicine (IOM). Crossing the Quality Chasm: A New Health System for the 21st Century. IOM, March 2001. https://iom.nationalacademies.org/Reports/2001/Crossing-the-Quality-Chasm-A-New-Health-System-for-the-21st-Century.aspx

a consequence of the global economic crisis, and partly through the power of the internet. At this point, it was important for the focus of healthcare to align with patients' perceptions of the services they received, a shift that laid the foundation for applying the concept of value: the relationship of outcomes to resources used. In this definition, resources include not only money but also time, the time of both clinicians and patients.

In the second *NHS Atlas of Variation in Healthcare* (November 2011), the classic diagram, originated in 1980 by the late Professor Avedis Donabedian, was reproduced to show that when resources are invested in increasing amounts by those responsible for paying for healthcare, the intervention is offered to people in the population who are less severely affected. As a result, the benefit gained from the intervention overall flattens off (known as the Law of Diminishing Returns), whereas the amount of harm done increases in proportion to the level of investment (see Figure I.1).

FIGURE I.1

Point of optimality

Population intervention rate
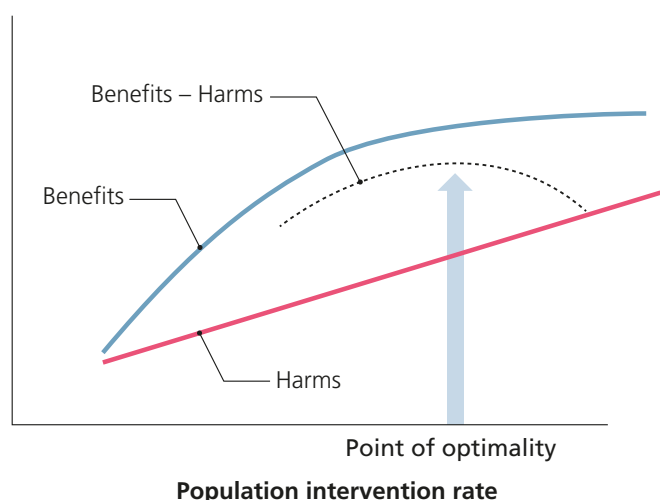
This effect occurs independent of the quality and safety of the service. Although the levels of quality and safety will influence the relative position of the two lines, they will not affect the basic relationship. As more healthcare is provided to the population, the benefits will plateau, whereas the harmful or adverse effects will continue to increase until a point of optimality is reached. If resources are invested beyond the point of optimality, the economic value of the investment for the population, including tax-payers, will decline from high to low value through zero to a negative value (see Figure I.2).

This decrease in value has important implications for individual patients. As the amount of resource increases and treatment is offered to more individuals who are less severely affected, for each of those individuals the balance of benefit to harm associated with a single intervention, such as knee replacement, cataract surgery or the prescription of statins, also changes. In general, the magnitude of the benefit that an individual can expect will diminish, whereas the probability and magnitude of harm remains the same, and a clinical intervention can move from being necessary or appropriate to being inappropriate or futile (Figure I.2).

FIGURE I.2

Clinical value	Necessary	Appropriate	Inappropriate	Futile
Economic value	High	Low	Zero	Negative
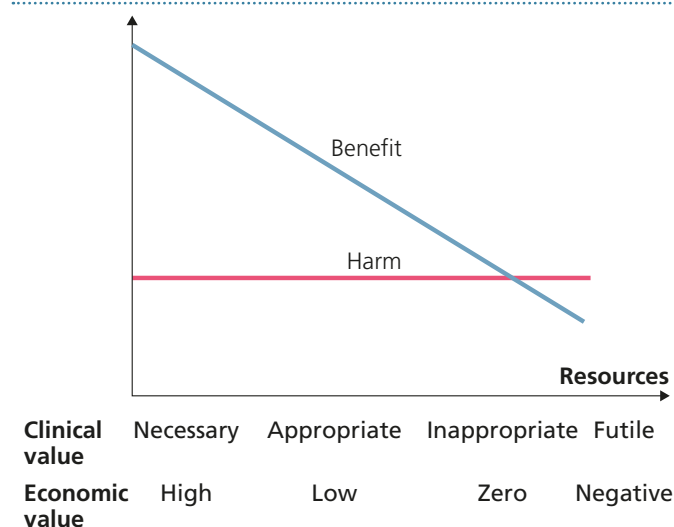
The NHS Atlas series, although primarily focused on populations, has important implications for individual patients, and for consultations between clinicians and patients. Thus, unwarranted variation is relevant to clinicians and patients as well as to the people who pay for, commission or manage health services.

Unwarranted variation in the provision of health services

The importance of identifying unwarranted variation is that it may signpost the NHS to uncover two types of provision that need to be addressed:

› under-provision of a particular service (under-use);

› over-provision (over-use), including multiple interventions to confirm or eliminate a diagnosis, a potential cause of over-treatment – a concept that

11 Kohn LT, Corrigan JM, Donaldson MS (eds) and Committee on Quality of Health Care in America, Institute of Medicine (IOM) To Err is Human: Building a Safer Health Systems for Better Care. IOM. November 1999. http://iom.nationalacademies.org/Reports/1999/To-Err-is-Human-Building-A-Safer-Health-System.aspx

12 Department of Health. An Organisation with a Memory. Report of an expert group on learning from adverse events in the NHS chaired by the Chief Medical Officer. 2000. http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/publications/publicationspolicyandguidance/browsable/dh_4098184

has emerged since the inaugural publication of the *NHS Atlas of Variation in Healthcare*.

It is important to focus on over-provision: even when an intervention is supported by evidence of effectiveness and is delivered at a high level of quality, it is possible to reach a point when the amount of resources invested means that the intervention is being given to people who have lower levels of need, resulting in less benefit because their need is not as great. In these cases, patients face the unnecessary risk of harm: all healthcare can do harm as well as good even when delivered at high quality. This issue has been highlighted by the BMJ campaign, "Too Much Medicine"[13].

The NHS Atlas series

The national QIPP Programme launched the Right Care Programme, the aim of which was to ensure that the NHS was doing the right things, to the right patient, at the right time, using the right level of resources.

Inspired by the work of Professor John Wennberg in Dartmouth, New Hampshire, USA, who published the first Atlas of Variation in 1996, Right Care produced a series of NHS Atlases of Variation in Healthcare, including compendium atlases covering various programme budget categories and other topics, and specialist atlases focused on particular conditions, population groups or services (see Box I.1).

The purpose of the NHS Atlas series (see Box I.1) is to assist the NHS as a whole system, across commissioning and provider organisations, to work together:

> ❯ to explore the concept of variation;

> ❯ to identify the causes of unwarranted variation;

> ❯ to concentrate on reducing lower value activity, and use that opportunity to apply released resources to higher value care; either for the same group of patients or to transfer resources to another group of patients where need is greater.

In the *Five Year Forward View*[2], the challenge to the NHS is to adapt to evolving demands and to improve the quality and safety of care for individual patients as well as to improve the health of the whole population. It is no longer sufficient to permit the NHS to adapt

to and tolerate unwarranted variation. The NHS Atlas series is designed to stimulate the curiosity of healthcare professionals working within the services whether as a commissioner, provider or clinician, to develop the competence to identify and reduce unwarranted variation. In addition, since the publication of Atlas 2.0 in November 2011, CCGs, NHS England and PHE have legal duties under the Health and Social Care Act 2012[14] with regard to reducing health inequalities. One of the main focuses for the NHS Atlas series has always been reducing variation in outcomes. Commissioners should continue to use the NHS Atlases, and the supporting Commissioning for Value and PHE tools to drive local action to reduce inequalities in access to services and in the health outcomes achieved.

Box I.1: The NHS Atlas series 2010–2015 launched by the QIPP Right Care programme, and now curated by Public Health England	
NHS Atlas of Variation in Healthcare (compendium)	2010
NHS Atlas of Variation in Healthcare (compendium)	2011
NHS Atlas of Variation in Healthcare for Children and Young People	2012
NHS Atlas of Variation in Healthcare for People with Kidney Disease	2012
NHS Atlas of Variation in Healthcare for People with Diabetes	2012
NHS Atlas of Variation in Healthcare for People with Respiratory Disease	2012
NHS Atlas of Variation in Healthcare for People with Liver Disease	2013
NHS Atlas of Variation in Diagnostic Services	2013
NHS Atlas of Variation in Healthcare (compendium)	2015

For these reasons, the team that produced the NHS Atlas series is currently working with PHE, NHS England and other arms-length bodies to scope the creation and development of a Variation and Value Knowledge Service. The aims of this service would be:

> ❯ to share good practice;

> ❯ to inform the population and those bodies responsible for meeting their health needs which services show substantial variation when compared with the services provided to other similar populations, and which merit closer examination;

> ❯ to ensure that any variation observed can be justified by differences in need and, if not, that any unwarranted variation is challenged and reduced.

Dr Philip DaSilva and Professor Sir Muir Gray,
Co-Founders of Right Care

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13 BMJ. Too Much Medicine. http://www.bmj.com/too-much-medicine

14 Health and Social Care Act 2012. http://www.legislation.gov.uk/ukpga/2012/7/contents/enacted & Health and Social Care Act 2012: fact sheets https://www.gov.uk/government/publications/health-and-social-care-act-2012-fact-sheets

Using the NHS Atlas series to deliver healthcare improvement and financial sustainability

Together with other formats dealing with data about variation, such as the Commissioning for Value Focus Packs[1], Spend and Outcome Tools[2] and Pathways on a Page[3], the NHS Atlases of Variation in Healthcare can play a pivotal role in supporting improvement at the level of local populations. There are a growing number of health economies undertaking work to maximise the value of healthcare for both individuals and populations by using the three phases of NHS RightCare's approach to improvement, which has five key ingredients (see Figure RC.1).

Thus, the NHS Atlas series can be used:

> ❯ to identify opportunities for improvement by showing where a health economy is placed in quintiles indicating poorer performance both nationally and relative to their demographic peers
> – ***"Where to Look"***;

> ❯ to indicate if an improvement opportunity is generic across many pathways, a few pathways or only one, for instance, whether the maps containing condition-based detection indicators all highlight an opportunity for improvement or whether it is only those maps within, for example, respiratory pathways or dementia – ***"What to Change"***;

> ❯ to show whether these opportunities exist along the entire pathway, such as stroke, and thus whole-pathway transformation is required or whether the opportunity for improvement can be undertaken via an individual project within a pathway
> – ***"How to Change"***.

After this initial indicative assessment, the NHS Atlas series can also support the delivery of the three phases of improvement. For instance, in a specialty of healthcare that provides an improvement opportunity for a local health economy, it can be used to identify:

Figure RC.1: The NHS RightCare Approach
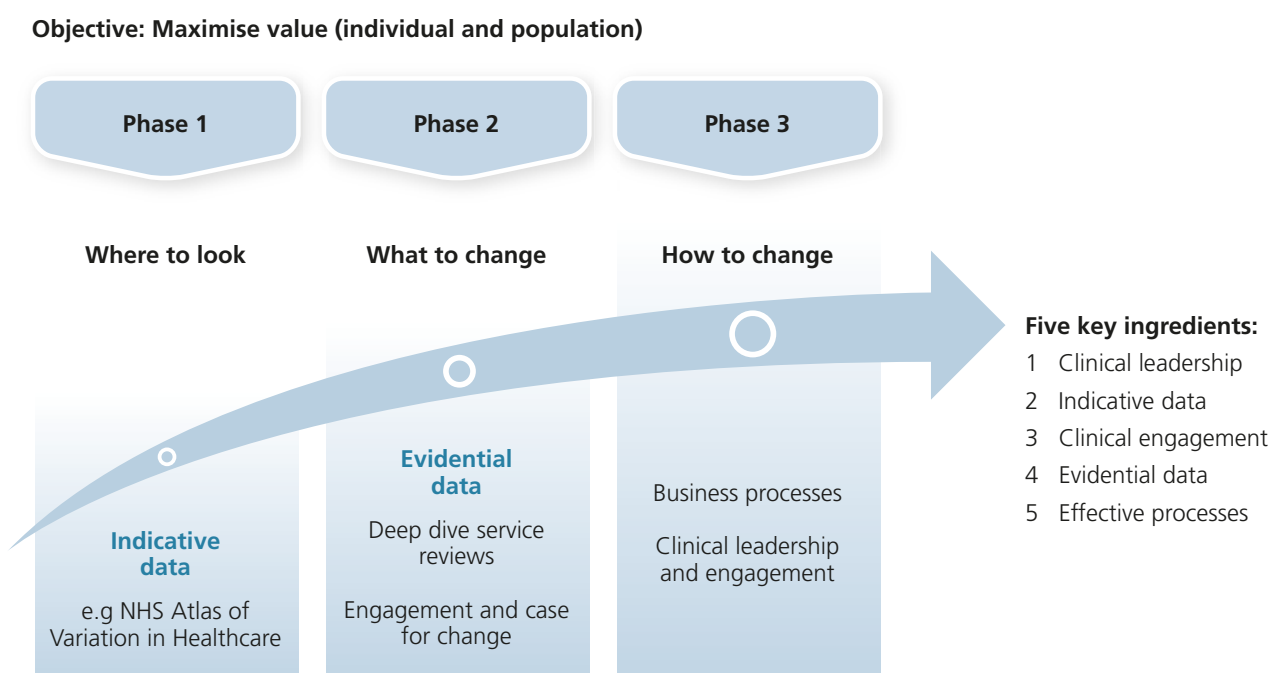
Objective: Maximise value (individual and population)

| Phase 1 | Phase 2 | Phase 3 |

Where to look — **What to change** — **How to change**

Indicative data
e.g NHS Atlas of Variation in Healthcare

Evidential data
Deep dive service reviews
Engagement and case for change

Business processes
Clinical leadership and engagement

Five key ingredients:
1 Clinical leadership
2 Indicative data
3 Clinical engagement
4 Evidential data
5 Effective processes

1 NHS England. Commissioning for Value. Commissioning for Value – comprehensive data packs to support CCGs and NHS England in the regions.
   http://www.england.nhs.uk/resources/resources-for-ccgs/comm-for-value/
2 Public Health England. Spend and Outcome Tool (SPOT). Understand health outcomes and expenditure across all programmes.
   http://www.yhpho.org.uk/default.aspx?RID=49488
3 NHS England. Commissioning for Value. Commissioning for value Pathways on a Page packs – November 2014.
   http://www.england.nhs.uk/resources/resources-for-ccgs/comm-for-value/

> which organisation is best with respect to an indicator or group of related indicators, both nationally and among demographic peers;

> whether demographic characteristics or other reasons for warranted variation explain the degree of variation observed, for instance, if all demographic peers show similar degrees of variation;

> what to do about the variation observed, i.e. ***"What to Change"*** – for example, by working on the suggestions within the "Options for action" in the commentary associated with each map and/or by exploring the learning that can be extracted from what colleagues are doing, who work in localities that achieve higher value in relation to an indicator or group of indicators.

The NHS Atlas series can also be used to good effect when deciding on the focus for the activities of a health economy. For instance, it can show an estimated impact of improvement by taking the rate of, say, the midpoint of the best-value quintile and comparing that with your health economy's current position, accounting for justifiable demographic variation. In other words, it allows the system to articulate, for example:

"If we improve our alcohol-related hospital admissions to the 90th percentile, we will move from 2483 admissions to 1574 per 100,000 population".[4]

It is not an onerous task to identify ***"How to Change"***, especially in cases where:

> national organisations, such as NICE, have defined best practice;

> demographic peers have already re-shaped pathways for improvement;

> the solution is, or can be known, within the local clinical and management community.

Once "How to Change" has been identified, a net financial value can be attributed to the improvement in addition to the health impact. Further information can also be determined relatively easily, such as whether the improvement:

> supports integration and long-term conditions management;

> is quick to implement;

> has a fast or slow rate of return;

> is supported by the clinical community.

In short, all of the criteria needed to decide whether pursuing an improvement is desired, is of value and ought to be a priority. This is commissioning for value, and it begins with tools such as the *NHS Atlas of Variation in Healthcare*.

Professor Matthew Cripps, National Director,
NHS RIghtCare

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4 Example taken from Map 9, pages 62–63 in the *NHS Atlas of Variation in Healthcare for People with Liver Disease.*
   http://www.rightcare.nhs.uk/atlas/

Commissioning for Value, NHS England

NHS England is committed to giving clinical commissioning groups (CCGs) and area teams practical support in gathering data, evidence and tools to help them transform the way care is delivered for their patients and populations.

Working with Public Health England and NHS RightCare, NHS England is providing a suite of materials to support effective "commissioning for value", including a range of comprehensive data packs and online tools.

The first Commissioning for Value packs[1] – released in October 2013 – clearly showed CCGs and area teams **"Where to Look"** as a first stage to identify opportunities to improve outcomes and increase value for local populations.

The "Pathways on a Page" packs[2] – published in November 2014 – provide in-depth data for 13 patient conditions, within those programmes that were most commonly identified as offering the greatest potential improvements in the first pack.

The use of this localised information as part of the annual planning cycle is encouraged. It will support discussions about prioritising areas for change and utilising resources, and will help local leaders make improvements in healthcare quality, outcomes and efficiency.

The information in the packs will be of particular interest to:

›	CCG clinical and management leads with responsibility for finance, performance, improvement and health outcomes;

›	area team leads;

›	commissioning support teams who are helping CCGs with this work.

A range of additional free support to accompany the data is set out within each pack.

1	NHS England. Commissioning for Value. Commissioning for Value – comprehensive data packs to support CCGs and NHS England in the regions. http://www.england.nhs.uk/resources/resources-for-ccgs/comm-for-value/

2	NHS England. Commissioning for Value. Commissioning for value Pathways on a Page packs – November 2014. http://www.england.nhs.uk/resources/resources-for-ccgs/comm-for-value/

Map and chart presentation

Selection of indicators

In devising Atlas 3.0, we have worked closely with the national clinical directors (NCDs) at NHS England or clinical leads, responsible for some of the programme budget categories (PBCs), certain groups of patients, or certain types of services, and with the various Intelligence Teams at Public Health England (PHE). We have also worked with colleagues from some of the Royal Colleges, some of the national audits, and some academic units.

For Atlas 3.0, indicators have been constructed using populations from CCGs, NHS Trusts, NHS area teams, neonatal networks, paediatric diabetes units, strategic health authorities (SHAs), upper-tier local authorities (UTLAs) and lower-tier local authorities (LTLAs).

Order of appearance

Indicators in Atlas 3.0 are presented in an order that tends to reflect PBCs, although some of the PBCs have been adapted such that the cardiovascular indicators can be grouped together (as in the Cardiovascular Disease Outcomes Strategy[1]), followed by indicators concerned with patient groups (older people, women, babies, and children and young people), ending with indicators that reflect the provision of services, such as emergency care, critical care, and interventional radiology.

Data sources

Data for most of the indicators in Atlas 3.0 have been provided by colleagues in the Department of Health (DH), Health and Social Care Information Centre (HSCIC), Office for National Statistics (ONS), NHS England, Royal College of Physicians (RCP), Royal College of Paediatrics and Child Health (RCPCH), Imperial College, Sport England, NHS Business Services Authority (NHSBSA), Care Quality Commission (CQC), The Renal Association, National Institute for Cardiovascular

Outcomes Research (NICOR) and PHE from a variety of sources including:

> HSCIC Hospital Episode Statistics (HES);
> ONS mid-year population estimates;
> ONS mortality records;
> HSCIC indicators portal;
> HSCIC National Diabetes Audit;
> National Paediatric Diabetes Audit, RCPCH;
> Sentinel Stroke National Audit Programme (SSNAP), RCP;
> HSCIC Diagnostic Imaging Dataset (DID);
> Diagnostic waiting times reporting of the monthly waiting times and activity reporting (DM01);
> Quality and Outcomes Framework (QOF);
> NHS Improving Quality (NHSIQ);
> Cover of Vaccination Evaluated Rapidly (COVER) data, PHE;
> Adult Social Care Outcomes Framework, DH;
> Active People Survey, Sport England;
> Maternity Services Survey, CQC;
> UK Renal Registry, Renal Association;
> National Cancer Registry, ONS
> UK Transcatheter Aortic Valve Implantation (TAVI) Registry, NICOR;
> Commissioning for Quality and Innovation (CQUIN), NHS England;
> National Child Measurement Programme, HSCIC.

A metadata document with methodology, data extraction coding schemes and data sources for each indicator is available from the website at: http://www.rightcare.nhs.uk/atlas/

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1 Department of Health Cardiovascular Disease Team. Cardiovascular Disease Outcomes Strategy. Improving outcomes for people with or at risk of cardiovascular disease. March 2013.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214895/9387-2900853-CVD-Outcomes_web1.pdf

Classification

Data for each of the indicators are displayed as a column chart and map to show variation in terms of magnitude and geographical location within England. London is shown as an inset on all CCG, UTLA, LTLA and NHS Trust maps to keep detail that otherwise might be lost.

The charts and maps for all indicators are colour classified into thematic displays, which group the indicator values into categories and allow the reader to view and compare them on the column chart and map without having to refer to individual values. Data are displayed on the maps as geographical areas.

A simple method of classification using equal counts of geographical areas was used to display most of the indicators, regardless of distribution of data within indicators. Where possible, areas were split into five groups or "quintiles" containing an equal number of areas. The method used to assign areas to a "quintile" was to rank order the areas from highest to lowest values, then divide the ranks into five equal-sized categories. In practice, the number of areas in each quintile was often not equal, because either the total number of areas is not divisible by five, or some of the areas have the same indicator value resulting in "tied ranks".

The disadvantage with equal-count grouping of data is that it does not take into account the distribution of the data, and quintiles can be created with very different ranges of variation between the highest and lowest values. This should be taken into consideration when comparing areas in different categories within indicators.

The classification is shaded from light blue (lowest value) to dark blue (highest value) on the column charts and maps. The ranges and shading do not indicate whether a high or low value represents good or poor performance.

The charts have been originally produced in Microsoft Excel 2010, and the maps originally created using MapInfo Professional 11.0.

Exception-reporting

Three indicators in Atlas 3.0 (Maps 21, 47 and 57) are from the QOF 2013/14.[2] Under the QOF scheme, GPs are rewarded for achieving an agreed level of population coverage for each indicator. The level of achievement depends on the practice treating the patients with the

relevant problem; however, not all patients are treatable or willing to be treated, e.g. patients do not attend for review despite repeated invitations, or a medication cannot be prescribed due to a contra-indication or side-effect. So practices are not penalised by circumstances beyond their control, they can exclude those patients from counting towards their achievement by "exception-reporting" them. Exception-reporting is allowed for a range of reasons. The QOF achievement reported annually is the exception-adjusted population coverage.

> For Map 21, the map and the columns in the chart show the **actual** population coverage of people with COPD who have had an influenza immunisation, and in which excepted patients have been **included** in the denominator.

> For Map 47, the map and the columns in the chart show the percentage of people with severe mental illness who are **excepted** from the calculation of QOF achievement scores.

> For Map 57, the map and the columns in the chart show the percentage of patients aged 75 years and over who had a fragility fracture and were being treated with a bone-sparing agent **excluding** exceptions.

Standardisation

Standardisation allows like to be compared with like, ensuring that differences in the number of events (e.g. deaths or infections) observed in two or more populations are not due to differences in, for instance, the age and sex profile between the different populations. For example, suppose population A has a higher death rate than population B, however, if population A also has a higher proportion of older people, we would expect there to be more deaths and it would be misleading to infer that people are dying at a faster rate in population A than in population B.

The two main methods of standardisation are:

> direct standardisation;

> indirect standardisation.

Direct standardisation is commonly used to adjust rates for differences between populations in age and sex distribution or any other factor by which the data can be stratified. The observed rate (e.g. of disease) for each age-band in the study area (e.g. the CCG) is applied to a standard population structure (in this case, the European Standard Population) to obtain a weighted average rate.

2   Quality and Outcomes Framework (QOF) – 2013-14. October 28, 2014. http://www.hscic.gov.uk/catalogue/PUB15751

> Direct standardisation adjusting for age has been used for the indicators in Maps 16, 38, 39, 49, 85, 88, 91, and 96.

> Direct standardisation adjusting for age and sex has been used for the indicators in Maps 6, 14, 18, 22, 23, 44, 93 and 95.

> Direct standardisation adjusting for age and parity has been used for the indicator in Map 73.

Indirect standardisation is also typically used to adjust rates for differences in the age and/or sex distribution of populations being compared, and possibly for other demographic factors such as sex and deprivation. This is done dividing the total number of observed events by an expected number of events, where the expected number of events is derived by applying the observed rates for each age/sex-group in a standard population (in this case, England) to the population of the same age/sex-group in the study area (e.g. the CCG).

> Indirect standardisation adjusting for age and sex alone has been used for the indicators in Maps 33, 34, 35 and 94.

> Indirect standardisation adjusting for age, sex and other factors including deprivation and case-mix has been used for the indicators in Maps 9A, 10 and 43.

The Hospital and Community Health Services (HCHS) population has been used as a denominator in the calculation of rates presented in Maps 19 and 56. This is a population adjusted by age and sex as well as variables of "need", and is a form of standardisation that can be used when the data necessary to perform the standardisation are not available.

Values presented in Maps 7, 8, 60 and 82 have been adjusted for age, sex and other demographic factors using other statistical methods. For example, the cancer survival indicators in Maps 7 and 8 were adjusted for age, sex and cause of death using an excess hazard model.

Confidence intervals

All of the indicators have associated error terms that indicate the level of uncertainty of the calculated rate, referred to as confidence intervals. Confidence intervals were available for most of the indicators (79/103; Maps 3–6, 11–26, 28–31, 33–35, 38, 40, 42, 45, 47–59, 61–63, 66–72, and 74–98). Statistical uncertainties usually arise because the indicators are based on a random sample of finite size from a population of interest. Confidence intervals are used to assess what would happen if we were to repeat the same study, over

and over, using different samples each time. The precise statistical definition of a 95% confidence interval states that, on repeated sampling, 95 times out of 100 the true population value would be within the calculated confidence interval range and for 5 times out of 100 the true value would be either higher or lower than the range. Where these confidence intervals have been calculated for indicators in Atlas 3.0, they are displayed on the columns of the relevant charts as a vertical line intersecting the top of each column. The smaller the confidence interval, the more stable the indicator; a larger number of events leads to a smaller interval.

For a few of the indicators (Maps 5, 91 and 97) where the confidence intervals are very wide (as displayed on the chart), caution is needed when interpreting the data because the limits indicate that much of the variation within the indicator may not be statistically significant. Equally, as the number of events is relatively small for these indicators, they are subject to greater random variation. Consequently, the values for the range and fold difference are more likely to be exaggerated when compared with other indicators based on larger numbers of events.

The use of categorical data

For four of the indicators – Maps 99–102 – categorical, as well as continuous, data have been used to display variation in service provision. The data for these maps were derived from the responses to a survey conducted by NHSIQ in 2013. The survey was sent to all Interventional Radiology services in England, and there are two categories of response by NHS Trust:

1. there was provision on-site or formal out-of-hours service provision in 2013;

2. there was no formal out-of-hours service provision in 2013.

Apart from the NHS Trust level data from the survey, responses were also collated by SHA. Although this level of geography is no longer current, the data give an indication of the degree of variation in service provision, which was deemed useful, especially as the variation observed is relatively large for a relatively large geographical unit, such as an SHA.

Exclusions

For the indicators in Atlas 3.0 mapped to CCG geography, the calculation of the full range of variation is given in the accompanying commentaries; in addition, the range has then been calculated from

which as a general rule the seven highest values and the seven lowest values have been excluded. This is because "outliers" could be the result of errors in data management, e.g. some data may not have been returned or events may have been recorded twice. This exclusion was originally suggested by Professor Sir Mike Richards for Atlas 1.0, and the "Richards' heuristic" has been used in the NHS Atlas series since then.

For indicators where there is a lesser or greater number of local areas displayed, a different number of areas may be excluded from the highest and lowest values. In Table M.1 below, the range of exclusions used is shown depending upon the number of local areas available.

Table M.1: Local area size ranges for exclusions

Local areas	Exclusions
45 or fewer	0
From 46 to 75	2
76 to 105	3
From 106 to 136	4
From 137 to 166	5
From 167 to 197	6
From 198 to 227	7
From 228 to 257	8
From 258 to 288	9
From 289	10

› For indicators showing NHS Trust service provision (Maps 51–53 and 73), there are five exclusions at each end of the range because the number of NHS Trusts is 137–138.

› For indicators showing an NHS area team level of geography (Maps 1, 17, 39, 54 and 89), there are no exclusions applied because the number of area teams is 25.

› For indicators showing a neonatal network level of geography (Maps 68, 69 and 71), there are no exclusions applied because the number of neonatal networks is 23.

› For the indicator showing paediatric diabetes unit service provision (Map 82), there are five exclusions at each end to the range because the number of paediatric diabetes units is 163.

› For the indicators showing an SHA level of geography (Maps 99–102), there are no exclusions applied because the number of SHAs is 10.

› For the indicators showing an upper–tier local authority (UTLA) level of geography (Maps 3, 4, 20, 49, 63–66, 70, 72, 76–78, 80, 81, 85, 90 and 91), there are five exclusions at each end of the range

because the number of UTLAs is 152.

› For the indicators showing lower–tier local authority (LTLA) level of geography (Maps 16, 24, 25 and 96), there are 10 exclusions at each end of the range because the number of LTLAs is 326.

Preventing disclosure

Excluding rates for geographies with small numbers

To prevent the disclosure of the identity of individuals due to the presence of small numbers of events (e.g. death or hospital admission), data have been excluded for some geographical areas for Maps 4, 5, 10, 11, 16, 20, 28, 35, 40, 42–44, 48, 49, 62–64, 74, 79, 82, 97, and 98.

Merging geographies with small numbers

For some of the indicators relating to maternity, and children and young people, to avoid the disclosure of small numbers at the UTLA level of geography:

› the Isles of Scilly local authority has been merged with Cornwall, and the City of London local authority has been merged with Hackney (Maps 70, 80, 81, 85, 90 and 91);

› the Isles of Scilly local authority has been merged with Cornwall, the City of London local authority has been merged with Hackney, and Rutland local authority has been merged with Leicestershire (Maps 72 and 76–78).

Domains in the NHS Outcomes Framework

Underneath the title for each indicator, the domain or domains in the NHS Outcomes Framework 2015/16[3] relevant to the indicator have been listed.

› Domain 1: Preventing people from dying prematurely

› Domain 2: Enhancing quality of life for people with long-term conditions

› Domain 3: Helping people to recover from episodes of ill health or following injury

› Domain 4: Ensuring that people have a positive experience of care

› Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

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3 Department of Health. NHS Outcomes Framework 2015 to 2016. December 2014. https://www.gov.uk/government/publications/nhs-outcomes-framework-2015-to-2016

Table S.1: Summary of indicators in Atlas 3.0, showing the range and magnitude of variation before and after exclusions;[1] each indicator has been assigned to one or more of the following categories – activity, cost, equity, outcome, quality (performance), and safety. Indicators marked with an asterisk (Maps 5, 91 and 97) have very wide confidence intervals, therefore, caution is needed when interpreting the data because the limits indicate that much of the variation within the indicator may not be statistically significant; equally, as the number of events is relatively small for these indicators, they are subject to greater random variation – consequently, the values for the range and fold difference before and after exclusions are more likely to be exaggerated when compared with other indicators based on larger numbers of events.

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
1	Mean number of defined daily doses (DDDs) of antibiotics prescribed in primary and secondary care per day per 1000 population by NHS area team, 2013	19.2–25.6	1.3	N/A	N/A	Activity
2	Percentage of all antibiotic prescription items in primary care that were for key antibiotics by CCG, 2013	4.5–18.0	4.0	6.8–16.8	2.5	Quality
3	Rate of tuberculosis (TB) incidence per 100,000 population by upper-tier local authority, 2011–2013	0–114	–	2.1–58	27.9	Activity
4	Percentage of people with drug-sensitive tuberculosis (TB) who completed treatment within 12 months of treatment onset by upper-tier local authority, 2012	40.7–100.0	2.5	68.4–92.7	1.4	Outcome
5*	Percentage of all people aged 15 years and over newly diagnosed with HIV who had a CD4 count test within one month of diagnosis by CCG, 2011–2013	60.0–100.0	1.7	76.5–100.0	1.3	Quality
6	Rate of mortality from cancer in people aged under 75 years per 100,000 population by CCG, 2013 Directly standardised rate, adjusted for age and sex	85–176	2.1	97–158	1.6	Outcome
7	Percentage of people aged 15–99 years who survived one year after being diagnosed with any cancer by CCG, 2012 followed up to 2013 Adjusted for age, sex, mix of cancers and background mortality	63.7–73.5	1.2	65.0–72.4	1.1	Outcome
8	Percentage of people aged 15–99 years who survived one year after being diagnosed with breast, lung or colorectal cancer by CCG, 2012 followed up to 2013 Adjusted for age, sex, mix of cancers and background mortality	64.1–74.7	1.2	67.1–73.6	1.1	Outcome

1   For CCGs: 7 exclusions, Maps 2, 5–15, 18–19, 21–23, 26–34, 36–38, 40, 42–43, 45–48, 50, 55–61, 67, 75, 83–84, 86–88, and 92–95 ;
6 exclusions, Maps 35, 44, 62, 74, 79, and 98; 4 exclusions, Map 97.
For NHS Trusts: 10 exclusions, Maps 51–53 and 73.
For paediatric diabetes units: 5 exclusions, Map 82.
For neonatal networks: 0 exclusions, Maps 68–69 and 71.
For NHS area teams: 0 exclusions, Maps 1, 17, 39, 54 and 89.
For strategic health authorities (SHAs): 0 exclusions, Maps 99–102.
For upper–tier local authorities, 5 exclusions, Maps 3, 20, 49, 63–66, 70, 76–78, 80–81, 85 and 90–91; 4 exclusions, Map 72; 3 exclusions, Map 4.
For lower–tier local authorities: 10 exclusions, Maps 16, 24–25 and 96.
Exclusions not applicable (data derived from categorical score): Map 41.

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
9A	Rate of colonoscopy procedures and flexisigmoidoscopy procedures per 10,000 population by CCG, 2012/13 Indirectly standardised rate, adjusted for age, sex and deprivation	93.1–231.6	2.5	105.5–207.0	2.0	Activity
9B	Ratio of colonoscopy procedures to flexisigmoidoscopy procedures by CCG, 2012/13	0.45–11.58	25.5	0.75–3.74	5.0	Activity
10	Rate of computed tomography (CT) colonoscopy procedures per 10,000 population by CCG, 2013/14 Indirectly standardised rate, adjusted for age, sex and deprivation	0.0–58.8	–	0.4–30.7	79.3	Activity
11	Rate of barium enema procedures per 100,000 population by CCG, 2013/14	1.2–1341	1076	3.0–356	119.5	Activity
12	Percentage of all cancer diagnoses that were made at stage 1 or stage 2 by CCG, 2013	22.7–60.8	2.7	29.6–56.0	1.9	Quality
13	Percentage of new cases of colorectal cancer that were diagnosed at stage 1 or stage 2 by CCG, 2013	13.5–54.4	4.0	17.1–48.2	2.8	Quality
14	Rate of epilepsy emergency admissions to hospital in people aged 18 years and over per 100,000 population by CCG, 2012/13 Directly standardised rate, adjusted for age and sex	50–262	5.2	76–215	2.8	Quality
15	Percentage of people with epilepsy aged 18 years and over on GP epilepsy registers who were seizure-free for the preceding 12 months by CCG, 2013/14	46.5–87.1	1.9	50.2–73.1	1.5	Outcome
16	Rate of years of life lost (YLLs) in people aged under 75 years due to mortality from chronic liver disease including cirrhosis per 10,000 population by lower-tier local authority, 2010–2012 Directly standardised rate, adjusted for age	3.6–73.3	20.2	8.1–40.7	5.1	Outcome
17	Percentage of people who succeeded in gaining access to NHS dentistry services after requesting an appointment in the last two years by NHS area team, January–March 2014	92.5–97.4	1.1	N/A	N/A	Quality Equity
18	Rate of admission to hospital for cataract surgery in people aged 65 years and over per 100,000 population by CCG, 2012/13 Directly standardised rate, adjusted for age and sex	1596–4610	2.9	1998–4199	2.1	Activity
19	Rate of sleep studies undertaken per 1000 weighted population by CCG, 2013/14 Adjusted for age, sex and "need"	0.1–8.8	88.4	0.2–5.8	30.8	Activity
20	Rate of successful smoking quitters at 4 weeks per 100,000 population of smokers aged 16 years and over by upper-tier local authority, 2013/14	1251–32,497	26.0	1718–6147	3.6	Outcome

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
21	Percentage of patients with COPD who had influenza immunisation in the preceding 1 September to 31 March by CCG (QOF COPD006 with exception-reported patients included), 2013/14	76.3–88.9	1.2	77.7–86.4	1.1	Quality
22	Rate of COPD emergency admissions to hospital per 100,000 population by CCG, 2012/13 Directly standardised rate, adjusted for age and sex	94–662	7.0	132–488	3.7	Quality
23	Rate of asthma emergency admissions to hospital in people aged 19 years and over per 100,000 population by CCG, 2012/13 Directly standardised rate, adjusted for age and sex	33–224	6.8	49–159	3.3	Quality
24	Percentage of people aged 16 years and over who had a body mass index (BMI) greater than or equal to 30 kg/m^2 by lower-tier local authority, 2012	11.2–35.2	3.2	15.0–31.0	2.1	Outcome
25	Percentage of people aged 16 years and over who were classified as physically inactive by lower-tier local authority, 2013	14.9–40.5	2.7	20.2–36.6	1.8	Outcome
26	Percentage of people on the chronic kidney disease (CKD) register whose most recent blood-pressure measurement in the preceding 15 months was 140/85 mmHg or less (QOF CKD3 with exception-reported patients excluded) by CCG, 2012/13	70.0–82.9	1.2	72.8–80.2	1.1	Outcome
27	Ratio of reported to expected prevalence of chronic kidney disease (CKD) by CCG, 2012/13	0.35–1.32	3.8	0.48–1.03	2.1	Quality
28	Percentage of dialysis patients who were receiving dialysis in the home (home haemodialysis and peritoneal dialysis combined) by CCG, 2013	4.1–44.0	10.6	7.6–33.7	4.4	Quality
29	Percentage of people receiving renal replacement therapy (RRT) who had a functioning kidney transplant at a Census date by CCG, 2013	34.1–68.8	2.0	37.2–64.5	1.7	Outcome
30	Percentage of people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes who received NICE-recommended care processes (excluding eye screening) by CCG, 2012/13	30.4–76.4	2.5	42.4–72.4	1.7	Quality
31	Percentage of people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes who met treatment targets for HbA1c (blood glucose), blood pressure and cholesterol by CCG, 2012/13	27.8–48.0	1.7	30.7–42.8	1.4	Quality
32	Total net ingredient cost (£) of anti-diabetic items per person on GP diabetes registers by CCG, 2013/14	205–354	1.7	236–336	1.4	Cost

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
33	Additional risk of mortality among people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes compared with the general population by CCG, 2011–2013 Indirectly standardised rate, adjusted for age and sex	–13.1–64.7	1.9	21.6–54.9	1.3	Outcome
34	Relative risk of hospital admission for heart failure among people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes compared with people without diabetes by CCG, 2010/11–2012/13 Indirectly standardised rate, adjusted for age and sex	1.73–3.25	1.9	1.98–3.03	1.5	Outcome
35	Relative risk of major lower limb amputation among people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes compared with people without diabetes by CCG, 2010/11–2012/13 Indirectly standardised rate, adjusted for age and sex	0.0–17.76	–	2.60–10.12	3.9	Outcome
36	Ratio of reported to expected prevalence of hypertension by CCG, 2013/14	0.39–0.66	1.7	0.46–0.63	1.4	Quality
37	Ratio of reported to expected prevalence of coronary heart disease (CHD) by CCG, 2013/14	0.47–0.93	2.0	0.54–0.88	1.6	Quality
38	Rate of mortality from coronary heart disease (CHD) in people aged under 75 years per 100,000 population by CCG, 2011–2013 Directly standardised rate, adjusted for age	22–113	5.3	28–68	2.4	Outcome
39	Rate of transcatheter aortic valve implantation (TAVI) procedures per million population by NHS area team, 2013 Directly standardised rate, adjusted for age	10–50	5.2	N/A	N/A	Activity
40	Percentage of people with acute stroke who were directly admitted to a stroke unit within four hours of arrival at hospital by CCG, 2013/14	21.7–84.5	3.9	35.1–80.0	2.3	Quality
41	Average composite score for quality of care of stroke services in the Sentinel Stroke National Audit Programme (SSNAP) by CCG, April–June 2014	N/A	N/A	N/A	N/A	Quality Outcome
42	Percentage of people known to have atrial fibrillation (AF) who were prescribed anticoagulation prior to a stroke by CCG 2013/14	12.5–72.7	5.8	21.9–61.2	2.8	Outcome
43	Standardised mortality ratio (SMR) in the 30 days following admission to hospital for a stroke by CCG, 2013/14 Indirectly standardised for age and case-mix	0.38–2.90	7.6	0.69–1.65	2.4	Outcome
44	Percentage of people discharged from hospital following a stroke who were "newly institutionalised" by CCG 2013/14 Directly standardised for age and sex	0.4–23.9	59.8	2.2–16.2	7.4	Outcome

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
45	Percentage of people who are recorded in GP registers of severe mental illness (SMI) by CCG 2013/14	0.5–1.5	3.0	0.6–1.3	2.1	Quality
46	Mean percentage achievement score for physical health checks on people with severe mental illness (SMI) recorded in GP SMI registers by CCG, 2013/14	62.2–85.2	1.4	69.8–82.2	1.2	Quality
47	Percentage of people with severe mental illness (SMI) recorded in GP SMI registers who were excepted from the calculation of QOF achievement scores by CCG, 2013/14	4.9–24.2	4.9	6.2–18.6	3.0	Quality
48	Rate of new cases of psychosis in people aged 18 years and over who received early intervention psychosis (EIP) services per 100,000 population by CCG, April 2013–September 2014	3.1–110	35.2	8.7–53	6.0	Quality
49	Standardised mortality ratio (SMR) in people aged 18–74 years in contact with mental health services by upper-tier local authority, 2012/13 Ratio of directly standardised rates, adjusted for age	1.39–5.64	4.0	2.48–5.03	2.0	Outcome
50	Ratio of reported to expected prevalence of dementia by CCG, October 2014	0.40–0.89	2.2	0.42–0.71	1.7	Quality
51	Percentage of people aged 75 years and over to whom dementia case-finding was applied following emergency admission to hospital for more than 72 hours by NHS Trust, April–September 2014	21.7–100.0	4.6	46.8–99.9	2.1	Quality
52	Percentage of people aged 75 years and over identified as potentially having dementia who were appropriately assessed following emergency admission to hospital for more than 72 hours by NHS Trust, April–September 2014	18.8–100.0	5.3	38.6–100.0	2.6	Quality
53	Percentage of people aged 75 years and over identified as potentially having dementia and appropriately assessed following emergency admission to hospital for more than 72 hours who were referred to specialist services by NHS Trust, April–September 2014	27.8–100.0	3.6	63.5–100.0	1.6	Quality
54	Rate of claims by GPs for an enhancement service (ES) offer of assessment for dementia to at-risk patients on practice registered lists per 1000 estimated population with dementia by NHS area team, 2013/14	251.9–667.8	2.7	N/A	N/A	Quality
55	Rate of emergency admissions to hospital of people with dementia aged 65 years and over per 100,000 population by CCG, 2012/13	1730–62,117	3.6	2061–5004	2.4	Quality

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
56	Rate of dual-energy X-ray absorptiometry (DEXA) activity per 1000 weighted population by CCG, 2013/14 Adjusted for age, sex and "need"	0.3–16.2	46.7	1.0–12.9	13.2	Activity
57	Percentage of people aged 75 years and over with a fragility fracture on or after 1 April 2012 who were treated with a bone-sparing agent (excluding exceptions) by CCG, 2013/14	67.5–94.0	1.4	73.5–90.2	1.2	Outcome
58	Mean length of stay (days) for emergency admission to hospital for fractured neck of femur (FNOF) by CCG, 2012/13	9.9–30.6	3.1	14.1–25.0	1.8	Cost
59	Rate of primary hip replacement procedures per 100,000 population by CCG, 2012/13 Directly standardised rate, adjusted for age and sex	55–208	3.8	72–185	2.6	Activity
60	Mean patient-reported health gain (EQ-5D Index score) for primary hip replacement procedures by CCG, 2013/14 Adjusted for case-mix	0.3–0.6	2.4	0.4–0.5	1.5	Outcome
61	Rate of emergency admission to hospital for people aged 75 years and over with a length of stay of less than 24 hours per 100,000 population by CCG, 2012/13	1186–11,011	9.3	2260–9536	4.2	Quality
62	Rate of admission to hospital for people aged 75 years and over from nursing home or residential care home settings per 1000 population by CCG, 2012/13	0.1–61.5	604	0.3–30.6	92.7	Activity Quality
63	Rate of council-supported permanent admissions of people aged 65 years and over to nursing home and residential care home settings per 100,000 population by upper-tier local authority, 2013/14	198–1268	6.4	324–985	3.0	Activity
64	Percentage of people aged 65 years and over who were discharged from hospital into re-ablement/rehabilitation services by upper-tier local authority, 2013/14	0.6–25.8	43.0	1.1–9.4	8.5	Equity
65	Percentage of people aged 65 years and over who were still at home 91 days after discharge from hospital into re-ablement/rehabilitation services by upper-tier local authority, 2013/14	58.9–100.0	1.7	64.9–95.6	1.5	Outcome Quality
66	Percentage of all deaths in an area that occurred in hospital by upper-tier local authority, 2013	39.8–65.9	1.7	41.0–59.1	1.4	Outcome Quality
67	Percentage of all deaths in an area that occurred in usual place of residence by CCG, 2013	24.6–56.5	2.3	32.8–52.5	1.6	Outcome Quality
68	Percentage of babies admitted to specialist neonatal care who were born at full term (≥37 weeks' gestational age at birth) by neonatal network	47.9–74.8	1.6	N/A	N/A	Outcome

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
69	Percentage of normally formed full-term babies (≥37 weeks' gestational age at birth) admitted to neonatal intensive care who received therapeutic hypothermia by neonatal network, 2013/14	0.7–3.9	5.4	N/A	N/A	Quality
70	Rate of stillbirths and neonatal deaths (under 28 days) per all 1000 live-births and stillbirths by upper-tier local authority, 2012	3.1–14.8	4.8	4.4–11.7	2.6	Outcome
71	Percentage of preterm babies (<33 weeks' gestational age at birth) who received any maternal breast milk at discharge home from neonatal care by neonatal network, 2013	36.2–84.1	2.3	N/A	N/A	Outcome
72	Percentage of infants who were totally or partially breastfeeding at 6–8 weeks by upper-tier local authority, 2012/13	17.5–83.3	4.8	23.4–74.2	3.2	Outcome
73	Score rating women's experience of labour and birth by NHS Trust, February 2013 Directly standardised for age and parity	8.0–9.4	1.2	8.2–9.2	1.1	Quality
74	Percentage of re-admissions to hospital following an elective Caesarean section that occurred within 28 days of discharge by CCG, 2012/13	4.0–34.8	8.7	5.8–18.4	3.2	Quality
75	Rate of emergency admissions to hospital of babies within 14 days of being born per 1000 deliveries by CCG, 2012/13	9.0–240.3	26.7	26.4–98.4	3.7	Quality
76	Percentage of immunisation completion for routine vaccinations against diphtheria, tetanus, pertussis, polio and *Haemophilus influenzae* type b (DTaP/IPV/Hib) at 2 years by upper-tier local authority, 2012/13	81.9–99.4	1.2	89.9–98.8	1.1	Activity (prevention)
77	Percentage of immunisation completion for routine vaccinations against pneumococcal disease (PCV) at 2 years by upper-tier local authority, 2012/13	75.1–97.5	1.3	82.0–96.9	1.2	Activity (prevention)
78	Percentage of immunisation coverage for routine vaccinations against measles, mumps and rubella (MMR) at 2 years by upper-tier local authority, 2012/13	77.4–98.4	1.3	82.8–96.9	1.2	Activity (prevention)
79	Rate of admission to hospital for dental caries in children aged 1–4 years per 100,000 population by CCG, 2010/11–2012/13 Age-specific rate, 1–4 years	0.0–1458	–	15–988	66.0	Activity
80	Percentage of pupils in school Reception Year (aged 4–5 years) with healthy weight by upper-tier local authority, Academic year 2013/14	70.9–81.9	1.2	72.3–80.9	1.1	Outcome
81	Percentage of pupils in school Year 6 (aged 10–11 years) with healthy weight by upper-tier local authority, Academic year 2013/14	52.4–75.3	1.4	57.0–71.3	1.2	Outcome

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
82	Percentage of children and young people aged 0–24 years with diabetes in the National Paediatric Diabetes Audit (NPDA) whose median HbA1c measurement was less than 58 mmol/mol (7.5%) by paediatric diabetes unit, 2012/13	1.2–72.7	60.6	5.6–29.3	5.2	Outcome
83	Emergency asthma admission rate for children aged 0–18 years per 100,000 population by CCG, 2012/13 Age-specific rate, 0–18 years	60–639	10.6	93–449	4.8	Quality
84	Mean length of stay (days) for asthma in children aged 0–18 years by CCG, 2012/13	0.6–2.4	4.4	0.8–2.0	2.4	Cost
85	Rate of admission to hospital for self-harm in children and young people aged 10–24 years per 100,000 population by upper-tier local authority, 2012/13 Directly standardised rate, adjusted for age	82–1152	14.0	128–644	5.0	Activity
86	Rate of children and young people aged 0–18 years with three or more admissions to hospital per year for mental health problems per 100,000 population by CCG, 2012/13 Age-specific rate, 0–18 years	16–273	17.3	29–147	5.0	Activity Quality
87	Rate of accident and emergency (A&E) attendance in children and young people aged 0–19 years per 1000 population by CCG, 2012/13 Age-specific rate, 0–19 years	144.3–1064.6	7.4	223.8–670.8	3.0	Activity
88	Rate of elective admission to hospital for tonsillectomy in children aged 0–17 years per 100,000 population by CCG, 2012/13 Directly standardised rate, adjusted for age	84–485	5.7	120–421	3.5	Activity
89	Percentage of all deaths in children aged 0–17 years with life-limiting conditions that occurred in hospital by NHS area team, 2009–2013	63.1–83.1	1.3	N/A	N/A	Outcome
90	Rate of mortality in infants aged under one year per all 1000 live-births by upper-tier local authority, 2010–2012	1.3–7.7	6.1	2.1–7.0	3.3	Outcome
91*	Rate of mortality in children aged 1–17 years per 100,000 population by upper-tier local authority, 2010–2012 Directly standardised rate, adjusted for age	4.0–22	5.5	6.0–20	3.3	Outcome
92	Prevalence rate of people with a learning disability aged 18 years and over on GP registers per 1000 population by CCG, 2013/14	1.9–8.6	4.4	2.8–7.2	2.6	Quality
93	Rate of accident and emergency (A&E) attendances per 1000 population by CCG, 2012/13 Directly standardised rate, adjusted for age and sex	158.8–822.6	5.2	200.2–552.7	2.8	Activity

Map no.	Title	Range	Fold difference	Range after exclusions	Fold difference after exclusions	Category of indicator
94	Percentage of accident and emergency (A&E) attendances that resulted in emergency admission to hospital by CCG, 2012/13 Indirectly standardised for age and sex	10.7–36.3	3.4	14.3–28.1	2.0	Activity
95	Rate of emergency admission to hospital for ambulatory care-sensitive conditions per 100,000 population by CCG, 2012/13 Directly standardised rate, adjusted for age and sex	184–1586	8.6	429–1245	2.9	Activity
96	Rate of admission to hospital for alcohol-related causes (broad measure) per 100,000 population by lower-tier local authority, 2012/13 Directly standardised rate, adjusted for age	1074–3496	3.3	1346–2935	2.2	Activity
97*	Percentage of elective admissions for abdominal aortic aneurysm (AAA) or aorto-bifemoral bifurcation graft procedures that had planned access to adult critical care by CCG, 2013/14	42.9–100.0	2.3	50.0–100.0	2.0	Safety Equity
98	Percentage of emergency admissions for excision colorectal surgery that had planned access to adult critical care by CCG, 2013/14	0.0–96.6	–	22.9–81.5	3.6	Safety Equity
99	Percentage of NHS Trusts that had formal arrangements for 24-hour access to nephrostomy by strategic health authority, November 2013	40.0–78.6	2.0	N/A	N/A	Equity
100	Percentage of NHS Trusts that had formal arrangements for 24-hour access to endovascular intervention by strategic health authority, November 2013	37.5–78.6	2.1	N/A	N/A	Equity
101	Percentage of NHS Trusts that had formal arrangements for 24-hour access to embolisation for haemorrhage by strategic health authority, November 2013	25.0–78.6	3.1	N/A	N/A	Equity
102	Percentage of NHS Trusts that had formal arrangements for 24-hour access to embolisation for postpartum haemorrhage by strategic health authority, November 2013	25.0–75.0	3.0	N/A	N/A	Equity

INFECTIOUS DISEASES

Map 1: Mean number of defined daily doses (DDDs) of antibiotics prescribed in primary and secondary care per day per population by NHS area team

2013

Domain 1: Preventing people from dying prematurely
Domain 3: Helping people to recover
from episodes of ill health or injury

Lowest

Highest

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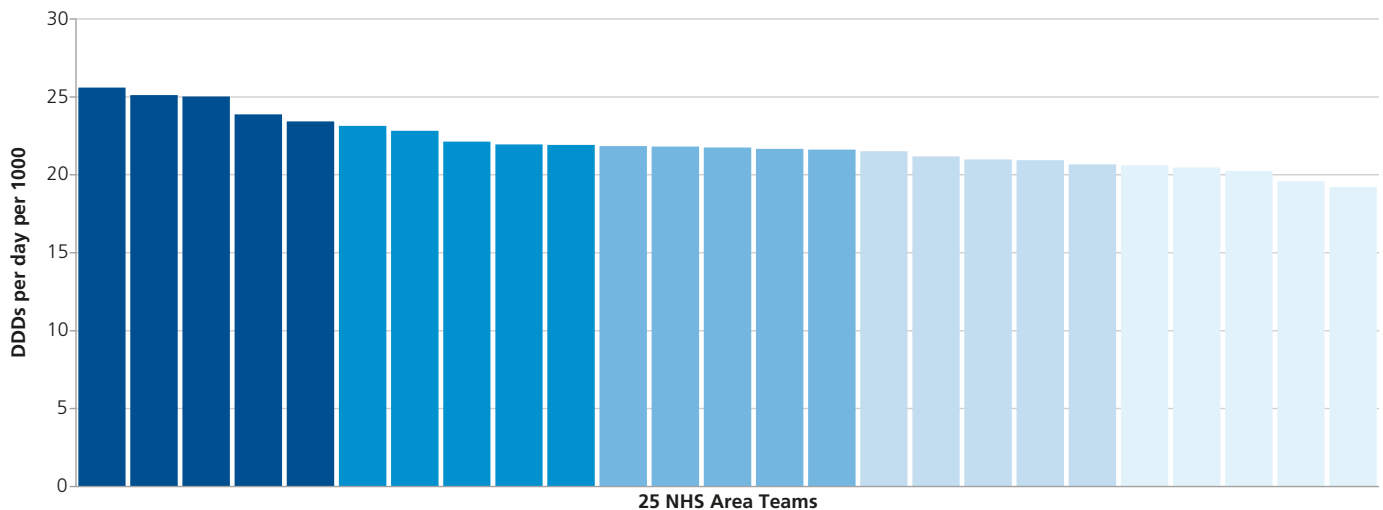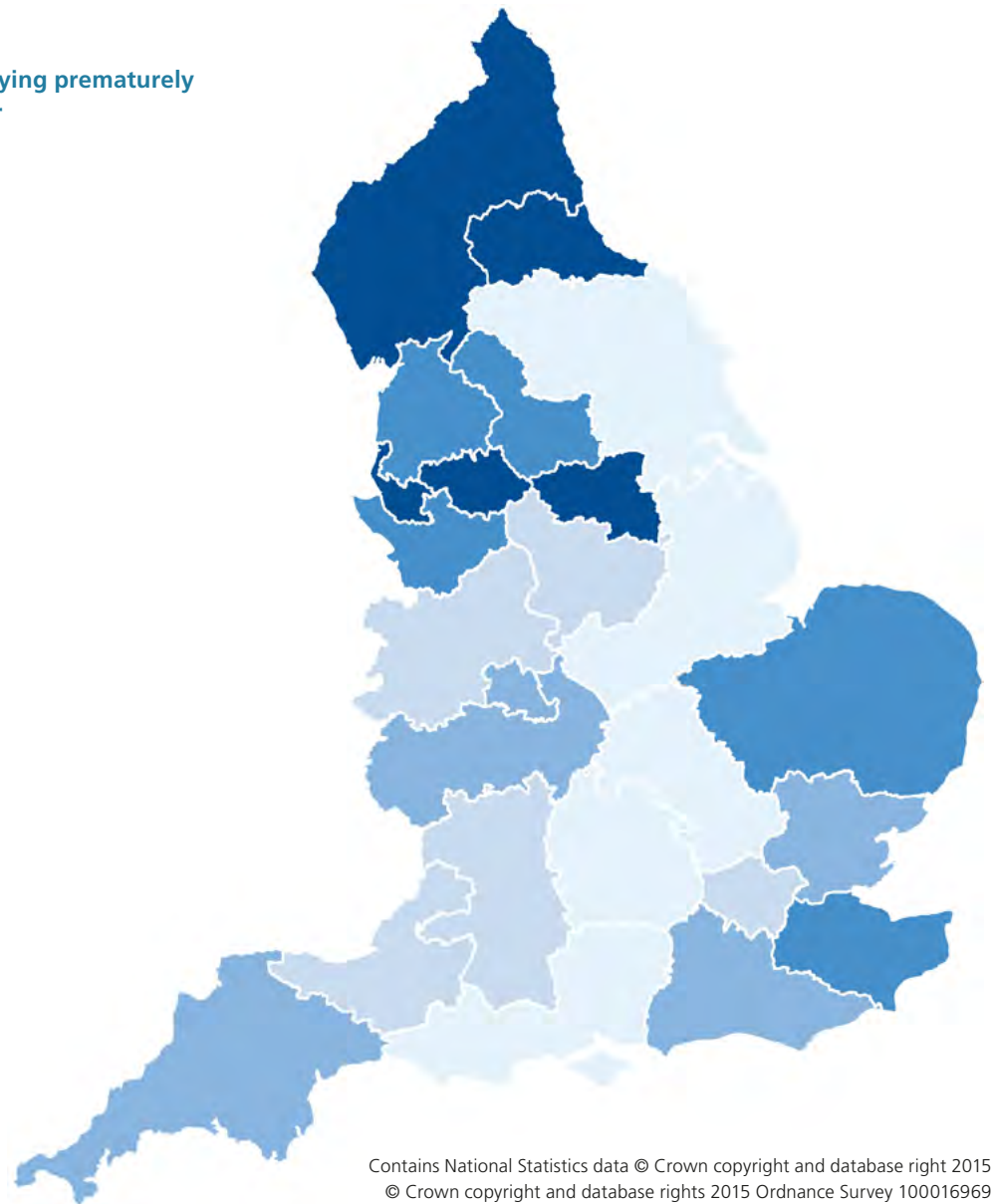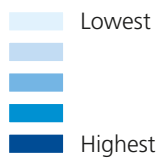
Context

"No action today means no cure tomorrow."
Dr Margaret Chan, Director General,
World Health Organization (WHO)

Antibiotic consumption is a major driver for the development of antibiotic resistance in bacteria. For a qualitative overview of the factors influencing the development of antimicrobial resistance, consult the Antimicrobial Resistance Systems Map (see "Resources"). The consequences of antibiotic resistance include:

› increasing treatment failure for the most commonplace infections, such as urinary tract infections (UTIs) and pneumonia;

› a decrease in the treatment options available in situations where antibiotics are vital, such as when treating severe sepsis, when the immune system functions poorly with chemotherapy for malignancies or after transplantation.

The dissemination of information on antibiotic usage is critical:

› to reduce over-use;

› to improve prescribing practices;

› to lessen pressure for bacteria to develop resistance to antibiotics, especially as it is 30 years since a new class of antibiotics was introduced.

The Chief Medical Officer for England highlighted the issue in the 2013 annual report (see "Resources"). Subsequently, a cross-government five-year antimicrobial resistance strategy for the UK was published, which encompassed antibiotics (see "Resources").

The English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) has established and improved surveillance systems to measure antibiotic use and antibiotic resistance. The first ESPAUR report provided data on national and regional trends in antibiotic resistance and antibiotic use from 2010 to 2013.[1]

The majority of antibiotic prescribing occurs in the community; in 2013:

› GPs prescribed 79% of antibiotics;

› dentists and other community prescribers prescribed 6%.

The remaining 15% was prescribed in hospitals.

From 2010 to 2013, total antibiotic consumption increased by 6%:

› general practice use increased by 4%;

› prescribing to hospital inpatients increased by 12%;

› other community prescriptions increased by 32%.

The reasons for the increase in consumption are not known, but may represent:

› changes in the number of patients presenting with infections requiring antibiotics;

› over-prescribing of antibiotics by clinicians.

The most commonly prescribed antibiotics are the penicillins, tetracyclines, and macrolides. Between 2010 and 2013, the consumption of nitrofurantoin for the treatment of UTIs increased by 41%. The total consumption by antibiotic group in 2013 in England is shown in Table 1.1.

TABLE 1.1: **TOTAL CONSUMPTION BY ANTIBIOTIC GROUP (DDDs PER 1000 POPULATION PER DAY) IN ENGLAND, 2013**

Antibiotic group	2013	Percentage of total
Penicillins	9.4	43.4
Tetracyclines	4.9	22.4
Macrolides and similar	3.3	15.1
Sulfonamides and trimethoprim	1.6	7.3
Other beta-lactam antibacterials	0.5	2.3
Quinolones	0.6	2.5
Other	1.5	6.9
Total	**21.7**	**100**

National prescribing guidelines influence the use of antibiotics in both primary care and secondary care, as shown by a marked decline in cephalosporin and quinolone use in the UK over the last decade, which was prioritised by both general practice and hospitals to reduce *Clostridium difficile* infection. In addition, the marked increase in nitrofurantoin use over the last four years demonstrates that national infection guidelines promoting this antibiotic for the treatment of UTIs have had an impact.

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1 Public Health England. English surveillance programme antimicrobial utilisation and resistance (ESPAUR). Report 2014.
   https://www.gov.uk/government/publications/english-surveillance-programme-antimicrobial-utilisation-and-resistance-espaur-report

Defined daily doses (DDDs) is a fixed unit of measurement developed by the WHO to enable comparisons among population groups and countries.[2] In 2013, the total measured consumption of antibiotics in England was 21.7 DDDs per 1000 population per day.

Magnitude of variation

For NHS area teams in England, the mean number of DDDs of antibiotics prescribed in primary and secondary care per day ranged from 19.2 to 25.6 per 1000 population (1.3-fold variation).

These data show variation in antibiotic use in England; in 2013:

> usage in the NHS area team with the highest total usage was over 30% higher than that in the NHS area team with the lowest total usage;

> usage in the NHS area team with the highest level of prescribing in general practice was over 40% higher than that in the NHS area team with the lowest level of prescribing in general practice.

Considerable variation also exists in the use of the majority of antibiotic classes, with the exception of cephalosporins and quinolones. The use of cephalosporins and quinolones in England is lower than the European average.

Potential reasons for the degree of variation observed include differences in:

> the prevalence of infection in local populations;

> the level of prescribing by private providers (these data are not included in this indicator);

> ease of access to healthcare, particularly secondary care.

Options for action

It is vital to reduce the variation in the total prescribing of antibiotics across England to the safest level possible while still ensuring quality of care.

Commissioners need to specify that primary and secondary care providers follow NICE, RCGP and PHE guidance on antibiotic prescribing (see "Resources").

The ESPAUR Report[1] contains maps showing levels of antibiotic use and resistance, thereby providing a baseline from which changes can be monitored in both antibiotic prescribing and resistance in England. Primary and secondary care providers can use these data:

> to benchmark their antibiotic use with that of other providers caring for similar populations;

> to compare local data with regional and national trends.

Quality measures for antibiotic prescribing have been developed by the Department of Health Expert Advisory Committee on Antimicrobial Resistance and Healthcare-associated Infection (ARHAI).[3]

Commissioners need to specify that all local primary and secondary care providers apply the principles of, and undertake procedures for, antimicrobial stewardship to promote the appropriate use of antimicrobials, including:

> applying evidence-based optimal standards for routine antibiotic use;

> providing educational programmes and developing competency for all staff prescribing antibiotics to patients;

> using effective communication techniques to highlight antibiotic issues to all stakeholders, including the public;

> auditing the impact and outcome of the stewardship processes;

> optimising outcomes for patients who receive antibiotics.

Guidance for primary care providers is contained in the TARGET toolkit (see "Resources"), and for secondary care providers is presented in "Antimicrobial Stewardship: Start Smart – Then Focus" (see "Resources"). There is a NICE Quality Statement, and NICE guidance on antimicrobial stewardship (see "Resources"), with a NICE public health guideline on "Antimicrobial resistance – changing risk-related behaviours in the general population" to be published in March 2016.

For clinicians in primary and in secondary care who prescribe antibiotics, it is particularly important to

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2   World Health Organization (WHO) Collaborating Centre for Drug Statistics Methodology. DDD – Definition and general considerations. http://www.whocc.no/ddd/definition_and_general_considera/

3   Advisory 1/2152374732/18606265032/Committee on Antimicrobial Resistance and Hospital Acquired Infections (ARHAI). Recommended Antimicrobial Prescribing Quality Measures. 2014. https://app.box.com/ARHAI-Minutes-Papers/1

audit the routine prescription of antibiotics to ensure appropriate prescribing behaviour becomes embedded into practice (see "Start Smart – Then Focus", and "TARGET" toolkit, under "Resources") .

RESOURCES

> Davies S. Annual Report of the Chief Medical Officer 2011: Volume Two. Infections and the Rise of Antimicrobial Resistance. https://www.gov.uk/government/publications/chief-medical-officer-annual-report-volume-2

> Department of Health and Department for Environment Food & Rural Affairs. UK Five Year Antimicrobial Resistance Strategy 2013-2018. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244058/20130902_UK_5_year_AMR_strategy.pdf

> Ashiru-Oredope D, Hopkins S. English Surveillance Programme for Antimicrobial Utilization and Resistance Oversight Group. Antimicrobial stewardship: English Surveillance Programme for Antimicrobial Utilization and Resistance (ESPAUR). J Antimicrob Chemother 2013; 68: 2421-2423. http://jac.oxfordjournals.org/content/68/11/2421.long

> Public Health England. Antimicrobial Stewardship: Start Smart – Then Focus. Antimicrobial Stewardship Toolkit for English Hospitals. March 2015. http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_131181.pdf

> Royal College of General Practitioners. TARGET Antibiotics Toolkit. http://www.rcgp.org.uk/clinical-and-research/target-antibiotics-toolkit.aspx

> Public Health England. Primary care guidance diagnosing and managing infections. First published 1 February 2013. https://www.gov.uk/government/collections/primary-care-guidance-diagnosing-and-managing-infections

> Public Health England and Department of Health Advisory Committee on ARHAI. Antimicrobial prescribing and stewardship competencies. September 2013. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/253094/ARHAIprescrcompetencies__2_.pdf

> NICE. Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use. NICE guidelines [NG15]. August 2015. https://www.nice.org.uk/guidance/ng15

> NICE Pathways. Antimicrobial stewardship overview. http://pathways.nice.org.uk/pathways/antimicrobial-stewardship

> NICE. Infection prevention and control. NICE quality standard [QS61]. April 2014. Quality Statement 1: Antimicrobial stewardship. https://www.nice.org.uk/guidance/qs61/chapter/quality-statement-1-antimicrobial-stewardship

> Department of Health, Public Health England, Department for Environment Food & Rural Affairs, and Veterinary Medicines Directorate. Antimicrobial Resistance Systems Map. Overview of the factors influencing the development of AMR and the interaction between them. December 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/387746/Microbial_Maps.pdf

> European Surveillance of Antimicrobial Consumption Network (ESAC-Net). http://ecdc.europa.eu/en/healthtopics/antimicrobial_resistance/esac-net-database/Pages/database.aspx

INFECTIOUS DISEASES

Map 2: Percentage of all antibiotic prescription items in primary care that were for key antibiotics by CCG

2013

Domain 1: Preventing people from dying prematurely
**Domain 3: Helping people to recover
from episodes of ill health or injury**

Lowest

Highest

LONDON

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Per cent

211 CCGs
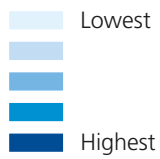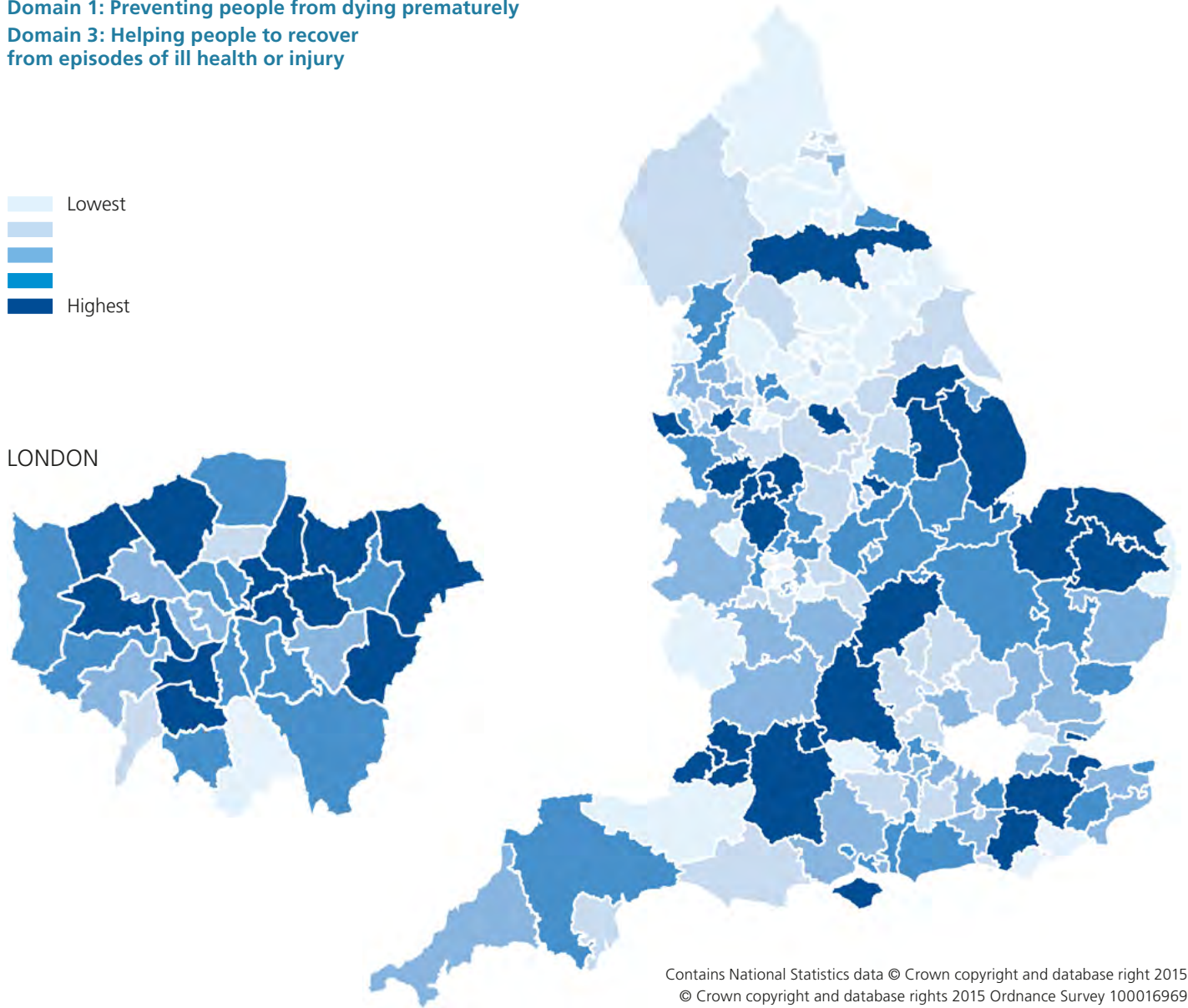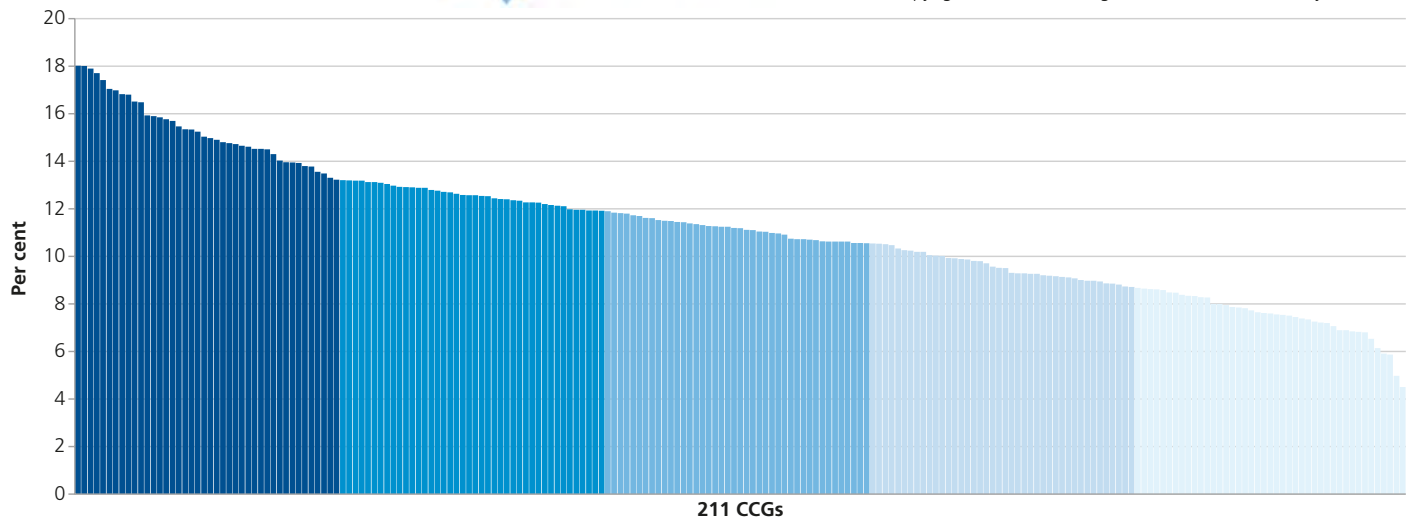
Context

Almost four-fifths (79%) of antibiotic prescribing occurs in primary care, over half of which is for respiratory tract infections. From 2010 to 2013, the total use of antibiotics in general practice increased by 4%. The reasons for this increase are not known, but may include:

› changes in the numbers of patients presenting with infections;

› over-prescribing by clinicians.

The trend of increasing antibiotic consumption and the variability in antibiotic prescribing across England underline the need to implement robust quality measures of antibiotic prescribing to support antimicrobial stewardship initiatives.

The Department of Health's Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) recommends monitoring the proportion of antibiotics from the cephalosporin, fluoroquinolone and co-amoxiclav classes (known as the key antibiotics) as antimicrobial prescribing quality measures (APQMs) for antibiotic prescribing in primary healthcare (predominantly general practice).[1] In primary care, antibiotics from these classes are widely considered to be 'second-line' treatment options for the most common community-acquired infections. Indiscriminate use creates unnecessary selection pressure for resistant pathogens including *Clostridium difficile*.[2] The goal of implementing this APQM in primary care is the reduction in proportion of broad-spectrum antibiotic items to less than 10% of total antibiotic items by CCG by 2018. In England in 2013, the median proportion of prescription items for key antibiotics (cephalosporin, fluoroquinolone and co-amoxiclav classes) in primary care by CCG was 11% of total antibiotic items.

Magnitude of variation

For CCGs in England, the percentage of all antibiotic prescription items in primary care that were for key antibiotics ranged from 4.5% to 18.0% (4.0-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 6.8–16.8%, and the variation is 2.5-fold.

The possible reasons for the degree of variation observed include differences in:

› the prevalence of infection in local populations;

› ease of access to healthcare;

› the level of prescribing among general practices;

› the level of prescribing in private practice;

› the number of patients not registered with a general practice.

Options for action

To promote prudent and appropriate antibiotic prescribing in primary care, commissioners need to specify that service providers:

› follow and implement NICE, RCGP and PHE guidelines (see "Resources") and other evidence-based strategies for safely reducing antibiotic prescribing in primary care (see "Resources": Little et al 2013 & 2014; Francis et al 2009);

› undertake audits at practice level to embed appropriate prescribing behaviour in clinical practice.

Commissioners also need to ensure that APQM data are available to general practitioners to enable benchmarking with peer practices and with historical data.

CASE-STUDIES

› Churchill Medical Centre, Surrey: reducing antibiotic prescribing for self-limiting respiratory tract infections in primary care (Case-study 1, page 261)

› Derbyshire: multifaceted interventions to promote prudent prescribing of antibiotics in primary care (Case-study 2, page 262)

RESOURCES

› English surveillance programme antimicrobial utilisation and resistance (ESPAUR). Report 2014. https://www.gov.uk/government/publications/english-surveillance-programme-antimicrobial-utilisation-and-resistance-espaur-report

› Department of Health and Department for Environment Food & Rural Affairs. UK Five Year Antimicrobial Resistance Strategy 2013–2018. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244058/20130902_UK_5_year_AMR_strategy.pdf

› Little P, Hobbs FD, Moore M et al. Clinical score and rapid antigen detection test to guide antibiotic use for sore throats: randomised controlled trial of PRISM (primary care streptococcal management). *BMJ* 2013; 347:f5806. http://www.bmj.com/content/347/bmj.f5806

› NICE. Respiratory tract infections - antibiotic prescribing: Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care. NICE guidelines [CG69]. July 2008. http://www.nice.org.uk/CG069

› NICE. Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use. NICE guidelines [NG15]. August 2015. https://www.nice.org.uk/guidance/ng15

› NICE Pathways. Antimicrobial stewardship overview. http://pathways.nice.org.uk/pathways/antimicrobial-stewardship

› Little P, Moore M, Kelly J et al. Delayed antibiotic prescribing strategies for respiratory tract infections in primary care: pragmatic, factorial, randomised controlled trial. *BMJ* 2014; 348:g1606. http://www.bmj.com/content/348/bmj.g1606

› Francis NA, Butler CC, Hood K et al. Effect of using an interactive booklet about childhood respiratory tract infections in primary care consultations on reconsulting and antibiotic prescribing: a cluster randomised controlled trial. *BMJ* 2009; 339:b2885. http://www.bmj.com/content/339/bmj.b2885

› Royal College of General Practitioners. TARGET Antibiotics Toolkit. http://www.rcgp.org.uk/clinical-and-research/target-antibiotics-toolkit.aspx

› Public Health England. Primary care guidance diagnosing and managing infections. First published 1 February 2013. https://www.gov.uk/government/collections/primary-care-guidance-diagnosing-and-managing-infections

› Public Health England. AMR indicators. http://fingertips.phe.org.uk/profile/amr-local-indicators/data#page/4/gid/1938132909/pat/19/par/E38000016/ati/7/are/Y02319

› Stemming the Tide of Antibiotic Resistance (STAR). Visiting the STAR Educational Program. http://www.stemmingthetide.org/

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1   Department of Health Advisory Committee on ARHAI. https://app.box.com/ARHAI-Minutes-Papers/1/2152374732/18606265032/1

2   Hensgens MP, Goorhuis A, Dekkers OM, Kuijper EJ. Time interval of increased risk for Clostridium difficile infection after exposure to antibiotics. *J Antimicrob Chemother* 2012; 67(3):742-748. http://jac.oxfordjournals.org/content/67/3/742.long

INFECTIOUS DISEASES

Map 3: Rate of tuberculosis (TB) incidence per population by upper-tier local authority

2011–2013

Domain 1: Preventing people from dying prematurely
Domain 3: Helping people recover from episodes of ill health or injury
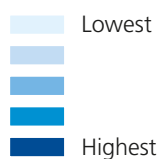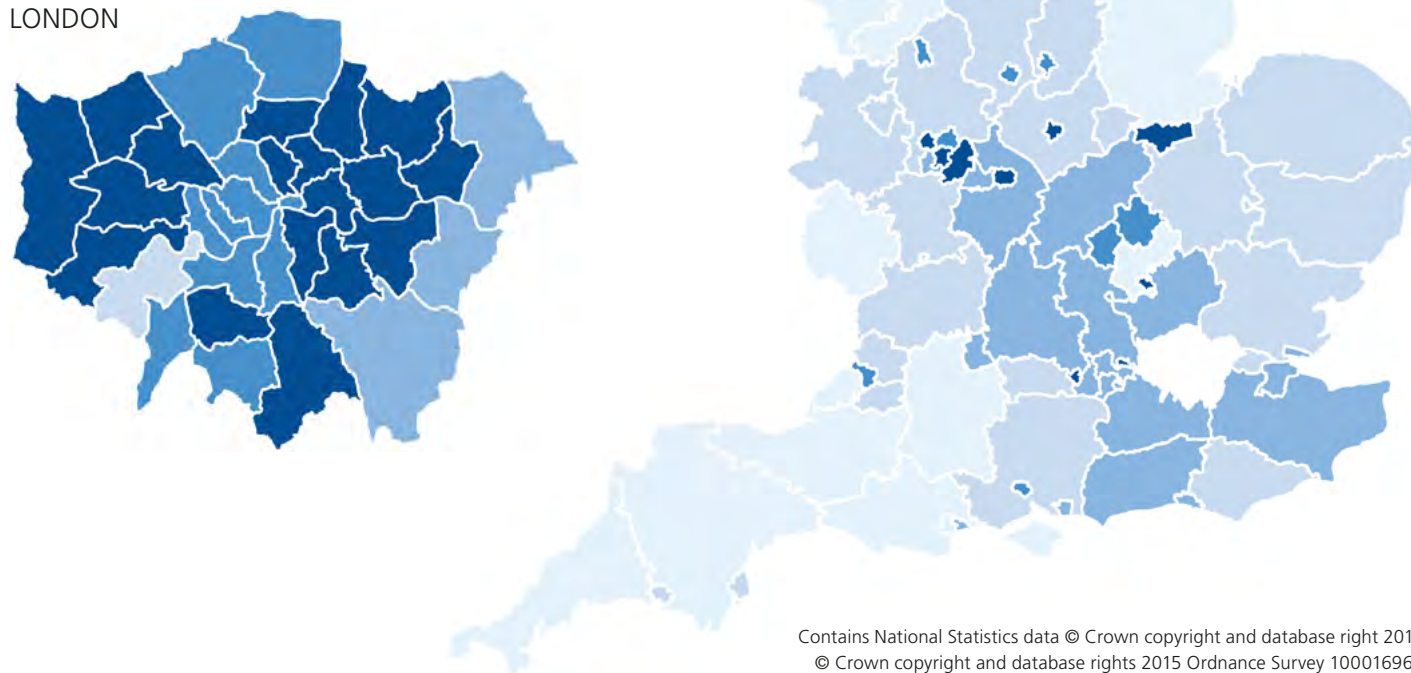
Lowest

Highest

LONDON

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152 UTLAs
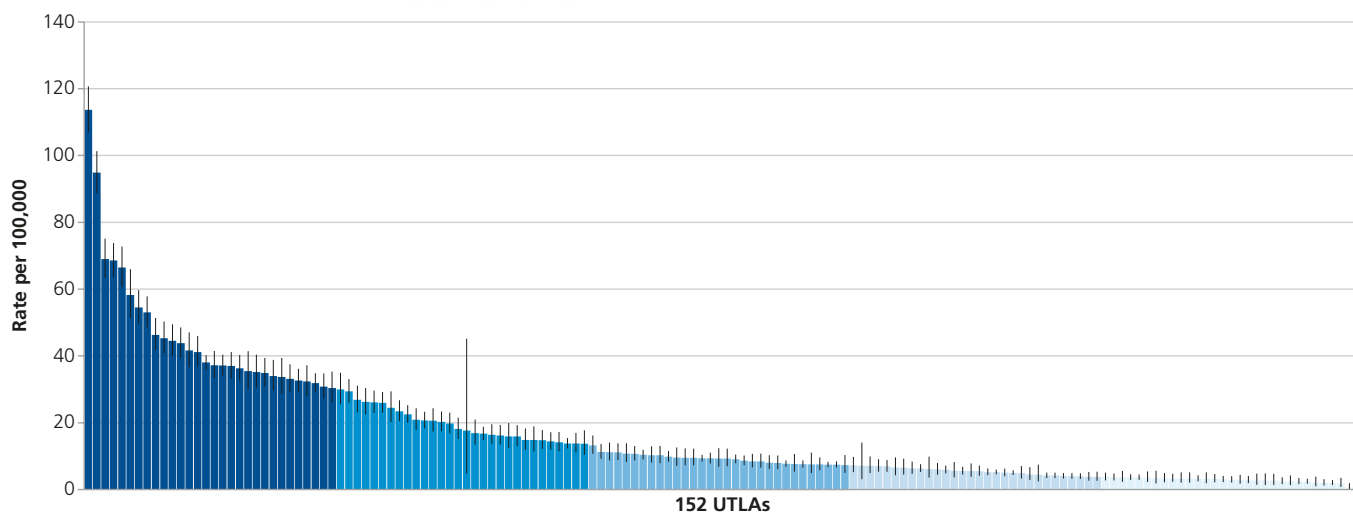
Context

Following major declines during most of the 20th century, in England the incidence of tuberculosis (TB) increased from the late 1980s to a peak of 15.6 per 100,000 population in 2011. TB incidence then fell year on year to 12.0 per 100,000 population in 2014. It is too early to ascertain whether this is the start of a downward trend.

Tuberculosis incidence in England is higher than in most other Western European countries, and more than four times higher than in the USA. Many comparable countries have achieved consistent reductions in TB through concerted approaches to prevention, treatment and control. Public Health England (PHE) has made reducing TB incidence one of its key priorities, and together with NHS England has published the "Collaborative Tuberculosis Strategy for England 2015–2020".[1] To achieve the shared ambition of the strategy requires the active participation and commitment of a wide range of stakeholders and partners across the NHS, local government, PHE and the third sector.

Magnitude of variation

For upper-tier local authorities (UTLAs) in England, the rate of TB incidence ranged from 0 to 114 per 100,000 population. When the five UTLAs with the highest rates and the five UTLAs with the lowest rates are excluded, the range is 2.1–58 per 100,000 population, and the variation is 27.9-fold.

Tuberculosis is particularly concentrated in the most-deprived populations. In 2013, 70% of all TB cases were resident in the 40% most-deprived communities. Variations in the risk of TB depend on differences in the risks of:

›   exposure to TB;

›   progressing from TB infection to active TB disease once infected.

People at increased risk of having been exposed to TB include:

›   those born in countries with a high burden of TB – 73% of all TB cases notified in the UK in 2013 were born abroad, and the majority of these (85%) had lived in the UK for at least two years prior to notification;

›   ethnic minority groups born in the UK who have frequent contact with high TB-burden countries – in 2013, the rate of TB in UK-born Indian, Pakistani and Black-African ethnic groups was at least ten times higher than that in the UK-born White population;

›   those with certain social risk factors – in 2013, 3.3% of notified TB cases had a current or past history of homelessness, and 2.9% had a current or past history of imprisonment;

›   those living in overcrowded accommodation, especially when combined with one of the other factors above.

People at increased risk of progressing from TB infection to active disease include:

›   those with immunosuppression, HIV (even when not immunosuppressed) or diabetes;

›   babies and young children;

›   smokers;

›   people with poor nutrition;

›   people with drug or alcohol use problems.

Options for action

Local stakeholders, including local authorities, CCGs, NHS service providers, PHE health protection teams and the third sector, need to work through local Health and Wellbeing Boards and the newly established TB Control Boards:

›   to develop a local TB control plan based on the ten evidence-based areas for action (Box 3.1) in Annexe 1 of the Collaborative TB Strategy (see "Resources");

›   to ensure appropriate commissioning, delivery and monitoring of TB services.

This is particularly important in localities with the highest rates of TB.

Through collaborative working, and the use of existing accountability arrangements, local TB Control Boards can hold service providers and commissioners of clinical care and public services to account.

Box 3.1: **Ten areas for action in TB control**[1]

1.   Improve access to services and ensure early diagnosis
2.   Provide universal access to high-quality diagnostics
3.   Improve treatment and care services
4.   Ensure comprehensive contact tracing
5.   Improve BCG vaccination uptake
6.   Reduce drug-resistant TB
7.   Tackle TB in under-served populations
8.   Systematically implement new entrant latent TB screening
9.   Strengthen surveillance and monitoring
10. Ensure an appropriate workforce to deliver TB control

RESOURCES

›   Public Health England. Tuberculosis (TB): collaborative strategy for England. January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf

›   Public Health England. Reports of Cases of Tuberculosis to the National Enhanced Tuberculosis Surveillance System, 2004 to 2013. Official Statistics. September 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/358226/TB_Official_Statistics_230914.pdf

›   Public Health England. Tuberculosis in the UK. 2014 report. September 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360335/TB_Annual_report__4_0_300914.pdf

›   NICE. Identifying and managing tuberculosis among hard-to-reach groups. NICE guidelines [PH37]. March 2012.[2] http://www.nice.org.uk/guidance/ph37

›   NICE. Tuberculosis: Clinical diagnosis and management of tuberculosis, and measures for its prevention and control. NICE guidelines [CG117]. March 2011.[2] https://www.nice.org.uk/guidance/cg117

›   NICE pathways. Tuberculosis overview. http://pathways.nice.org.uk/pathways/tuberculosis

›   Local Government Association. Tackling Tuberculosis – Local government's public health role. July 2014. http://www.local.gov.uk/publications/-/journal_content/56/10180/6337454/PUBLICATION

›   Public Health England. TB Strategy Monitoring Indicators. http://fingertips.phe.org.uk/profile/tb-monitoring

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1   Public Health England and NHS England. Collaborative Tuberculosis Strategy for England 2015 to 2020. January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf

2   At the time of writing, this guidance is scheduled for an update in October 2015.

INFECTIOUS DISEASES

Map 4: Percentage of people with drug-sensitive tuberculosis (TB)[1] who completed treatment within 12 months of treatment onset by upper-tier local authority

2012

Domain 1: Preventing people from dying prematurely
Domain 3: Helping people to recover from episodes of ill health or following injury
Domain 4: Ensuring that people have a positive experience of care

Lowest

Highest
Data removed

LONDON

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Per cent

100 out of 152 UTLAs (52 removed due to small numbers)
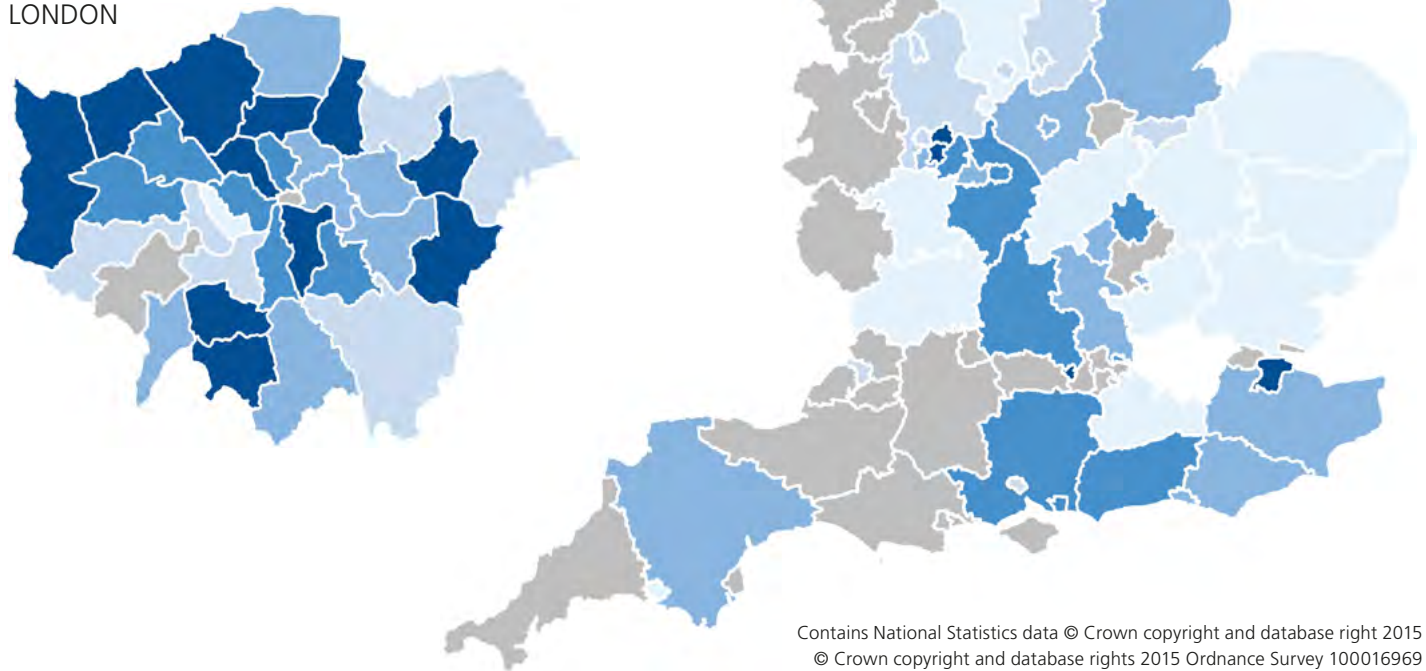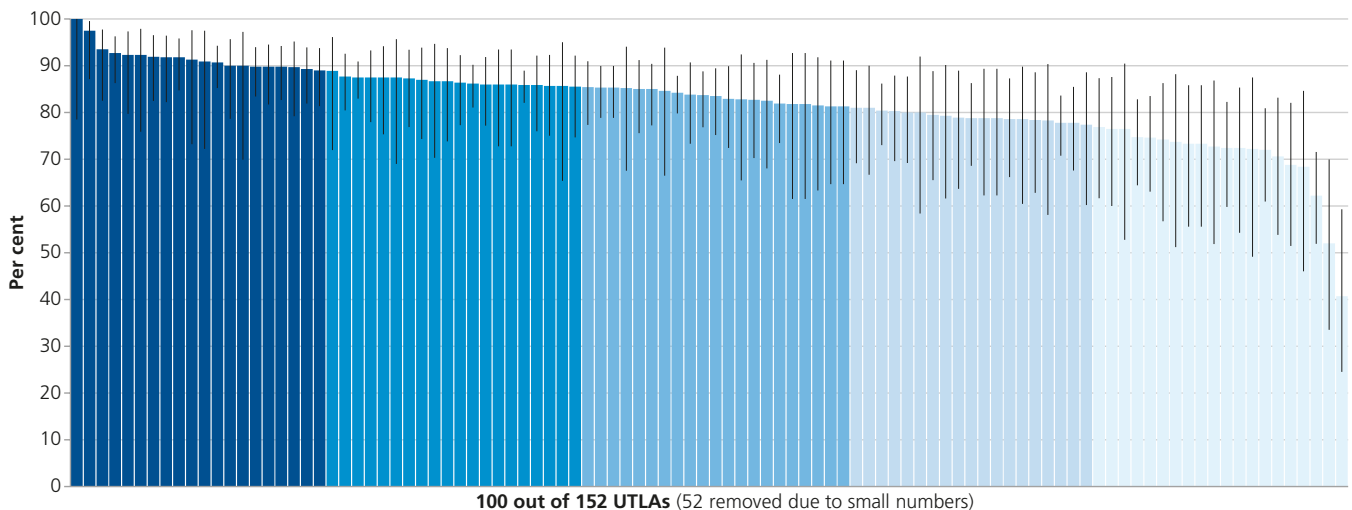
Context

Prompt diagnosis of tuberculosis (TB) and completion of a full course of treatment are crucial:

› to ensure a favourable outcome for individual patients;

› to prevent ongoing transmission.

In the UK, everyone is entitled to free treatment for TB, irrespective of their immigration status.

Tuberculosis is curable; however, if left untreated or if treated inappropriately, the disease can be fatal. Without treatment, one-third of all pulmonary TB cases die. People who receive an incomplete course of treatment can develop drug-resistance, long-term health problems, and remain infectious for prolonged periods of time, presenting an infection risk to others.

Standard anti-TB treatment involves a combination of different antibiotics for a minimum of 6 months. Treatment can be either self-administered or supported specifically through directly observed therapy (DOT), which works best as part of a range of supportive measures tailored to each person's needs. The care package should include education and counselling, incentives, enablers and psycho-social care to address housing need, substance misuse, and other problems likely to complicate recovery.

Patients with social risk factors, such as homelessness or a history of imprisonment, and drug or alcohol use, have poorer treatment outcomes at 12 months. High levels of treatment completion have been achieved in the most complex patients living in very difficult circumstances with the provision of enhanced multidisciplinary support services.

Magnitude of variation

For upper-tier local authorities (UTLAs) in England, the percentage of people with drug-sensitive TB who completed treatment within 12 months of treatment onset ranged from 40.7% to 100.0% (2.5-fold variation).[2] When the three UTLAs with the highest percentages and the three UTLAs with the lowest percentages are excluded, the range is 68.4–92.7%, and the variation is 1.4-fold.

The reasons for the degree of variation observed include differences in the numbers of people who:

› die while being treated – a higher proportion of people who die are older;

› are lost to follow-up (either in the UK or abroad);

› are still on treatment due to treatment interruptions or side-effects;

› have social risk factors.

Other factors likely to contribute to the degree of variation include differences in:

› the structure and quality of TB services across England;

› the provision of specialist TB services, TB clinical nurse specialists and outreach/DOT workers to support patients with complex medical or social needs enabling them to complete treatment;

› access to or participation in a TB clinical network to support expert review of complex cases;

› access to specialist unit co-supervision.

Options for action

As part of the Collaborative TB Strategy for England 2015–20 (see "Resources"), local authorities, public health leaders, the NHS, clinical commissioners and the third sector need:

› to work with Public Health England and NHS England to review services in their local area;

› to develop plans to address gaps in the provision of high-quality universal clinical, public health and social care services for TB, based on NICE guidance (see "Resources").

In addition, local partners may consider a local needs assessment would be helpful; in areas of high need, it is important to ensure that TB is part of the Joint Strategic Needs Assessment (JSNA).

Local authority overview and scrutiny committees and Health and Wellbeing Boards have a role in the oversight of TB control, including treatment completion rates. To achieve high levels of treatment completion, local authorities need to provide assistance in supporting a person's social needs, for example, accommodation for patients who are homeless, travel to clinics, and nutrition.

In localities where there may be underserved populations:

› public health, healthcare and other professionals should follow NICE guidelines NG33 (see "Resources");

› NHS and other commissioners need to consider ways of reaching these populations, such as the approach developed by the University College London Hospital "Find & Treat" service (see "Case Studies").

CASE-STUDIES

› UCLH Find & Treat service, London. https://www.ucl.ac.uk/tb/research/find-and-treat

› NICE Shared learning database. Identifying and managing tuberculosis (TB) among hard-to-reach groups – The prison setting with a high incidence of TB. July 2012. https://www.nice.org.uk/sharedlearning/identifying-and-managing-tuberculosis-tb-among-hard-to-reach-groups-the-prison-setting-with-a-high-incidence-of-tb
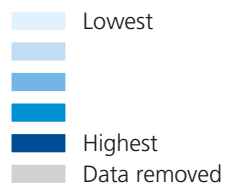
RESOURCES

› Public Health England. Tuberculosis (TB): collaborative strategy for England. January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf

› Public Health England. Reports of Cases of Tuberculosis to the National Enhanced Tuberculosis Surveillance System, 2004 to 2013. Official Statistics. September 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/358226/TB_Official_Statistics_230914.pdf

› Public Health England. Tuberculosis in the UK. 2014 report. September 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360335/TB_Annual_report__4_0_300914.pdf

› NICE. Tuberculosis. NICE guidelines [NG33]. January 2016. https://www.nice.org.uk/guidance/ng33

› NICE pathways. Tuberculosis overview. https://pathways.nice.org.uk/pathways/tuberculosis

› Local Government Association. Tackling Tuberculosis – Local government's public health role. July 2014. http://www.local.gov.uk/publications/-/journal_content/56/10180/6337454/PUBLICATION

› Royal College of Nursing. Public health – topics: Tuberculosis (TB) website. http://www.rcn.org.uk/development/practice/public_health/topics/tuberculosis

› Public Health England. TB Strategy Monitoring Indicators. http://fingertips.phe.org.uk/profile/tb-monitoring

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1 Exclusions: people with rifampicin resistance or MDR-TB, and people with CNS, spinal, miliary or disseminated TB who may require longer than the standard 6-month treatment course.

2 Data from 52 UTLAs have been removed due to small numbers.

INFECTIOUS DISEASES

Map 5: Percentage of all people aged 15 years and over newly diagnosed with HIV who had a CD4 count test within one month of diagnosis by CCG

2011–2013

Domain 1: Preventing people from dying prematurely
Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest
Data removed

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207 out of 211 CCGs (4 removed due to small numbers)

Per cent
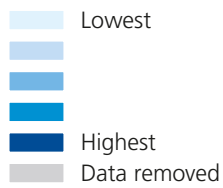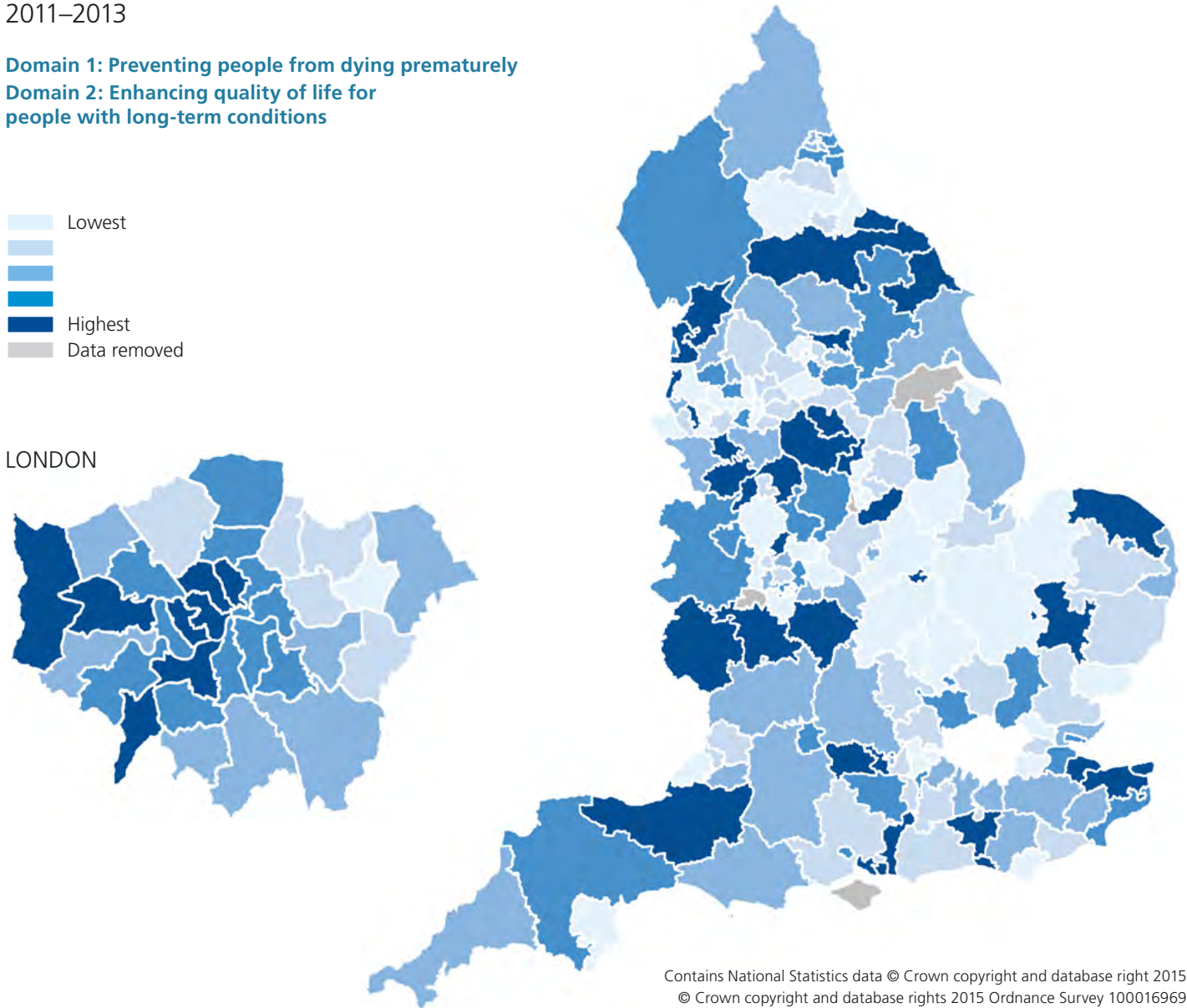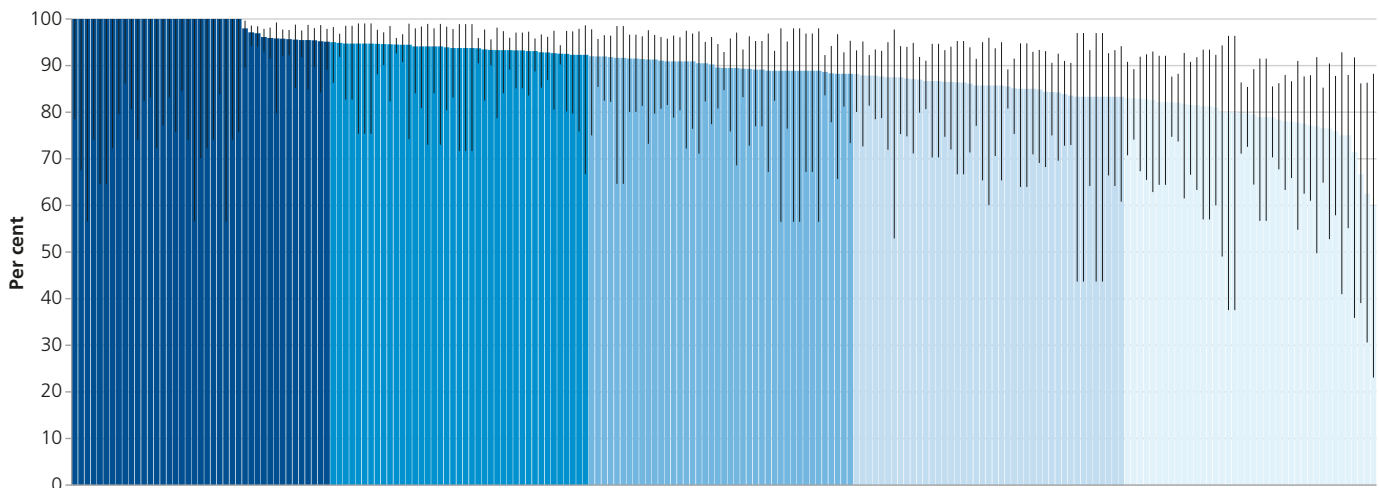
Context

In the UK in 2013, an estimated 107,800 people were living with HIV [95% credibility intervals (CrIs) 101,600–115,800], 6000 people were diagnosed with HIV infection, and 320 people were reported with AIDS.

People with HIV can expect a near-normal lifespan if they are diagnosed and treated promptly; by contrast, people diagnosed late have a tenfold increase in the risk of death in the year following diagnosis when compared with people diagnosed promptly (see Yin et al 2014, "Resources").

Linkage into medical care after a diagnosis of HIV is essential:

› to initiate life-saving anti-retroviral therapy;

› to facilitate the delivery of important interventions for reducing HIV transmission.

For optimal outcomes, people with newly diagnosed HIV infection require rapid access to HIV specialist services for clinical assessment, so that an appropriate management plan can be developed.

British HIV Association (BHIVA) standards and guidelines (see "Resources"), reflected in NHS England's National Service Specification for HIV (see "Resources"), recommend that people who have a new diagnosis of HIV should expect to have a clinical assessment within two weeks of an HIV-positive test result. Receipt of a CD4 count, a blood test measuring a patient's immune status, can be used to assess an individual's linkage to HIV care. The proportion of people newly diagnosed with HIV who had the result of a CD4 count in their clinical record within one month of their HIV diagnosis needs to be monitored; the British HIV Association target is >95% (see "Resources").

In the UK, almost nine out of ten patients newly diagnosed with HIV had a CD4 count test within one month of HIV diagnosis. Linkage into care was high and rapid across all age-groups, ethnicities, exposure categories, and sex.

Magnitude of variation

For CCGs in England, the percentage of all people aged 15 years and over newly diagnosed with HIV who had a CD4 count within one month of diagnosis ranged from 60.0% to 100.0% (1.7-fold variation).[1] When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 76.5–100.0%, and the variation is 1.3-fold.

The interpretation of this indicator requires care, and factors at both the patient level and the service level may affect outcomes. Factors at the patient level can include differences in:

› being diagnosed outside sexual health clinics and subsequently referred to an HIV clinic for care;

› severity of illness;

› co-morbidity;

› acceptance of care.

Factors at the service level can include differences in:

› local policies and practice;

› the coordination among and efficiency of all the services in the system of care for a local population;

› the occurrence of local epidemics.

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1 Data from four CCGs have been removed due to small numbers.

The number of people newly diagnosed with HIV can be relatively small in some CCGs, and in these CCGs indicators are subject to greater random variation, as reflected in the wide confidence intervals. For this indicator, there are 77 CCGs for which the values are statistically significantly lower than the BHIVA target at the 95% level. These CCGs may require further investigation of the causes of the variation, which could represent important barriers to linkage to HIV care.

Options for action

NHS England and local authority sexual health commissioners need to specify that service providers:

› expand HIV testing in non-GUM settings;

› comply with NICE guidelines PH33 and PH34 on increasing uptake of HIV testing in certain population groups;

› standardise and strengthen the referral processes, which is particularly important for late presenters who are at increased risk of mortality and morbidity;

› monitor referral after diagnosis and linkage to care, and assess the impact of these factors on the quality of HIV care;

› aim to achieve the standards of care recommended by the BHIVA and NHS England (see "Resources").

At a national level, Public Health England and NHS England need to monitor referral after diagnosis and linkage to care, and assess the impact of these factors on the quality of HIV care.

RESOURCES

› British HIV Association. Standards of Care for People Living with HIV 2013. http://www.bhiva.org/documents/Standards-of-care/BHIVAStandardsA4.pdf

› NHS England (2013) B06/S/a. 2013/14. NHS Standard Contract For Specialised Human Immunodeficiency Virus Services (Adults). Section B Part 1 – Service Specifications. http://www.england.nhs.uk/wp-content/uploads/2013/06/b06-spec-hiv-serv.pdf

› NHS England (2013) B06/S/b. 2013/14. NHS Standard Contract For Specialised Human Immunodeficiency Virus Services (Children). Section B Part 1 – Service Specifications. http://www.england.nhs.uk/wp-content/uploads/2013/06/b06-spec-hiv-child.pdf

› NICE pathways. HIV testing and prevention overview. http://pathways.nice.org.uk/pathways/hiv-testing-and-prevention

› Yin Z, Brown AE, Kall M et al. Patients' referral pathway in the first year of HIV care. HIV Medicine 2014; 15 (Suppl. 3): 7. http://www.bhiva.org/documents/Conferences/2014Liverpool/Presentations/140403/ZhengYin.pdf

› Yin Z, Brown AE, Hughes G et al. HIV in the United Kingdom: 2014 Report. Published November 2014: data to end December 2013. Public Health England. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/377194/2014_PHE_HIV_annual_report_19_11_2014.pdf

› Delpech V, Brown AE, Croxford S et al. Quality of HIV care in the United Kingdom: key indicators for the first 12 months from HIV diagnosis. HIV Medicine 2013; 14 (Suppl. 3): 19-24. http://www.ncbi.nlm.nih.gov/pubmed/24033898

› NICE. Increasing the uptake of HIV testing in black Africans in England. NICE guidelines [PH33]. March 2011. http://www.nice.org.uk/guidance/ph33

› NICE. Increasing the uptake of HIV testing among men who have sex with men. NICE guidelines [PH34]. March 2011. http://www.nice.org.uk/guidance/ph34

CANCERS AND TUMOURS

Map 6: Rate of mortality from cancer in people aged under 75 years per population by CCG

Directly standardised rate, adjusted for age and sex, 2013

Domain 1: Preventing people from dying prematurely
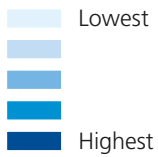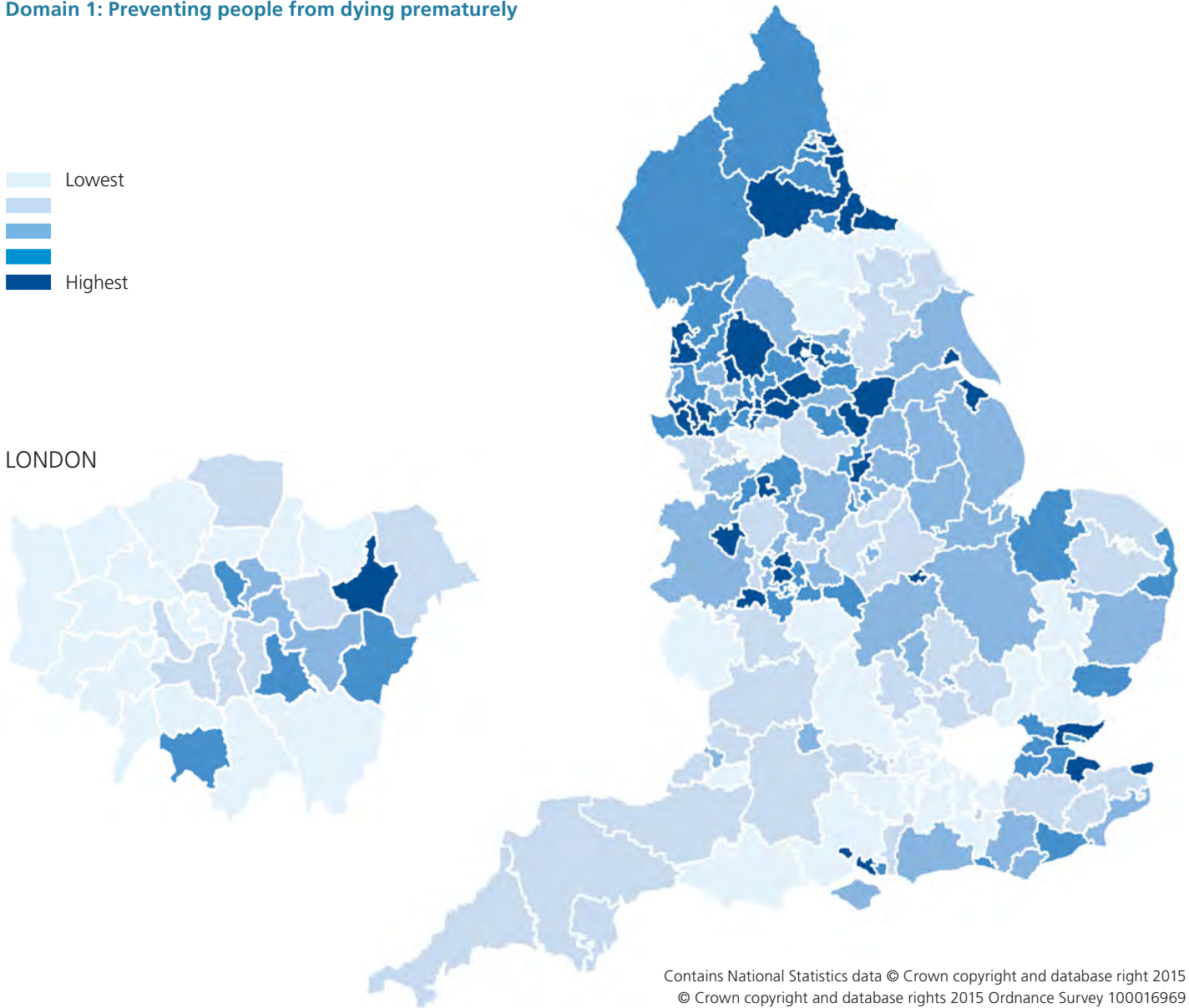
Lowest

Highest

LONDON

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211 CCGs

Rate per 100,000
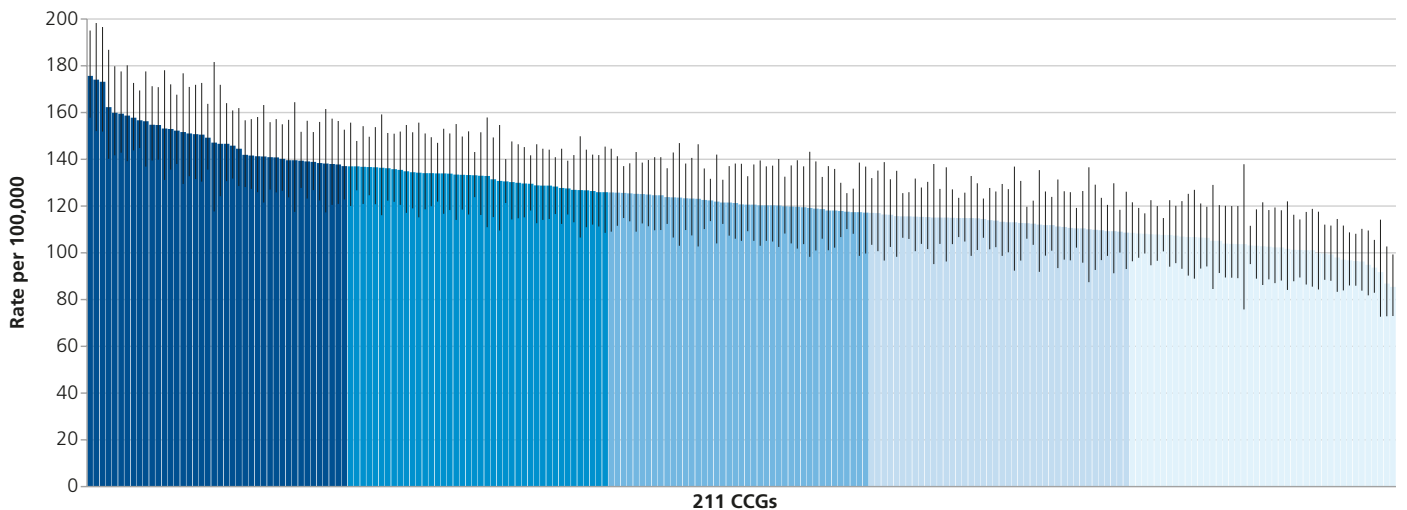
Context

Although cancer is a disease that disproportionately affects older people, it is the highest cause of death in England in people aged under 75 years[1]. Cancer deaths in people under the age of 75 years are an indicator of premature mortality: that is, a large proportion of people under the age of 75 years would not be expected to die of cancer; if someone does die of cancer under the age of 75 years, it may be cause for further investigation.

Smoking is the major preventable risk factor for cancer.

Magnitude of variation

For CCGs in England, the rate of mortality from cancer in people aged under 75 years ranged from 85 to 176 per 100,000 population (2.1-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 97–158 per 100,000 population, and the variation is 1.6-fold.

One reason for the degree of variation observed is differences in the mix of cancers that occur among local populations.

Options for action

To reduce premature mortality from cancer, commissioners need to support:

› cancer prevention initiatives, including cancer screening programmes;

› public awareness campaigns, such as "Be Clear on Cancer"[2].

Commissioners need to specify that service providers:

› participate in early diagnosis campaigns, such as the National Awareness and Early Diagnosis Initiative (NAEDI; see "Resources"), to identify early signs of cancer before the disease develops and becomes harder to treat;

› Increase the public's awareness of cancer symptoms, through participation in campaigns such as "Be Clear on Cancer"[2];

› provide smoking cessation services, especially in areas of high tobacco use, comply with NICE guidance on tobacco harm reduction and smoking cessation (see "Resources"), and take opportunities to offer smoking cessation services when people present for other reasons – Making Every Contact Count[3];

› encourage participation in and improve uptake of cancer screening programmes (breast, cervical and bowel);

› review cancer care pathways across local NHS services to ascertain whether they meet NICE and other guidance;

› compare the cancer care pathways, and the integration of systems of care for cancer, with those of CCGs that have populations with similar demographic and socio-economic characteristics, particularly the CCGs with improved outcomes (refer to NHS England's Commissioning for Value programme, as part of which it is possible to identify any CCG's ten closest peers, referred to as "Similar 10" CCGs; see "Resources").

Commissioners also need to specify that GPs:

› comply with NICE guidelines NG12 on suspected cancer (see "Resources") to minimise delay in investigation and referral for specialist treatment;

› participate in audits of the promptness of cancer diagnosis.

RESOURCES

› Independent Cancer Taskforce. Achieving World-Class Cancer Outcomes. A Strategy For England 2015-2020. http://www.cancerresearchuk.org/sites/default/files/achieving_world-class_cancer_outcomes_-_a_strategy_for_england_2015-2020.pdf

› Cancer Research UK. National Awareness and Early Diagnosis Initiative (NAEDI). http://www.cancerresearchuk.org/cancer-info/spotcancerearly/naedi/

› Cancer Research UK. Accelerate, Coordinate, Evaluate (ACE) Programme. http://www.cancerresearchuk.org/health-professional/early-diagnosis-activities/ace-programme

› NICE. Suspected cancer: recognition and referral. NICE guidelines [NG12]. June 2015. https://www.nice.org.uk/guidance/ng12

› NICE pathways. Suspected cancer recognition and referral overview. http://pathways.nice.org.uk/pathways/suspected-cancer-recognition-and-referral

› NICE. Tobacco: harm-reduction approaches to smoking. NICE Guidelines [PH45]. June 2013. http://www.nice.org.uk/guidance/ph45

› NICE. Brief interventions and referral for smoking cessation. NICE Guidelines [PH1]. March 2006. http://www.nice.org.uk/Guidance/PH1

› NICE. Smoking cessation services. NICE Guidelines [PH10]. February 2008. http://www.nice.org.uk/Guidance/PH10

› NICE. Smoking cessation services in secondary care: acute, maternity and mental health services. NICE Guidelines [PH48]. November 2013. http://www.nice.org.uk/guidance/ph48

› NICE. Smoking: reducing tobacco use. NICE quality standard [QS82]. March 2015. http://www.nice.org.uk/guidance/qs82

› NICE pathways. Lung cancer overview. http://pathways.nice.org.uk/pathways/lung-cancer

› NICE pathways. Colorectal cancer overview. http://pathways.nice.org.uk/pathways/colorectal-cancer

› NICE pathways. Early and locally advanced breast cancer overview. http://pathways.nice.org.uk/pathways/early-and-locally-advanced-breast-cancer

› NICE pathways. Advanced breast cancer overview. http://pathways.nice.org.uk/pathways/advanced-breast-cancer

› National Cancer Intelligence Network. Cancer statistics: availability and location. June 2014 update. http://www.ncin.org.uk/view?rid=2696

› Health and Social Care Information Centre. Indicator 1.9. Under 75 mortality rates from cancer. https://indicators.ic.nhs.uk/webview/ Click on Domain 1, then 1.9 Under 75 mortality rates from cancer.

› Public Health Outcomes Framework. Regional data on premature cancer mortality. http://www.phoutcomes.info/

› NHS England. Commissioning for Value. Scroll to the bottom of the page to find the file 'The data and methodology used to calculate the "Similar 10" CCGs', located under the heading "Commissioning for Value: Interactive Tools for CCGs – 2013 versions" and under the subheading "Download the data behind the packs and interactive tools – 2013 versions". http://www.england.nhs.uk/resources/resources-for-ccgs/comm-for-value/

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1   Health & Social Care Information Centre. Cancer death rate falls nationally over last decade. http://www.hscic.gov.uk/article/5205/Cancer-death-rate-falls-nationally-over-last-decade

2   Public Health England. Campaign Resource Centre. Be Clear on Cancer. https://campaigns.dh.gov.uk/category/beclearoncancer/

3   http://www.makingeverycontactcount.co.uk/

CANCERS AND TUMOURS

Map 7: Percentage of people aged 15–99 years who survived one year after being diagnosed with any cancer by CCG

Adjusted for age, sex, mix of cancers, and background mortality[1], 2012 followed up to 2013

Domain 1: Preventing people from dying prematurely

Lowest

Highest
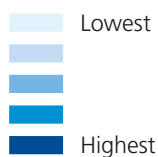
LONDON
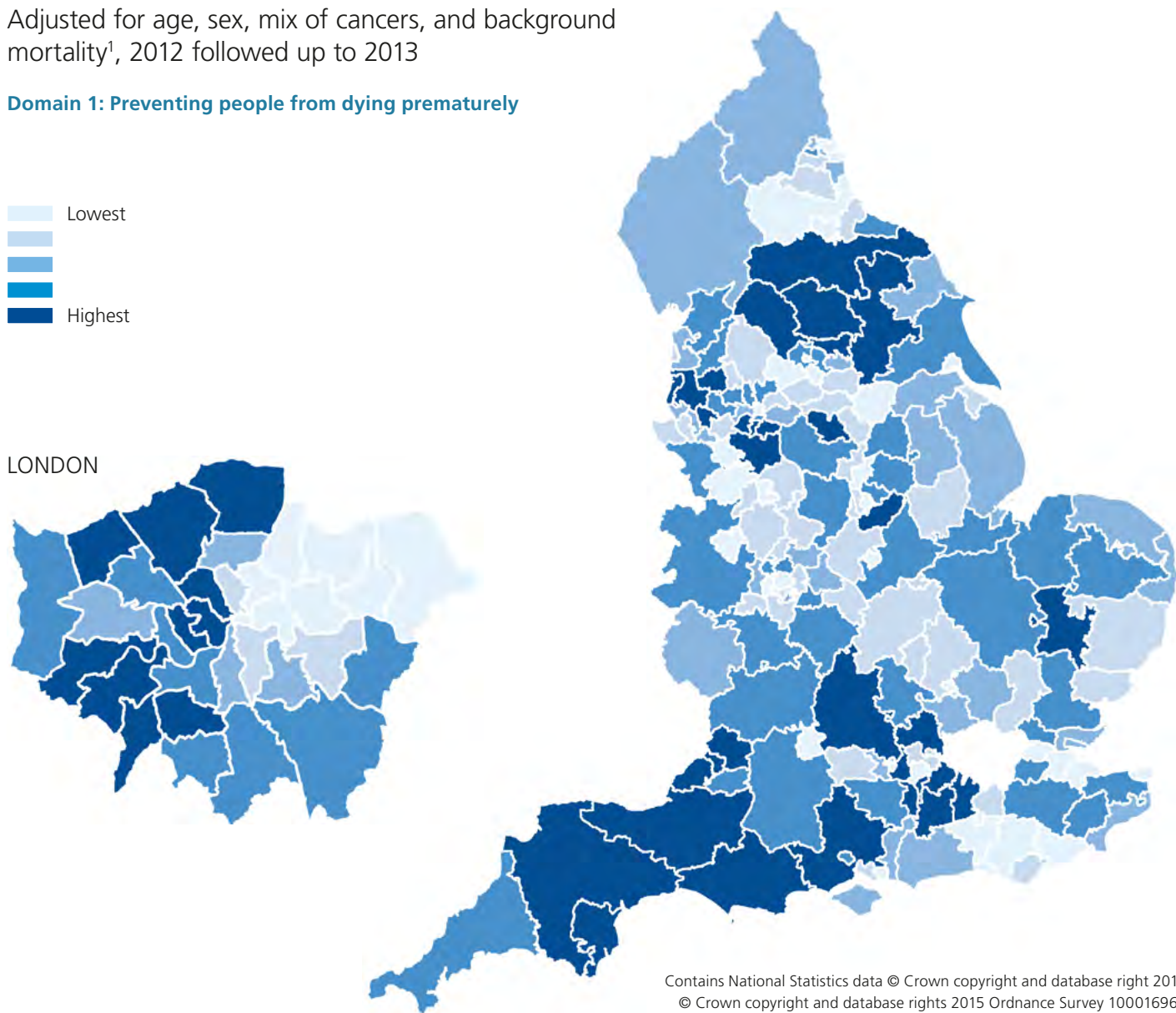
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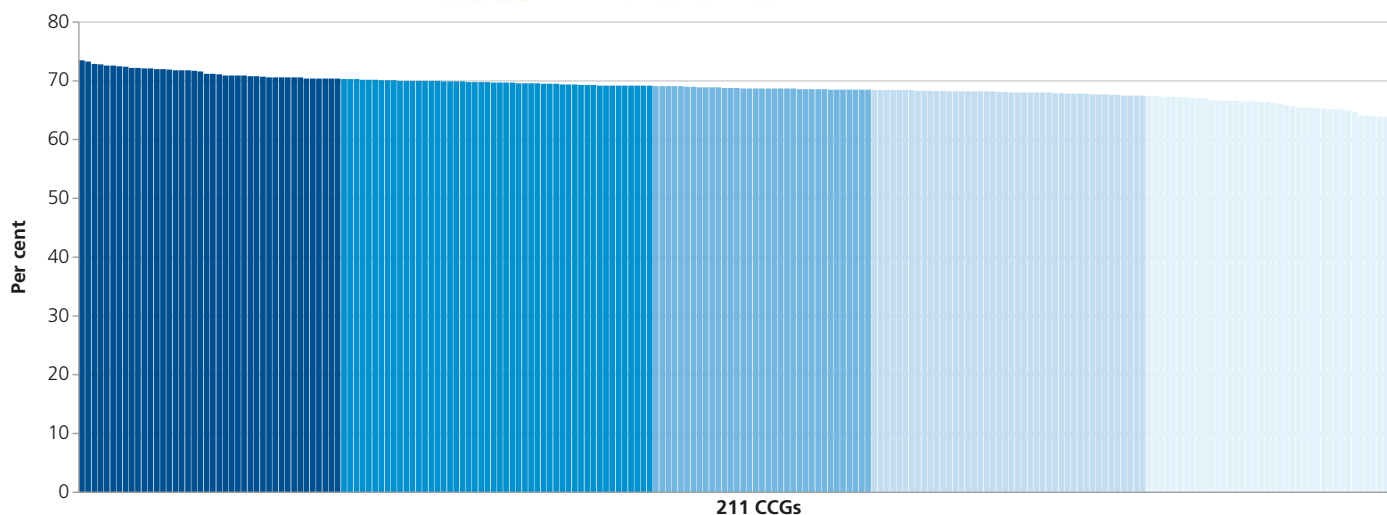
Context

Improving cancer survival is one of the key challenges identified in "Achieving World-Class Cancer Outcomes. A Strategy for England 2015–2020" (see "Resources"), and cancer survival has been improving for many years. Better treatment, earlier diagnosis, and awareness initiatives are all factors that may have contributed to this improvement. Particular gains in survival have been made for high-incidence sites for cancer such as the breast, lung and colorectum (or bowel).

Differences in one-year cancer survival are an important driver of differences in longer-term survival.[2] One-year survival rates in England were among the lowest in a group of comparable countries.[3] For some cancers, there is evidence that more patients in England are diagnosed at a later stage when compared with patients in other countries.[4]

In the UK in 2012, there were 161,823 deaths from cancer. In 2010/11 in England and Wales, only 50% of people survived cancer for ten years or more.[5]

In 2013, cancers of the breast, lung, prostate and colorectum accounted for more than half of all cancer deaths in England[6]: an understanding of survival for cancers at these sites will help target efforts to improve survival for all cancers. Survival for breast cancer is usually high when compared with that for all cancers, whereas survival for lung cancer is one of the lower rates.

Breast cancer is the most common cancer in England: 44,540 women were registered with the condition in 2013.[6] The incidence rate for women is the sixth highest in Europe, and in the last ten years the incidence rate has increased by 7%.[7] In 2012 in the UK, there were 11,716 deaths from breast cancer; it is thought that 27% of cases are preventable.[7] In terms of survival, in 2010/11 in England and Wales, 78% of women survived for ten years or more.[7]

Lung cancer is the third most common cancer in England: 36,653 people were diagnosed with the condition in 2013.[6] The incidence rate for men is the seventh lowest in Europe, but for women it is the seventh highest.[8] From a peak in the late 1970s, the incidence rate for men has declined by 48%, whereas the incidence rate for women, which increased by about 45% from the mid-1970s to the late 1980s, has increased by 19% since the late 1980s.[8] In 2012 in the UK, there were 35,371 deaths from lung cancer; it is thought that 89% of cases are preventable.[8] In terms of survival, in 2010/11

in England and Wales, only 5% of people survived for ten years or more.[8]

Colorectal cancer is the fourth most common cancer in England: 33,765 people were diagnosed with the condition in 2013.[6] The incidence rate for men is the twentieth highest in Europe, and for women it is the seventeenth highest.[9] In the last ten years the incidence rate has increased by 6%.[9] In 2012 in the UK, there were 16,187 deaths from colorectal cancer; it is thought that 54% of cases are preventable.[9] In terms of survival, in 2010/11 in England and Wales, 57% of people survived for ten years or more.[9]

Cancers detected earlier are easier to treat, and people whose cancers are detected earlier have much better survival than people with later staged cancers.[10] Some population groups are more likely to be diagnosed with later stage disease.[4] The aim for the National Awareness and Early Diagnosis Initiative (NAEDI; see "Resources") is to promote earlier diagnosis of cancer, thereby increasing access to optimal treatment, and improving survival rates and reducing mortality from cancer, through:

› achieving early presentation;

› optimising clinical practice and systems;

› improving GP access to diagnostics, though the Accelerate, Coordinate, Evaluate (ACE) Programme[11], one aim of which is to shift diagnosis of cancer from stages 3 and 4 to stages 1 and 2 (see Maps 12–13, pages 66–69);

› research, monitoring and evaluation.

Magnitude of variation

Map 7: One-year survival for any cancer

For CCGs in England, the percentage of people aged 15–99 years who survived one year after being diagnosed with any cancer ranged from 63.7% to 73.5% (1.2-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 65.0–72.4%, and the variation is 1.1-fold.

Map 8: One-year survival for breast, lung and colorectal cancer

For CCGs in England, the percentage of people aged 15–99 years who survived one year after being diagnosed with

1   Background mortality is a phrase routinely used in cancer intelligence, and means the data have been adjusted for "expected death rates".

2   McPhail S, Johnson S, Greenberg D et al. Stage at diagnosis and early mortality from cancer in England. British Journal of Cancer 2015; 112: S108-S115. doi: 10.1038/bjc.2015.49 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4385983/

3   Coleman M et al. ICBP Module 1 Working Group. Cancer survival in Australia, Canada, Denmark, Norway, Sweden, and the UK, 1995—2007 (the International Cancer Benchmarking Partnership): an analysis of population-based cancer registry data. Lancet 2011; 377: 9760. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018568/

4   Cancer Research UK. NAEDI Briefing Sheet. http://www.cancerresearchuk.org/sites/default/files/health_professional_naedi_briefing_sheet.pdf

5   Cancer Research UK. Cancer Statistics for the UK. http://www.cancerresearchuk.org/health-professional/cancer-statistics

6   Office for National Statistics. Statistical Bulletin. Cancer Registration Statistics, England 2013. http://www.ons.gov.uk/ons/dcp171778_409714.pdf

7   Cancer Research UK. Breast cancer statistics. http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/breast-cancer

8   Cancer Research UK. Lung cancer statistics. http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/lung-cancer

9   Cancer Research UK. Bowel cancer statistics. http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/bowel-cancer

10 http://www.ncin.org.uk/view?rid=2752.

11 Cancer Research UK. ACE Programme. http://www.cancerresearchuk.org/health-professional/early-diagnosis-activities/ace-programme

breast, lung or colorectal cancer ranged from 64.1% to 74.7% (1.2-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 67.1–73.6%, and the variation is 1.1-fold.

After adjusting for age and sex, reasons for the degree of variation observed in one-year survival include differences in:

> the stage of cancer at the time of diagnosis – one-year relative survival decreases with increasing stage at diagnosis[2];

> population health factors, such as co-morbidity with other health conditions, smoking prevalence, and general health status.

McPhail et al also found statistically significant effects in excess rate ratios for mortality within one year of diagnosis for:

> income deprivation;

> geographical area of residence.[2]

Options for action

To improve one-year survival rates, commissioners need to specify that:

> service providers participate in early diagnosis initiatives, such as the NAEDI (see "Resources") to identify early signs of cancer before the disease develops – it is important to diagnose all cancers before they progress to stage 4, which would substantially increase one-year survival, but for lung and ovarian cancers there is a need to diagnose them at an even earlier stage[2];

> GPs comply with NICE guidelines NG12 (see "Resources") on suspected cancer.

Commissioners also need to specify that service providers:

> work to increase participation in the screening programmes for breast cancer and for bowel cancer to increase early detection of these cancers – about one-third of breast cancers are diagnosed through screening[12];

> take opportunities to offer smoking cessation services to reduce the risk of lung cancer when people present for other reasons – Making Every Contact Count[13] – and comply with NICE guidance on tobacco harm reduction and smoking cessation (see "Resources").

RESOURCES

> Independent Cancer Taskforce. Achieving World-Class Cancer Outcomes. A Strategy For England 2015-2020. http://www.cancerresearchuk.org/sites/default/files/achieving_world-class_cancer_outcomes_-_a_strategy_for_england_2015-2020.pdf

> Cancer Research UK. National Awareness and Early Diagnosis Initiative (NAEDI). http://www.cancerresearchuk.org/cancer-info/spotcancerearly/naedi/

> Office for National Statistics (ONS) Resources relating to cancer survival. http://ons.gov.uk/ons/taxonomy/index.html?nscl=Cancer+Survival

> NICE. Suspected cancer: recognition and referral. NICE guidelines [NG12]. June 2015. https://www.nice.org.uk/guidance/ng12

> NICE pathways. Suspected cancer recognition and referral overview. http://pathways.nice.org.uk/pathways/suspected-cancer-recognition-and-referral

> NICE. Breast cancer quality standard. NICE quality standard [QS12]. September 2011. http://www.nice.org.uk/guidance/qs12

> NICE. Lung cancer. NICE quality standard [QS17]. March 2012. http://www.nice.org.uk/guidance/qs17

> NICE. Tobacco: harm-reduction approaches to smoking. NICE guidelines [PH45]. June 2013. http://www.nice.org.uk/guidance/ph45

> NICE. Brief interventions and referral for smoking cessation. NICE guidelines [PH1]. March 2006. http://www.nice.org.uk/Guidance/PH1

> NICE. Smoking cessation services. NICE guidelines [PH10]. February 2008. http://www.nice.org.uk/Guidance/PH10

> NICE. Smoking cessation services in secondary care: acute, maternity and mental health services. NICE guidelines [PH48]. November 2013. http://www.nice.org.uk/guidance/ph48

> NICE. Smoking: reducing tobacco use. NICE quality standard [QS82]. March 2015. http://www.nice.org.uk/guidance/qs82

> NICE pathways. Lung cancer overview. http://pathways.nice.org.uk/pathways/lung-cancer

> NICE pathways. Colorectal cancer overview. http://pathways.nice.org.uk/pathways/colorectal-cancer

> NICE pathways. Early and locally advanced breast cancer overview. http://pathways.nice.org.uk/pathways/early-and-locally-advanced-breast-cancer

> NICE pathways. Advanced breast cancer overview. http://pathways.nice.org.uk/pathways/advanced-breast-cancer

> Cancer Research UK. Cancer Risk Assessment tool (RAT). http://www.cancerresearchuk.org/health-professional/learning-and-development-tools/cancer-risk-assessment-tool-rat

> National Cancer Intelligence Network. Cancer statistics: availability and location. June 2014 update. http://www.ncin.org.uk/view?rid=2696

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12 Department of Health. Improving Outcomes: A Strategy for Cancer. January 2011. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213785/dh_123394.pdf

13 http://www.makingeverycontactcount.co.uk/

CANCERS AND TUMOURS

Map 8: Percentage of people aged 15–99 years who survived one year after being diagnosed with breast, lung or colorectal cancer by CCG

Adjusted for age, sex, mix of cancers, and background mortality[1], 2012 followed up to 2013

Domain 1: Preventing people from dying prematurely

Lowest

Highest

LONDON

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211 CCGs

Per cent
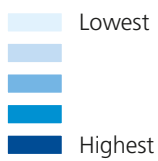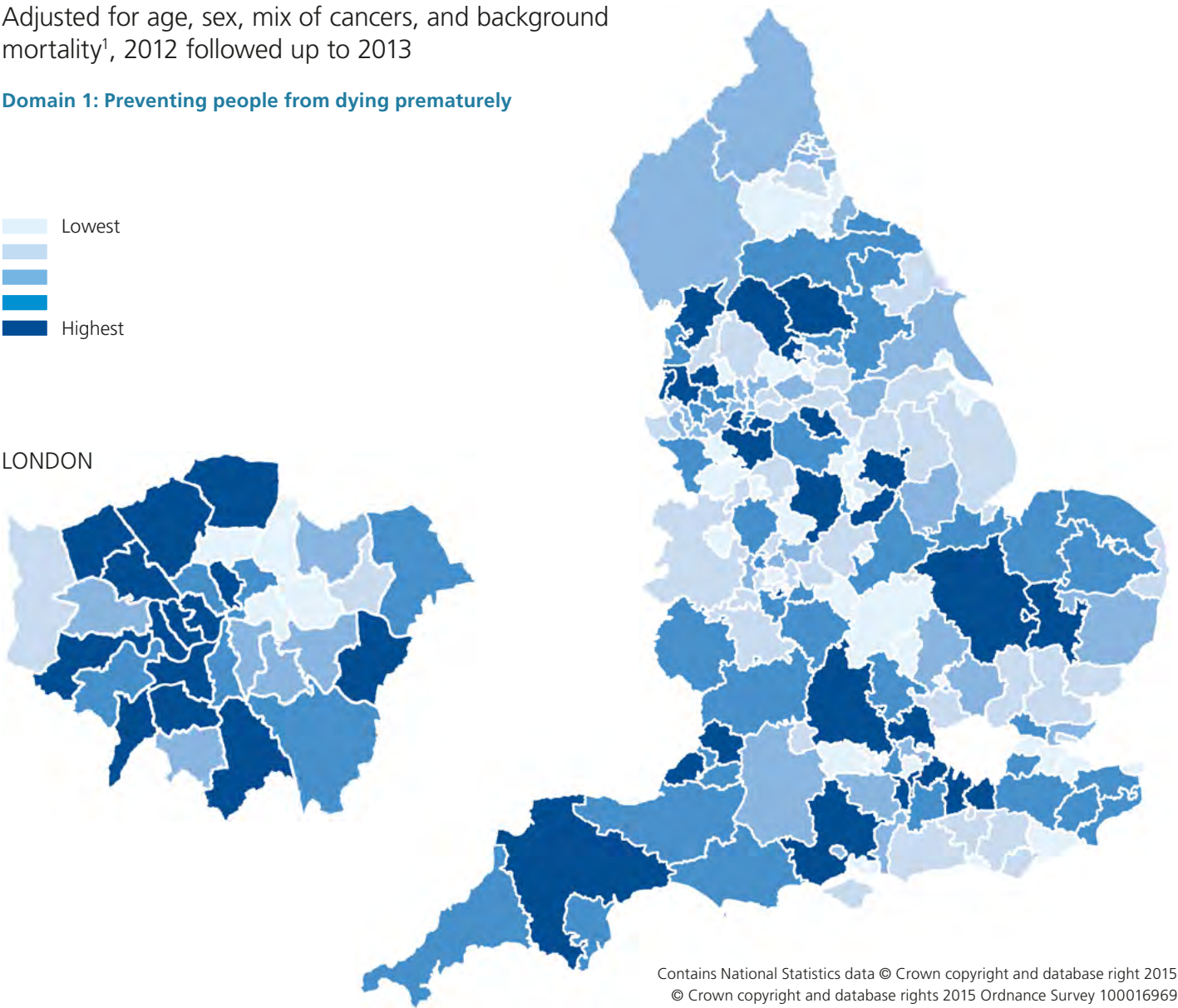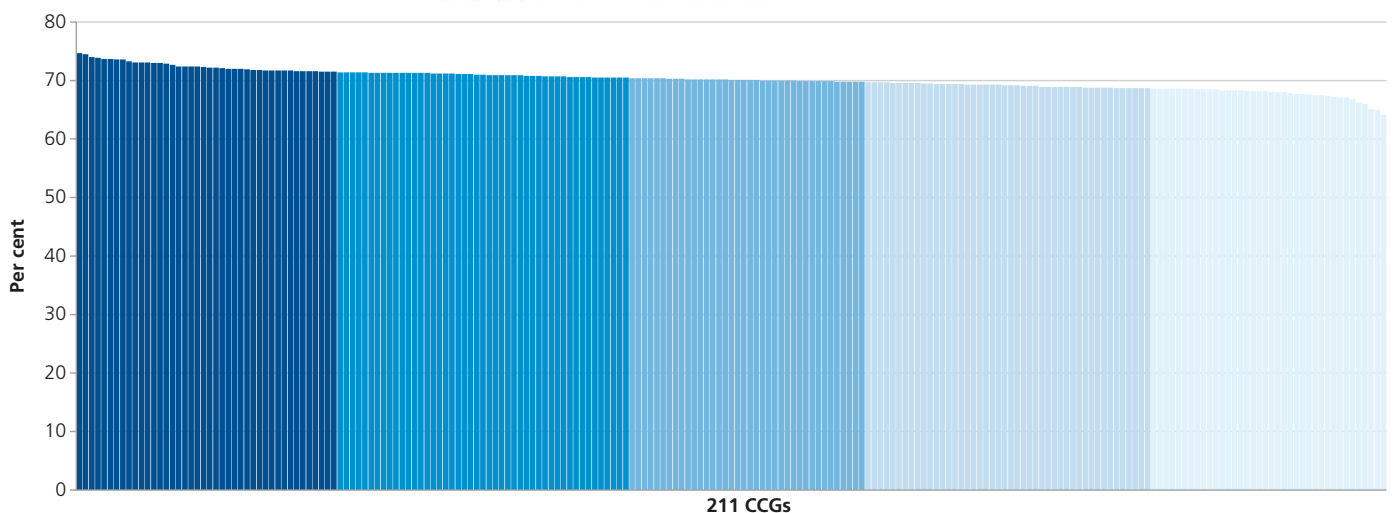
CANCERS AND TUMOURS

Map 9A: Rate of colonoscopy procedures and flexible sigmoidoscopy procedures per population by CCG

Indirectly standardised rate, adjusted for age, sex and deprivation, 2012/13

Domain 1: Preventing people from dying prematurely
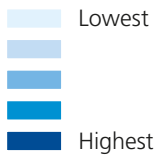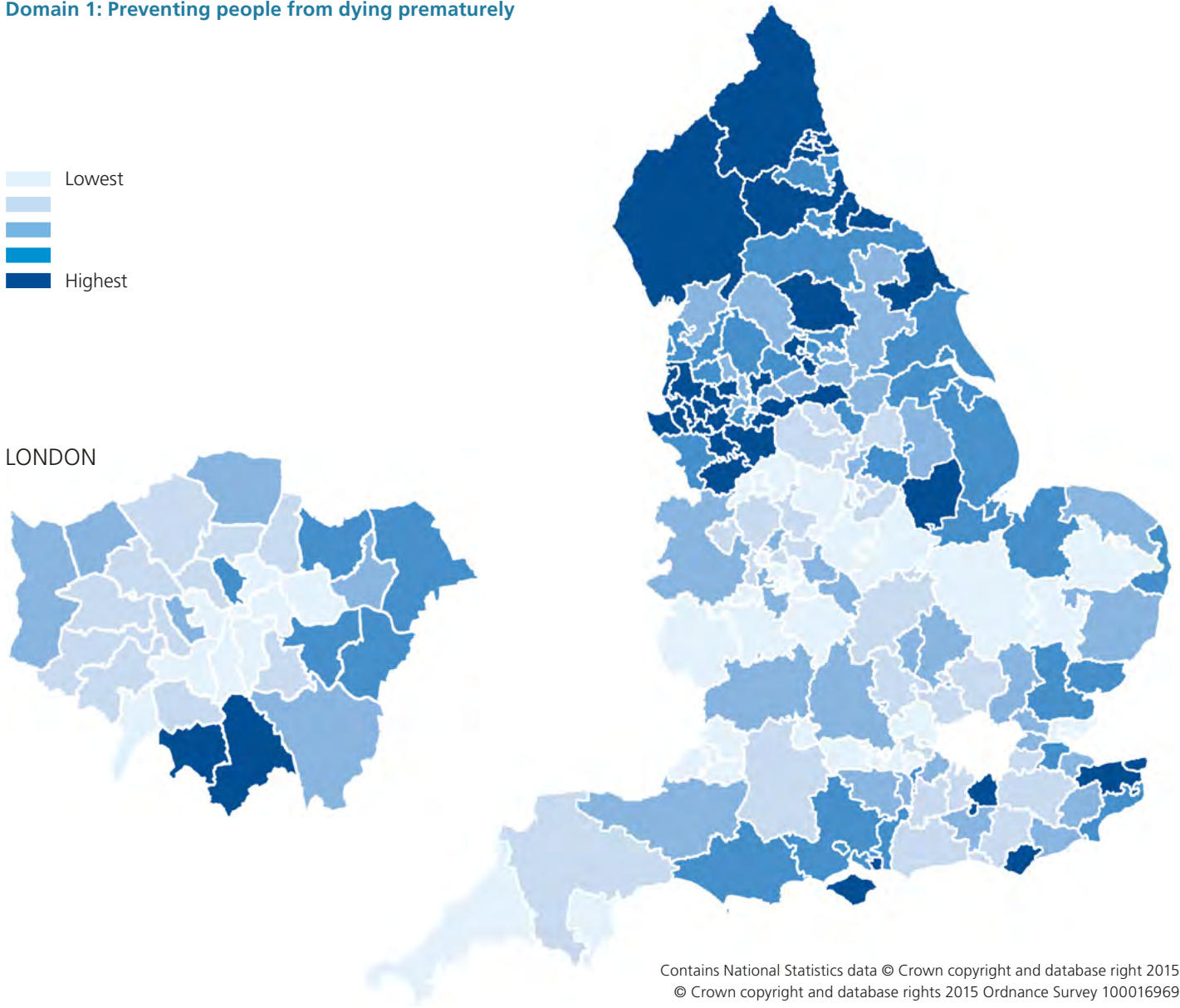
Lowest

Highest

LONDON

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211 CCGs
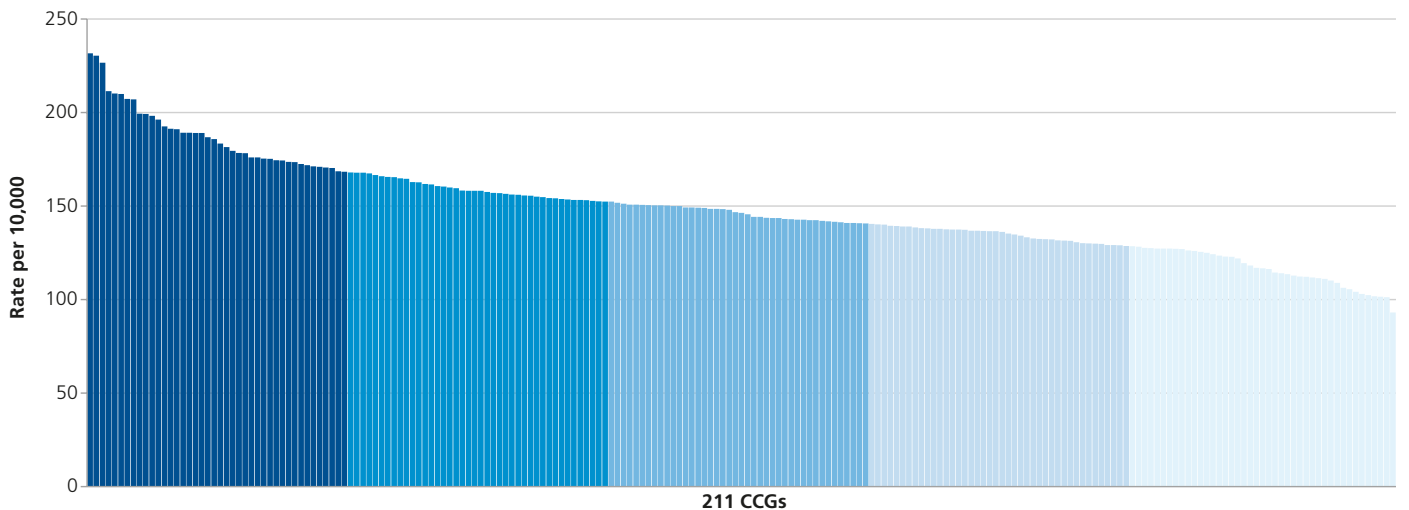
Context

There are several methods available for imaging the large bowel (colon), particularly in the diagnosis of cancer of the colon, including:

› colonoscopy;

› flexible sigmoidoscopy;

› CT colonoscopy;

› barium enema.

The aim of the National Awareness and Early Diagnosis Initiative (NAEDI)[1] is to improve cancer survival outcomes in England, including that for colorectal (bowel) cancer. Although not all colonic investigations are done because of the suspicion of cancer, ruling out colorectal cancer is considered the most important reason for such an investigation, particularly because early diagnosis of cancer of the colon is vital in order to improve outcomes. It was thought that investigations could be targeted at patients with specific clinical features, but studies have shown that in patients with lower GI symptoms, selecting out those to investigate gives a poor correlation with cancer, and particularly early cancer. This suggests that the overall threshold for lower GI investigation should be lowered to improve the overall diagnostic rate for colorectal cancer, and the proportion of people diagnosed early and when the cancer is curable

Colonoscopy is an investigation of the lining of the entire large bowel (colon) using an endoscope. It is sometimes referred to as "optical colonoscopy". **Flexible sigmoidoscopy** is similar to colonoscopy, but confined to an examination of the sigmoid colon (last part of the large bowel) using a flexible endoscope.

Both procedures are used to diagnose or exclude cancer of colon or to look for pre-cancerous polyps, small growths on the inner lining of the bowel or rectum. If polyps are found on examination, they are often removed. Flexible sigmoidoscopy and colonoscopy can also be used in the diagnosis of, and monitoring of treatment for, inflammatory bowel disease (IBD). About 60–70% of these procedures are performed for the diagnosis of cancer, 15–20% for the diagnosis of, and

monitoring of treatment for, IBD, and 10% for other reasons.

Flexible sigmoidoscopy is the preferred procedure in some clinical situations because sedation is not required, it is quicker and carries less risk than colonoscopy; therefore it is safer for the patient and is particularly useful if there is rectal bleeding.

Other countries with developed economies have higher rates of colonoscopy than the UK. In the 2011 national colonoscopy audit, Scotland and Northern Ireland had higher rates of colonoscopy than England.[2] Need for colonoscopy will be driven by a greater awareness of investigating symptoms that are less marked, especially in light of the recent NICE guidelines for suspected cancer (NG12; see "Resources"). It is also anticipated that increased demand (about 8 procedures per 1000 population per year), a doubling of the current rate, will be generated by the NHS Bowel Cancer Screening Programme bowel scope screening, currently being rolled out to all men and women aged 55 years; as of March 2015, 60% of screening centres were offering this test to 55-year-olds.

For the indicator shown in Map 9A, on page 58, the rates of colonoscopy procedures and flexible sigmoidoscopy procedures have been combined.

Computed tomography (CT) colonoscopy or **colonography** is a relatively new radiological technique designed to image the colon. It is sometimes referred to as "virtual colonoscopy" because a CT scanner and a computer are used to generate three-dimensional images of the colon. As such, CT colonoscopy is minimally invasive because there is no need to introduce an endoscope into the colon to obtain the images, and therefore no need for the sedation of patients, although a laxative bowel preparation is sometimes still required.

CT Colonoscopy is used to investigate patients with symptoms suggestive of colorectal cancer, and has been found to be as effective as optical colonoscopy in the initial diagnosis of colorectal cancer.[3] A negative CT colonoscopy, representing the majority of tests, is a good exclusion of cancer whereas a positive CT colonoscopy is likely to require colonoscopy and biopsy to confirm the diagnosis.

1   Cancer Research UK. National Awareness and Early Diagnosis Initiative (NAEDI).
     http://www.cancerresearchuk.org/cancer-info/spotcancerearly/naedi/AboutNAEDI/

2   Gavin DR, Valori RM, Anderson JT et al (2013) The national colonoscopy audit: a nationwide assessment of the quality and safety of colonoscopy in the UK. Gut 62; 242-249. http://www.ncbi.nlm.nih.gov/pubmed/22661458

3   Colorectal cancer: CT colonography and colonoscopy for detection — systematic review and meta-analysis. Structured abstract, DARE. Original article: Pickhardt PJ, Hassan C, Halligan S, Marmo R. Colorectal cancer: CT colonography and colonoscopy for detection — systematic review and meta-analysis. Radiology 2011; 259(2): 393-405. http://onlinelibrary.wiley.com/o/cochrane/cldare/articles/DARE-12011002875/frame.html

Unlike colonoscopy and flexible sigmoidoscopy, CT colonoscopy is less useful for the diagnosis of IBD because biopsy material is invariably required to support or refute the diagnosis, whereas a thorough cancer exclusion can follow a satisfactory CT colonoscopy.

Barium enema is an X-ray procedure that creates images of the large intestine. During the procedure, barium sulphate liquid and air are introduced into the bowel, following which X-rays are taken to obtain double-contrast images of the colon and rectum, which are then used to identify the following problems:

> cancerous or non-cancerous growths (also known as adenomas or polyps);

> colorectal cancer (in the colon or rectum);

> inflammation (ulcerative colitis and Crohn's disease);

> diverticular disease.

Other conditions for which barium enema may be performed include:

> blockage of the large intestine;

> intussusception, where one part of the intestine slides into another;

> Hirschsprung's disease.

In a multicentre randomised controlled trial for the diagnosis of colorectal cancer or large polyps in symptomatic patients (SIGGAR), the detection rate for barium enema was 5.6% whereas that for CT colonoscopy was 7.3%.[4] The findings of the SIGGAR trial support considerable non-controlled evidence that barium enema is an inferior test when compared with CT colonoscopy. Halligan et al suggest CT colonoscopy should be the preferred radiological test for patients with symptoms suggestive of colorectal cancer.[1] Barium enema should be phased out and no longer used for primary diagnosis of colorectal problems.

Barium enema is also inappropriate for the diagnosis of IBD because biopsy material is invariably required to support the diagnosis.

Barium enema is a useful test in a very small number of patients, particularly when it is necessary to visualise the particular shape of the colon, such as in megacolon.

Although in recent years it has become less common

to perform a barium enema, it is still in use, particularly where there is a contra-indication for, or limited provision of, CT colonoscopy (see Map 10, page 62).

Magnitude of variation

Map 9A: Colonoscopy and flexible sigmoidoscopy

For CCGs in England, the rate of colonoscopy procedures and flexible sigmoidoscopy procedures ranged from 93.1 to 231.6 per 10,000 population (2.5-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 105.5–207.0 per 10,000 population, and the variation is 2.0-fold (see Table 9.1 for 2011/12 data).[5]

Table 9.1: Rate of colonoscopy procedures and flexible sigmoidoscopy procedures per 10,000 population by CCG for two financial years

Financial year	Range before exclusions	Fold difference before exclusions	Range after exclusions	Fold difference after exclusions
2011/12	82.0–222.4	2.7	107.4–198.2	1.8
2012/13	93.1–231.6	2.5	105.5–207.0	2.0

The degree of variation observed in colonoscopy procedures and flexible sigmoidoscopy procedures is similar, with a slight increase from 2011/12 to 2012/13.

Reasons for the degree of variation in the rate of colonoscopy procedures and flexible sigmoidoscopy procedures are historical, reflecting differences in:

> the number of gastro-enterologists per head of local population;

> the degree to which gastro-enterologists in any hospitals have commitments to ward work, outpatients and acute internal medicine, in addition to those in endoscopy;

> regional cancer rates;

> the number of procedures conducted in the independent sector, which is relatively higher in the South East of England.

Possible reasons for unwarranted variation include differences in:

> access to endoscopy provision;

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4   Halligan S, Wooldrage K, Dadswell E et al for the SIGGAR investigators (2013) Computed tomographic colonography versus barium enema for diagnosis of colorectal cancer or large polyps in symptomatic patients (SIGGAR): a multicentre randomised trial. The Lancet. Published online February 14, 2013. http://www.ncbi.nlm.nih.gov/pubmed/23414648

5   For 2011/12 data by PCT, see Diagnostics Atlas, Map 15A, pages 74–75, and Table 15.2, page 75 for 2009/10 data by PCT.

CANCERS AND TUMOURS

Map 9B: Ratio of colonoscopy procedures to flexible sigmoidoscopy procedures by CCG

2012/13

Domain 1: Preventing people from dying prematurely
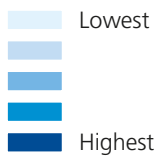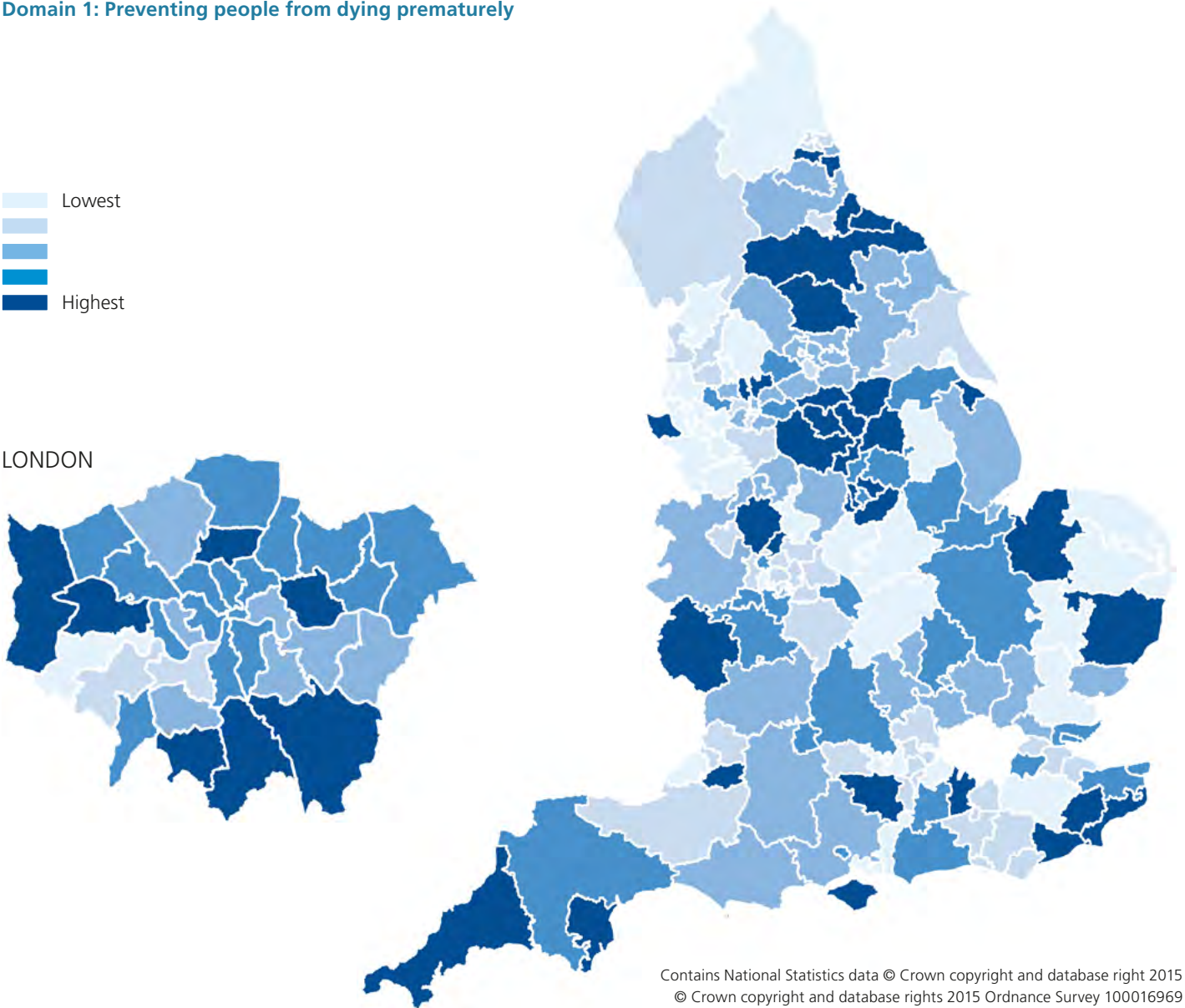
Lowest

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LONDON

Ratio

211 CCGs
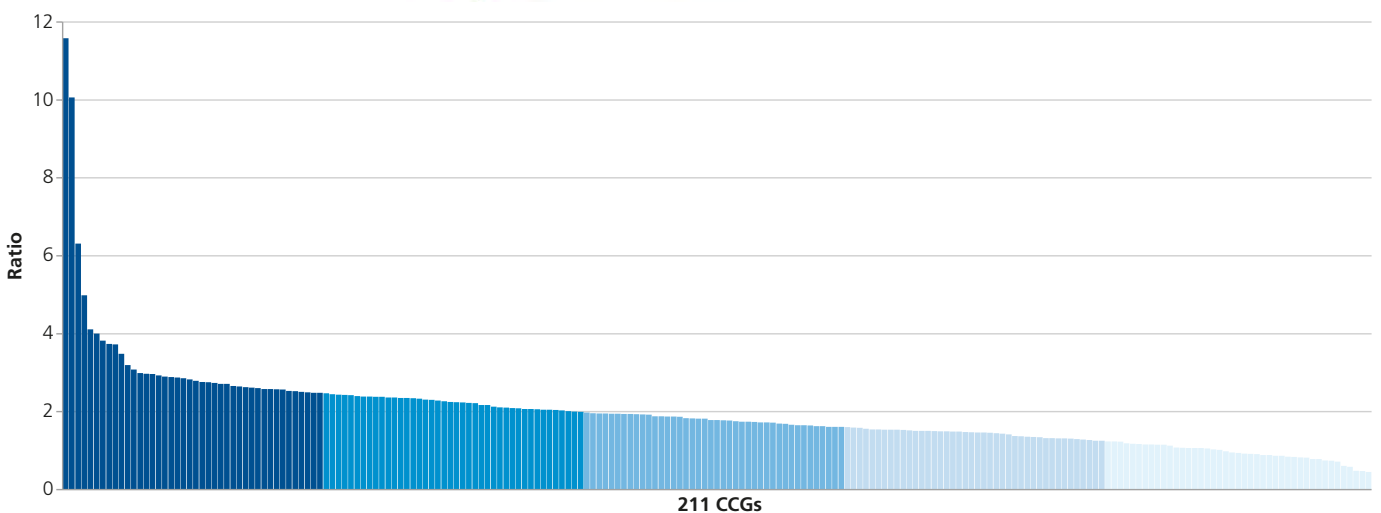
CANCERS AND TUMOURS

Map 10: Rate of computed tomography (CT) colonoscopy procedures per population by CCG

Indirectly standardised rate, adjusted for age, sex and deprivation, 2013/14

Domain 1: Preventing people from dying prematurely
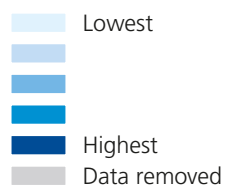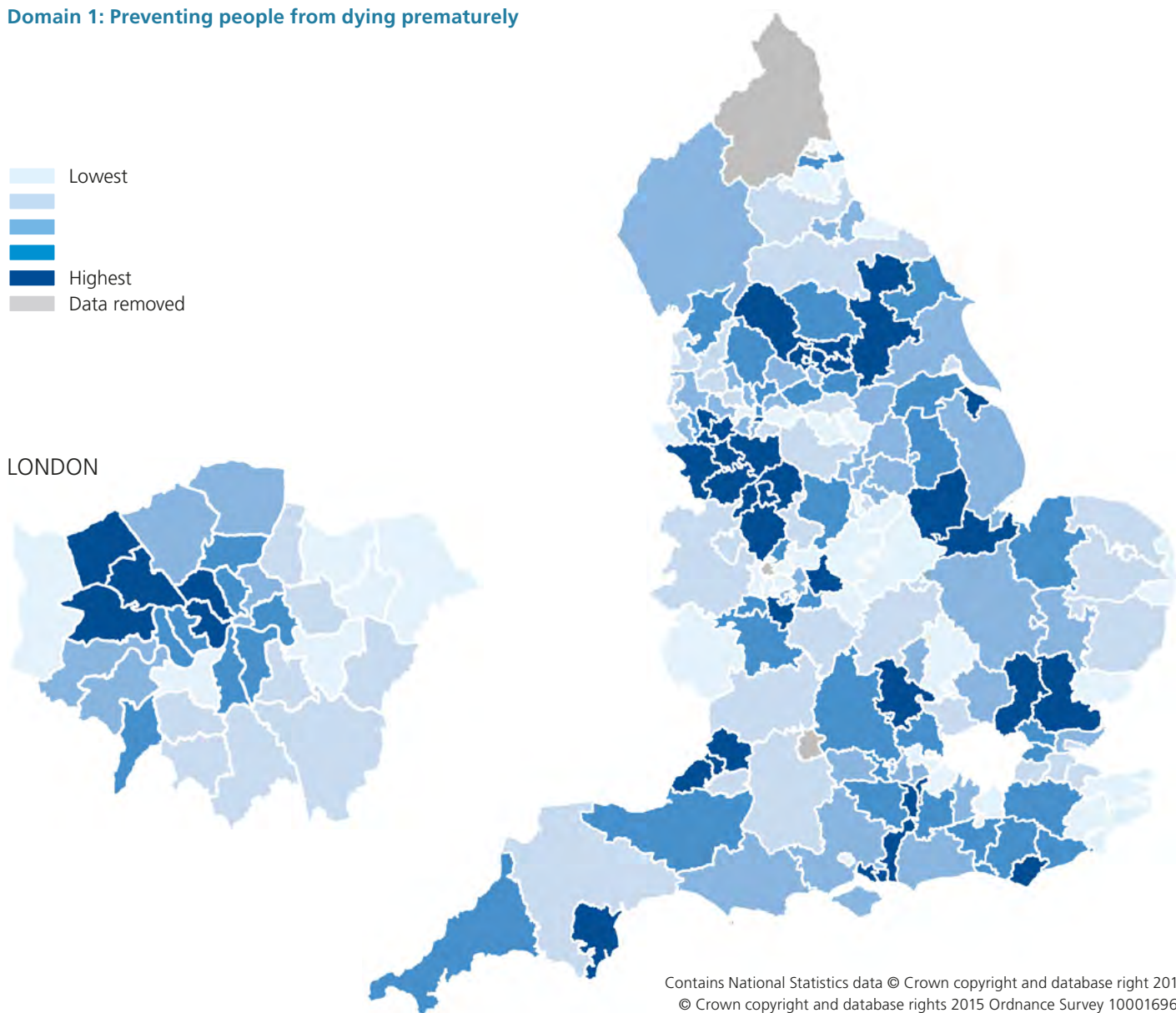
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207 out of 211 CCGs (4 removed due to small numbers)
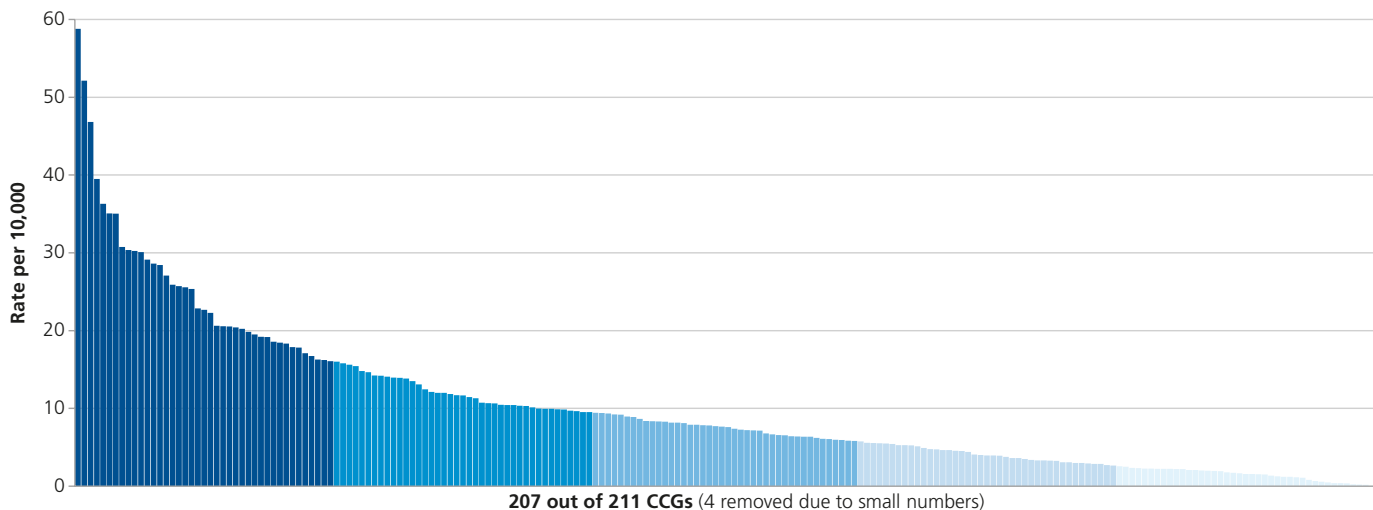
› the use of barium enema (see Map 11, pages 65–66);

› the availability of CT colonoscopy, and local protocols for its use;

› the application of guidelines for referral;

› the professional practice of GPs and hospital clinicians;

› local service configuration.

Map 9B: Ratio of colonoscopy to flexible sigmoidoscopy

For CCGs in England, the ratio of colonoscopy procedures to flexible sigmoidoscopy procedures ranged from 0.45 to 11.58 (25.5-fold variation). When the seven CCGs with the highest ratios and the seven CCGs with the lowest ratios are excluded, the range is 0.75–3.74 per 10,000 population, and the variation is 5.0-fold (see Table 9.2 for 2011/12 data).[6]

Table 9.2: Ratio of colonoscopy procedures to flexible sigmoidoscopy procedures by CCG for two financial years

Financial year	Range before exclusions	Fold difference before exclusions	Range after exclusions[3]	Fold difference after exclusions
2011/12	0.4–10.5	24	0.7–3.3	4.9
2012/13	0.5–11.6	25	0.7–3.7	5

The degree of variation observed in the ratio of colonoscopy to flexible sigmoidoscopy has remained similar, with a slight increase from 2011/12 to 2012/13.

Map 10: CT colonoscopy

For CCGs in England, the rate of CT colonoscopy procedures ranged from 0.0 to 58.8 per 10,000 population.[7] When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 0.4–30.7 per 10,000 population, and the variation is 79.3-fold.[8]

Reasons for the degree of variation observed in the rate of CT colonoscopy are differences in:

› access to CT colonoscopy;

› the availability of CT scanners capable of producing CT colonoscopy images;

› the availability of radiologists skilled in interpreting CT colonoscopy scans;

› training opportunities for radiologists in CT colonoscopy;

› the use of barium enema (see Map 11, pages 65–66) to image the colon in people with suspected colorectal cancer.

Map 11: Barium enema

For CCGs in England, the rate of barium enema procedures ranged from 1.2 to 1341 per 100,000 population (1076-fold variation).[9] When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 3.0–356 per 100,000 population, and the variation is 119.5-fold.[10]

The principal reason for the degree of variation observed in the rates of barium enema is insufficient capacity for, and therefore insufficient access to, CT colonoscopy, colonoscopy, and flexible sigmoidoscopy.

Options for action

For the improved diagnosis of colorectal cancer, commissioners need to specify that service providers:

› review current levels of access to CT colonoscopy, colonoscopy, and flexible sigmoidoscopy to ensure that clinicians responsible for referrals for suspected colorectal cancer no longer use barium enema to image the colon when it is best practice not to do so;

› develop local referral guidelines for colonoscopy, flexible sigmoidoscopy and CT colonoscopy, including a consideration of "Straight to Test" services;

› calculate, on the basis of local referral guidelines, the demand for colonoscopy, flexible sigmoidoscopy and CT colonoscopy to inform planning for capacity.

To support the effective use of CT colonoscopy:

› Health Education England (HEE) and the Centre for Workforce Intelligence (CFWI) need to address the shortage of radiologists nationally;

› local service providers need to ensure there are training opportunities for radiologists in the interpretation of CT colonoscopy scans, and that CT equipment is of adequate capacity.

6 For 2009/10 and 2011/12 data by PCT, see Diagnostics Atlas, Table 15.4, page 78.

7 Data from four CCGs have been removed due to small numbers.

8 For April–November 2012 data by PCT, see Diagnostics Atlas, Map 16, pages 80–81.

9 Data from 13 CCGs have been removed due to small numbers.

10 For April–November 2012 data by PCT, per *weighted* population, see Diagnostics Atlas, Map 17, pages 82–82.

If, despite adequate provision for CT colonoscopy and colonoscopy in relation to need in the local population, there is still demand for barium enema, commissioners need to specify that service providers:

> investigate the reasons for this;

> take action to stop inappropriate requests for this test.

With respect to the provision and management of endoscopy services overall, commissioners need to review with service providers and bowel surgeons:

> the referral rate for flexible sigmoidoscopy and colonoscopy in relation to local population needs;

> local service configuration.

The Joint Advisory Group (JAG) on GI endoscopy has developed a Productivity & Planning Assessment Tool (PPAT; see "Resources") for endoscopy services and commissioners. It provides a checklist of objectives that the most productive endoscopy services apply systematically to ensure endoscopy resource is used appropriately and efficiently. To ensure effective planning, JAG recommends that commissioners require local services to use the PPAT.

The Global Rating Scale (GRS; see "Resources") is a tool that enables provider units to assess whether the service is patient-centred, and it includes dimensions for quality and safety, and customer care. Applying the "Appropriateness" item reassures commissioners that referrals are vetted against best practice.

Although colonoscopy and flexible sigmoidoscopy are high-value interventions, the clinical progression of upper gastro-intestinal cancers is such that even with increased use of upper gastro-intestinal endoscopy, the likelihood of detecting a curable cancer is less than that for lower gastro-intestinal cancer. Commissioners together with service providers need to consider the totality of resources used for endoscopy procedures to achieve optimal value for individual patients and the population.

RESOURCES

> NHS Bowel Cancer Screening Programme (2012) Guidelines for the use of imaging in the NHS Bowel Cancer Screening Programme. 2nd edition. NHSBCSP No 5. November 2012. http://www.cancerscreening.nhs.uk/bowel/publications/nhsbcsp05.pdf

> Cairns SR, Scholefield JH, Steele RJ et al developed on behalf of The British Society of Gatroenterology, and the Association of Coloproctology for Great Britain and Ireland (2010) Guidelines for colorectal cancer screening and surveillance in moderate and high risk groups (update from 2002). Gut 2010;59:666e690. doi:10.1136/gut.2009.179804 http://www.bsg.org.uk/images/stories/docs/clinical/guidelines/endoscopy/ccs_10.pdf

> NICE. Suspected cancer: recognition and referral. NICE guidelines [NG12]. June 2015. https://www.nice.org.uk/guidance/ng12

> NICE pathways. Suspected cancer recognition and referral overview. http://pathways.nice.org.uk/pathways/suspected-cancer-recognition-and-referral

> NICE. Colonoscopic surveillance for prevention of colorectal cancer in people with ulcerative colitis, Crohn's disease or adenomas. NICE guidelines [CG118]. March 2011. http://www.nice.org.uk/guidance/CG118

> NICE pathways. Colonoscopic surveillance overview. http://pathways.nice.org.uk/pathways/colonoscopic-surveillance

> NICE. Computed tomographic colonography (virtual colonoscopy). NICE interventional procedure guidance [IPG129]. June 2005. http://guidance.nice.org.uk/IPG129

> Joint Advisory Group (JAG) for GI endoscopy. JAG defines and maintains the standards by which endoscopy is practised in the UK. Website has a section on "Commissioning". http://www.thejag.org.uk/

> Global Rating Scale (GRS). http://www.globalratingscale.com/

> GRS Productivity & Planning Assessment Tool (PPAT) User Guidance. http://www.thejag.org.uk/downloads%5CPlanning%20&%20Productivity%5CPPAT%20User%20Guide%2022042012.pdf

CANCERS AND TUMOURS

Map 11: Rate of barium enema procedures per population by CCG

2013/14

Domain 1: Preventing people from dying prematurely
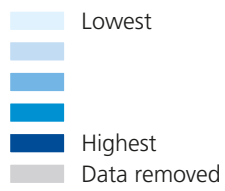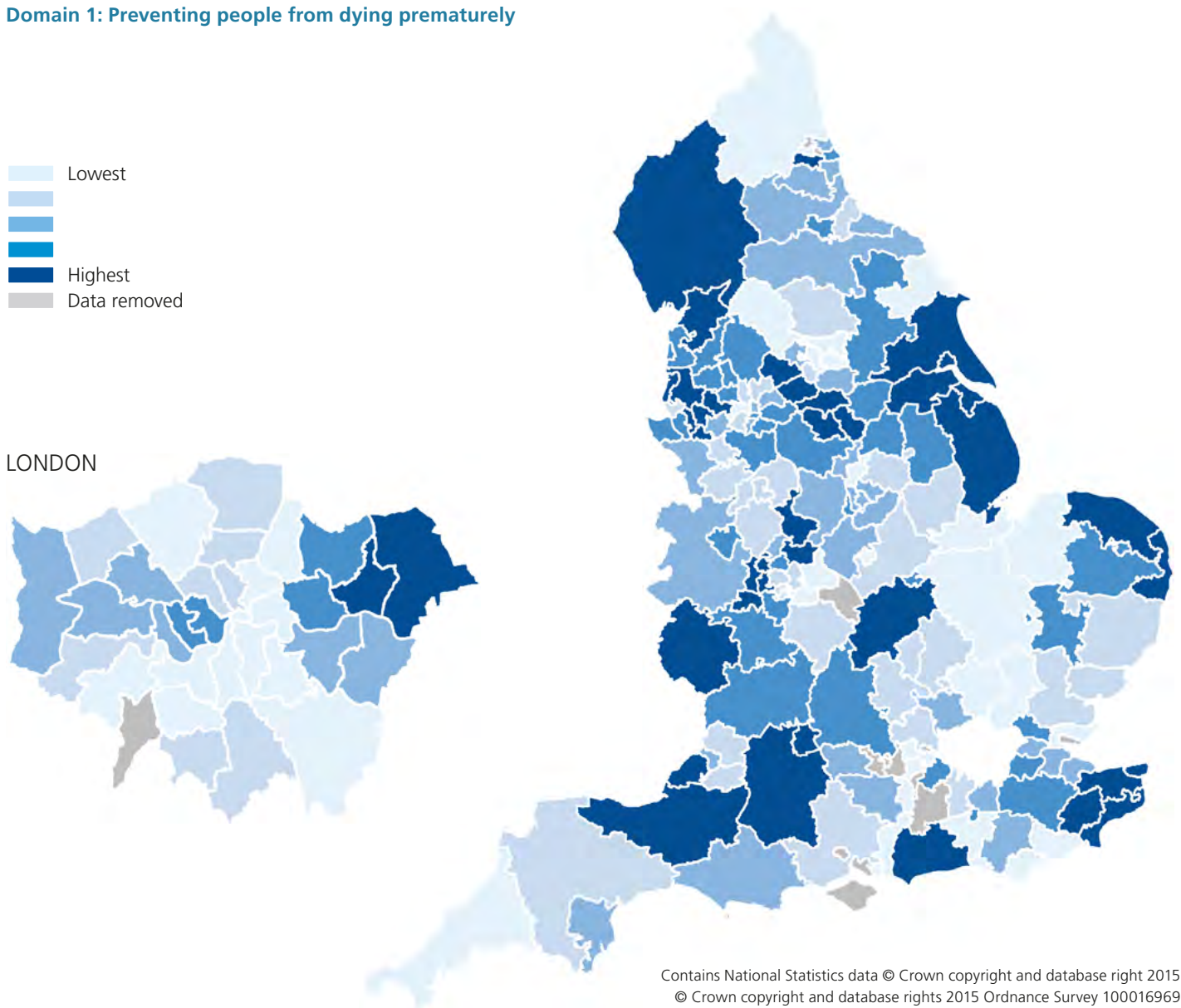
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198 out of 211 CCGs (13 removed due to small numbers)

CANCERS AND TUMOURS

Map 12: Percentage of all cancer diagnoses that were made at stage 1 or stage 2 by CCG

2013

Domain 1: Preventing people from dying prematurely

Lowest

Highest

LONDON

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211 CCGs

Per cent
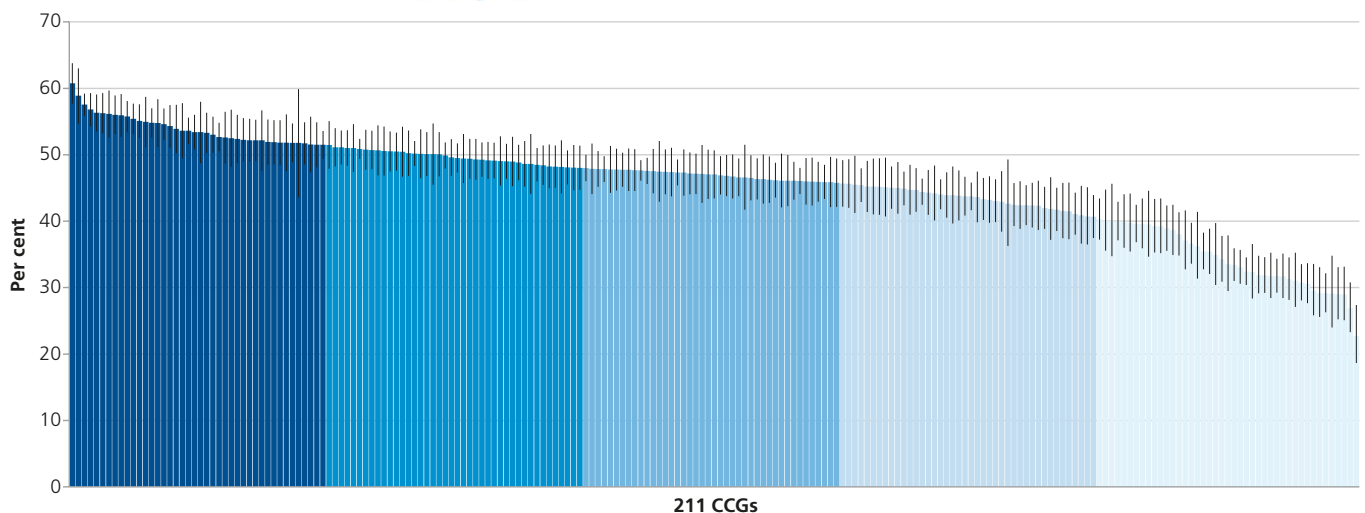
Context

Staging describes the size of a cancer, and how far it has spread.[1] Most types of cancer have four stages, numbered from 1 to 4.

› In stage 1, the cancer is relatively small and contained within the organ it started in;

› In stage 2, the cancer has not started to spread into surrounding tissue but the tumour is larger than in stage 1; sometimes, cancer cells may have spread into lymph nodes close to the tumour, but this depends on the particular type of cancer;

› In stage 3, the cancer is larger, may have started to spread into surrounding tissues and cancer cells are present in the lymph nodes in the area.

› In stage 4, the cancer has spread from where it started to another body organ, also referred to as secondary or metastatic cancer.[1]

Staging is important because it determines the nature and type of treatment needed: if a cancer is stage 1, treatment with curative intent is more likely, but, if the cancer is stage 3 or 4 and has spread, only palliative care might be possible. Thus, people whose cancers are detected earlier have much higher survival than people with later staged cancers[2]; later stages of cancer have poorer outcomes. More than two-thirds of breast cancers present at stages 1 or 2, whereas more than two-thirds of lung cancers present at stages 3 or 4.[3] In addition, some population groups are more likely to be diagnosed with later stage disease.[3]

The aim for the National Awareness and Early Diagnosis Initiative (NAEDI; see "Resources") is to promote earlier diagnosis of cancer, thereby increasing access to optimal treatment, and improving survival rates and reducing mortality from cancer, through:

› achieving early presentation;

› optimising clinical practice and systems;

› improving GP access to diagnostics, though the Accelerate, Coordinate, Evaluate (ACE) Programme[4], one aim of which is to shift diagnosis of cancer from late to stages 1 and 2;

› research, monitoring and evaluation.

The "Accelerate, Coordinate, Evaluate" (ACE) Programme[4] is building on service and pathway development activity in England to improve early diagnosis and inform commissioning in the future.

To assess the impact of early diagnosis initiatives, screening programmes and improvements in healthcare, it is necessary to have accurate and complete information on the stage of a cancer at diagnosis. The quality of staging data has improved greatly in recent years; In 2013, data were ~70% complete for a basket of ten of the more common cancers, and 82% complete for colorectal cancers. The missing data, however, are not evenly spread and contribute to the geographic variation of cancers reported to be early stage.

In England, colorectal cancer is the fourth most common cancer, after breast, prostate, and lung cancer. In 2013, 33,765 people were diagnosed with the condition.[5]

More than 80% of colorectal cancers are diagnosed in people aged 60 years and over. Apart from age, risk factors for colorectal cancer include: a family history; diet low in fibre; physical inactivity; alcohol consumption; obesity; ulcerative colitis and Crohn's disease.

About 20% of patients present as emergencies with actual or impending bowel obstruction[6], and have a markedly worse outcome. A reduction in the proportion of patients presenting as an emergency may indicate that the overall stage of diagnosis is improving.

Magnitude of variation

Map 12: All cancers diagnosed at stages 1 and 2

For CCGs in England, the percentage of all cancer diagnoses that were made at stage 1 or stage 2 ranged from 22.7% to 60.8% (2.7-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 29.6–56.0%, and the variation is 1.9-fold.

These data must be interpreted with some caution because the denominator includes all cancers, irrespective of whether they are staged.

Map 13: Colorectal cancer diagnosed at stages 1 and 2

For CCGs in England, the percentage of new cases of colorectal cancer that were diagnosed at stage 1 or stage 2 ranged from 13.5% to 54.4% (4.0-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest

1   Cancer Research UK. Stages of cancer. http://www.cancerresearchuk.org/about-cancer/what-is-cancer/stages-of-cancer

2   http://www.ncin.org.uk/view?rid=2752.

3   McPhail S, Johnson S, Greenberg D et al. Stage at diagnosis and early mortality from cancer in England. British Journal of Cancer 2015; 112: S108-S115. doi: 10.1038/bjc.2015.49 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4385983/

4   Cancer Research UK. ACE Programme. http://www.cancerresearchuk.org/health-professional/early-diagnosis-activities/ace-programme

5   Office for National Statistics. Statistical Bulletin. Cancer Registration Statistics, England 2013. http://www.ons.gov.uk/ons/dcp171778_409714.pdf

6   Health and Social Care Information Centre. National Bowel Cancer Audit Report - 2014. http://www.hscic.gov.uk/catalogue/PUB16021

percentages are excluded, the range is 17.1–48.2%, and the variation is 2.8-fold.

These data must be interpreted with some caution because the denominator includes all colorectal cancers, irrespective of whether they are staged; for 2013, 82% of data returns for colorectal cancer showed staging data.

Narrowing the degree of variation towards the highest ratio of diagnosis at stage 1 or stage 2 would indicate improving diagnostic processes for colorectal cancer.

For both indicators, one reason for the degree of variation observed is differences in the completeness of staging data among different localities, which will directly affect the observed proportion of early-stage cancers.[7] As data-collection processes are harmonised, these differences in the level of completion of staging data across the country will be eradicated.

Other reasons for variation include differences in:

› patients' awareness of and response to symptoms;
› access to diagnostic services;
› timely referral of patients;
› mix of cancers diagnosed in local populations.

Options for action

All cancers (Map 12)

To improve the percentage of cancers diagnosed at stage 1 or stage 2, commissioners need to specify that:

› service providers participate in early diagnosis initiatives, such as the NAEDI (see "Resources") to identify early signs of cancer before the disease develops;

› service providers work to increase participation in the screening programmes for breast cancer and cervical cancer to improve the early detection of these cancers;

› GPs comply with NICE guidelines NG12 (see "Resources") on suspected cancer.

Colorectal cancer (Map 13)

Commissioners need to consider commissioning different pathways for people with new colorectal symptoms who have a low risk of cancer (but not a no-cancer risk), which include a straight-to-test process. Commissioners need to specify that service providers:

› comply with NICE guidance on the diagnosis and management of colorectal cancer (CG131; see "Resources"), which should help to reduce variation in diagnostic rates and the stages at which colorectal cancer is diagnosed;

› work towards achieving NICE quality standard QS20 for colorectal cancer (see "Resources").

Primary care service providers need to encourage participation in the NHS Bowel Cancer Screening Programme[8], which will help to increase early detection. Screening is offered every two years to all men and women aged 60–74 years. In addition, NHS Bowel Scope Screening[9], flexible sigmoidoscopic screening of the left colon (see Maps 9A and 9B, pages 58–64), the commonest site for colorectal cancer, is being offered to people at the age of 55 years: by March 2015, 60% of centres were offering bowel scope screening (second-wave roll-out), and by December 2016 all screening centres are scheduled to offer bowel scope screening.

RESOURCES

› Independent Cancer Taskforce. Achieving World-Class Cancer Outcomes. A Strategy For England 2015-2020. http://www.cancerresearchuk.org/sites/default/files/achieving_world-class_cancer_outcomes_-_a_strategy_for_england_2015-2020.pdf

› Cancer Research UK. NAEDI. http://www.cancerresearchuk.org/cancer-info/spotcancerearly/naedi/

› Public Health England. National Cancer Intelligence Network. Cancer survival in England by stage. July 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/347275/Cancer_survival_in_England_by_stage_report_.pdf

› Public Health England. National Cancer Intelligence Network. Imputed stage survival workbook. http://www.ncin.org.uk/publications/survival_by_stage

› Public Health England. National Cancer Intelligence Network. Non-imputed stage survival workbook. http://www.ncin.org.uk/view?rid=2757

› NICE. Suspected cancer: recognition and referral. NICE guidelines [NG12]. June 2015. https://www.nice.org.uk/guidance/ng12

› NICE pathways. Suspected cancer recognition and referral overview. http://pathways.nice.org.uk/pathways/suspected-cancer-recognition-and-referral

› NICE. Colorectal cancer: The diagnosis and management of colorectal cancer. NICE guidelines [CG131]. December 2014. https://www.nice.org.uk/guidance/cg131

› NICE. Colorectal cancer. NICE quality standard [QS20]. August 2012. http://www.nice.org.uk/guidance/qs20

› Quality statement 2: Staging (colon cancer). http://www.nice.org.uk/guidance/QS20/chapter/Quality-statement-2-Staging-colon-cancer

› Quality statement 3: Staging (rectal cancer). http://www.nice.org.uk/guidance/qs20/chapter/Quality-statement-3-Staging-rectal-cancer

› NICE pathways. Colorectal cancer overview. http://pathways.nice.org.uk/pathways/colorectal-cancer

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7 NCIN. Interpreting geographic variation by cancer stage. http://www.ncin.org.uk/publications/data_briefings/interpreting_geographic_variation_in_cancer_stage

8 http://www.cancerscreening.nhs.uk/bowel/

9 http://www.cancerscreening.nhs.uk/bowel/bowel-scope-screening.html

CANCERS AND TUMOURS

Map 13: Percentage of new cases of colorectal cancer that were diagnosed at stage 1 or stage 2 by CCG
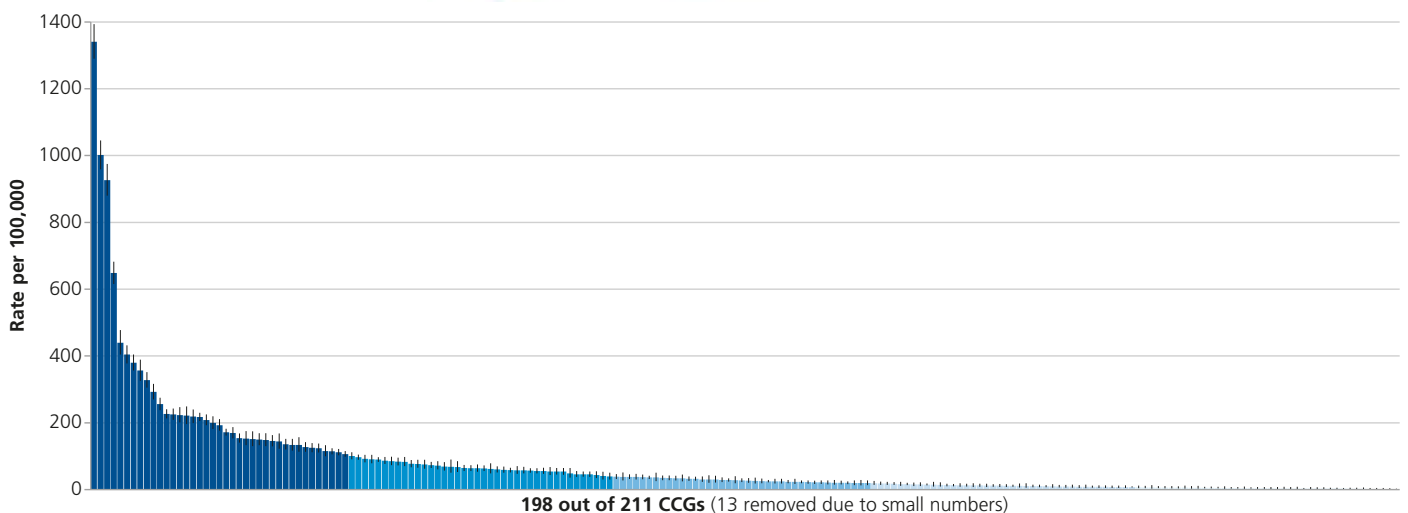
2013

Domain 1: Preventing people from dying prematurely

Lowest

Highest

LONDON

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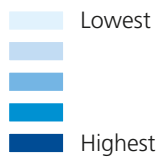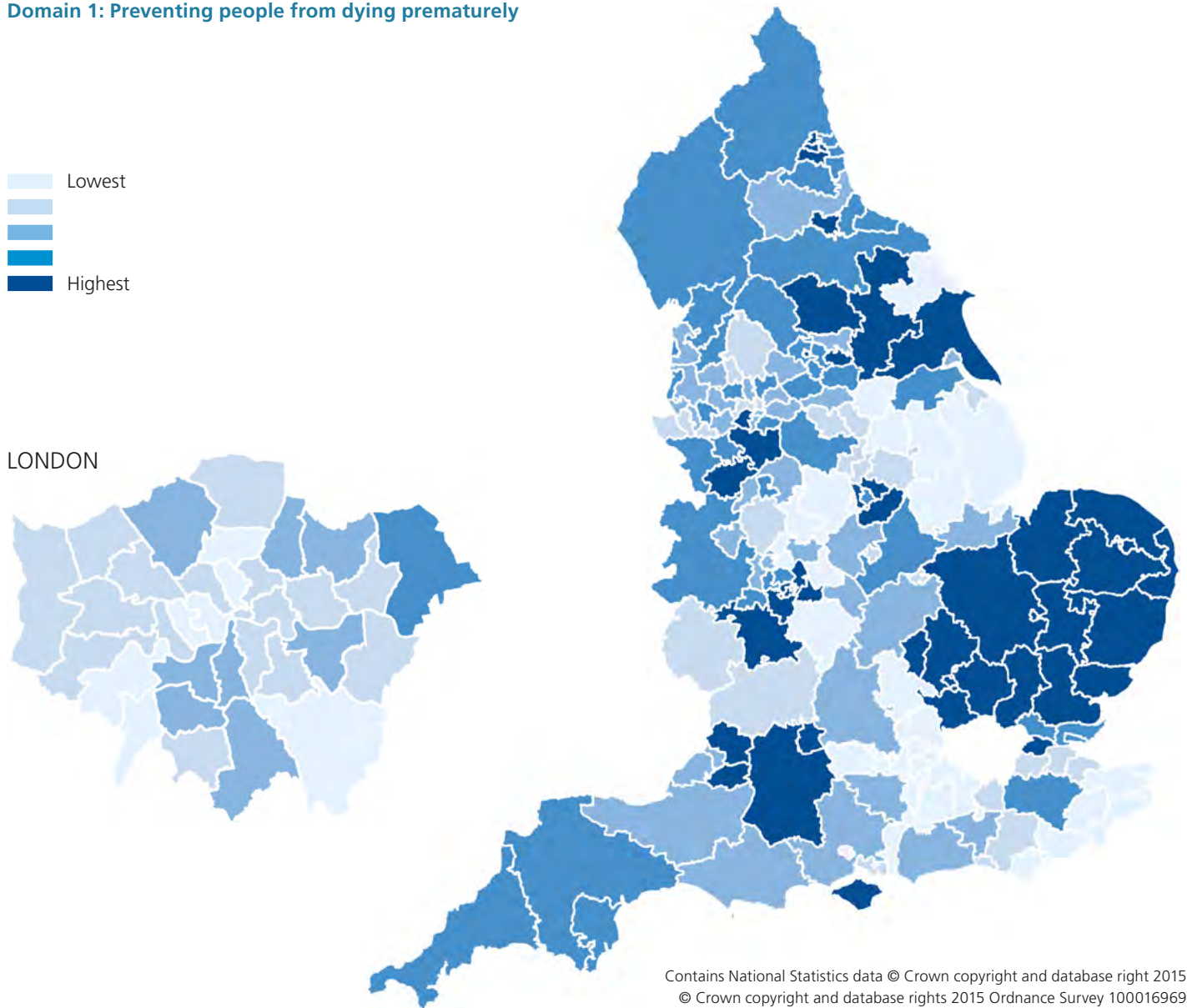© Crown copyright and database rights 2015 Ordnance Survey 100016969

Per cent

211 CCGs
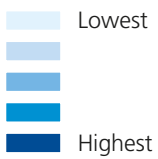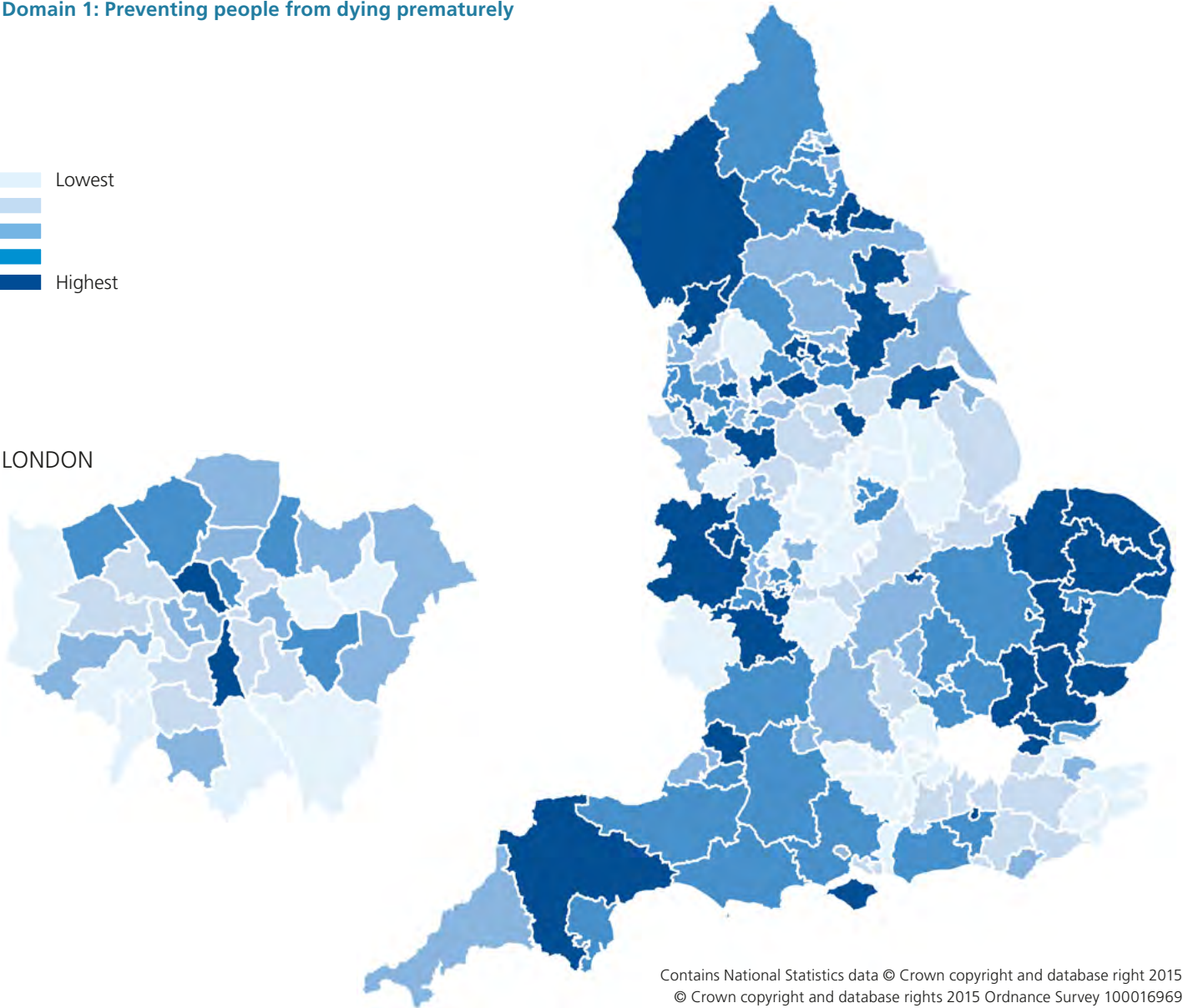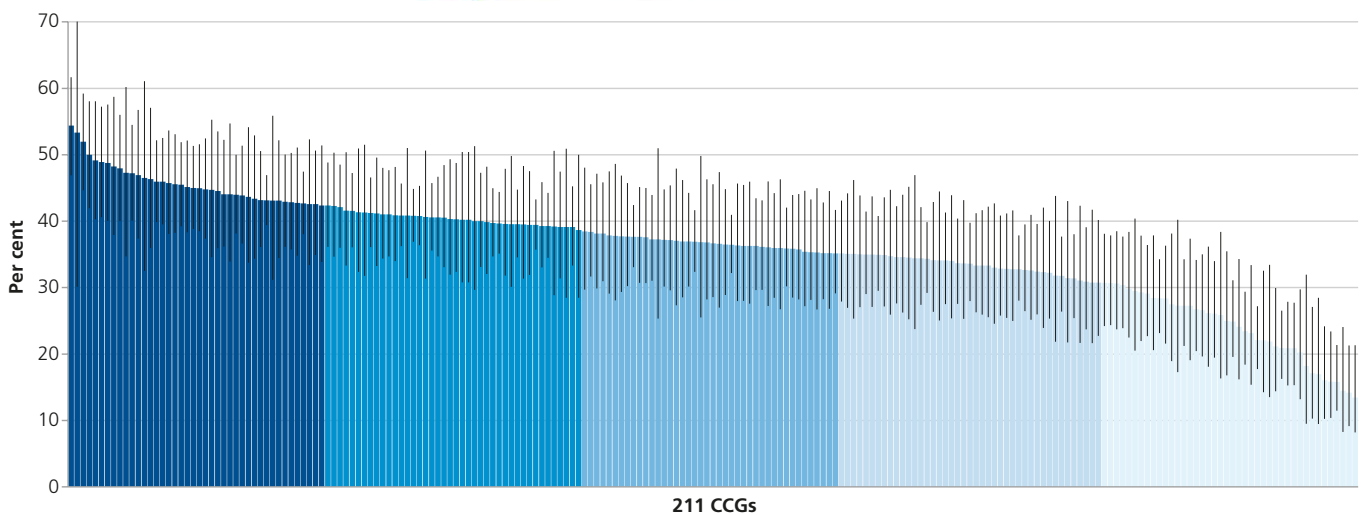
NEUROLOGICAL PROBLEMS

Map 14: Rate of epilepsy emergency admissions to hospital in people aged 18 years and over per population by CCG

Directly standardised rate, adjusted for age and sex, 2012/13

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

LONDON

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211 CCGs
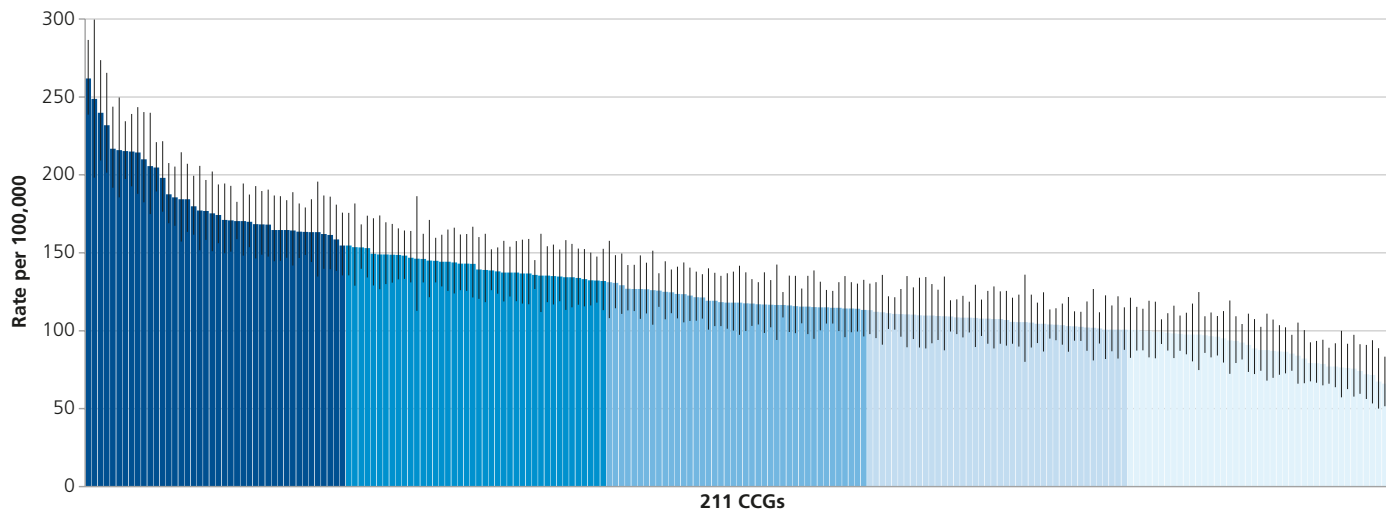
Context

Epilepsy is an illness that causes recurrent seizures. It can affect anyone, at any age, and from any walk of life. One in every 100 people in the adult population suffers from epilepsy, and about one in ten of those people will be admitted to hospital each year as a consequence. Each year, 32,000 people in the UK will be newly diagnosed with epilepsy. People with epilepsy are 2–3 times more likely to die prematurely than those in the general population. The prevalence of epilepsy varies across England: some areas record a prevalence 2.5 times higher than others. People in lower socio-economic groups are more likely to experience epilepsy; it is also associated with increasing age, vascular disease, abuse of drugs or alcohol, social exclusion and learning disability.

Epilepsy is an exceptionally common cause of ill health, disability, and social exclusion. People with active epilepsy are:

> are less likely to be employed;

> are unable to drive;

> may be unable to live alone.

Contrary to common belief, only one in five people with epilepsy has a learning or an intellectual disability. With good care, however, about 70% of people with epilepsy will become seizure-free, and be able to lead a normal life.

There are many different types and causes of epilepsy. It can be inherited or a consequence of brain injury; in about 50% of patients, no cause can be identified. Some people who present at emergency departments following a seizure will make a full recovery, and can be discharged home to be investigated as an outpatient. For others, it may be necessary to admit them for a short time to investigate the cause or to establish better treatment.

Magnitude of variation

Map 14: Emergency admissions

For CCGs in England, the rate of epilepsy emergency admissions to hospital in people aged 18 years and over ranged from 50 to 262 per 100,000 population (5.2-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 76–215 per 100,000 population, and the variation is 2.8-fold.[1]

Reasons for the degree of variation observed could include differences in:

> prevalence of the illness[2];

> clinical management in hospital, e.g. protocols used in the emergency department;

> control of the condition, e.g. compliance with drug treatment;

> availability of local care, and care pathways;

> patients' social circumstances.

Map 15: Percentage seizure-free

For CCGs in England, the percentage of people with epilepsy aged 18 years and over on GP epilepsy registers who were seizure-free in the preceding 12 months ranged from 46.5% to 87.1% (1.9-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 50.2–73.1%, and the variation is 1.5-fold.

Reasons for the degree of variation observed include differences in:

> the severity of epilepsy and the level of control of the condition, e.g. compliance with drug treatment;

> availability of local care, and care pathways;

> patients' social circumstances.

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1 For data in 2006/07-2008/09 by PCT, see Atlas 1.0, Map 10, pages 42–43.
2 Public Health England. Neurology Profiles. "Epilepsy" tab, "Prevalence" is the first indicator. http://fingertips.phe.org.uk/profile-group/mental-health/profile/neurology/data#gid/1938132710/pat/46/ati/19/page/0/nn//par/E39000030/are/E38000010/iid/90958/age/168/sex/4

Options for action

Commissioners need to specify that local service providers:

> comply with NICE guidance CG137 and NICE quality standards QS26 and QS27 relating to epilepsy (see "Resources");

> appoint a local epilepsy lead clinician or epilepsy champion;

> establish a local epilepsy system of care for people with epilepsy to monitor and improve care;

> develop population-based epilepsy services with effective links to epilepsy specialists, who are often hospital based;

> establish a rapid access "First Seizure clinic", linked to the emergency department and epilepsy service, with access to appropriate diagnostic investigations, including magnetic resonance imaging (MRI), electroencephalography (EEG), and EEG telemetry;

> establish, and train, specialist nurse practitioners in epilepsy, linked to the local epilepsy service, who are able to provide advice, guidance and support in hospital and in community settings;

> identify, encourage and train GPs with a special interest in epilepsy.

Providers of emergency services need:

> to develop an emergency department protocol for people presenting with seizures, avoiding admission whenever safe and possible;

> to ensure that all people presenting to hospital with a seizure see a specialist who has expertise in epilepsy.

To help improve the control of epilepsy, general practitioners need to use their registers of people with epilepsy:

> to review and optimise people's prescriptions once each year;

> to identify ways to increase people's concordance with drug regimens;

> to identify, and prioritise the care of, people at high risk of seizure, admission and sudden death;

> to consider the effect of epilepsy and epilepsy medication on co-morbidities that might trigger admission, and vice versa.

RESOURCES

> NICE. The epilepsies: The diagnosis and management of the epilepsies in adults and children in primary and secondary care. NICE guidelines [CG137]. January 2012. http://www.nice.org.uk/guidance/cg137

> NICE. The epilepsies in adults. NICE quality standard [QS26]. February 2013. http://www.nice.org.uk/guidance/qs26

> NICE. The epilepsies in children and young people. NICE quality standard [QS27]. February 2013. http://www.nice.org.uk/guidance/qs27

> NICE. Diagnosis and management of the epilepsies in adults, children and young people. NICE commissioning guidelines [CMG47]. February 2013.

> Epilepsy Society (2015) Recommended information. A list of resources, particularly relevant to healthcare professionals. http://www.epilepsysociety.org.uk/recommended-information

NEUROLOGICAL PROBLEMS

Map 15: Percentage of people with epilepsy aged 18 years and over on GP epilepsy registers who were seizure-free for the preceding 12 months by CCG

2013/14

Domain 2: Enhancing quality of life for people with long-term conditions
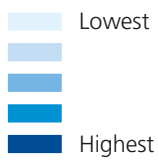
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211 CCGs
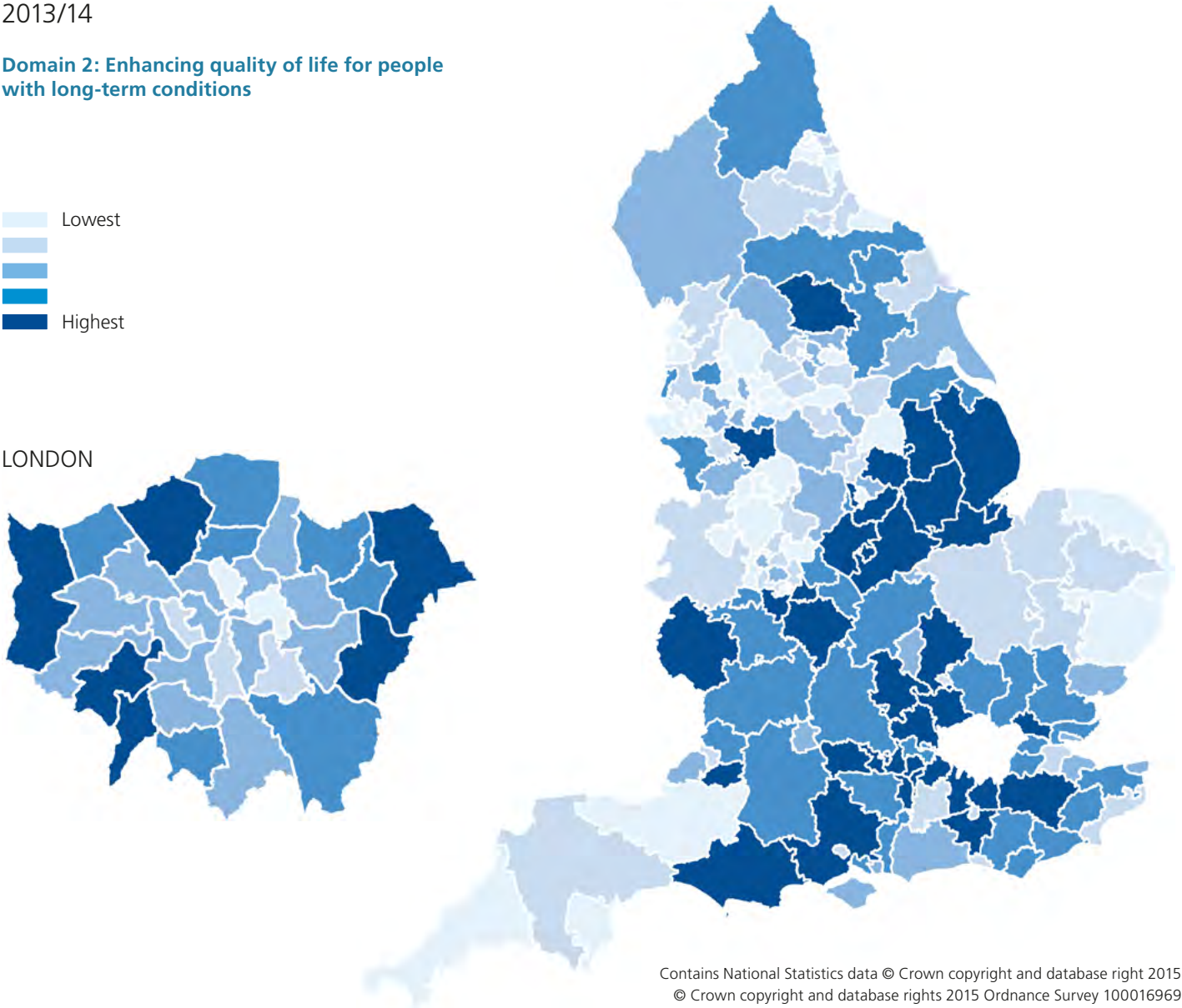
PROBLEMS OF THE GASTRO-INTESTINAL SYSTEM

Map 16: Rate of years of life lost (YLLs) in people aged under 75 years due to mortality from chronic liver disease including cirrhosis per population by lower-tier local authority

Directly standardised rate, adjusted for age, 2010–2012

Domain 1: Preventing people from dying prematurely
Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest
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LONGON

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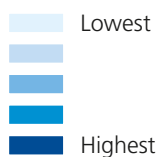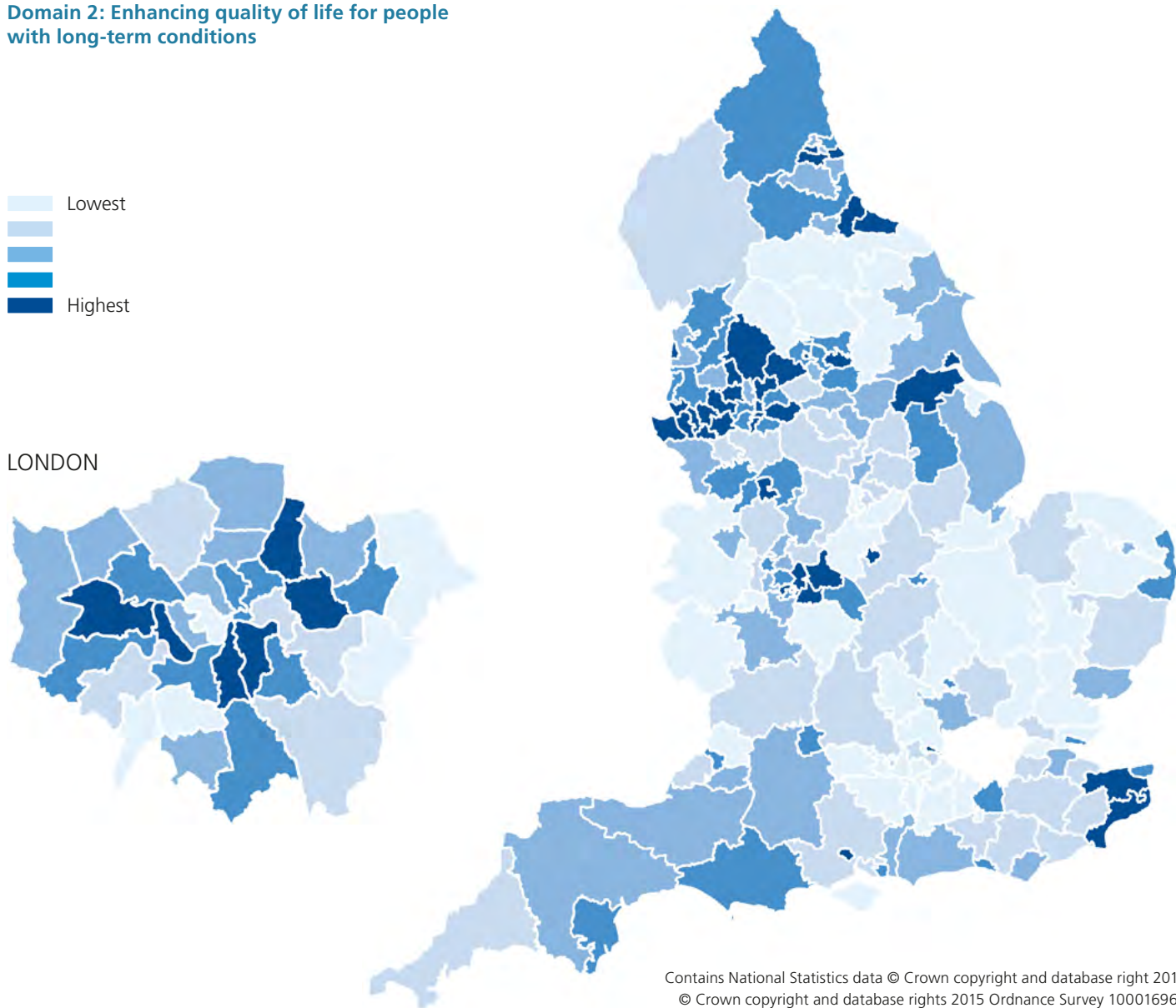© Crown copyright and database rights 2015 Ordnance Survey 100016969

Rate per 10,000

322 out of 326 LTLAs (4 removed due to small numbers)
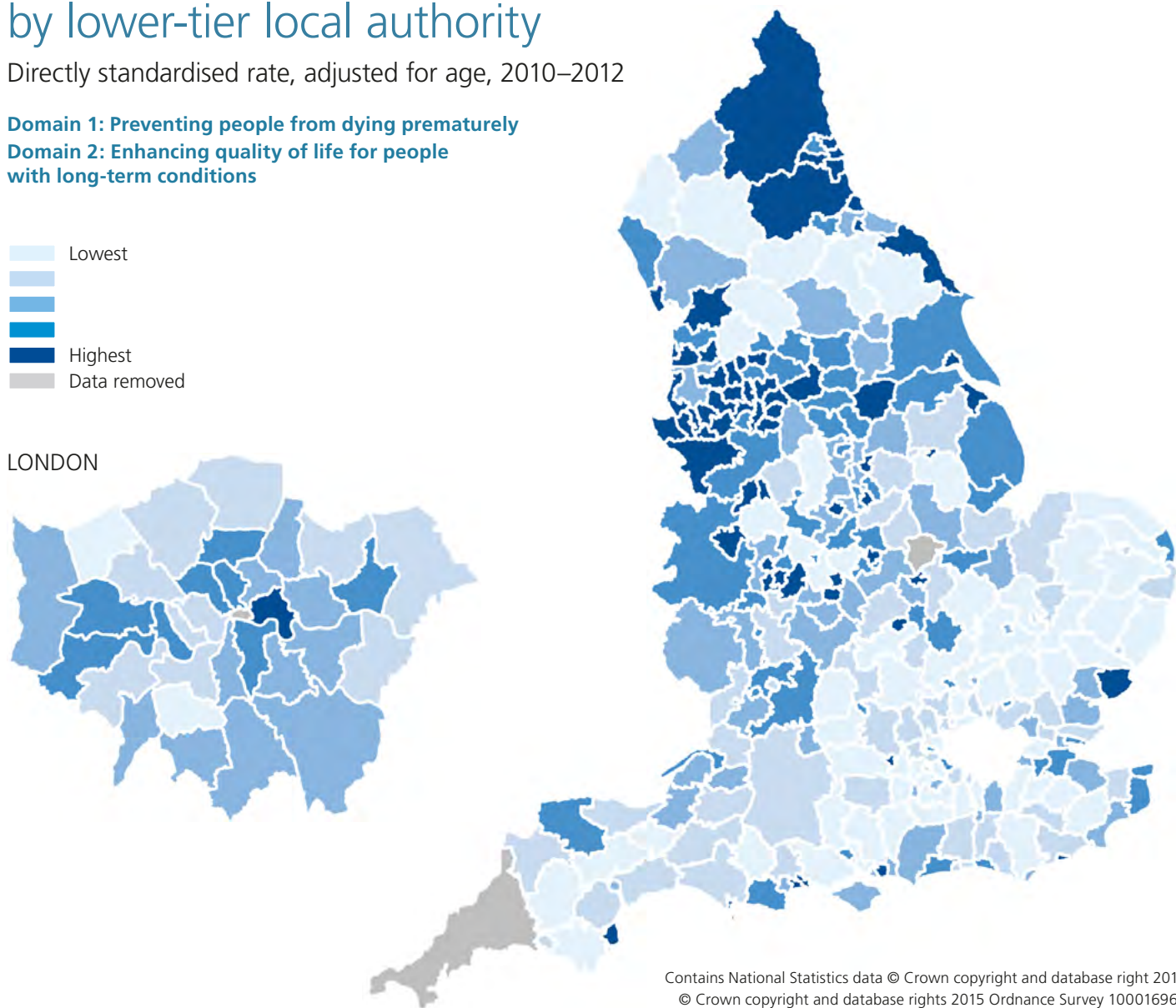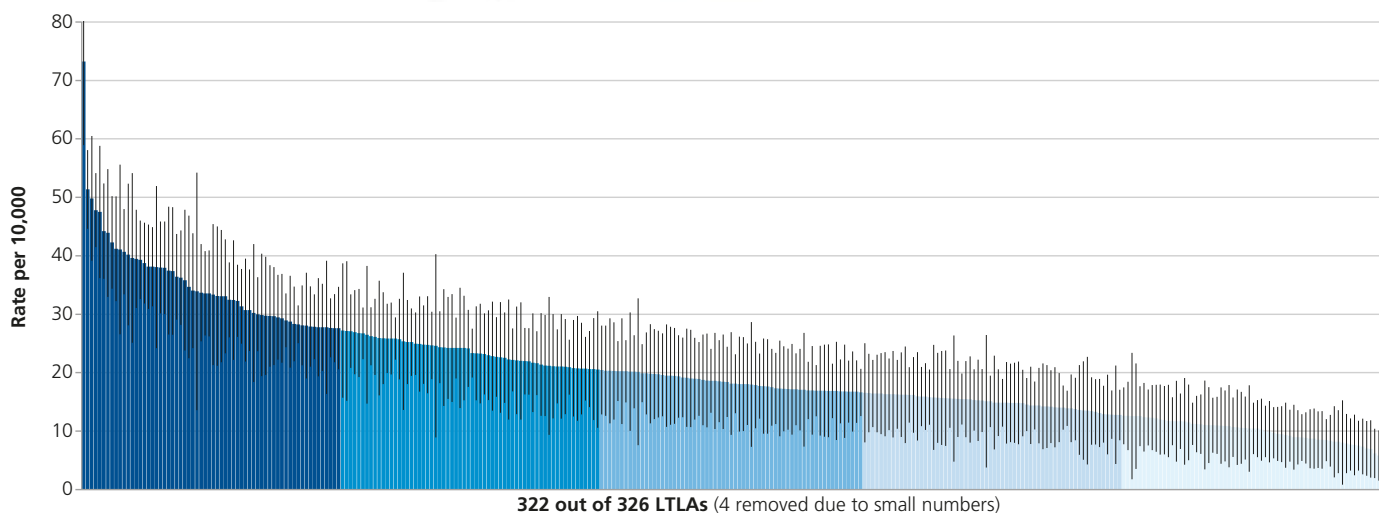
Context

Premature death from chronic liver disease has been rising in recent years, and chronic liver disease is now the fifth largest cause of death. Between 1993 and 2010, the directly age-standardised mortality rate in England increased by 88%.[1] Local Alcohol Profiles for England indicate that chronic liver disease is the leading cause of months of life lost for women under the age of 75 years.[2] The rate of years of life lost (YLL) from chronic liver disease is higher than that for stroke, land transport incidents and colorectal cancer (see Figure 16.1, page 258).

Chronic liver disease is largely preventable. The major contributing causes of liver disease are:

> alcohol – more people are being diagnosed with alcohol-related liver disease, and at a younger age, due to increasing consumption and the decreasing cost of alcohol;

> obesity and diabetes – people with diabetes or who are obese are susceptible to many health problems, but 5–10% will develop cirrhosis of the liver, and as obesity and diabetes increase the number of people with cirrhosis will increase; England has high rates of obesity and diabetes when compared with many other countries;

> hepatitis C due to injecting drug use, and the transfusion of contaminated blood products prior to 1990, as well as being seen in many people born outside the UK; a substantial proportion of people with hepatitis C remain undiagnosed; among those known to have hepatitis C, treatment rates are low;

> chronic hepatitis B, usually acquired at birth or in early childhood, and occurring predominantly in people who now reside in England but were born in other countries where prevalence is higher; a small proportion of adults who acquire acute hepatitis B through sexual transmission or injecting drug use may also develop liver disease.

People with liver disease die at a younger age than people dying from other diseases, such as cancer, cardiovascular disease or respiratory disease.

Magnitude of variation

For lower-tier local authorities (LTLAs) in England, the rate of YLLs in people aged under 75 years due to mortality from chronic liver disease including cirrhosis ranged from 3.6 to 73.3 per 10,000 population (20.2-fold variation).[3] When the ten LTLAs with the highest rates and the ten LTLAs with the lowest rates are excluded, the range is 8.1–40.7 per 10,000 population, and the variation is 5.1-fold.[4]

Potential reasons for the degree of variation observed include differences in:

> incidence of diabetes, obesity, hepatitis B, and hepatitis C;

> level of alcohol consumption;

> extent and effectiveness of preventative measures;

> service configuration;

> timing of diagnosis;

> degree of adherence to guidance;

> level of compliance with prevention or treatment.

Options for action

Commissioners and service providers need to review the rates of YLLs from chronic liver disease in people aged under 75 years in the local population, and:

> review prevailing strategies for preventing and treating chronic liver disease;

> consider the reconfiguration of services both for advanced liver disease and for the community identification and care of liver disease.

In localities where liver disease has become concentrated, secondary care providers need to play a role in the community to help reduce the burden of admission.

Commissioners need to specify that:

> primary care providers improve the early identification of liver disease, and intervene early;

> primary and secondary care providers collaborate to ensure patients gain access to appropriate expertise and disease management.

All service providers need:

> to promote healthy lifestyles (Making Every Contact Count[5]), and inform the public about the causes of liver damage, and the harmful effects of excess alcohol consumption and of obesity;

> to have a low threshold for undertaking liver function and hepatitis tests, and policies in place to take action on the results;

> improve self-management through education about prevention and compliance with treatment, using digital and multimedia resources;

> to raise awareness of liver disease among healthcare professionals, and develop skills in the identification and management of liver disease, and the excess use of alcohol.

RESOURCES

> NICE pathways. Liver conditions overview. http://pathways.nice.org.uk/pathways/liver-conditions

> NICE. Alcohol-use disorders: Diagnosis and clinical management of alcohol-related physical complications. NICE guidelines [CG100]. June 2010. Alcohol-related liver disease. https://www.nice.org.uk/guidance/cg100/ifp/chapter/alcohol-related-liver-disease

> Public Health England. Local Alcohol Profiles for England. http://fingertips.phe.org.uk/profile/local-alcohol-profiles

> Public Health England. Liver Disease Profiles. http://fingertips.phe.org.uk/profile/liver-disease

> Association of Public Health Observatories. Indications of Public Health in the English Regions 8: Alcohol. August 2007. http://www.apho.org.uk/resource/item.aspx?RID=39304

> Health and Social Care Information Centre. Mortality Data and Indicators for Chronic Liver Disease. https://indicators.ic.nhs.uk/webview/ From the index, click 'Illness or condition', 'Digestive disease and disorders', 'Chronic liver disease' to see Liver Disease indicators.

> Public Health England. Obesity website. http://www.noo.org.uk

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1 Health and Social Care Information Centre. Mortality Data and Indicators for Chronic Liver Disease. https://indicators.ic.nhs.uk/webview/ From the index, click 'Illness or condition', 'Digestive disease and disorders', 'Chronic liver disease' to see Liver Disease indicators.

2 Public Health England. Local Alcohol Profiles for England. http://fingertips.phe.org.uk/profile/local-alcohol-profiles

3 Data from four LTLAs have been removed due to small numbers.

4 For 2008-2010 data by PCT, see Liver Disease Atlas, Map 2, pages 48–49.

5 http://www.makingeverycontactcount.co.uk/

DENTAL PROBLEMS

Map 17: Percentage of people who succeeded in gaining access to NHS dentistry services after requesting an appointment in the last two years by NHS area team

January–March 2014

Domain 4: Ensuring that people have a positive experience of care
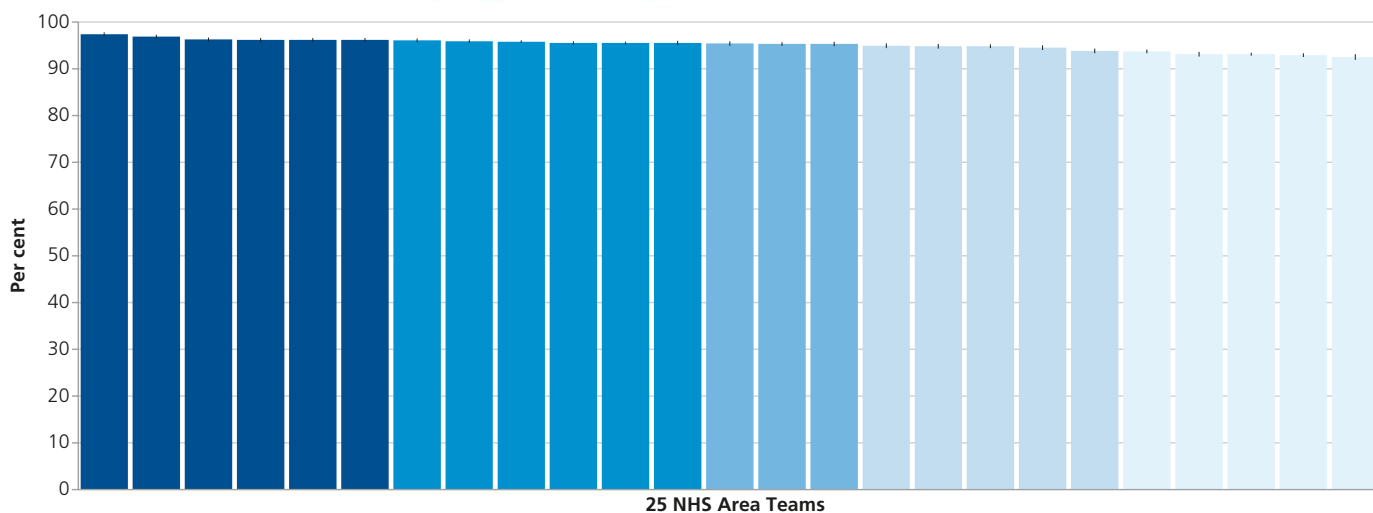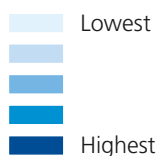
Context

Regular attendance at an NHS dental practice for oral health checks and advice on self-care helps to prevent dental disease. Thus, regular access to NHS dentistry services ensures clinically necessary dental treatment is timely and reduces the need for unscheduled dental care and inappropriate presentations at GP surgeries or A&E departments for pain relief.

Data for this indicator are from the GP Patient Survey January–March 2014 of 1.3 million adults. People were asked if they had tried to obtain an appointment with an NHS dentist and, if so, whether had they been successful. The response rate was 35%. Of those who did respond, 61% had tried to get an NHS dental appointment in the last two years. Of those who had tried to get an appointment, 93% were successful.

Respondents who were less successful included:

› younger people;

› people from ethnic minority groups;

› people who had not been to the practice before.

During this time-period, North of England region had the highest proportion of the adult population who tried to get an NHS dental appointment in the last two years (65.4%). Midlands and East region had the highest proportion of the adult population who were successful in:

› making an NHS dental appointment over the last two years (93.9%) – the success rate was 95.6% when respondents were excluded who answered "Can't remember";

› making an NHS dental appointment in the last two years at a practice to which they had not been before (79.3%).

Between 2009 and 2011, the Department of Health (DH) ran the Dental Access Programme which led to an improvement in the number of people able to access NHS dental services across England, but improvement was not equal in all regions.

Since 2011, the DH and NHS England have been running pilots of a reformed contract for NHS dental services, which will be designed to meet the NHS White Paper commitment to improve the quality of patient care and increase access to NHS dental services. The approach is one of evolution, and it is anticipated that the reformed contract will become the prevalent approach by 2018/19.[1]

Domain 4 of the NHS Outcomes Framework includes "Improving access to NHS dental services", and good access to NHS dentistry is also part of the NHS' commitments to patients in the NHS Constitution Handbook.

Magnitude of variation

For NHS area teams in England, the percentage of people who succeeded in gaining access to NHS dentistry services after requesting an appointment in the last two years ranged from 92.5% to 97.4% (1.1-fold variation).

Although the degree of variation is very low, in some areas, 8 people in every 100 who tried to obtain an NHS dental appointment reported failing to do so.

The disparity in access observed in some population groups will exacerbate inequalities in dental health outcomes among some of those who are vulnerable.

Options for action

Commissioners need to retain a focus on improving access to NHS dental services. Resources from the Dental Access Programme relating to contract management and recall intervals are available to support commissioners (see "Resources"). Commissioners should also specify that service providers comply with NICE guidance CG19 (see "Resources") on recall intervals.

Service providers that applied to become a prototype practice in the reformed contract for NHS dental services will begin testing the new system from October 2015 onwards.

All service providers, however, can use the preventive care pathway designed for the pilots (see Annex 1 of the *Dental Contract Reform: Prototypes. Overview document*[1]), which is intended to promote continuing care, and to encourage patients, where able, to take shared responsibility for their own care, including modifying behaviour such as smoking and diet.

CASE-STUDY

› NHS Kensington and Chelsea used social marketing to increase self-referral rates to NHS dental services and improve overall oral health in under 18s and adults. http://www.thensmc. com/sites/default/files/KC%20dentistry%20SUMMARY. pdf http://www.thensmc.com/sites/default/files/KC%20 dentistry%20FULL%20case%20study.pdf

RESOURCES

› NICE. Dental recall: Recall interval between routine dental examinations. NICE guidance [CG19]. October 2004. https://www.nice.org.uk/guidance/cg19

› Dental Access Programme. The four workstreams. http://webarchive.nationalarchives.gov. uk/20100510065704/http://pcc.nhs.uk/dap-the-four-workstreams

› Dental Access Programme. Contract management handbook http://webarchive.nationalarchives.gov. uk/20100510065704/http://www.pcc.nhs.uk/dap-contract-management-handbook

› NHS England. Dental care and oral health – call to action. http://www.england.nhs.uk/ourwork/qual-clin-lead/ calltoaction/dental-call-to-action/

› Marshman Z. Oral health and access to dental services for people from black and minority ethnic groups. Better health briefing 29. Race Equality Foundation. August 2013. http://www.better-health.org.uk/briefings/oral-health-and-access-dental-services-people-black-and-minority-ethnic-groups

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1   Dental Contract Reform Programme, Department of Health. Dental Contract Reform: Prototypes. Overview document. January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/395384/Reform_Document.pdf

PROBLEMS OF VISION

Map 18: Rate of admission to hospital for cataract surgery in people aged 65 years and over per population by CCG

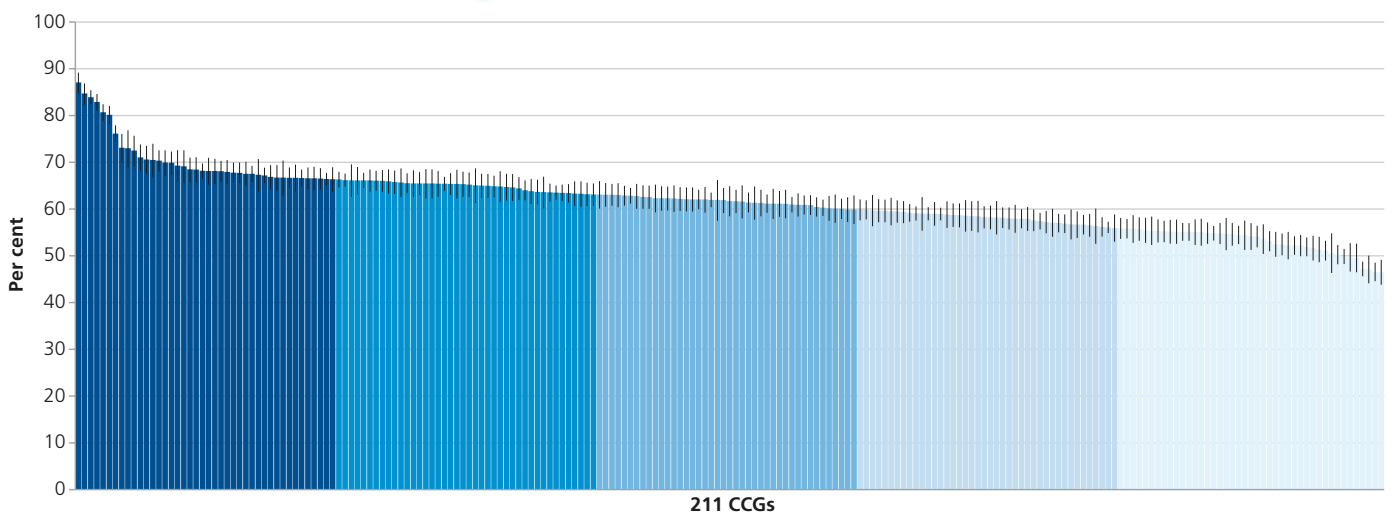Directly standardised rate, adjusted for age and sex, 2012/13

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

LONDON

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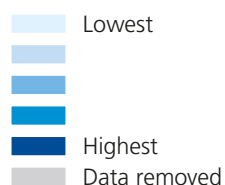© Crown copyright and database rights 2015 Ordnance Survey 100016969

211 CCGs
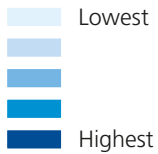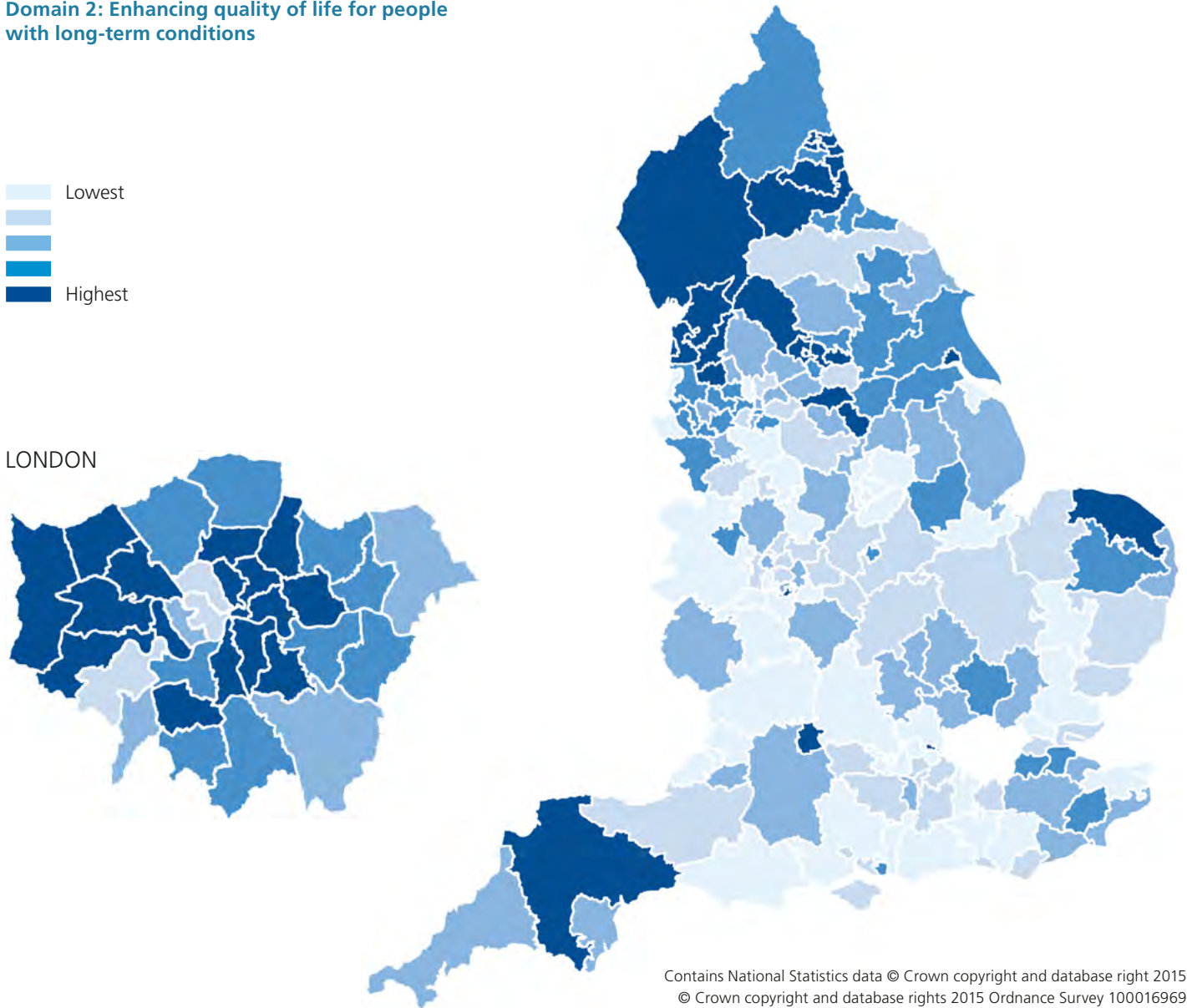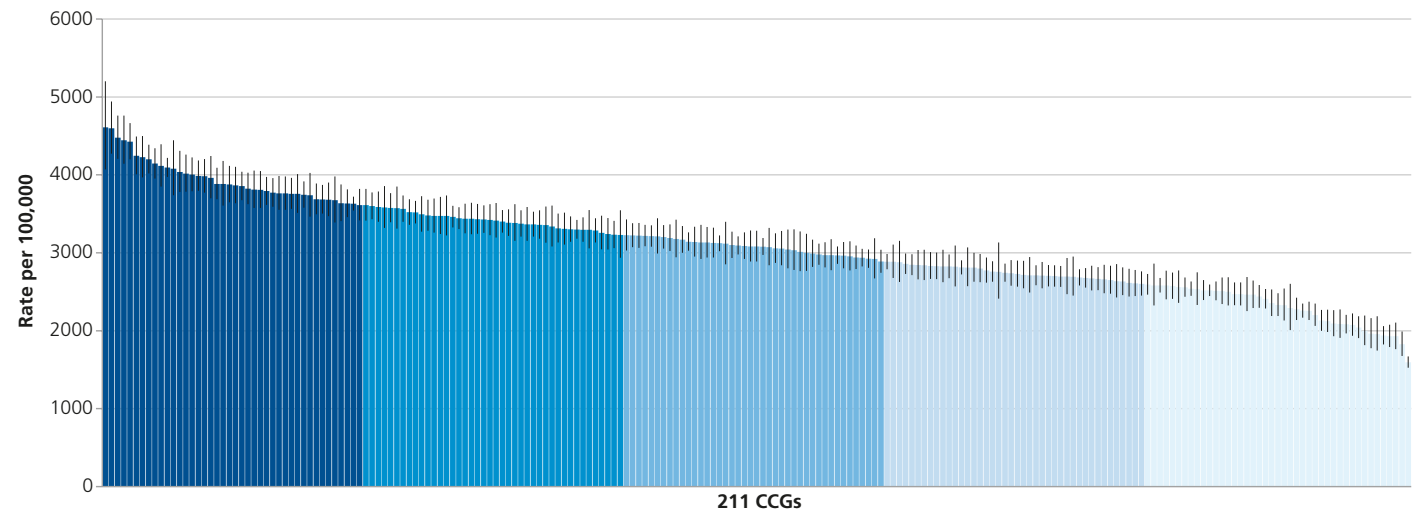
Context

In the NHS, cataract surgery is a safe and clinically effective high-volume procedure, comprising 98.5% of all day-case procedures[1]. Of all cataract surgery procedures, 84% is performed in adults 65 years and over[1] for the management of age-related cataract that causes sight impairment, and thereby helps to maintain older people's independence, mobility, and inclusion in society.

Since 2010, commissioners have sought to limit access to surgery, particularly second-eye surgery, as a means of reducing costs to manage budgetary restrictions. In England between 2010 and 2013, there was a decrease in the rate of admission for cataract surgery (see Table 18.1).

Table 18.1: Rate of admission to hospital for cataract surgery in people aged 65 years and over per 100,000 population

Financial year	Crude admission rate	Directly standardised rate (DSR)	95% confidence intervals (CIs) for DSR
2010/11	3229	3174	3162–3185
2011/12	3131	3094	3082–3105
2012/13	3032	3033	3021–3044

Magnitude of variation

For CCGs in England, the directly standardised rate (DSR) of admission to hospital for cataract surgery in people aged 65 years and over ranged from 1596 to 4610 per 100,000 population (2.9-fold variation). When the CCGs with the five highest rates and the CCGs with the five lowest rates are excluded, the range is 1998–4199 per 100,000 population aged 65 years and over, and the variation is 2.1-fold.

The degree of variation observed in activity for cataract surgery was reflected in that for expenditure on this procedure (r^2= 0.99). Although this indicator is not directly comparable with that in Map 12 (Atlas 1.0, 2010) showing activity for cataract surgery in 2008/09, the persistence in the degree of variation is notable.

The degree of variation observed is likely to be influenced by differences in:

› demography of local populations, e.g. ethnicity, deprivation;
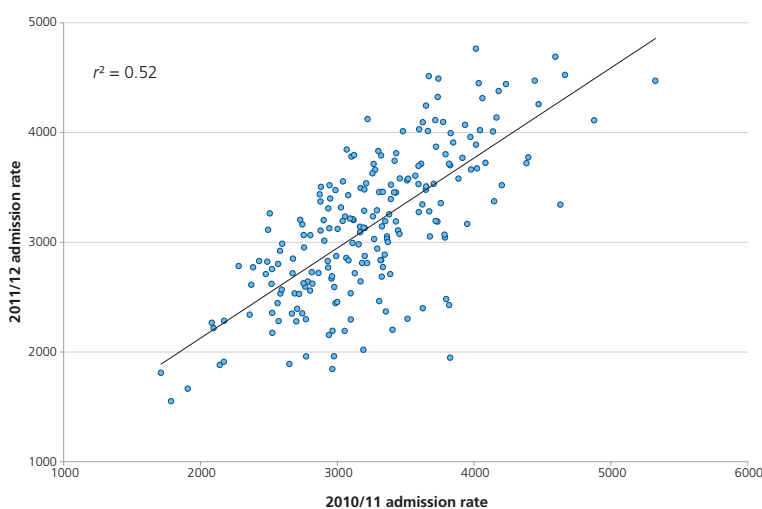
› levels of need in local populations;

› access to NHS services;

› uptake of NHS services.

The decrease in overall rates of admission for cataract surgery in England may reflect priorities for commissioning, and the ways in which services are commissioned.

During the three-year period 2010–2013, the CCGs that had high admission rates and those that had low admission rates tended to be consistent (see Figures 18.1 and 18.2).

Options for action

Over the last decade, there has been considerable investment to ensure services for age-related cataract meet population need, and there is a reduction in waiting times for surgery.

To prevent a backlog of un-operated cases and unmet need resulting in avoidable vision impairment, commissioners, service providers and clinicians need to review:

› local variations and population needs for cataract surgery;

› criteria for intervention to ensure those agreed are based on need (i.e. a person's capacity to benefit) and evidence of effectiveness in terms of outcomes.

In addition, commissioners need to specify that service providers together with clinicians review local pathways of care, and audit second-eye surgery, to ensure some people do not have unnecessary surgery.

RESOURCES

› Royal College of Ophthalmologists. Cataract Surgery Guidelines. September 2010. [A review of these guidelines is scheduled for 2015.] https://www.rcophth.ac.uk/wp-content/uploads/2014/12/2010-SCI-069-Cataract-Surgery-Guidelines-2010-SEPTEMBER-2010.pdf

› Royal College of Ophthalmologists. Commissioning Guide: Cataract Surgery. February 2015. http://www.college-optometrists.org/en/utilities/document-summary.cfm/docid/A70E324D-D04B-40E1-AB082EEA6C1515F4

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1   Health and Social Care Information Centre. Hospital Episode Statistics. http://www.hscic.gov.uk/searchcatalogue?q=title%3A%22Hospital+Episode+Statistics%2C+Admitted+patient+care+-+England%22&area=&size=10&sort=Relevance

Figure 18.1: Correlation between DSR of admissions for cataract surgery in people aged 65 years and over per 100,000 population by CCG in 2010/11 and that in 2011/12 (correlation coefficient = 0.72; r^2 = 0.52)

r^2 = 0.52

Figure 18.2: Correlation between DSR of admissions for cataract surgery in people aged 65 years and over per 100,000 population by CCG in 2011/12 and that in 2012/13 (correlation coefficient = 0.85; r^2 = 0.72)

r^2 = 0.72
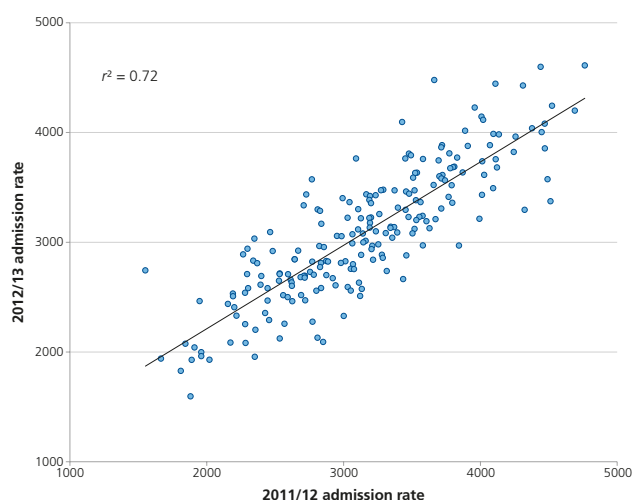
PROBLEMS OF THE RESPIRATORY SYSTEM

Map 19: Rate of sleep studies undertaken per weighted population by CCG

Adjusted for age, sex and "need", 2013/14

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

LONDON

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211 CCGs
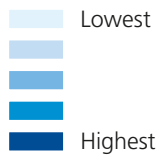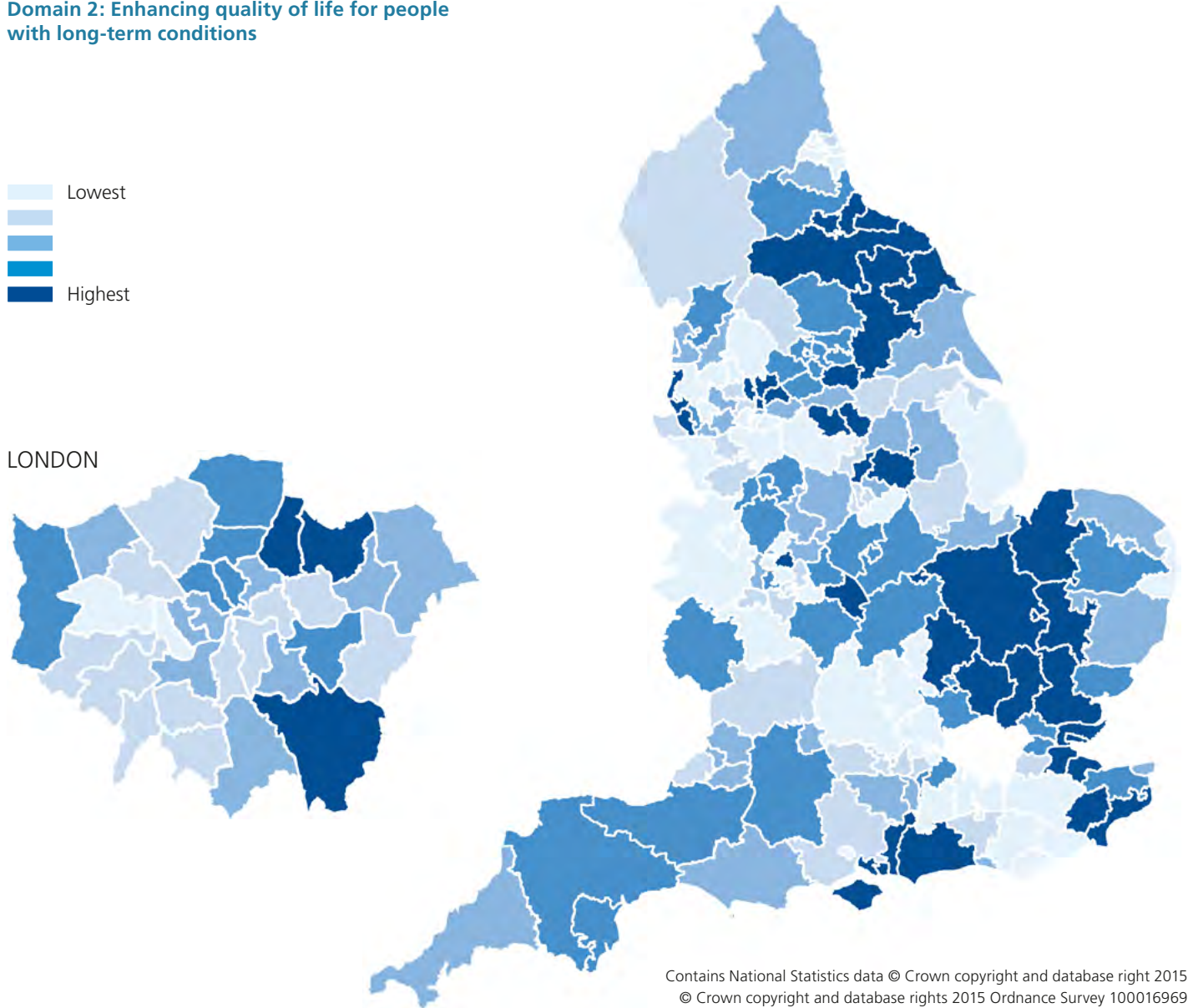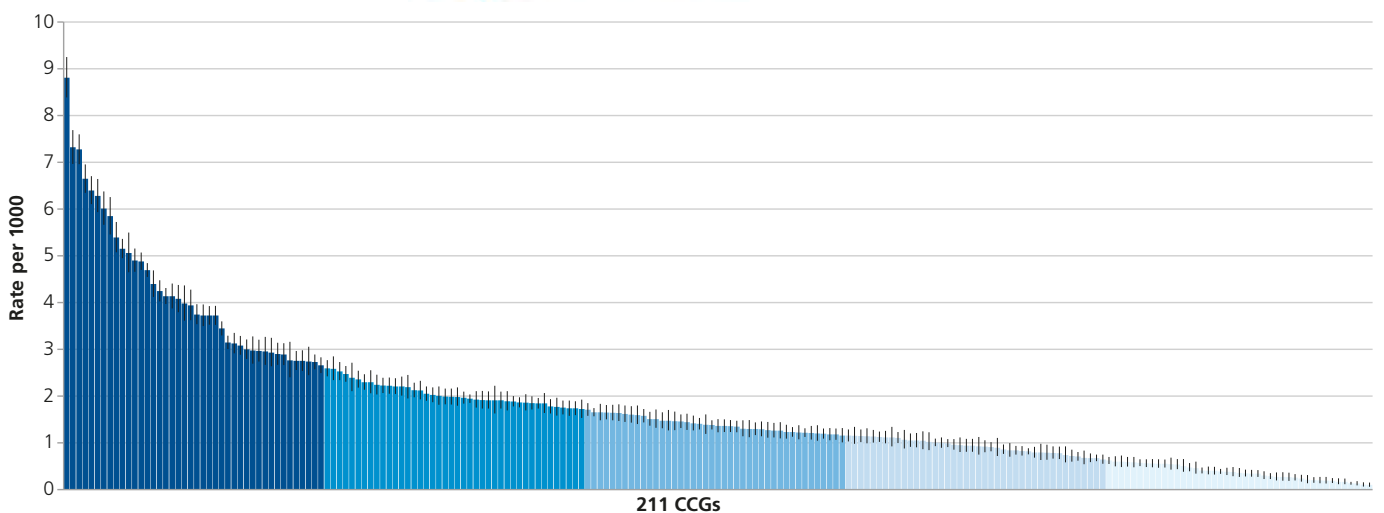
Context

Sleep studies are conducted to identify abnormal sleep patterns and pathologies, and to assess and provide therapeutic intervention. There are more than 80 recognised sleep disorders, which may affect the timing, quality and quantity of sleep. Sleep disorders can vary from mild to life-threatening. Common sleep disorders are insomnia, sleep apnoea, restless leg syndrome, narcolepsy, and sleep problems associated with Parkinson's disease, autism and many other conditions.

Obstructive sleep apnoea (OSA) is the most common sleep disorder, affecting about 4% of the population. During sleep, muscles in the upper airway relax to a greater degree than normal or parts of the airway become blocked for one of several reasons, resulting in apnoeas or pauses in breathing lasting from ten seconds to two minutes. Apnoeas can cause sleep disruption and poor-quality sleep, leading to daytime sleepiness with an increased risk of serious road traffic incidents. If left untreated, OSA can be a risk factor for stroke, cardiovascular problems or diabetes.

Obstructive sleep apnoea is more common in men than women, and becomes increasingly more common in men with age. There is also a link between OSA and obesity.

There are two referral routes for sleep studies:

›   respiratory;

›   neurological – in clinical neurophysiology departments, which have a higher mean cost but lower activity rates when compared with studies undertaken via the respiratory referral route.

There has been an increase of 69.5% in the commissioning of sleep studies from January 2007 to March 2013 (see Figure 19.1, page 258). Reasons for this increase may be the clearance of backlogs in accordance with the interim diagnostic waiting time targets and the maximum waiting time constitutional right. Other factors may increase the demand for sleep studies, e.g. The British Lung Foundation's OSA Charter[1], which could also raise the profile of sleep-related problems and result in additional referrals.

As the real prevalence of symptomatic OSA is 4% in middle-aged men and up to 2% in middle-aged women,[2] current rates of provision of sleep studies may be too low. When the rates of polysomnography (PSG) sleep tests were compared in five countries, the UK's rate of provision was significantly lower than that in other countries.[3] In future, therefore, the number of sleep studies undertaken in England is likely to continue to increase.

Magnitude of variation

For CCGs in England, the rate of sleep studies undertaken ranged from 0.1 to 8.8 per 1000 weighted population (88.4-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 0.2–5.8 per 1000 weighted population, and the variation is 30.8-fold.[4]

Reasons for the degree of variation observed are differences in:

›   availability of the service;

›   prevalence of risk factors and related conditions, such as obesity;

›   symptom recognition and appropriate referral in primary care.

In localities with large sleep centres, which take many tertiary referrals, the rates of testing for sleep-related conditions tend to be higher.

Steier et al produced an overall risk map for OSA that could be used to predict relative prevalence estimates in the UK.[5] They found not only significant regional variation in predicted prevalence estimates, but also a significant mismatch between areas identified as having a high predicted prevalence estimate and the distribution of existing sleep centres.

Options for action

Commissioners together with service providers need:

›   to review referral and delivery models for sleep services;

›   to refine understanding of expected and observed prevalence of related conditions;

›   to review funding models (e.g. outcomes versus activity-based payments) to ensure the financial incentives drive improvement and increase value;

›   to assess the demand and available capacity for local sleep services;

›   to review models for initial diagnostic testing and triage approaches to referral management.

Commissioners need to encourage service providers to participate in the national accreditation scheme, Improving Quality in Physiological Diagnostic Services (IQIPS; see "Resources") to assess quality and productivity.

Clinicians, especially those working in localities with a high prevalence of sleep disorders, can work to raise awareness of the need for sleep studies in the local population.

RESOURCES

›   Transforming Respiratory and Sleep Diagnostic Services. A Good Practice Guide. Department of Health, February 2009. David Lefebvre

›   Improving Quality in Physiological Diagnostic Services. https://www.iqips.org.uk/

›   NICE. Clinical Knowledge Summaries. Obstructive sleep apnoea syndrome. Last revised in April 2015. http://cks.nice.org.uk/obstructive-sleep-apnoea-syndrome

1   British Lung Foundation. The OSA Charter. https://www.blf.org.uk/Page/The-OSA-Charter

2   British Lung Foundation (2014) Obstructive sleep apnoea Project. Year 3 Report. http://www.blf.org.uk/Page/OSA-campaign-report-2014

3   Flemons WW, Douglas NJ, Kuna ST et al (2004) Access to Diagnosis and Treatment of Patients with Suspected Sleep Apnea. American Journal of Respiratory and Critical Care Medicine 169; 668-672. doi: 10.1164/rccm200308-1124PP. http://www.atsjournals.org/doi/pdf/10.1164/rccm.200308-1124PP

4   For 2011/12 and 2012/13 data by PCT, see Diagnostics Atlas, Map 25, pages 106–107.

5   Steier J, Martin A, Harris J et al. Predicted relative prevalence estimates for obstructive sleep apnoea and the associated healthcare provision across the UK. Thorax doi:10.1136/thoraxjnl-2013-203887 http://thorax.bmj.com/content/early/2013/08/26/thoraxjnl-2013-203887.abstract

PROBLEMS OF THE RESPIRATORY SYSTEM

Map 20: Rate of successful smoking quitters at 4 weeks per population of smokers aged 16 years and over by upper-tier local authority

2013/14

Domain 1: Preventing people from dying prematurely
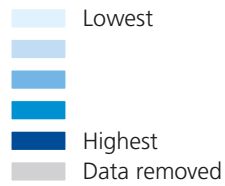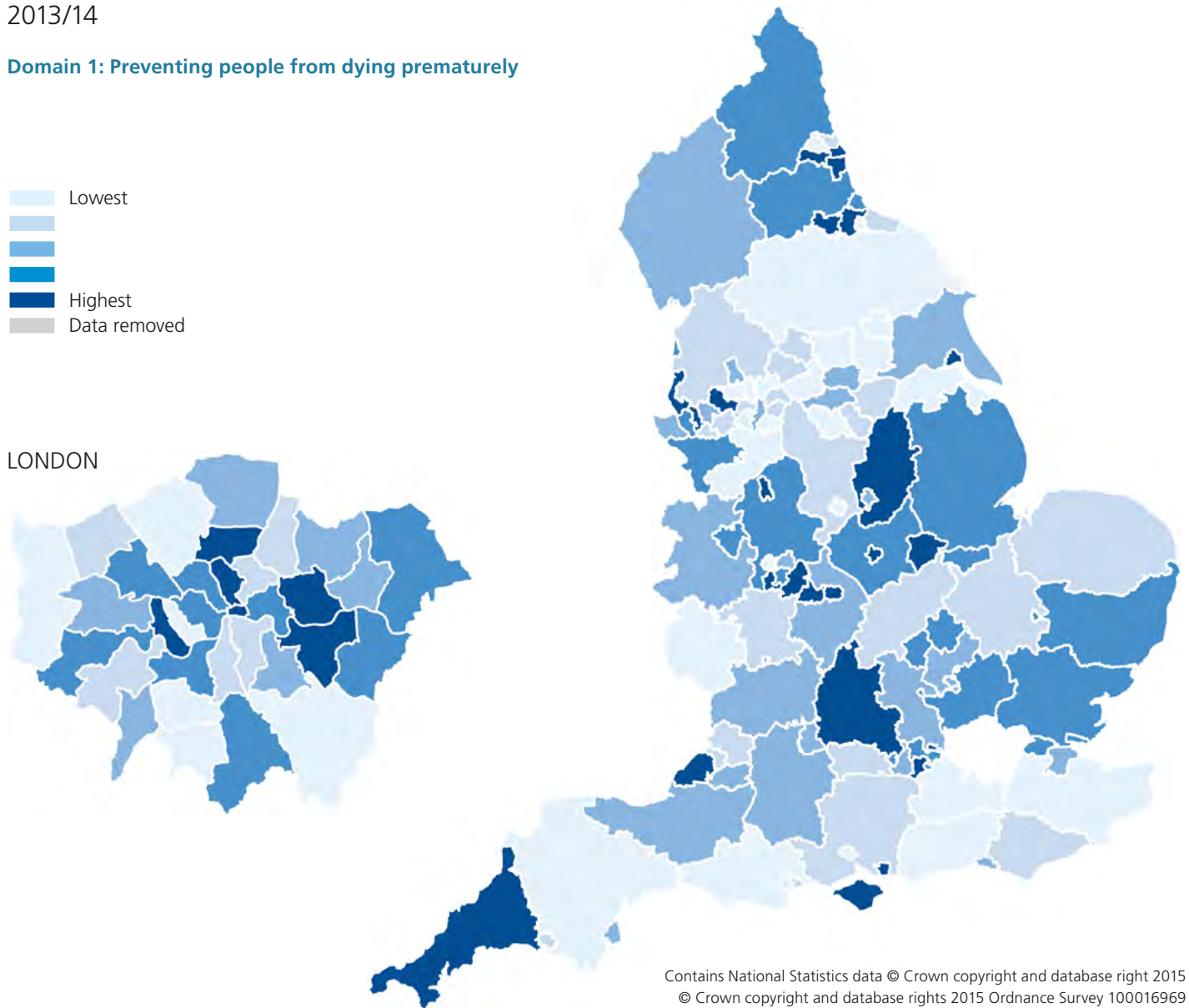
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151 out of 152 UTLAs (1 removed due to small numbers)
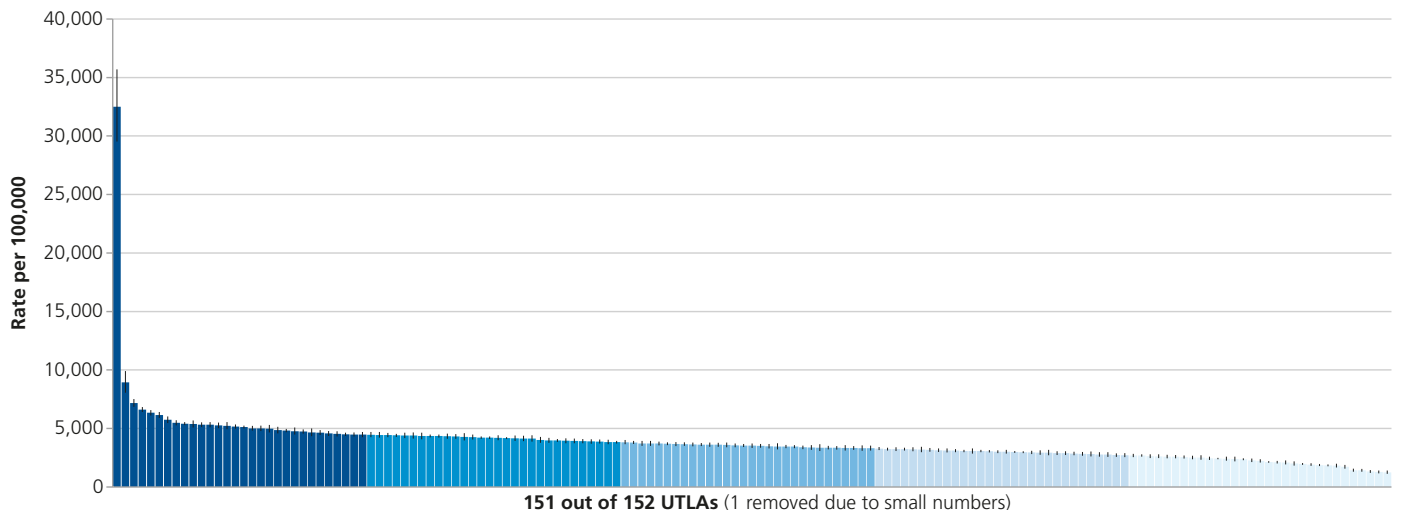
Context

Tobacco-smoking is the principal cause of preventable death and disability in England. It is the main reason for the gap in healthy life-expectancy between higher and lower socio-economic groups.

Chronic obstructive pulmonary disease (COPD) affects around 3 million people in England[1], and about 90% of cases are caused by smoking[2]. There is a substantial socio-economic gradient in smoking prevalence and mortality from COPD. In undiagnosed COPD, there is considerable population benefit associated with smoking cessation services.[3]

Smoking also increases the risk of developing, and the severity of, asthma. Direct or passive exposure to cigarette smoke:

› adversely affects lung function;

› reduces the effectiveness of inhaled therapy;

› increases exacerbation rate and mortality risk in people with asthma.

Smoking prevalence is much higher in people with mental health problems.

Smoking cessation is not solely a primary prevention intervention. For people who already have a respiratory condition, support to stop smoking is a core treatment because it improves lung function, and, in COPD, it increases survival (see Figure 20.1, page 258). It is also considerably more cost-effective in the management of respiratory conditions than many routine treatments, especially for mild-to-moderate COPD[3].

Magnitude of variation

For upper-tier local authorities (UTLAs) in England, the rate of successful smoking quitters at 4 weeks ranged from 1251 to 32,497 per 100,000 population of smokers aged 16 years and over (26.0-fold variation).[4] When the five UTLAs with the highest rates and the five UTLAs with the lowest rates are excluded, the range is 1718–6147 per 100,000 population of smokers aged 16 years and over, and the variation is 3.6-fold.[5]

The degree of variation observed suggests that services in some localities are more effective at supporting smoking cessation than others.

Options for action

People who smoke are more likely to be successful in a quit attempt if they have professional support than if they try to quit on their own. Commissioners need to specify that all service providers:

› ensure local care pathways recommend smoking cessation advice and referral to specialist smoking cessation services at key trigger points in the patient journey: e.g. routine chronic disease management review, outpatient attendance, acute exacerbation, emergency department attendance, hospital admission, and hospital discharge;

› develop and implement policies to support smoking cessation in patients and staff, and use initiatives such as smoking cessation champions (see "Resources");

› comply with NICE guidance (see "Resources") and take opportunities to offer smoking cessation services when people present for other reasons, especially as people with COPD, asthma and other respiratory conditions have frequent interactions with healthcare professionals – Making Every Contact Count[6];

› train clinical staff in primary and emergency care to deliver brief interventions to support smoking cessation;

› include smoking-cessation support in acute care and discharge bundles.

Commissioners also need to consider population-level social marketing to ensure maximum reach of smoking-cessation interventions, for example:

› a pan-London smoking cessation and recruitment awareness campaign with the objective of driving incremental quit attempts in a cost-effective way (NHS Commissioning Support for London; see "Resources");

› increasing the number of smokers accessing and quitting with smoking cessation services in Whitecrook, a deprived area in Scotland (NHS Health Scotland; see "Resources").

RESOURCES

› Department of Health (2011) An outcomes strategy for people with chronic obstructive pulmonary disease (COPD) and Asthma in England. https://www.gov.uk/government/publications/an-outcomes-strategy-for-people-with-chronic-obstructive-pulmonary-disease-copd-and-asthma-in-england

› Department of Health (2012) An Outcomes Strategy for COPD and Asthma: NHS Companion Document. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_134000

› Department of Health. Commissioning Toolkit for respiratory services. Toolkit for NHS commissioners and chief executives to help commission better outcomes for people with COPD. August 2012. https://www.gov.uk/government/publications/commissioning-toolkit-for-respiratory-services

› NICE. Tobacco: harm-reduction approaches to smoking. NICE Guidelines [PH45]. June 2013. http://www.nice.org.uk/guidance/ph45

› NICE. Brief interventions and referral for smoking cessation. NICE Guidelines [PH1]. March 2006. http://www.nice.org.uk/Guidance/PH1

› NICE. Smoking cessation services. NICE Guidelines [PH10]. February 2008. http://www.nice.org.uk/Guidance/PH10

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› NHS Commissioning Support for London. "London Spring 09" Smoking Cessation. Report of the social marketing project. October 2009. http://www.londonhp.nhs.uk/wp-content/uploads/2011/03/Smoking-cessation-project-report.pdf

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› NHS East Midlands Health Trainer Hub. An Implementation Guide and Toolkit for Making Every Contact Count: Using every opportunity to achieve health and wellbeing. http://www.england.nhs.uk/wp-content/uploads/2014/06/mecc-guid-booklet.pdf

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› British Thoracic Society. BTS Stop Smoking Champions Programme. https://www.brit-thoracic.org.uk/clinical-information/smoking-cessation/

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3 IMPRESS – Improving and Integrating Respiratory Services. IMPRESS Guide to the relative value of COPD interventions – Executive summary. July 2012. http://www.impressresp.com/index.php?option=com_docman&Itemid=82

4 Data from one UTLA have been removed due to small numbers.

5 For data from 2010/11 by PCT, see Respiratory Disease Atlas, Map 20, pages 58-59.

6 http://www.makingeverycontactcount.co.uk/

PROBLEMS OF THE RESPIRATORY SYSTEM

Map 21: Percentage of patients with COPD who had influenza immunisation in the preceding 1 September to 31 March by CCG (QOF COPD006[1] with exception-reported patients included)

2013/14

**Domain 1: Preventing people from dying prematurely**
**Domain 2: Enhancing quality of life
for people with long-term conditions**

Lowest

Highest

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Per cent

100
90
80
70
60
50
40
30
20
10
0

211 CCGs
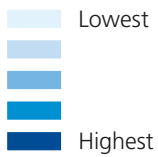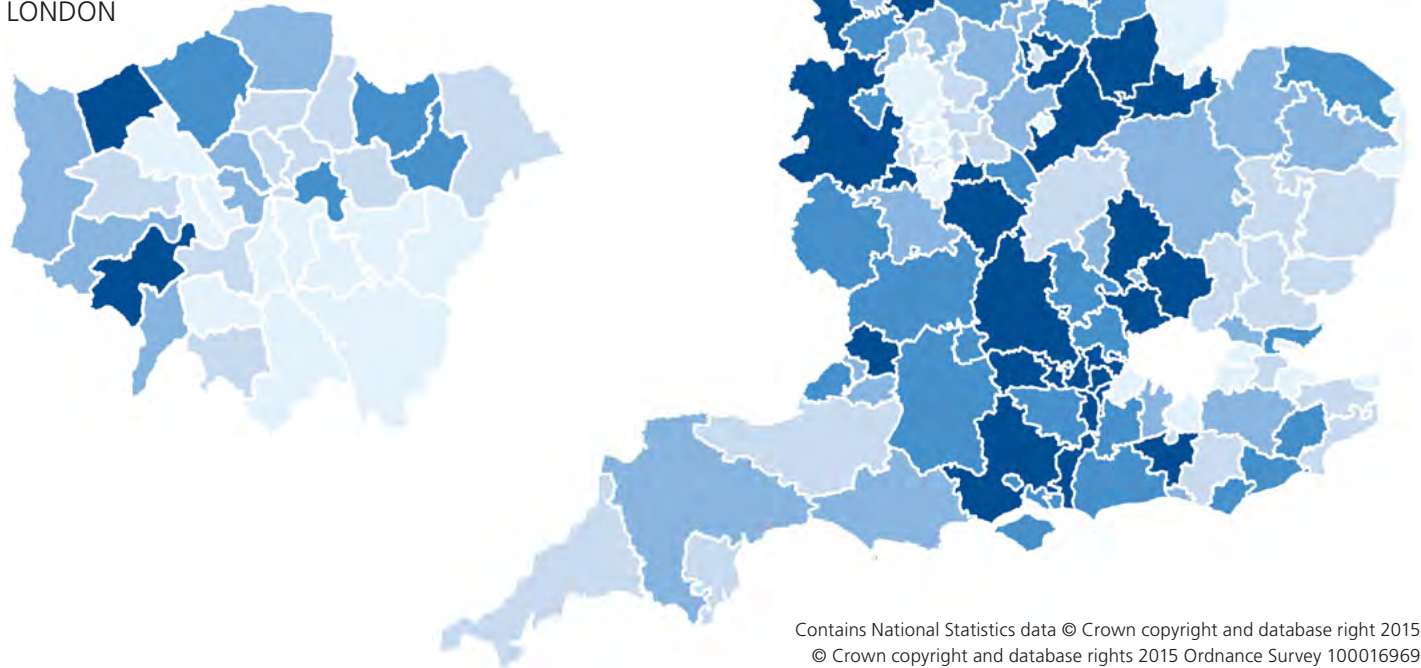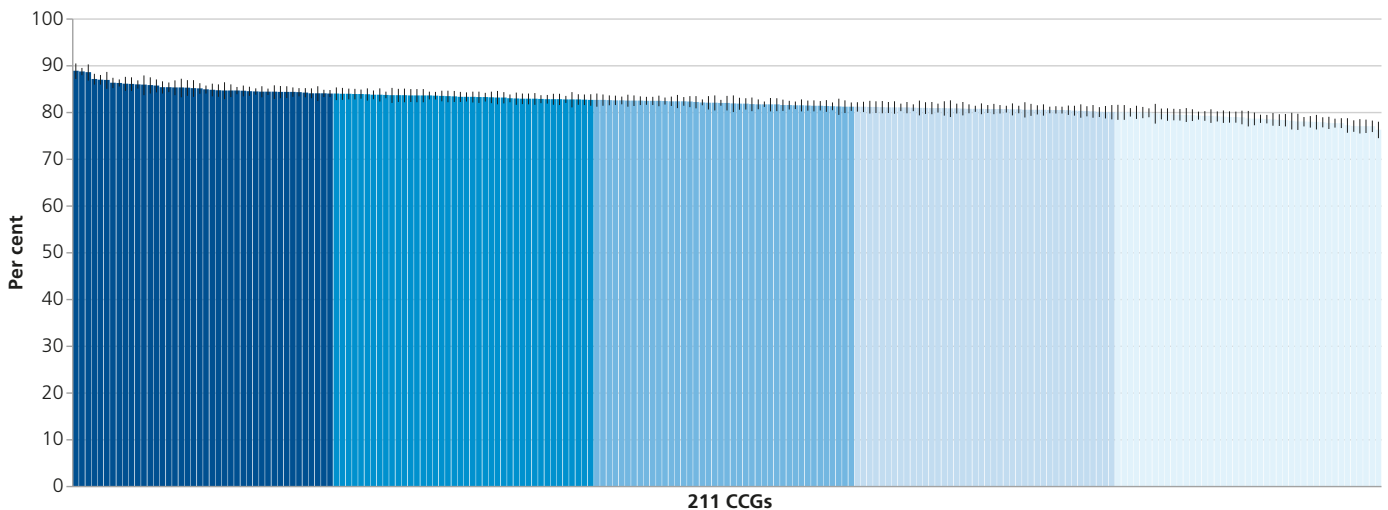
Context

Most of the care for people with chronic obstructive pulmonary disease (COPD) is provided in the primary care sector. Chronic disease management by GPs and nurses is likely to have a considerable impact on patient outcomes such as symptom control, quality of life, physical and social activity, admission to hospital, and mortality. The NHS London Respiratory Team found influenza immunisation of greatest value in cost per QALY for at-risk groups[2] (IMPRESS has built on this work).

Indicators in the Quality and Outcomes Framework (QOF) reflect the long-term disease management of COPD in primary care, including the percentage of patients with COPD who have had influenza immunisation in the preceding 15 months.

For each QOF indicator, GPs are rewarded for achieving an agreed level of population coverage. In calculating coverage, practices are allowed to except appropriate patients from the target population for legitimate reasons to avoid being penalised for factors beyond the GPs' control, e.g. when patients do not attend for review despite repeated invitations, or if a medication cannot be prescribed due to a contra-indication or side-effect. This exception-adjusted population coverage is reported annually. Actual population coverage for systematic chronic disease management in people with COPD is lower than the published QOF achievement suggests.

Patients not seen for review are at high risk of not receiving appropriate pro-active long-term disease management and therefore of experiencing worse outcomes than patients who are reviewed. Many of the people with COPD not attending for regular review may be among high-risk patients in whom control is poor. Novel and creative strategies are necessary to engage these patients in order to optimise their COPD control.

This indicator shows the *actual* population coverage for each CCG not the published QOF achievement: excepted patients have been *included* in the denominator.

Magnitude of variation

For CCGs in England, the percentage of patients with COPD who had influenza immunisation in the preceding 1 September to 31 March (exception-reported patients included) ranged from 76.3% to 88.9% (1.2-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 77.7–86.4%, and the variation is 1.1-fold.

The variation in exception-reporting among practices tends to be much greater than that among CCGs: some practices are more effective than others at reaching the local COPD population and influencing patient outcomes.

Options for action

To help more practices become effective at reaching the entire local population with COPD through regular review, commissioners and service providers in partnership need:

› to calculate the actual coverage for long-term disease management of registered COPD patients by including "excepted" patients in the denominator;

› to benchmark and share local exception-reporting data;

› to identify the systems to maximise patient-reach used in the best-performing practices;

› to support practices with high exception rates implement best-practice systems and improve patient outcomes through systematic long-term disease management (see Box 21.1).

Box 21.1: Improving influenza-related COPD outcomes[3]

› Improve patient uptake through public-facing demonstrations, and stories of clinicians and health workers partaking in organisational 'flu vaccination programmes

› Target and provide education for previous 'flu-jab decliners in primary care. Look at last year's 'not eligible' group and re-explore their beliefs about the vaccine using patient-centred materials

› Share personal 'flu stories from patients with COPD or other chronic lung disease

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In a cross-sectional survey of UK general practices, the following were associated with higher influenza vaccine uptake:

› lead staff member (i) to plan the influenza campaign, and (ii) to identify eligible patients (using either a modified manufacturer's or in-house search programme to interrogate the practice IT system);

› personal invitation to all eligible patients;

› stopping vaccination only when QOF targets were met;

› lead staff member to write a report of practice performance.[4]

RESOURCES

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› Department of Health (2012) An Outcomes Strategy for COPD and Asthma: NHS Companion Document. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_134000

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› Public Health England. INHALE – Interactive Health Atlas for Lung conditions in England. http://www.erpho.org.uk/inhale.aspx

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› NICE. Chronic obstructive pulmonary disease quality standard. NICE quality standard [QS10]. July 2011. http://www.nice.org.uk/guidance/qs10

› The Primary Care Respiratory Society. http://www.pcrs-uk.org/

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1 In 2013/14, the QOF ID was COPD006; for 2014/15 and 2015/16, the QOF ID changed to COPD007.

2 IMPRESS – Improving and Integrating Respiratory Services. IMPRESS Guide to the relative value of COPD interventions. July 2012. Page 17. http://www.impressresp.com/index.php?option=com_docman&Itemid=82

3 NHS London. London Respiratory Team (LRT) Factsheet: Protecting people with COPD from influenza. 27/09/2012. http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&cad=rja&uact=8&ved=0CD8QFjAD&url=http%3A%2F%2Fwww.networks.nhs.uk%2Fnhs-networks%2Flondon-respiratory-network%2Fdocuments%2FFlu%2520and%2520COPD.pdf&ei=hZfUVKO8B4HzUpCUgoAP&usg=AFQjCNFmZZCq7ZlqgbYkQ-I_5hj3eDvzrQ

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PROBLEMS OF THE RESPIRATORY SYSTEM

Map 22: Rate of COPD emergency admissions to hospital per population by CCG

Directly standardised rate, adjusted for age and sex, 2012/13

Domain 1: Preventing people from dying prematurely
Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

LONDON

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211 CCGs
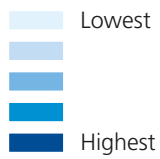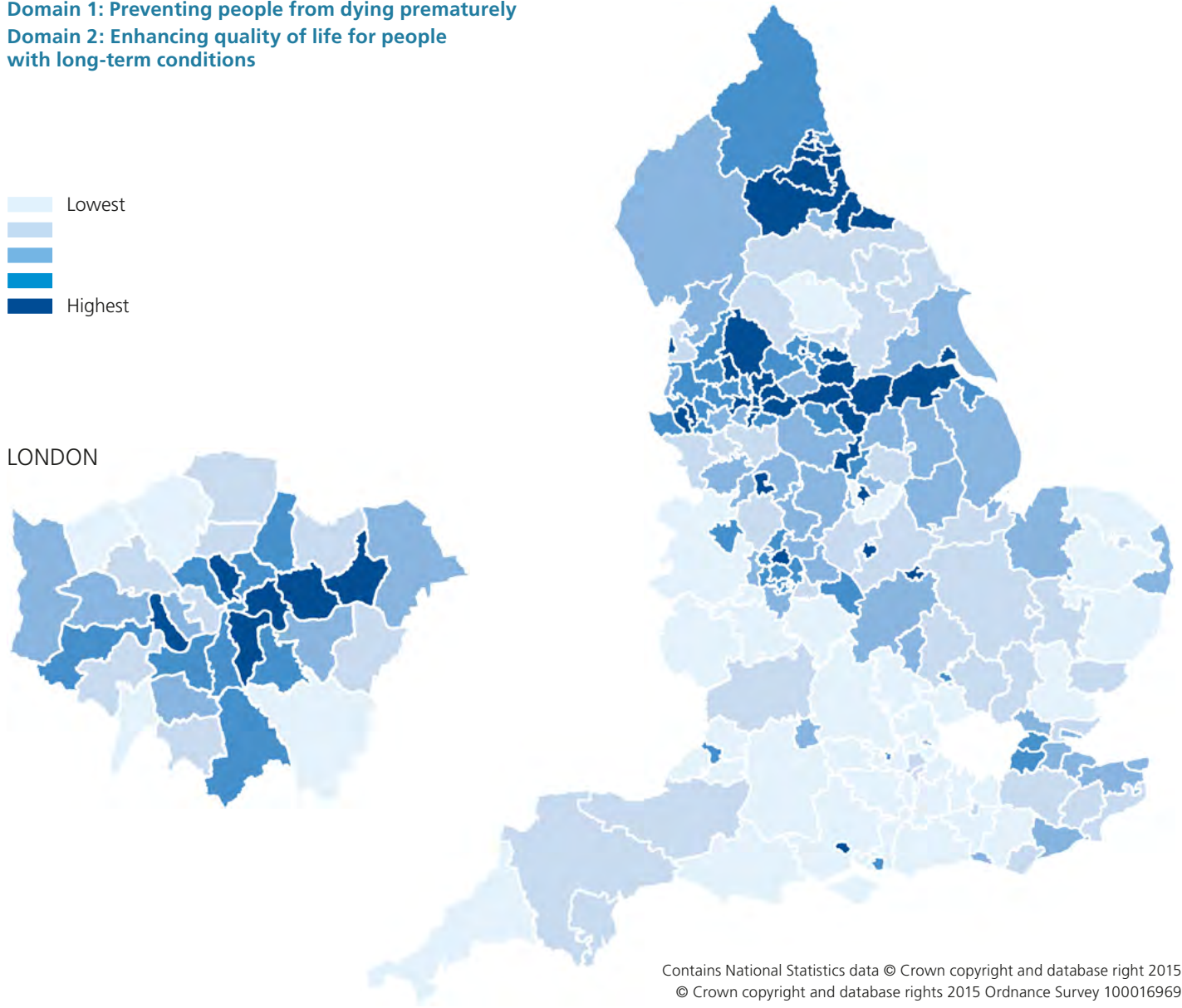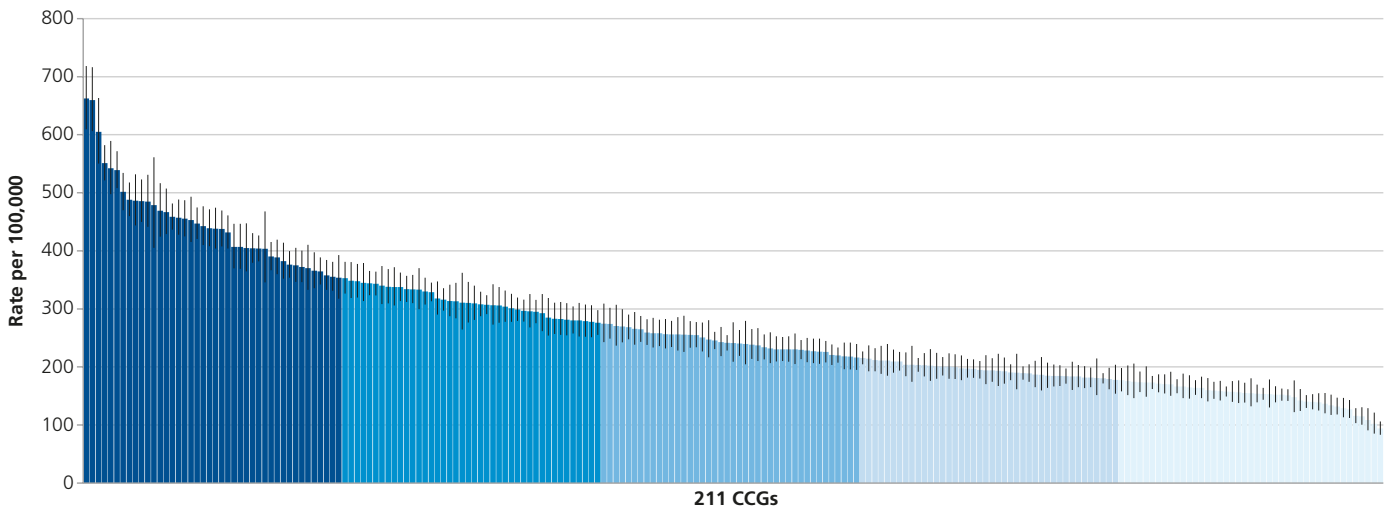
Context

Chronic obstructive pulmonary disease (COPD) is one of the main causes of preventable death and disability. In England, more than 3 million people are known to suffer from COPD, but only around 835,000 have been diagnosed.

People with COPD experience recurrent flare-ups or exacerbations that need more intensive treatment, some of which can be severe enough to require hospital admission. Indeed, COPD is the second most common reason for emergency admission to hospital, accounting for one in eight non-elective admissions. The care of people with COPD in hospital settings is costly for the NHS.

In England, COPD contributes to the death of about 26,000 people a year. Mortality is high in people with COPD who are hospitalised: one in six will die during an emergency admission; one in twelve will die within 3 months.

Admission to hospital is a major adverse outcome for people with COPD, which places considerable demands on NHS resources.

Magnitude of variation

For CCGs in England, the rate of COPD emergency admissions to hospital ranged from 94 to 662 per 100,000 population (7.0-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 132–488 per 100,000 population, and the variation is 3.7-fold.

Thus, for people with COPD, the risk of being admitted with an acute exacerbation can vary nearly four times depending on where they live.

One possible reason for the degree of variation observed is differences in the extent to which all services providing care for people with COPD are integrated into an effective system of care.

Previous internal analysis at the Department of Health revealed similar patterns when comparing PCTs with similar populations and similar levels of deprivation.

Options for action

In many localities, there would appear to be substantial scope for reducing emergency COPD admissions, which could not only improve outcomes for patients but also save money because expenditure on COPD admissions is high in every CCG.

In CCGs in which COPD emergency admission rates are higher, commissioners need to specify that service providers ensure the provision of pro-active clinical care and alternatives to admission by:

› reviewing admissions among primary and secondary care providers to identify people experiencing frequent exacerbations who need more pro-active management;

› establishing early discharge schemes and hospital-at-home services to support evidence-based avoidance of admissions;

› providing pro-active chronic disease management in primary and community care, including clear action plans, optimisation of therapy and support for patient self-management with home provision of standby medication, and referral for pulmonary rehabilitation when indicated;

› providing prompt support for patients when they develop new or worsening symptoms, with early access to specialist-led integrated care in the community when appropriate;

› establishing a triage service in the urgent-care system run by a multidisciplinary respiratory team to manage the diversion of people with COPD to community services using direct links between the triage service and the "pick-up" of patients in the community.[1]

RIGHTCARE CASEBOOK

› Hardwick CCG – From Commissioning for Value insights to delivery in seven months. Tackling the COPD pathway. http://www.rightcare.nhs.uk/index.php/resourcecentre/commissioning-for-value-best-practice-casebooks/hardwick-ccg-from-commissioning-for-value-insights-to-delivery-in-seven-months/

RESOURCES

› Department of Health (2011) An outcomes strategy for people with chronic obstructive pulmonary disease (COPD) and Asthma in England. https://www.gov.uk/government/publications/an-outcomes-strategy-for-people-with-chronic-obstructive-pulmonary-disease-copd-and-asthma-in-england

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› Public Health England. INHALE – Interactive Health Atlas for Lung conditions in England. http://www.erpho.org.uk/inhale.aspx

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› NICE. Chronic obstructive pulmonary disease quality standard. NICE quality standard [QS10]. July 2011. http://www.nice.org.uk/guidance/qs10

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› IMPRESS – Improving and integrating respiratory services. http://www.impressresp.com/

› British Lung Foundation. http://www.blf.org.uk/Home

1 McKay C, Cripps M. Delivering improved healthcare in Warrington: the NHS Right Care approach. July 2013. http://www.rightcare.nhs.uk/downloads/Casebook_warrington_respiratory_final.pdf

PROBLEMS OF THE RESPIRATORY SYSTEM

Map 23: Rate of asthma emergency admissions to hospital in people aged 19 years and over per population by CCG

Directly standardised rate, adjusted for age and sex, 2012/13

Domain 2: Enhancing quality of life for people with long-term conditions
Domain 3: Helping people to recover from episodes of ill health or following injury

Lowest

Highest

LONDON

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Rate per 100,000

300

250

200

150

100

50

0

211 CCGs
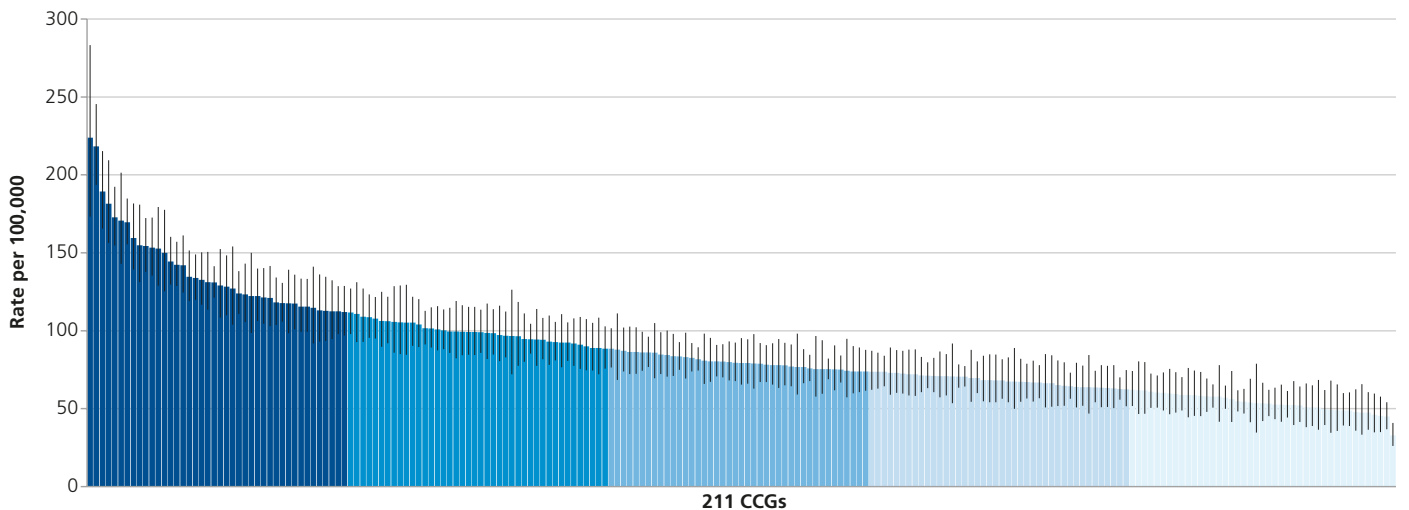
Context

The goal of asthma care is to control symptoms such that people with asthma are able to lead as normal a life as possible, which should be achievable in the majority of patients.

An emergency hospital attendance or admission represents a serious loss of control of a person's asthma. Admissions are sometimes necessary for specialist management of severe exacerbations, but around three-quarters of admissions could be prevented with good long-term management. Most people with asthma will have had symptoms for several days before an admission, indicating that it would have been possible to intervene to prevent admission during that time-period. Emergency admission to hospital is a major adverse outcome for patients.

Structured self-management support including an individual action plan is a key element of long-term disease management in asthma. People who have an asthma action plan have fewer hospitalisations, fewer emergency department visits, and fewer unscheduled visits to the doctor than people who do not have such a plan.[1] Personalised care planning with appropriate follow-up support leads to improvements in some indicators of physical, psychological and subjective health status, and people's capability to self-manage their condition.[2]

Magnitude of variation

For CCGs in England, the rate of asthma emergency admissions to hospital in people aged 19 years and over ranged from 33 to 224 per 100,000 population (6.8-fold variation). When the seven CCGs with the highest rates and the seven CCGTs with the lowest rates are excluded, the range is 49–159 per 100,000 population, and the variation is 3.3-fold.

Thus, for people with asthma, the risk of being admitted with an acute exacerbation can vary three times depending on where they live. Some of this variation can be accounted for by differences in local population characteristics, but much is unwarranted due to differences in:

› the quality of asthma care;

› the support people receive to manage their condition.

The degree of variation observed shows that in many localities there is substantial scope for reducing emergency events. What is achievable for patients in one locality should be possible in all localities if best practice is adopted in the NHS.

Options for action

Action to prevent emergency admissions will save money and improve outcomes for people with asthma. Commissioners need to specify that service providers deliver optimal long-term disease management and structured support for self-management such that patients know the appropriate action to take at the first sign of deterioration, including:

› developing an asthma action plan, in partnership with patients, as part of structured asthma education to help all patients identify deterioration and understand what actions to take;

› reviewing asthma action plans regularly and always at the time of emergency department attendance or hospital admission;

› delivering care in line with the SIGN/BTS guideline (see "Resources");

› providing healthcare professionals responsible for managing people with asthma with training in asthma management, and with support on how best to deliver structured self-management support to patients;

› providing a structured primary care review at least once a year to all people with asthma in line with the SIGN/BTS guideline;

› conducting a review of all people attending hospital with acute exacerbations of asthma, preferably within 30 days of attendance – to be undertaken by a clinician with expertise in asthma management;

› helping practices identify people who need more active monitoring and management, and develop a register of people at risk of admission, including people who have had an admission in the previous 12 months, people identified through audit to be using excessive quantities of short-acting bronchodilators, and people who have had a course of oral steroids in the preceding 12 months.

Service providers could consider the introduction in the urgent-care system of a triage service run by a multidisciplinary respiratory team to manage the diversion of people with asthma to community services using direct links between the triage service and the "pick-up" of patients in the community.[3]

RESOURCES

› Royal College of Physicians. Why asthma still kills. The National Review of Asthma Deaths (NRAD). Confidential Enquiry Report. May 2014. https://www.rcplondon.ac.uk/projects/national-review-asthma-deaths

› Department of Health (2011) An outcomes strategy for people with chronic obstructive pulmonary disease (COPD) and Asthma in England. https://www.gov.uk/government/publications/an-outcomes-strategy-for-people-with-chronic-obstructive-pulmonary-disease-copd-and-asthma-in-england

› Department of Health (2012) An Outcomes Strategy for COPD and Asthma: NHS Companion Document. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_134000

› British Thoracic Society (BTS) and Scottish Intercollegiate Guidelines Network (SIGN). SIGN 141: British guideline on the management of asthma. A national clinical guideline. October 2014. http://www.sign.ac.uk/guidelines/fulltext/141/index.html

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2 Coulter A, Entwistle VA, Eccles A et al. Personalised care planning for adults with chronic or long-term health conditions. Cochrane Database of Systematic Reviews 2015, Issue 3. Art. No.: CD010523. DOI: 10.1002/14651858.CD010523.pub2. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010523.pub2/full
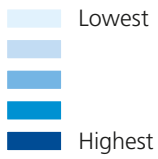
3 McKay C, Cripps M. Delivering improved healthcare in Warrington: the NHS Right Care approach. July 2013. http://www.rightcare.nhs.uk/downloads/Casebook_warrington_respiratory_final.pdf

OBESITY

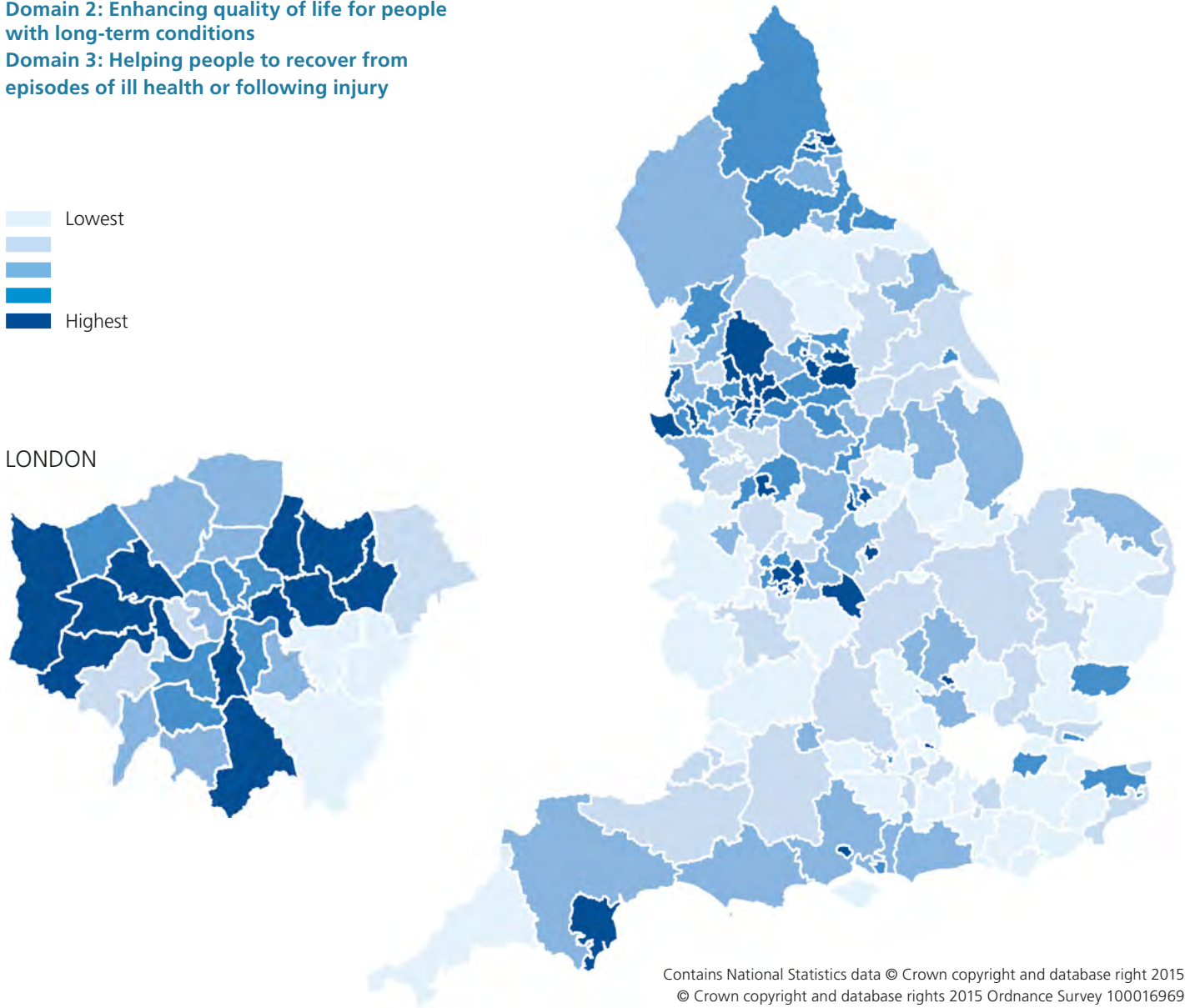# Map 24: Percentage of people aged 16 years and over who had a body mass index (BMI) greater than or equal to 30 kg/m² by lower-tier local authority

2012

Domain 1: Preventing people from dying prematurely

Lowest

Highest
Data removed

LONDON

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Per cent
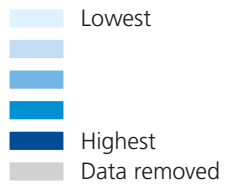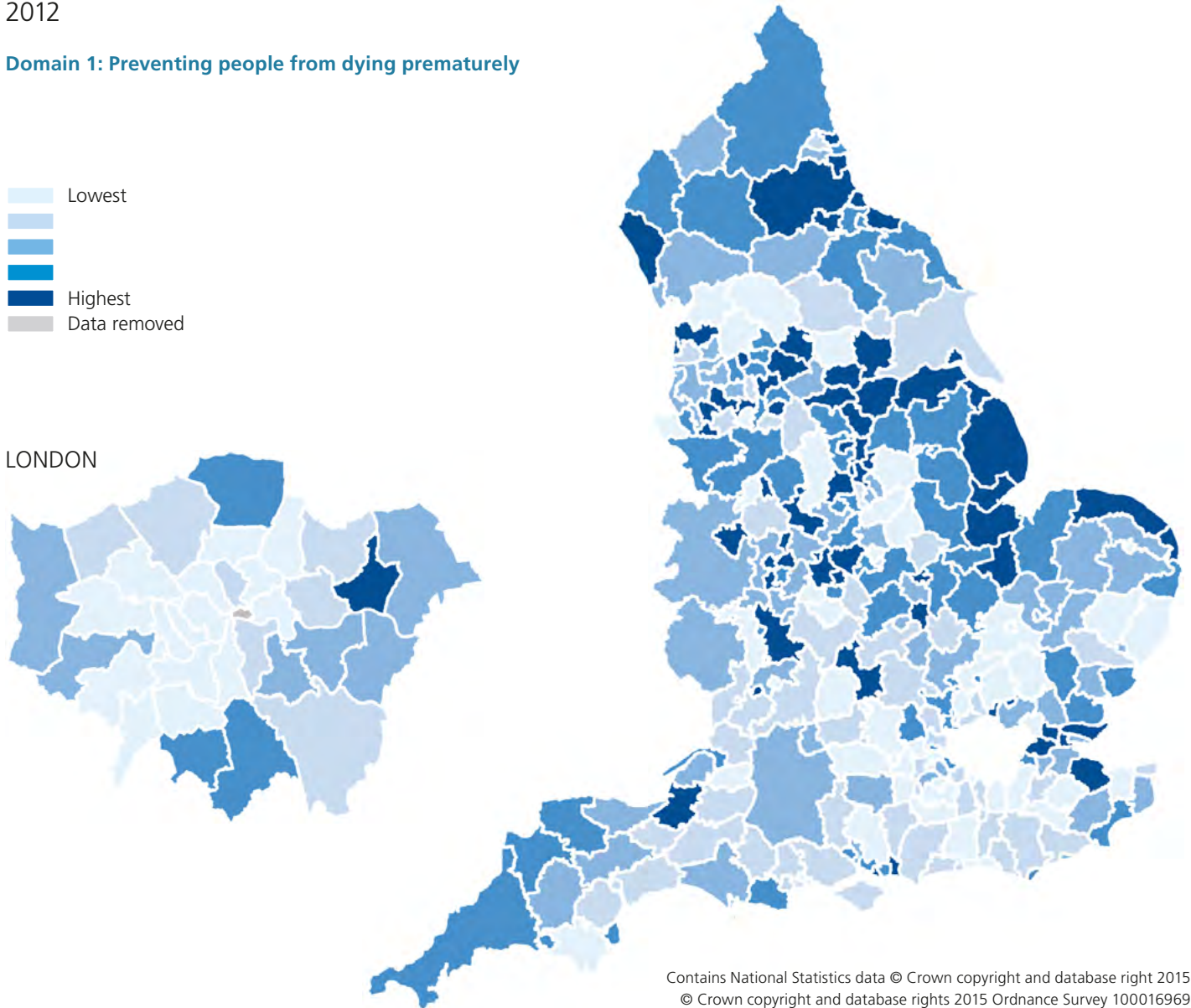
324 out of 326 LTLAs (2 removed due to small numbers)

Context

The prevalence of overweight and obesity in England has increased markedly in recent decades: in 2013 and 2014 it was estimated that 62% of people aged 16 years or more were overweight or obese.

Excess weight is associated with a variety of health problems including Type 2 diabetes, cardiovascular disease, musculoskeletal problems, some cancers, and impacts on mental health. It is associated with increased sickness absence, and has high social and economic costs: NHS costs attributable to overweight and obesity are projected to reach £9.7 billion by 2050, with costs to wider society estimated to reach £49.9 billion per year[1].

Obesity disproportionately affects people in the most deprived social groups, with the starkest differences in children. The Global Burden of Disease 2010 study highlighted that high body mass index (BMI), poor diets and lack of physical activity are key risk factors for morbidity and increased mortality.[2]

Although the rising trend in obesity prevalence may be levelling off, at least in some groups, prevalence remains high; as yet, there is no evidence of a sustained decline. Prevalence of obesity has generally fluctuated between 24% and 26% from around 2006 to 2013.[3] Overall obesity prevalence remains higher for women, but the gap between men and women has narrowed over time. The prevalence of severe obesity (BMI ≥40 kg/m^2) has increased since 1993 for both men and women, and is much higher for women than men.

The data for this indicator are derived from adjusted height and weight data, obtained via a telephone survey of 500 people per local authority who report their height and weight.[4]

Magnitude of variation

For lower-tier local authorities (LTLAs), the percentage of people aged 16 years and over who had a BMI ≥30 kg/m^2 ranged from 11.2% to 35.2% (3.2-fold variation).[5] When the ten LTLAs with the highest percentages and the ten LTLAs with the lowest percentages are excluded, the range is 15.0–31.0%, and the variation is 2.1-fold.

Potential reasons for the degree of variation observed include differences in:

› socio-economic, ethnic and other demographic characteristics of local populations – the prevalence of obesity varies considerably by age, sex, ethnicity and socio-economic status; the highest rates of obesity tend to be found in the most deprived areas, among older people, and in some ethnic groups – much of the variation among areas is attributable to these characteristics;

› the physical environment – to a large extent, obesity is driven by what is known as the "obesogenic environment", which includes the nature and density of fast-food outlets, the availability, pricing, advertising and marketing of both healthy and unhealthy foods, the presence and quality of supportive infrastructure for walking and cycling, and the availability of green space and other opportunities for leisure-time physical activity.

Another reason for variation could be different sources of bias in the dataset, including response bias.

1   Government Office for Science. Foresight. Tackling Obesities: Future Choices – Project Report. 2nd Edition. October 2007. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/287937/07-1184x-tackling-obesities-future-choices-report.pdf

2   Ng M et al. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 384: 766-781. http://www.ncbi.nlm.nih.gov/pubmed/24880830

3   Health and Social Care Information Centre (2014) Health Survey for England 2013. Trend Tables. December 2014. http://www.hscic.gov.uk/catalogue/PUB16077/HSE2013-Trend-commentary.pdf

4   http://www.sportengland.org/research/about-our-research/what-is-the-active-people-survey/

5   Data from two LTLAs have been removed due to small numbers.

Options for action

Although there is variation in the prevalence of obesity across England, it is relatively high in all local populations; even those areas with the lowest prevalence need to undertake appropriate action to address the problem.

The first step is to include factors contributing to obesity locally in the Joint Strategic Needs Assessment (JSNA), and tackle obesity as a key priority in the joint health and wellbeing strategy. As part of the strategy, NHS and other commissioners, service providers, public health teams and other local stakeholders need to work together through Health and Wellbeing Boards on a range of short-, medium-, and long-term actions across society, in multiple settings, throughout the life-course, taking a whole-system approach as set out in *Tackling Obesities: Future Choices*[1]. This needs to be done in concert with appropriate action at national level, and through the health sector, along with employers, the third sector and other stakeholders.

As most of the variation in obesity among individuals is attributable to demographic factors and social determinants of health, reducing variation is challenging over and above the difficulty of tackling obesity at population level. To address inequalities in the prevalence of obesity, local stakeholders need to implement a combination of population and targeted approaches, building on the principle of "proportionate universalism",[6] supported by national policy action. Examples include:

› the use of planning law to restrict the availability of unhealthy foods, especially to children;

› controls on advertising, marketing and the availability of unhealthy foods;

› promotion of physical activity, especially through daily measures such as increasing walking and cycling;

› targeting of weight management programmes to support people in greatest need;

› healthier food procurement and catering.

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› Local Government Association. Tackling obesity: local government's new public health role. December 2012.
  http://www.local.gov.uk/publications/-/journal_content/56/10180/3811831/PUBLICATION

› Public Health England. Obesity and the environment briefing: regulating the growth of fast food outlets. October 2013; updated March 2014. https://www.gov.uk/government/publications/obesity-and-the-environment-briefing-regulating-the-growth-of-fast-food-outlets

› Public Health England. Obesity and the environment briefing: increasing physical activity and active travel. October 2013. https://www.gov.uk/government/publications/obesity-and-the-environment-briefing-increasing-physical-activity-and-active-travel

› Ross A, Chang M. Planning healthy-weight environments – a TCPA reuniting health with planning project. Town and Country Planning Association. December 2014.
  http://www.tcpa.org.uk/data/files/Health_and_planning/Health_2014/PHWE_Report_Final.pdf

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6   Fair society, healthy lives: the Marmot Review: strategic review of health inequalities in England post-2010. Marmot Review, London, 2010.
  http://www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review

PHYSICAL ACTIVITY

Map 25: Percentage of people aged 16 years and over who were classified as physically inactive by lower-tier local authority
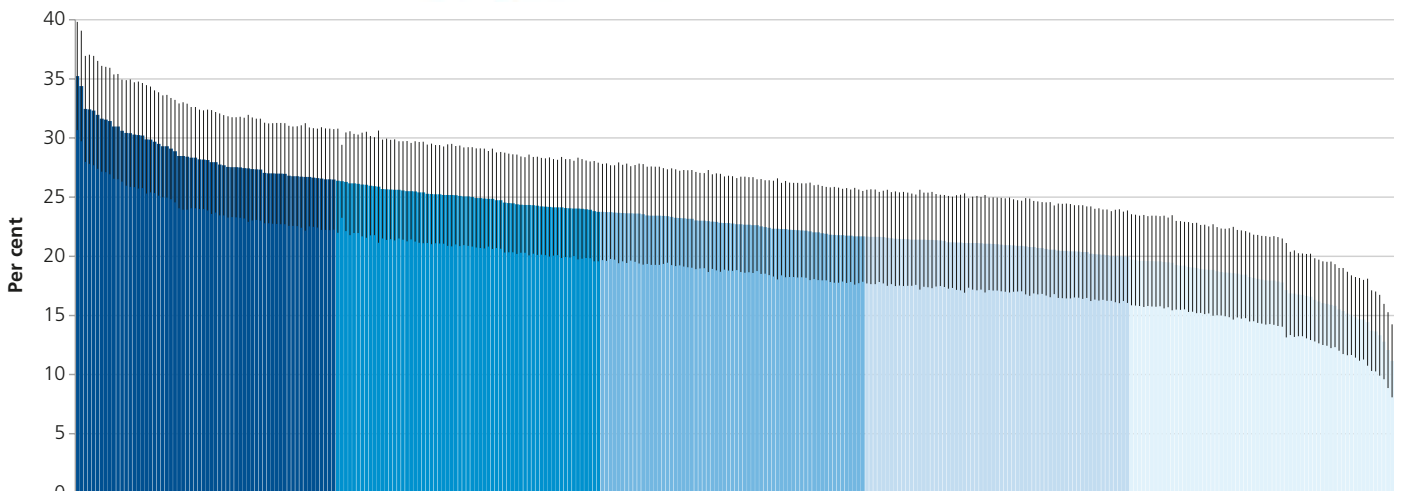
2013

Domain 1: Preventing people from dying prematurely
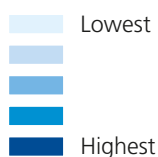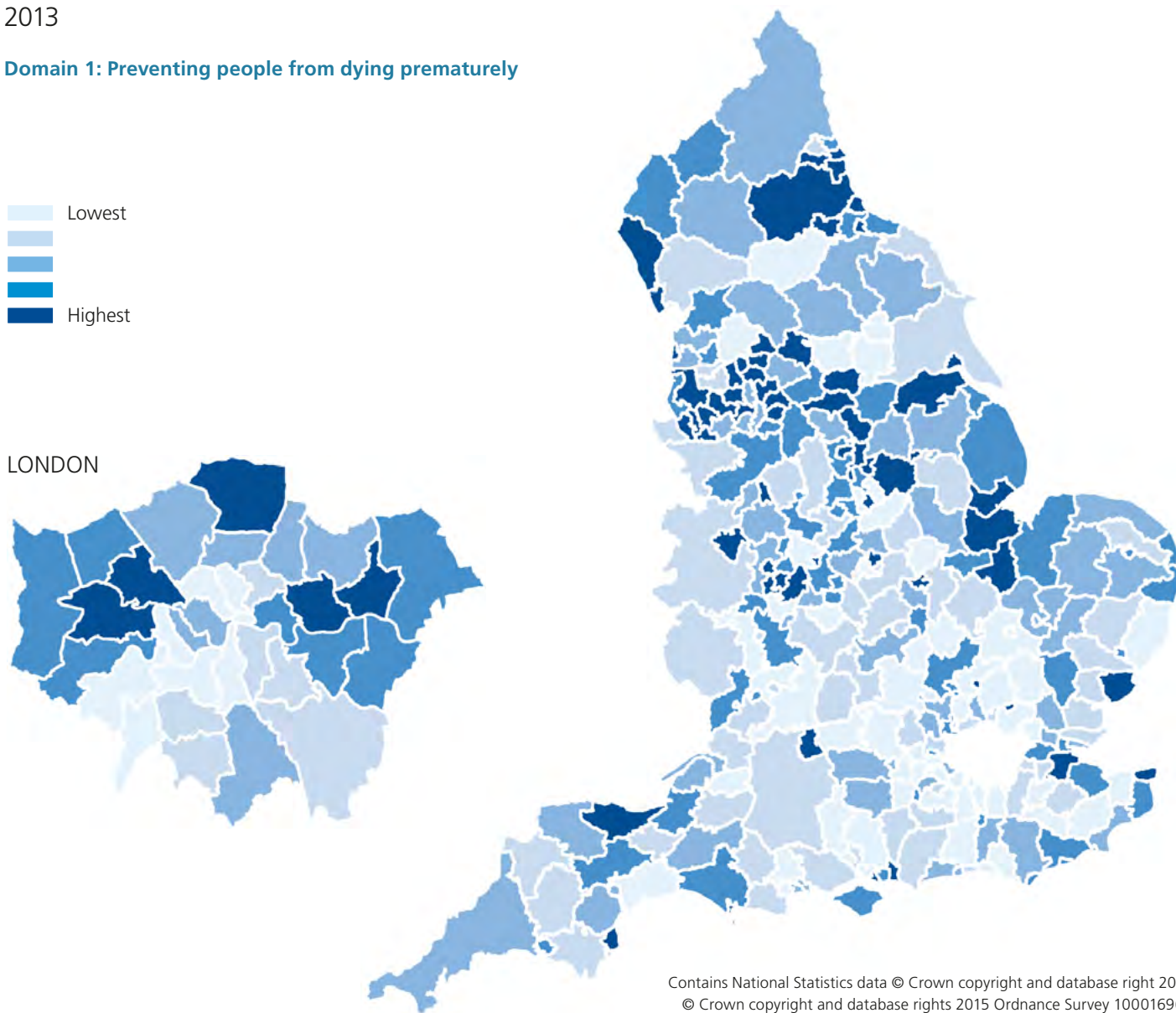
Lowest

Highest

LONDON

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326 LTLAs
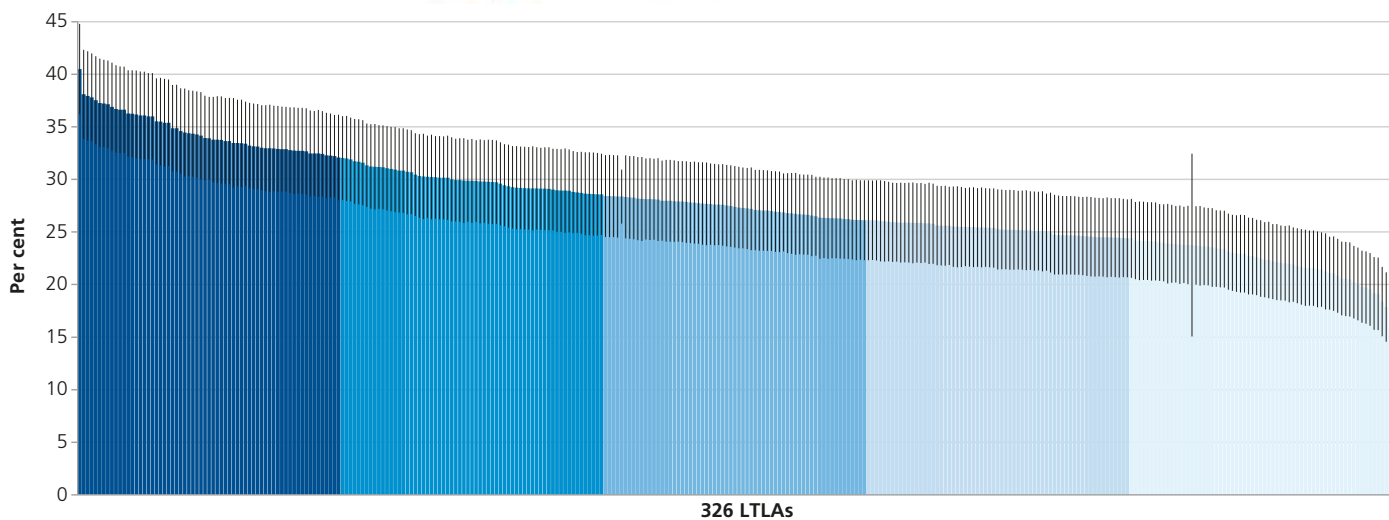
Context

Physical inactivity, defined as achieving less than 30 minutes' activity per week, is the fourth greatest risk factor for poor health in the UK, exceeded only by smoking, high blood pressure, and a high body mass index (BMI).[1]

Physical inactivity directly contributes to 1 in 6 deaths in the UK.[2] Regular physical activity can prevent and/or help to manage over 20 long-term conditions, including coronary heart disease, stroke, Type 2 diabetes, cancer, obesity, mental health problems, and musculoskeletal conditions. Even relatively small increases in physical activity are associated with some protection against long-term diseases and an improved quality of life.[3]

Emerging evidence shows an association between sedentary behaviour and being overweight or obese; research findings also suggest sedentary behaviour is independently associated with all-cause mortality, Type 2 diabetes, some types of cancer, and metabolic dysfunction. These relationships are independent of the level of overall physical activity. For instance, spending large amounts of time being sedentary may increase the risk of some health outcomes, even among people who are active at the recommended levels.[3]

Some of the diseases prevented by physical activity have high treatment and care costs, and inactivity is estimated to cost the NHS at least £0.9 billion a year. Increasing physical activity is a critical component of NHS prevention strategies, as well as linking to the *Five Year Forward View*[4], because the potential health and economic benefits of this intervention are substantial, and the costs relatively minimal.

Magnitude of variation

For lower-tier local authorities (LTLAs) in England, the percentage of people aged 16 years and over who were classified as physically inactive ranged from 14.9% to 40.5% (2.7-fold variation). When the ten LTLAs with the highest percentages and the ten LTLAs with the lowest percentages are excluded, the range is 20.2–36.6% and the variation is 1.8-fold.

The low level of physical activity is concerning:

› in the LTLA with the highest percentage of inactive adults, four in ten people were achieving less than 30 minutes per week;

› in the LTLA with the lowest percentage of inactive adults, 15% of people did not achieve 30 minutes per week;

› in 36 LTLAs, less than half of adults met the recommended level of 150 minutes per week.

There are inequalities across most of the protected characteristics under the Equality Act 2010,[5] in addition to socio-economic inequalities.

Options for action

Promoting physical activity is a priority given the effect on the risk of cardiovascular disease, and on obesity, and the benefits for mental well-being.

In conjunction with Health and Wellbeing Boards, NHS and other commissioners need to work with service providers and public health teams to develop strategies that promote physical activity.

In support of this, NHS and other commissioners need to specify that service providers work to implement:

› the evidence-based recommendations in Public Health England's *Everybody Active, Every Day* (see "Resources");

› interventions in the NICE pathway relating to physical activity (see "Resources").

RESOURCES

› Public Health England (2014) Everybody Active, Every Day. An evidence-based approach to physical activity. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374914/Framework_13.pdf

› Public Health England (2014) Everybody Active, Every Day. Implementation and Evidence Guide. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/366113/Evidence_layout_23_Oct.pdf

› Public Health England. Adult physical activity data factsheet. August 2014. http://www.noo.org.uk/NOO_pub/Key_data

› Sport England. Active People Survey 7. June 2013. http://archive.sportengland.org/research/active_people_survey/active_people_survey_7.aspx

› Mental Health Foundation. Exercise and Mental Health. http://www.mentalhealth.org.uk/help-information/mental-health-a-z/E/exercise-mental-health/

› NHS Choices. Physical activity guidelines for adults. http://www.nhs.uk/livewell/fitness/pages/physical-activity-guidelines-for-adults.aspx

› Ramblers. Facts and stats about walking. http://www.ramblers.org.uk/advice/facts-and-stats-about-walking.aspx

› BMJ Learning. The importance of physical activity. http://learning.bmj.com/learning/module-intro/.html?moduleId=10051859

› NICE Pathways. Physical activity overview. http://pathways.nice.org.uk/pathways/physical-activity

› World Health Organization (2010) Global Recommendations on Physical Activity for Health. http://www.who.int/dietphysicalactivity/factsheet_recommendations/en/

1 Murray CJL et al. UK health performance: findings of the Global Burden of Disease Study 2010. *Lancet* 2013; 381: 997-1020. http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60355-4/abstract

2 Lee I-M et al. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet* 2012; 380: 219-229. http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)61031-9/abstract

3 Department of Health. *Start Active, Stay Active. A report on physical activity from the four home countries' Chief Medical Officers*. July 2011. https://www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers

4 NHS. *Five Year Forward View*. October 2014. http://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

5 There are nine protected characteristics: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and belief, sex, and sexual orientation. http://www.legislation.gov.uk/ukpga/2010/15/section/4

CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

Map 26: Percentage of people on the chronic kidney disease (CKD) register whose most recent blood-pressure measurement in the previous 15 months was 140/85 mmHg or less (QOF CKD3 with exception-reported patients *excluded*) by CCG

2012/13

Domain 1: Preventing people from dying prematurely
Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

LONDON

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211 CCGs
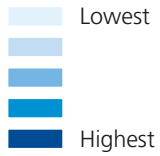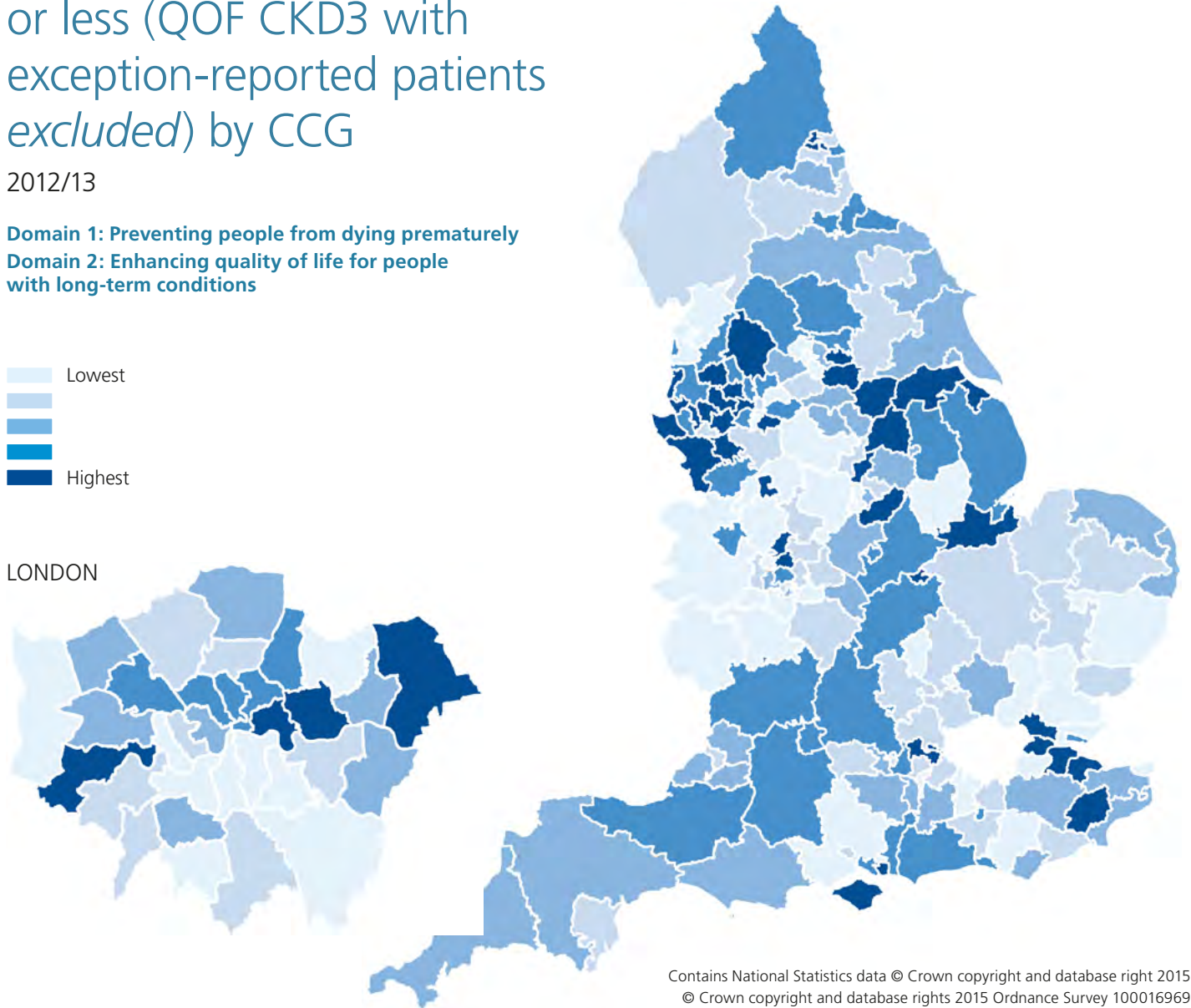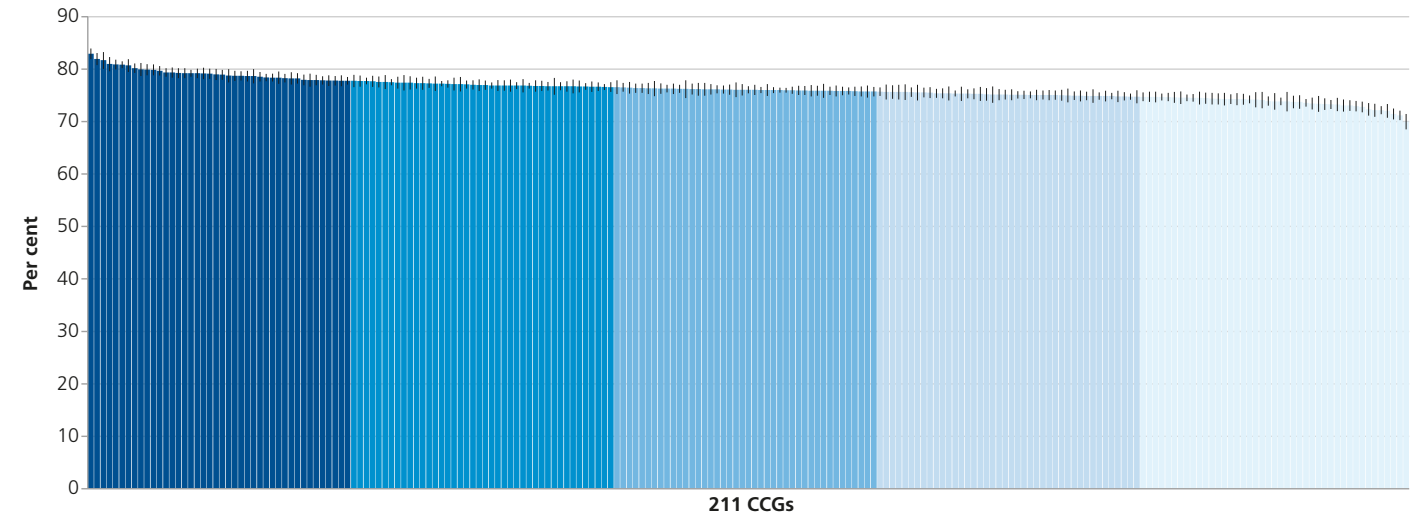
Context

The chronic kidney disease (CKD) register includes all people with CKD stages 3–5 as coded by GP practice. Treatment of hypertension in people with CKD reduces the progression of disease, and in high-risk patients it may also reduce the risk of cardiovascular events. The degree of benefit obtained may vary with patient demographics (e.g. age and ethnicity) and the underlying cause of CKD (e.g. diabetic nephropathy).

Revised NICE guidance (see "Resources") suggests the following target blood pressures:

› for patients with CKD but without proteinuria, 120–139 mmHg systolic and <90 mmHg diastolic;

› for patients with CKD, diabetes, and an ACR >70mg/mmol, 120–129 mmHg systolic and <80 mmHg diastolic.

Both over- and under-treatment of blood pressure can be associated with adverse outcomes; therefore, meeting these targets can be difficult.

Although this indicator for measuring and managing hypertension in CKD is no longer included in the Quality and Outcomes Framework (QOF) for 2015/16, it reflected the difficulties of achieving target blood pressures, by setting the target at ≤140/85 mmHg, and an audit standard achievement rate of 40–70%.

Magnitude of variation

For CCGs in England, the percentage of people on the CKD register whose most recent blood-pressure measurement in the previous 15 months was 140/85 mmHg or less (with exception-reported patients excluded) ranged from 70.0% to 82.9% (1.2-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 72.8–80.2%, and the variation is 1.1-fold.

Although most CCGs exceeded the upper limit of the QOF audit standard and were managing blood pressure in the majority of CKD patients to the QOF target, one patient in every five does not appear to have a blood-pressure measurement within target.

Moreover, these data do:

› not relate to the prevalence of CKD – they reflect only the care given to people identified and registered with CKD;

› not show to what extent blood pressure is being controlled or with which antihypertensive agents;

› not include people excepted from this QOF indicator – patients on the CKD register can be excepted for various reasons including if they are newly registered with the practice or unsuitable for treatment.

It is of concern that exception rates in CCGs vary from 2.5% to 13.6% of the population (5-fold variation) and, at practice level, the variation is greater than 5-fold.

Using primary care data from England and Wales, the aim of the National CKD Audit[1] is to measure the management and outcomes for people with CKD stages 3–5. The Audit may among other things identify whether there is variation of supply and/or care pathways, and whether any variation is warranted by CKD patient demography.

Options for action

Commissioners need to specify that service providers and clinicians monitor and treat blood pressure in people with CKD. Barriers to treatment need to be identified and action taken to overcome them including:

› ensuring that at-risk patients are screened for CKD, and documented on a register;

› educating people with CKD and healthcare professionals involved in their care about the importance of blood-pressure control, including lifestyle advice to lose weight and to increase physical activity such as walking;

› ensuring that people with CKD are prescribed appropriate antihypertensive medications and at appropriate doses consistent with current NICE guidance (see "Resources");

› using available published data to identify localities where blood-pressure control in CKD patients is less effective to guide the commissioning of resources and services.

When QOF data for 2014/15 are available, commissioners and service providers need to compare local achievement rates with exception rates because wider variations in intervention or treatment rates could be revealed that require further investigation or local interpretation.

National policy-makers need to review trial data on the effectiveness of blood-pressure control in CKD patients, with a particular focus on different population subgroups, to guide policy development and its implementation.

RESOURCES

› NICE. Hypertension: clinical management of primary hypertension in adults NICE guidelines [CG127]. August 2011.
http://www.nice.org.uk/guidance/cg127

› NICE. Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care. NICE guidelines [CG182]. July 2014.
http://guidance.nice.org.uk/CG182

› NICE. Chronic kidney disease. Quality standard [QS5]. March 2011. Quality statements 11–15 of QS5 *are now included* in QS72.
http://www.nice.org.uk/guidance/qs5

› National cardiovascular intelligence network. Cardiovascular disease profiles. Select a region/CCG at this link, then the section for "Kidney disease" is displayed.
http://www.yhpho.org.uk/ncvincvd/

CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

Map 27: Ratio of reported to expected prevalence of chronic kidney disease (CKD) by CCG

2012/13

Domain 1: Preventing people from dying prematurely
Domain 2: Enhancing quality of life for people with long-term conditions

Lowest ratios

Highest ratios

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211 CCGs
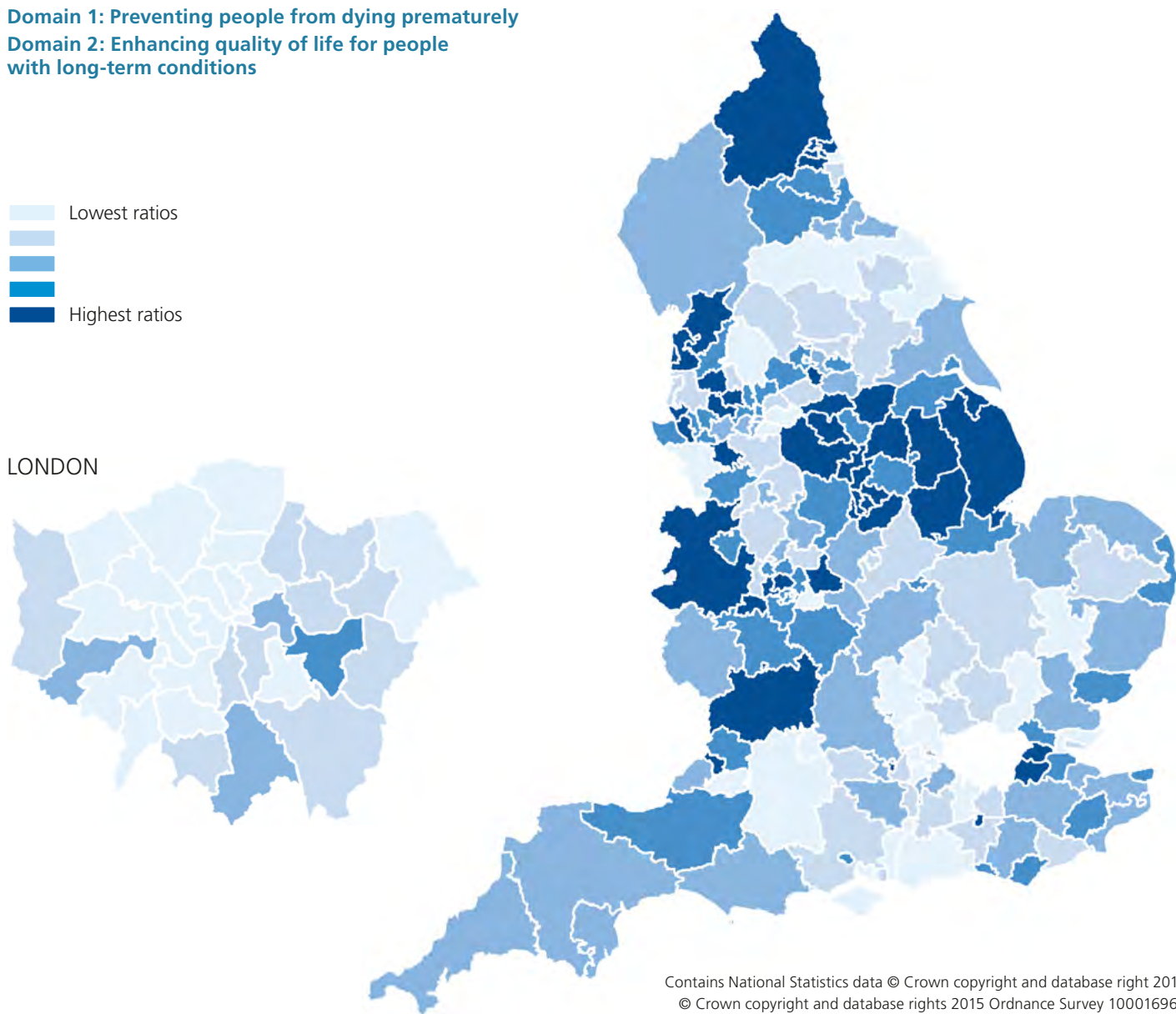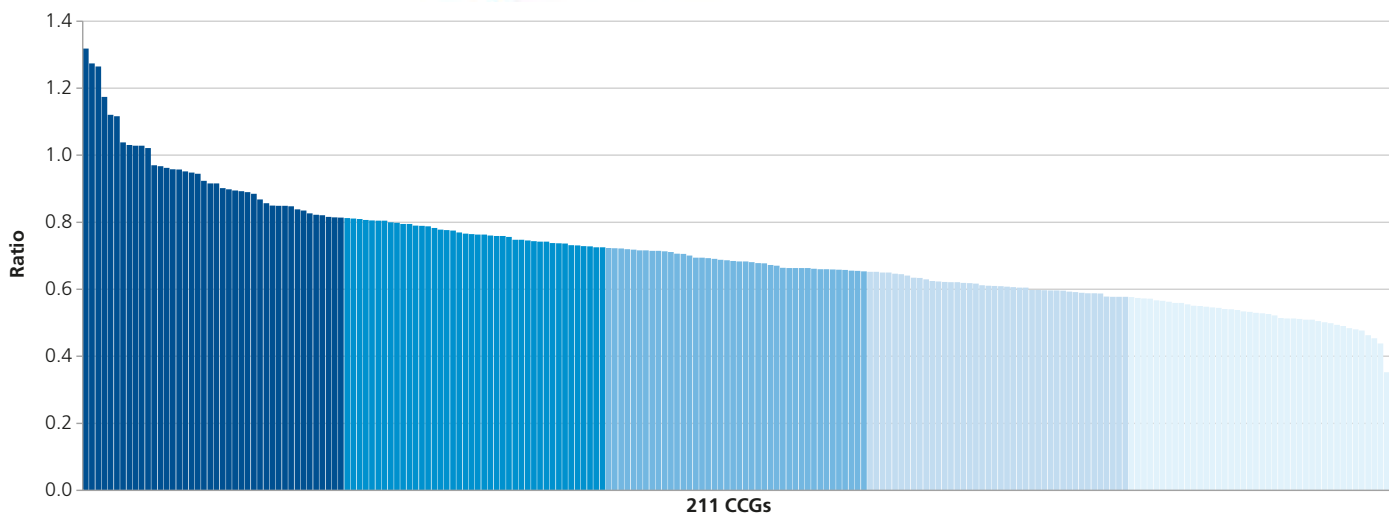
Context

The worldwide adoption of a definition for chronic kidney disease (CKD) based on glomerular filtration rate (GFR)[1] together with the introduction of automated reporting of estimated GFR by laboratories resulted in the detection of large numbers of people with previously undetected CKD. In the Quality and Outcomes Framework (QOF), general practitioners are required to establish a register of all patients with CKD. This has enabled the collection of national data on the prevalence of diagnosed CKD in England and Wales.

The expected number of people with CKD is estimated by applying national prevalence to a CCG population, with some adjustment for local demographic factors (see "Resources").

The majority of patients with CKD are at low risk of progressing to end-stage renal disease (ESRD). In contrast, even mild reductions in GFR or low levels of albuminuria are associated with a substantial increase in the risk of death due to cardiovascular events.[2] Identifying individuals with CKD allows them to be targeted with interventions to reduce this risk.

Magnitude of variation

For CCGs in England, the ratio of reported to expected prevalence of CKD ranged from 0.35 to 1.32 (3.8-fold variation). When the seven CCGs with the highest ratios and the seven CCGs with the lowest ratios are excluded, the range is 0.48–1.03, and the variation is 2.1-fold.

There is considerable variation in the ratio of observed versus expected prevalence of diagnosed stage 3 to 5 CKD among CCGs. There is also a large degree of variation of reported CKD prevalence at practice level within CCGs (see "Resources", Cardiovascular disease profiles; kidney disease).

Reasons for some of the degree of variation observed include differences in:

› the demography of CCG populations;

› the prevalence of important risk factors, such as diabetes, and cardiovascular disease.

Much of the variation is likely to be due to the variable detection of CKD.

› An excessively high prevalence may result if the diagnosis of CKD is based on a single abnormal GFR (instead of two values <60 ml/min/1.73 m[2], as required by the definition). Revised NICE guidance (see "Resources") recommends that the diagnosis may be confirmed using Cystatin C testing, although at the time of writing this test is not yet in use across England.

› A low prevalence may be due to failure to screen all patients at risk or to register those identified systematically.

Options for action

The key to reducing unwarranted variation in the prevalence of CKD is to improve CKD screening. Commissioners need to specify that service providers and clinicians follow NICE guidance (see "Resources"), which recommends that patients with the following conditions or risk factors should be screened for CKD using eGFR creatinine and the albumin to creatinine ratio (ACR):

› diabetes;

› hypertension;

› cardiovascular disease;

› acute kidney Injury (AKI);

› structural renal tract disease (renal calculi or prostatic hypertrophy);

› multisystem diseases with potential kidney involvement, e.g. systemic lupus erythematosus (SLE);

› a family history of CKD stage 5 or hereditary kidney disease;

› opportunistic detection of haematuria.

After screening, repeat estimated GFR should be performed after at least 90 days to confirm an abnormal result, and dipstick urinalysis and measurement of urine ACR to assess albuminuria.

Commissioners also need to specify that, to classify CKD, service providers and clinicians should follow NICE guidance (see "Resources").

Clinicians in general practice can use tools, such as the IMPAKT tool (see "Resources"), and participate in the National CKD Audit (see "Resources"), to address issues relating to excessively high, or low, prevalence of CKD.

RESOURCES

› MacGregor MS, Taal MW (2011) Detection, monitoring and management of patients with CKD. Renal Association Clinical Practice Guideline. http://www.renal.org/Clinical/GuidelinesSection/Detection-Monitoring-and-Care-of-Patients-with-CKD.aspx

› NICE. Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care. NICE guidelines [CG182]. July 2014. http://guidance.nice.org.uk/CG182

› NICE. Chronic kidney disease. Quality standard [QS5]. March 2011. Quality statements 11–15 of QS5 are now included in QS72. http://www.nice.org.uk/guidance/qs5

› Public Health England. The National Cardiovascular Intelligence Network. Chronic kidney disease prevalence model. http://www.yhpho.org.uk/resource/view.aspx?RID=204689

› National cardiovascular intelligence network. Cardiovascular disease profiles. Select a region/CCG at this link, then the section for "Kidney disease" is displayed. http://www.yhpho.org.uk/ncvincvd/
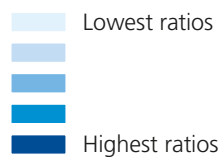
› Public Health England. The National Cardiovascular Intelligence Network and University of Southampton. Cardiovascular disease key facts. Kidney disease. 2013 www.yhpho.org.uk/resource/view.aspx?RID=188009

› National CKD Audit. http://www.ckdaudit.org.uk/

› National Institute for Health Research. IMPAKT. http://www.impakt.org.uk/HOME-459.html Download the tool: http://www.impakt.org.uk/getstarted-4134.html

1 National Kidney Foundation (2002) K/DOQI clinical practice guidelines for chronic kidney disease: evaluation, classification, and stratification. *Am J Kidney* Dis 39: S1-266. https://www.kidney.org/sites/default/files/docs/ckd_evaluation_classification_stratification.pdf

2 van der Velde, M, Matsushita, K, Coresh, J et al (2011) Lower estimated glomerular filtration rate and higher albuminuria are associated with all-cause and cardiovascular mortality. A collaborative meta-analysis of high-risk population cohorts. *Kidney Int* 79: 1341-1352. http://www.kdigo.org/pdf/van%20der%20Velde1.pdf

CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

Map 28: Percentage of dialysis patients who were receiving dialysis in the home (home haemodialysis and peritoneal dialysis combined) by CCG

2013

Domain 2: Enhancing quality of life for people with long-term conditions
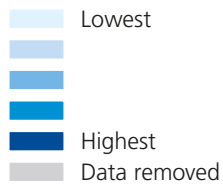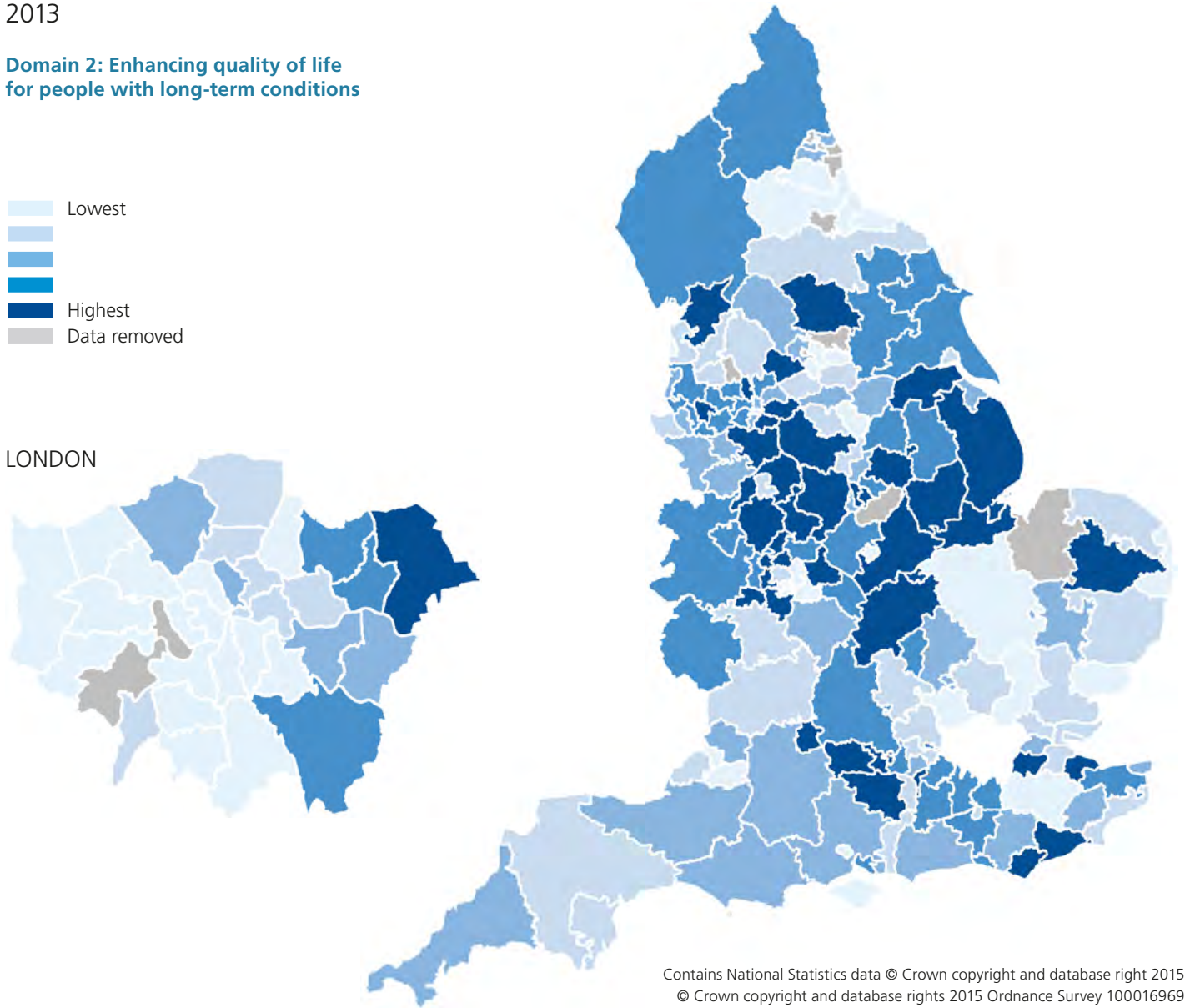
Lowest

Highest
Data removed

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200 out of 211 CCGs (11 removed due to small numbers)

Per cent
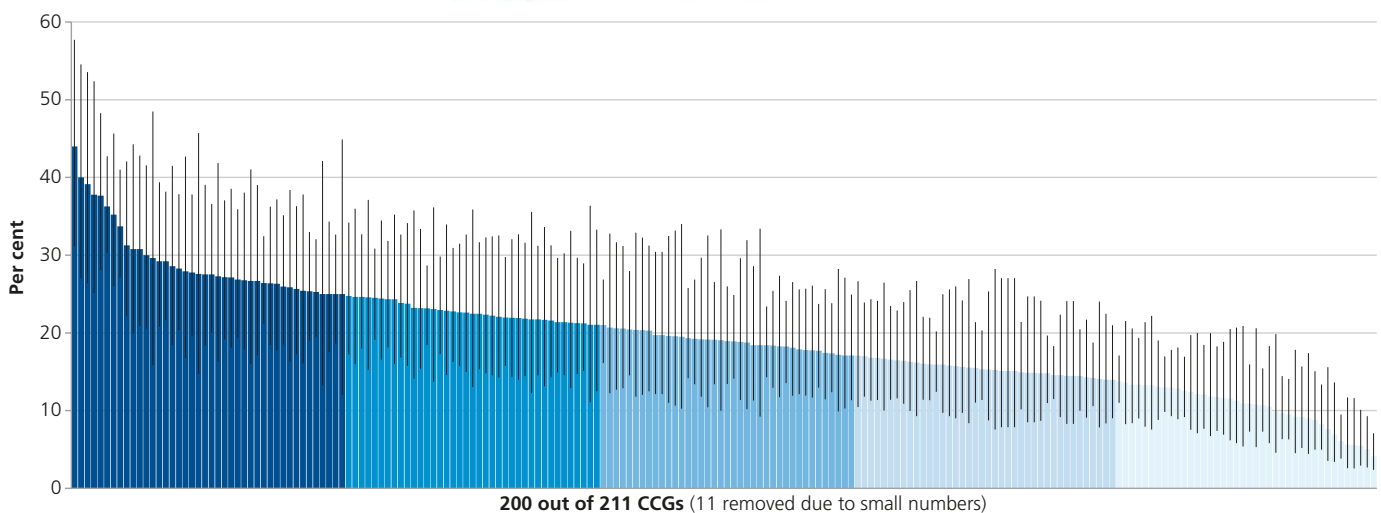
Context

End-stage renal disease (ESRD) affects 0.1% of the population of England and Wales. Treatment for this life-threatening condition is through renal replacement therapy (RRT), which is either dialysis or by receiving a kidney transplant.

Dialysis can take place either in a hospital setting or at home. For dialysis in hospital, a patient commonly attends for haemodialysis for four hours three times per week, which places a burden on patients and makes considerable demands on transport resources. People who choose to have dialysis at home have support from specialist staff while taking on the responsibility to perform their own treatment, but with much greater flexibility and freedom in how they do that during the day. People on home dialysis spend less time travelling to hospital when compared with people receiving dialysis in a hospital setting. People on home haemodialysis have the option to increase both the duration and frequency of their dialysis treatment, which often makes people feel better, and may be associated with a longer life. In England, the average proportion of people on dialysis who have their dialysis at home is 18%.

Only about one-third of prevalent patients on dialysis are suitable for kidney transplantation; for these patients, transplantation offers an even greater degree of freedom from the repetitive nature of dialysis, they experience higher degrees of well-being, and have a longer life. In England, the proportion in the population of people on RRT with a functioning transplant is an average of 52%.

Access to both home dialysis and kidney transplantation varies considerably among localities in England, and the reasons for variation can be complex.

Magnitude of variation

Map 28: RRT via dialysis at home

For CCGs in England, the percentage of dialysis patients who were receiving dialysis in the home (home haemodialysis and peritoneal dialysis combined) ranged from 4.1% to 44.0% (10.6-fold variation).[1] When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 7.6–33.7%, and the variation is 4.4-fold.

Reasons for the degree of variation observed include differences in:

> access to, and timely assessment by, a specialist kidney unit – working with patients to help them decide between treatments takes time, but in some areas 30% of patients are not known to their kidney team for even 90 days before they start RRT[2];

> access to a multi-professional team, including staff who regularly support patients undertaking home dialysis;

> levels of support for people undertaking home dialysis to help them maintain their independence, including access to respite in-centre dialysis.

Map 29: RRT via kidney transplant

For CCGs in England, the percentage of people receiving RRT who had a functioning kidney transplant at a Census date ranged from 34.1% to 68.8% (2.0-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 37.2–64.5%, and the variation is 1.7-fold.

Reasons for the degree of variation observed include differences in:

> access to, and timely assessment by, a specialist kidney unit – working with patients to help them decide between treatments takes time, but in some areas 30% of patients are not known to their kidney team for even 90 days before they start RRT[2];

> referral from a renal unit to a transplant centre for further assessment – there is significant variation in the proportion of patients referred for transplant assessment before reaching ESRD, and in the proportion pre-emptively transplanted[3]; an appropriate rate of referral and listing is unknown and is the subject of the national ATTOM study[4].

1   Data from 11 CCGs have been removed due to small numbers.
2   UK Renal Registry annual report (2014) https://www.renalreg.org/wp-content/uploads/2014/09/Report2013.pdf
3   NHS Blood and Transplant in collaboration with NHS England. Annual Report on Kidney Transplantation. Report for 2013/2014 (1 April 2004-31 March 2014). Published September 2014. http://www.odt.nhs.uk/pdf/organ_specific_report_kidney_2014.pdf
4   https://www.attom.org/default.aspx and http://www.southampton.ac.uk/medicine/academic_units/projects/attom.page

Options for action

CCG Commissioners need to specify that primary care service providers:

› identify people at risk of CKD, as per NICE CKD guidance (see "Resources");

› place on a register those people found to have CKD to ensure they receive regular checks for progressive kidney disease.

Specialised commissioners also need to consider supporting a policy of home dialysis first, but to specify it needs to take into account patient choice and suitability.

Commissioners, both CCG and specialised, need to specify that all service providers (i.e. in primary, secondary and specialised care):

› recognise and treat acute kidney injury (AKI) early to reduce unplanned start to RRT and the subsequent burden of CKD;

› target high proportions of late presentation and identify and remove barriers to timely referral to secondary care, as per NICE guidelines (see "Resources", CG 182).

Specialised commissioners need to specify that service providers at dialysis and transplant centres:

› regularly audit transplant listing and dialysis modality and location for (i) all incident patients both at first RRT and at 90 days, and (ii) all prevalent patients on dialysis;

› scrutinise whether a decision regarding renal transplantation is initiated prior to RRT start – although pre-emptive transplantation is associated with the best outcomes, for those people who are suitable for transplantation it is better to be assessed as early as possible.

RESOURCES

› UK Renal Registry annual report (2014) https://www.renalreg.org/wp-content/uploads/2014/09/Report2013.pdf

   NHS Blood and Transplant organ-specific reports.

   http://www.odt.nhs.uk/uk-transplant-registry/organ-specific-reports/

› NICE. Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care. NICE guidelines [CG182]. July 2014. http://guidance.nice.org.uk/CG182

› NICE. Chronic kidney disease. Quality standard [QS5]. March 2011. Quality statements 11–15 of QS5 are now included in QS72 (see below). http://www.nice.org.uk/guidance/qs5

› NICE. Renal replacement therapy services. Quality standard [QS72]. November 2014. http://www.nice.org.uk/guidance/qs72

› National cardiovascular intelligence network. Cardiovascular disease profiles. Select a region/CCG at this link, then the section for "Kidney disease" is displayed. http://www.yhpho.org.uk/ncvincvd/

CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

Map 29: Percentage of people receiving renal replacement therapy (RRT) who had a functioning kidney transplant at a Census date by CCG

2013

**Domain 2: Enhancing quality of life
for people with long-term conditions**
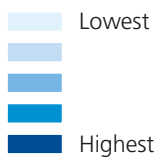
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Highest

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Per cent

211 CCGs
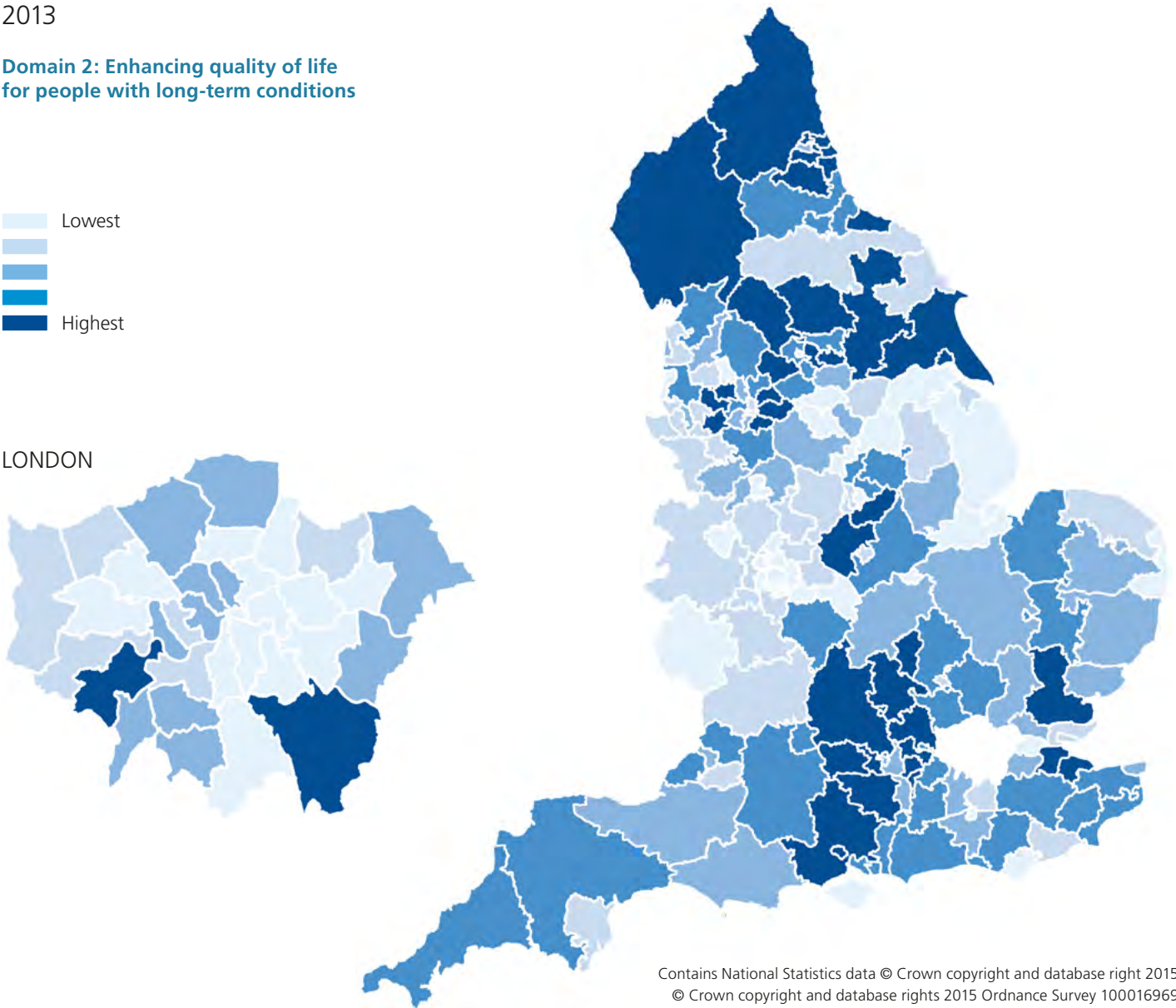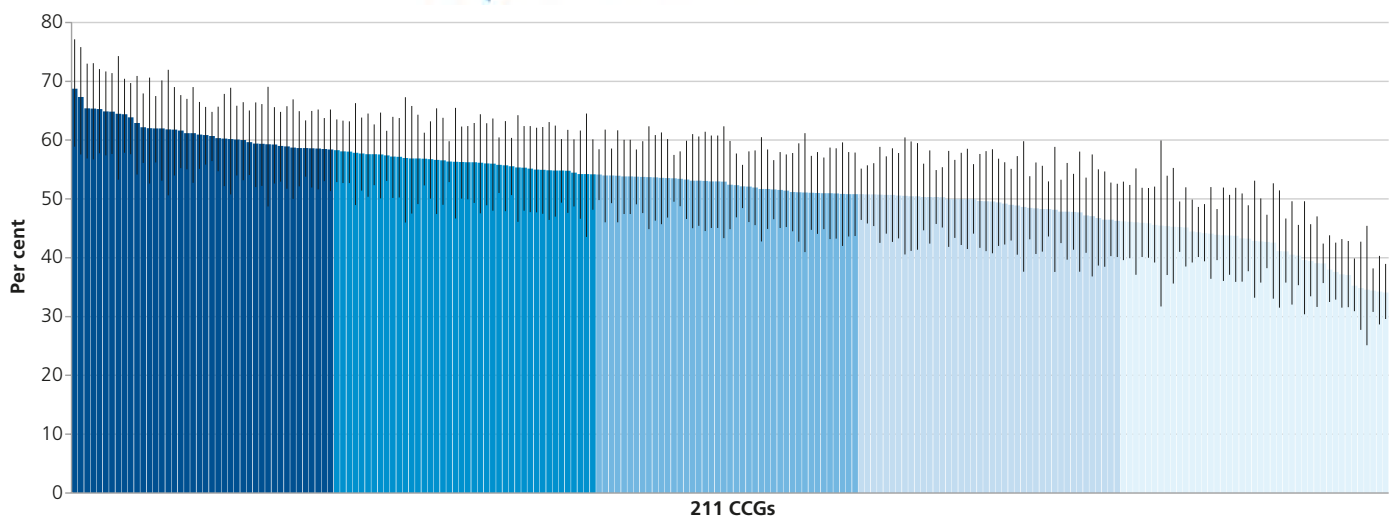
CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

Map 30: Percentage of people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes who received NICE-recommended care processes (excluding eye screening) by CCG

2012/13

Domain 1: Preventing premature mortality
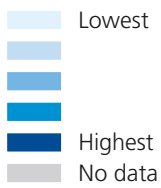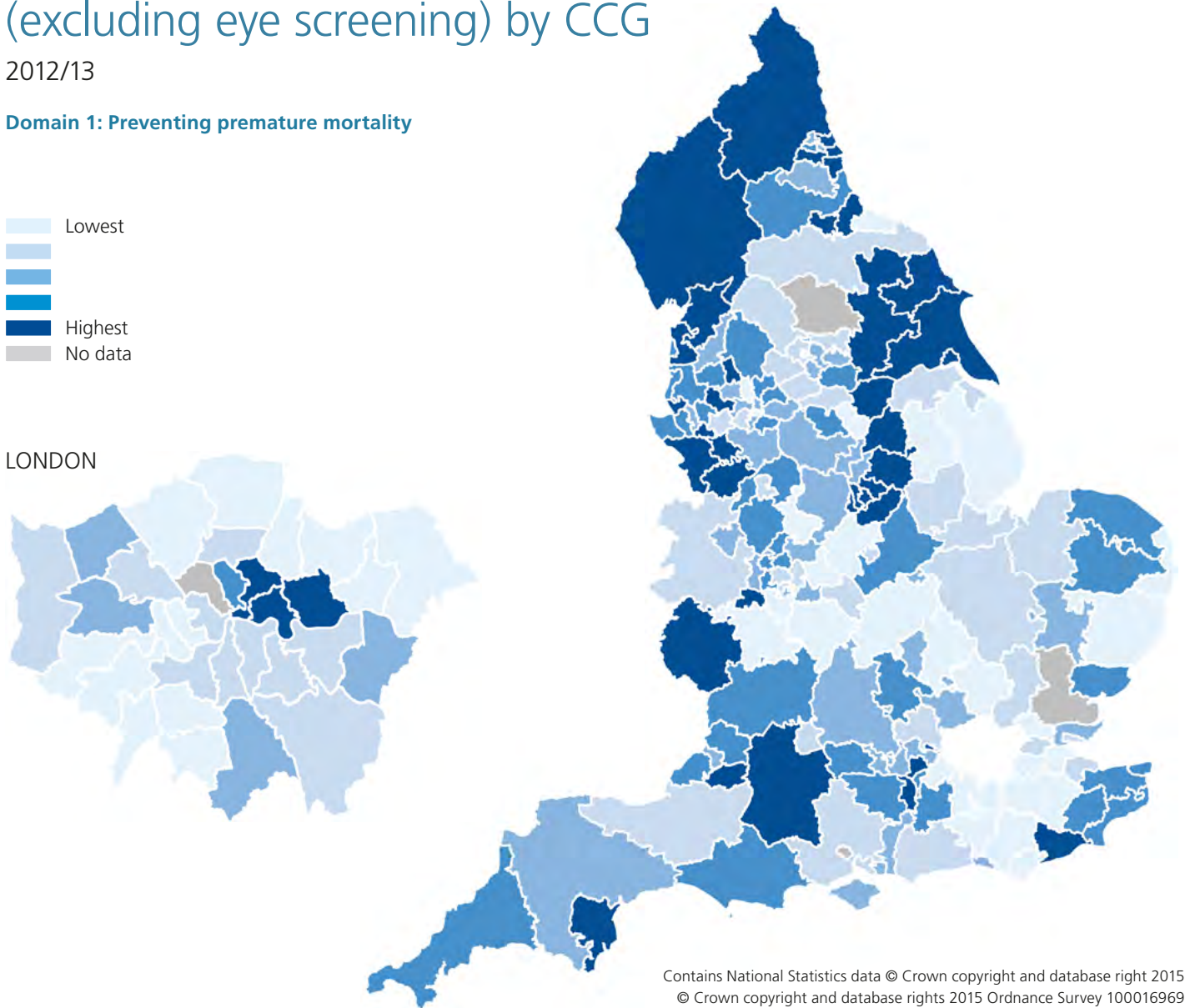
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Highest
No data

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Per cent

80
70
60
50
40
30
20
10
0
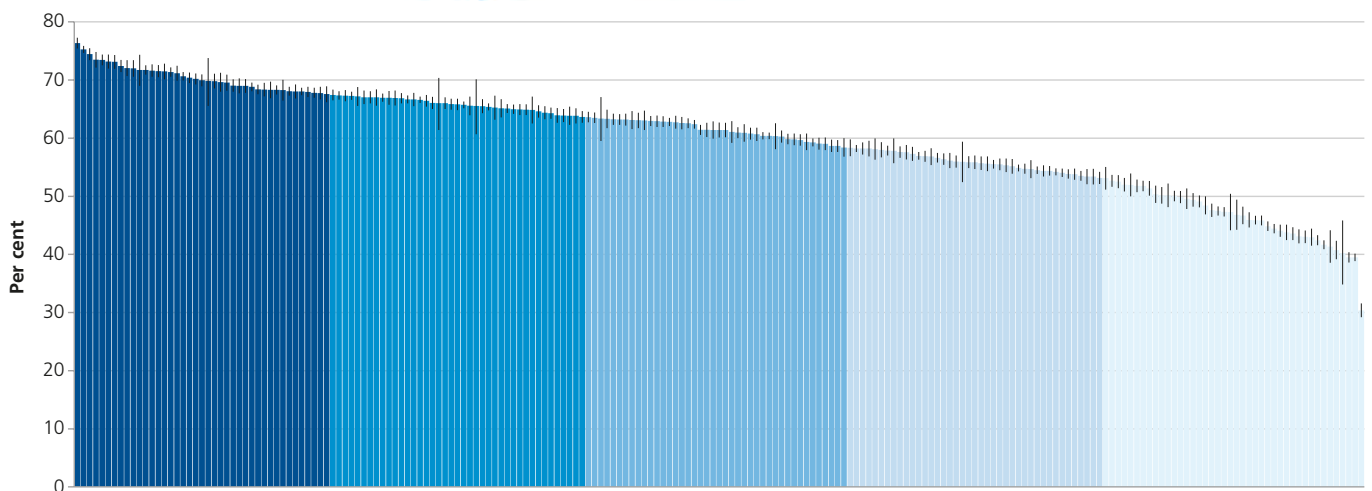
207 out of 211 CCGs (4 missing due to incomplete data)

Context

In NICE guidance (see "Resources"), it is recommended that all people with diabetes should receive the following care processes at least once a year:

> HbA1c measurement;

> serum cholesterol measurement;

> serum creatinine measurement;

> micro-albuminuria measurement (urine albumin);

> blood pressure measurement;

> body mass index (BMI) measured;

> smoking status recorded;

> foot surveillance;

> eye screening[1].

These care processes are essential for the ongoing management of people with diabetes, and the early detection of complications. They are incentivised within the Quality and Outcomes Framework (QOF).

The National Diabetes Audit (NDA) provides data on all but one of these care processes.[1] In England and Wales, 59.5% of people with Type 1 and Type 2 diabetes of all ages recorded in the NDA had received eight of the nine NICE-recommended care processes between 1 January 2012 and 31 March 2013. The proportion of people with Type 1 diabetes receiving these eight care processes was substantially lower than that for people with Type 2 diabetes: 40.8% compared with 61.6%.

Magnitude of variation

For CCGs in England, the percentage of people in the NDA with Type 1 and Type 2 diabetes who received NICE-recommended care process (excluding eye screening) ranged from 30.4% to 76.4% (2.5-fold variation).[2] When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 42.4–72.4%, and the variation is 1.7-fold.

There is no statistically significant correlation between this indicator and deprivation at CCG level (see Figure 30.1), suggesting that the degree of variation observed is related predominantly to the ways in which services for people with diabetes are organised.

Options for action

Commissioners and service providers need to review:

> the performance of their CCG not only nationally, but also in relation to the best performer among their demographic peers;

> any local variation within the CCG and the reasons for it;

> organisation of the service for people with diabetes and current practices, with a view to optimising them.

As almost one-third of people with diabetes do not appear to have received the basic standard of care, all commissioners need to specify that service providers comply with NICE guidance (NG17, CG66 and CG87; see "Resources"), and also establish robust diabetes annual review arrangements, including:

> increasing the reliability of invitation systems for diabetes annual checks;

> the introduction of, or improvement in, processes to follow-up and remind non-attenders;

> establishing arrangements for alternative access;

> ensuring that scheduled checks are undertaken on attendance, and results are recorded accurately.

RIGHTCARE CASEBOOK

> Slough Clinical Commissioning Group – Improving the value of diabetes care in Slough. October 2014. http://bit.ly/slough_casebook

> Beating Diabetes in Bradford – using RightCare to focus on prevention. August 2015. http://bit.ly/bhd_casebook

RESOURCES

> NICE. Type 1 diabetes in adults: diagnosis and management. NICE guidelines [NG17]. August 2015. http://www.nice.org.uk/guidance/ng17

> NICE. Type 2 diabetes (partially updated by CG87). NICE guidelines [CG66]. May 2008. http://www.nice.org.uk/CG66

> NICE. Type 2 diabetes: The management of Type 2 diabetes. NICE guidelines [CG87]. May 2009. https://www.nice.org.uk/guidance/cg87

> NICE Pathways. Diabetes overview. http://pathways.nice.org.uk/pathways/diabetes

Figure 30.1: Percentage of people in the NDA with Type 1 and Type 2 diabetes who received NICE-recommended care processes (excluding eye screening) in relation to deprivation (IMD-2010)
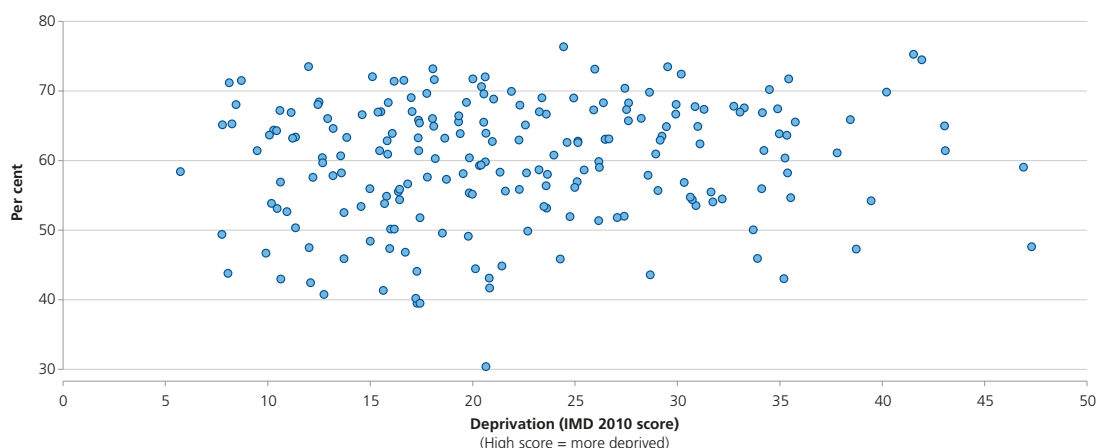
1 Eye screening is the responsibility of the NHS Diabetic Eye Screening Programme, and the data are not collected by the NDA; in future, the NDA may report the eye screening data. http://diabeticeye.screening.nhs.uk/

2 Data from four CCGs are missing.

CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

Map 31: Percentage of people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes who met treatment targets for HbA1c (blood glucose), blood pressure and cholesterol by CCG

2012/13

Domain 1: Preventing people from dying prematurely
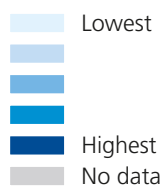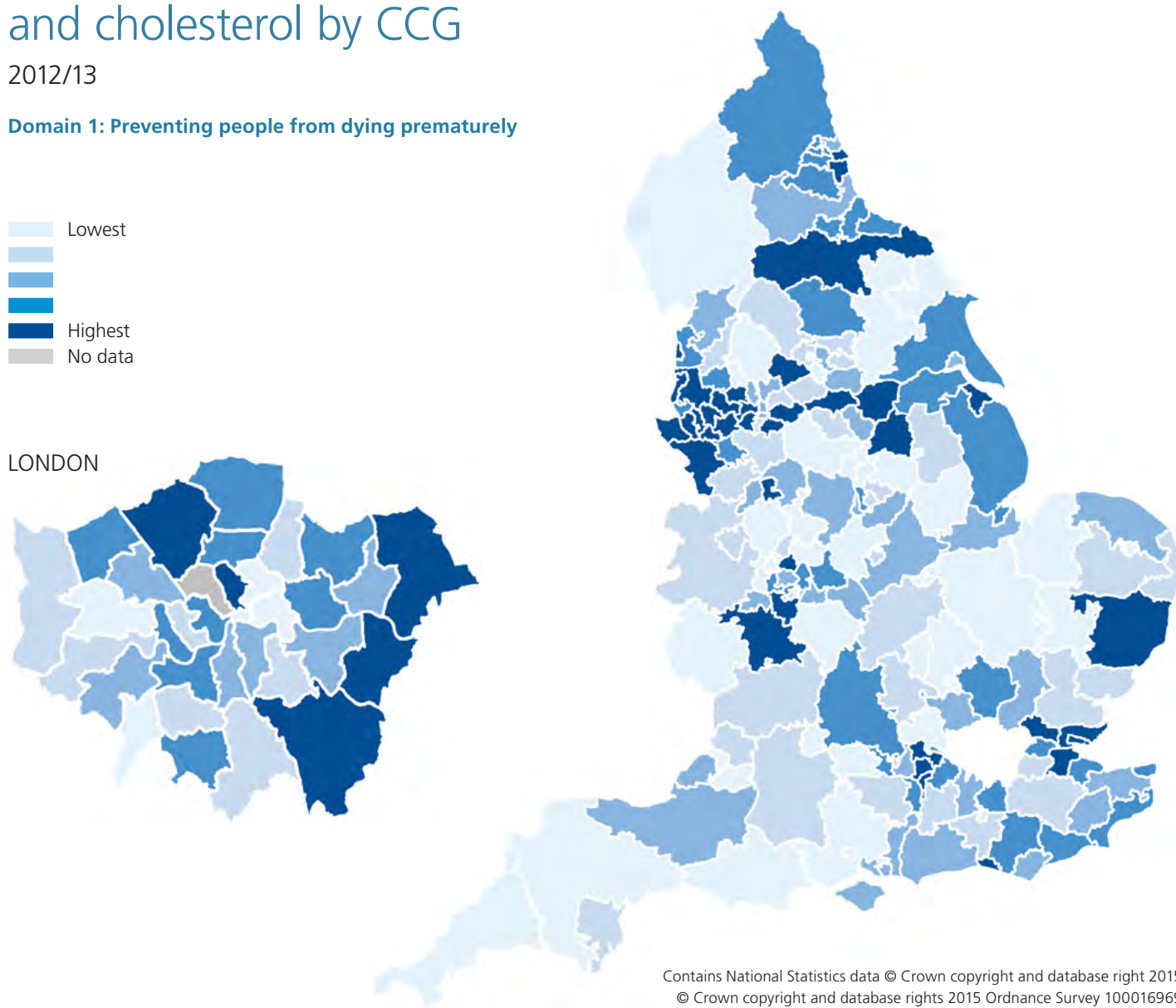
Lowest

Highest
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210 out of 211 CCGs (1 missing due to incomplete data)

Per cent
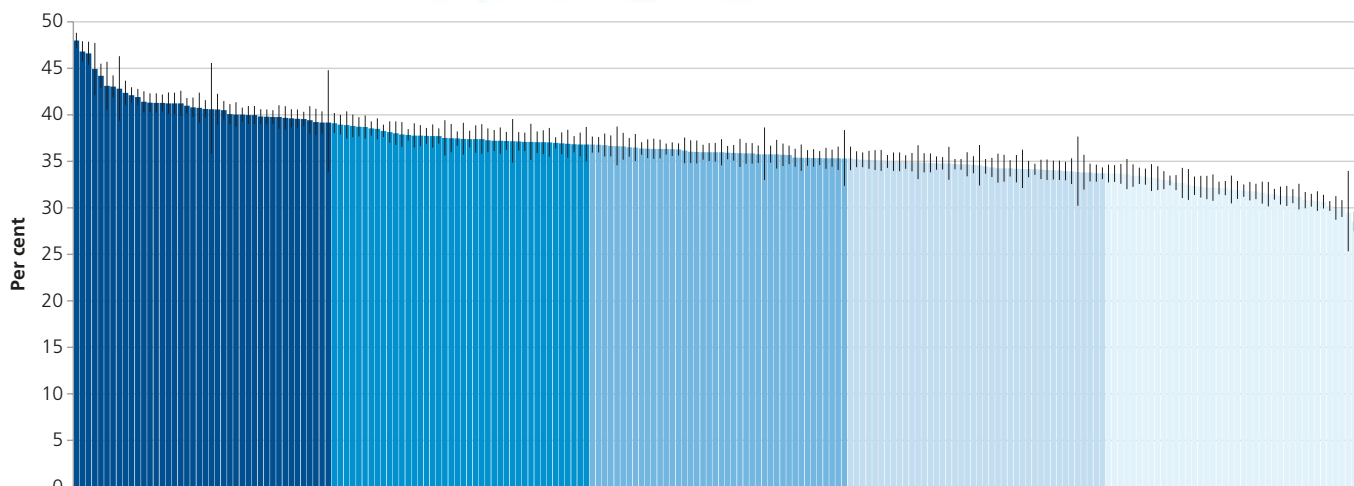
Context

The main objectives for the ongoing management and care of people with diabetes are:

> to minimise interference with everyday life;

> to reduce the risk of developing complications such as heart disease, chronic kidney disease, neuropathy (nerve damage), peripheral vascular disease (damage to the blood vessels in the leg), stroke and eye disease.

Meeting these treatment objectives depends on keeping levels of HbA1c (a measure of average blood glucose levels), blood pressure and cholesterol within targets as recommended by NICE (see "Resources"). Among other targets, the National Diabetes Audit (NDA) reports the percentage of people whose:

> last HbA1c measurement was ≤58 mmol/mol (7.5%)[1];

> last blood pressure reading was ≤140/80 mmHg;

> last cholesterol measurement was <5 mmol/l.

In 2012/13 in England and Wales, 35.9% of people with Type 1 and Type 2 diabetes met all three targets, however, people with Type 1 diabetes were less likely to meet all three targets than people with Type 2 diabetes: 16.1% versus 37.4%.

Patient education programmes, known as "structured education", are the basis of effective self-care for people with diabetes, which could help towards meeting treatment targets; however, offering structured education seems to be a low priority among CCGs. In 2012/13 in England and Wales:

> of people who were newly diagnosed, 3.7% with Type 1 diabetes and 16.7% with Type 2 diabetes were offered structured education;

> of all people with diabetes, 2.4% with Type 1 and 6.0% with Type 2 were offered structured education.

Magnitude of variation

For CCGs in England, the percentage of people in the NDA with Type 1 and Type 2 diabetes who met treatment targets for HbA1c (blood glucose), blood pressure and cholesterol ranged from 27.8% to 48.0% (1.7-fold variation).[2] When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 30.7–42.8%, and the variation is 1.4-fold.

There is no statistically significant association with deprivation at CCG level (see Figure 31.1, page 259), suggesting that the degree of variation observed in the percentage of people meeting the three treatment targets is related to how local services for people with diabetes are organised.

Options for action

Commissioners and service providers need to review:

> the performance of their CCG not only nationally but also in relation to the best performer among their demographic peers;

> any local variation within the CCG and ascertain the reasons for it;

> organisation of the service for people with diabetes and current practices, with a view to optimising them.

As almost two-thirds of people with Type 1 and Type 2 diabetes appear to be at increased risk of developing complications because NICE-recommended targets for levels of HbA1c, blood pressure or cholesterol are not being met, all commissioners need to specify that local service providers implement the detailed recommendations in NICE guidance on:

> the assessment and treatment of diabetes (NG17, CG66, CG87; see "Resources"),

> lipid modification (CG181; see "Resources").

Service providers need to consider:

> devising treatment regimens to optimise blood-glucose control;

> prescribing antihypertensive drugs according to recommended treatment algorithms;

> providing structured patient education programmes and supported self-management;

> providing information and support for lifestyle changes, such as weight management to help lower blood pressure;

> cardiovascular risk assessment, and the modification of blood lipids for the prevention of cardiovascular disease;

> giving patients access to their results, and undertaking collaborative care planning with appropriate goal setting.

Service providers also need to target people with diabetes who have evidence of early complications.

NICE EVIDENCE SERVICES

> Reducing hospital admission rates for people with diabetes: a systematic approach to improving primary care outcomes. NHS Greenwich. 15 January 2013. https://www.evidence.nhs.uk/document?ci=http%3A%2F%2Farms.evidence.nhs.uk%2Fresources%2FQIPP%2F899089&q=Hospital%20admission&ReturnUrl=%2Fsearch%3Fq%3DHospital%2520admission%26om%3D%255B%257B%2522srn%2522%253A%255B%2522%2520qipp%2520%2522%255D%257D%255D

RESOURCES

> NICE. Type 1 diabetes in adults: diagnosis and management. NICE guidelines [NG17]. August 2015. http://www.nice.org.uk/guidance/ng17

> NICE. Type 2 diabetes (partially updated by CG87). NICE guidelines [CG66]. May 2008. http://www.nice.org.uk/CG66

> NICE. Type 2 diabetes: The management of Type 2 diabetes. NICE guidelines [CG87]. May 2009. https://www.nice.org.uk/guidance/cg87

> NICE Pathways. Diabetes overview. http://pathways.nice.org.uk/pathways/diabetes

> NICE. Lipid modification: cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. NICE guidelines [CG181]. July 2014. http://www.nice.org.uk/guidance/cg181

> NHS England. Patient decision aids. Diabetes: Improving Control. http://sdm.rightcare.nhs.uk/pda/diabetes-improving-control/

> NHS England. Patient decision aids. Diabetes: Additional treatments to improve control. http://sdm.rightcare.nhs.uk/pda/diabetes-additional-treatments-to-improve-control/

---

1 In the most recent NICE guidance (NG17; see "Resources"), the target has been reduced to ≤48 mmol/mol (6.5%).

2 Data from one CCG are missing.

CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

Map 32: Total net ingredient cost of anti-diabetic items per person on GP diabetes registers by CCG

2013/14

Domain 1: Preventing premature mortality

Lowest

Highest

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211 CCGs
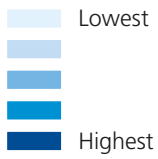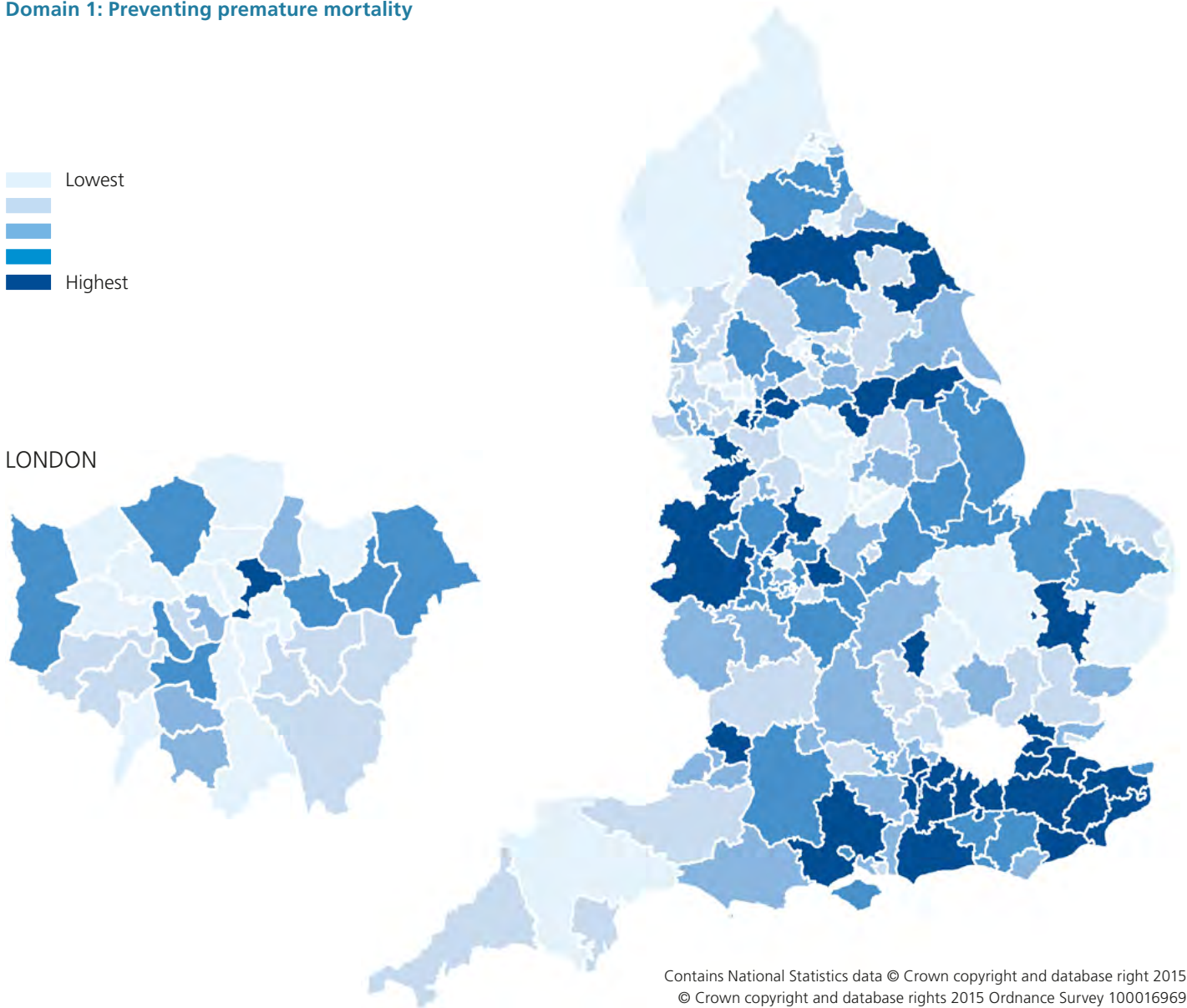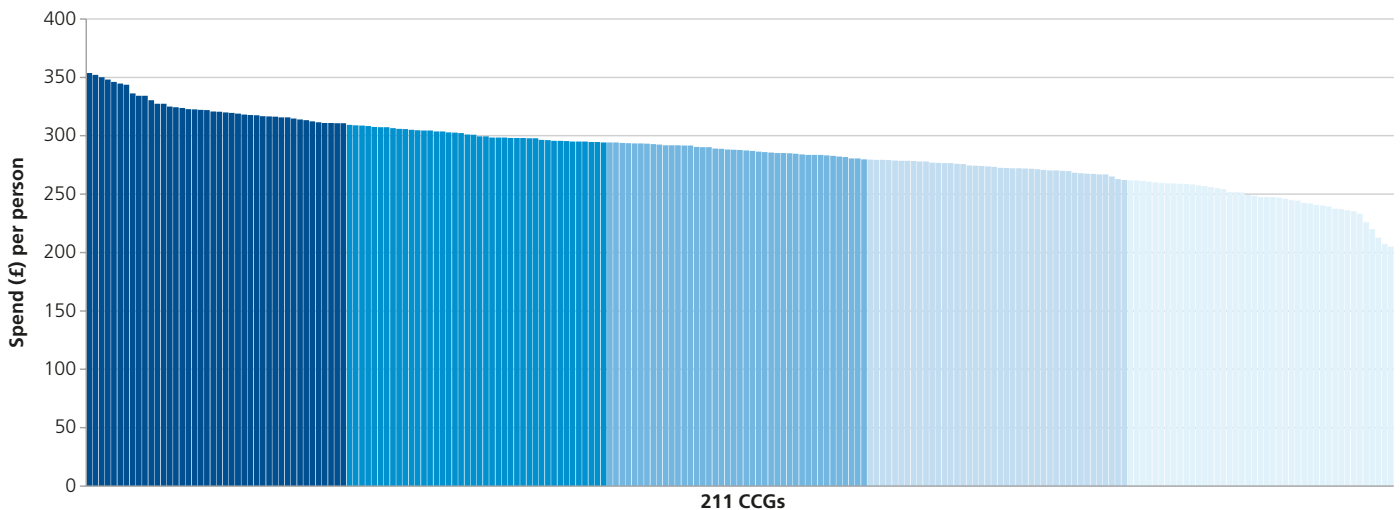
Context

In 2013/14 in England, prescriptions for diabetes-related items cost £803.1 million, representing 9.5% of the total prescription spend in primary care. This equated to an average spend per adult with diabetes of £283.29.

There are three categories of diabetes-related prescription items:

› insulin items, used to lower the blood-glucose level of people with Type 1 diabetes, and also that of people with Type 2 diabetes when non-insulin drugs are not providing adequate control;

› non-insulin anti-diabetic drugs (mainly tablets), used to increase either insulin production or insulin sensitivity in people with Type 2 diabetes;

› blood-glucose testing strips.

Blood-glucose testing strips are used with a small hand-held blood-glucose testing meter to allow people with diabetes to check their own blood glucose levels and adjust treatment accordingly. Regular self-monitoring of blood glucose is essential for anyone with diabetes who is taking insulin.

Magnitude of variation

For CCGs in England, the total net ingredient cost of anti-diabetic items per person on GP diabetes registers ranged from £205 to £354 (1.7-fold variation). When the seven CCGs with the highest costs per person and the seven CCGs with the lowest costs per person are excluded, the range is £236–£336, and the variation is 1.4-fold.

There is no correlation between spending on insulin items and the percentage of people with Type 1 diabetes or with Type 2 diabetes whose most recent HbA1c measurement was ≤58 mmol/mol (7.5%) at CCG level. This would indicate that much of the expenditure on diabetes-related items is inefficient.

The reasons for variation are differences in the choice of products: more expensive products are prescribed when there are alternatives that are cheaper but have the same level of effectiveness. Expenditure is inefficient because resources are consumed in excess of those necessary to deliver treatment targets, and there is a consequent opportunity cost. Common examples of prescribing more expensive products for people with Type 2 diabetes include the use of:

› insulin analogues when conventional insulin is as effective;

› new oral diabetic drugs when older drugs are as effective.

In addition, blood glucose testing is undertaken in people with Type 2 diabetes when it is not needed.

Options for action

Commissioners need to specify that service providers ensure the recommended treatment regimens in NICE guidelines for people with diabetes (NG17, and CG66 partially updated by CG87, respectively; see "Resources").

For localities where diabetes-related insulin costs are high and glucose control is poor when compared with these variables in other localities, commissioners and service providers need to review:

› local policies;

› education programmes;

› incentives to change to more cost-effective treatment and/or blood-testing regimens.

Commissioners, service providers and clinicians need to review any variation in spending on diabetes-related items at a local level and to consider whether local prescribing practice is in line with NICE guidance, including:

› local case-mix;

› the distribution of spend among insulin items, non-insulin anti-diabetic items and blood-glucose testing strips.

RESOURCES

› NICE. Type 1 diabetes in adults: diagnosis and management.
NICE guidelines [NG17]. August 2015.
http://www.nice.org.uk/guidance/ng17

› NICE. Type 2 diabetes (partially updated by CG87).
NICE guidelines [CG66]. May 2008.
http://www.nice.org.uk/CG66

› NICE. Type 2 diabetes: The management of Type 2 diabetes.
NICE guidelines [CG87]. May 2009.
https://www.nice.org.uk/guidance/cg87

› NICE Pathways. Diabetes overview.
http://pathways.nice.org.uk/pathways/diabetes

› NICE. Diabetes in adults quality standard. NICE quality standard [QS6]. March 2011.
https://www.nice.org.uk/guidance/qs6

› Quality statement 6: Insulin therapy.
https://www.nice.org.uk/guidance/qs6/chapter/quality-statement-6-insulin-therapy

CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

Map 33: Additional risk of mortality among people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes compared with the general population by CCG

Indirectly standardised rate, adjusted for age and sex, 2011–2013

Domain 1: Preventing premature mortality
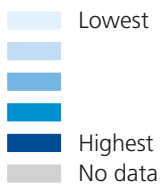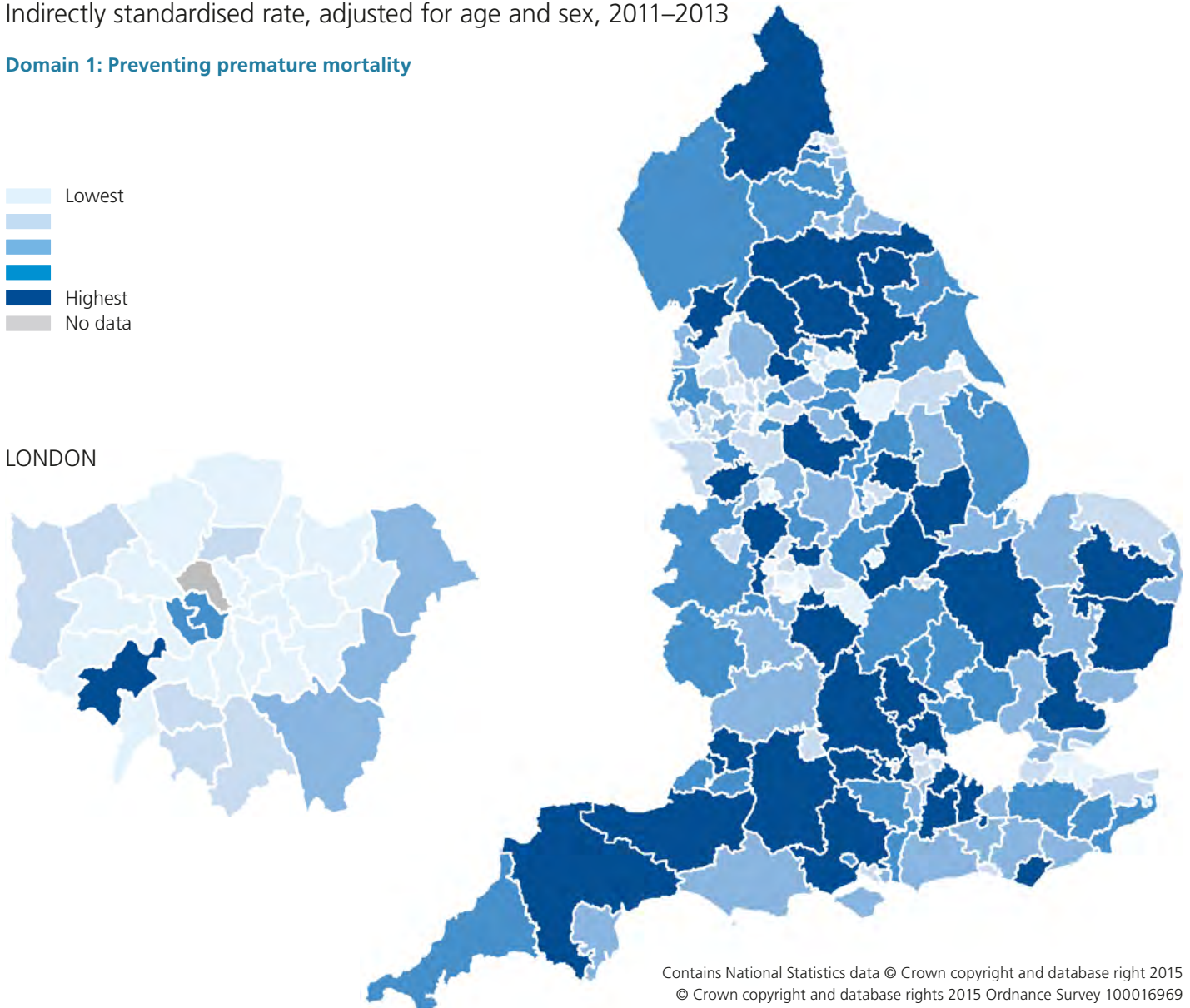
Lowest

Highest
No data

LONDON

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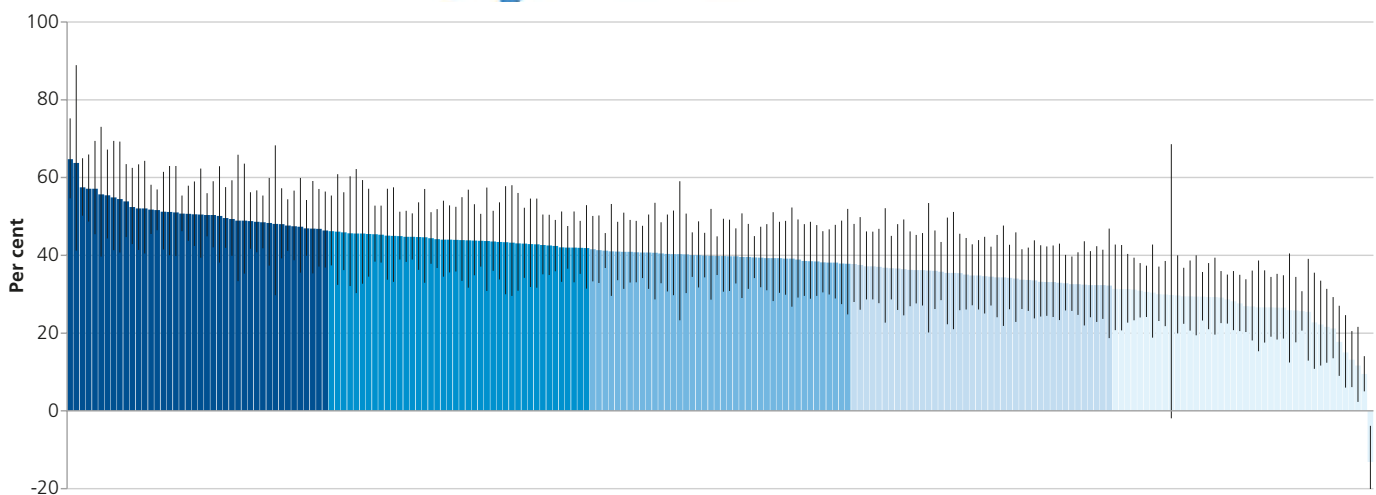
210 out of 211 CCGs (1 missing due to incomplete data)

Context

Very few people with diabetes die specifically from abnormal glucose levels; however, they are at much greater risk of long-term macrovascular disease, such as heart disease or stroke, and microvascular disease, such as kidney failure, both associated with high mortality. This means that people with diabetes are more likely to die than their peers of the same age and sex in the general population.

There is clear evidence that managing levels of blood glucose, blood pressure and cholesterol (see Map 31, pages 106–107) in people with diabetes reduces the risk of macro- and microvascular complications, and reduces mortality.

Between January 2013 and December 2013 in England and Wales, 82,405 people with diabetes in the National Diabetes Audit (NDA) died. This is in comparison with 61,321 deaths that would have been expected if people with diabetes had the same pattern of mortality as people of the same age and sex in the general population of England and Wales. The additional risk of dying was higher for people in the NDA with Type 1 diabetes (131%) than for people in the NDA with Type 2 diabetes (32%). The NDA estimated that, in 2013, there were an additional 22,060 deaths in England due to diabetes.[1]

Magnitude of variation

For CCGs in England, the additional risk of mortality among people in the NDA with Type 1 and Type 2 diabetes compared with the general population ranged from –13.1% to 64.7% (1.9-fold variation).[2] When the seven CCGs with the highest additional risks and the seven CCGs with the lowest additional risks are excluded, the range is 21.6–54.9%, and the variation is 1.3-fold.

The additional risk of mortality in people with diabetes when compared with the general population is higher in localities with low levels of deprivation (r^2 = 0.322; Figure 33.1).

People with diabetes are at a greater risk of dying in the short term if they have a high HbA1c level (measure of average blood glucose control) and a total cholesterol of ≥6.1mmol/l. A hospital admission for heart failure increases the risk of
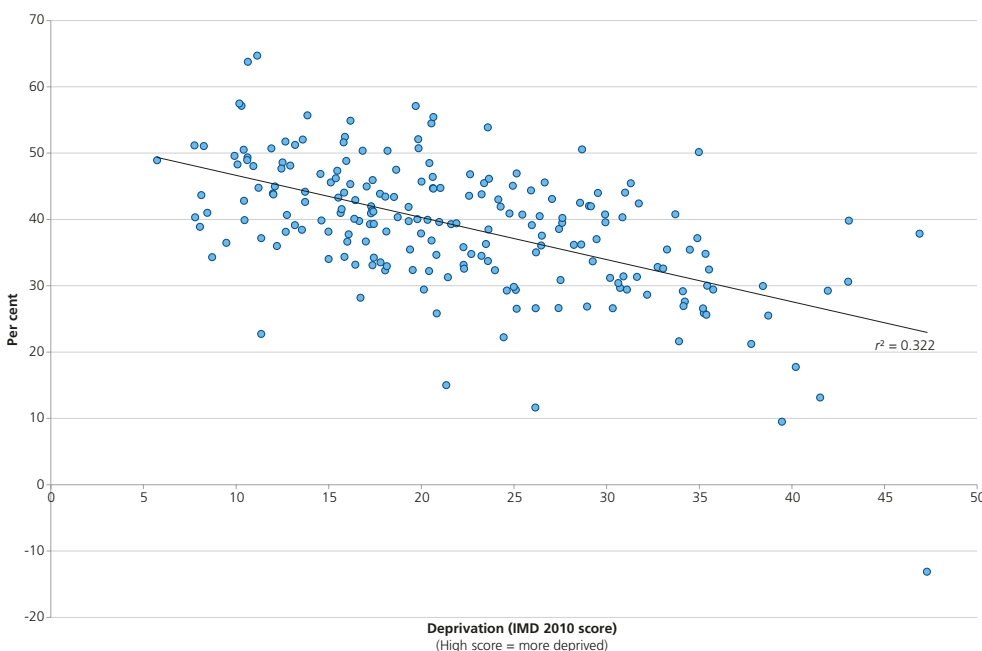
dying by 4.5-fold in people with Type 1 diabetes and by 5.0-fold in people with Type 2 diabetes. Having a major lower limb amputation increases the chance of dying in the next year by 2.1-fold in people with Type 1 diabetes and 3.0-fold in people with Type 2 diabetes.

Options for action

Commissioners and service providers need to undertake a joint review of:

> any local variation in the additional risk of mortality among people with diabetes and ascertain the reasons for it;

> referral thresholds and integrated pathways with services for heart disease, stroke, kidney disease and foot services to ensure that all people with Type 1 and Type 2 diabetes receive optimum interventions;

> the locality-wide focus on the management of blood-glucose, blood-pressure and cholesterol levels to reduce the future risk of additional mortality;

> the early detection of and secondary preventive treatment for micro- and macrovascular complications in people with diabetes, ensuring that they have annual kidney function tests, foot examinations, and eye screening.

RESOURCES

> NICE. Type 1 diabetes in adults: diagnosis and management. NICE guidelines [NG17]. August 2015.
http://www.nice.org.uk/guidance/ng17

> NICE. Type 2 diabetes (partially updated by CG87). NICE guidelines [CG66]. May 2008.
http://www.nice.org.uk/CG66

> NICE. Type 2 diabetes: The management of Type 2 diabetes. NICE guidelines [CG87]. May 2009.
https://www.nice.org.uk/guidance/cg87

> NICE Pathways. Diabetes overview.
http://pathways.nice.org.uk/pathways/diabetes

> NICE. Diabetes in adults quality standard. NICE quality standard [QS6]. March 2011.
https://www.nice.org.uk/guidance/qs6

Figure 33.1: Additional risk of mortality among people in the NDA with Type 1 and Type 2 diabetes compared with the general population in relation to deprivation (IMD-2010)

1 National Diabetes Audit 2012-2013. Report 2: Complications and Mortality.
http://www.hscic.gov.uk/catalogue/PUB16496/nati-diab-audi-12-13-rep2.pdf

2 Data from one CCG are missing.

CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

Map 34: Relative risk of hospital admission for heart failure among people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes compared with people without diabetes by CCG

Indirectly standardised rate, adjusted for age and sex, 2010/11–2012/13

Domain 1: Preventing premature mortality
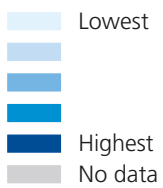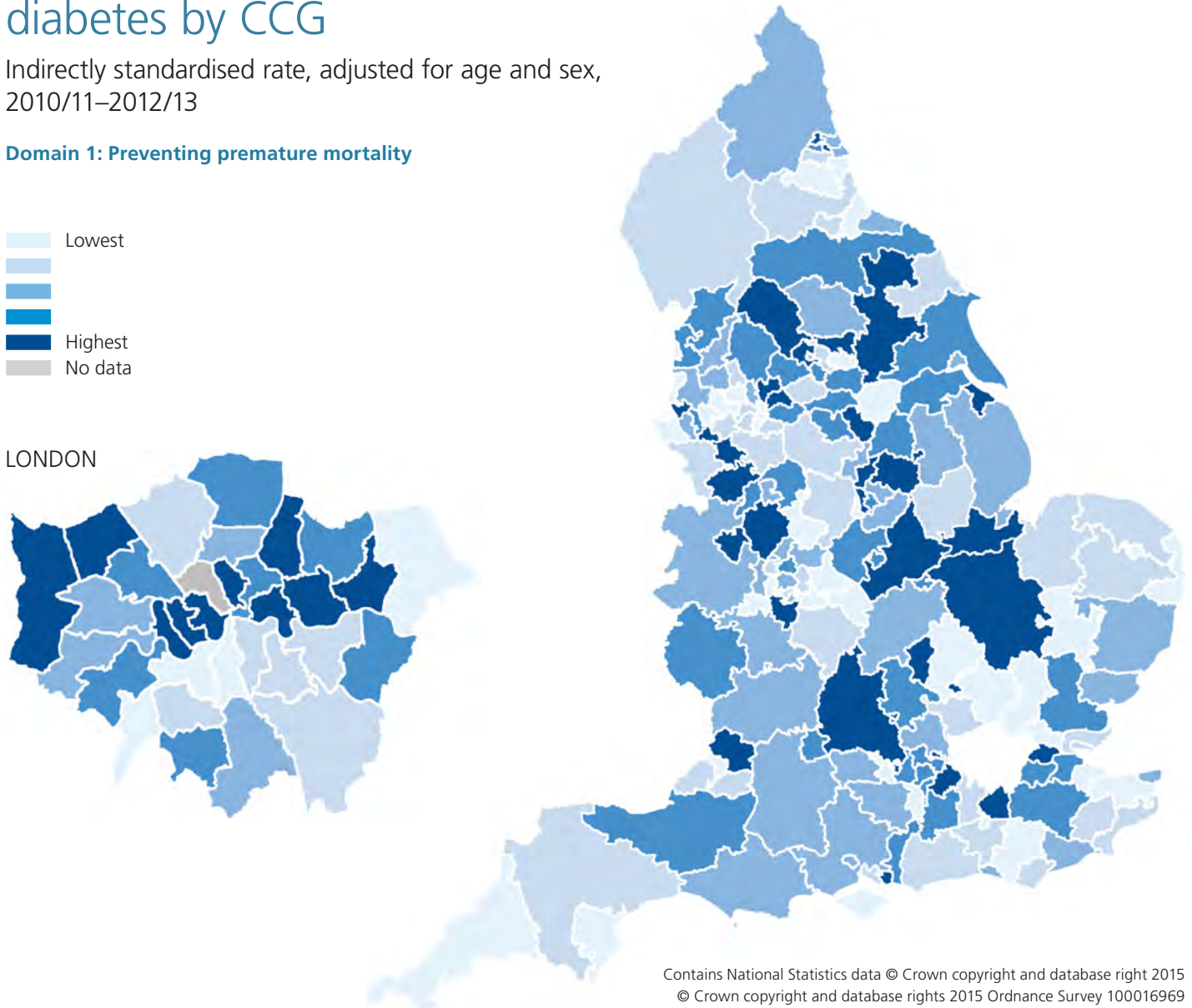
Lowest

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Relative risk

4.0

3.5

3.0

2.5

2.0

1.5

1.0

0.5

0.0

210 out of 211 CCGs (1 missing due to incomplete data)
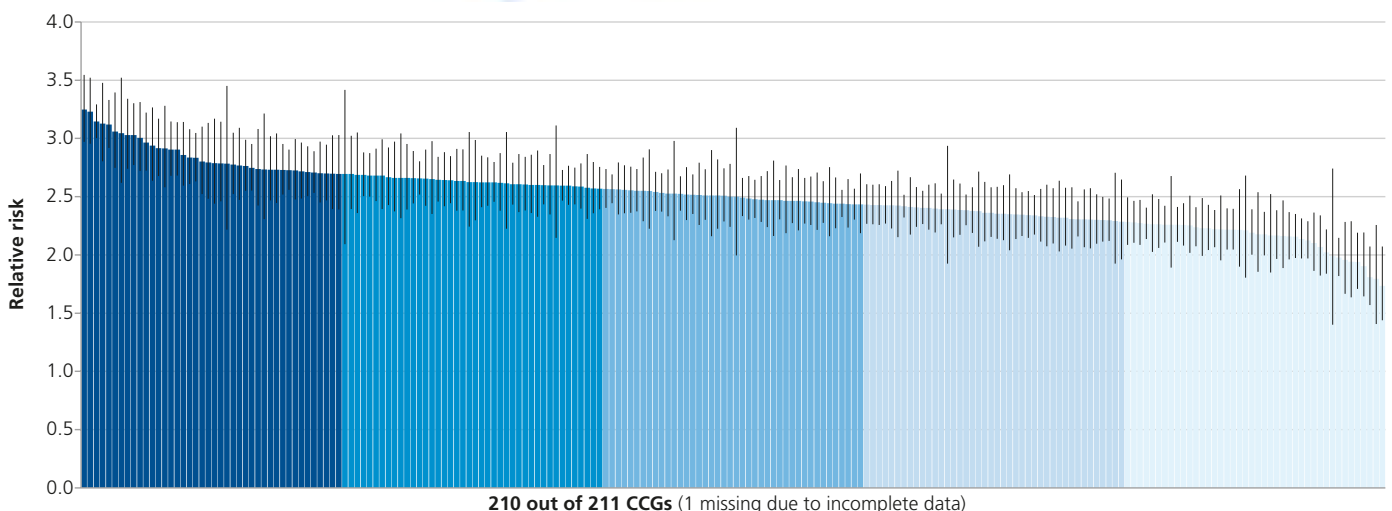
Context

People with diabetes are more likely to have heart failure than people without diabetes.

Heart failure affects approximately 800,000 people (0.9% of men and 0.7% of women) in the UK, increasing steeply with age. During the next 20 years, the number of people with heart failure is likely to rise due to the combined effects of improved survival in people who develop cardiovascular disease, and an ageing population.[1]

In the 2012/13 National Heart Failure Audit report, annual mortality in hospitalised patients for heart failure confirmed that the prognosis remains poor with mortality rates of 24.6% at one year. Of those people included in the audit, 31% had a history of diabetes.[1]

Prompt and accurate diagnosis of, appropriate treatment of, and ongoing support for heart failure can:

›   improve quality of life;

›   reduce morbidity and mortality;

›   reduce the length of hospital admissions.

It is important that a patient's diabetic condition is recognised.

Between April 2012 and March 2013 in England and Wales, 56,571 people with Type 1 and Type 2 diabetes in the National Diabetes Audit (NDA) had at least one hospital admission related to heart failure, representing 2.3% of all people in the NDA.[2] People with Type 1 and Type 2 diabetes in the NDA were more than twice as likely to have had at least one hospital admission related to heart failure than people without diabetes of the same age and sex.[2]

›   People with Type 1 diabetes with at least one hospital admission related to heart failure had a 4.5-fold greater risk of dying in the next year.[3]

›   People with Type 2 diabetes with at least one hospital admission related to heart failure had a 5-fold greater risk of dying during the next year.[3]

Magnitude of variation

For CCGs in England, the relative risk of hospital admission for heart failure among people in the NDA with Type 1 and Type 2 diabetes compared with people without diabetes ranged from 1.73 to 3.25 (1.9-fold variation).[4] When the seven CCGs with the highest relative risks and the seven CCGs with the lowest relative risks are excluded, the range is 1.98–3.03, and the variation is 1.5-fold.

One reason for the degree of variation observed is differences in the ethnic composition of local populations because the pattern of diabetic complications, including heart failure, varies by ethnic group:

›   people from South Asian ethnic groups are more likely to have a hospital admission for heart failure than their peers from White ethnic groups;

›   people from Black ethnic groups are less likely to have a hospital admission for heart failure than their peers from White ethnic groups.[5]

Another reason for variation could be differences in the management of blood pressure in different localities.

Options for action

To help reduce the risk of heart failure in people with diabetes, commissioners need to specify that service providers implement NICE guidance on identifying and managing arterial disease risk (see "Resources"), including:

›   promoting healthy lifestyle choices;

›   implementing smoking cessation programmes;

›   maintaining control of levels of blood glucose, blood pressure and cholesterol in people with diabetes to NICE-recommended targets.

Commissioners and service providers need to review local data to investigate variation among primary and secondary care providers, and thereby identify which providers might need support to improve care for people with diabetes and heart failure.

Once patients have been admitted to hospital, secondary care service providers should manage their diabetes and heart failure according to NICE guidance and NICE quality standard (see "Resources") throughout their hospital stay.

RESOURCES

›   NICE. Type 1 diabetes in adults: diagnosis and management. NICE guidelines [NG17]. August 2015. http://www.nice.org.uk/guidance/ng17

›   NICE. Type 2 diabetes (partially updated by CG87). NICE guidelines [CG66]. May 2008. http://www.nice.org.uk/CG66

›   NICE. Type 2 diabetes: The management of Type 2 diabetes. NICE guidelines [CG87]. May 2009. https://www.nice.org.uk/guidance/cg87

›   NICE. Lipid modification: Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. NICE guidelines [CG67]. May 2008. https://www.nice.org.uk/guidance/cg67

›   NICE Pathways. Diabetes overview. http://pathways.nice.org.uk/pathways/diabetes

›   NICE. Diabetes in adults quality standard. NICE quality standard [QS6]. March 2011. https://www.nice.org.uk/guidance/qs6 Quality statement 12: Inpatient care https://www.nice.org.uk/guidance/qs6/chapter/quality-statement-12-inpatient-care

1   National Institute for Cardiovascular Outcomes Research (2012) National Heart Failure Audit – April 2012-March 2013. UCL. http://www.ucl.ac.uk/nicor/audits/heartfailure/documents/annualreports/hfannual12-13.pdf

2   National Diabetes Audit 2012-2013. Report 2: Complications and Mortality. http://www.hscic.gov.uk/catalogue/PUB16496/nati-diab-audi-12-13-rep2.pdf

3   National Diabetes Audit 2011-2012. Report 2: Complications and Mortality. http://www.hscic.gov.uk/catalogue/PUB12738/nati-diab-audi-11-12-mort-comp-rep.pdf

4   Data from one CCG are missing.

5   National Diabetes Audit 2010-2011. Report 2: Complications and Mortality. http://www.hscic.gov.uk/catalogue/PUB06325/nati-diab-aud-10-11-comp-and-mort-v3.pdf

CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

Map 35: Relative risk of major lower limb amputation among people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes compared with people without diabetes by CCG

Indirectly standardised rate, adjusted for age and sex, 2010/11–2012/2013

Domain 1: Preventing premature mortality
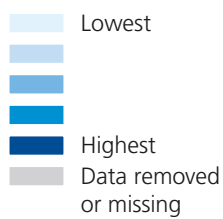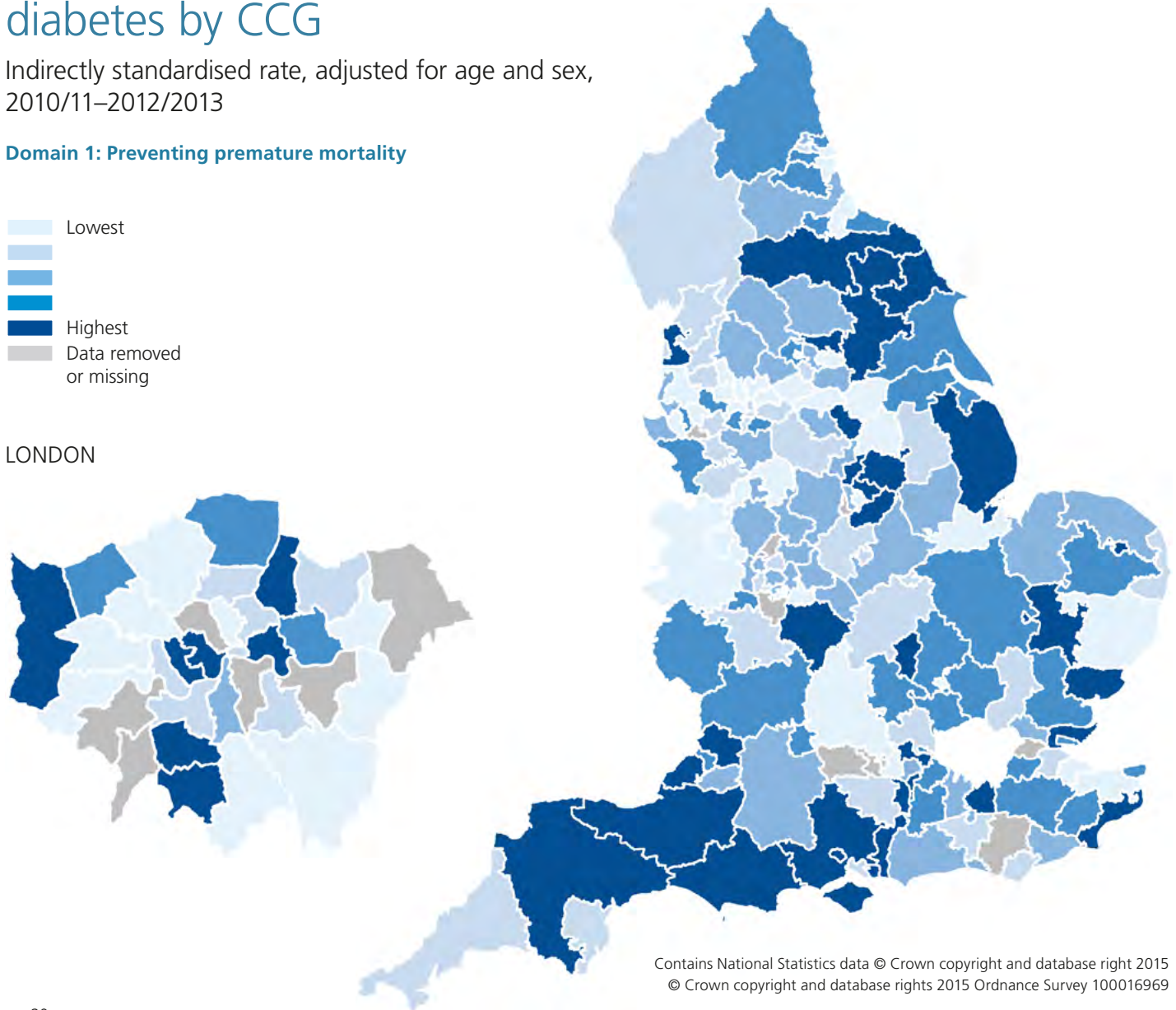
Lowest

Highest

Data removed or missing

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196 out of 211 CCGs (14 removed due to small numbers, and 1 missing data)
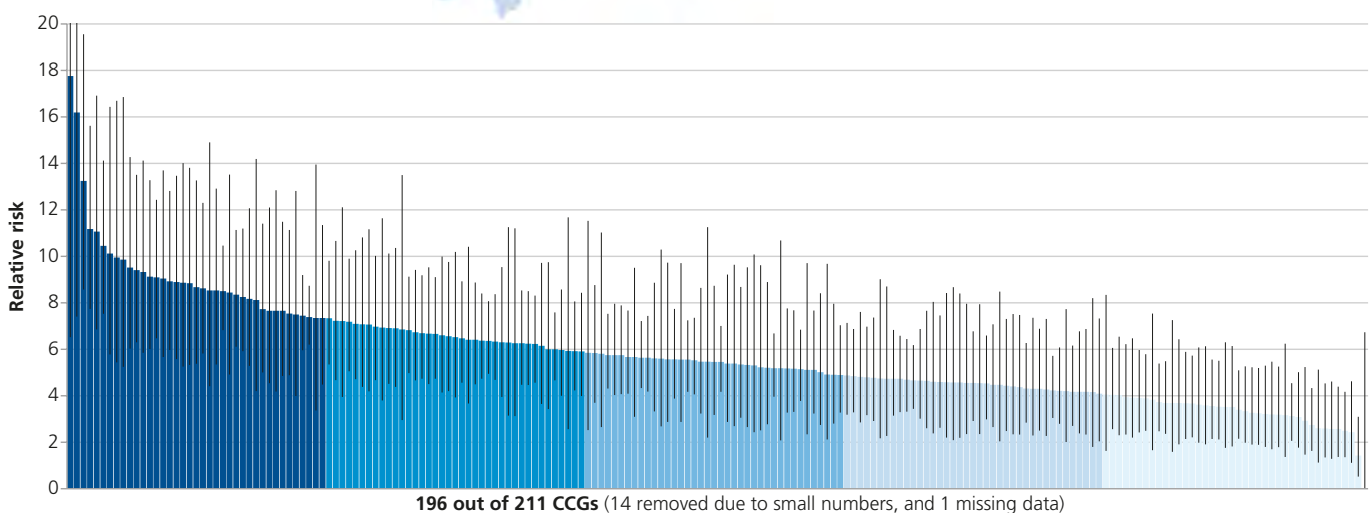
Context

People with Type 1 and Type 2 diabetes are predisposed to developing foot ulcers primarily because of an increased risk of both peripheral arterial disease (PAD) and peripheral neuropathy. Once ulcers occur, healing may be delayed by several factors, including infection, PAD, and continued unnoticed trauma to the wound due to neuropathy. Major lower limb amputation (above the ankle) is usually preceded by foot ulceration. Ulceration and amputation reduce quality of life, and are associated with high mortality.[1]

In England, about half of all major lower limb amputations are in people with diabetes. Between April 2013 and March 2014 in England and Wales, 1834 people in the National Diabetes Audit (NDA) with Type 1 and Type 2 diabetes had one or more major lower limb amputations, and were five times more likely to have had a major lower limb amputation than people without diabetes of the same age and sex.[2]

Magnitude of variation

For CCGs in England, the relative risk of major lower limb amputation among people in the NDA with Type 1 and Type 2 diabetes compared with people without diabetes ranged from 0.0 to 17.76.[3] When the six CCGs with the highest relative risks and the six CCGs with the lowest relative risks are excluded, the range is 2.60–10.12, and the variation is 3.9-fold.

One reason for the degree of variation observed is differences in the ethnic composition of local populations because the pattern of diabetic complications varies by ethnic group: people with diabetes from South Asian and Black ethnic groups are significantly less likely to experience diabetic foot disease and therefore have a lower risk of lower limb amputation than their peers from White ethnic groups[4].

Ethnicity is unlikely to account for all the variation, and some of the variation may be due to differences in the organisation of care for people with diabetes.

Options for action

Commissioners need to specify that local service providers manage the care of people with diabetes to ensure:

› good control of blood glucose, which reduces the risk of developing peripheral neuropathy;

› good control of cholesterol levels and blood pressure to reduce the risk of PAD;

› uptake of smoking cessation to reduce the risk of PAD;

› expert assessment and follow-up of people with peripheral neuropathy and/or PAD, which may reduce the onset of new foot disease;

› urgent referral to expert services of all newly occurring, or deteriorating, foot disease, to improve outcomes;

› access to a foot protection service, and a multidisciplinary diabetic foot service with clear local pathways to assess and treat diabetic foot disease, which has reduced major and minor amputation rates, and generated cost savings.[1]

Commissioners also need to specify that service providers follow NICE guidelines and quality standard (see "Resources") to ensure that all people with diabetes:

› have an annual examination to assess individual risk – people identified as moderate or high risk should be re-assessed more frequently depending on severity by a member of a foot protection team (typically includes podiatrists, orthotists and foot-care specialists with expertise in protecting the foot);

› have their foot risk assessed on admission to hospital for any reason or if there is any change in their status while they are in hospital;

› who have active foot problems are referred urgently to the acute foot care services or multidisciplinary foot care team depending on severity.

The National Diabetes Foot Care Audit started collecting data in July 2014, which will:

› provide detailed information on the characteristics and outcomes of people presenting with diabetic foot ulcers;

› allow commissioners and service providers to compare the outcomes of people with diabetes and foot ulcers in the local area with those of people with diabetes and foot ulcers in other areas;

› enable monitoring, and service improvement through benchmarking.

RESOURCES

› National Diabetes Foot Care Audit (NDFA). http://www.hscic.gov.uk/footcare

› NICE. Diabetic foot problems: prevention and management. NICE guidelines [NG19]. August 2015. http://www.nice.org.uk/guidance/ng19

› NHS Diabetes (2011) Commissioning Diabetes Foot Care Services. June 2011. http://www.diabetes.org.uk/documents/nhs-diabetes/commissioning/commissioning-guide-diabetes-footcare-0611.pdf

› Diabetes UK (2009) Putting Feet First: Commissioning specialist services for the management and prevention of diabetic foot disease in hospitals. http://www.footindiabetes.org/media/FDUK/PuttingfeetfirstJun09FINAL.pdf

› Diabetes UK (2011) Putting feet first: national minimum skills framework. The national minimum skills framework for commissioning of footcare services for people with diabetes http://www.diabetes.org.uk/Documents/Professionals/Education%20and%20skills/NMSF_16Feb2011.pdf

› NICE. Type 1 diabetes in adults: diagnosis and management. NICE guidelines [NG17]. August 2015. http://www.nice.org.uk/guidance/ng17

› NICE. Type 2 diabetes (partially updated by CG87). NICE guidelines [CG66]. May 2008. http://www.nice.org.uk/CG66

› NICE. Type 2 diabetes: The management of Type 2 diabetes. NICE guidelines [CG87]. May 2009. https://www.nice.org.uk/guidance/cg87

› NICE. Diabetes in adults quality standard. NICE quality standard [QS6]. March 2011. https://www.nice.org.uk/guidance/qs6

› Quality statement 10: "At risk" foot. http://www.nice.org.uk/guidance/qs6/chapter/quality-statement-10-at-risk-foot

1 Kerr M (2012) Foot Care for People with Diabetes: The Economic Case for Change. NHS Diabetes. http://webarchive.nationalarchives.gov.uk/20130316063827/http://www.diabetes.nhs.uk/news_and_events/new_foot_care_report_shows_pound650m_cost_of_ulcers_and_amputations/#

2 National Diabetes Audit 2012-2013. Report 2: Complications and Mortality. http://www.hscic.gov.uk/catalogue/PUB16496/nati-diab-audi-12-13-rep2.pdf

3 Data from 14 CCGs have been removed due to small numbers; data from one CCG are missing.

4 National Diabetes Audit 2010-2011. Report 2: Complications and Mortality. http://www.hscic.gov.uk/catalogue/PUB12738/nati-diab-audi-11-12-mort-comp-rep.pdf

CARDIOVASCULAR FAMILY OF DISEASES: HEART

Map 36: Ratio of reported to expected prevalence of hypertension by CCG

2013/14

Domain 1: Preventing people from dying prematurely
**Domain 2: Enhancing quality of life**
for people with long-term conditions

Lowest ratios

Highest ratios

LONDON

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211 CCGs
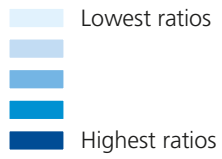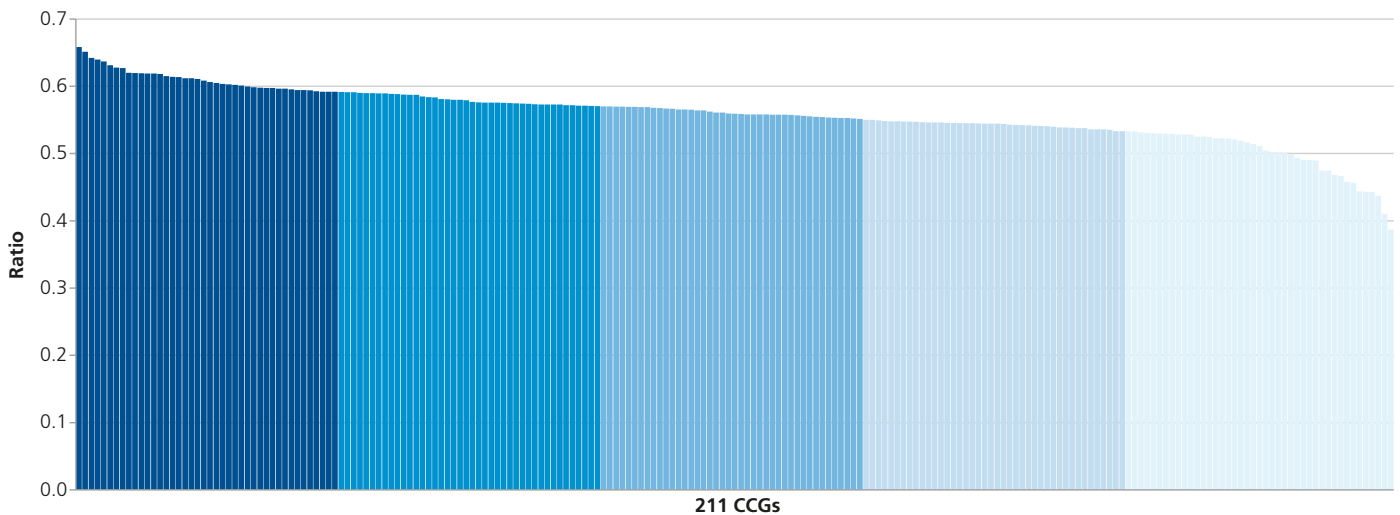
Context

Hypertension is a major risk factor for myocardial infarction, heart failure, stroke (ischaemic and haemorrhagic), chronic kidney disease, peripheral vascular disease, cognitive decline, and premature death. Untreated hypertension is associated with a progressive rise in blood pressure, often culminating in a treatment-resistant state due to associated vascular and renal damage.

Primary hypertension is common in the UK. Prevalence is strongly influenced by age and lifestyle factors: at least one-quarter of adults and more than half of those over 60 years have hypertension (blood pressure ≥140/90 mmHg). With the current demographic shifts towards an ageing, more sedentary and more obese population, the prevalence of hypertension and the requirement for treatment will continue to rise.[1]

The clinical management of hypertension is one of the most common interventions in primary care (12% of consultation episodes). In 2006, drug costs alone were about £1 billion.[1]

Public Health England (PHE) and partners across local and national government, the health service, voluntary sector and academia have come together with the ambition of improving the prevention, early detection and management of high blood pressure in England.[2] Identifying and managing people with hypertension is likely to have substantial impact on population risk for cardiovascular disease and other conditions.

Quality and Outcomes Framework (QOF) reports on hypertension prevalence for all ages have been produced since 2004/05. QOF-Reported registers of hypertension show GP-recorded prevalence rising from 11.3% in 2004/05 to 13.7% in 2013/14, an increase of 21.5%; however, the QOF register has shown little change in recorded prevalence between 2012/13 and 2013/14.

Estimates of hypertension prevalence for people aged 16 years and over were published in 2011.[3] By assuming that almost all hypertension occurs from the age of 16 years onwards, it is possible to recalculate the estimated prevalence for all ages and compare this directly with the data recorded in QOF: although national QOF-reported prevalence of established hypertension in 2013/14 was 13.7% for all ages, estimated prevalence as measured in 2011 was 24.9%. This suggests an under-diagnosis of 44% of expected cases.

Magnitude of variation

For CCGs in England, the ratio of reported to expected prevalence of hypertension ranged from 0.39 to 0.66 (1.7-fold variation). When the seven CCGs with the highest ratios and the seven CCGs with the lowest ratios are excluded, the range is 0.46–0.63, and the variation is 1.4-fold.

The most likely explanation for the degree of unwarranted variation is differences in the identification of people with hypertension in different localities, especially among CCGs that have similar populations demographically.

As indicated by lower ratios, the relatively low level of hypertension identified, diagnosed and treated in England is concerning. After exclusions, of 100 people with hypertension, at best 61 are identified and, at worst, less than 50.

Options for action

Given the impact of hypertension on cardiovascular disease risk, commissioners, service providers and clinicians need to make the improved identification and treatment of people with hypertension a priority. This requires a partnership approach between the health sector and local government among others, and PHE has issued evidence-based advice on how to identify, treat and prevent high blood pressure effectively (see "Resources").

Commissioners and service providers can also use profiles of GP outcomes published by PHE (see "Resources"):

› to assess the degree of variation in the identification of hypertension at practice level;

› to identify which practices might need support in the identification of people with hypertension.

In most cases, hypertension has no symptoms that would lead people to consult their GP. Clinicians in primary care need to undertake regular measurements of blood pressure when people attend for other reasons (opportunistic testing; also Making Every Contact Count[4]). In addition, the continuing implementation of NHS Health Checks in primary care (screening) is likely to identify people in the population with previously undiagnosed hypertension.

According to NICE guidance (see "Resources"), drug treatment is not necessarily the first step in managing hypertension. Clinicians should advise people with hypertension about the importance, and co-benefits (such as improved mental well-being), of dietary change, exercise, weight reduction and modifying alcohol intake.

Once people with hypertension are treated with medication, primary care clinicians need to ensure that any medications are titrated to achieve optimal control of blood pressure.

RESOURCES

› Public Health England. High blood pressure: plan and deliver effective services and treatment. https://www.gov.uk/high-blood-pressure-plan-and-deliver-effective-services-and-treatment

› NICE. Hypertension: Clinical management of primary hypertension in adults. NICE guidelines [CG127]. August 2011. http://guidance.nice.org.uk/CG127

› NICE Pathways. Hypertension overview. http://pathways.nice.org.uk/pathways/hypertension

› Public Health England. Modelled estimates and projections of hypertension. http://www.apho.org.uk/resource/item.aspx?RID=48309

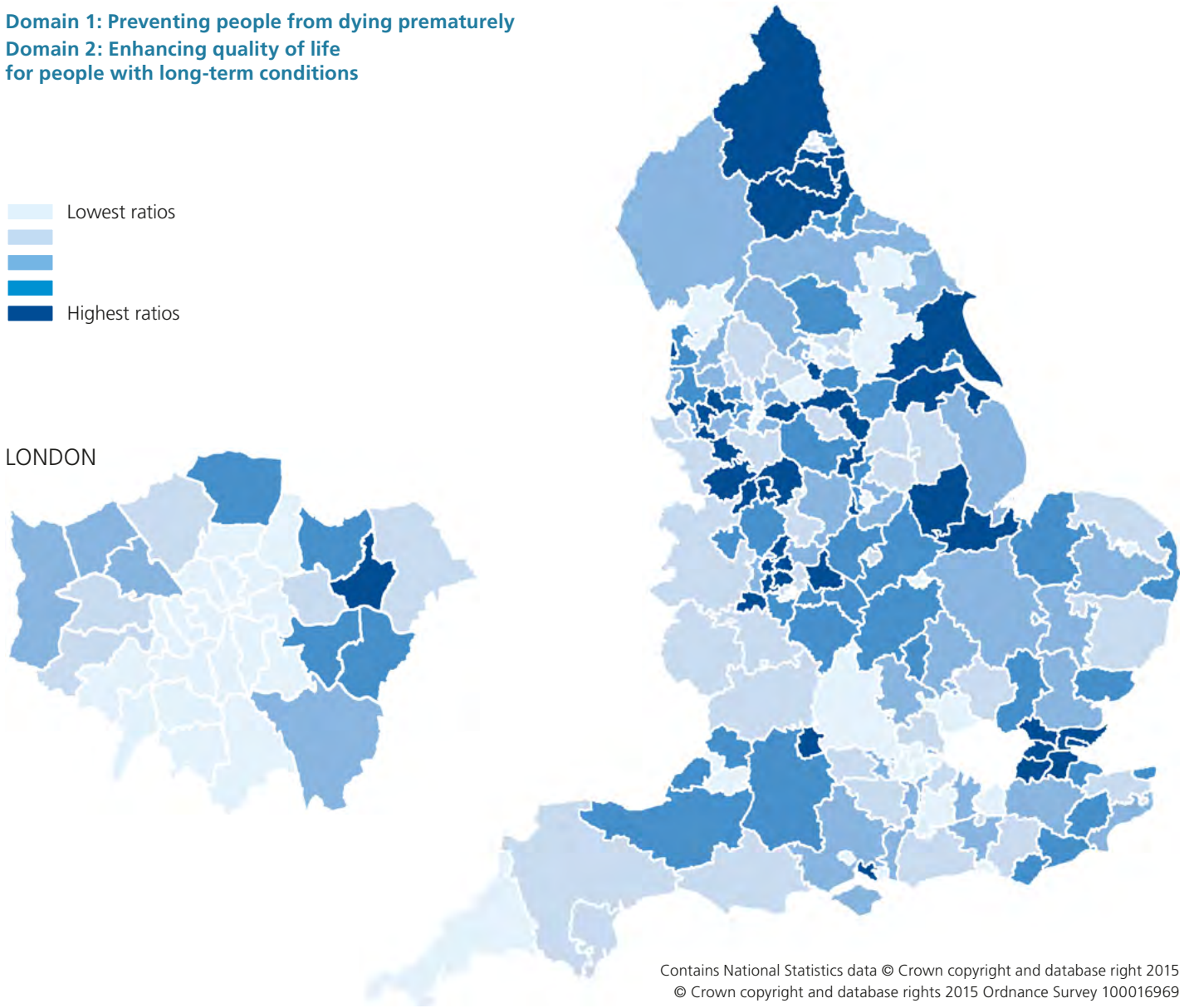› Health and Social Care Information Centre. Quality and Outcomes Framework. http://www.hscic.gov.uk/qof

› National Cardiovascular Intelligence Network (NCVIN). Cardiovascular disease profiles. http://www.yhpho.org.uk/resource/view.aspx?RID=203617

› Public Health England. National General Practice Profiles. http://fingertips.phe.org.uk/profile/general-practice

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1   NICE. Hypertension: Clinical management of primary hypertension in adults. NICE guidelines [CG127]. August 2011. http://guidance.nice.org.uk/CG127

2   Public Health England. High blood pressure: plan and deliver effective services and treatment. https://www.gov.uk/high-blood-pressure-plan-and-deliver-effective-services-and-treatment

3   Public Health England. Modelled estimates and projections of hypertension. http://www.apho.org.uk/resource/item.aspx?RID=48309

4   http://www.makingeverycontactcount.co.uk/

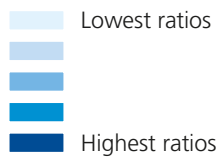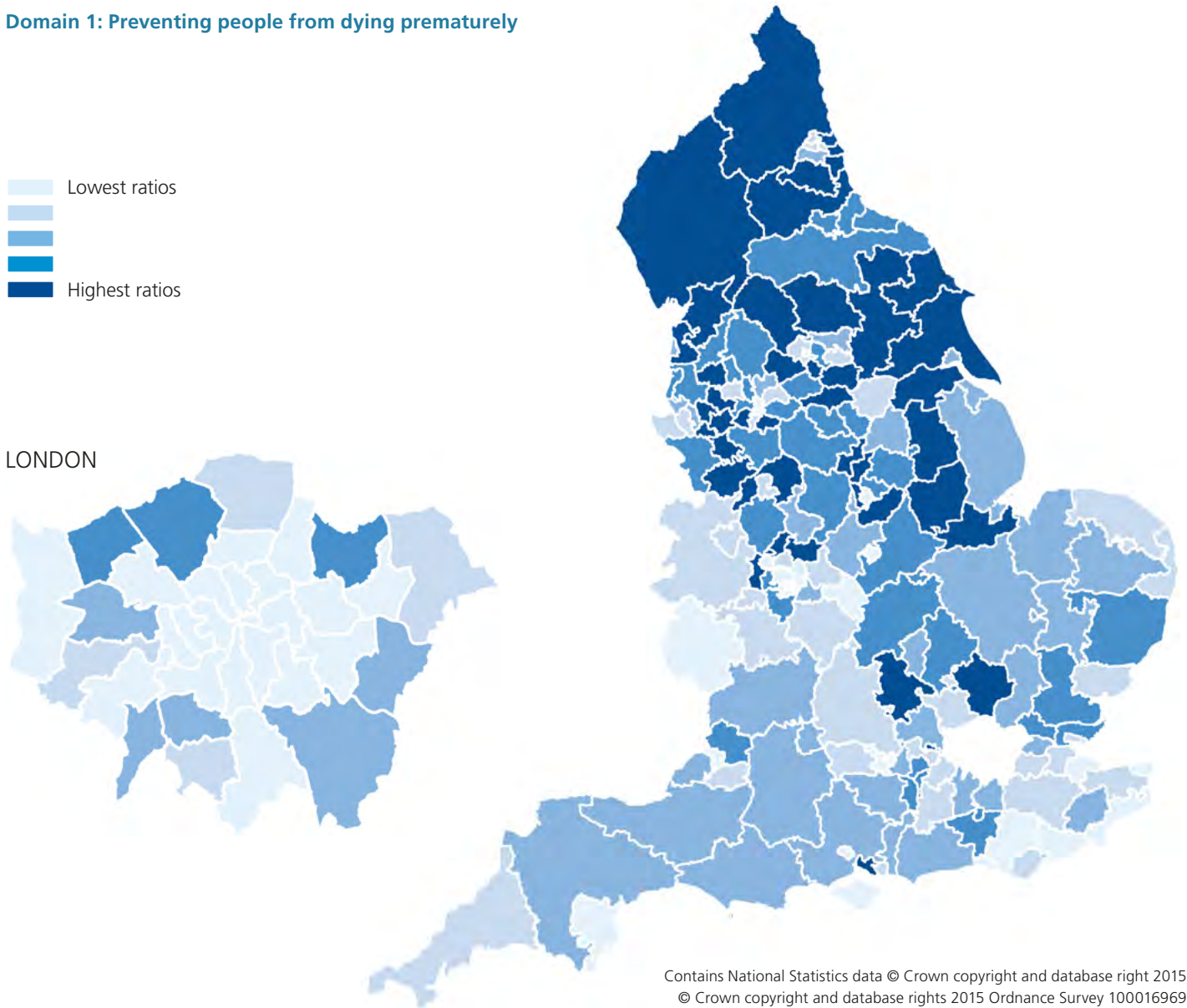**CARDIOVASCULAR FAMILY OF DISEASES: HEART**

Map 37: Ratio of reported to expected prevalence of coronary heart disease (CHD) by CCG

2013/14

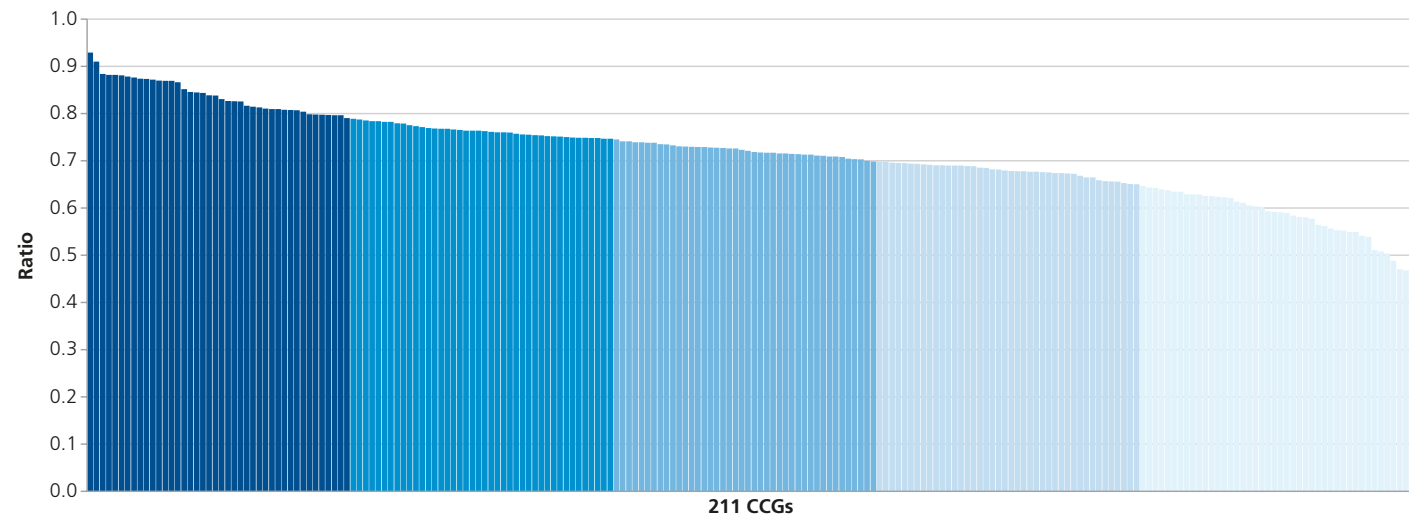**Domain 1: Preventing people from dying prematurely**

Lowest ratios

Highest ratios

LONDON

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211 CCGs

Context

Coronary heart disease (CHD) remains a major cause of death in England despite reductions in premature CHD mortality over four decades. In the UK, there are an estimated 2.3 million people living with CHD, of whom around 2 million are affected by angina, the most common symptom of CHD; other symptoms include heart attacks and heart failure.

Some of the main risk factors for CHD are modifiable, and individuals can take measures to change them with the support of healthcare professionals:

› smoking/tobacco use;
› poor diet;
› high blood cholesterol;
› high blood pressure;
› insufficient levels of physical activity;
› overweight/obesity;
› diabetes;
› psychosocial stress;
› excess alcohol consumption.

Air pollution is also a modifiable risk factor for CHD, but for substantive change to occur it depends on collective or societal action.

Previous work in the NHS recommended that GPs and primary care teams identified all patients at high risk of or with established CHD and offered them comprehensive advice and appropriate treatment to reduce their risks.[1] NICE guidance (see "Resources") that is particularly useful includes: primary prevention (PH25); promotion of physical activity (PH44); smoking cessation (PH45); reduction of obesity (CG43); diet; identification and management of familial hypercholesterolaemia (CG71); lipid modification (CG181).

Quality and Outcomes Framework (QOF) CHD prevalence in general practice has been reported for all ages since 2004/05. The QOF register in England shows little change in recorded prevalence between 2009/10 and 2013/14, although the recorded prevalence in QOF is likely to be lower than the true prevalence. There is a gradually ageing population, and the risk of CHD increases with age. Previous efforts to reduce the prevalence of disease may have been offset by an increase in obesity and a higher prevalence of diabetes.

Public-health estimates of CHD prevalence for people aged 16 years and over were published in 2011.[2] By assuming that almost all CHD occurs from 16-years-old onwards, the estimated prevalence for all ages can be recalculated and compared with the data recorded in QOF: the national QOF-reported prevalence in 2013/14 was 3.3% for all ages, compared with an estimated prevalence of 4.7% as measured in 2011, suggesting an under-diagnosis of 30% of expected cases.

Magnitude of variation

For CCGs in England, the ratio of reported to expected prevalence of CHD ranged from 0.47 to 0.93 (2.0-fold variation). When the seven CCGs with the highest ratios and the seven CCGs with the lowest ratios are excluded, the range is 0.54–0.88, and the variation is 1.6-fold.

The most likely explanation for the degree of unwarranted variation is differences in the identification of people with CHD in different localities, as suggested by variation among CCGs that have similar populations demographically.

Options for action

Commissioners and service providers need to prioritise work to improve the identification of CHD because a lack of treatment increases the risks of mortality, morbidity and hospitalisation for people with the condition.

Commissioners responsible for populations in which there are lower levels of identification (lower ratios), when compared with populations where levels meet those that are expected (higher ratios), need to obtain data on the degree of variation in identification at practice level (see "Resources"), and identify practices that may need support in the identification of people with CHD.

Given that many people who present with CHD have had the disease for some years prior to presentation, there is a need for clinicians in primary care to focus on people at high risk for cardiovascular disease. Clinicians need to take advantage of opportunities to assess the risk for CHD when people present for other reasons (Making Every Contact Count[3]).

One aim for the NHS Health Check programme in primary care is to identify people with a risk of developing CHD; action taken by practices to increase the uptake of the Health Check programme could help to reduce population risk of cardiovascular disease.

RESOURCES

› NICE. Prevention of cardiovascular disease. NICE guidelines [PH25]. June 2010. https://www.nice.org.uk/guidance/ph25
› NICE. Services for the prevention of cardiovascular disease. NICE commissioning guides [CMG45]. May 2012. https://www.nice.org.uk/guidance/cmg45
› NICE. Lipid modification: cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. NICE guidelines [CG181]. July 2014. http://www.nice.org.uk/guidance/cg181
› NICE. Physical activity: brief advice for adults in primary care. NICE guidelines [PH44]. May 2013. http://www.nice.org.uk/guidance/ph44
› NICE. Tobacco: harm-reduction approaches to smoking. NICE guidelines [PH45]. June 2013. http://www.nice.org.uk/guidance/ph45
› NICE pathways. Diet overview. http://pathways.nice.org.uk/pathways/diet
› NICE pathways. Familial hypercholesterolaemia overview. http://pathways.nice.org.uk/pathways/familial-hypercholesterolaemia#content=view-info-category%3Aview-resources-menu
› Health and Social Care Information Centre. Quality and Outcomes Framework. http://www.hscic.gov.uk/qof
› Public Health England. Modelled estimates and projections of CHD. http://www.apho.org.uk/resource/item.aspx?RID=48310
› NHS Health Check programme. http://www.healthcheck.nhs.uk/
› National Cardiovascular Intelligence Network (NCVIN) Cardiovascular Disease Profiles. http://www.yhpho.org.uk/resource/view.aspx?RID=203617
› Public Health England. National General Practice Profiles. http://fingertips.phe.org.uk/profile/general-practice

1 Department of Health. National Service Framework for Coronary Heart Disease. Modern Standards & Service Models. March 2000. https://www.gov.uk/government/publications/quality-standards-for-coronary-heart-disease-care
2 Public Health England. Modelled estimates and projections of Coronary Heart Disease. http://www.apho.org.uk/resource/item.aspx?RID=48310
3 http://www.makingeverycontactcount.co.uk/

CARDIOVASCULAR FAMILY OF DISEASES: HEART

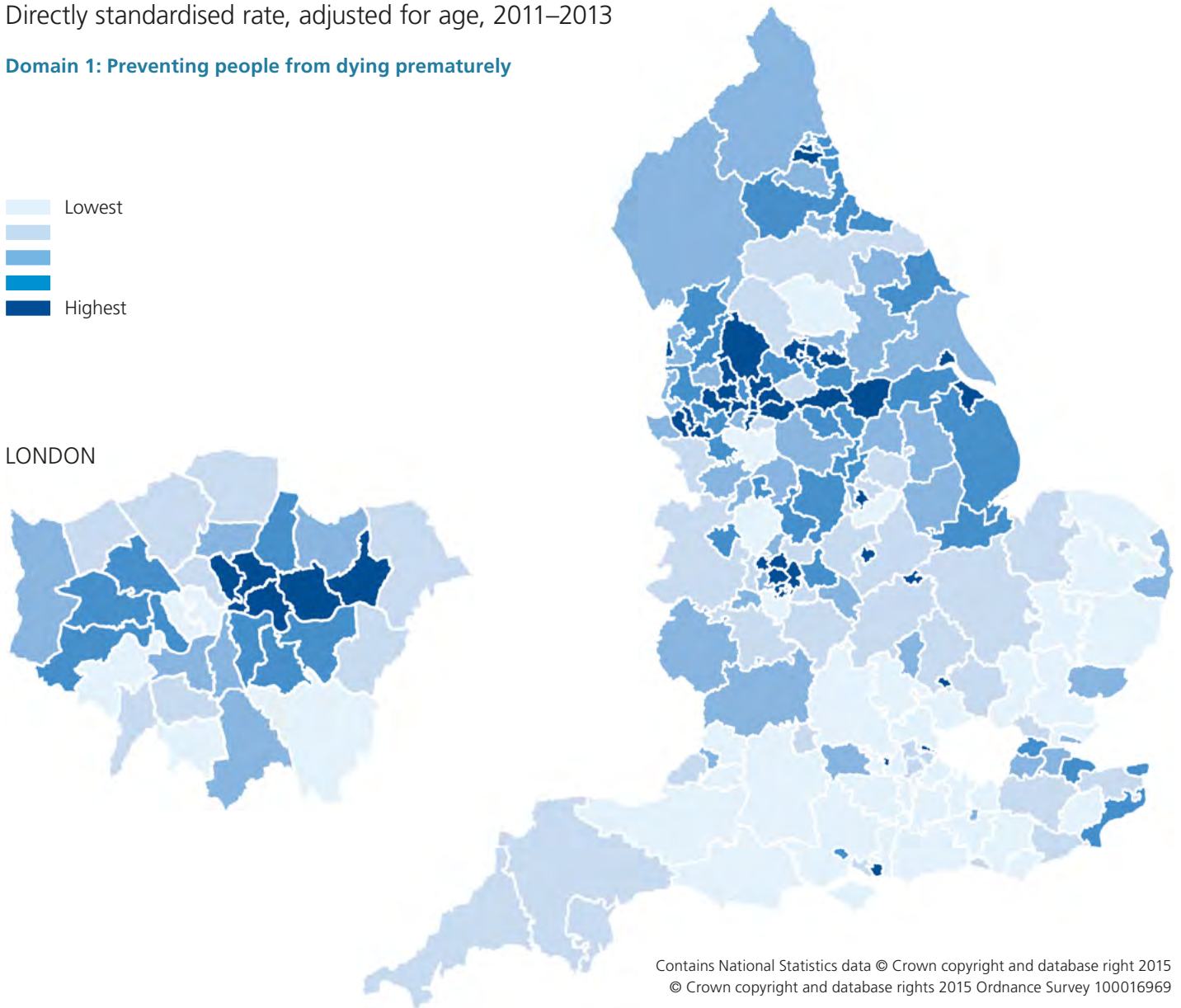# Map 38: Rate of mortality from coronary heart disease (CHD) in people aged under 75 years per population by CCG

Directly standardised rate, adjusted for age, 2011–2013
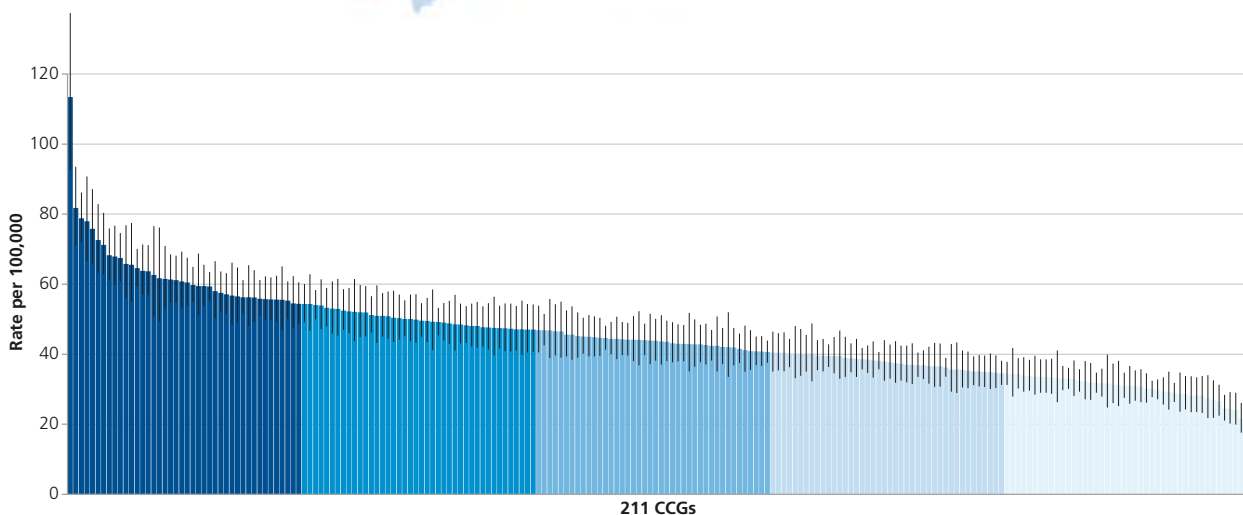
Domain 1: Preventing people from dying prematurely
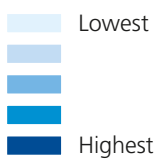
Lowest

Highest

LONDON

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Context

The largest component of premature mortality from cardiovascular disease is coronary heart disease (CHD). In England in 2014 CHD was the commonest cause of premature death responsible for 11.8% of deaths in people aged less than 75 years.

Mortality from CHD in people under 75 years of age, however, has declined by 71% over the past 20 years: from 106.9 per 100,000 population in 1993 to 30.5 per 100,000 population in 2012. The results of recent modelling suggest that approximately half the recent CHD mortality reductions in England from 2000 to 2007 were attributable to improved treatment uptake,[1] and that this benefit occurred evenly across all socio-economic groups. Thus, continued improvements in both primary prevention and the diagnosis and treatment of CHD are likely to reduce mortality. Reductions in major risk factors also contributed toward mortality reductions, although these varied by socio-economic group.

Continued improvements, especially in the most-deprived groups, are likely to lead to worthwhile health gains. The Department of Health estimated that approximately 25% of the gap in life-expectancy between men living in areas with the worst health and deprivation indicators and men living elsewhere in England is due to CHD.

The NHS Outcomes Framework has an improvement area in reducing premature mortality from cardiovascular disease (see "Resources"), supported by the Public Health Outcomes Framework, which also includes an indicator on reducing premature mortality from cardiovascular disease as part of Public Health England's vision to improve and protect the nation's health and well-being.

Magnitude of variation

For CCGs in England, the rate of mortality from CHD in people aged under 75 years ranged from 22 to 113 per 100,000 population (5.3-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 28–68 per 100,000 population, and the variation is 2.4-fold.

The main reason for the degree of variation observed is differences in the level of deprivation and associated health inequalities in different localities. Mortality rates from CHD are lower in less-deprived populations when compared with more-deprived populations. Decreases in CHD mortality over 24 years between 1982 and 2006 were largest for the most-deprived 20% of the population, which had the highest starting rate of CHD mortality. Although the most-deprived group had the greatest decrease, there was a social gradient in the pace of decrease, with the steepest decreases in the least-deprived 20% of the population[2].

Options for action

Commissioners need to specify that service providers develop or improve programmes for primary prevention and early detection of CHD in accordance with NICE guidance PH25 and NICE commissioning guide CMG45 (see "Resources") because they provide the best opportunities for narrowing the health inequalities gap for CHD mortality, and for continuing reductions in premature mortality. This is especially important in localities where CHD mortality is higher than that of demographically similar populations.

In primary care, for clinicians to identify people with a higher risk of developing CHD, it is important to use more than one strategy, including:

> to continue the implementation of the CHD register;

> to continue the implementation of the NHS Health Check programme (screening), one aim of which is to identify people at higher risk of CHD;

> to take advantage of opportunities to assess CHD risk when people present for other reasons, including in the urgent-care system (Making Every Contact Count[3]).

Commissioners also need to specify that service providers implement appropriate secondary prevention programmes in accordance with NICE guidance CG95 and CG126 (see "Resources").

RESOURCES

> Health and Social Care Information Centre. NHS Outcomes Framework indicators. http://www.hscic.gov.uk/nhsof

> Public Health England. Public Health Outcomes Framework. http://www.phoutcomes.info/

> Health and Social Care Information Centre Indicator Portal. This website gathers together several health and social care indicators including mortality from CHD. https://indicators.ic.nhs.uk/webview/

> Public Health England. Disease prevalence models, including those to estimate the prevalence of CHD, cardiovascular disease, and hypertension. http://www.apho.org.uk/resource/view.aspx?RID=48308

> NICE. Prevention of cardiovascular disease. NICE guidelines [PH25]. June 2010. https://www.nice.org.uk/guidance/ph25

> NICE. Services for the prevention of cardiovascular disease. NICE commissioning guides [CMG45]. May 2012. https://www.nice.org.uk/guidance/cmg45

> NICE. Chest pain of recent onset: Assessment and diagnosis of recent onset chest pain or discomfort of suspected cardiac origin. NICE guidelines [CG95]. March 2010. https://www.nice.org.uk/guidance/cg95

> NICE. Management of stable angina. NICE guidelines [CG126]. July 2011. https://www.nice.org.uk/guidance/cg126

> NICE: other useful guidance – PH15, PH24, PH46, PH47, PH53, PH54, G7, CG43, CG68, CG71, CG94, CG108, CG167, CG172 & CG181. https://www.nice.org.uk/guidance

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1   Bajekal M, Scholes S, Love H et al (2012) Analysing Recent Socioeconomic Trends in Coronary Heart Disease Mortality in England, 2000–2007: A Population Modelling Study." PLoS Med 9, no. 6 (June 12, 2012): e1001237. doi:10.1371/journal.pmed.1001237. http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001237

2   Bajekal M, Scholes S, O'Flaherty M et al (2013) Unequal Trends in Coronary Heart Disease Mortality by Socioeconomic Circumstances, England 1982-2006: Analytical Study. PLoS One, 8(3), e59608. doi:10.1371/journal.pone.0059608. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0059608

3   http://www.makingeverycontactcount.co.uk/

CARDIOVASCULAR FAMILY OF DISEASES: HEART
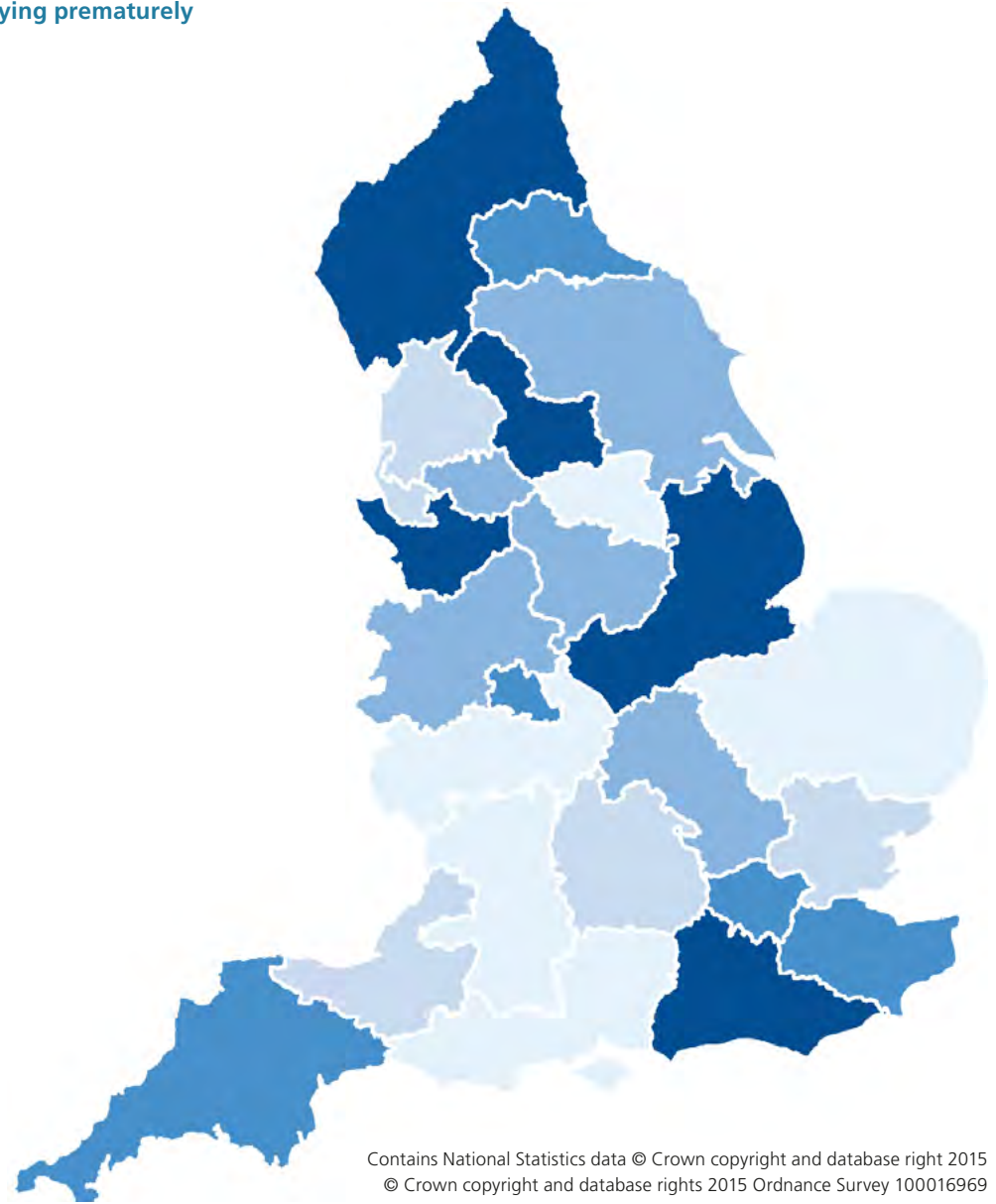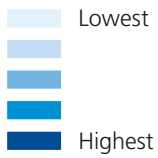
Map 39: Rate of transcatheter aortic valve implantation (TAVI) procedures per population by NHS area team

Directly standardised rate, adjusted for age, 2013

Domain 1: Preventing people from dying prematurely

Lowest

Highest

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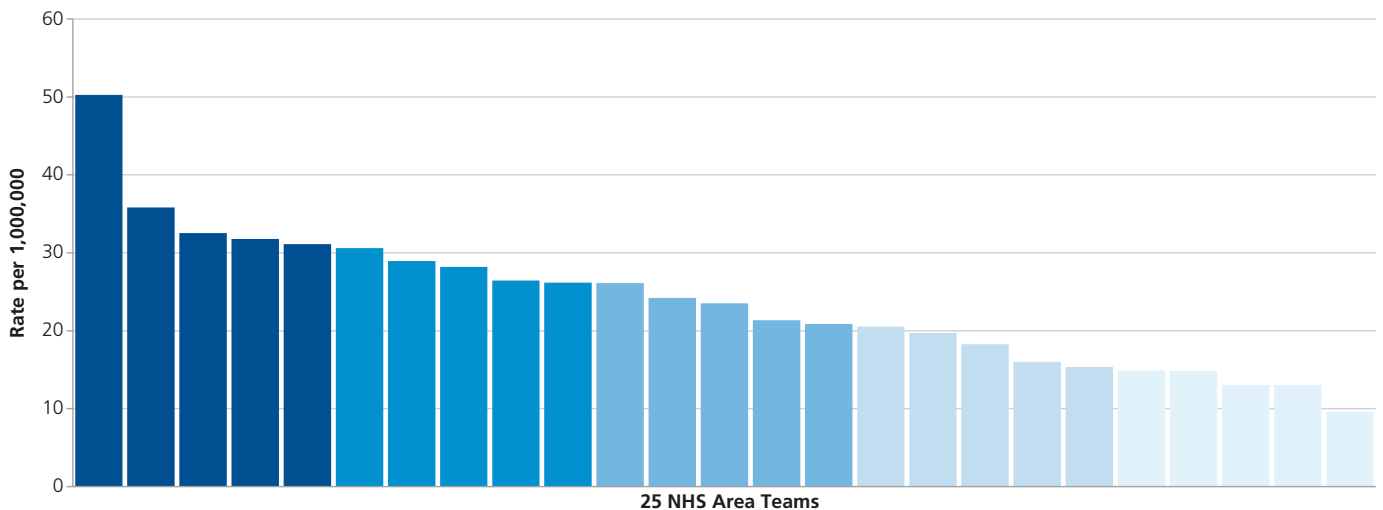
Context

Narrowing of the aortic valve (aortic stenosis) results in a strain on the left ventricle of the heart. As the severity of the stenosis worsens, individuals may present with symptoms of angina, breathlessness, or syncope. Once symptoms develop, prognosis is jeopardised with a high prevalence of heart failure, a requirement for hospitalisation, and sudden death. The prevalence of aortic stenosis increases with age. Many patients have concomitant coronary artery disease.

The epidemiology of aortic stenosis is not fully established: about one-quarter of people over 65 years have some thickening of the aortic valve, and about 3% of people older than 75 years have severe aortic stenosis.

Some people with congenitally abnormal valves can present with aortic stenosis at an earlier age, however, degenerative change in the normal valve leading to aortic stenosis often presents in the seventh and eighth decades of life.

The gold standard treatment for symptomatic aortic stenosis is surgical aortic valve replacement. A large proportion of people with aortic stenosis, especially those who are elderly, have several co-morbidities, or may be frail. For this group, the risks of surgery can be unacceptably high. Recent trial results show that these patients can benefit from transcatheter aortic valve implantation (TAVI), a relatively new procedure.[1,2,3,4]

In TAVI, a new valve sewn onto a stented frame is mounted onto a catheter and inserted into the original aortic valve. Expansion of the stent pushes the original valve to one side, the stent holds the new valve in place over the original valve, and the new valve starts to function immediately. Implantation is from either a transvascular approach or a transthoracic approach. Most patients undergo a general anaesthetic, but a growing number of transvascular procedures are done under local anaesthetic.

In trials, patients whose risk for surgery was too high had a significant reduction in mortality and a major improvement in quality of life.[1,2,3,4] For patients who could be operated on but are at high risk for surgery, the outcomes of the TAVI procedure are equivalent to those of conventional surgery, at least in the medium-term. There are ongoing trials designed to explore the role of TAVI in patients with aortic stenosis at intermediate risk for surgery.

At present, there is no evidence that interventions to prevent aortic stenosis, such as lowering cholesterol, have any effect.

Magnitude of variation

For NHS area teams in England, the rate of TAVI procedures ranged from 10 to 50 per million population (5.2-fold variation).

There is substantial variation across England in the number of people being treated with TAVI. Localities with older populations would be expected to have a greater requirement for TAVI, but as this analysis has been adjusted for age other factors are responsible for the degree of variation observed, including differences in:

> the start date for different TAVI programmes;

> commissioned volumes of procedures, particularly before specialised commissioning began in 2013;

> the level of risk deemed acceptable for conventional surgery at different treatment centres;

> the presence of a clinical pathway for TAVI;

> access to a centre where TAVI can be performed.

The optimal level of requirement for TAVI is not known. More people, however, are being diagnosed with aortic stenosis because of increased clinical awareness and more widespread access to echocardiography; moreover, prevalence would be expected to increase as the population ages.

Options for action

Commissioners are advised to review the local population's need for TAVI.

Primary care clinicians need to ensure that people presenting with angina, sudden and severe breathlessness or syncope:

> are examined for the presence of a heart murmur;

> have an electrocardiogram.

Primary care clinicians need to refer people suspected of having aortic stenosis to the local cardiology department for clinical assessment and echocardiography. Providers of adult cardiothoracic surgical services need to ensure there is a multidisciplinary team in place who are responsible for determining the most appropriate treatment for each individual with severe aortic stenosis.

Commissioners need to specify that:

> service providers develop and implement referral pathways among primary, secondary and tertiary care to ensure appropriate patients are considered for treatment;

> according to current recommendations from NICE (IPG421), the NHS Commissioning Board and specialist societies (see "Resources"), TAVI is undertaken only in centres with an adult cardiothoracic surgical programme.

RESOURCES

> British Cardiovascular Intervention Society and Society for Cardiothoracic Surgery in Great Britain and Ireland. A Position Statement on Transcatheter Aortic Valve Implantation (TAVI). March 2009. http://www.bcis.org.uk/resources/documents/BCIS%20SCTS%20position%20statement.pdf

> NICE. Transcatheter aortic valve implantation for aortic stenosis. NICE interventional procedure guidance [IPG421]. March 2012. http://www.nice.org.uk/guidance/ipg421

> NHS Commissioning Board Clinical Reference Group for Specialised Cardiology. Clinical Commissioning Policy: Transcatheter Aortic Valve Implantation (TAVI) for Aortic Stenosis. April 2013. NHSCB/A09/P/a. http://www.england.nhs.uk/wp-content/uploads/2013/04/a09-p-a.pdf

1   Leon MB, Smith CR, Mack M et al. Transcatheter aortic-valve implantation for aortic stenosis is patients who cannot undergo surgery. *N Engl J Med* 2010;363(17):1597-607. http://www.nejm.org/doi/full/10.1056/NEJMoa1008232

2   Smith CR, Leon MB, Mack MJ et al. Transcatheter versus surgical aortic-valve replacement in high-risk patients. *N Engl J Med* 2011; 364(23):2187-98. http://www.nejm.org/doi/full/10.1056/NEJMoa1103510

3   Adams DH, Popma JJ, Reardon RJ et al. Transcatheter aortic valve replacement with a self-expanding prosthesis. *N Engl J Med* 2014; 370(19):1790-8. http://www.nejm.org/doi/full/10.1056/NEJMoa1400590

4   Kapadia SR, Leon MB, Makkar RR et al. 5-year outcomes of transcather aortic valve replacement compared to standard therapy for patients with inoperable aortic stenosis (PARTNER 1): a randomised controlled trial. *Lancet* 2015; 2015 Mar 15. pii: S0140-6736(15)60290-2. doi: 10.1016/S0140-6736(15)60290-2. [Epub ahead of print] http://www.ncbi.nlm.nih.gov/pubmed/25788231

CARDIOVASCULAR FAMILY OF DISEASES: STROKE

Map 40: Percentage of people with acute stroke who were directly admitted to a stroke unit within four hours of arrival at hospital by CCG

2013/14

Domain 1: Preventing people from dying prematurely
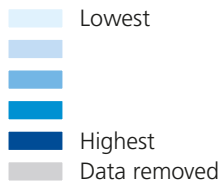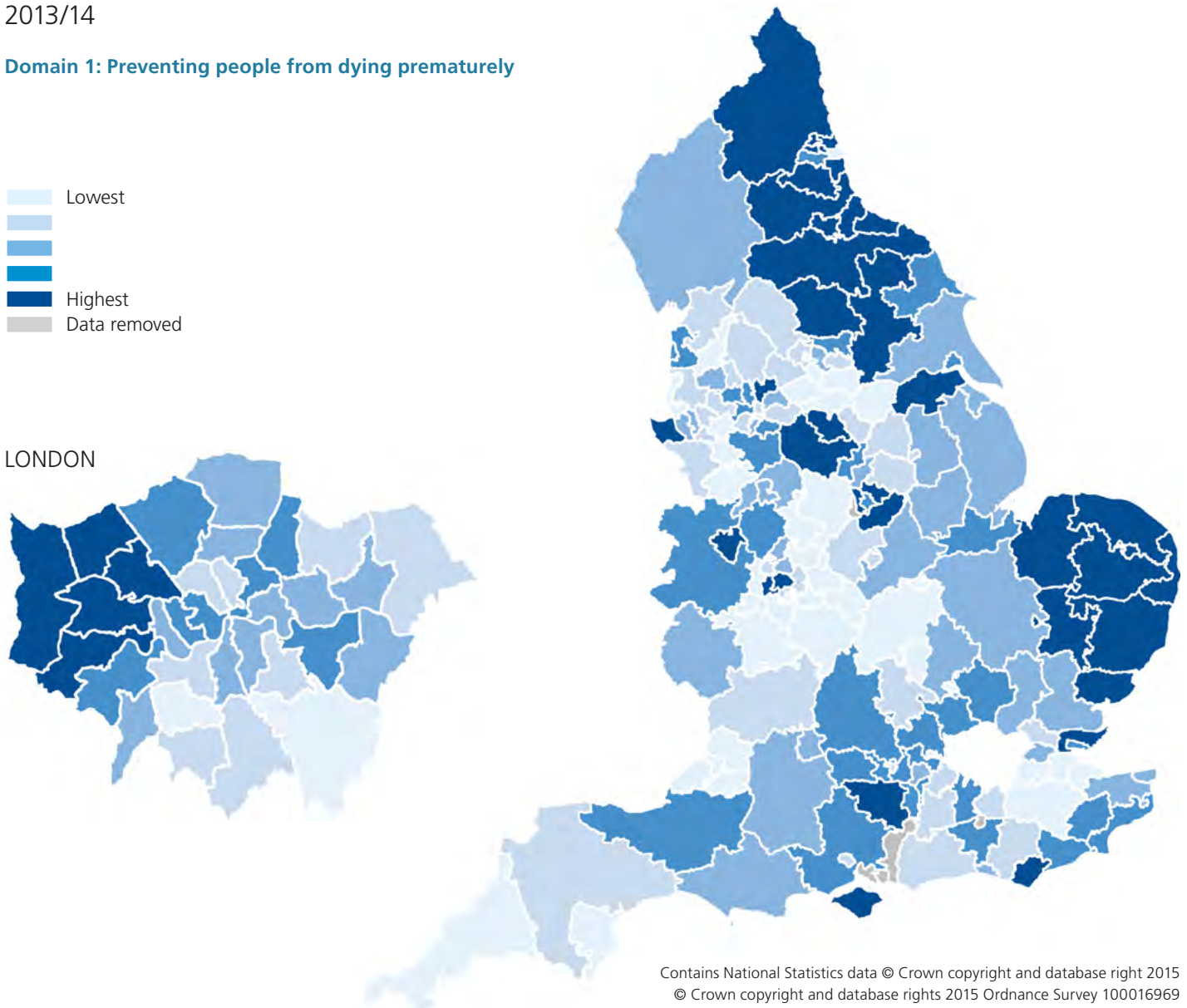
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206 out of 211 CCGs (5 removed due to small numbers)

Per cent
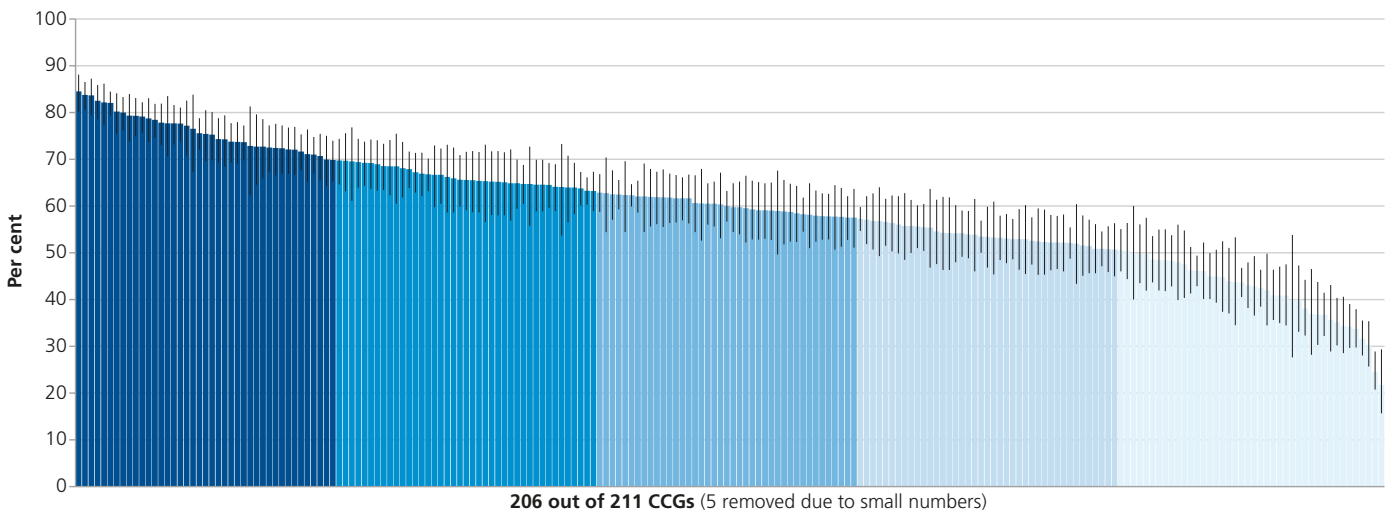
Context

In England, every year, about 110,000 people have a first or recurrent stroke; a further 20,000 people have a transient ischaemic attack (TIA). More than 900,000 people in England are living with the effects of stroke, half of whom are dependent on other people for help with everyday activities.

From the results of randomised controlled trials, admission to a stroke unit has been identified as the key evidence-based intervention for acute stroke, not only to improve survival but also to reduce dependency after stroke.

A stroke unit employs a multidisciplinary team, including specialist nursing staff, and is based in a discrete ward designated for stroke patients. It is important that a patient is managed on the stroke unit from the time of admission, when close monitoring of physiological variables and provision of thrombolysis, where appropriate, can be performed as effectively as possible.

At some stage during admission, about 95% of stroke patients are managed on a stroke unit, but only about 60% of patients are directly admitted to a stroke unit within four hours of arrival at hospital. Patients with stroke should be transferred directly to a stroke unit or other higher-level care, e.g. an intensive-care unit (ICU) or high-dependency unit (HDU), rather than be admitted to an acute assessment unit or general medical ward.

Patients admitted directly to ICU, a coronary care unit (CCU), or HDU are excluded from this indicator.

Magnitude of variation

For CCGs in England, the percentage of people with acute stroke who were directly admitted to a stroke unit within four hours of arrival at hospital ranged from 21.7% to 84.5% (3.9-fold variation).[1] When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 35.1–80.0%, and the variation is 2.3-fold.

Possible reasons for the degree of variation observed include differences in:

› the availability of stroke unit beds;

› the capacity of stroke units;

› the efficiency of use of stroke unit beds – effective discharge processes and established services to support people at home, such as early supported discharge services, facilitates the availability of stroke unit beds for new admissions.

Given the level of variation, some CCGs could improve timely access to stroke unit care.

Options for action

Commissioners need:

› to undertake a needs assessment of the local population, and can use data from the Sentinel Stroke National Audit Programme (SSNAP; see "Resources") to model capacity and demand for stroke services;

› to commission early supported discharge services to enable patients to be discharged sooner and ensure that inpatient stroke unit beds are used most effectively;

› to specify that service providers adhere to NICE guidance (CG68; see "Resources") and ensure that all people with suspected stroke are admitted directly to a specialist acute stroke unit following initial assessment, either from the community or from the Accident & Emergency (A&E) department (see "Resources").

Service providers need to organise stroke pathways to ensure that:

› patients with stroke are diagnosed promptly in A&E departments, so they can be transferred directly to a stroke unit – tools such as the ROSIER scale can help A&E departments identify patients with stroke (see "Resources");

› designated stroke unit beds are available for the rapid transfer of patients to the stroke unit.

Detailed information on the organisation of stroke unit care in all hospitals in England routinely admitting patients with stroke is available through SSNAP (see "Resources"), including bed numbers and staffing.

RESOURCES

› Nor AM, Davis J, Sen B et al (2005). The Recognition of Stroke in the Emergency Room (ROSIER) scale: development and validation of a stroke recognition instrument. Lancet Neurol. Nov;4 (11):727-34.
http://www.ncbi.nlm.nih.gov/pubmed/16239179

› Royal College of Physicians. SSNAP.
https://www.strokeaudit.org/results.aspx

› NICE. Stroke: Diagnosis and initial management of acute stroke and transient ischaemic attack (TIA). NICE Guidelines [CG68]. July 2008.
https://www.nice.org.uk/guidance/cg68

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1   Data from five CCGs have been removed due to small numbers.

CARDIOVASCULAR FAMILY OF DISEASES: STROKE

Map 41: Average composite score for quality of care of stroke services in the Sentinel Stroke National Audit Programme (SSNAP) by CCG

April–June 2014

Domain 1: Preventing people from dying prematurely
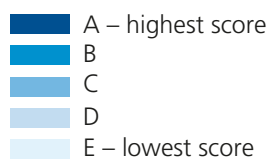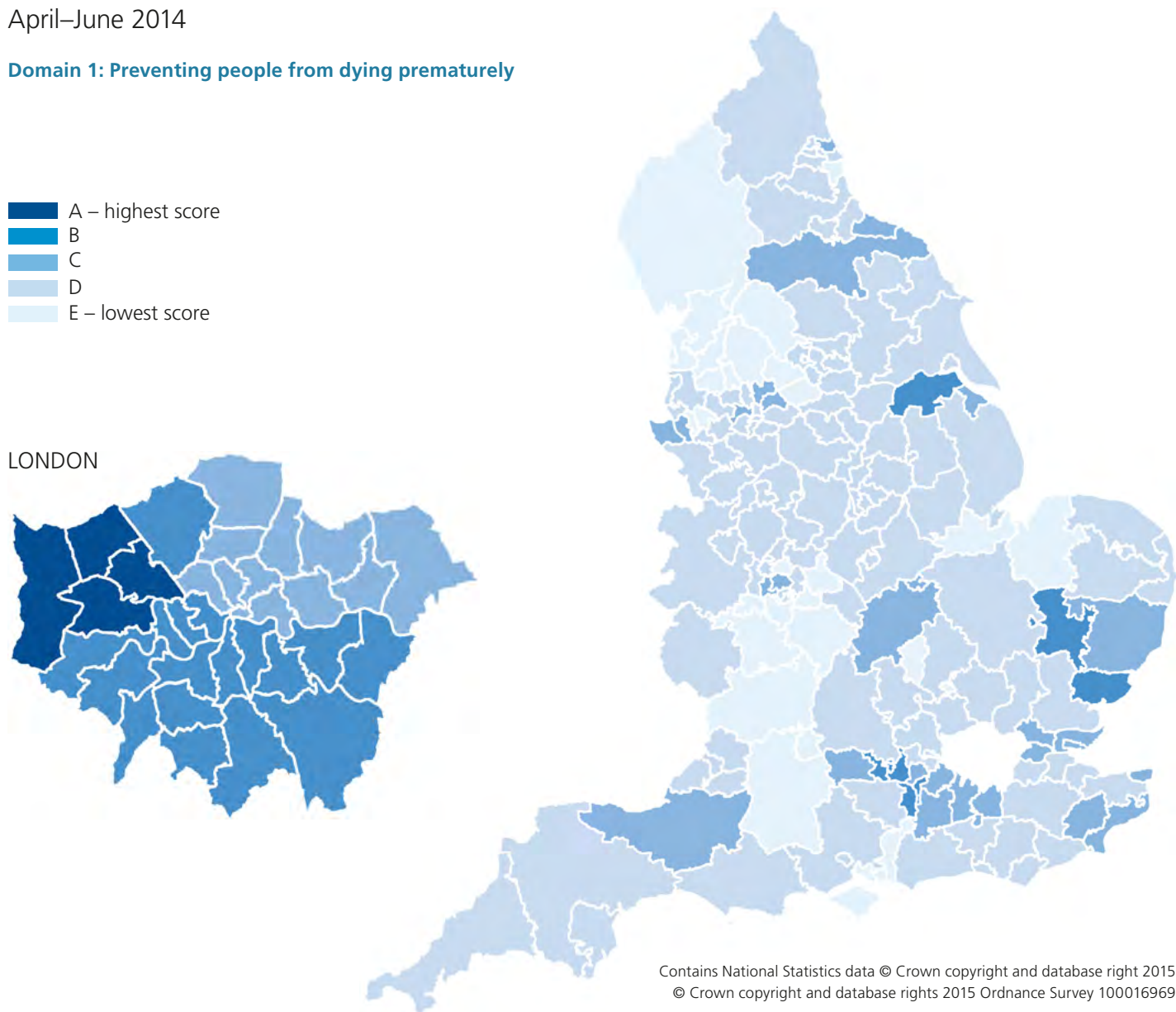
A – highest score
B
C
D
E – lowest score

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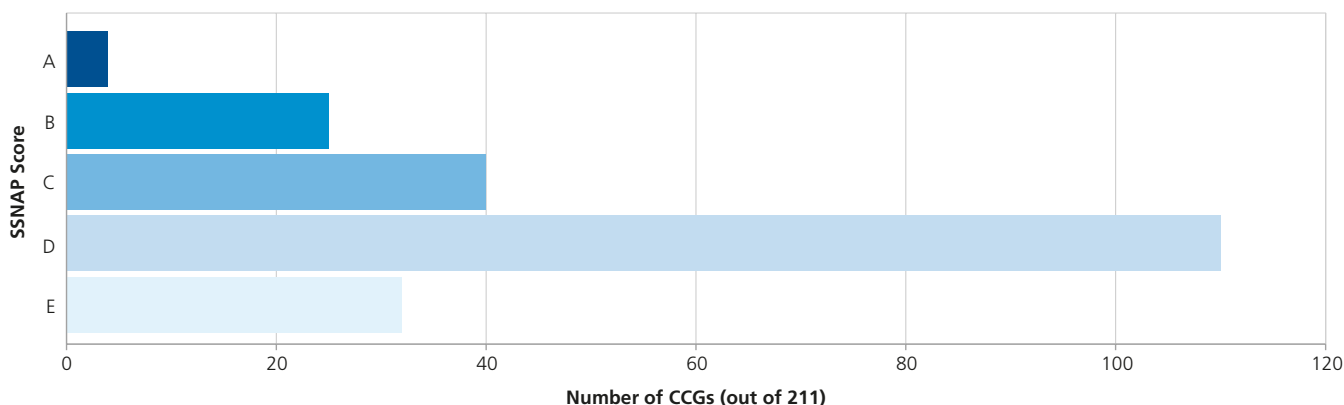
Context

The Sentinel Stroke National Audit Programme (SSNAP) is the HQIP-funded national clinical audit of stroke in England. It is a continuous audit that collects information about the quality of care that people with stroke admitted to hospital receive. The SSNAP includes quality indicators that cover the whole pathway of care, from components of acute stroke care, such as brain scanning and thrombolysis, through to rehabilitation in inpatient and outpatient settings, and collecting information up to six months after stroke.

The SSNAP provides a composite score for the quality of care that stroke patients receive, which combines elements from the whole pathway of stroke care. The overall SSNAP score is calculated from scores on 44 key indicators measuring the many aspects of multidisciplinary care important in achieving the best outcomes after stroke:

› brain scanning;

› stroke unit-based care;

› improving access to a stroke unit;

› thrombolysis ("clot busting" treatment);

› specialist assessments;

› occupational therapy;

› physiotherapy;

› speech and language therapy;

› multidisciplinary team working;

› discharge planning.

The SSNAP score also includes components for data quality, and audit participation. To achieve a high score, a hospital must do well on **all** aspects of care. The purpose of scoring is to identify where and how service providers can achieve excellence. The SSNAP score does not define whether a service is safe.

Map 41 shows the overall SSNAP score for each CCG in England, that is, the average composite score for the quality of stroke services providing care for residents in each CCG. High standards have been set, and the score is challenging: a score of "A" represents world-class stroke care.

Magnitude of variation

For CCGs in England, the average composite score for quality of care of stroke services in the SSNAP ranged from A through to E, where the highest-quality care is indicated by a SSNAP score of "A" and the lowest-quality care by a SSNAP score of "E"; the percentage of CCGs that have an average composite SSNAP score at each level from A to E are shown in Table 41.1.

Table 41.1: Percentage of CCGs with an average composite SSNAP score in categories A–E

Score	CCGs (%)
A	1.9%
B	11.8%
C	19.0%
D	52.1%
E	15.2%

There is a large degree of variation in the overall level of care received by stroke patients in England. Relatively few CCGs are achieving the highest possible quality of care, and there is substantial scope for improvement in most services. As some providers of stroke services are able to achieve very high standards of care, this level of excellence could be achieved by all services

Options for action

The SSNAP provides comprehensive data every three months about the quality of stroke care provided by hospitals and CCGs, including the SSNAP score for each stroke team. Stroke service providers and CCGs are able to review their detailed data to identify areas for improvement (see "Resources"), and measure any changes in the quality of the care provided. Service providers need to ensure the data provided to SSNAP are accurate and of good quality.

Using SNNAP resources, stroke service providers and commissioners can access customised data visualisations, reports and presentations that will facilitate an understanding of how the quality of the care can be improved.

For service providers to improve their SSNAP score, common areas of work to focus upon include:

› providing a brain scan soon after admission so that an accurate diagnosis of stroke can be made;

› increasing the proportion of patients treated with thrombolysis;

› improving access to a stroke unit;

› increasing the amount of therapy provided after stroke so that patients have the best chance of recovering function.

There is also a NICE quality standard for stroke (QS2; see "Resources") which service providers can seek to achieve.

Comprehensive support for improvement is available through the Stroke Peer Review Scheme (see "Resources"), which involves a visit from a multidisciplinary team to help services identify and deliver improvements in care quality.

RESOURCES

› Royal College of Physicians. SSNAP. https://www.strokeaudit.org/results.aspx

› Royal College of Physicians. Stroke Peer Review Scheme. https://www.rcplondon.ac.uk/resources/clinical-resources/standards-medical-record-keeping/stroke-peer-review-scheme

› Royal College of Physicians. Prepared for the Intercollegiate Stroke Working Party. National clinical guideline for stroke. Fourth edition. September 2012. https://www.rcplondon.ac.uk/resources/stroke-guidelines

› NICE. Stroke quality standard. NICE quality stand [QS2]. June 2010. https://www.nice.org.uk/guidance/qs2

CARDIOVASCULAR FAMILY OF DISEASES: STROKE

Map 42: Percentage of people known to have atrial fibrillation (AF) who were prescribed anticoagulation prior to a stroke by CCG

2013/14

Domain 1: Preventing people from dying prematurely
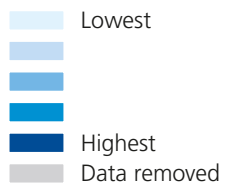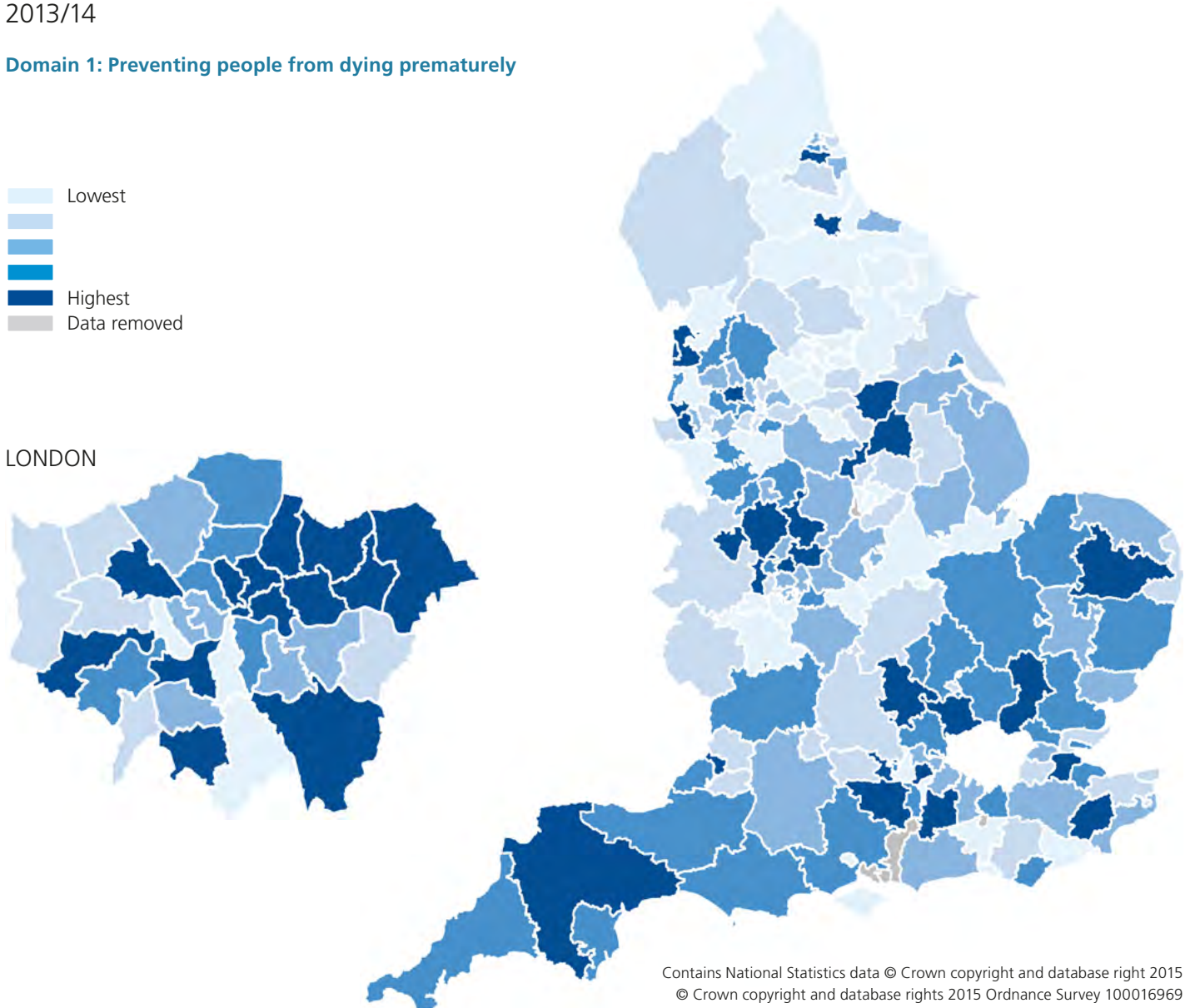
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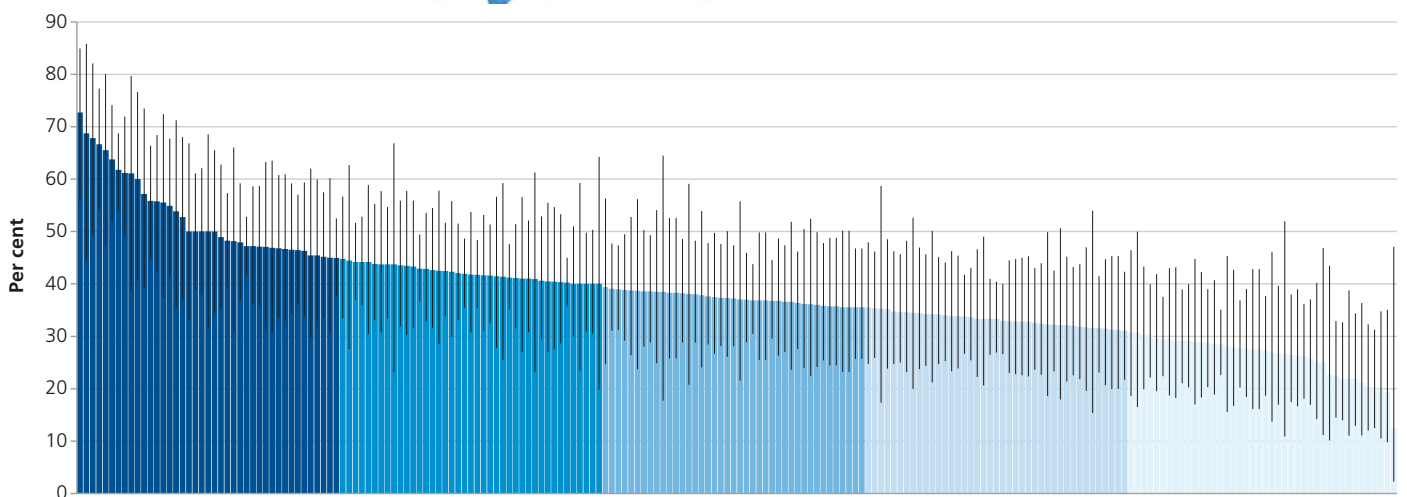
206 out of 211 CCGs (5 removed due to small numbers)

Context

Atrial fibrillation (AF) is a type of irregular heartbeat, which is more common in older people and in people with heart disease or previous high blood pressure. People that have AF are at significantly higher risk of stroke: AF is the cause of one in five strokes, approximately 20,000 people per year in England.

As well as being a major cause of stroke, AF tends to lead to more severe strokes than strokes from other causes, with worse longer-term outcomes and a higher risk of death. There is good evidence that if people with AF receive anticoagulation with warfarin or similar drugs it can reduce the risk of stroke by two-thirds.

Aspirin is no longer recommended as suitable treatment to reduce the risk of stroke in people with AF.

Atrial fibrillation is usually a silent condition although sometimes people have symptoms of palpitations, shortness of breath or reduced ability to exercise. The pulse is irregular in AF and it is often diagnosed when an irregular pulse is noticed by the individual or a health professional.

Magnitude of variation

For CCGs in England, the percentage of people known to have AF who were prescribed anticoagulation prior to a stroke ranged from 12.5% to 72.7% (5.8-fold variation).[1] When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 21.9–61.2%, and the variation is 2.8-fold.

If there is a high proportion of people with stroke and AF not receiving anticoagulation before a stroke, it indicates the under-use of oral anticoagulants in the local population. Although some patients may be receiving antiplatelet therapy to reduce the risk of AF, this is inappropriate and no longer recommended.

Overall, only four in ten patients with stroke and AF had been prescribed an oral anticoagulant before their stroke. This indicates there are still major opportunities to prevent strokes if more people with AF could be diagnosed and prescribed an anticoagulant.

Options for action

To improve case-finding of people with AF in primary care, clinicians can use the GRASP-AF Toolkit from NHS Improving Quality (see "Resources"). The toolkIt also enables AF detection and treatment rates to be benchmarked between areas.

Once identified, according to NICE guidance (CG180; see "Resources), people with AF should have their risk of stroke and bleeding assessed using a validated tool, and should be offered anticoagulation if required.

Commissioners need to specify that service providers implement NICE guidance on the management of AF (see "Resources": CG180 and Recommendation 1.4.3.1 of CG68) including:

› appropriate methods of diagnosis and assessment;

› provision of a personalised package of care and information;

› referral for specialised management in the event that treatment fails to control symptoms of AF;

› assessment of stroke and bleeding risks;

› interventions to prevent stroke;

› rate or rhythm control;

› management of people presenting acutely with AF;

› initial management of stroke and AF;

› prevention and management of post-operative AF.

The Sentinel Stroke National Audit Programme (SSNAP; see "Resources") collects data on AF stroke, which can be used for benchmarking by both commissioners and service providers.

Commissioners also need to specify that service providers who provide anticoagulation submit data on the effectiveness of services, such as time in therapeutic range for warfarin.

RESOURCES

› NHS Improving Quality. GRASP-AF Toolkit. Updated spring 2015. http://www.nottingham.ac.uk/primis/tools/audits/grasp-suite/grasp-af/grasp-af.aspx

› Insight Health Economics for NHS Improving Quality (2014). Costs and Benefits of Antithrombotic Therapy in Atrial Fibrillation in England: An Economic Analysis based on GRASP-AF. http://www.nhsiq.nhs.uk/media/2566025/af_economic_analysis_final.pdf

› Royal College of Physicians. SSNAP. https://www.strokeaudit.org/results.aspx

› NICE. Atrial fibrillation: the management of atrial fibrillation. NICE guidelines [CG180]. June 2014. http://www.nice.org.uk/guidance/cg180

› NICE. Stroke: Diagnosis and initial management of acute stroke and transient ischaemic attack (TIA). NICE guidelines [CG68]. July 2008. https://www.nice.org.uk/guidance/cg68

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1   Data from five CCGs have been removed due to small numbers.

CARDIOVASCULAR FAMILY OF DISEASES: STROKE

Map 43: Standardised mortality ratio (SMR) in the 30 days following admission to hospital for a stroke by CCG

Indirectly standardised for age and case-mix, 2013/14

Domain 1: Preventing people from dying prematurely

Lower than expected mortality
Mortality not significantly different
Higher than expected mortality
Data removed

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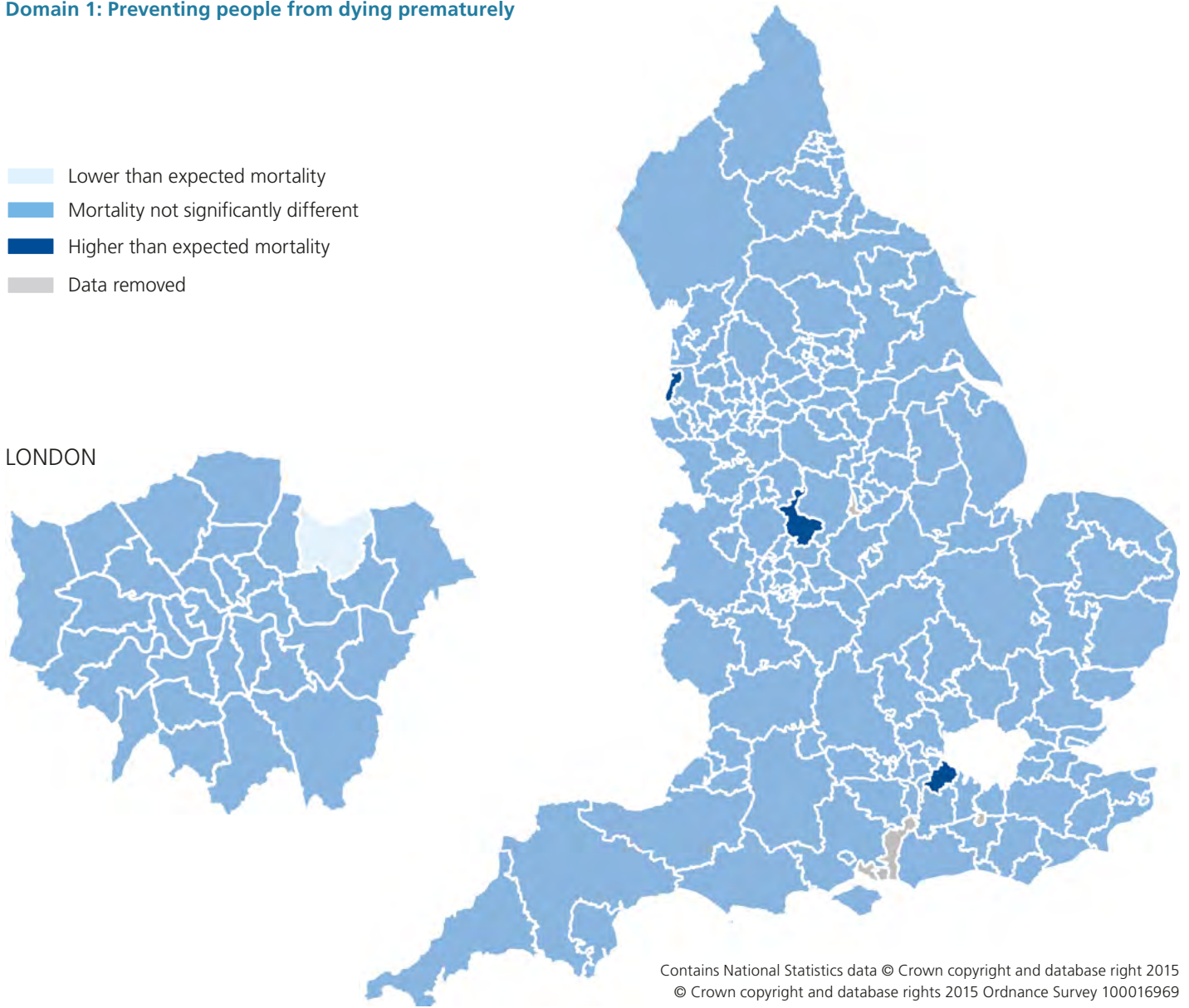
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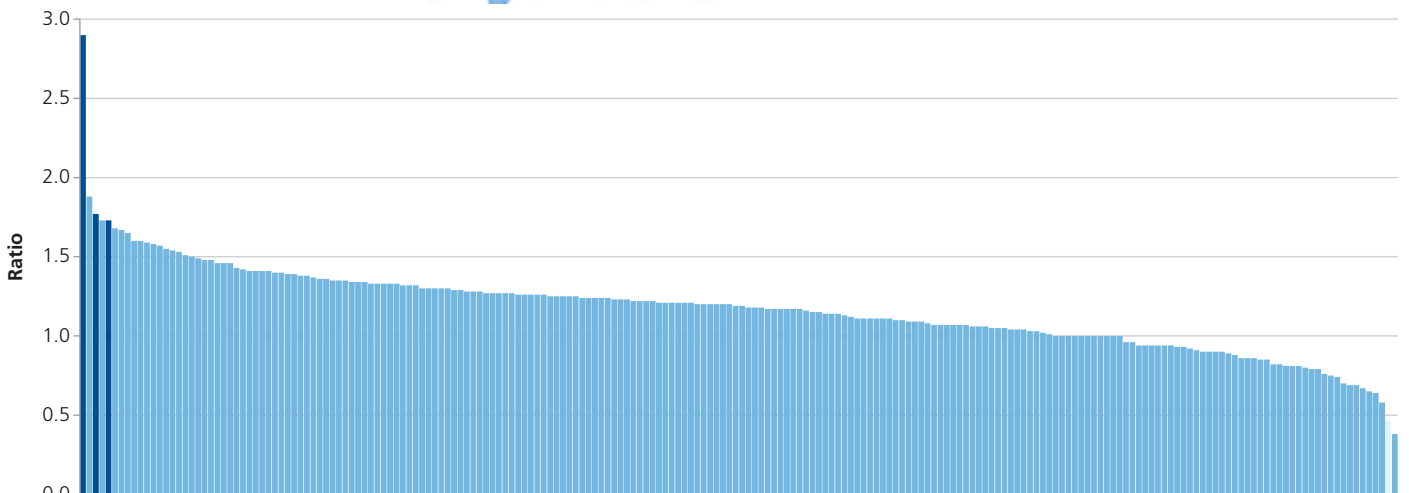
206 out of 211 CCGs (5 removed due to small numbers)

Context

Stroke is one of the most common causes of death, and 10–20% of patients die in the 30 days following a stroke. There is good evidence, however, that post-stroke mortality can be reduced by specific interventions, such as admission to a stroke unit and prevention of venous thrombo-embolism.

The Sentinel Stroke National Audit Programme (SSNAP; see "Resources") provides information on the 30-day standardised mortality ratio (SMR) after stroke, and rates are adjusted for patients' age, stroke type, presence of atrial fibrillation (AF) before stroke, and stroke severity. The adjustment increases the reliability of comparisons of mortality rates between areas, and lessens the effect of differences in patient characteristics between areas. High mortality rates, however, do not necessarily reflect poor-quality or unsafe care, but may reflect warranted variation.

The SMR for this indicator is the ratio of the actual to expected number of people who died in the 30 days after admission for stroke. Mortality data should not be looked at in isolation, but in conjunction with other data about care quality. Higher than expected mortality rates need to be investigated in order to identify the reasons for this, and to identify how survival after stroke could be improved.

The SSNAP uses control limits to identify hospitals and CCGs with higher than expected mortality because mortality rates outside the control limit are very unlikely to occur as a result of chance alone. In contrast to the other maps in Atlas 3.0, statistical significance and not rank position has been used to group CCGs, which explains the different appearance of Map 43 in which only three groupings of CCGs are shown.

> CCGs with an SMR that exceeds the England SMR upper 99.8% control limit have higher than expected mortality, and are visualised with the darkest shade of blue.

> CCGs with an SMR below the England SMR lower 99.8% control limit have lower than expected mortality, and are visualised in the lightest shade of blue.

> CCGs with an SMR that is within the England SMR control limits have mortality that is not significantly different from the England average, and are visualised in a mid-shade of blue.

Magnitude of variation

For CCGs in England, the SMR in the 30 days following admission to hospital for a stroke ranged from 0.38 to 2.90 (7.6-fold variation).[1] When the seven CCGs with the highest SMRs and the seven CCGs with the lowest SMRs are excluded, the range is 0.69–1.65, and the variation is 2.4-fold.

By far the largest part of the variation in this indicator can be explained by random statistical variation. From these data, only three CCGs have mortality rates that are higher than expected at the 99.8% level of significance.

Options for action

Commissioners and service providers need to investigate SMRs following admission to hospital for a stroke by reviewing:

> the detailed data provided by SSNAP about the quality of care that patients received, and in particular access to stroke unit care and screening for swallowing problems after stroke;

> whether there might be organisational factors contributing to higher mortality after stroke; for example, mortality rates after stroke have been found to be higher if there are fewer trained nurses working on stroke units at weekends[2];

> the case records of patients who have died or who have suffered a "near miss", such as a cardiac arrest, to help identify common or recurring problems in care and provide a focus for quality improvement activity; several tools are available to help undertake case-reviews, including the Institute of Healthcare Improvement (IHI) Global Trigger Tool (see "Resources").

Service providers need to ensure that data returned to SSNAP are of good quality and submitted accurately.

RESOURCES

> Royal College of Physicians. SSNAP.
> https://www.strokeaudit.org/results.aspx

> Institute of Healthcare Improvement (IHI) Global Trigger Tool for Measuring Adverse Events.
> http://www.ihi.org/resources/Pages/Tools/IHIGlobalTriggerToolforMeasuringAEs.aspx

1   Data from five CCGs have been removed due to small numbers.
2   Bray BD, Avis S, Campbell J et al. Associations between stroke mortality and weekend working by stroke specialist physicians and registered nurses: prospective multicentre cohort study. PLoS Med 2014 Aug: 11(8): e1001705. Published online 2014 Aug 19. doi: 10.1371/journal.pmed.1001705. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4138029/

CARDIOVASCULAR FAMILY OF DISEASES: STROKE

Map 44: Percentage of people discharged from hospital following a stroke who were "newly institutionalised" by CCG

Directly standardised for age and sex, 2013/14

Domain 1: Preventing people from dying prematurely
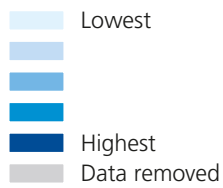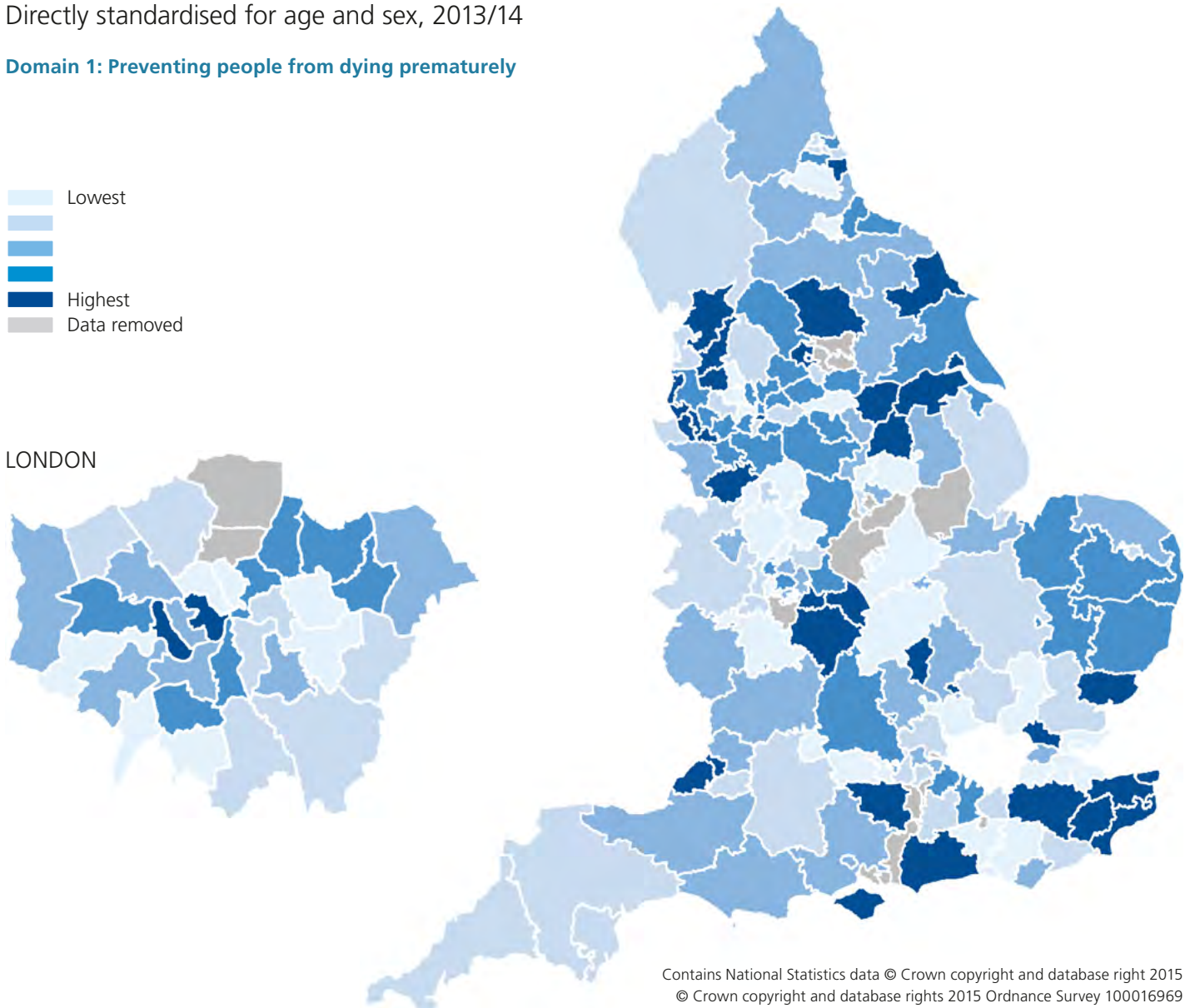
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193 out of 211 CCGs (18 removed due to small numbers)

Per cent
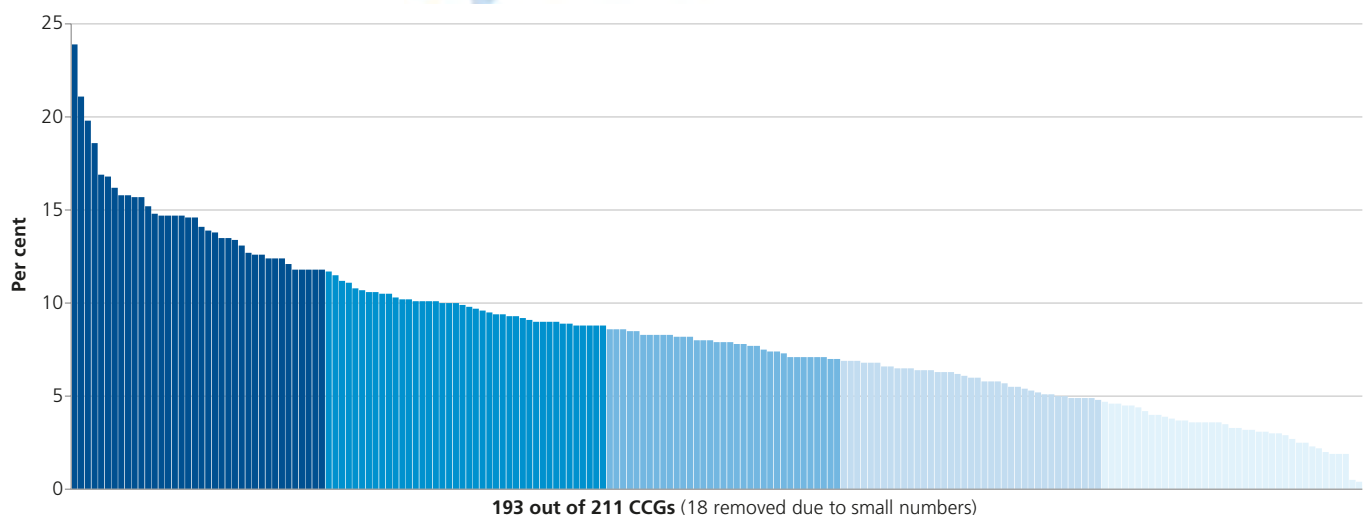
Context

In 2013/14, 11% of patients following a stroke were discharged to a care home; almost two-thirds of these people were not previously resident in a care home and were considered "newly institutionalised".[1]

Recovery after stroke can be slow, and people are often left with long-term impairments. To improve recovery after stroke and to reduce long-term disability, all patients with stroke, apart from those who are dying or those who have no impairment, should receive therapy, including:

› physiotherapy;

› occupational therapy;

› speech and language therapy.

It is important that people have as much opportunity to recover as possible before a decision is made to discharge them into long-term institutional care.

Early supported discharge involves discharging patients so that they can receive specialist stroke rehabilitation after stroke in their own homes. Randomised controlled trials of stroke unit care and early supported discharge show that institutionalisation rates are lower in people who received this specialist intervention when compared with people who received conventional care.[2] Early supported discharge services also reduce dependency after stroke.

Although the provision of early supported discharge has improved over the past ten years, recent data from the Sentinel Stroke National Audit Programme (SSNAP; see "Resources") show that one-quarter of stroke services do not have an early supported discharge team available.

The data for Map 44 have been adjusted to take account of patients' age and sex: older people who have had a stroke are much more likely to be newly admitted to a care home than younger people.

Magnitude of variation

For CCGs in England, the percentage of people discharged from hospital following a stroke who were "newly institutionalised" ranged from 0.4% to 23.9% (59.8-fold variation).[3] When the six CCGs with the highest percentages and the six CCGs with the lowest percentages are excluded, the range is 2.2–16.2%, and the variation is 7.4-fold.

Reasons for the degree of variation observed include differences in:

› the proportion of patients in the local population with more severe stroke;

› the quality and quantity of rehabilitation provided to stroke patients in different localities;

› the availability of community rehabilitation;

› the availability of home social support for people with severe disability;

› the ease of access to nursing homes;

› local social services' policies about funding institutional care – some demand patients are given the opportunity to try care at home before agreeing to fund long-term institutional care.

Options for action

To reduce the rates of care-home institutionalisation after stroke, commissioners need to specify that stroke service providers:

› comply with NICE guidance on the diagnosis and initial management of acute stroke and transient ischaemic attack (CG68; see "Resources"), and that for stroke rehabilitation (CG162; see "Resources);

› provide comprehensive community rehabilitation services including early supported discharge

› ensure that all appropriate patients undergo early supported discharge and have access to longer-term community rehabilitation;

› ensure patients receive sufficient physiotherapy, occupational therapy, speech and language therapy, and psychological support after a stroke.

Detailed data about therapy provision are collected in the SSNAP (see "Resources").

Other "Options for action" regarding the care of stroke patients can be found in the commentaries for Maps 40–43 (pages 125, 127, 129, and 131), and may help to reduce the need for discharge to a care home.

RESOURCES

› Royal College of Physicians. SSNAP. https://www.strokeaudit.org/results.aspx

› Fearon P, Langhorne P, Early Supported Discharge Trialists. Services for reducing duration of hospital care for acute stroke patients. Cochrane Database of Systematic Reviews 2012, Issue 9. Art. No.: CD000443. DOI: 10.1002/14651858. CD000443. pub3. http://onlinelibrary.wiley.com/doi/10.1002/14651858. CD000443.pub3/abstract

› NICE. Stroke rehabilitation: Long-term rehabilitation after stroke. NICE guidelines [CG162]. June 2013. http://www.nice.org.uk/guidance/cg162

› NICE. Stroke: Diagnosis and initial management of acute stroke and transient ischaemic attack (TIA). NICE Guidelines [CG68]. July 2008. https://www.nice.org.uk/guidance/cg68

› NICE pathways. Stroke overview. http://pathways.nice.org.uk/pathways/stroke

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1 Royal College of Physicians. How good is stroke care? First SSNAP Annual Report. Care received from April 2013 to March 2014. https://www.strokeaudit.org/Documents/Newspress/SSNAP-Annual-Report-%28April-2013-March-2014%29.pdf

2 Fearon P, Langhorne P, Early Supported Discharge Trialists. Services for reducing duration of hospital care for acute stroke patients. Cochrane Database of Systematic Reviews 2012, Issue 9. Art. No.: CD000443. DOI: 10.1002/14651858. CD000443.pub3. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000443.pub3/abstract

3 Data from 18 CCGs have been removed due to small numbers.

MENTAL HEALTH DISORDERS

Map 45: Percentage of people who are recorded in GP registers of severe mental illness (SMI) by CCG

2013/14

Domain 1: Preventing people from dying prematurely
Domain 2: Enhancing quality of life for people with long-term conditions
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest

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211 CCGs

Per cent
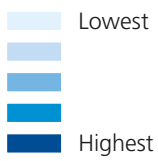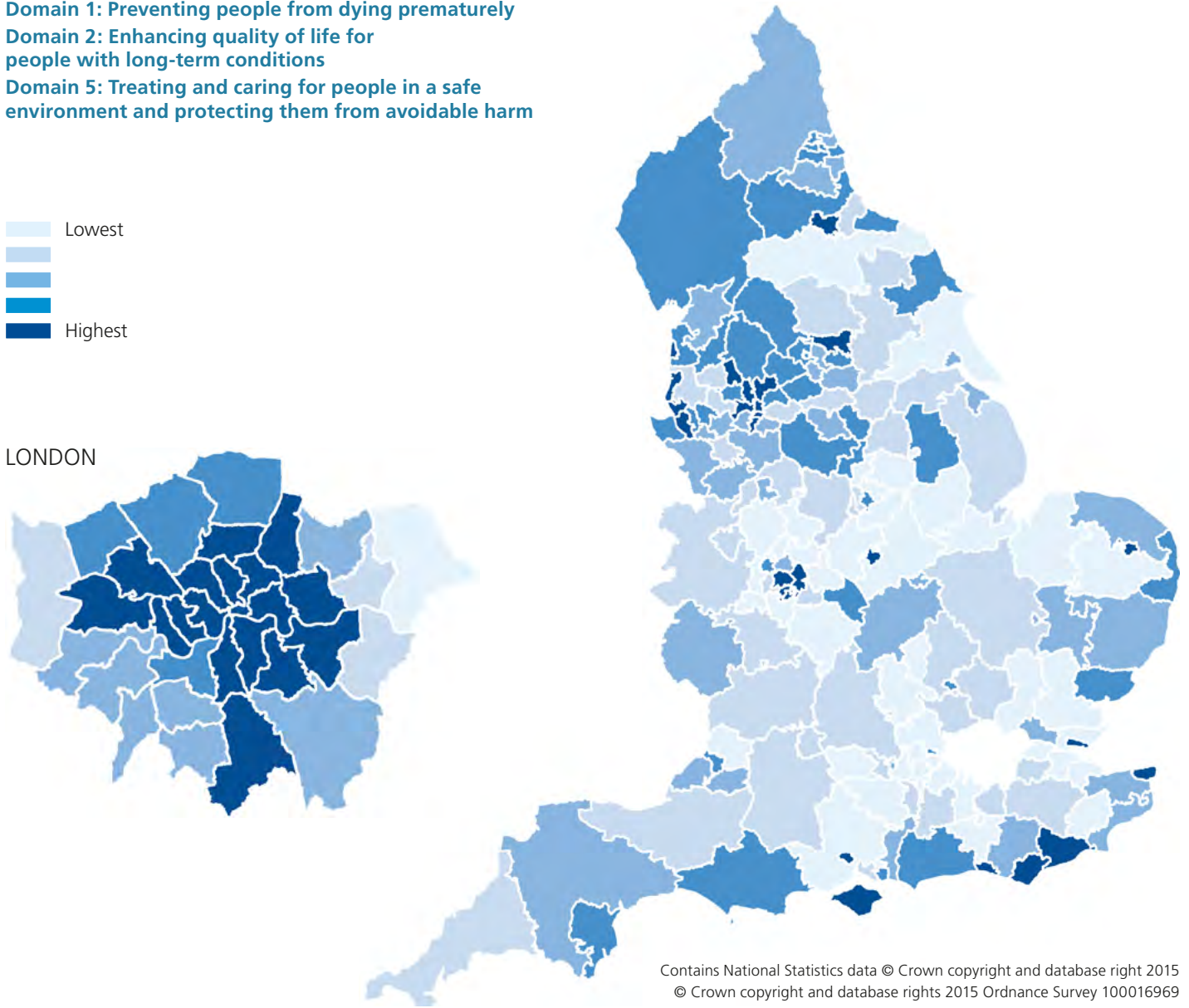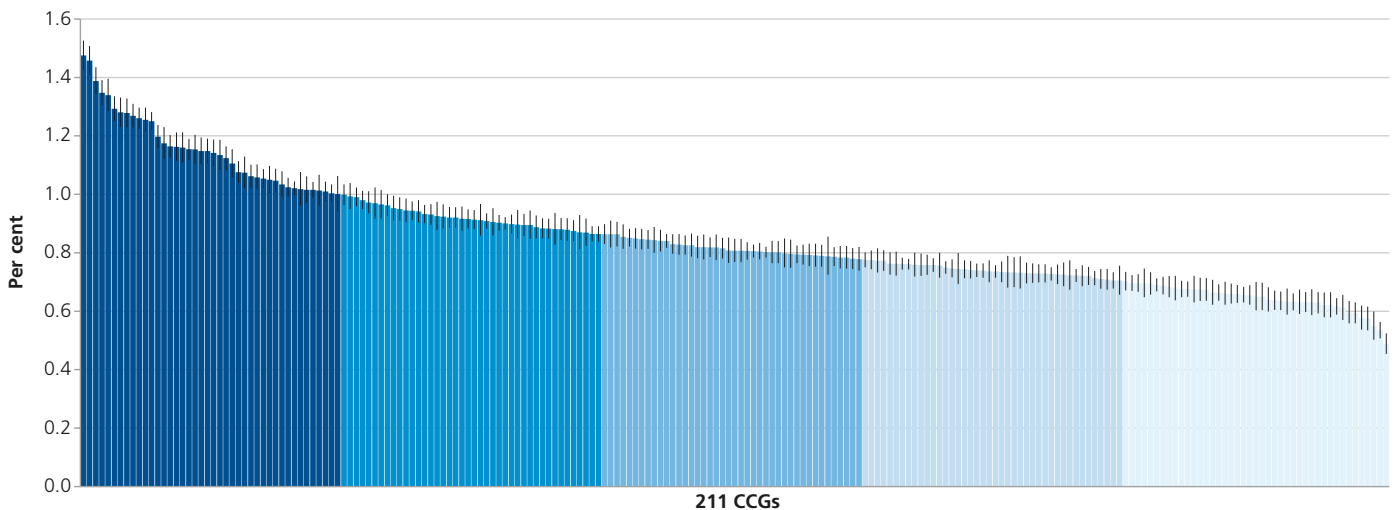
Context

If not identified and treated early psychosis can cause lifelong distress, disability, poor life opportunities, poverty and unemployment. People with psychosis, however, often do not receive when needed evidence-based assessments and treatment interventions from which they would benefit. Variation in timely identification and access to care results in worse physical and mental health and social outcomes, including a reduced ability to secure and retain stable accommodation and employment. Currently, the life-expectancy of people with severe mental illness (SMI) is 15–20 years shorter than that for the general population.[1]

Rates of psychosis, or other severe mental disorders, vary by locality. The planning of treatment and support for existing or new cases requires knowledge and awareness of estimates of the number of people with psychosis in the local population. Accurate estimates of the prevalence of SMI at a local level, however, do not exist. The Quality and Outcomes Framework (QOF) SMI register is often presented as a basis for quantifying numbers of people with SMI, but it reflects only the level of identification of SMI in primary care as a proportion of people on GP registers:

› diagnosed with schizophrenia;
› diagnosed with bipolar disorder;
› diagnosed with other psychoses;
› on lithium therapy.

The register is a cumulative count of all identified cases, which, over time, will approach a primary care-based lifetime prevalence. In England, 0.86% of the population (483,933 people) registered with a GP are included on the SMI register, many of whom have psychosis. Psychosis occurs in 1 in 100 people, with the commonest age of onset being in men in their late teens.

Magnitude of variation

For CCGs in England, the percentage of people who are recorded in GP registers of SMI ranged from 0.5% to 1.5% (3.0-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 0.6–1.3%, and the variation is 2.1-fold.

One reason for the degree of variation observed is differences in the characteristics and contexts of local populations, including the level of deprivation – a higher proportion of people in more-deprived areas are recorded as having an SMI when compared with people in less-deprived areas.

Other reasons for variation include differences in:

› actual prevalence of people with SMI, e.g. there are higher rates of SMI in urban areas when compared with rural areas;
› the rates at which SMI is detected, diagnosed and treated;
› extent of provision of pro-active outreach and enhanced services models in primary care.

As psychosis presents most often in adolescence and young adulthood, there may also be differences in awareness, and access to mental health expertise, among parents, schools, other educational bodies, and youth agencies.

Options for action

Commissioners need to specify that service providers design and plan services for people with SMI according to need. As these prevalence estimates are limited and need to be interpreted with caution (the QOF SMI register provides only a measure of primary care detection), it is advisable for those responsible for planning local services to draw upon, for further validation, several other measures indicating level of need, such as:

› estimates of incidence;
› rates of people with care coordination in secondary care ('Care Programme Approach'; CPA[2]);
› rates of people with psychosis engaged with different types of secondary care community mental health teams;
› admission rates to hospital, unplanned and elective;
› rates of detention under the Mental Health Act 1983 (as amended by the Mental Health Act 2007).

Commissioners and service providers then need to review estimates of the number of cases and of new cases of SMI in relation to current service provision, and adjust provision accordingly. After triangulation of the data, service planners need to review local SMI registers.

Some GP practices are using pro-active outreach methods: engaging people with SMI, working closely with families and carers, and third sector outreach services, and making special arrangements for the homeless and mobile populations. In areas with high levels of need, some CCGs have introduced enhanced services, with whole-team training in mental health and the development of additional practice nurse expertise in the assessment and treatment of the common physical co-morbidities in psychosis.

RESOURCES

› Mental Health Dementia Neurology Intelligence Network (MHDNIN) Prevalence and service measures. http://fingertips.phe.org.uk/profile-group/mental-health/profile/severe-mental-illness
› NICE. Psychosis and schizophrenia in adults: treatment and management. NICE Guidelines [CG178]. February 2014. http://www.nice.org.uk/guidance/cg178
› NICE. Psychosis and schizophrenia in adults. NICE quality standard QS80. February 2015. http://www.nice.org.uk/guidance/qs80
› NICE. Bipolar disorder, psychosis and schizophrenia in children and young people. NICE quality standard [QS102]. October 2015. https://www.nice.org.uk/guidance/qs102
› NICE Pathways. Psychosis and schizophrenia overview. http://pathways.nice.org.uk/pathways/psychosis-and-schizophrenia
› NICE Pathways. Psychosis and schizophrenia with coexisting substance misuse overview. http://pathways.nice.org.uk/pathways/psychosis-with-coexisting-substance-misuse
› PsyMaptic. Online prediction tool for healthcare planners, commissioners and other key stakeholders requiring accurate, reliable data on the expected incidence of psychotic disorder. http://www.psymaptic.org/
› London Strategic Clinical network (2014) A commissioner's guide to primary care mental health. Strengthening mental health commissioning in primary care: Learning from experience. http://www.slcsn.nhs.uk/scn/mental-health/london-mh-scn-primary-care-commiss-072014.pdf

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1   Royal College of Psychiatrists (2013) Whole-person care: from rhetoric to reality - Achieving parity between mental and physical health. http://www.rcpsych.ac.uk/usefulresources/publications/collegereports/op/op88.aspx
2   The CPA is a way that services are assessed, planned, coordinated and reviewed for someone with mental health problems or a range of related complex needs.

MENTAL HEALTH DISORDERS

Map 46: Mean percentage achievement score for physical health checks on people with severe mental illness (SMI) recorded in GP SMI registers by CCG

2013/14

Domain 1: Preventing people from dying prematurely

Lowest

Highest

LONDON

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211 CCGs

Mean per cent
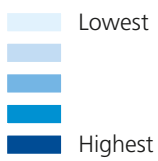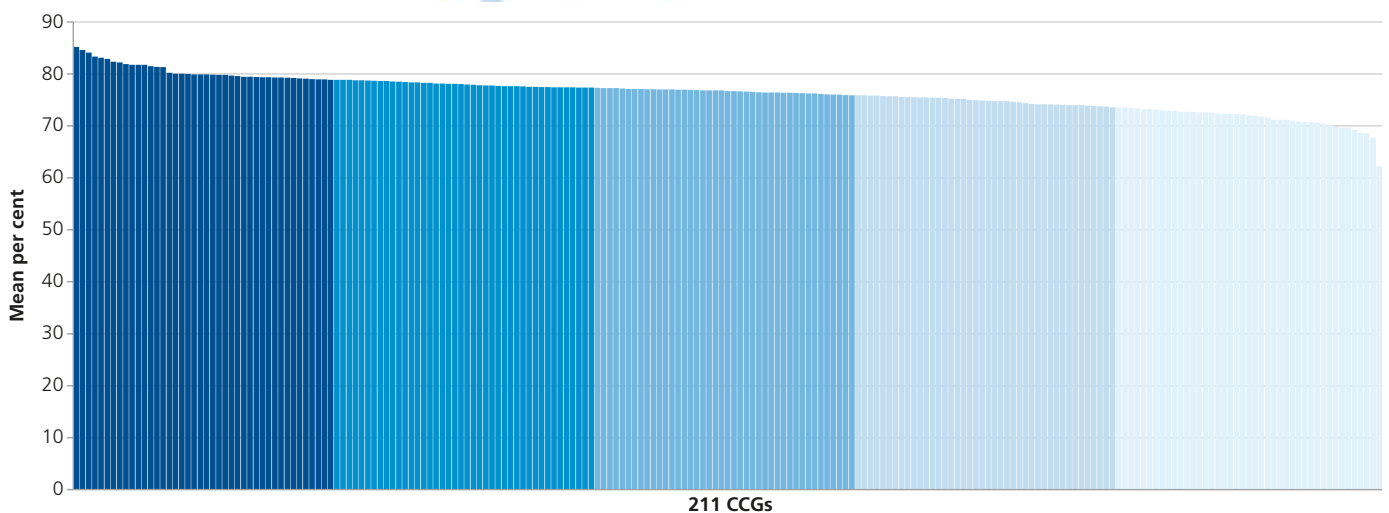
Context

People with severe mental illness (SMI) are at increased risk of poor physical health, and their life-expectancy is reduced by an average of 15–20 years mainly due to preventable physical illness.[1] Healthcare professionals need to understand the physical health risks for people with SMI, investigate any physical symptoms and signs, and provide appropriate treatment, including expert support to establish and maintain a healthy lifestyle (e.g. physical activity and diet), and reduce associated health risk behaviours, such as smoking.

Annual physical health checks in people with SMI provide an opportunity to detect physical conditions and health risk behaviours, and to offer appropriate interventions. In England, the overall average provision of physical health checks for people on the SMI register is 76%.[1] For 2013/14, there was an increase of 4.5% in average provision of physical health checks in people with SMI when compared with 2012/13, which could relate to changes in exception-reporting (see Map 47, pages 138–140).

In 2013/14, the SMI physical health check comprised six individual components appropriate to a person's age and sex, which also related to the cardio-metabolic risks associated with SMI, linked to the effects of medication, and the difficulties people with SMI have of maintaining a healthy lifestyle (see Table 46.1).

Table 46.1: Components of the physical health check for people with SMI, and their completion rates in 2013/14[2]

Component	Completion rate
Alcohol consumption	79.0%
Body mass index (BMI)	78.8%
Blood pressure	82.9%
Cervical screening (women aged 25–64 years)	72.3%
Cholesterol (people aged ≥40 years)	68.0%
Blood glucose (people aged ≥40 years)	74.9%

This indicator has been calculated as the average of the six components of the physical health check. Each component is weighted equally, i.e. those for the full population (e.g. BMI) contribute equally to those for subgroups of the population (e.g. cervical screening for women with SMI aged 25–64 years). The indicator excludes people on the SMI register recorded as "exempt"[3].

Magnitude of variation

For CCGs in England, the mean percentage achievement score for physical health checks on people with SMI recorded in GP SMI registers ranged from 62.2% to 85.2% (1.4-fold variation). When the seven CCGs with the highest mean percentage achievement scores and the seven CCGs with the lowest mean percentage achievement scores are excluded, the range is 69.8–82.2%, and the variation is 1.2-fold.

The degree of variation observed does not appear to be associated with levels of deprivation. Possible reasons for unwarranted variation include differences in:

› accessibility of primary care for people with SMI, including pro-active outreach;
› the model of primary care mental health used locally.

Options for action

To improve the health of people with SMI, commissioners need to specify that service providers and planners:

› assess, using practice-level data, what proportion receive (i) annual physical health checks, and (ii) effective interventions for physical conditions and health risk behaviours;
› improve coverage of annual physical health checks;
› respond appropriately and flexibly when health check results indicate intervention;
› assess the outcomes of interventions for physical conditions and health risk behaviours;
› improve outcomes of interventions for physical conditions and health risk behaviours;
› use a clinical decision template to support guided clinical assessment (see "Case-study resource").

Although this indicator is a summary measure, service providers need to assess each component of the health check to identify whether specific components could be improved.

Primary care service providers need to consider:

› pro-active engagement of people with SMI, including support to understand physical health risks, flexibility in booking appointments, third sector outreach support, support to carers, and appropriately framed reminders to attend;
› implementation of responsive care initiatives, including enhanced SMI service models for high-impact conditions, developing practice nurse capacity and capability, continuing professional development, and the use of clinical decision support templates (see "Case-study resource").

CASE-STUDY RESOURCE

› NHS Improving Quality. Living Longer Lives Case Study. Physical healthcare of patients with severe mental illness. A template for physical healthcare in Bradford: a collaboration between specialist mental health and primary care. June 2014. http://www.nhsiq.nhs.uk/media/2484208/bradford_mental_illness_-_final_updated.pdf
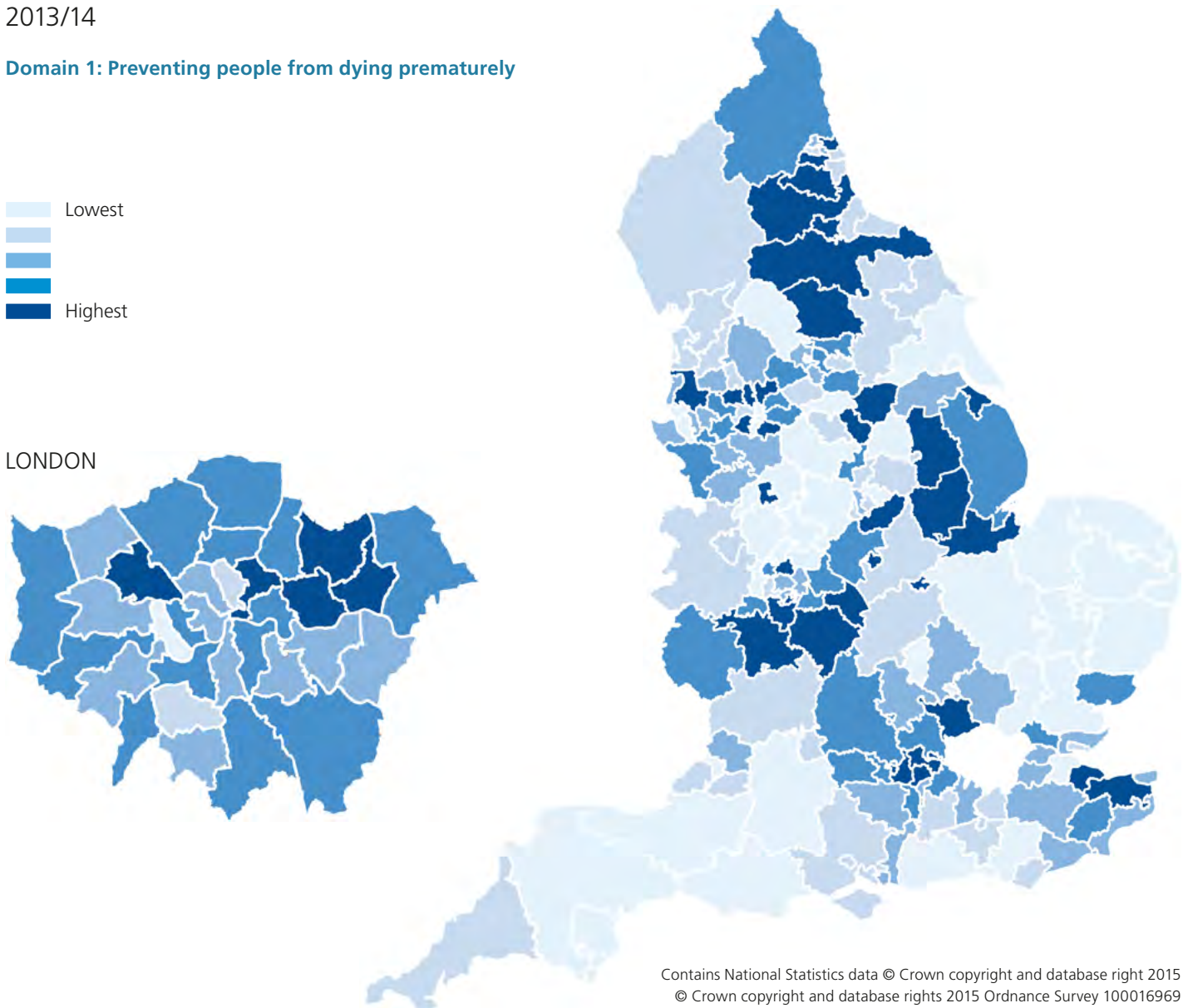
RESOURCES

› Mental Health, Dementia and Neurology Intelligence Network (MHDNIN) Severe Mental Illness Profiling tool. http://fingertips.phe.org.uk/profile-group/mental-health/profile/severe-mental-illness
› Joint Commissioning Panel for Mental Health. Commissioning Tools: For people with severe mental illness. http://www.jcpmh.info/commissioning-tools/cases-for-change/physical-health-care/severe-mental-illness/
› Rethink Mental Illness. Health professionals – Physical health resources. See CQUIN Toolkit. http://www.rethink.org/about-us/health-professionals/physical-health-resources
› Hardy S. Physical Health Checks for people with Severe Mental Illness: a primary care guide. University of East Anglia and NHS Northampton. http://physicalsmi.webeden.co.uk
› BMJ Learning for Nurses (2015) Contains two UCL Partners modules: Medication for mental health problems in primary care: a guide for practice nurses – part one and part two. http://learning.bmj.com/learning/info/CME-CPD-for-nurses.html?gclid=COCC-p2lw8UCFQLItAodL3YA_Q

1 Royal College of Psychiatrists (2013) *Whole-person care: from rhetoric to reality - Achieving parity between mental and physical health.* http://www.rcpsych.ac.uk/usefulresources/publications/collegereports/op/op88.aspx

2 As of 2014/15, in the Quality and Outcomes Framework (QOF), the measurement of BMI, and cholesterol, and blood glucose levels are no longer included in the physical health check for people on the SMI register.

3 According to QOF protocols, people with SMI who have been contacted but have not agreed to be placed on the register can be listed as "exempt", and reported as "exceptions".

MENTAL HEALTH DISORDERS

Map 47: Percentage of people with severe mental illness (SMI) recorded in GP SMI registers who were excepted from the calculation of QOF achievement scores by CCG

2013/14

Domain 2: Enhancing quality of life for people with long-term conditions
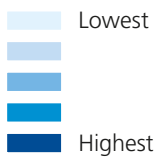
Lowest

Highest

LONDON

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211 CCGs
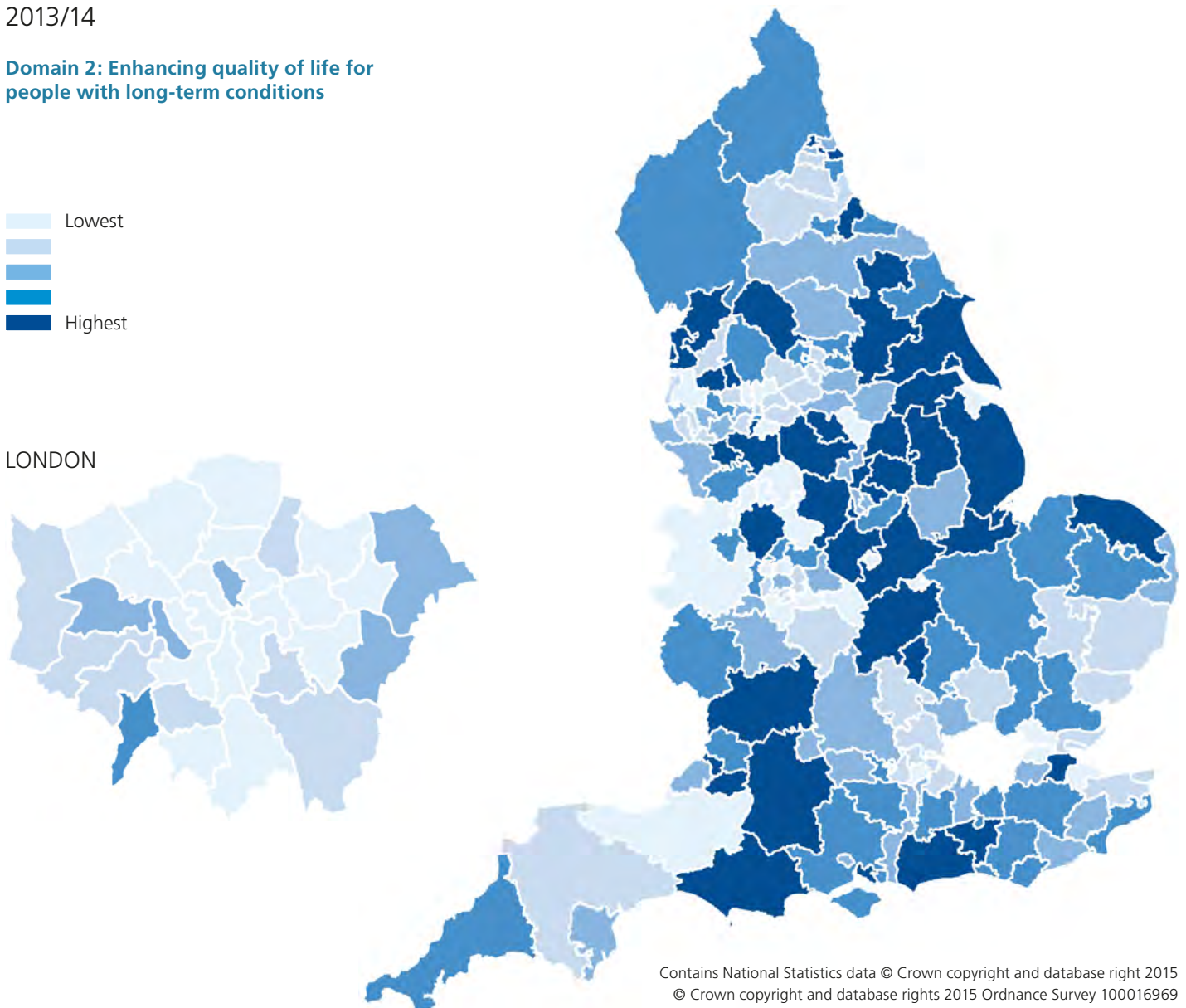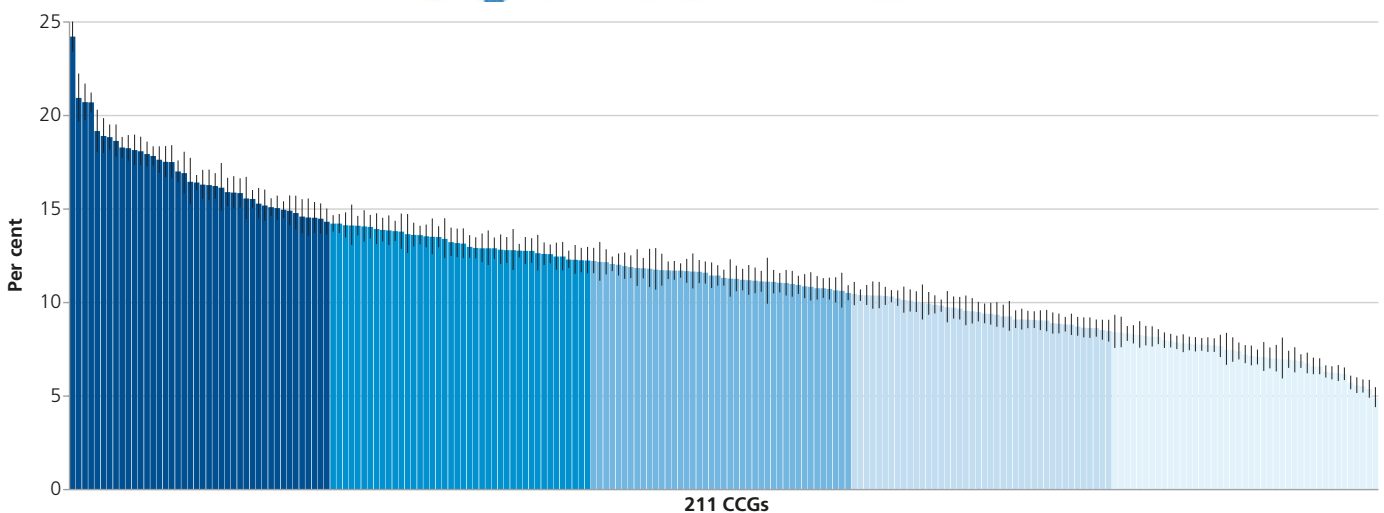
Context

People with severe mental illness (SMI) have a life-expectancy 15–20 years less than that of the general population.[1] The frequency of physical health checks, and implementation of appropriate evidence-based interventions to address physical health conditions and associated health-risk behaviours, in primary care can reduce this premature mortality. Variation in the provision and quality of physical healthcare for some people with SMI is of serious concern given their level of premature mortality.

In 2013/14, there were 11 indicators in the Quality and Outcomes Framework (QOF) relating to specific measures and diagnostic tests for the assessment of the physical health of people with SMI.[2] Under the QOF scheme, GPs are rewarded for achieving an agreed level of population coverage for each indicator. In calculating coverage, practices are allowed to except defined people from the target population to avoid being penalised for factors beyond the GPs' control. For each QOF indicator, three measures are reported annually:

› percentage including exceptions;

› exception rate;

› percentage excluding exceptions.

Exceptions relate to people on disease registers who would ordinarily be included in the denominator for the relevant QOF indicators but are not because they meet at least one of the stated exception criteria. For instance, the SMI register includes people who are "in remission" (i.e. who have no record of antipsychotic medication, inpatient or secondary or community care mental health follow-up within the last five years), yet they are excluded from the denominator.

In 2013/14, the average exception rate across all relevant QOF indicators was 4.1%. The largest proportion of exceptions was in mental health at 14.4%; exceptions for SMI were 11.4%, a decrease when compared with 15.5% in 2012/13[3].

Where exceptions are applied, many of the people with SMI and at highest risk of premature death may be excluded from physical health checks as a consequence. This indicator highlights the effectiveness of education, outreach to and engagement of vulnerable groups, and whether this group of people are receiving the support from primary care services that they need.

Magnitude of variation

For CCGs in England, the percentage of people with SMI recorded in GP SMI registers who were excepted from the calculation of QOF achievement scores ranged from 4.9% to 24.2% (4.9-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 6.2–18.6%, and the variation is 3.0-fold.

In 2013/14, of all CCGs in England, 34 (one in six) had exception rates higher than 15%. The exception rate was 8.13% in the London region, 11.94% in the Midlands and East region, 12.17% in the North region, and 12.83% in the South region.

Exception rates are not related to the level of deprivation. Possible reasons for unwarranted variation include differences in:

› availability of appropriate primary care services for people with SMI;

› accessibility of primary care services for people with SMI.

---

1   Royal College of Psychiatrists (2013) Whole-person care: from rhetoric to reality - Achieving parity between mental and physical health.
    http://www.rcpsych.ac.uk/usefulresources/publications/collegereports/op/op88.aspx
2   For QOF 2014/15, the diagnostic indicators were deleted.
3   Changes were made to the QOF indicators for 2013/14, e.g. a decrease in the time-period over which measurements were taken from 15 to 12 months, which may have had an impact on exception-reporting.

Options for action

Commissioners and service providers in localities with high exception rates need to review practice-level data to ascertain whether some primary care services are experiencing difficulties supporting people with SMI. It is possible to identify which practices in a CCG have high exception rates; practices where rates are low can share learning with practices where rates are higher.

Service providers need to review whether people with SMI:

> have a comprehensive care plan, including support to attend physical health checks;

> receive interventions to address physical health conditions and health risk behaviours, focusing on cardio-metabolic health monitoring.

Commissioners need to specify that service providers implement initiatives to increase the number of people on the SMI register, such as local secondary mental health services taking a leadership role to ensure full cooperation is achieved. This would help to facilitate the performance of physical health checks and minimisation of the exception rate. This may involve:

> targeted local needs assessment to determine gaps in the provision of health checks or physical health interventions for people with SMI;

> quarterly reconciliation of people being treated in secondary care under the Care Programme Approach (CPA)[4] and people on the QOF register;

> skilled assistance in ensuring checks are acceptable to and accepted by service users in primary care settings or at the individual's residence;

> improved collaboration and coordination between primary care and secondary mental healthcare services in support of the physical health of people with SMI, potentially including different models of integrated care;

> establishment of enhanced primary care services for people with SMI;

> workforce undergraduate and continuing professional development in mental health.

Primary care service providers need to consider pro-active and supportive methods of engaging with people with SMI to encourage uptake of physical health checks, including:

> help for people to understand the importance of and need for health checks;

> flexibility when booking appointments;

> providing third sector or family outreach services;

> appropriate framing of reminders to attend;

> utilising wider community resources, such as community leaders, cultural communities, and community pharmacists.

For people with psychosis or schizophrenia, commissioners need to specify that secondary mental health services follow NICE guidelines (CG178; see "Resources") and take responsibility for people's physical health within the first year of treatment. After this time-period, commissioners need to specify that the responsibility moves to primary care. Commissioners and all service providers must be clear about who has responsibility for an individual's physical health during the course of treatment and care for SMI. This can be assisted by routine use of the NHS Number, which enables all treating clinicians to access the Summary Care Record. This record indicates the range of health needs, assessments, test results, medication, and monitoring arrangements for an individual.

RESOURCES

> Mental Health Dementia Neurology Intelligence Network (MHDNIN) Severe Mental Illness Profiling tool. http://fingertips.phe.org.uk/profile-group/mental-health/profile/severe-mental-illness

> NICE. Psychosis and schizophrenia in adults: treatment and management. NICE guidelines [CG178]. February 2014. https://www.nice.org.uk/guidance/cg178

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4   CPA is a way that services are assessed, planned, coordinated and reviewed for someone with mental health problems or a range of related complex needs.

MENTAL HEALTH DISORDERS

Map 48: Rate of new cases of psychosis in people aged 18 years and over who received early intervention in psychosis (EIP) services per population by CCG

April 2013–September 2014

Domain 2: Enhancing quality of life for people with long-term conditions
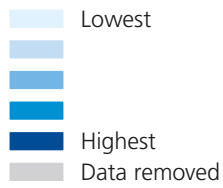
Lowest

Highest
Data removed

LONDON

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210 out of 211 CCGs (1 removed due to small numbers)
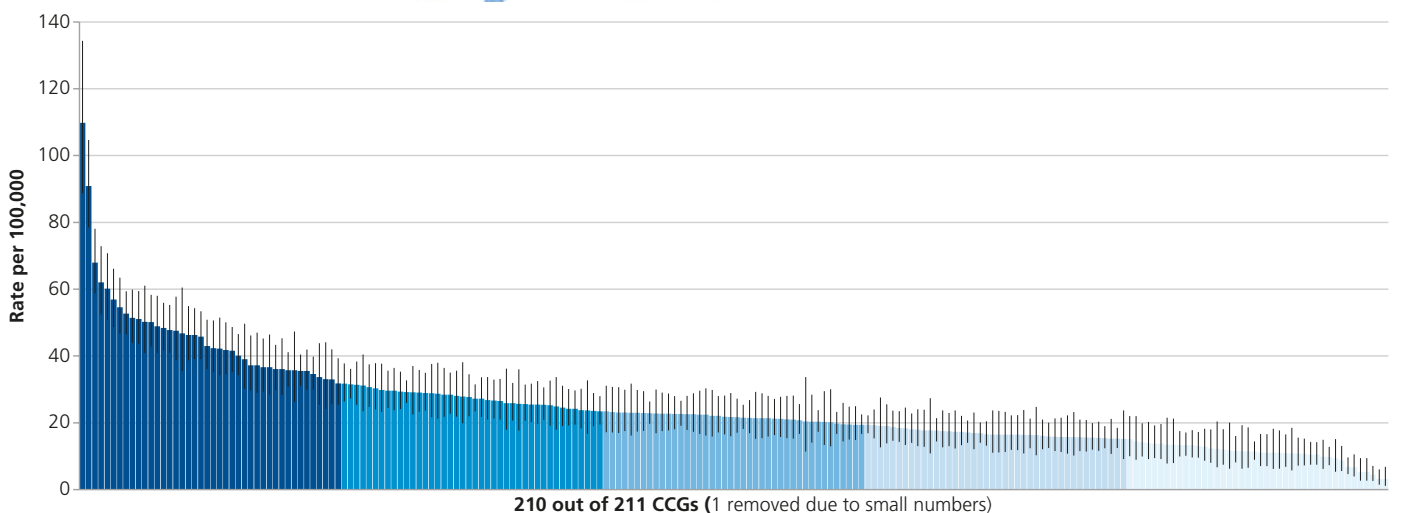
Context

According to NICE, when compared with standard care, effective care by early intervention in psychosis (EIP) teams can reduce the duration and severity of a first episode of psychosis, and help improve people's social functioning and outcomes (CG178; see "Resources"). In effect, EIP can prevent an episode of psychosis developing into a long-term condition. Furthermore, economic analysis highlights that when compared with standard care treatment by EIP services saves £15 net for each £1 spent.[1] The proportion of people with first-onset psychosis accessing EIP services can be estimated by comparing access rates with predicted incidence rates, using an online tool such as PsyMaptic[2].

From April 2016, the new access standard for EIP is for more than 50% of people experiencing a first episode of psychosis to be treated with a NICE-approved care package within two weeks of referral from any source into secondary mental health services.[3] The introduction of this standard includes the development of new indicators for the Mental Health and Learning Disability Minimum Data Set (MHLDMDS). It will apply to people of all ages, whereas at present EIP is typically understood to be available to people under the age of 35 years. Apart from increasing access to EIP services, it is also important to reduce the delay between the onset of a first episode of psychosis and referral, measured as duration of untreated psychosis (DUP),[4] and submitted a part of the MHLDMDS.

At present, we have limited understanding of the timeliness of access to NICE-concordant services for people experiencing a first episode of psychosis; this indicator is based on quarterly aggregate returns, and not patient-level data and services. Despite limitations, the available data in reported access to services can act as a baseline to inform understanding and service development, and assist services to improve data quality and ensure that calculations of the local prevalence of psychosis are understood.

There were 15,527 new cases of psychosis served by EIP services during the 18-month period April 2013 to September 2014. In England, the annual rate is 24.4 new cases seen per 100,000 adult population.

Magnitude of variation

For CCGs in England, the rate of new cases of psychosis in people aged 18 years and over who received EIP services ranged from 3.1 to 110 per 100,000 population (35.2-fold variation).[5] When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 8.7–53 per 100,000 population, and the variation is 6.0-fold.

One reason for the degree of variation observed is differences in levels of underlying need among local populations: socio-economic deprivation and population age-structure are factors related to the incidence of psychosis. The majority of the 46 CCGs with rates significantly higher than the England average are in more deprived areas. Other demographic factors include differences in the proportion of people in the population who are mobile, in transition, or homeless.

Despite these demographic differences, the variation across CCGs merits further investigation. Possible reasons for unwarranted variation include differences in:

› local area Institution Investment Portfolios, including whether an area has youth offender and adult bail and residential hostels, residential rehabilitation care homes, supported accommodation, prisons, and specialist forensic and other units;

› age thresholds for EIP services;

› availability and capacity of EIP services;

› prevalence of drug-induced psychoses in different localities, such as skunk cannabis and alcohol;

› drivers for local EIP services to accept people as part of their caseload who do not meet access criteria (e.g. people with learning disability without psychosis).

There may also be errors in coding, and the reporting of, data.

Options for action

Commissioners need to specify that service providers work towards achieving NICE quality statement 1 within NICE QS80 (see "Resources"), using the NHS England guidance published to support implementation of quality statement 1 (see "Resources").

Commissioners and service providers need to review:

› the coverage of EIP services by comparing numbers of people supported with the predicted incidence of psychosis, QOF data on severe mental illness, admissions for SMI, and numbers of people managed using the care programme approach[6] (CPA) in relation to local demography;

› the way in which EIP services fit into wider service planning, and whether EIP services are being used inappropriately to supplement gaps in provision for other groups of people in need;

› the way in which "at-risk" groups , e.g. people with moderate-to-severe common mental health problems, can be supported to prevent possible onset of psychosis, including people currently experiencing a "clinical high-risk state".

The Mental Health, Dementia and Neurology Intelligence Network (MHDNIN) will facilitate the routine presentation of data to commissioners and service providers with the aims of improving data completeness and accuracy, and of using robust data to help improve services.

RESOURCES

› MHDNIN. Severe Mental Illness Profiling tool. http://fingertips.phe.org.uk/profile-group/mental-health/profile/severe-mental-illness

› NICE. Psychosis and schizophrenia in adults: treatment and management. NICE Guidelines [CG178]. February 2014. http://www.nice.org.uk/guidance/cg178

› NICE. Psychosis and schizophrenia in adults. NICE quality standard QS80. February 2015. http://www.nice.org.uk/guidance/qs80

› Quality statement 1: Referral to early intervention in psychosis services. http://www.nice.org.uk/guidance/qs80/chapter/Quality-statement-1-Referral-to-early-intervention-in-psychosis-services

› NHS England. Guidance to support the introduction of access and waiting time standards for mental health services in 2015/16. February 2015. http://www.england.nhs.uk/wp-content/uploads/2015/02/mh-access-wait-time-guid.pdf

1   Knapp M et al (2014) Investing in recovery: making the business case for effective interventions for people with schizophrenia and psychosis. PSSRU, The London School of Economics and Political Science, and Centre for Mental Health, London, UK. http://eprints.lse.ac.uk/56773/

2   http://www.psymaptic.com

3   NHS England (2015) Guidance to support the introduction of access and waiting time standards for mental health services in 2015/16. 12 February 2015. http://www.england.nhs.uk/wp-content/uploads/2015/02/mh-access-wait-time-guid.pdf

4   http://mentalhealthpartnerships.com/resource/duration-of-untreated-psychosis-dup-measurement/

5   Data from one CCG have been removed due to small numbers.

6   The CPA is a way that services are assessed, planned, coordinated and reviewed for someone with mental health problems or a range of related complex needs.
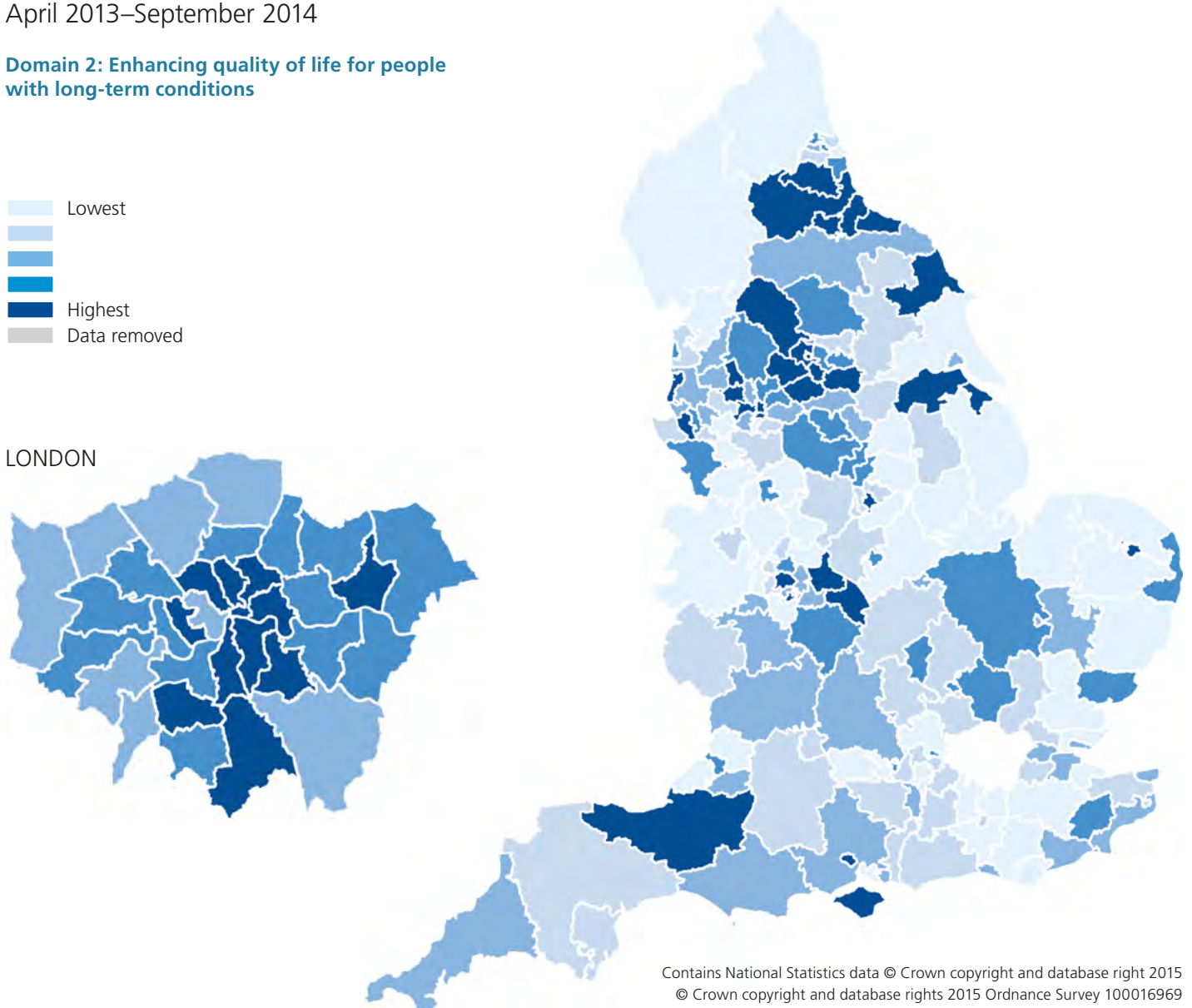
MENTAL HEALTH DISORDERS

Map 49: Standardised mortality ratio (SMR) in people aged 18–74 years in contact with mental health services by upper-tier local authority

Ratio of directly standardised rates, adjusted for age, 2012/13

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest
Data removed
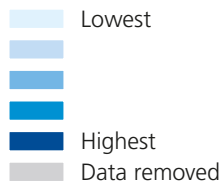
LONDON
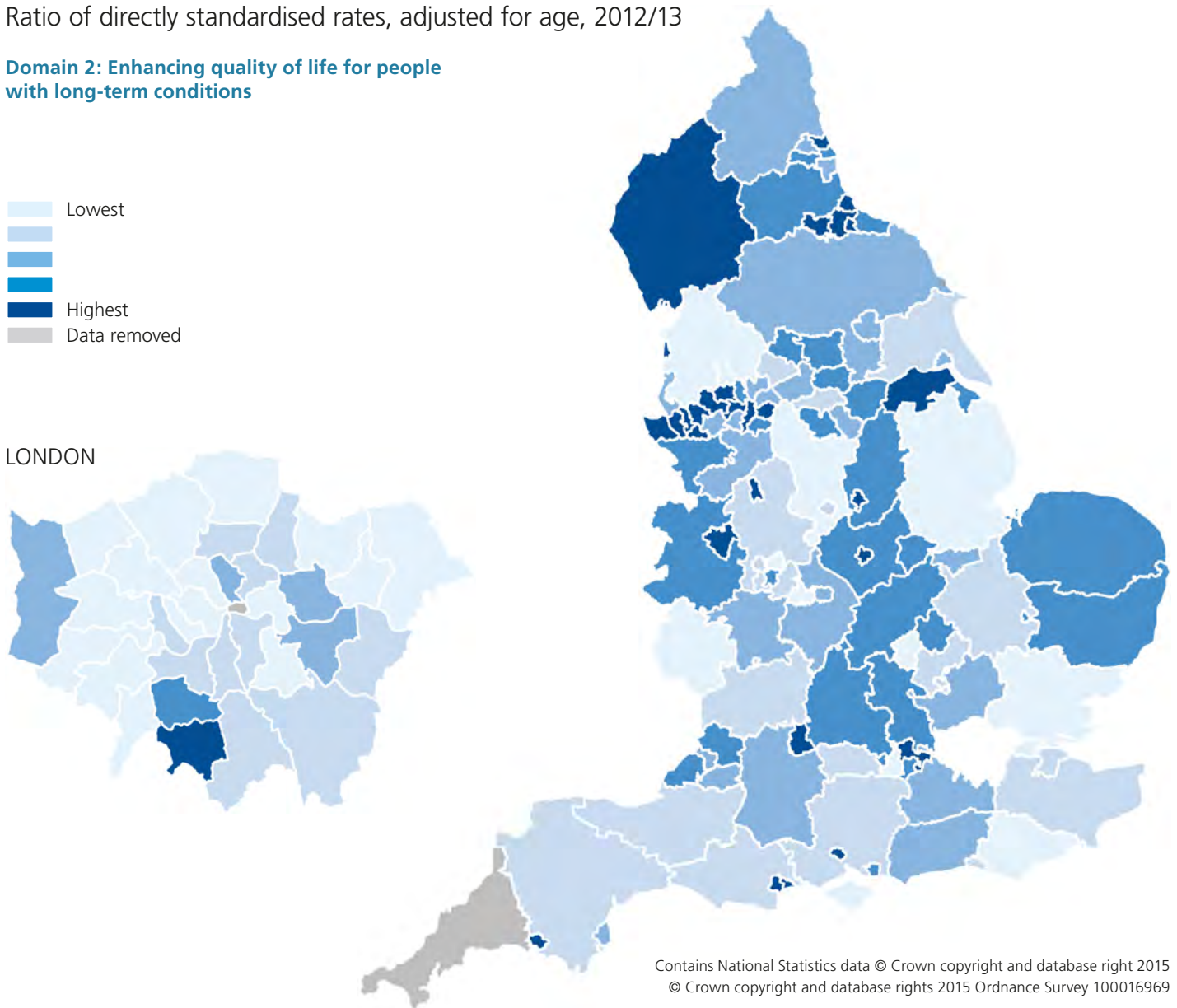
Contains National Statistics data © Crown copyright and database right 2015
© Crown copyright and database rights 2015 Ordnance Survey 100016969
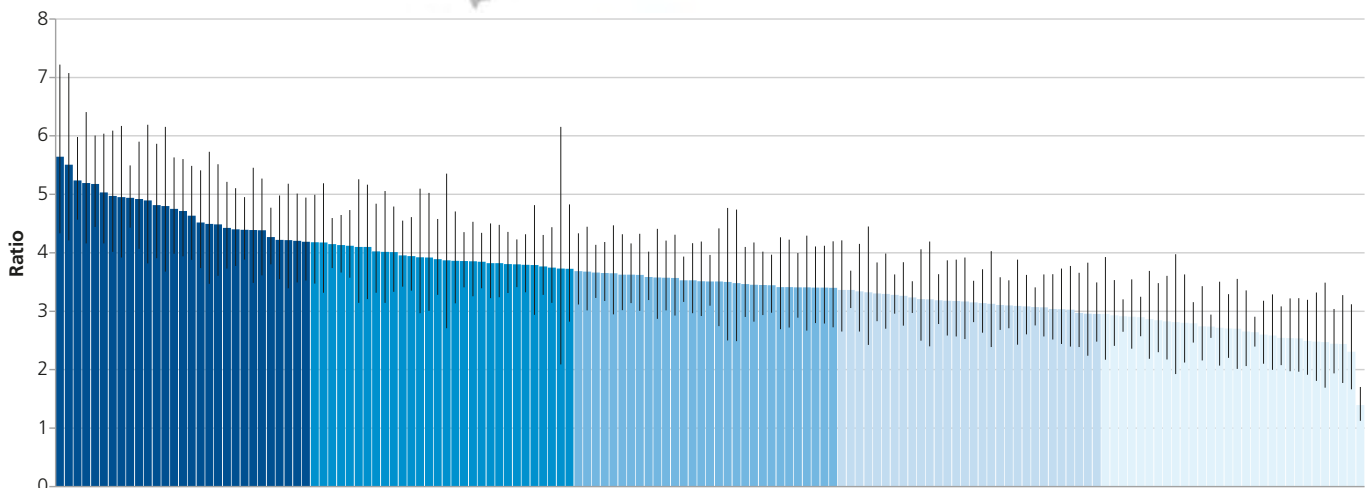
149 out of 152 UTLAs (3 removed due to small numbers)

Context

People with a mental illness die on average 15–20 years younger than the rest of the population, primarily due to poor physical health.[1] In all local authorities in England where people are in contact with mental health services, people with mental health problems die earlier than the general population.

In England in 2012/13, the mortality rate among adults aged 18–74 years in contact with mental health services (in the last three years) was 3.47 times greater than that among the general population of the same age. This ratio has been gradually increasing since 2009/10, when the ratio was 3.27.

Reducing premature death in people with severe mental illness (SMI) requires an understanding of the causes of those deaths; typically the primary cause is preventable physical illness. For people in contact with mental health services, the major causes of premature mortality are physical, including liver disease, respiratory disease, cardiovascular disease and cancer (Figure 49.1). Mental health-related causes, such as suicide, account for about one-third of premature deaths.

Opportunities to intervene to improve mental and physical health outcomes include:

> health awareness and educational programmes;

> the provision of integrated intensive community treatment services;

> pro-active engagement of people with SMI to attend annual physical health checks – in the National Audit of Schizophrenia, only 29% of people with SMI in specialist community services were accessing physical health checks[2].

When patients are admitted to mental health inpatient care, there is a greater opportunity to ensure that integrated physical and mental healthcare is provided, and also coaching for healthy lifestyles and smoking

cessation; CQUIN data for 2014/15 indicate that this is much needed because there appears to be highly variable levels of monitoring in these inpatient settings.[3]

The data for this indicator:

> are specific to people in contact with secondary care services;

> do not include people wholly under primary care services for mental healthcare;

> do not include people with mental health problems who have not been in contact with specialist services.

All people in contact with specialist services are counted; it is not possible to define accurately those people with particular diagnoses, such as psychosis, schizophrenia or bipolar disorder.

Magnitude of variation

For upper-tier local authorities (UTLAs) in England, the standardised mortality ratio (SMR) in people aged 18–74 years in contact with mental health services ranged from 1.39 to 5.64 (4.0-fold variation).[4] When the five UTLAs with the highest SMRs and the five UTLAs with the lowest SMRs are excluded, the range is 2.48–5.03, and the variation is 2.0-fold.

One reason for the degree of variation observed is differences in the level of deprivation among different localities in the country. Premature mortality is higher in the most-deprived areas.

Other reasons for variation are likely to relate to differences in local healthcare practices, including the extent:

> to which primary care services pro-actively engage people with SMI to attend annual physical health checks;

> of follow-up to ensure healthcare interventions are provided, including those addressing health risk behaviours.

1   Royal College of Psychiatrists (2013) Whole-person care: from rhetoric to reality - Achieving parity between mental and physical health.
    http://www.rcpsych.ac.uk/usefulresources/publications/collegereports/op/op88.aspx
2   National Audit of Schizophrenia Project Team. Report of the National Audit of Schizophrenia (NAS) 2012.HQIP and the Royal College of Psychiatrists.
    http://www.hqip.org.uk/assets/NCAPOP-Library/NCAPOP-2012-13/Schizophrenia-National-Audit-Report-pub-2012.pdf
3   http://www.rcpsych.ac.uk/workinpsychiatry/qualityimprovement/cquin.aspx
4   Data for three UTLAs have been removed due to small numbers.

Options for action

Commissioners and services providers need to review the physical and mental health causes of premature mortality in people who are in contact with primary care, drug and alcohol and secondary care mental health services in their locality. Commissioners need to specify that service providers assess:

❯ existing pathways for early intervention to ensure people with SMI gain integrated physical and mental health treatment and support at initial presentation;

❯ the effectiveness of any mental health interventions provided to ensure they are evidence-based, systematically deployed in a timely manner, and appropriate to a person's need;

❯ the occurrence of physical health side-effects as a result of metal health medications, such as weight gain and diabetes;

❯ education about the adverse effects of using drugs or alcohol to reduce the level of distress from illness;

❯ routine assessment of the side-effects of medication (e.g. using the Glasgow Antipsychotic Side-effect Scale, GASS[5]);

❯ the appropriate use of medication for people in contact with mental health services to avoid excessive dosages or polypharmacy;

❯ the level of provision of physical health checks in people with SMI to ensure they occur at least annually;

❯ the need for enhanced primary care mental health services in localities with a higher prevalence of SMI;

❯ the provision of support to facilitate a healthy lifestyle for people with SMI;

❯ the provision of targeted support to reduce health risk behaviours, such as smoking, drug use, and alcohol use;

❯ the potential for "diagnostic over-shadowing" (the failure to investigate physical health fully because of mental health problems);

❯ the availability of suicide prevention training and programmes in primary care and specialist mental health services.

RESOURCES

❯ Mental Health Dementia Neurology Intelligence Network (MHDNIN) Severe Mental Illness Profiling tool.
http://fingertips.phe.org.uk/profile-group/mental-health/profile/severe-mental-illness

❯ Health and Social Care Information Centre (HSCIC) Causes of excess mortality in adults with SMI.[6]
http://www.hscic.gov.uk/catalogue/PUB10347/ment-heal-bull-mhmds-anua-retu-2011-12-bulletin.pdf

Figure 49.1: Cause of excess mortality in people in with SMI (2012/13)

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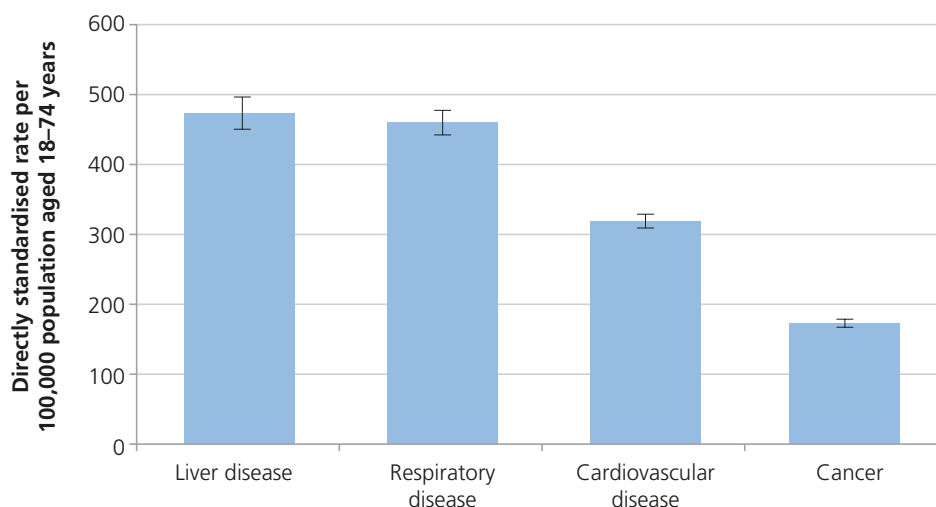
5   GASS. http://mentalhealthpartnerships.com/resource/glasgow-antipsychotic-side-effect-scale/
6   This document provides additional data but is based on an older time-series.

MENTAL HEALTH DISORDERS

Map 50: Ratio of reported to expected prevalence of dementia by CCG

October 2014

Domain 2: Enhancing quality of life for people with long-term conditions
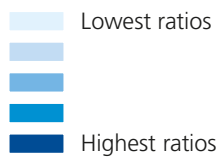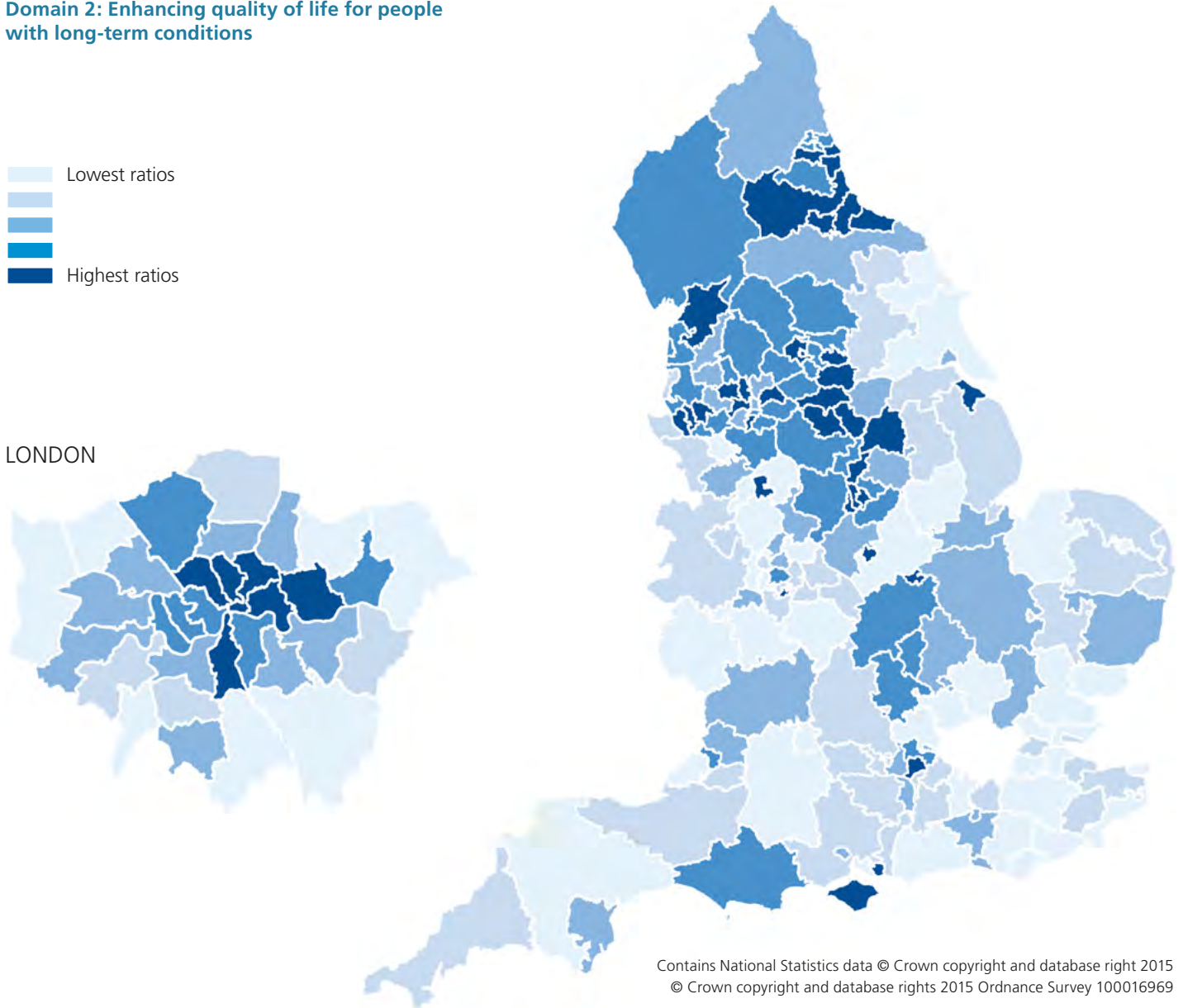
Lowest ratios

Highest ratios

LONDON

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211 CCGs
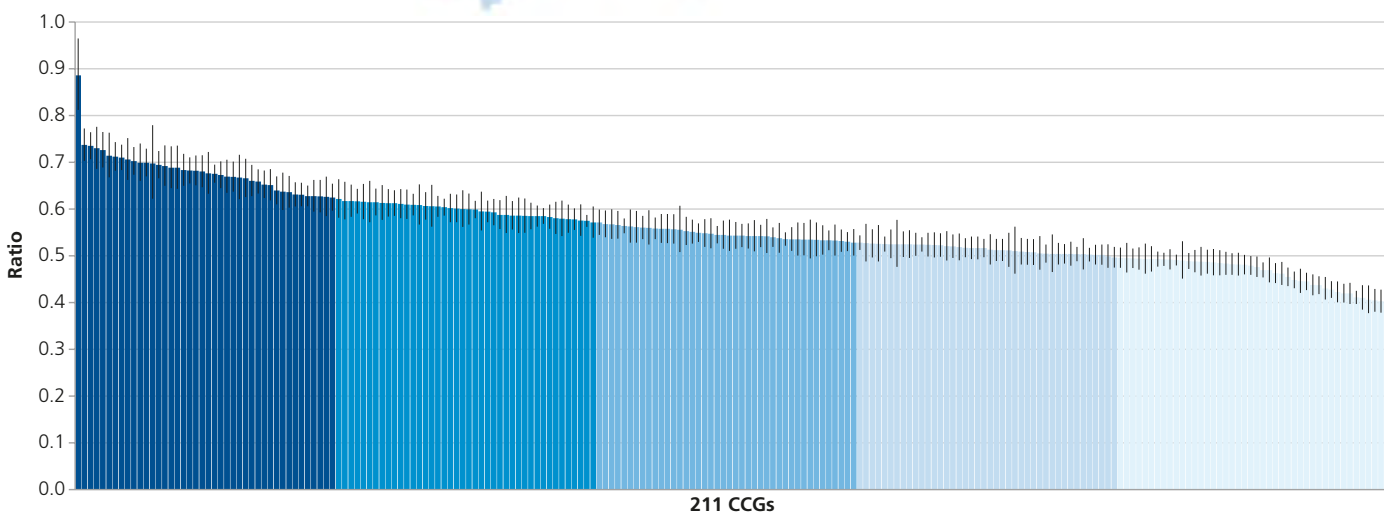
Context

Dementia is a syndrome, a group of related symptoms associated with increased age, in which there is a decline in brain function, especially of the memory. There are four main types:

› Alzheimer's disease, the most common;

› vascular dementia, commonly due to a stroke or a series of transient ischaemic attacks;

› Lewy body dementia;

› fronto-temporal dementia, much rarer, usually occurring in people aged under 65 years.

Sometimes, a person may have more than one type, e.g. Alzheimer's disease and vascular dementia.

Dementia is one of the most feared illnesses for people over the age of 50 years because there is no cure and symptoms deteriorate over time. As treatments are available that can improve the quality of life for people with dementia, "timely" diagnosis is important, and can confer psychological as well as practical financial benefits.

The Delphi consensus facilitated by the Alzheimer's Society in 2014 suggests there are 850,000 people in the UK with dementia.[1] In the Cognitive Function and Ageing Study (CFAS), based on empirical surveys, a lower estimate of 670,000 people were expected to have dementia in the UK in 2011.[2] NHS England estimated that the dementia diagnosis rate for England was 61.6% by March 2015.[3]

For this indicator, the number of people on GP Quality Outcomes Framework (QOF) registers is the numerator; the estimated number of people in a locality with dementia is the denominator.

Magnitude of variation

For CCGs in England, the ratio of reported to expected prevalence of dementia ranged from 0.40 to 0.89 (2.2-fold variation). When the seven CCGs with the highest ratios and the seven CCGs with the lowest ratios are excluded, the range is 0.42–0.71, and the variation is 1.7-fold.

One reason for the degree of variation observed is differences in the demography of local populations, including:

› ethnic composition, especially as there are cultural issues associated with a diagnosis of dementia;

› age structure – localities that have a higher proportion of younger people, such as CCGs with universities or colleges within their boundaries, will have a lower prevalence, and CCGs with a large number of nursing and residential care homes within their boundaries will have a higher prevalence.

Possible reasons for unwarranted variation include differences in:

› level of awareness of the symptoms of dementia, and the importance of diagnosis, in primary care;

› access to memory assessment services;

› secondary care systems to identify and refer people with dementia;

› access to mental health, primary care or community geriatric input in residential and nursing care homes.

Options for action

Commissioners need:

› to review regularly diagnosis rates for dementia in the local population using material developed by NHS England (see "Resources");

› to review level of access to memory assessment services, and commission services in line with the estimated prevalence of dementia locally;

› to commission an appropriate level of post-diagnostic support for people with dementia according to NICE commissioning guidance and NHS England Enhanced Service Specification (see "Resources").

CCGs, GPs and other approved stakeholder organisations can use the Dementia Prevalence Calculator (see "Resources") to gain an understanding of the estimated prevalence in the local population and among people living in local care homes.

1   Alzheimer's Society. Dementia UK: Update. 2nd edition. November 2014. http://www.alzheimers.org.uk/site/scripts/download_info.php?fileID=2323

2   Matthews FE, Arthur A, Barnes LE et al on behalf of the Medical Research Council Cognitive Function and Ageing Collaboration. A two-decade comparison of prevalence of dementia in individuals aged 65 years and older from three geographical areas of England: results of the Cognitive Function and Ageing Study I and II. *Lancet* 2013; 382: 1405-1412.

3   HSCIC. Quality Outcomes Framework (QOF), Recorded Dementia Diagnoses, April 2014-March 2015. April 2015. http://www.hscic.gov.uk/article/2021/Website-Search?productid=17760&q=+Quality+Outcomes+Framework+%28QOF%29%2c+Recorded+Dementia+Diagnoses%2c+Publication+Date+17+April+2015&sort=Relevance&size=10&page=1&area=both#top

GPs need to consider:

> referring people presenting with memory problems to memory assessment services;

> the possibility of dementia in people with the following vascular risk factors – high blood pressure, obesity, atrial fibrillation, raised cholesterol levels, diabetes, and excessive alcohol use.

Healthcare professionals, particularly clinicians, need to raise awareness among individuals and in local populations of the benefits of diagnosing dementia, especially of the support available after receiving a diagnosis.

Primary care providers need to ensure that GPs are offered skills development in the early identification and diagnosis of dementia.

RESOURCES

> All-Party Parliamentary Group on Dementia. Unlocking Diagnosis: The key to improving the lives of people with dementia. July 2012. http://www.alzheimers.org.uk/site/scripts/download_info.php?downloadID=873

> Barrett E, Burns A. Dementia Revealed. What Primary Care Needs To Know. A Primer for General Practice. July 2014. NHS England and Hardwick CCG with the support of the Department of Health and the Royal College of General Practitioners. http://www.england.nhs.uk/wp-content/uploads/2014/09/dementia-revealed-toolkit.pdf

> Alzheimer's Society. Dementia UK: Update. 2nd edition. November 2014. http://www.alzheimers.org.uk/site/scripts/download_info.php?fileID=2323

> NHS England. Enhanced Service Specification. Facilitating timely diagnosis and support for people with dementia 2015/16. March 2015. http://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2015/03/facilitate-tmly-diag-dementia.pdf

> NICE. Support for commissioning dementia care. NICE commissioning guides [CMG48]. April 2013. https://www.nice.org.uk/guidance/cmg48

> NICE. Dementia: Supporting people with dementia and their carers in health and social care. NICE guidelines [CG42]. June 2006. https://www.nice.org.uk/guidance/cg42

> NICE Centre for Clinical Practice – Surveillance Programme. Recommendation for Guidance Executive: CG42 Dementia – Supporting people with dementia and their carers in health and social care. May 2015. https://www.nice.org.uk/proxy/?sourceUrl=http%3a%2f%2fwww.nice.org.uk%2fnicemedia%2flive%2f10998%2f71780%2f71780.pdf

> NICE Centre for Clinical Practice – Surveillance Programme. Recommendation for Guidance Executive: CG42 Dementia – Supporting people with dementia and their carers in health and social care. May 2015. https://www.nice.org.uk/proxy/?sourceUrl=http%3a%2f%2fwww.nice.org.uk%2fnicemedia%2flive%2f10998%2f71780%2f71780.pdf

> NICE. Dementia quality standard. NICE quality standard [QS1]. June 2010. https://www.nice.org.uk/guidance/qs1

> NICE Pathways. Dementia overview. Revised and updated 2014-15. http://pathways.nice.org.uk/pathways/dementia

> Dementia Partnerships. Dementia Prevalence Calculator. http://dementiapartnerships.com/diagnosis/dementia-prevalence-calculator/

> http://dementiapartnerships.com/wp-content/uploads/sites/2/DPC-introduction-v4.pdf

MENTAL HEALTH DISORDERS

Map 51: Percentage of people aged 75 years and over to whom dementia case-finding was applied following emergency admission to hospital for more than 72 hours by NHS Trust

April–September 2014

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest
No data

LONDON

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137 out of 138 NHS Trusts (1 missing due to incomplete data)

Per cent
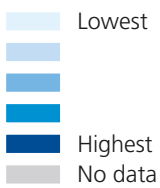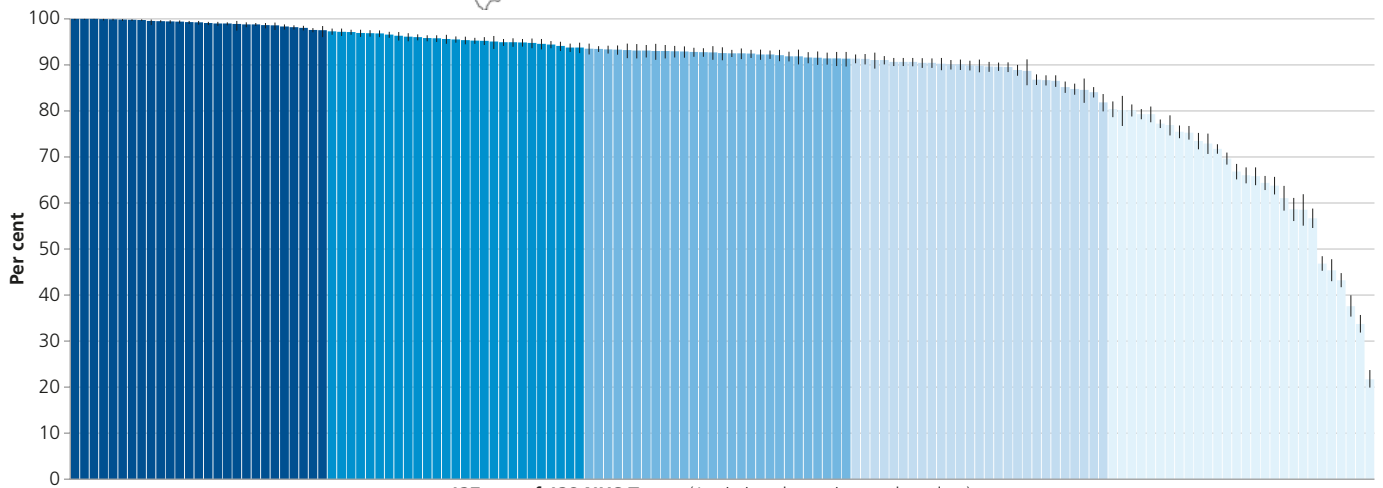
Context

As the population ages, people admitted to hospital tend to be older, and dementia increases in prevalence with age. The findings of observational studies suggest that one in four admissions to general hospital is a person with co-morbid dementia, although dementia is rarely the primary reason for hospital admission. Co-morbid dementia can be poorly identified, and many people in hospital with co-morbid dementia have never received a diagnosis. In addition, delirium (confusional states) is often seen in people with dementia, and dementia itself is a risk factor for delirium.

During 2013 and 2014, in a thematic review of the care of people living with dementia as they moved between care homes and hospital, the Care Quality Commission (CQC) found aspects of variable or poor care in:

> 56% of hospitals regarding how a person's needs were assessed;

> 22% of hospitals regarding the arrangements for how organisations shared information as people moved between them;

> 61% of hospitals regarding people or their families or carers not being involved in decisions about their care or how they spend their time;

> 42% of hospitals regarding how the care met people's physical and mental health, and social and emotional needs;

> 56% of hospitals regarding staff's understanding and knowledge of dementia care;

> 28% of hospitals regarding the way hospitals monitored the quality of dementia care.[1]

People with dementia experience a longer length of stay than that for other patients, and worse symptoms after being in hospital.[2]

As hospital admissions can adversely affect the health of people with dementia, it is important:

> to identify inpatients with co-morbid dementia, which is as yet undiagnosed;

> to improve the quality of care and support for all inpatients with dementia who are in hospital for whatever reason, especially as they have complex needs.

In the NICE dementia quality standard (see "Resources"), Quality Statement 8 suggests that:

"People with suspected or known dementia using acute and general hospital inpatient services or emergency departments have access to a liaison service that specialises in the diagnosis and management of dementia and older people's mental health."

The data for these three indicators on dementia assessment and referral are from NHS England Commissioning for Quality and Innovation (CQUIN) for NHS Trusts. From 2015/16, the CQUIN will be extended to community service providers, and the indicators will be reported on a new basis.[3]

Magnitude of variation

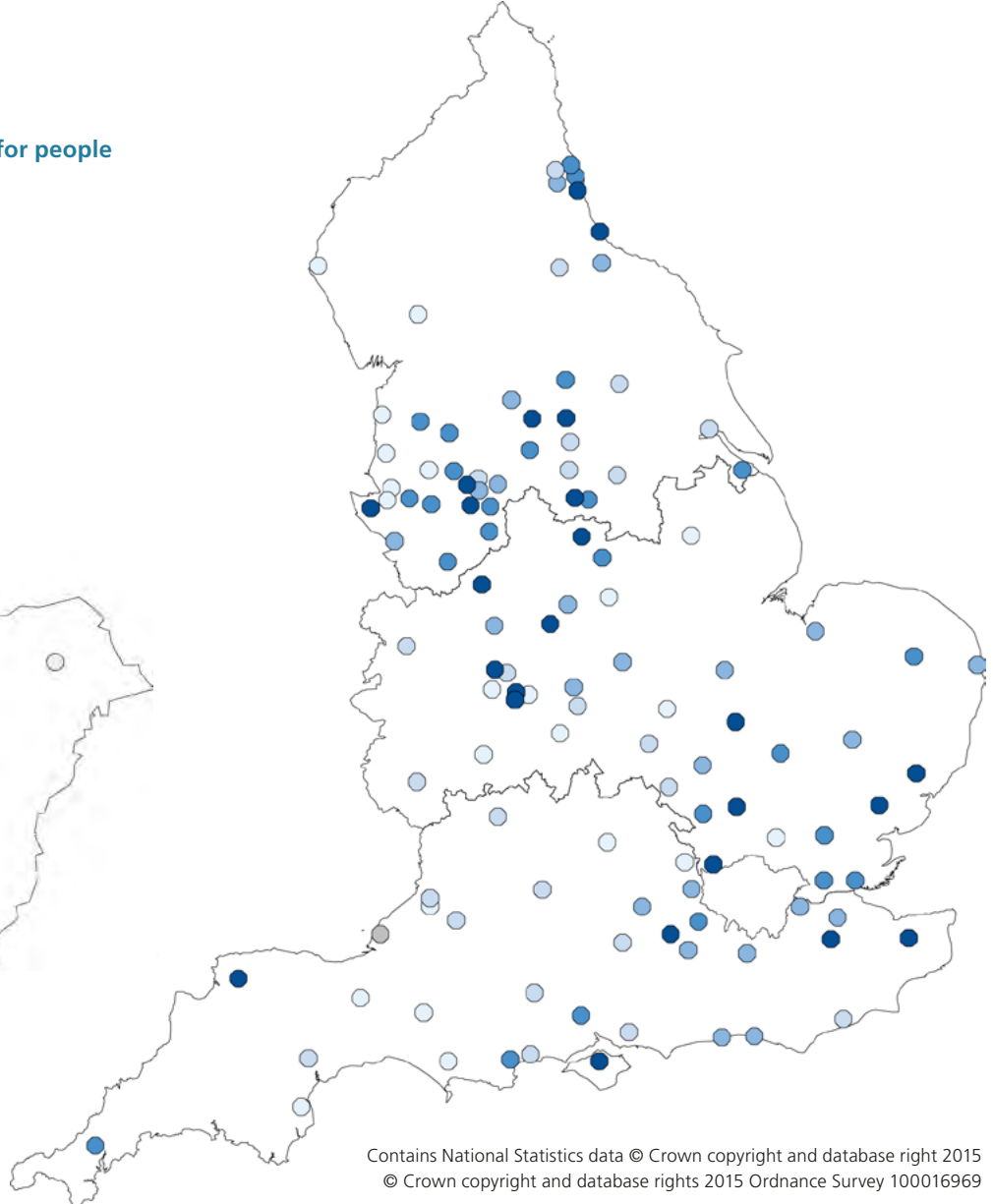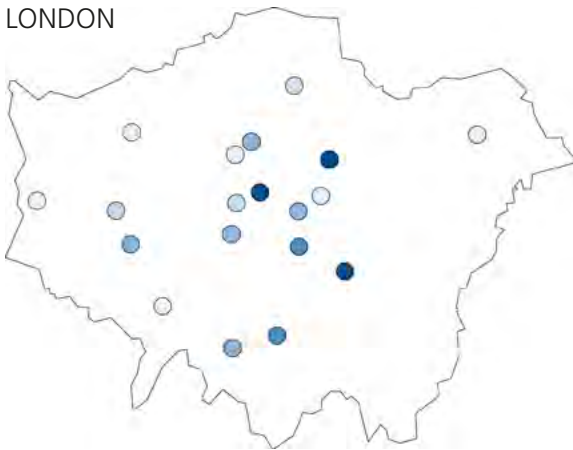### Map 51: Dementia case-finding after emergency admission

For NHS Trusts in England, the percentage of people aged 75 years and over to whom dementia case-finding was applied following emergency admission to hospital for more than 72 hours ranged from 21.7% to 100% (4.6-fold).[4] When the five NHS Trusts with the highest percentages and the five NHS Trusts with the lowest percentages are excluded, the range is 46.8–99.9%, and the variation is 2.1-fold.

Map 52: Appropriate assessment of people with possible dementia

For NHS Trusts in England, the percentage of people aged 75 years and over identified as potentially having dementia who were appropriately assessed following emergency admission to hospital for more than 72 hours ranged from 18.8% to 100.0% (5.3-fold variation).[4] When the five NHS Trusts with the highest percentages and the five NHS Trusts with the lowest percentages are excluded, the range is 38.6–100.0%, and the variation is 2.6-fold.

1   Care Quality Commission. Cracks in the Pathway. People's experiences of dementia care as they move between care homes and hospitals. October 2014. http://www.cqc.org.uk/sites/default/files/20141009_cracks_in_the_pathway_final_0.pdf

2   Alzheimer's Society. Counting the cost. Caring for people with dementia on hospital wards. 2009. http://www.alzheimers.org.uk/site/scripts/download_info.php?downloadID=356

3   CQUIN Guidance 2015/16. http://www.england.nhs.uk/nhs-standard-contract/15-16/

4   Data from one NHS Trust are missing.

MENTAL HEALTH DISORDERS

Map 52: Percentage of people aged 75 years and over identified as potentially having dementia who were appropriately assessed following emergency admission to hospital for more than 72 hours by NHS Trust

April–September 2014

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

No data

LONDON

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137 out of 138 NHS Trusts (1 missing due to incomplete data)

Per cent
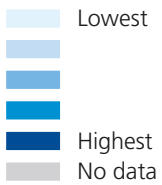
MENTAL HEALTH DISORDERS

Map 53: Percentage of people aged 75 years and over identified as potentially having dementia and appropriately assessed following emergency admission to hospital for more than 72 hours who were referred to specialist services by NHS Trust

April–September 2014

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest
No data

LONDON

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Per cent
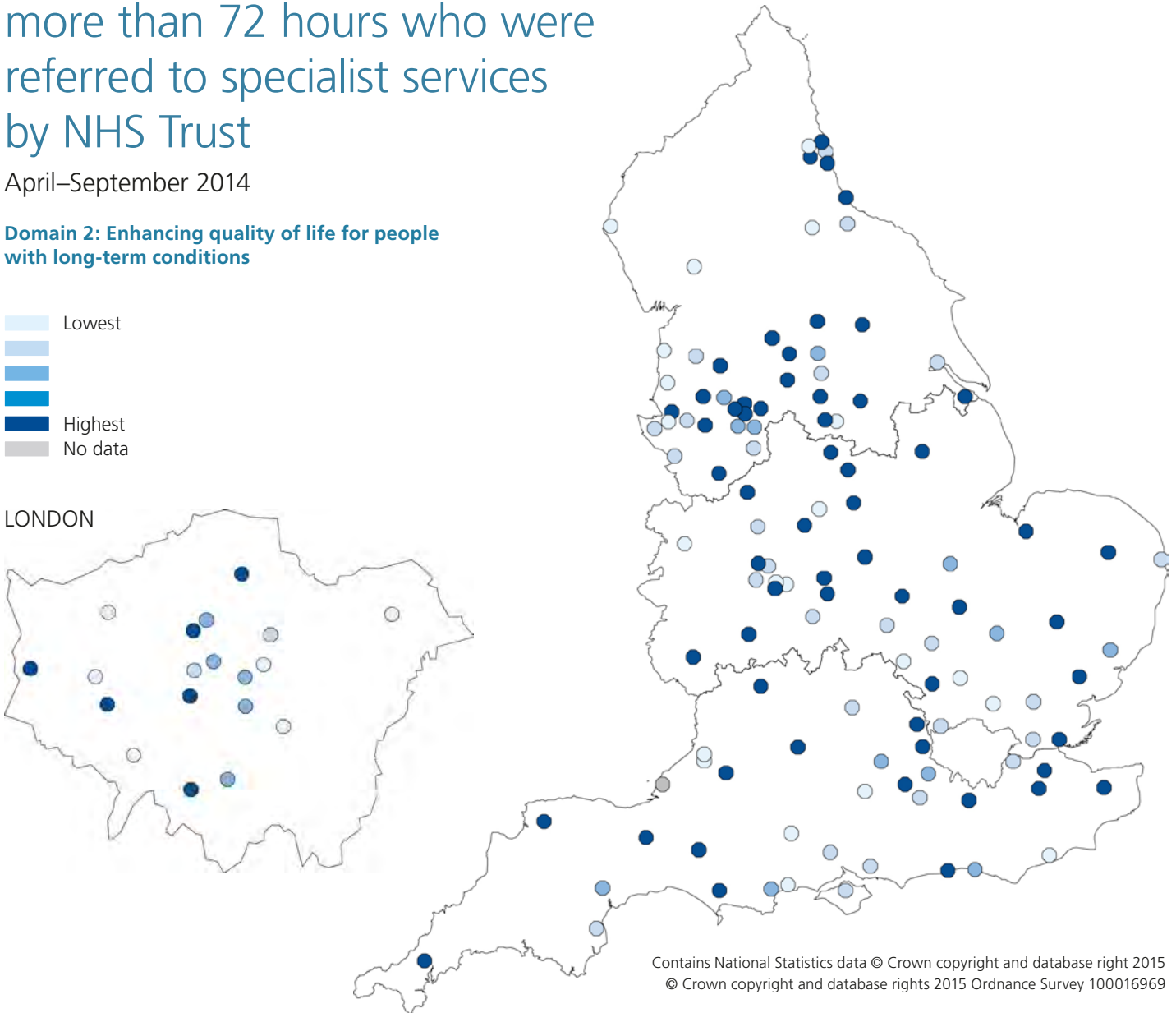
137 out of 138 NHS Trusts (1 missing due to incomplete data)

Map 53: Referrals to specialist services

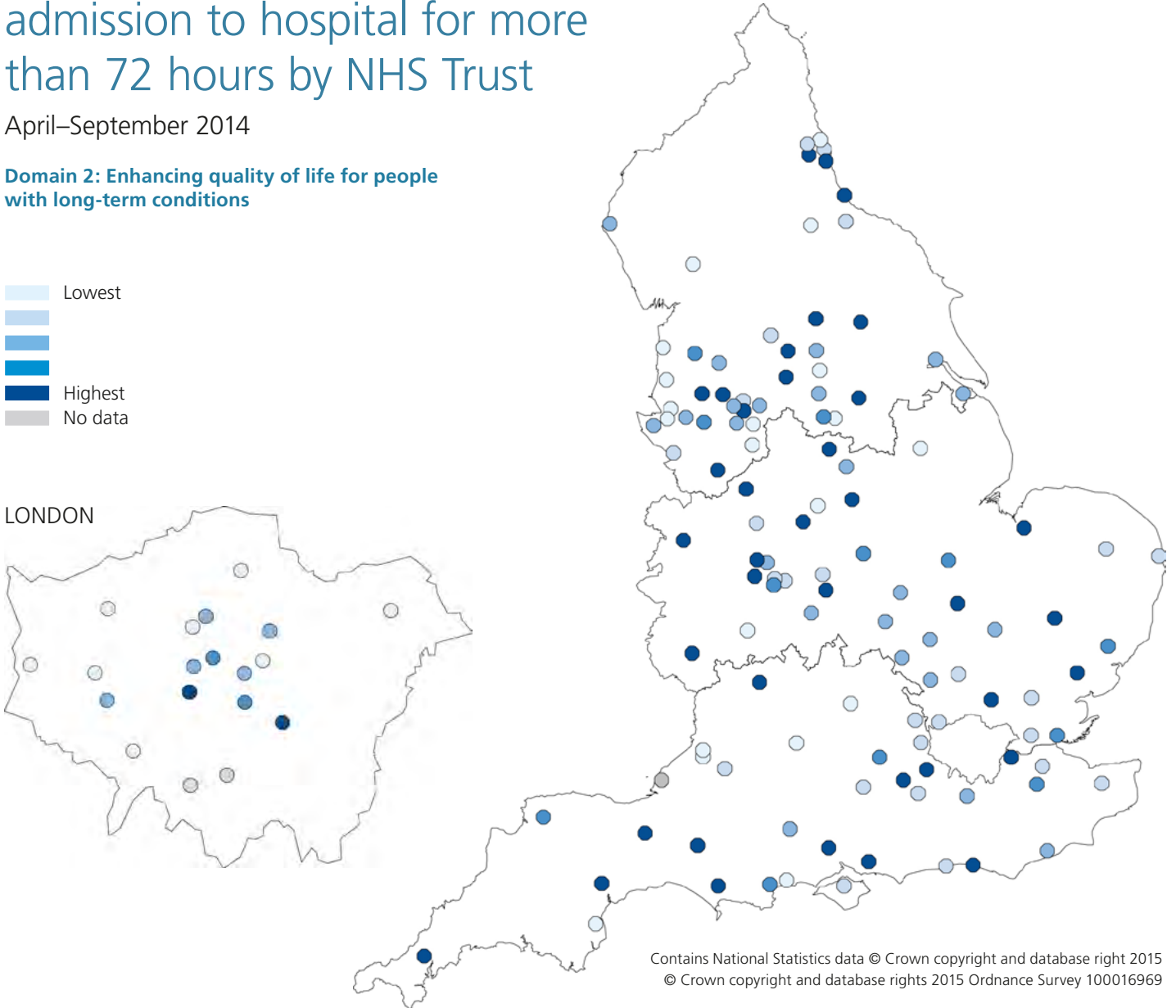For NHS Trusts in England, the percentage of people aged 75 years and over identified as potentially having dementia and appropriately assessed following emergency admission to hospital for more than 72 hours who were referred to specialist services ranged from 27.8% to 100.0% (3.6-fold variation).[4] When the five NHS Trusts with the highest percentages and the five NHS Trusts with the lowest percentages are excluded, the range is 63.5–100.0%, and the variation is 1.6-fold.

Possible reasons for unwarranted variation in these three indicators may include differences in:

> local dementia diagnosis rates;

> awareness of and education about dementia among healthcare professionals in hospitals;

> identification of dementia as a possible co-morbidity in secondary care in the absence of a diagnosis;

> access to liaison and specialist services.

Options for action

Commissioners need to specify that secondary care service providers:

> are alert to the potential for undiagnosed dementia and/or delirium as a co-morbidity in older people admitted to hospital;

> develop protocols for dementia case-finding and referral to appropriate services;

> increase staff awareness and knowledge of existing hospital dementia plans;

> deliver good-quality dementia care by trained staff which is patient-centred, and includes specific protocols for nutrition, hydration, end-of-life care, and discharge planning.

Commissioners in conjunction with secondary service care providers can review the effect of incentivising the identification and diagnosis of dementia in hospitals.

RESOURCES

> All-Party Parliamentary Group on Dementia. Unlocking Diagnosis: The key to improving the lives of people with dementia. July 2012. http://www.alzheimers.org.uk/site/scripts/download_info.php?downloadID=873

> Alzheimer's Society. Dementia UK: Update. 2nd edition. November 2014. http://www.alzheimers.org.uk/site/scripts/download_info.php?fileID=2323

> Royal College of Psychiatrists (2013) National Audit of Dementia Care in General Hospitals 2012-13: Second Round Audit Report and Update. Editors: Young J, Hood C, Gandesha A, Souza R. HQIP. http://www.hqip.org.uk/assets/NCAPOP-Library/NCAPOP-2013-14/NAD-NATIONAL-REPORT-12-June-2013.pdf

> NHS Confederation (2010) Acute Awareness: Improving hospital care for people with dementia. http://www.nhsconfed.org/~/media/Confederation/Files/Publications/Documents/Dementia_report_Acute_awareness.pdf

> National Audit Office. Improving services and support for people with dementia. HC 604 Session 2006-2007. July 2007. http://www.nao.org.uk/report/improving-services-and-support-for-people-with-dementia/

> NICE. Support for commissioning dementia care. NICE commissioning guides [CMG48]. April 2013. https://www.nice.org.uk/guidance/cmg48

> NICE. Dementia: Supporting people with dementia and their carers in health and social care. NICE guidelines [CG42]. June 2006. https://www.nice.org.uk/guidance/cg42

> NICE Centre for Clinical Practice – Surveillance Programme. Recommendation for Guidance Executive: CG42 Dementia – Supporting people with dementia and their carers in health and social care. May 2015. https://www.nice.org.uk/proxy/?sourceUrl=http%3a%2f%2fwww.nice.org.uk%2fnicemedia%2flive%2f10998%2f71780%2f71780.pdf

> NICE. Dementia quality standard. NICE quality standard [QS1]. June 2010. https://www.nice.org.uk/guidance/qs1

> NICE Pathways. Dementia overview. http://pathways.nice.org.uk/pathways/dementia

MENTAL HEALTH DISORDERS

Map 54: Rate of claims by GPs for an enhanced service (ES) offer of assessment for dementia to at-risk patients on practice registered lists per estimated population with dementia by NHS area team
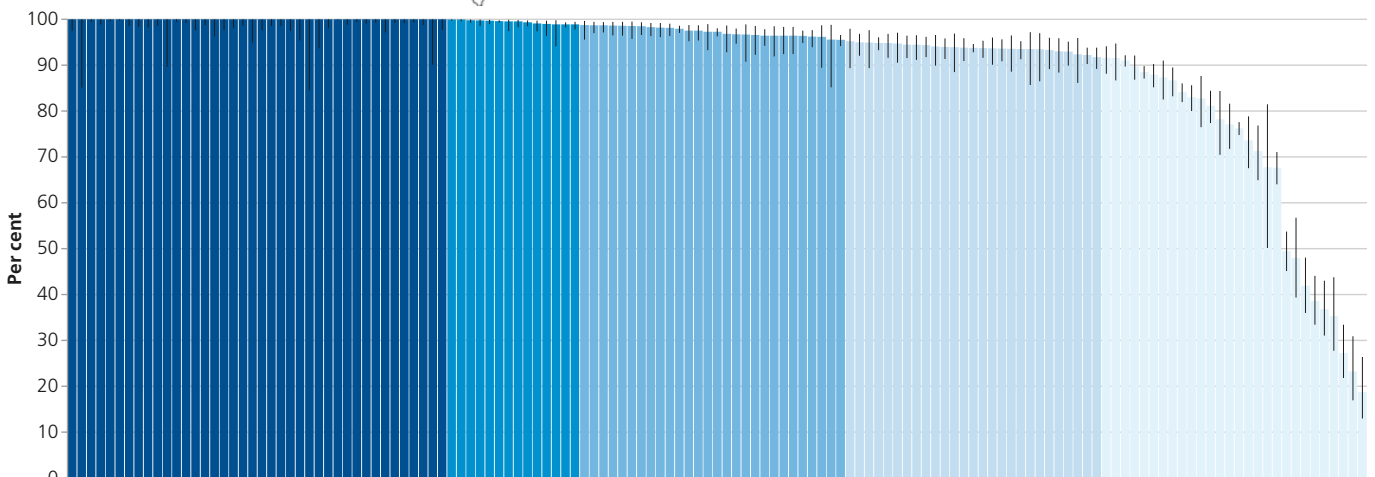
2013/14

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

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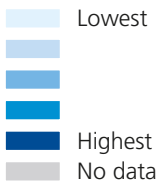© Crown copyright and database rights 2015 Ordnance Survey 100016969
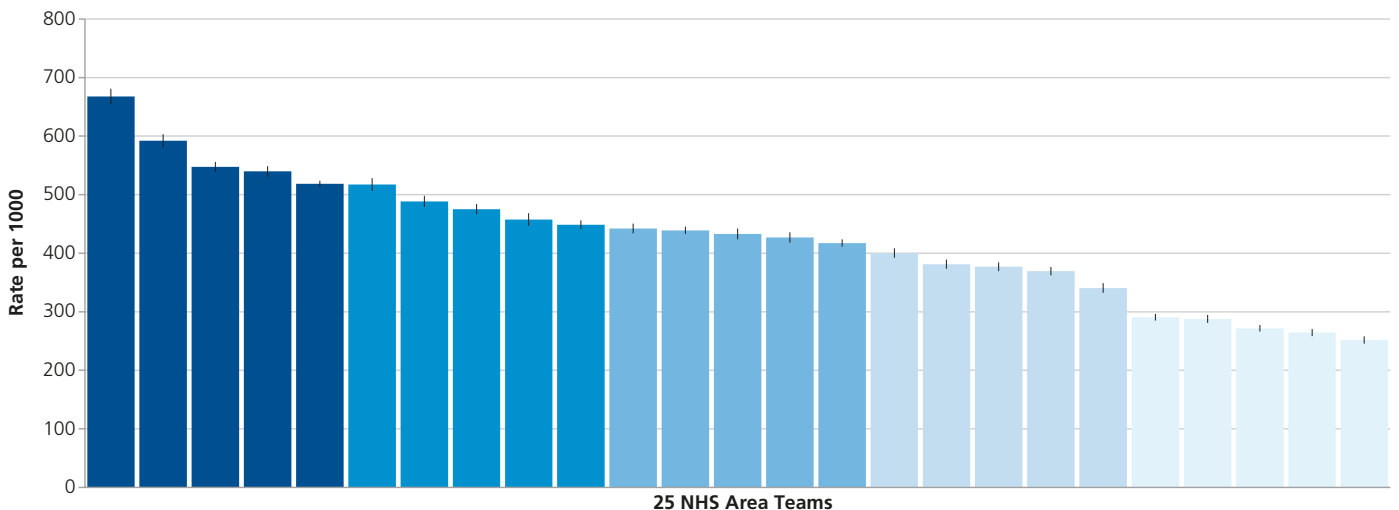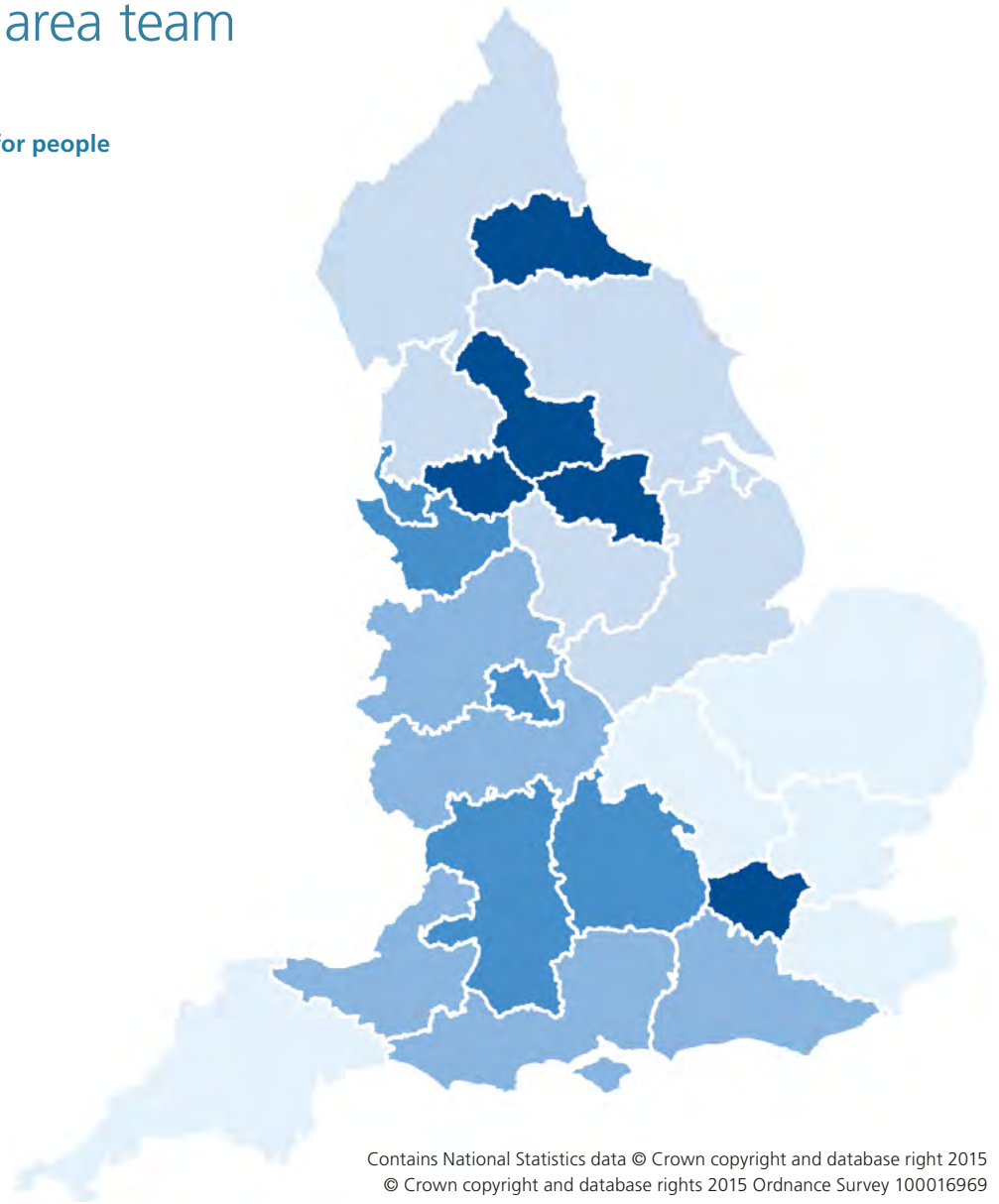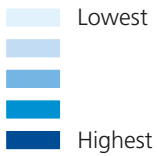
Context

Four new enhanced services developed by NHS England were introduced as part of the general medical services (GMS) contract in 2013/14, one of which was "Facilitating timely diagnosis and support for people 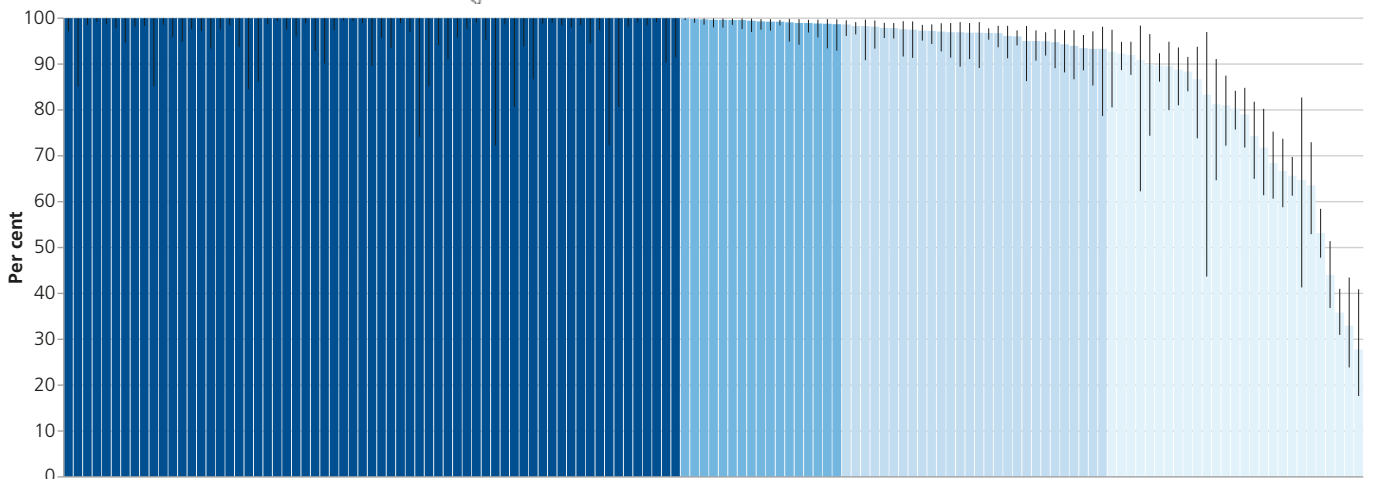with dementia". An enhanced service (ES) is more specialised than the essential or additional services provided by GMS to all patients. The ES for people with dementia was designed to reward GP practices for undertaking a pro-active approach to the assessment of at-risk patients who may be showing the early signs of dementia. The ES was undertaken through an initial enquiry followed by a specific test, and intended to support improvement in the prompt diagnosis of patients with dementia such that they were brought into the care pathway earlier.

The original coverage of at-risk groups was people:

> over 60 years with cardiovascular disease;

> over 60 years with long-term neurological conditions;

> over 50 years with learning disability.

At the time of writing, the ES for dementia in primary care is in its third year (see "Resources" for 2015/16 ES Specification). The coverage of at-risk groups has been expanded to include people:

> over 60 years who have risk factors for vascular disease;

> over 40 years with Down's syndrome;

> over 60 years with chronic obstructive pulmonary disease (COPD).

Any person, however, can be included as part of the ES if it is thought to be clinically appropriate.

The outcomes of the ES should be:

> a referral for further assessment;

> provision of an assessment of needs;

> instigation of appropriate treatment.

The emphasis in the ES for 2015/16 is on care planning, and the need to provide high-quality support for carers.

Magnitude of variation

For NHS area teams in England, the rate of claims by GPs for an ES offer of assessment for dementia to at-risk patients on practice registered lists ranged from 251.9 to 667.8 per 1000 estimated population with dementia (2.7-fold variation).

Possible reasons for the degree of variation observed include differences in:

> the prevalence of, and/or risk factors for, dementia in local populations;

> the confidence of GPs to ask patients about the symptoms of dementia;

> access to specialist services.

Options for action

Commissioners need to identify ways to fund earlier intervention and community care for people with dementia, including joint working with GP practices, secondary care providers, social services and other community partners:

> to improve the early identification of people with dementia;

> to ensure effective care planning, including robust advance care planning, for people with dementia;

> to develop and implement a person-centred dementia care pathway;

> to implement the use of a summary care record (SCR) and/ or local electronic health record (EHR) to support continuity of care for people with dementia;

> to establish professional collaboration among service providers involved in the care of people with dementia, including the provision of specialist support for community-based services;

> to maintain people with dementia in their usual place of residence;

> to develop appropriate and effective ways to involve patients and carers;

> to provide support, in particular the provision of health checks, to carers of people with dementia;

> to include dementia awareness training as part of the organisational training strategy;

Service providers in residential care or nursing homes need to increase awareness and understanding of end-of-life care for people with dementia.

RESOURCES

> Barrett E, Burns A. Dementia Revealed. What Primary Care Needs To Know. A Primer for General Practice. July 2014. NHS England and Hardwick CCG with the support of the Department of Health and the Royal College of General Practitioners. http://www.england.nhs.uk/wp-content/uploads/2014/09/dementia-revealed-toolkit.pdf

> Alzheimer's Society. Dementia UK: Update. 2nd edition. November 2014. http://www.alzheimers.org.uk/site/scripts/download_info.php?fileID=2323

> NHS England. Enhanced Service Specification. Facilitating timely diagnosis and support for people with dementia 2015/16. March 2015. http://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2015/03/facilitate-tmly-diag-dementia.pdf

> Royal College of General Practitioners. Dementia Toolbox webpage. http://www.rcgp.org.uk/clinical-and-research/clinical-resources/dementia.aspx

> NICE. Support for commissioning dementia care. NICE commissioning guides [CMG48]. April 2013. https://www.nice.org.uk/guidance/cmg48

> NICE. Dementia: Supporting people with dementia and their carers in health and social care. NICE guidelines [CG42]. June 2006. https://www.nice.org.uk/guidance/cg42

> NICE. Dementia quality standard. NICE quality standard [QS1]. June 2010. https://www.nice.org.uk/guidance/qs1

> NICE Centre for Clinical Practice – Surveillance Programme. Recommendation for Guidance Executive: CG42 Dementia – Supporting people with dementia and their carers in health and social care. May 2015. https://www.nice.org.uk/proxy/?sourceUrl=http%3a%2f%2fwww.nice.org.uk%2fnicemedia%2flive%2f10998%2f71780%2f71780.pdf

> NICE Pathways. Dementia overview. http://pathways.nice.org.uk/pathways/dementia

MENTAL HEALTH DISORDERS

Map 55: Rate of emergency admissions to hospital of people with dementia aged 65 years and over per population by CCG

2012/13

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

LONDON

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Rate per 100,000

211 CCGs
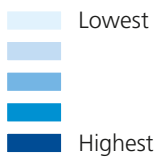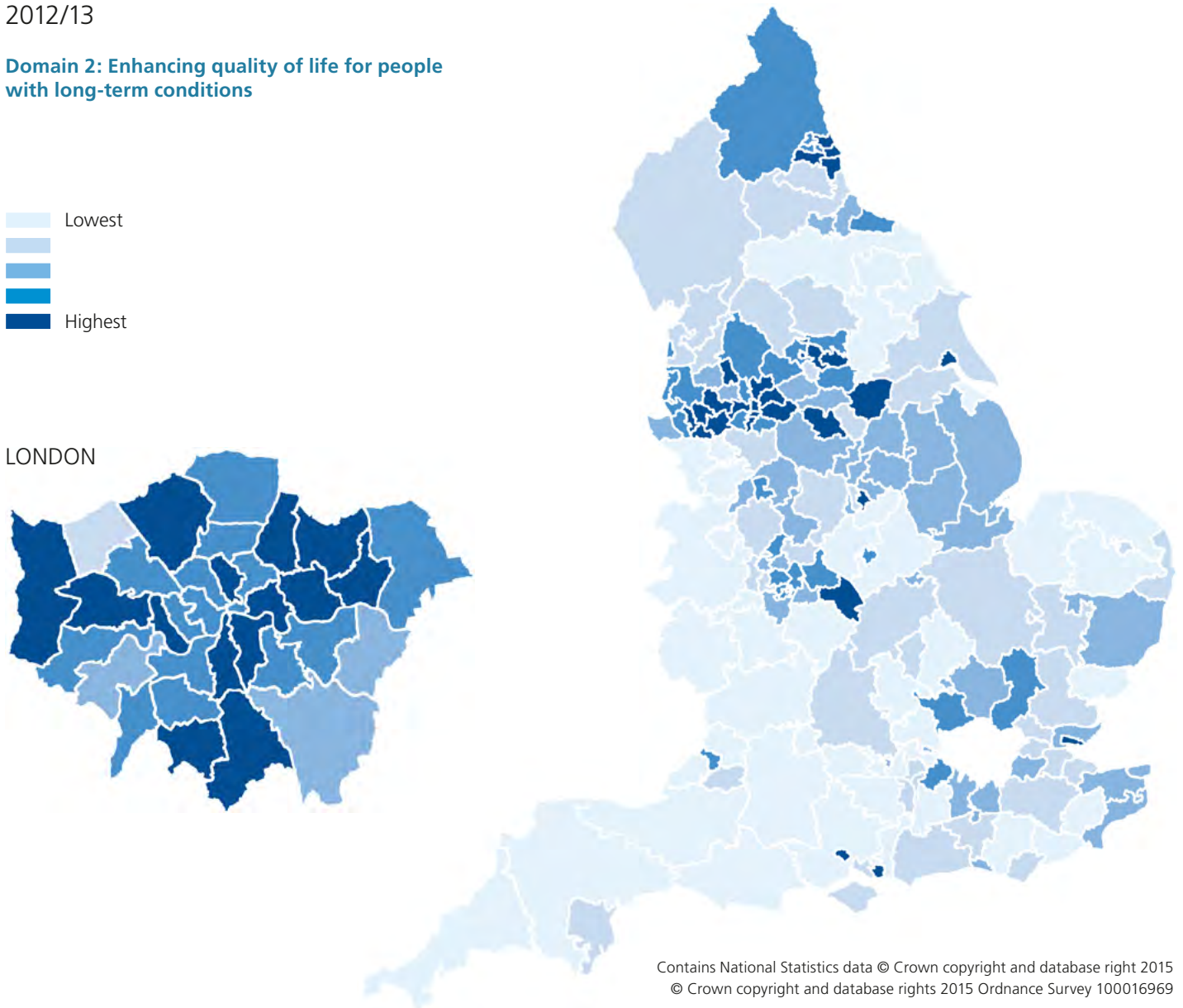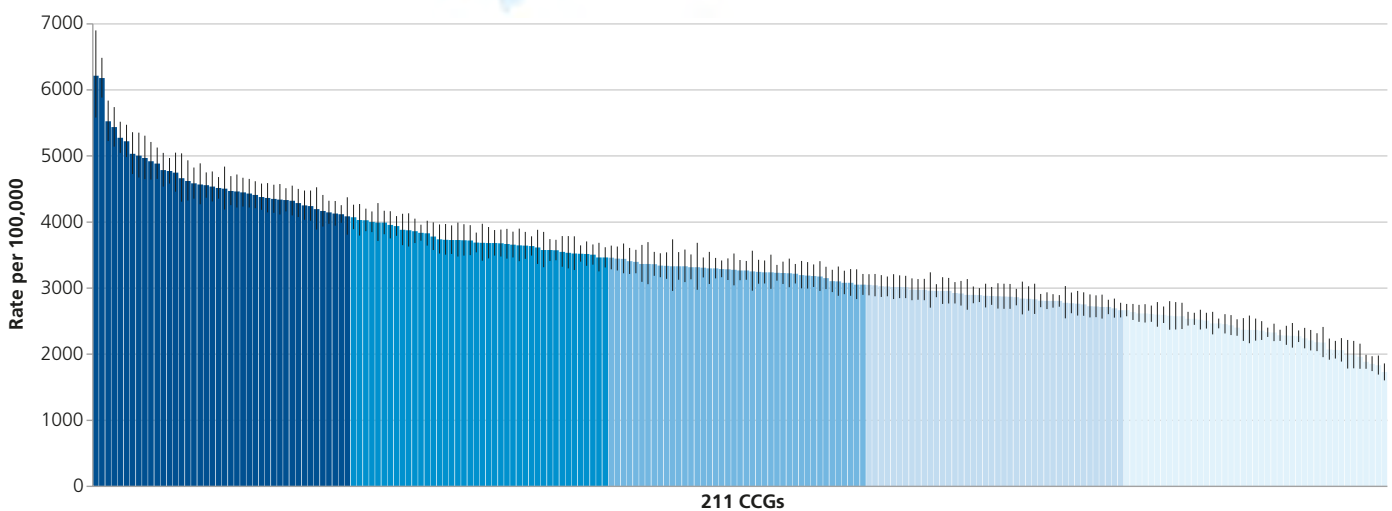
Context

People with dementia have complex needs, and in later stages can have high levels of dependency and morbidity. It has been estimated that 40% of people over the age of 65 years in hospital beds are living with dementia.[1]

People with dementia are usually admitted to hospital for a reason other than dementia: a fall (14%), a broken or fractured hip or hip replacement (12%), urine infection (9%), a chest infection (7%), and a stroke or minor stroke (7%).[2] In a report from the South Central region, citing 2010 and 2011 data, the most frequently admitted acute conditions for people with dementia (in order of most frequent to least frequent) were: urinary tract infection, pneumonia, chronic renal failure, fractured neck of femur, syncope, superficial injury, acute bronchitis, acute cerebrovascular disease, non-specific chest pain, and other psychoses.[3]

During 2013 and 2014, in a thematic review of the care of people living with dementia as they moved between care homes and hospital, the Care Quality Commission (CQC) found aspects of variable or poor care in:

> 56% of hospitals regarding how a person's needs were assessed;

> 22% of hospitals regarding the arrangements for how organisations shared information as people moved between them;

> 61% of hospitals regarding people or their families or carers not being involved in decisions about their care or how they spend their time;

> 42% of hospitals regarding how the care met people's physical and mental health, and social and emotional needs;

> 56% of hospitals regarding staff's understanding and knowledge of dementia care;

> 28% of hospitals regarding the way hospitals monitored the quality of dementia care.[1]

People with dementia experience a longer length of stay than that for other patients, and worse symptoms after being in hospital.[2]

Magnitude of variation

For CCGs in England, the rate of emergency admissions to hospital of people with dementia aged 65 years and over ranged from 1730 to 6217 per 100,000 population (3.6-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 2061–5004 per 100,000 population, and the variation is 2.4-fold.

Possible reasons for the degree of variation observed include differences in:

> the prevalence of dementia in local populations;

> reporting of dementia as a co-morbidity;

> coding of dementia as a secondary diagnosis.

Possible reasons for unwarranted variation include differences in:

> rates of diagnosis in primary care;

> identification of co-morbid dementia when patients are admitted to hospital for another reason;

> access to specialist services for diagnosis and management;

> access to early intervention and community care models.

Options for action

To reduce emergency admissions to hospital for people with dementia, commissioners and all relevant service providers, including local authorities and the third or voluntary sector, need to work together:

> to review and benchmark HES data;

> to review care pathways and identify areas for redesign;

> to improve the early identification of people with dementia;

> to ensure effective care planning, including robust advance care planning, for people with dementia;

1   Care Quality Commission. Cracks in the Pathway. People's experiences of dementia care as they move between care homes and hospitals. October 2014. http://www.cqc.org.uk/sites/default/files/20141009_cracks_in_the_pathway_final_0.pdf

2   Alzheimer's Society. Counting the cost. Caring for people with dementia on hospital wards. 2009. http://www.alzheimers.org.uk/site/scripts/download_info.php?downloadID=356

3   Dementia Action Alliance and NHS Institute for Innovation and Improvement (not dated) The Right Care: creating dementia friendly hospitals. Dementia Care in Acute Hospitals. A Report from the Dementia Action Alliance South Central Region. http://www.dementiaaction.org.uk/assets/0000/1757/CHKS_South_Central_Region_Report.pdf

> to implement the use of a summary care record (SCR) and/or local electronic health record (EHR) to support continuity of care for people with dementia;

> to establish professional collaboration among service providers involved in the care of people with dementia, including the provision of specialist support for community-based services;

> to maintain people with dementia in their usual place of residence;

> to use any emergency admission to hospital of a person with dementia as a stimulus and opportunity for feedback from secondary care providers to those in primary care, such as GPs, to ensure a care plan is in place, and that it needs to be shared, and updated whenever a significant event occurs.

Commissioners need to identify ways to fund earlier intervention and community care for people with dementia, including joint working with social services and other community partners. Options such as housing telecare and support for carers may enable people with dementia to stay at home.

To improve the care of people with dementia in hospital, commissioners need to specify that secondary care providers:

> improve the early identification of people with dementia, and implement effective care planning;

> develop and implement a person-centred dementia care pathway;

> develop screening procedures for malnutrition when patients are admitted, and ensure meals fit the dietary needs of patients;

> have a policy or guideline to ensure that patients with cognitive impairment or dementia are assessed for delirium at presentation;

> develop a procedure for multidisciplinary assessment that includes mental assessment;

> provide an environment that is easier to navigate for cognitively impaired patients, including a social area, signage, and easy-to-read information;

> develop a protocol governing the use of interventions for patients with behavioural or psychological symptoms of dementia;

> provide access to liaison psychiatry services from a specialist mental health team and to an older people's service, both during the day and out of hours;

> develop appropriate and effective ways to involve patients and carers;

> regularly review hospital discharge policy and procedures relating to patients with dementia, and audit re-admissions;

> improve coding of secondary dementia and the quality of data available;

> establish procedures to ensure information important to future care is supplied at the point of discharge, including an appropriate care plan, and discussions about discharge are held with both patients and their carers;

> include dementia awareness training as part of the organisational training strategy;

> raise awareness of advance care planning for people with dementia.

Service providers also need to identify learning and positive practice from among peers that have demographically similar populations.

Ambulance crews can play a role not only in the identification of people with dementia so that an appropriate care package can be developed on admission, but also in the identification of people with dementia who require dementia-appropriate community services and crews can initiate the links to those services.

Service providers in residential care or nursing homes need to increase awareness and understanding of end-of-life care for people with dementia.

RESOURCES

> Care Quality Commission. Cracks in the Pathway. People's experiences of dementia care as they move between care homes and hospitals. October 2014. http://www.cqc.org.uk/sites/default/files/20141009_cracks_in_the_pathway_final_0.pdf

> Alzheimer's Society. Counting the cost. Caring for people with dementia on hospital wards. 2009. http://www.alzheimers.org.uk/site/scripts/download_info.php?downloadID=356

> Alzheimer's Society. Dementia UK: Update. 2nd edition. November 2014. http://www.alzheimers.org.uk/site/scripts/download_info.php?fileID=2323

> Royal College of Psychiatrists (2013) National Audit of Dementia Care in General Hospitals 2012-13: Second Round Audit Report and Update. Editors: Young J, Hood C, Gandesha A, Souza R. HQIP. http://www.hqip.org.uk/assets/NCAPOP-Library/NCAPOP-2013-14/NAD-NATIONAL-REPORT-12-June-2013.pdf

> NHS Confederation (2010) Acute Awareness: Improving hospital care for people with dementia. http://www.nhsconfed.org/~/media/Confederation/Files/Publications/Documents/Dementia_report_Acute_awareness.pdf

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 56: Rate of dual-energy X-ray absorptiometry (DEXA) activity per weighted population by CCG

Adjusted for age, sex and "need", 2013/14

Domain 2: Enhancing quality of life for people with long-term conditions

Lowest

Highest

LONDON

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211 CCGs

Rate per 1000
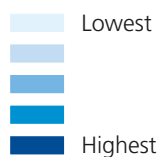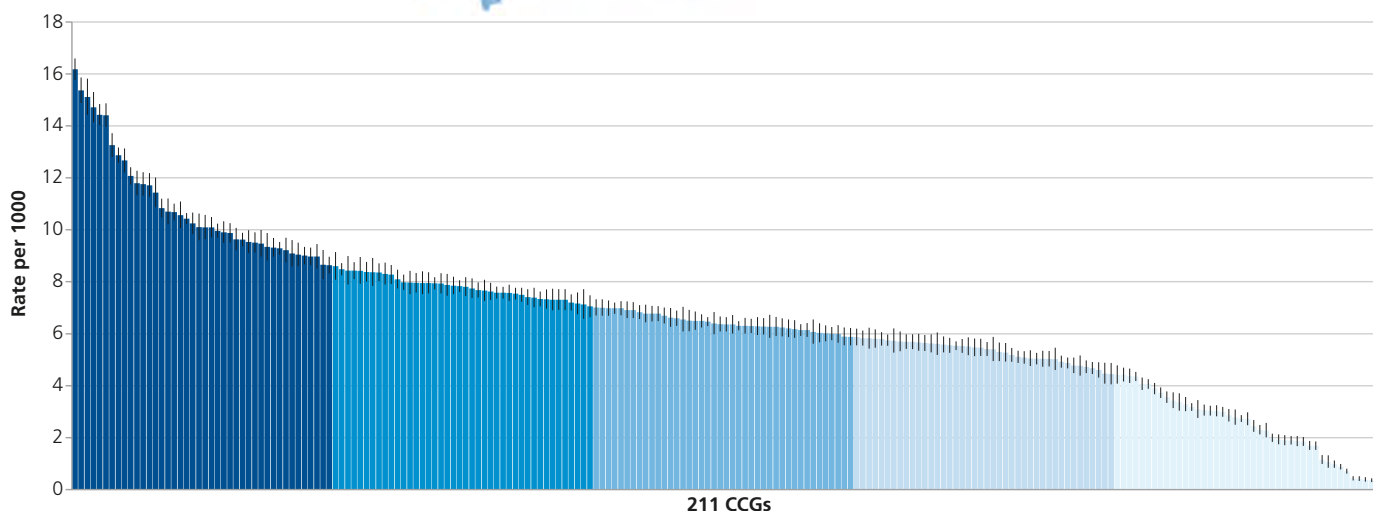
Context

Dual-energy X-ray absorptiometry (DEXA) is the best measure of bone density and subsequent risk of fragility fracture. It is one of several techniques known as bone densitometry.

There are two types of DEXA scan:

> axial or central, in which a scanning arm passes over the body to measure bone density in the centre of the skeleton;

> peripheral (pDEXA), in which a scanning arm or portable device measures bone density in peripheral parts of the body, such as the wrist or heel.

Measurements of bone density are used:

> in the diagnosis of osteoporosis or to assess the risk of osteoporosis developing;

> to monitor the effectiveness of treatment for conditions such as osteoporosis;

> in the diagnosis of other bone disorders, such as osteopenia, an early sign of bone loss where bone mineral density is lower than normal.

Osteoporosis involves a gradual loss of calcium from the bones which results in the bones becoming thinner, more fragile and more likely to break. Osteoporosis is most commonly seen in women following the menopause, although it can affect men. The risk of a fragility fracture is affected by age, weight, prior history, family history, smoking habit, and excessive consumption of alcohol. Following a suspected fragility fracture, investigation of bone density, for instance using DEXA, is advised such that osteoporosis treatment can be initiated to help prevent a subsequent fracture and the consequent considerable morbidity.

Magnitude of variation

For CCGs in England, the rate of DEXA activity ranged from 0.3 to 16.2 per 1000 weighted population (46.7-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 1.0–12.9 per 1000 weighted population, and the variation is 13.2-fold.[1]

Irrespective of the change in geography since this indicator was first presented (i.e. from PCT to CCG), the degree of variation in the rate of DEXA activity after exclusions appears to be persisting at a relatively high level.

One possible reason for warranted variation is differences in the use of other tests to measure bone density. It is unlikely, however, that this factor explains all of the variation observed. As this indicator has been designed to take account of the age-structure of the population, possible reasons for unwarranted variation include differences in:

> availability of imaging services;

> the stage of development of integrated systems for fracture prevention.

Options for action

Commissioners, clinicians and service providers need to review the prevention of falls and fractures in local populations, including:

> excessive prescribing;

> the prevention of fragility fractures, including the use of osteoporosis investigations and treatment as part of the routine management of suspected fragility fractures.

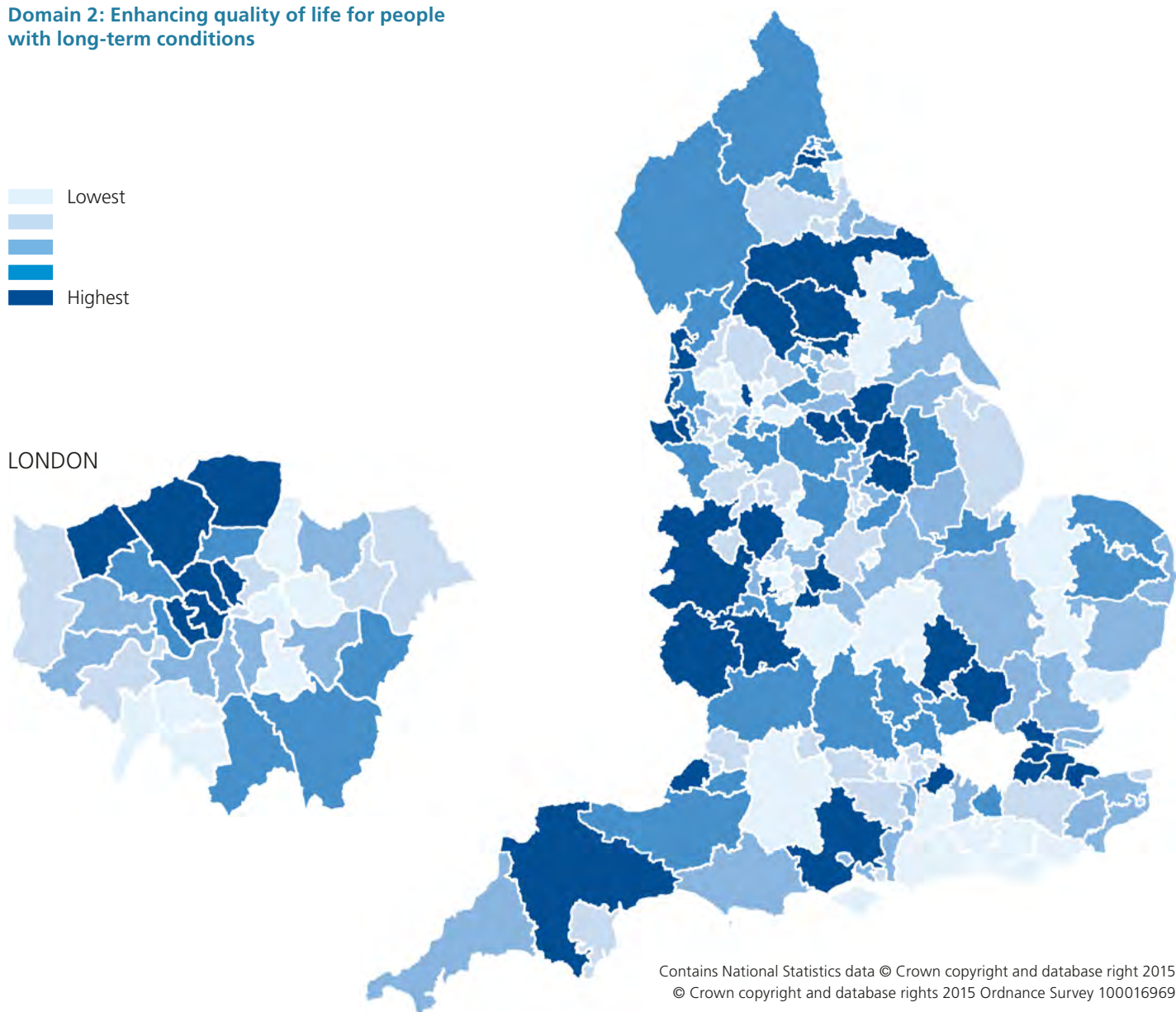The Department of Health's Impact Assessment of fracture prevention interventions[2] may be useful in this review.

Commissioners need to specify to service providers that all patients who experience a fragility fracture should have access to a Fracture Liaison Service, providing falls prevention and evaluation for osteoporosis and future fracture risk.

Public Health England together with Better Value Healthcare and Wiltshire County Council have set up the "Triple F Programme: Falls & Fragility Fractures Prevention" (see "Resources"), which involves local authority public health teams gathering and making available information about their local Triple F system. Benefits include support for local Triple F initiatives, assessing and tracking performance, learning from best practice, and strengthening local partnerships.

RESOURCES

> Royal College of Radiologists imaging referral guidelines, iRefer. iRefer is available to all NHS professionals in the UK. http://www.rcr.ac.uk/content.aspx?PageID=995 For iRefer – England, NHS professionals need to register to use the portal. Login to http://portal.e-lfh.org.uk/

> Prevention Package for Older People Resources (2010) http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Publications/dh_103146

> Department of Health (2009) Falls and fractures: effective interventions in health and social care. http://www.laterlifetraining.co.uk/wp-content/uploads/2011/12/FF_Effective-Interventions-in-health-and-social-care.pdf

> NHS Radiology Improvement Team (2007) Radiology Success Factors. Page 2: Dual Energy Xray Absorptiometry. http://system.improvement.nhs.uk/ImprovementSystem/ViewDocument.aspx?path=Diagnostics%2fNational%2fWebsite%2fPublications%2fRadiology_Success_Factors%20-%20Nov%2007.pdf

> NICE. Osteoporosis: assessing the risk of fragility fracture. NICE guidelines [CG146]. August 2012. http://www.nice.org.uk/guidance/cg146

> NICE pathways. Osteoporosis overview. http://pathways.nice.org.uk/pathways/osteoporosis

> Royal College of General Practitioners and National Osteoporosis Society (2014) Osteoporosis Resources for Primary Care. http://www.osteoporosis-resources.org.uk/

> Public Health England, Better Value Healthcare and Wiltshire County Council. Triple F Programme: Falls & Fragility Fractures Prevention. http://www.healthcarepublichealth.net/falls-and-fragility-fractures.php

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1 For 2010/11 data by PCT, see Atlas 2.0, Map 70, and for 2012/13 data by PCT, see Diagnostics Atlas, Map 5.

2 Department of Health (2009) Impact Assessment of fracture prevention interventions. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_106379.pdf

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 57: Percentage of people aged 75 years and over with a fragility fracture on or after 1 April 2012 who were treated with a bone-sparing agent (excluding exceptions) by CCG

2013/14

Domain 3: Helping people to recover from episodes of ill health or following injury
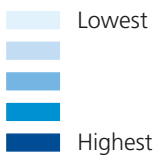
Lowest

Highest

LONDON

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Per cent

211 CCGs
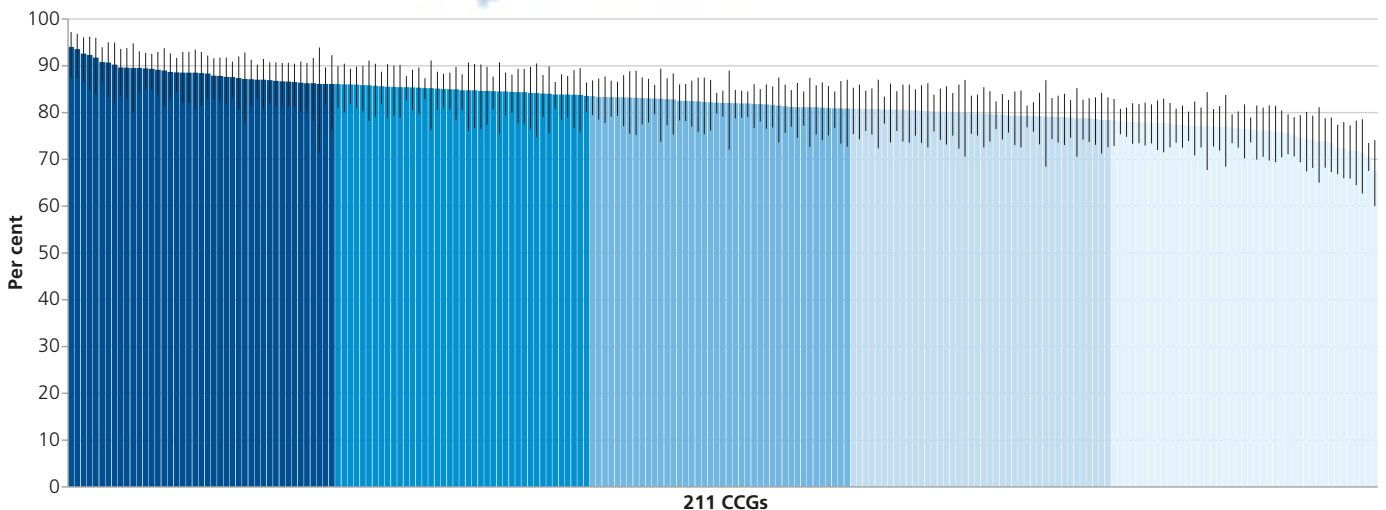
Context

Fragility fractures result from mechanical forces that would not ordinarily result in fracture, referred to as "low-level trauma", and quantified by the World Health Organization (WHO) as forces equivalent to a fall from a standing height or less. The common sites for fragility fracture are the spine, hip and wrist, although they can also occur in the arm, pelvis, ribs and other bones. Fragility fractures can cause pain and disability, with a reduced quality of life. Hip and vertebral fractures are associated with decreased life-expectancy; hip fracture usually requires hospitalisation, and only 30% of patients fully recover.[1] Reduced bone density is a major risk factor for fragility fracture; other risk factors include age, sex, previous fractures, a family history of osteoporosis, and the use of oral or systemic glucocorticosteroids.

The prevalence of osteoporosis increases with age due to age-related bone loss in men and women, and increased bone loss after the menopause in women. As the population ages, the incidence of osteoporosis and fragility fracture will increase.

Over 300,000 patients present with fragility fractures to hospitals in the UK each year.[2] Fragility fractures for people over 60 years account for more NHS bed-days than those for stroke patients over 60 years, cardiac ischaemia, heart failure, chronic obstructive pulmonary disease (COPD), and diabetes patients for all ages combined. Burge et al estimated the direct medical costs of fragility fractures to the UK healthcare economy at £1.8 billion in 2000, with the potential to increase to £2.2 billion by the year 2025.[3]

Magnitude of variation

For CCGs in England, the percentage of people aged 75 years and over with a fragility fracture on or after 1 April 2012 who were treated with a bone-sparing agent (excluding exceptions) ranged from 67.5% to 94.0% (1.4-fold variation). When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 73.5–90.2%, and the variation is 1.2-fold.

This means that 6.0–32.5% of patients aged 75 years and over had a fragility fracture on or after 1 April 2012 and were not being treated with a bone-sparing agent (5-fold variation); after exclusions, the range of patients not being treated is 9.8–26.5%, and the variation is 2.7-fold. Thus, for every 10 people with a fragility fracture at CCG-level across England, 1–2 people are not being treated with a bone-sparing agent (after exclusions).

Possible reasons for the degree of variation observed are:

› patient willingness to begin treatment with a bone-sparing agent;

› early discontinuation of treatment (<1 year) by the patient.

Options for action

To prevent further fractures in people who have already had one or more, service providers and clinicians need to identify patients who may be at increased risk in order to initiate preventative treatment using risk assessment tools such as FRAX® and QFracture®-2013 risk calculator (see "Resources").

NICE guidance (CG146; see "Resources") is available on the selection and use of risk assessment tools when caring for people at risk of fragility fractures.

Commissioners need to specify that service providers and clinicians follow NICE guidance on the assessment and prevention of falls in older people (CG161; see "Resources"):

› for older people in contact with health professionals, they should be asked routinely whether they have fallen in the last year, and if so the frequency, context and characteristics of those falls;
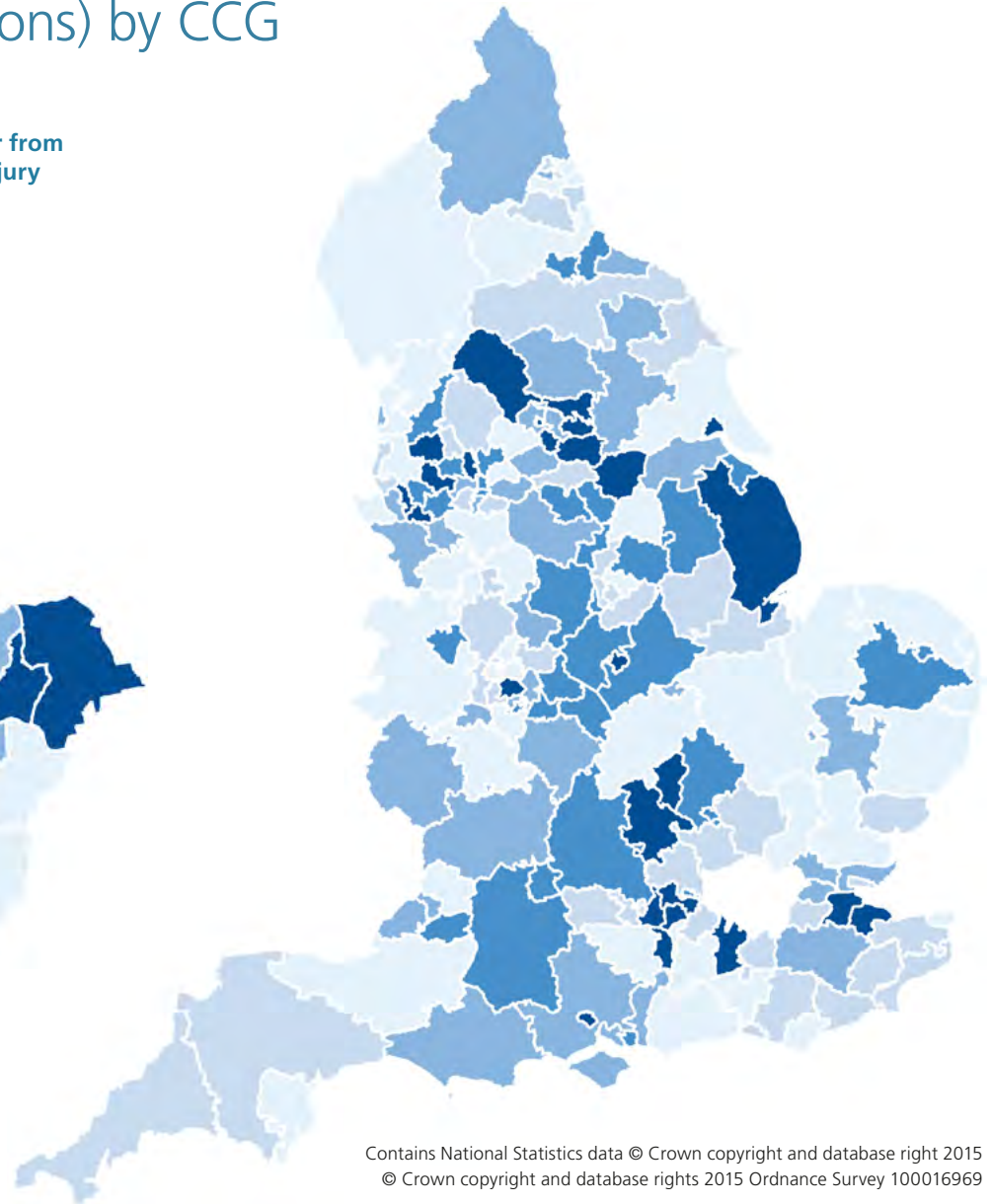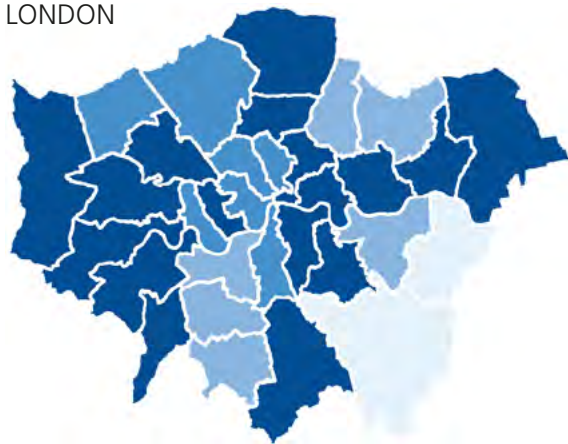
› for older people presenting for medical attention because of a fall, who report recurrent falls in the previous year or who have abnormalities of gait and/or balance, they should be offered a multifactorial falls assessment performed by a healthcare professional with appropriate skills and experience working in a specialist falls service;

› for older people in hospital, clinicians need to consider a multifactorial fall assessment that identifies a patient's individual risk factors, and enables treatment and management during the patient's hospital stay.

Commissioners can also specify that service providers at hospitals and nursing homes provide an active falls prevention programme.

Public Health England together with Better Value Healthcare and Wiltshire County Council have set up the "Triple F Programme: Falls & Fragility Fractures Prevention" (see "Resources"), which involves local authority public health teams gathering and making available information about their local Triple F system. Benefits include support for local Triple F initiatives, assessing and tracking performance, learning from best practice, and strengthening local partnerships.

RESOURCES

› NICE. Osteoporosis: assessing the risk of fragility fracture. NICE guidelines [CG146]. August 2012. http://www.nice.org.uk/guidance/cg146

› NICE. Falls: assessment and prevention of falls in older people. NICE guidelines [CG161]. June 2013. http://www.nice.org.uk/guidance/cg161

› NICE pathways. Osteoporosis overview. http://pathways.nice.org.uk/pathways/osteoporosis

› NICE pathways. Fragility fracture risk assessment. http://pathways.nice.org.uk/pathways/osteoporosis/fragility-fracture-risk-assessment#path=view%3A/pathways/osteoporosis/osteoporosis-overview.xml&content=view-index http://pathways.nice.org.uk/pathways/osteoporosis/fragility-fracture-risk-assessment

› Royal College of General Practitioners and National Osteoporosis Society. Osteoporosis Resources for Primary Care. http://www.osteoporosis-resources.org.uk/

› FRAX. http://www.shef.ac.uk/FRAX

› QFracture. http://www.qfracture.org/

› British Orthopaedic Association. The care of patients with fragility fracture. September 2007. http://www.fractures.com/pdf/BOA-BGS-Blue-Book.pdf

› Public Health England, Better Value Healthcare and Wiltshire County Council. Triple F Programme: Falls & Fragility Fractures Prevention. http://www.healthcarepublichealth.net/falls-and-fragility-fractures.php

1   Sernbo I, Johnell O (1993) Consequences of a hip fracture: a prospective study over 1 year. Osteoporosis International 3:148-153.

2   British Geriatrics Society. The Care of Patients with Fragility Fracture ("Blue Book"). http://www.bgs.org.uk/index.php?option=com_content&view=article&id=338:bluebookfragilityfracture&catid=47:fallsandbones&Itemid=307

3   Burge RT, Worley D, Johansen A et al. The cost of osteoporotic fractures in the UK: projections for 2000-2020. Journal of Medical Economics 2001: 4: 51-62.

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 58: Mean length of stay (days) for emergency admission to hospital for fractured neck of femur (FNOF) by CCG

2012/13

Domain 3: Helping people to recover from episodes of ill health or following injury
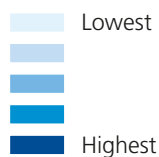
Lowest

Highest

LONDON

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211 CCGs
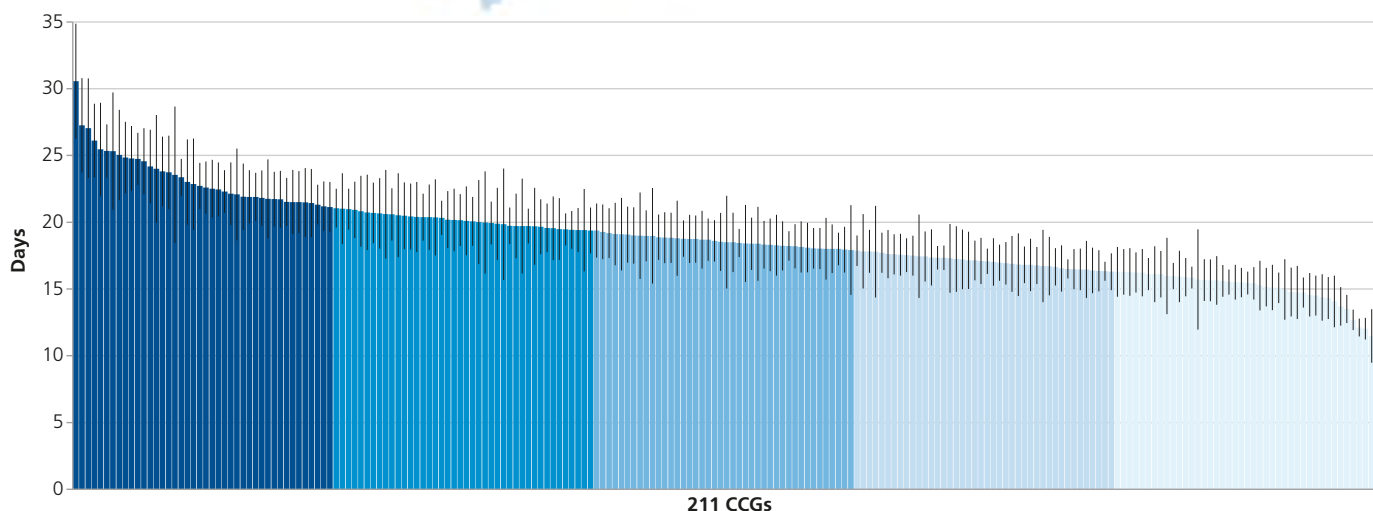
Context

Each year, over 300,000 patients present with fragility fractures to hospitals in the UK,[1] primarily due to a combination of osteoporosis and a fall. The most serious fragility fracture is a hip fracture, and most occur after a fall from standing.

Hospital Episode Statistics (HES) have been used to estimate that hip fracture incidence will increase from 70,000 per year in 2006 to 91,500 in 2015 and to 101,000 by 2020, making this group of people a priority for the NHS.

Within one month, 8% of people with fractured neck of femur (FNOF) die in hospital; at one year, 20% are dead, and 50% are permanently disabled[2]. Although the outcomes and mortality following hip fracture have improved considerably over the past four years, there are variations in service provision and outcomes among CCGs. The change in demographics of the older population makes it essential that these variations are reduced.

Since April 2010, the Best Practice Tariff (BPT) for hip fracture provides a tariff uplift for each patient treatment complying with certain clinical criteria (see "Resources"), which can create incentives for service improvement. Compliance is monitored through the National Hip Fracture Database (NHFD), a national audit project aimed at facilitating improvements in the quality and cost-effectiveness of hip-fracture care (see "Resources"), which covers all CCGs and hospitals. Since its inception in 2007, the NHFD has improved the provision of care for people with hip fractures by promoting the integration of care, and secondary prevention.

Magnitude of variation

For CCGs in England, the mean length of stay for emergency admission to hospital for FNOF ranged from 9.9 to 30.6 days (3.1-fold variation). When the seven CCGs with the longest mean lengths of stay and the seven CCGs with the shortest mean lengths of stay are excluded, the range is 14.1–25.0 days, and the variation is 1.8-fold.

After exclusions, the difference in the range for the mean length of stay for emergency admission to hospital for fractured neck of femur across CCGs in England is 10 days.

Potential reasons for the degree of variation observed include differences in:

› discharge criteria;
› availability of support/care in the community once patients have been discharged;
› access to early supported discharge.

Options for action

Commissioners and service providers can use the NHFD to review outcomes for FNOF, such as:

› time to surgery;
› length of stay;
› incidence of pressure sores;
› falls assessment;
› secondary osteoporosis prevention;
› 30-day adjusted mortality.

The NHFD has published a report for commissioners (see "Resources"), presenting a re-analysis of the data in the annual report, broken down for the different populations for which each commissioning group is responsible, thereby enabling commissioners to benchmark the performance of their local provider against national norms.

Commissioners need to specify that service providers:

› follow NICE guidance and quality standards (see "Resources"), and guidance from specialist professional organisations such as the British Orthopaedic Association (BOA), e.g. BOAST-1 and the "Blue Book" (see "Resources"), on best practice for hip-fracture care;

› offer patients a Hip Fracture Programme that includes multidisciplinary management (NICE CG124) – early supported discharge can be considered as part of the Hip Fracture Programme provided the programme's multidisciplinary team remain involved and the patient fulfils four criteria;

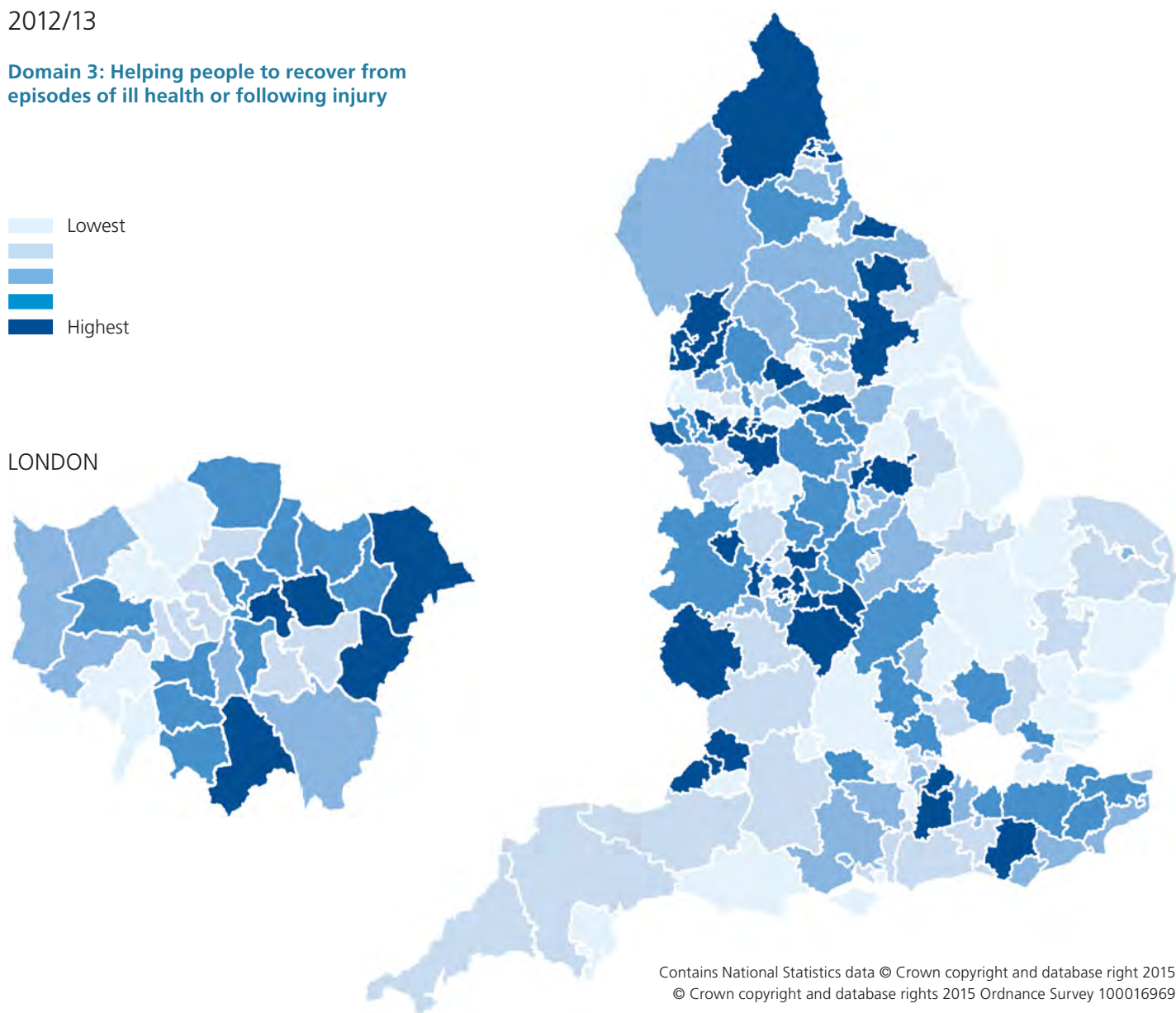› offer patients with hip fracture a bone health assessment before discharge from hospital to identify future fracture risk and pharmacological intervention as needed before discharge from hospital (NICE Quality Statement 12).

RESOURCES

› National Hip Fracture Database (NHFD). http://www.nhfd.co.uk/

› National Hip Fracture Database (NHFD) CCG Reports 2014. http://www.nhfd.co.uk/20/hipfractureR.nsf/vwContent/2014ccgreport

› Best Practice Tariff (BPT) for Fragility Hip Fracture Care User Guide. http://www.nhfd.co.uk/20/hipfractureR.nsf/0/9b0c5ea2e986ff56802577af0046b1df/$FILE/Best%20Practice%20Tariff%20User%20Guide.pdf

› British Orthopaedic Association. The care of patients with fragility fracture (known as the "Blue Book"). September 2007. http://www.fractures.com/pdf/BOA-BGS-Blue-Book.pdf

› Clinical Effectiveness and Evaluation Unit, Royal College of Physicians. National Hip Fracture Database. National report 2013. http://www.nhfd.co.uk/20/hipfractureR.nsf/luMenuDefinitions/F29405CD131D1F36802579C900553994/$file/NHFD%20Summary%20Report%202013.pdf?OpenElement

› NICE. Falls: assessment and prevention of falls in older people. NICE guidelines [CG161]. June 2013. http://www.nice.org.uk/guidance/cg161

› NICE. Hip fracture: management of hip fracture in adults. NICE Guidelines [CG124]. June 2011. http://www.nice.org.uk/guidance/cg124

› NICE. Quality Standard for hip fracture. NICE quality standard [QS16]. March 2012. https://www.nice.org.uk/guidance/qs16

› NICE. Alendronate, etidronate, risendronate, raloxifene and strontium ranelate for the primary prevention of osteoporotic fragility fractures in postmenopausal women (amended). Technology appraisal guidance [TA160]. October 2008. http://guidance.nice.org.uk/TA160

› NICE. Alendronate, etidronate, risendronate, raloxifene, strontium ranelate and teriparatide for the secondary prevention of osteoporotic fragility fractures in postmenopausal women (amended). Technology appraisal guidance [TA161]. October 2008. http://guidance.nice.org.uk/TA161

› The British Orthopaedic Association (BOA). BOAST-1. http://www.boa.ac.uk

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1 British Orthopaedic Association (2007) The care of patients with fragility fracture. http://www.fractures.com/pdf/BOA-BGS-Blue-Book.pdf
2 Sernbo I, Johnell O (1993) Consequences of a hip fracture: a prospective study over 1 year. *Osteoporosis International* 3:148-153. http://www.ncbi.nlm.nih.gov/pubmed/8481591

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 59: Rate of primary hip replacement procedures per population by CCG

Directly standardised rate, adjusted for age and sex, 2012/13

Domain 3: Helping people to recover from episodes of ill health or following injury

Lowest

Highest

LONDON

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Rate per 100,000

211 CCGs
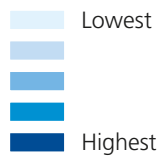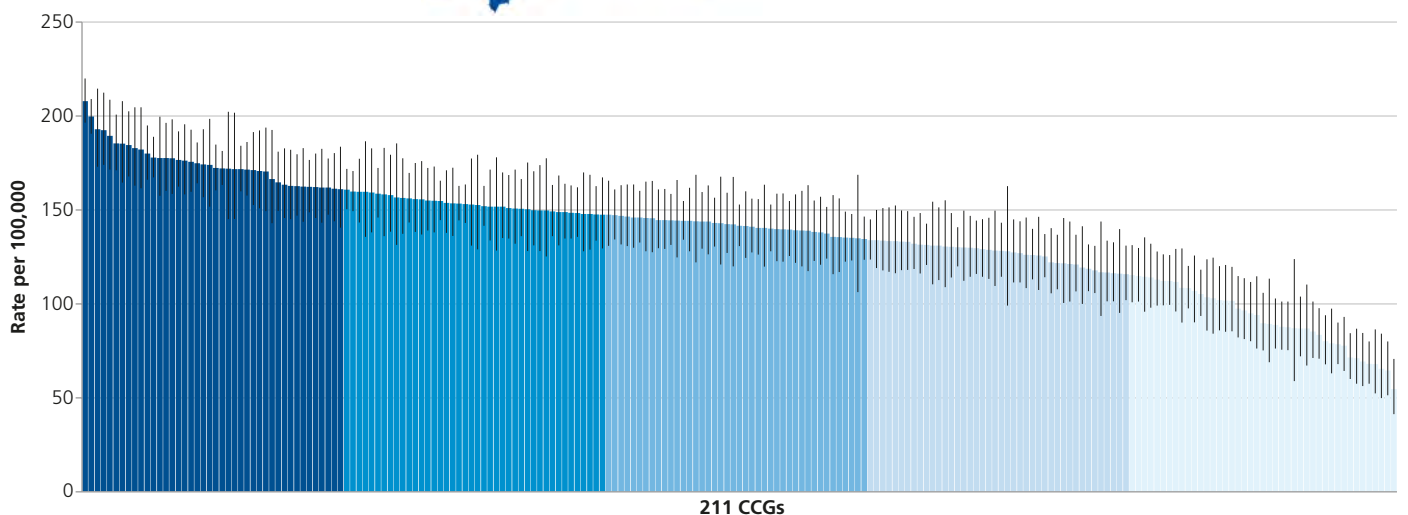
Context

Primary hip replacement involves the surgical replacement of all or part of the hip joint with an artificial joint. Removal of all of the hip joint, in which the articular surfaces of the hip and acetabulum are replaced, is known as total hip arthroplasty; removal of part of the hip joint is known as hemi-arthroplasty.

Conventional total hip arthroplasty involves removal of the femoral head and neck. Hip re-surfacing, involving replacement of the femoral head surface and the acetabular surface, is now limited in its indication and not recommended in smaller patients and women because re-surfacing has performed poorly in these groups. Re-surfacing may be considered in larger men, but the advantages over conventional replacement are probably minimal and there is a risk of metal-on-metal adverse reaction. Metal-on-metal hip replacement, including re-surfacing, should be used with caution, and following a discussion with the patient about the risks and benefits. Regular long-term follow-up is needed to monitor patients for metal-on-metal adverse reactions.

The indications for total hip arthroplasty are:

> end-stage arthritis of the hip where non-surgical management has failed to control pain and disability;

> fracture of the proximal femur.

The majority of people with osteoarthritis are managed in primary care. Exercise and weight loss are core treatments that help people to self-manage their condition and relieve their symptoms. To reduce referrals that may not be needed, in quality statement 7 of the NICE quality standard for Osteoarthritis, it states that people with osteoarthritis should be supported with non-surgical core treatments for at least 3 months before any referral for consideration of joint surgery.[1]

Although scoring tools are used in some general practices to identify which people with osteoarthritis are eligible for referral for consideration of surgery, the NICE quality standard advises against them because there is no evidence to support their use. Instead, healthcare professionals need to offer support and advice to people to help reach a shared decision, based on the severity of their symptoms, their general health, their expectations of lifestyle and activity, and the effectiveness of any non-surgical treatments.

In an investigation of four major surgical operations, The Royal College of Surgeons of England (RCSEng) described a situation that was creating a "postcode lottery for access to surgical treatment". With respect to hip replacement, RCSEng highlighted that, of the CCGs reviewed:

> 73% did not follow NICE and clinical guidance on referral for hip replacement, or had no commissioning policy for this procedure, which could lead to too many or too few referrals;

> 44% required patients to be in various degrees of pain or immobility (with no consistency across the country) or required patients to lose weight before surgery.[2]

Magnitude of variation

For CCGs in England, the rate of primary hip replacement procedures ranged from 55 to 208 per 100,000 population (3.8-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 72–185 per 100,000 population, and the variation is 2.6-fold.

The main reason for warranted variation is differences in the local prevalence of osteoarthritis and osteoporosis. Potential reasons for unwarranted variation include differences in:

> access to hip replacement surgery;

> the timing of referral from primary care to secondary care for consideration of surgery;

> criteria for undertaking surgery;

> requirements prior to surgery.

Options for action

Commissioners need to develop a policy on commissioning primary hip replacement procedures. Commissioners also need to specify that service providers:
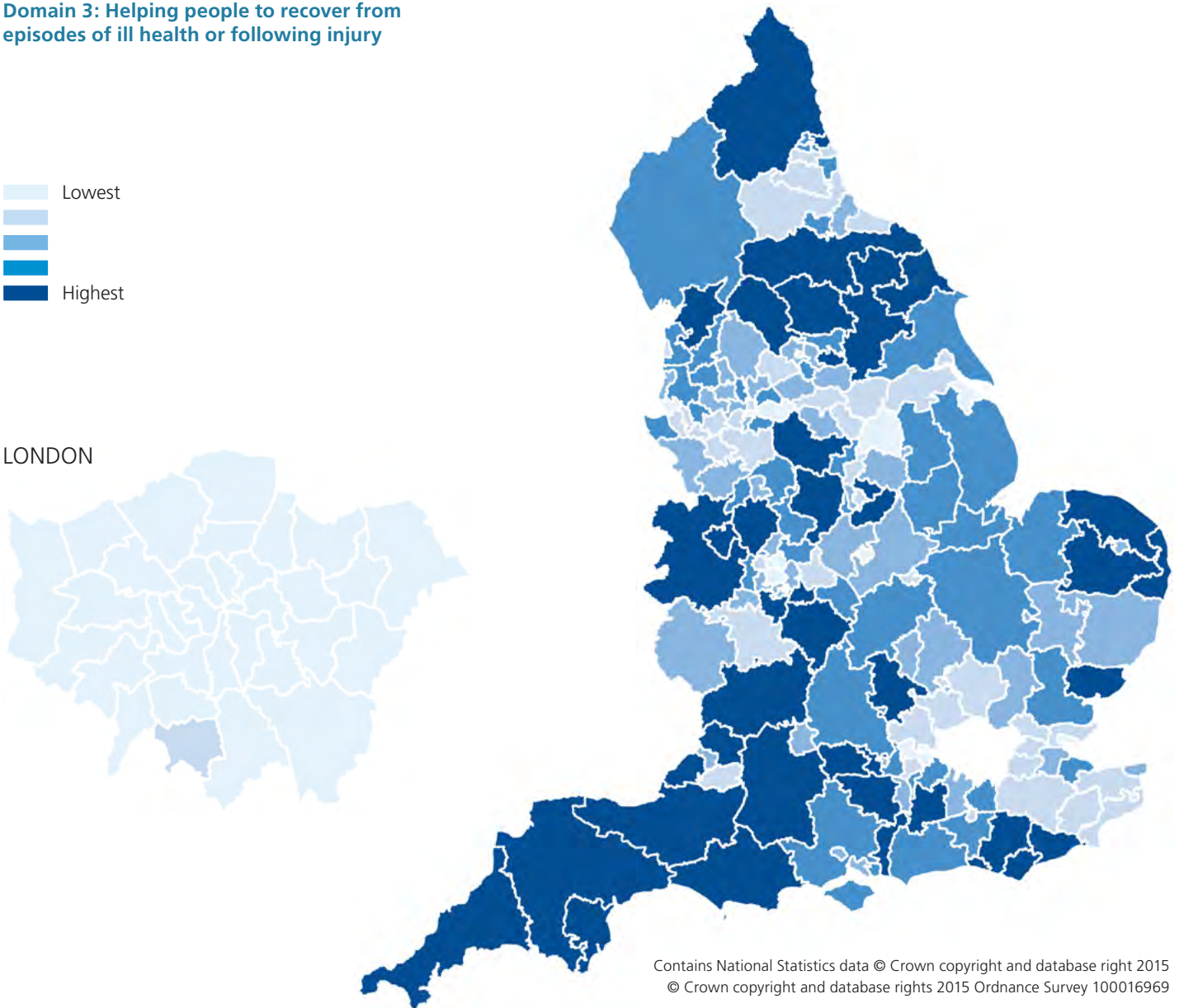
> follow NICE and other clinical guidance on referral for hip replacement (see "Resources");

> work towards achieving the NICE quality standard on osteoarthritis (QS87),including quality statement 7 (see "Resources");

> apply shared decision-making and use patient decision aids to help people assess the appropriateness of hip replacement surgery, based on the severity of their symptoms, their general health, their expectations of lifestyle and activity, and the effectiveness of any non-surgical treatments (see "Resources").

RESOURCES

> National Joint Registry.
http://www.njrcentre.org.uk/njrcentre/default.aspx

> British Orthopaedic Association. Primary total hip replacement: A guide to good practice. 1999; revised August 2006; November 2012. https://www.britishhipsociety.com/uploaded/Blue%20Book%202012%20fsh%20nov%202012.pdf

> NICE. Total hip replacement and resurfacing arthroplasty for end-stage arthritis of the hip (review of the technology appraisal guidance 2 and 44). NICE technology appraisal guidance [TA304]. February 2014. http://guidance.nice.org.uk/ta304

> NICE. Osteoarthritis. Quality standard [QS87]. June 2015. Quality statement 7. Core treatments before referral for consideration of joint surgery. http://www.nice.org.uk/guidance/qs87/chapter/Quality-statement-7-Core-treatments-before-referral-for-consideration-of-joint-surgery

> NICE pathways. Osteoarthritis overview.
http://pathways.nice.org.uk/pathways/osteoarthritis

> NICE pathways. Rheumatoid arthritis overview.
http://pathways.nice.org.uk/pathways/rheumatoid-arthritis

> NHS Right Care. Osteoarthritis of the Hip Decision Aid. http://sdm.rightcare.nhs.uk/pda/osteoarthritis-of-the-hip/

> NICE. Hip fracture: management of hip fracture in adults. NICE Guidelines [CG124]. June 2011.
http://www.nice.org.uk/guidance/cg124

> NICE. Quality Standard for hip fracture. NICE quality standard [QS16]. March 2012. https://www.nice.org.uk/guidance/qs16

> National Hip Fracture Database (NHFD). http://www.nhfd.c.uk/

> Briggs TWR. Getting It Right First Time. Improving the Quality of Orthopaedic Care within the National Health Service of England. March 2015. http://www.gettingitrightfirsttime.com/downloads/briggsreporta4_fin.pdf

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1 NICE. Osteoarthritis. Quality standard [QS87]. June 2015. Quality statement 7. http://www.nice.org.uk/guidance/qs87/chapter/Quality-statement-7-Core-treatments-before-referral-for-consideration-of-joint-surgery

2 The Royal College of Surgeons of England. Is access to surgery a postcode lottery? July 2014.
https://www.rcseng.ac.uk/news/docs/Is%20access%20to%20surgery%20a%20postcode%20lottery.pdf

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 60: Mean patient-reported health gain (EQ-5D Index score) for primary hip replacement procedures by CCG

Adjusted for case-mix, 2013/14

Domain 3: Helping people to recover from episodes of ill health or following injury
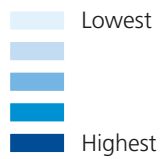
Lowest

Highest

LONDON

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211 CCGs
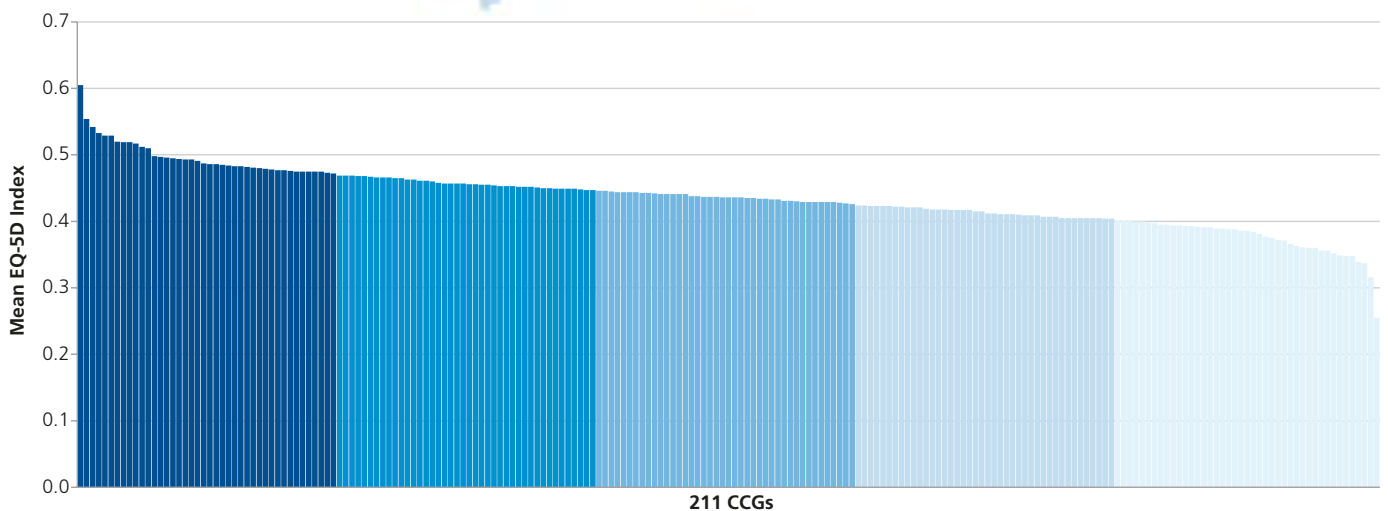
Context

The Department of Health set up a Patient Reported Outcomes Measures (PROMs) Programme, which is now run by NHS England. Patient reported outcome measures (PROMs) assess health gain in patients undergoing one of four surgical procedures, including hip replacement, and is based on responses to a questionnaire administered before and six months after the operation.[1] The EQ-5D is a standardised instrument used in the PROMs (see "Resources") to assess patients' general health based on responses to five questions.

At the time of writing, the National Joint Registry (NJR) is undertaking research that will extend the follow-up for PROMs for hip and knee replacement (see "Resources") to gain a greater understanding of the factors influencing the success of joint replacement over the long term from a patient's perspective. Follow-up in this study was scheduled at 1, 3 and 5 years after operation, the baseline questionnaires at 6 months relating to a consecutive sample of national PROMs questionnaires received in 2010, for a cohort of 25,000 people undergoing hip replacement and 25,000 people undergoing knee replacement. The initial analysis was focused on:

› the optimal timing of PROMs response after surgery;

› the predictors of response;

› the variation in trajectories of response.

An interim report is anticipated in the near future.

A case-mix adjustment has been used to calculate the results presented in Map 60. This adjustment takes into account patient characteristics such as ethnicity, gender, age, pre-operative health and deprivation. As such, it presents patients' outcomes once these characteristics have been accounted for.

Magnitude of variation

For CCGs in England, the mean patient-reported health gain (EQ-5D Index score) for primary hip replacement procedures ranged from 0.3 to 0.6 (2.4-fold variation). When the seven CCGs with the highest scores and the seven CCGs with the lowest scores are excluded, the range is 0.4–0.5, and the variation is 1.5-fold.

Potential reasons for the degree of variation observed include differences in:

› patients' expectations of surgery;

› the occurrence of adverse effects following surgery;

› clinical practice, such as type of implant used;

› the balance between joint-related improvements and improvements in general health.

Options for action

Commissioners and service providers need to work together to identify the causes of variation in the local population. In late 2015, NHS England are publishing a bite-size guide to PROMs, which will set out the steps commissioners and service providers can take to understand the reasons for variation. For instance, at the level of an individual NHS Trust, it is possible to investigate whether patients are more or less likely to report post-operative complications, such as infections, or whether outcomes fall short on any particular aspect of patients' quality of life, such as pain or mobility. In addition, it is possible for individual NHS Trusts to identify groups of patients whose outcomes are better or worse, e.g. patients grouped by age, gender or pre-operative health. Some NHS Trusts have successfully used this type of analysis to improve outcomes, for example, by making changes to clinical practice or by changing implant brands.

To reduce unwarranted variation in patient-reported health gain from hip replacement surgery, commissioners need to specify that service providers, especially clinicians, promote the use of patient decision aids that will support individuals in making a fully informed decision about hip replacement. NHS RightCare has developed a patient decision aid for osteoarthritis of the hip (see "Resources").
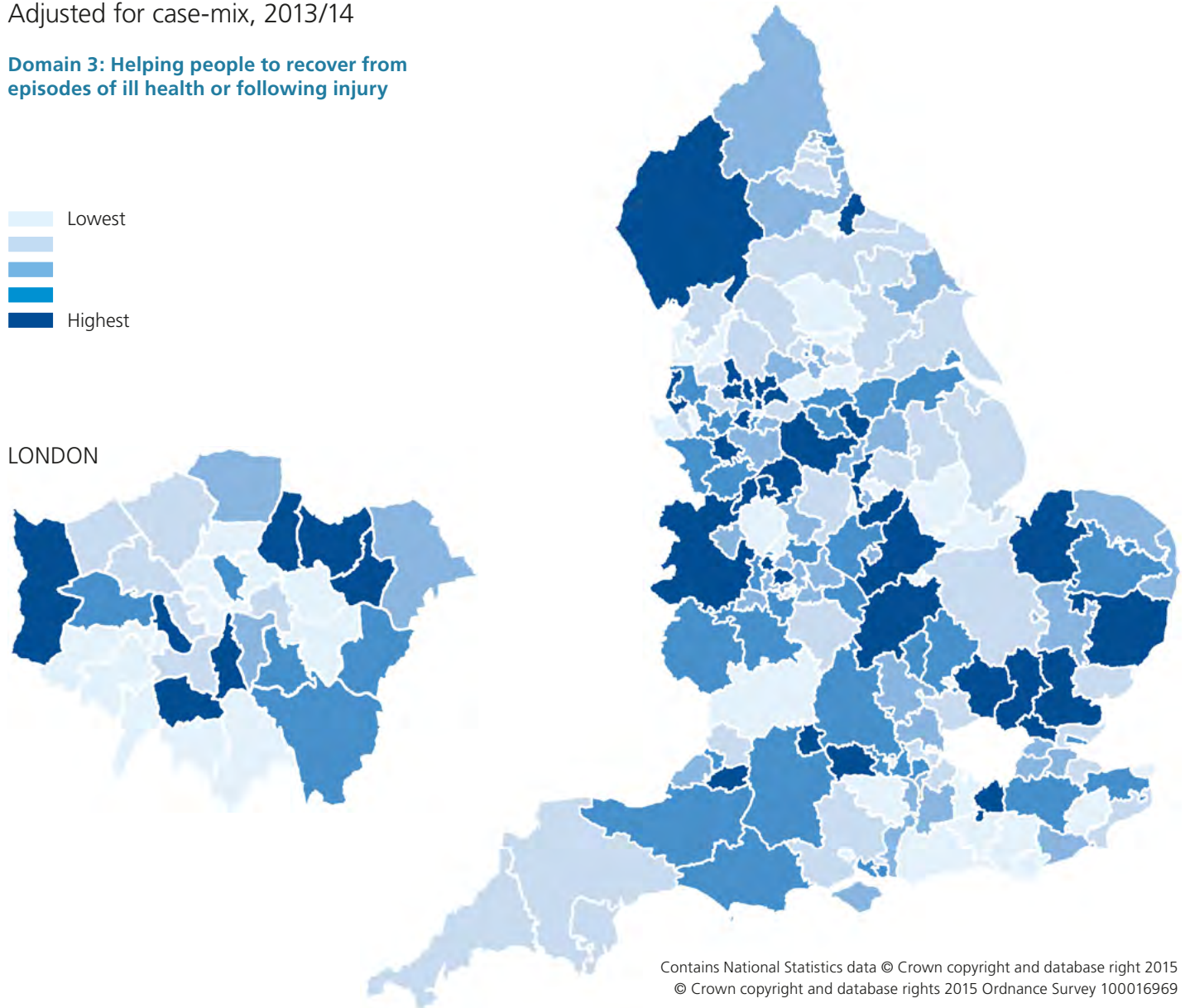
Patient decision aids enable individuals to take account not only of the risks and benefits of surgery as relating to them, but also of their own values and preferences in relation to the treatment. The use of patient decision tools is likely to be more acceptable to patients and clinicians than applying eligibility thresholds based on pre-operative PROMs scores. The questionnaires used in PROMs have not been validated for the purpose of making predictions about outcomes for individual patients. Given the large degree of variation in outcomes for individual patients, it is neither appropriate nor effective to use PROMs in this way.

RESOURCES

› HSCIC. Patient Reported Outcome Measures (PROMs). http://www.hscic.gov.uk/proms

› EuroQol. EQ-5D. http://www.euroqol.org/

› National Joint Registry. NJR Patient Reported Outcome Measures. http://www.njrcentre.org.uk/njrcentre/Research/NJRPROMs/tabid/203/Default.aspx

› NHS Right Care. Osteoarthritis of the Hip Decision Aid. http://sdm.rightcare.nhs.uk/pda/osteoarthritis-of-the-hip/

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1   HSCIC. Patient Reported Outcome Measures (PROMs). http://www.hscic.gov.uk/proms

2   HSCIC. Patient Reported Outcome Measures (PROMs) in England - 2012-13, Special Topic: Patient engagement with PROMs by demographic characteristics, procedure type and self-reported pre-operative health. February 2015. http://www.hscic.gov.uk/catalogue/PUB16482

CARE OF OLDER PEOPLE

Map 61: Rate of emergency admission to hospital for people aged 75 years and over with a length of stay of less than 24 hours per population by CCG

2012/13

Domain 2: Enhancing quality of life for people with long-term conditions
Domain 3: Helping people to recover from episodes of ill health or following injury
Domain 5: Treating and caring for people in a safe environment and protecting them from harm

Lowest

Highest

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Rate per 100,000

211 CCGs
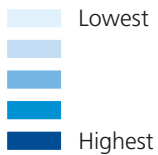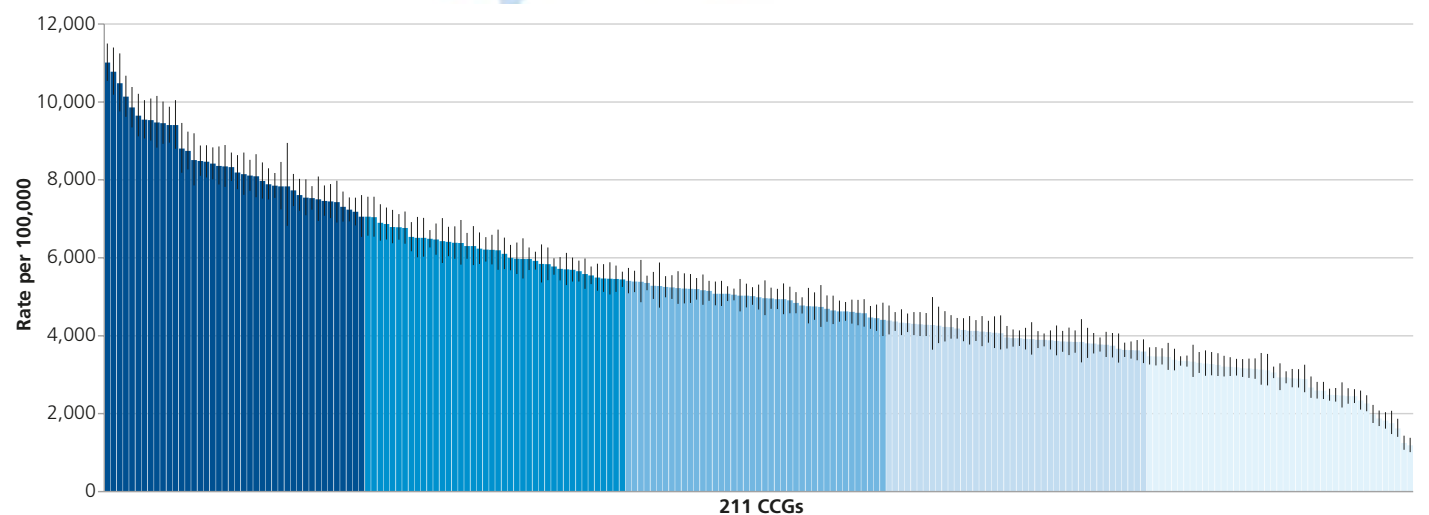
Context

Older people aged 75 years and over admitted to hospital as an emergency but with a length of stay of less than 24 hours comprise a group of people most of whom do not need hospital care, and who could benefit from alternative care provision. For many older people who have multiple long-term conditions and frailty and are at a point of crisis in their health, medical assessment within two hours, followed by specific treatment, supportive care and rehabilitation, is associated with lower mortality, greater independence and reduced need for long-term care.

Intermediate care is an alternative to hospital care, and can prevent emergency admissions to hospital, including frailty-related hyper-acute presentations such as falls, delirium and sudden immobility, where older people need to be stabilised rapidly. There are several ways of providing a service to address avoidable admissions to hospital including the establishment of:

› acute older care assessment units ("frailty units") in accident and emergency (A&E) departments, rather than undertaking such assessments on a hospital ward once a person has been admitted;

› multidisciplinary crisis response teams in the community.

In the National Audit of Intermediate Care 2014 (NAIC 2014; see "Resources"), four models of intermediate care were studied, including crisis response teams. The NAIC 2014 results showed that when crisis response teams are provided in a local area they reduce emergency admissions to hospital. Of the 60 crisis response teams that participated in NAIC 2014, only 10% of the 60,384 people discharged from their care required admission to hospital. In addition, the national median wait time from referral to assessment for the crisis response teams was only two hours.

Ultimately, it is important to identify older people with frailty before a health crisis occurs. Such people are likely to be known to local health professionals, and usually have weak muscles and, often, conditions like arthritis, poor eyesight, deafness and memory problems. They typically walk slowly, get exhausted easily and struggle to get out of a chair or climb stairs.

Magnitude of variation

For CCGs in England, the rate of emergency admission to hospital for people aged 75 years and over with a length of stay of less than 24 hours ranged from 1186 to 11,011 per 100,000 population (9.3-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 2260–9536 per 100,000 population, and the variation is 4.2-fold.

Possible reasons for unwarranted variation include differences in:

› the provision of alternative services to hospital care for older people, particularly crisis response teams;

› the provision of acute older care assessment units in A&E departments;

› ready access to primary and community care services out of hours and at weekends.

Options for action

To address avoidable admissions to hospital for older people with frailty and one or more co-morbidities, commissioners need to specify that service providers work together:

› to develop a system whereby older people with frailty can be identified before a health crisis occurs and depending on the state of frailty provide an opportunity for self-management 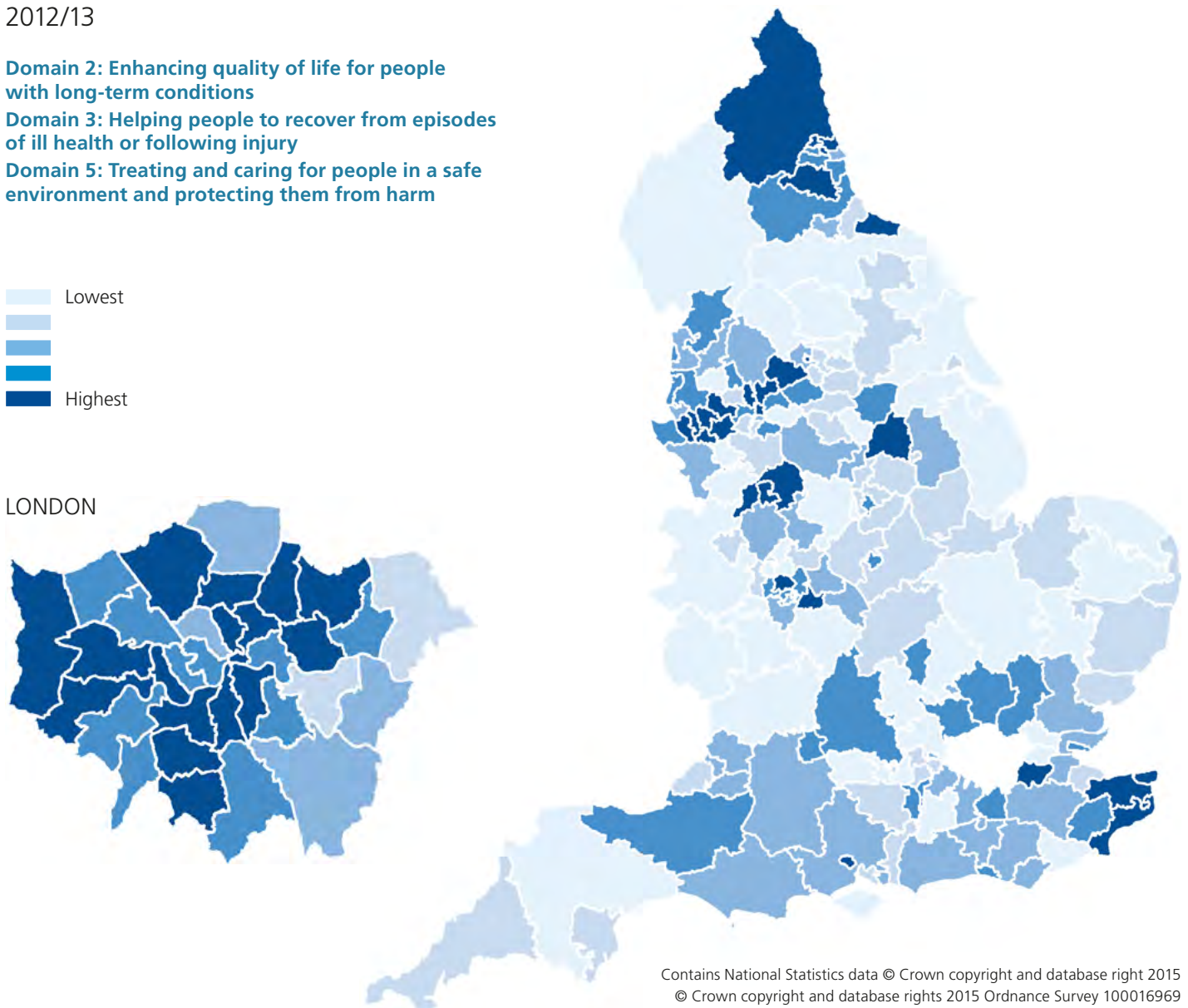or case-management – data could be extracted from the primary care electronic health record, or simple tests could be devised such as assessing walking speed (taking more than five seconds to walk four metres is highly indicative of frailty);

› to develop and implement integrated care pathways for older people with frailty across primary, secondary and social care (see "Resources" for NHS England practical guidance).

Commissioners need to use the NAIC 2014 report and the online benchmarking tool (see "Resources") to consider the nature of provision and reconfiguration of intermediate care services in the locality, and in particular to consider commissioning community crisis response teams that provide extended hours services. When commissioning crisis response teams, commissioners need to specify that service providers develop team skills and broaden team membership to cover medical, nursing, support and therapy functions, with a GP, community geriatrician, community matron, specialist nurse, community nurses, therapists and social care representative on the multidisciplinary team.

In the context of existing provision, commissioners and service providers could also consider the need for establishing an acute older care assessment unit in the A&E department(s) in the locality.

RESOURCES

› NHS Benchmarking Network. National Audit of Intermediate Care 2014 (NAIC 2014). http://www.nhsbenchmarking.nhs.uk/partnership-projects/National-Audit-of-Intermediate-Care/year-three.php

› NHS Benchmarking Network. National Audit of Intermediate Care 2014 (NAIC 2014) The online benchmarking toolkit is available by logging in from the following webpage. http://members.nhsbenchmarking.nhs.uk/login.aspx?ReturnUrl=%2fhome

› NHS England. Safe, compassionate care for frail older people using an integrated care pathway: Practical guidance for commissioners, providers and nursing, medical and allied health professional leaders. February 2014. http://www.england.nhs.uk/wp-content/uploads/2014/02/safe-comp-care.pdf

› Department of Health. Intermediate Care – Halfway Home. Updated Guidance for the NHS and Local Authorities. July 2009. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@pg/documents/digitalasset/dh_103154.pdf

CARE OF OLDER PEOPLE

Map 62: Rate of admission to hospital for people aged 75 years and over from nursing home or residential care home settings per population by CCG

2012/13

Domain 2: Enhancing quality of life for people with long-term conditions
Domain 3: Helping people to recover from episodes of ill health or following injury
Domain 5: Treating and caring for people in a safe environment and protecting them from harm

Lowest

Highest
Data removed

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191 out of 211 CCGs (20 removed due to small numbers)
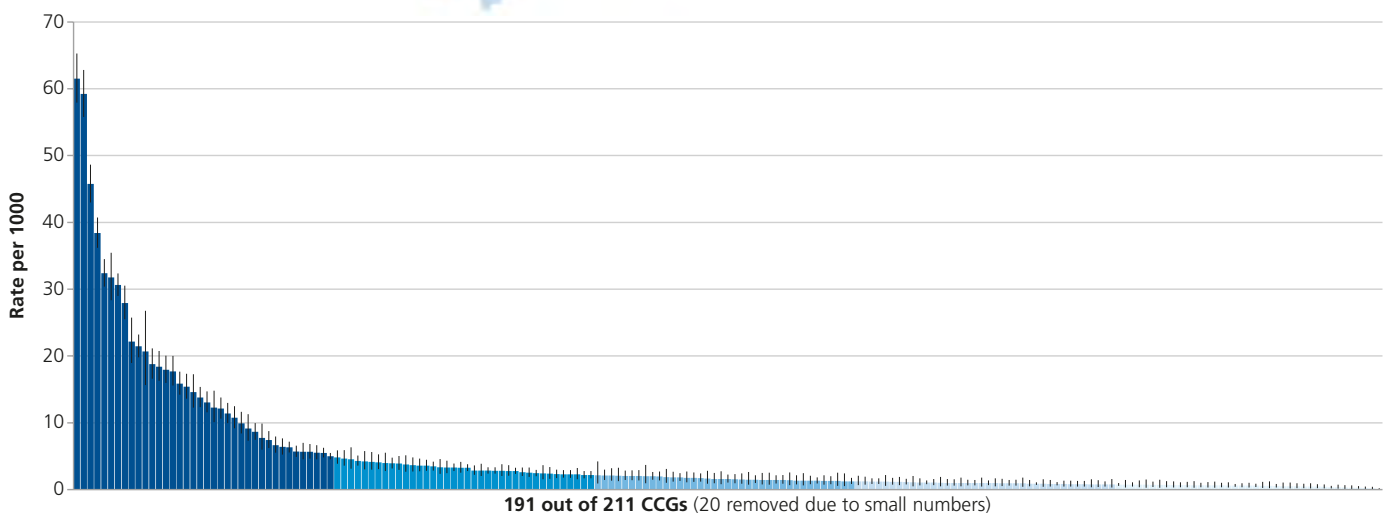
Context

About 386,000 people live in care homes.[1] In England in 2013/14, there were 204,000 people aged 65 years and over in residential care homes and 85,000 people aged 65 years and over in nursing homes who were supported by councils with adult social services responsibilities (CASSRs).[2] People living in residential care or nursing homes typically have multiple long-term conditions (80% have dementia) and/or frailty, and are receiving multiple medications. Access to healthcare – GPs, pharmacists, and hospital specialists and therapies – is more variable for older people in some long-term care settings than for fitter, older people living in their own homes.

People in nursing or residential care homes can frequently be admitted to hospital for various reasons:

> end-of-life care, although with advanced care planning and support many older people could receive dignified end-of-life care in their long-term care setting;

> acute medical illness, particularly out of hours when the person's usual medical practitioner is not available;

> complications of medication use;

> falls – about 30% of all patients with hip fracture admitted to hospital are from the nursing or residential care home sector[3].

Hospital admission can be distressing and disorientating for older people, leading to deterioration, healthcare-acquired infections, and falls. Pro-active and responsive healthcare planning can prevent hospital admission of older people from nursing or residential care homes.

Magnitude of variation

For CCGs in England, the rate of admission to hospital for people aged 75 years and over from nursing home or residential care home settings ranged from 0.1 to 61.5 per 1000 population (604-fold variation).[4] When the six CCGs with the highest rates and the six CCGs with the lowest rates are excluded, the range is 0.3–30.6 per 1000 population, and the variation is 92.7-fold.[5]

The degree of variation observed may be due to differences in:

> the numbers of local authority-funded and private care homes in relation to the local population of older people;

> the use of care homes as temporary residential placements;

> accuracy of coding for the admission "source".

Possible reasons for unwarranted variation include differences in:

> access to health services for people in long-term care settings, particularly alternatives to the 999 ambulance service and acute hospital care when the condition of an older person changes out of hours;
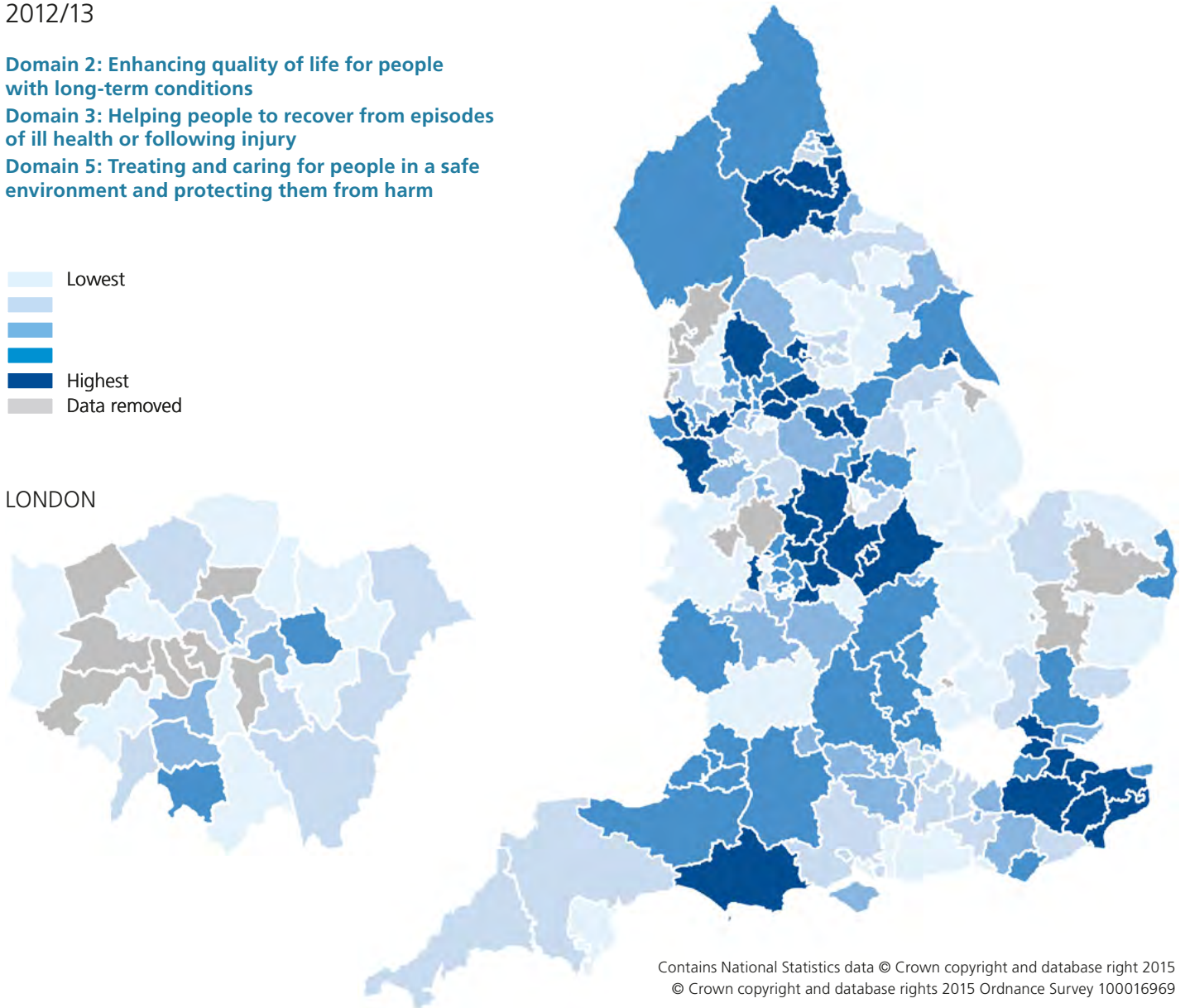
> quality of pro-active management and care planning for vulnerable older people with multiple medical co-morbidities;

> capacity and skills of staff working in long-stay care, and the support available to these staff.

Options for action

Commissioners and service providers need to work together to assess the scale of the problem locally. To enable older people to remain in nursing or residential care homes, commissioners need to specify that service providers:

> use specific models of pro-active care, such as an enhanced primary care service;

> undertake advanced care planning, not only for foreseeable changes and deterioration in long-term conditions, but also for end-of-life care using the Gold Standards Framework (see "Resources"), with inclusion on primary care palliative care registers and information-sharing through the electronic palliative care co-ordinating system (EPaCCS);

> pro-actively review and adjust medication;

> set up programmes to reduce falls and fractures, e.g. preventative measures, case-management by nurse specialists, and dedicated GP input, especially for high-risk residents;

> set up hospital-at-home teams, especially for administration of intravenous fluids and antibiotics.

RESOURCES

> NHS England. High quality care for all, now and for future generations: Transforming urgent and emergency care services in England – Urgent and Emergency Care Review End of Phase 1 Report. November 2013. http://www.nhs.uk/NHSEngland/keogh-review/Documents/UECR.Ph1Report.FV.pdf

> NHS England Urgent and Emergency Care Review Team. Transforming urgent and emergency care services in England – Update on the Urgent and Emergency Care Review. August 2014. http://www.nhs.uk/NHSEngland/keogh-review/Documents/uecreviewupdate.FV.pdf

> Parliamentary and Health Service Ombudsman. Care and compassion? Report of the Health Service Ombudsman on ten investigations into NHS care of older people. February 2011. http://www.ombudsman.org.uk/__data/assets/pdf_file/0016/7216/Care-and-Compassion-PHSO-0114web.pdf

> National Care Forum. Learning report: Making care safer. Improving medication safety for people in care homes: thoughts and experiences from carers and relatives. The Health Foundation. June 2011. http://www.health.org.uk/publication/making-care-safer

> General Medical Council. Treatment and care towards the end of life: good practice in decision making. 20 May 2010. http://www.gmc-uk.org/guidance/ethical_guidance/end_of_life_care.asp

> NICE. Older people in care homes. NICE advice [LGB25]. February 2015. https://www.nice.org.uk/advice/lgb25/chapter/Introduction

> Bowers H et al Older people's vision for long-term care. Joseph Rowntree Foundation. November 2009. http://www.jrf.org.uk/publications/older-people-vision-long-term-care

> Burtney L et al. Learning for care homes from alternative residential care settings. Joseph Rowntree Foundation. April 2014. http://www.jrf.org.uk/publications/learning-for-care-homes

> The Gold Standards Framework. Advanced Care Planning. http://www.goldstandardsframework.org.uk/advance-care-planning

1   National Institute for Health Research. Enabling Research In Care Homes (ENRICH). http://www.enrich.nihr.ac.uk/research-community/understanding-care-homes.html#.VXGtIUbUSBR

2   Health and Social Care Information Centre. Community Care Statistics, Social Services Activity, England – 2013-14, Final Release [NS]. 9 December 2014. http://www.hscic.gov.uk/catalogue/PUB16133

3   NICE. Hip fracture: The management of hip fracture in adults. NICE guidelines [CG124]. June 2011. https://www.nice.org.uk/guidance/cg124

4   Data from 20 CCGs have been removed due to small numbers.

5   For 2009/10 data by PCT, see Atlas 2.0, Map 65, pages 196-197.

CARE OF OLDER PEOPLE

Map 63: Rate of council-supported permanent admissions of people aged 65 years and over to nursing home and residential care home settings per population by upper-tier local authority

2013/14

Domain 2: Enhancing quality of life for people with long-term conditions
Domain 5: Treating and caring for people in a safe environment and protecting them from harm

Lowest

Highest
Data removed

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151 out of 152 UTLAs (1 removed due to small numbers)
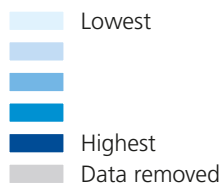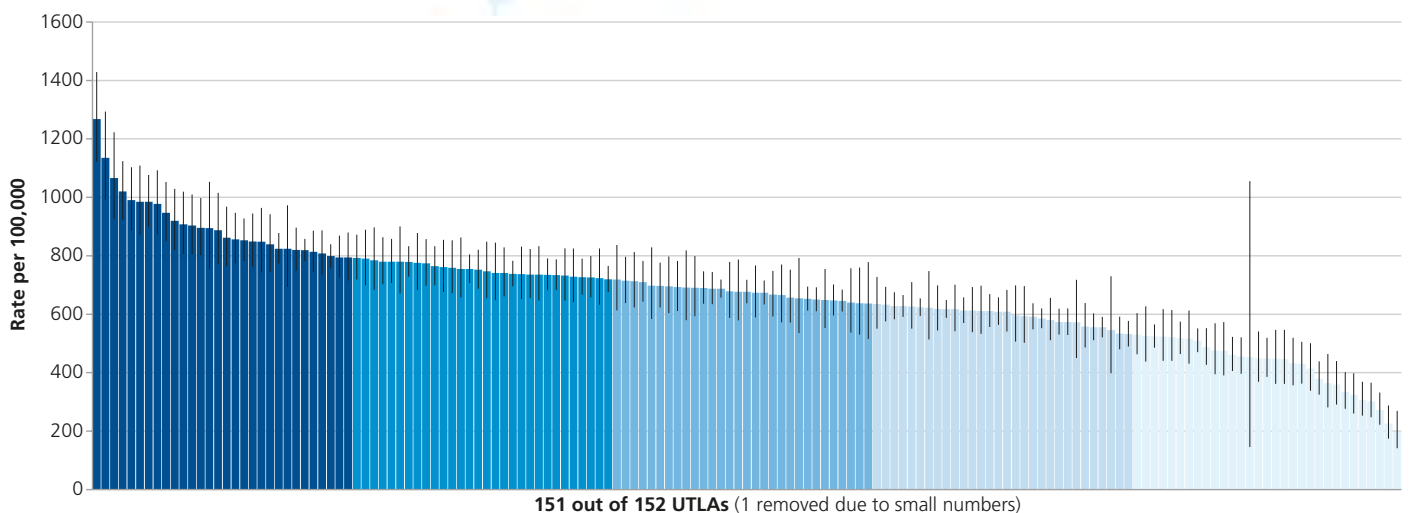
Context

The rate of permanent placements in residential and nursing care homes can be seen as an indication of the level and type of support older people receive in the local health and social care environment, reflecting not only access to but also the effectiveness of rehabilitation services that promote and maintain a person's independence.

Rehabilitation services become pivotal when an older person experiences acute health and social care crises. For instance, admission to hospital for an older person with frailty can cause a decline in mobility through a loss of muscle strength. For every seven days of inactivity, there will be a 10% loss of muscle strength, which represents a considerable loss in people with frailty and, in the absence of appropriate rehabilitation and re-ablement services to help a person regain independence, can be a precipitating factor in permanent admission to a nursing or residential care home. Research suggests that, where possible, people prefer to stay in their own home rather than move into residential care.

Comprehensive geriatric assessment (CGA; see "Resources") is a multidimensional and, usually, interdisciplinary diagnostic process designed to determine the medical conditions, mental health, functional capacity and social circumstances of an older person with frailty. The purpose is to develop and implement a holistic plan for treatment, rehabilitation, support and long-term follow-up. The British Geriatrics Society recommend CGA as one way of avoiding potentially challenging changes in an older person's life, such as permanent admission to a nursing or residential care home.
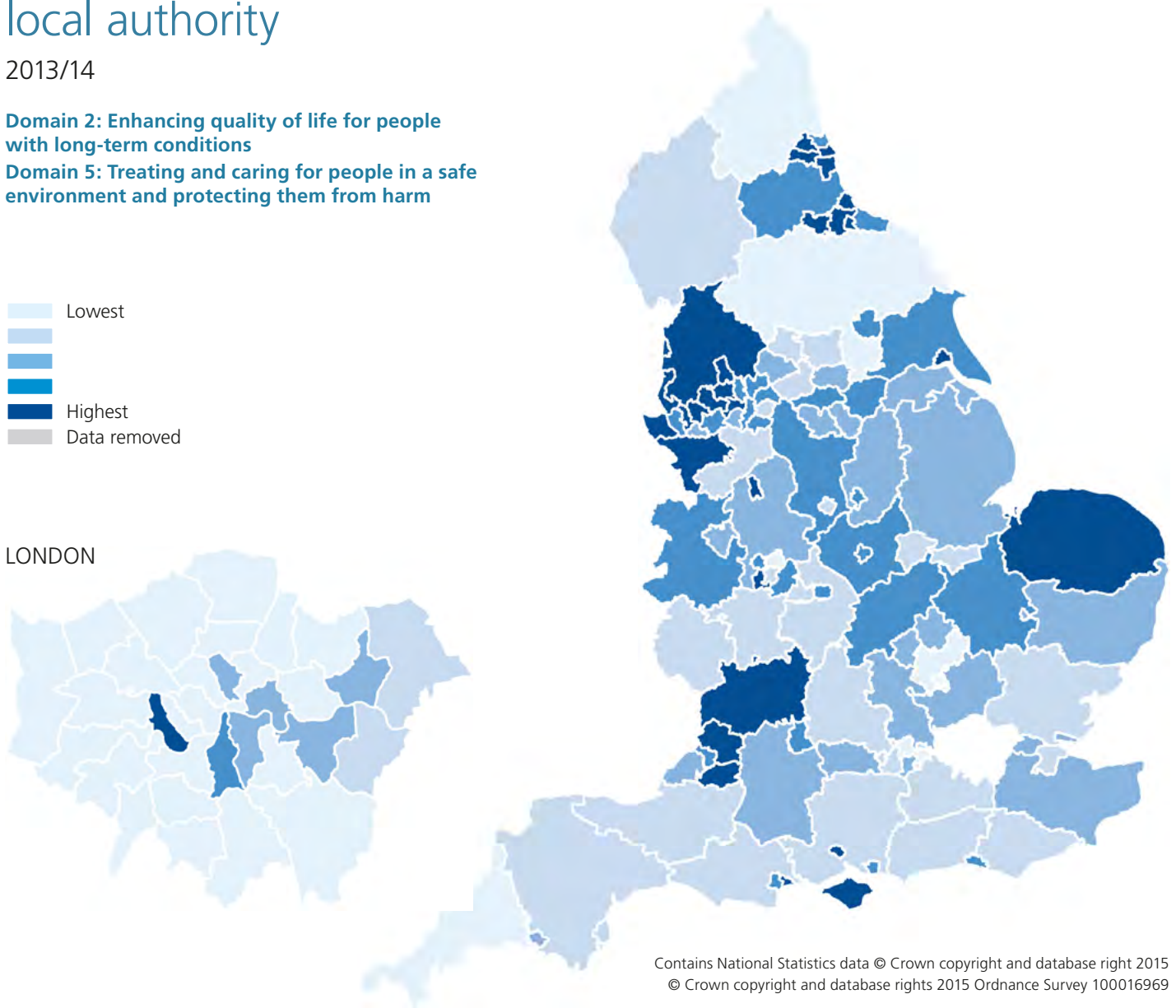
Magnitude of variation

For upper-tier local authorities in England, the rate of council-supported permanent admissions of people aged 65 years and over to nursing home or residential care home settings ranged from 198 to 1268 per 100,000 population (6.4-fold variation).[1] When the five UTLAs with the highest rates and the five UTLAs with the lowest rates are excluded, the range is 324–985 per 100,000 population, and the variation is 3.0-fold.

One reason for warranted variation is differences in the location of nursing and residential care homes, which tend to be clustered in urban areas that have mansion-type properties (which can be converted) or brownfield sites (where new larger homes can be built).

Reasons for unwarranted variation include differences in:

› access to rehabilitation services across the care pathway;
› timely contact with rehabilitation services;
› access to inpatient geriatric care;
› access to community-based care.

Options for action

Local health and social care services need to work together to reduce avoidable admissions to nursing or residential care homes. It is advisable that NHS and other commissioners and service providers undertake a joint strategic review of need for community and rehabilitation services in the local population of older people, including:

› the design and implementation of integrated or "pooled" service models, with an outcomes-based approach;
› assessing whether the investment in rehabilitation services is appropriate to the level of need.

In local authority areas where there is a high rate of placement in nursing and residential care homes, NHS and

other commissioners and service providers need as a priority to ascertain the reasons for this, and seek to address them.

To enable older people to remain in their own homes, commissioners need to specify that service providers:

› undertake CGA (see "Resources") on all older people with frailty at risk of acute health and/or social care crises, and involve them in the care-planning process;
› provide primary care with access to specialist support and diagnostic services to be able to support older people in the community;
› set up multidisciplinary teams to care for older people with frailty.

Local health and social care services also need to work with housing to make the residences of older people fit for purpose with respect to providing care at home for as long as possible.

CASE-STUDY RESOURCE

› Case-study 3: Oxleas NHS Foundation Trust and Royal Borough of Greenwich Adult Community Services. Rapid response service providing rehabilitation to older people. In NHS Improving Quality. Improving adult rehabilitation services in England. Sharing best practice in acute and community care. June 2014. http://www.nhsiq.nhs.uk/media/2487824/improving_adult_rehabilitation_services_in_england.pdf

RESOURCES

› NHS Benchmarking Network. National Audit of Intermediate Care 2014 (NAIC 2014). http://www.nhsbenchmarking.nhs.uk/partnership-projects/National-Audit-of-Intermediate-Care/year-three.php
› NHS Benchmarking Network. National Audit of Intermediate Care 2014 (NAIC 2014) The online benchmarking toolkit is available by logging in from the following webpage. http://members.nhsbenchmarking.nhs.uk/login.aspx?ReturnUrl=%2fhome
› NHS England. Safe, compassionate care for frail older people using an integrated care pathway: Practical guidance for commissioners, providers and nursing, medical and allied health professional leaders. February 2014. http://www.england.nhs.uk/wp-content/uploads/2014/02/safe-comp-care.pdf
› Department of Health Transforming Community Services team. Transforming Community Services: Ambition, Action, Achievement. Transforming Services for Acute Care Closer to Home. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215781/dh_124196.pdf
› Department of Health. Intermediate Care – Halfway Home. Updated Guidance for the NHS and Local Authorities. July 2009. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@pg/documents/digitalasset/dh_103154.pdf
› Ham C, Dixon A, Brooke B. Transforming the delivery of health and social care. The case for fundamental change. 2012. http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/transforming-the-delivery-of-health-and-social-care-the-kings-fund-sep-2012.pdf
› NHS Networks. Improving Rehabilitation Services (IRS). https://www.networks.nhs.uk/nhs-networks/clinical-commissioning-community/improving-adult-rehabilitation-services
› British Geriatrics Society. Comprehensive Assessment of the Frail Older Patient. January 2010. http://www.bgs.org.uk/index.php/topresources/publicationfind/goodpractice/195-gpgcgassessment
› Better Care Fund Taskforce. Better Care Fund. Policy Framework. December 2014. Department of Health and Department for Communities and Local Government. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/381848/BCF.pdf

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1 Data from one CCG have been removed due to small numbers.

CARE OF OLDER PEOPLE

Map 64: Percentage of people aged 65 years and over who were discharged from hospital into re-ablement/ rehabilitation services by upper-tier local authority

2013/14

**Domain 2: Enhancing quality of life for people
with long-term conditions**
**Domain 3: Helping people to recover from episodes of
ill health or following injury**

Lowest

Highest
No data

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150 out of 152 UTLAs (2 missing due to incomplete data)
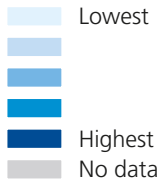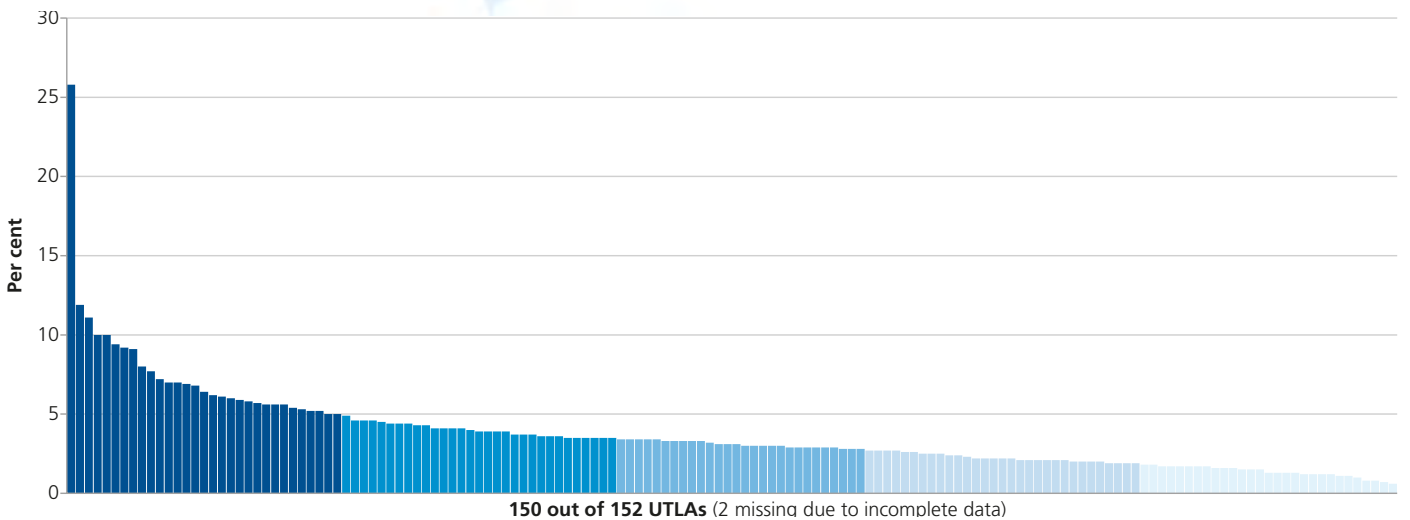
Context

Intermediate care is a range of integrated services, including re-ablement and rehabilitation, designed to meet people's health and social care needs by:

›   promoting faster recovery from illness;

›   preventing unnecessary acute hospital admission;

›   preventing premature admission to long-term residential care;

›   supporting timely discharge from hospital;

›   maximising independent living.

Although no-one should be excluded from intermediate care, the key target groups are people who would otherwise face:

›   unnecessarily prolonged hospital stays;

›   inappropriate admission to acute inpatient care, long-term residential care or continuing NHS inpatient care.

As older people are particularly vulnerable at care transition points, services need to work together to meet older people's needs by providing access to appropriate care in the right place and at the right time. Intermediate care can increase the appropriateness and improve the quality of care for individuals, and help older people regain their health.

Comprehensive geriatric assessment (CGA; see "Resources") is a multidimensional and, usually, interdisciplinary diagnostic process designed to determine the medical conditions, mental health, functional capacity and social circumstances of an older person with frailty. The purpose is to develop and implement a holistic plan for treatment, rehabilitation, support and long-term follow-up. The British Geriatrics Society (BGS; see "Resources") recommends that older people should have a CGA in various circumstances, including when:

›   transfer of care is being planned for rehabilitation or re-ablement;

›   a person is receiving rehabilitation or re-ablement.

One of the key principles the BGS advocates is that older people are central to the process of CGA. In the National Audit of Intermediate Care 2014 (NAIC 2014; see "Resources"), although older people felt they were treated with dignity, they reported a lack of adequate involvement in the care planning process (patient reported experience measure, PREM).

Just as CGA is an interdisciplinary process, the teams undertaking re-ablement/rehabilitation need to be multidisciplinary, including the following functions: medical, nursing, physiotherapy and occupational and speech therapy, pharmacy, nutrition, and social care, with links to the voluntary sector. Mental health involvement in multidisciplinary teams is also important as many older people with frailty have dementia and/or depression. The effectiveness of care tends to increase as the range of disciplines involved expands.

In addition to the benefits for individual older people, the provision of intermediate care also has the potential to transform the local health and social care system by:

›   making more effective use of capacity;

›   establishing new ways of working.

The Better Care Fund (BCF; see "Resources"), announced by the government in the 2013 spending round, was established to support the transformation to integrated health and social care services. The BCF creates a local single pooled budget to incentivise the NHS and local government to work together to ensure people's well-being is the focus of health and care services. The BCF is part of the NHS two-year operational plans and the five-year strategic plans, as well as local government planning.

Magnitude of variation

Map 64: Discharge into re-ablement/ rehabilitation services

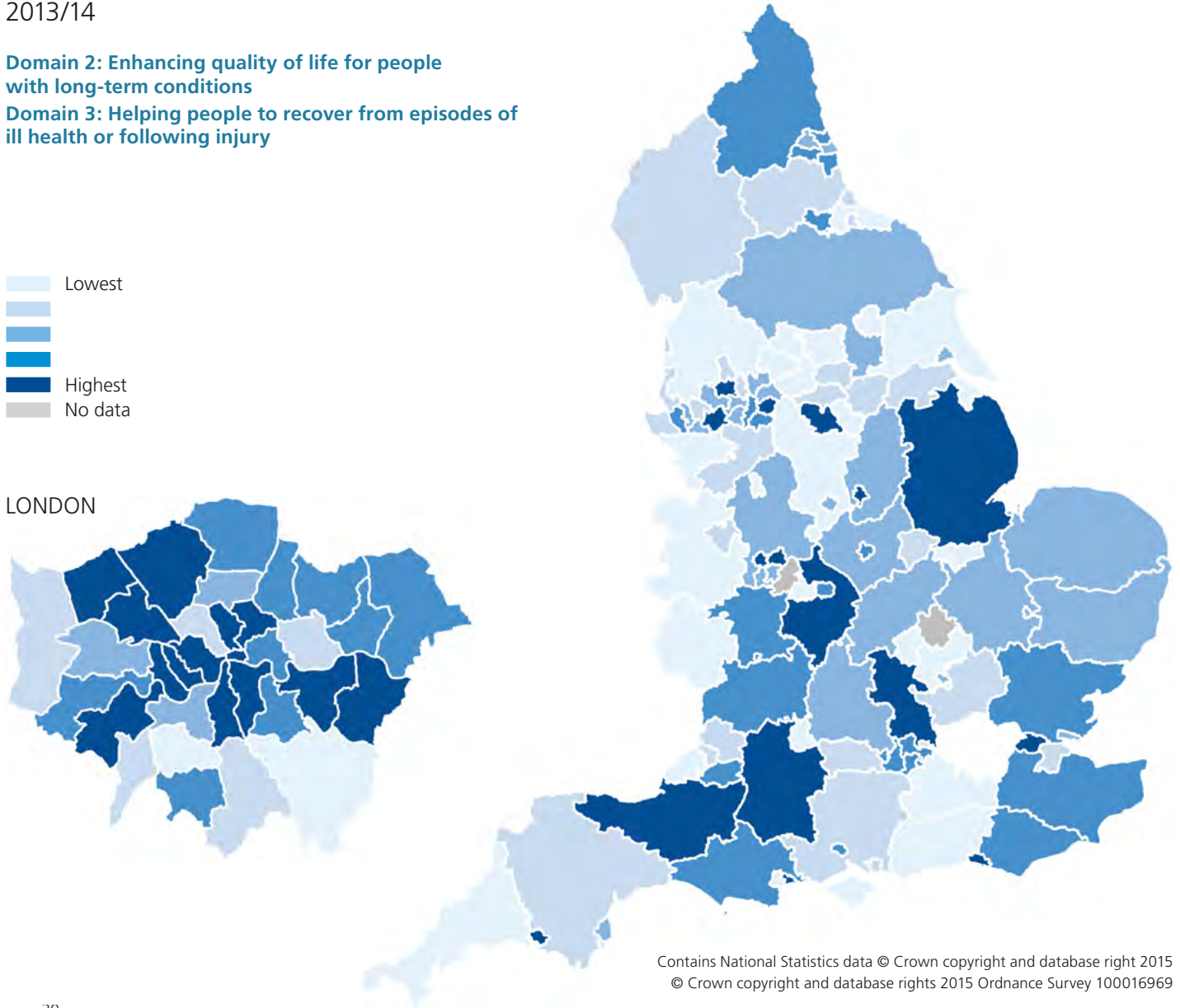For upper-tier local authorities (UTLAs) in England, the percentage of people aged 65 years and over who were discharged from hospital into re-ablement/rehabilitation services ranged from 0.6% to 25.8% (43-fold variation). When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 1.1–9.4%, and the variation is 8-fold.

Map 65: At home 91 days after discharge into re-ablement/rehabilitation services

For UTLAs in England, the percentage of people aged 65 years and over who were still at home 91 days after discharge from hospital into re-ablement/rehabilitation services ranged from 58.9% to 100% (1.7-fold variation). When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 64.9–95.6%, and the variation is 1.5-fold.

For both indicators, the main reason for warranted variation is differences in the proportion of people aged over 65 years in local populations. Possible reasons for unwarranted variation include differences in:

›   the level of investment in re-ablement/rehabilitation and community-based services;

›   strategic approaches to the provision of community-based services in local authority areas.

Although the reasons for variation cited above are similar, the degree of variation observed for these two indicators is noticeably different. Although there is variation in the percentage of people still at home 91 days after discharge into re-ablement/rehabilitation services, and therefore there is potential to improve the effectiveness of such services in some local authority areas, there is a much greater degree of variation in access to these services. Thus, when re-ablement/rehabilitation services are provided to older people they appear to be relatively effective, but provision is not uniform, raising questions about equity in the provision of these services. Moreover, after exclusions, it seems that provision is low for all local authority areas, with a maximum of only one in every ten older people discharged from hospital into re-ablement/rehabilitation services.

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1   Data from two UTLAs are missing.

2   Data from one UTLA have been removed due to small numbers, and data from two UTLAs are missing.

Options of action

NHS and other commissioners and service providers in the local authority area need:

› to undertake a strategic review of the provision of integrated care and community services for the local population of older people, including the level of investment in relation to need, and the current situation regarding patient flows;

› to consider using finance from the Better Care Fund (BCF; see "Resources") to help transform local services, with a view to expanding the provision of intermediate care, including re-ablement and rehabilitation services;

› to take a whole pathway approach to the provision of health and social care for older people with frailty, rather than focussing on hospital care alone.

To improve the effectiveness of local re-ablement and rehabilitation services, NHS and other commissioners need to specify that service providers:

› ensure that CGA (see "Resources") is undertaken routinely on older people with frailty but including prior to discharge and care planning from hospital, and that older people are involved in the care-planning process;

› establish multidisciplinary teams to provide care for older people with frailty.

In addition, when considering discharge and care planning, local health and social care services need to consider working closely with housing to ensure that the residences of older people are fit for purpose with respect to providing care at home.

CASE-STUDY RESOURCE

› Case-study 3: Oxleas NHS Foundation Trust and Royal Borough of Greenwich Adult Community Services. Rapid response service providing rehabilitation to older people. In NHS Improving Quality. Improving adult rehabilitation services in England. Sharing best practice in acute and community care. June 2014. http://www.nhsiq.nhs.uk/media/2487824/improving_adult_ rehabilitation_services_in_england.pdf

RESOURCES

› NHS Benchmarking Network. National Audit of Intermediate Care 2014 (NAIC 2014). http://www.nhsbenchmarking.nhs.uk/ partnership-projects/National-Audit-of-Intermediate-Care/ year-three.php

› NHS Benchmarking Network. National Audit of Intermediate Care 2014 (NAIC 2014) The online benchmarking toolkit is available by logging in from the following webpage. http://members. nhsbenchmarking.nhs.uk/login.aspx?ReturnUrl=%2fhome

› NHS England. Safe, compassionate care for frail older people using an integrated care pathway: Practical guidance for commissioners, providers and nursing, medical and allied health professional leaders. February 2014. http://www.england.nhs. uk/wp-content/uploads/2014/02/safe-comp-care.pdf

› Department of Health Transforming Community Services team. Transforming Community Services: Ambition, Action, Achievement. Transforming Services for Acute Care Closer to Home. https://www.gov.uk/government/uploads/system/ uploads/attachment_data/file/215781/dh_124196.pdf

› Department of Health. Intermediate Care – Halfway Home. Updated Guidance for the NHS and Local Authorities. July 2009. http://webarchive.nationalarchives.gov.uk/20130107105354/ http://www.dh.gov.uk/prod_consum_dh/groups/dh_ digitalassets/@dh/@en/@pg/documents/digitalasset/ dh_103154.pdf

› Ham C, Dixon A, Brooke B. Transforming the delivery of health and social care. The case for fundamental change. 2012. http://www.kingsfund.org.uk/sites/files/kf/field/field_ publication_file/transforming-the-delivery-of-health-and- social-care-the-kings-fund-sep-2012.pdf

› NHS Networks. Improving Rehabilitation Services (IRS). https://www.networks.nhs.uk/nhs-networks/clinical- commissioning-community/improving-adult-rehabilitation- services

› British Geriatrics Society. Comprehensive Assessment of the Frail Older Patient. January 2010. http://www.bgs.org.uk/ index.php/topresources/publicationfind/goodpractice/195- gpgcgassessment

› Better Care Fund Taskforce. Better Care Fund. Policy Framework. December 2014. Department of Health and Department for Communities and Local Government. https://www.gov.uk/ government/uploads/system/uploads/attachment_data/ file/381848/BCF.pdf

› NHS England. Better Care Fund Planning webpage. http://www. england.nhs.uk/ourwork/part-rel/transformation-fund/bcf- plan/

CARE OF OLDER PEOPLE

Map 65: Percentage of people aged 65 years and over who were still at home 91 days after discharge from hospital into re-ablement/rehabilitation services by upper-tier local authority

2013/14

Domain 2: Enhancing quality of life for people with long-term conditions

Domain 3: Helping people to recover from episodes of ill health or following injury

Lowest

Highest

Data removed or missing

LONDON

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Per cent
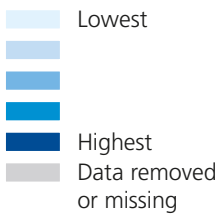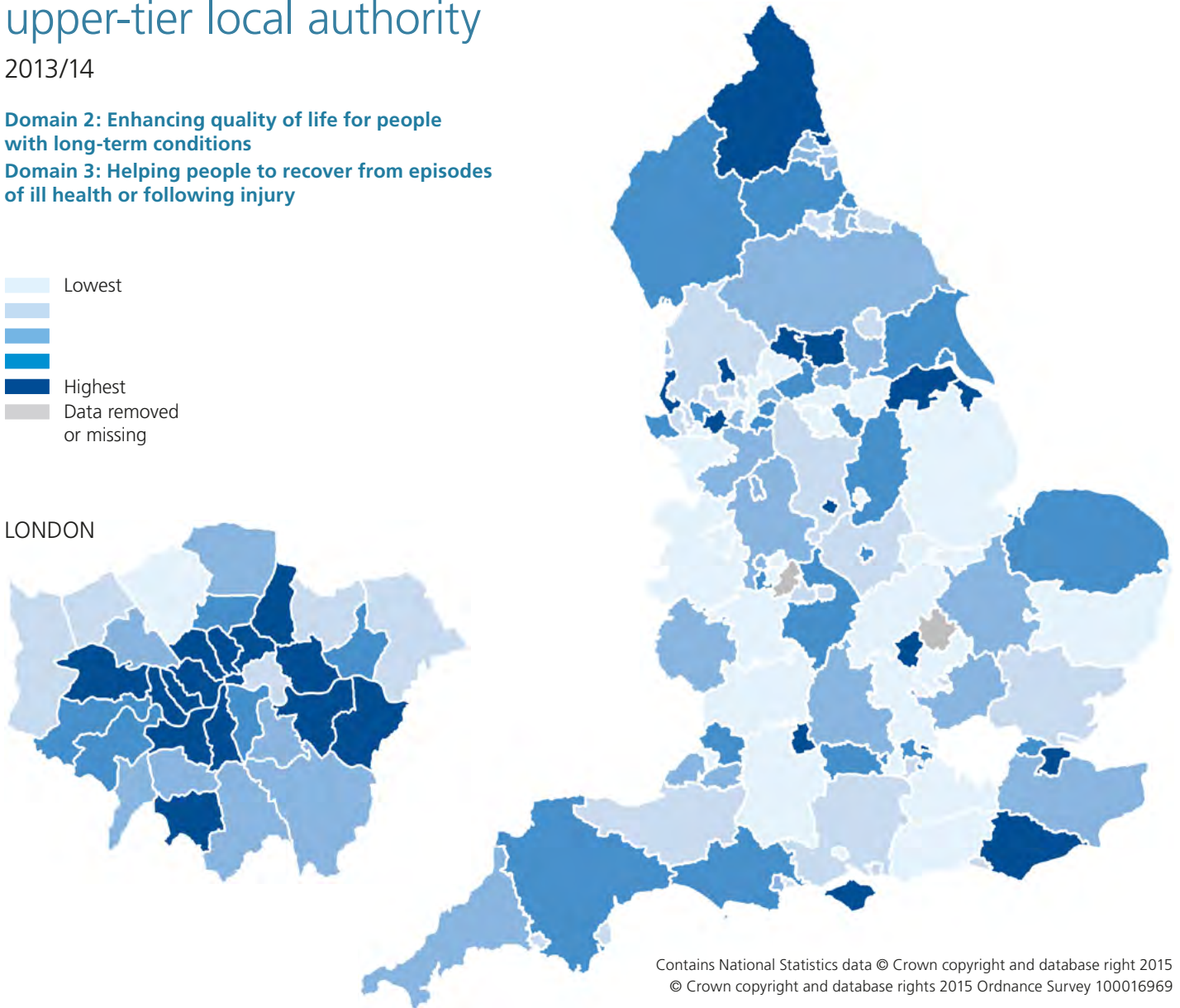
149 out of 152 UTLAs (1 removed due to small numbers, and 2 missing data)

END-OF-LIFE CARE

Map 66: Percentage of all deaths in an area that occurred in hospital by upper-tier local authority

2013

**Domain 4: Ensuring that people have
a positive experience of care**
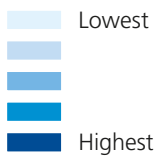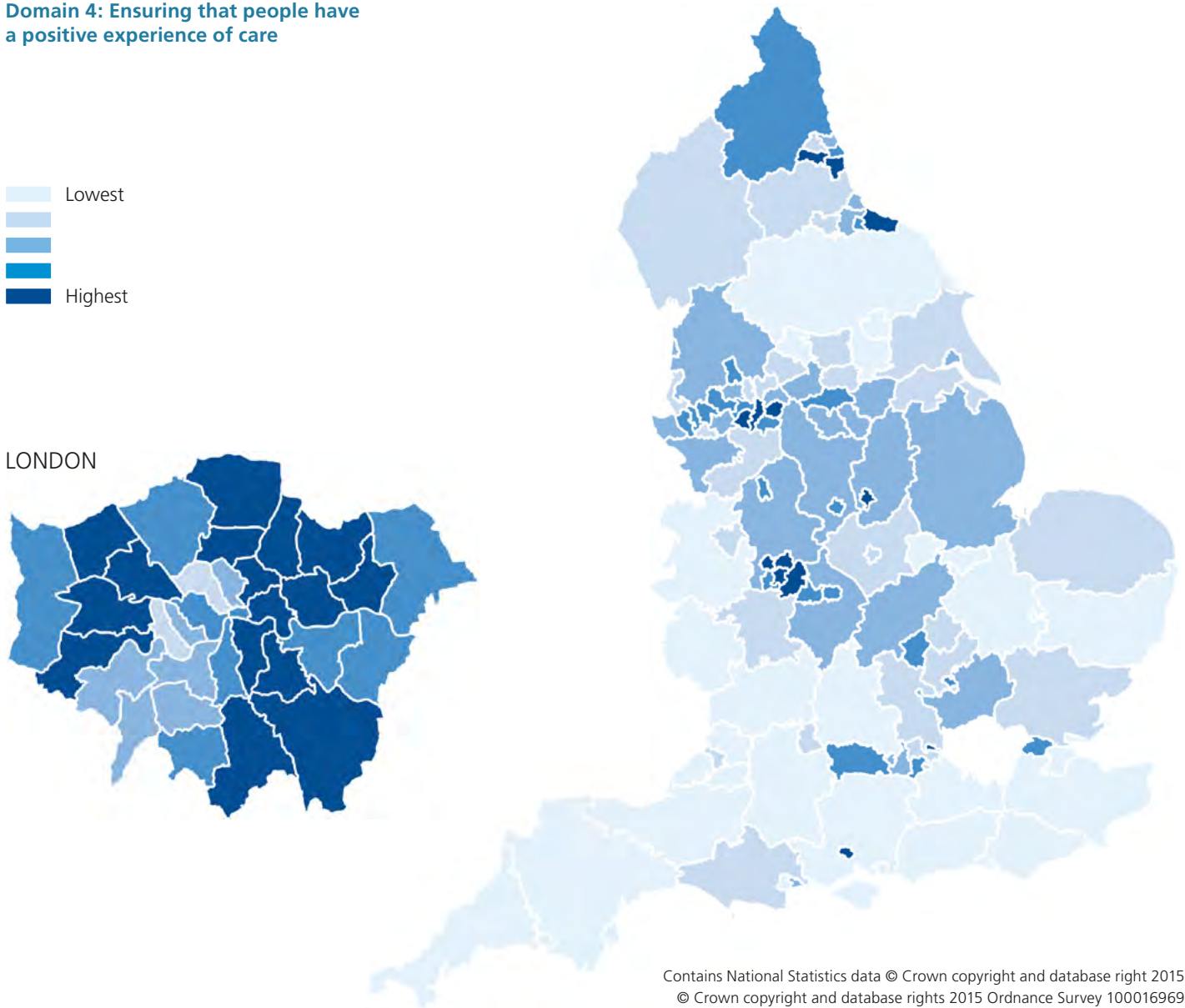
Lowest

Highest

LONDON

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152 UTLAs

Per cent
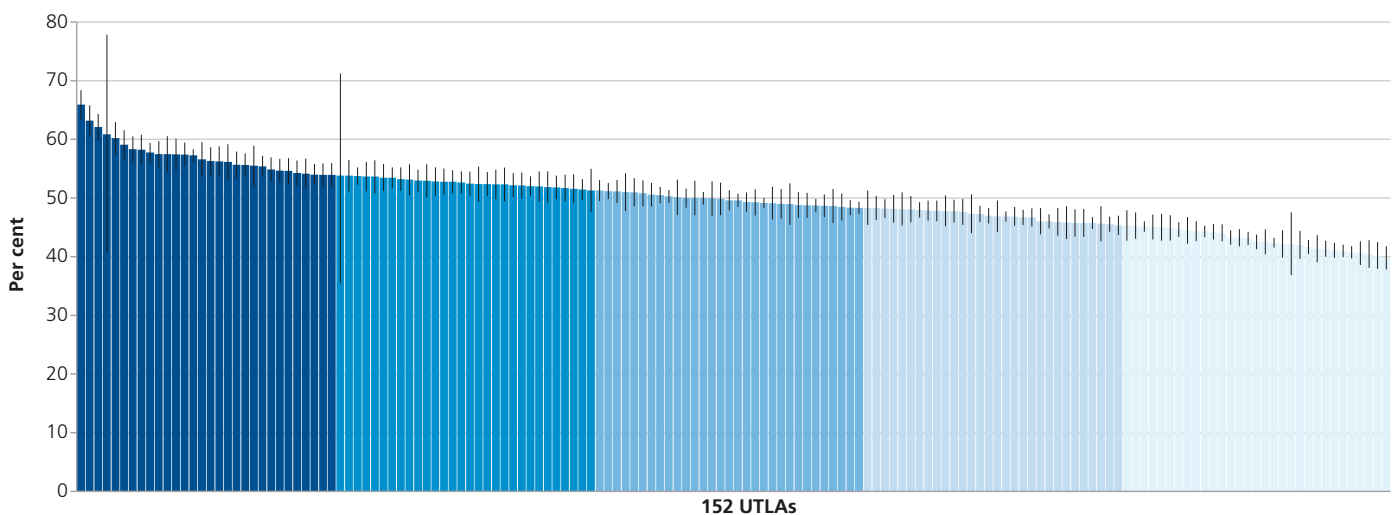
Context

Over 450,000 people die in England each year: approximately half of these deaths occur in hospital, approximately 40% of deaths are either in a person's own home or in a residential care home (these two settings combined are referred to as deaths "in usual place of residence"), and fewer than 10% of deaths occur in a hospice, although hospice services are often involved in supporting many more dying people and their families through the activity of hospice and hospital community outreach teams. In England in 2013:

› 48.3% of all deaths occurred in hospital;

› 44.5% of all deaths occurred at a person's usual place of residence, but in nearly one-quarter of CCGs, less than 40% of people died at their usual place of residence;

› 5.5% of all deaths occurred in a hospice.

If possible, people should have the opportunity to die in a place of their choosing. Survey results suggest that many people would, given the choice and right circumstances, prefer to die at home, and fewer people wish to die in hospital.

In England in 2013, 84% of deaths were in people aged 65 years or older; elderly patients are more likely to be suffering from multiple morbidities at death.

People should be admitted to hospital on the basis of need, regardless of factors such as age or frailty alone. Hospitalisation should not be used as the default setting for care when it is clear that admission is medically unnecessary and contrary to someone's expressed wishes, and where alternative care arrangements can be made.

The NICE Quality Standard for End of Life Care (see "Resources") covers all settings and services in which care is provided by health and social care to all adults approaching the end of life. It includes a quality statement on the timely identification of people in the last days of life, and the coordination and delivery of care in accordance with their personalised care plan.

Current models of unplanned care are expensive. Emerging good practice shows that effective community teams working with clearly identified patients who have a personalised care plan can improve people's experiences at end of life, and the experience of their families, while reducing, or at least not increasing, cost to the local system.

Care of the dying is provided by a range of agencies including the NHS, local authority social services, charities, and hospices.

Magnitude of variation

Map 66: Deaths in hospital

For upper-tier local authorities (UTLAs) in England, the percentage of all deaths in an area that occurred in hospital ranged from 39.8% to 65.9% (1.7-fold variation), a 26.2% difference. When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 41.0–59.1%, and the variation is 1.4-fold, an 18.1% difference.[1]

In 2013 in just over half of all UTLAs (80 out of 152), the percentage of all deaths that occurred in hospital was below 50%.

Map 67: Deaths in usual place of residence

For CCGs in England, the percentage of all deaths in an area that occurred in usual place of residence ranged from 24.6% to 56.5% (2.3-fold variation), a 31.9% difference. When the seven CCGs with the highest percentages and the seven CCGs with the lowest percentages are excluded, the range is 32.8–52.5%, and the variation is 1.6-fold, a 19.6% difference.[2]

For both indicators, possible reasons for the degree of variation observed include differences in:

› the proportion of people older than 65 years in local populations, i.e. people most likely to be in a residential care home;

› the number of residential care home places per head of population aged older than 65 years;

› personal factors – age, marital status, and level of deprivation[3];

› proximity to a hospital;

› availability of 24-hour telephone and other community support;

› existence of a clear care plan for the last days of life;

› whether the person lives alone or whether there are family or friends who are able to provide care and support;

› professional and family understanding that a person is likely to die in the next few weeks, days or hours, and communication about this between professionals and people close to the patient.

1 For 2006-2008 data by local authority, see Atlas 1.0, Map 29, pages 82-83.

2 For 2010 data by PCT, see Atlas 2.0, Map 66, pages 198-199.

3 Gao W, Ho YK, Verne J et al on behalf of the GUIDE_Care project (2013) Changing Patterns in Place of Cancer Death in England: A Population-Based Study. PLoS Med 10(3): e1001410. doi: 10.1371/journal.pmed.1001410 http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001410

Options for action

Commissioners need to consider how end-of-life care is best coordinated and managed among the range of local service providers, including the NHS, local authority social services, charities, and hospices. The recent publication, *Ambitions for Palliative and End of Life Care: A national framework for local action 2015–2020* (see "Resources"), will be helpful in this respect.

Commissioners need to collaborate with:

> local authority social services to adopt and implement the fast-track continuing healthcare assessment process for all people identified as at end of life;

> health and social care statutory and third-sector service providers to ensure high-quality care is provided quickly, responsively and reliably to enable a person to remain in their usual place of residence.

Commissioners need to specify that all service providers work towards achieving the NICE quality standard for adult end-of-life care (QS13; see "Resources").

Commissioners together with service providers need to consider the level of support required by older people with multiple morbidities outside a hospital setting. A variety of places may constitute home for an elderly person, not only their own house but also settings such as a residential care home or nursing care home.

Commissioners need to specify that primary care providers:

> assess, where possible, which people may be in the last year of life and, if it accords with a person's wishes, undertake collaborative care planning through primary care registration, communication and management;

> share, once consent has been obtained, care-planning information through an electronic palliative care coordinating system (EPaCCS) or equivalent, such that a person's care plan and status are visible to relevant agencies, including community services, ambulance services, accident and emergency services, and personal care services.

All service providers, but particularly GPs, need to assess which people may be approaching the last months or weeks of life, and offer to discuss what matters most, including their preferences for care, place of care, and place of death, while respecting people's wishes if they do not wish to engage in care planning. For those people willing to discuss end-of-life care needs and preferences, a personalised care plan needs to be developed in partnership with the person concerned (unless they prefer not to be involved). A person's family, carers and other people important to them should be involved in these discussions to the extent agreed by the individual concerned. The care plan needs to be:

> documented and made available to all the relevant agencies, including primary care services, social care services, ambulance services, and local hospitals;

> regularly reviewed and revised to match changing views and circumstances.

Commissioners need to review investment:

> to assess whether additional resources are necessary to support home care for people who are dying – unnecessary acute hospital admissions entail considerable expenditure, and better value for individuals and for the population could be obtained by adequate investment in home-based care;

> to ensure 24/7 resilience and response in community services, including specialist palliative care, to support people at the end of life and their carers, including after the individual's death.

RESOURCES

> National Palliative and End of Life Care Partnership. *Ambitions for Palliative and End of Life Care: A national framework for local action 2015–2020.* http://www.endoflifecareambitions.org.uk

> National Palliative and End of Life Care Partnership. *Ambitions for Palliative and End of Life Care: A national framework for local action 2015–2020.* A slide-deck. http://www.endoflifecareambitions.org.uk

> Leadership Alliance for the Care of Dying People. One Chance to Get it Right. Improving people's experience of care in the last few days and hours of life. Department of Health, June 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/323188/One_chance_to_get_it_right.pdf

> NHS Improving Quality. End of life care website. http://www.nhsiq.nhs.uk/improvement-programmes/long-term-conditions-and-integrated-care/end-of-life-care.aspx

> NICE. End of life care for adults. NICE quality standard [QS13]. August 2011. https://www.nice.org.uk/guidance/qs13

> National End of Life Care Intelligence Network. http://www.endoflifecare-intelligence.org.uk/home.aspx

> General Medical Council. Treatment and care towards the end of life: good practice in decision making. 20 May 2010. http://www.gmc-uk.org/guidance/ethical_guidance/end_of_life_care.asp

> Bereavement Services Association and Cruse Bereavement Care. Bereavement Care Service Standards. 2013. http://www.cruse.org.uk/sites/default/files/default_images/pdf/Documents-and-fact-sheets/Bereavement_Care_Service_Standards.pdf

> National Council for Palliative Care. Dying Matters Coalition website. http://www.dyingmatters.org/

END-OF-LIFE CARE

Map 67: Percentage of all deaths in an area that occurred in usual place of residence by CCG

2013

Domain 4: Ensuring that people have a positive experience of care
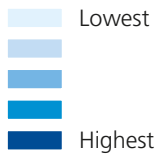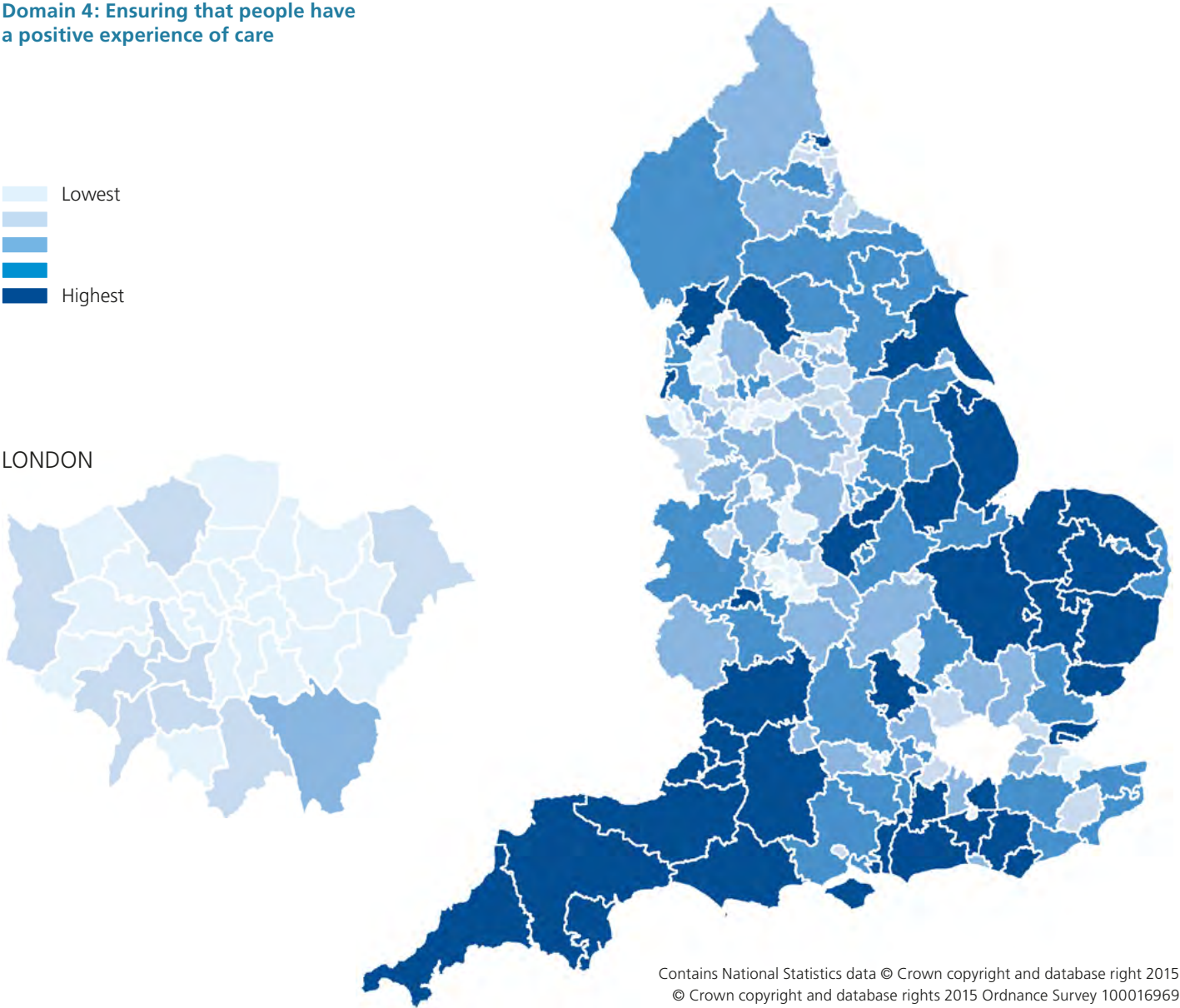
Lowest

Highest

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211 CCGs
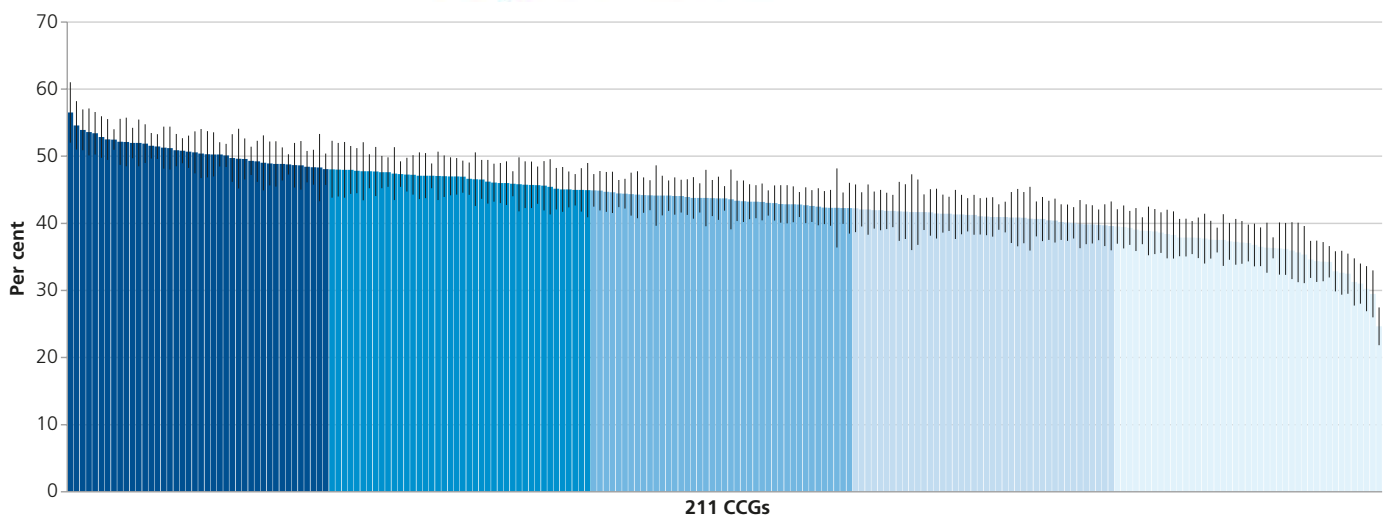
CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 68: Percentage of babies admitted to specialist neonatal care who were born at full term (≥37 weeks' gestational age at birth) by neonatal network

2013/14

Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest

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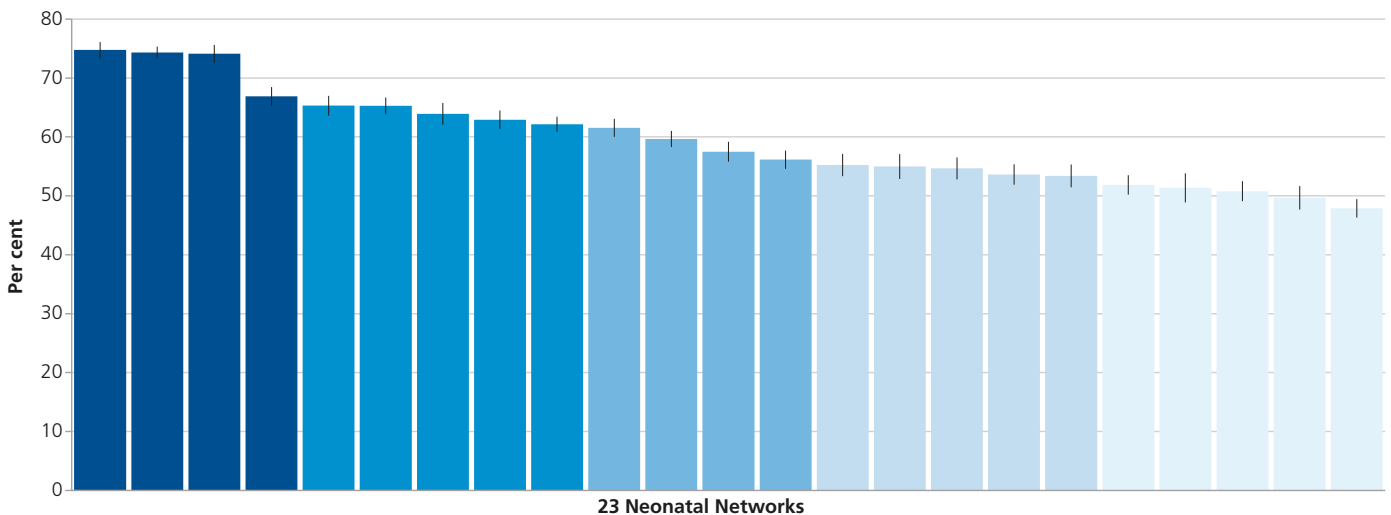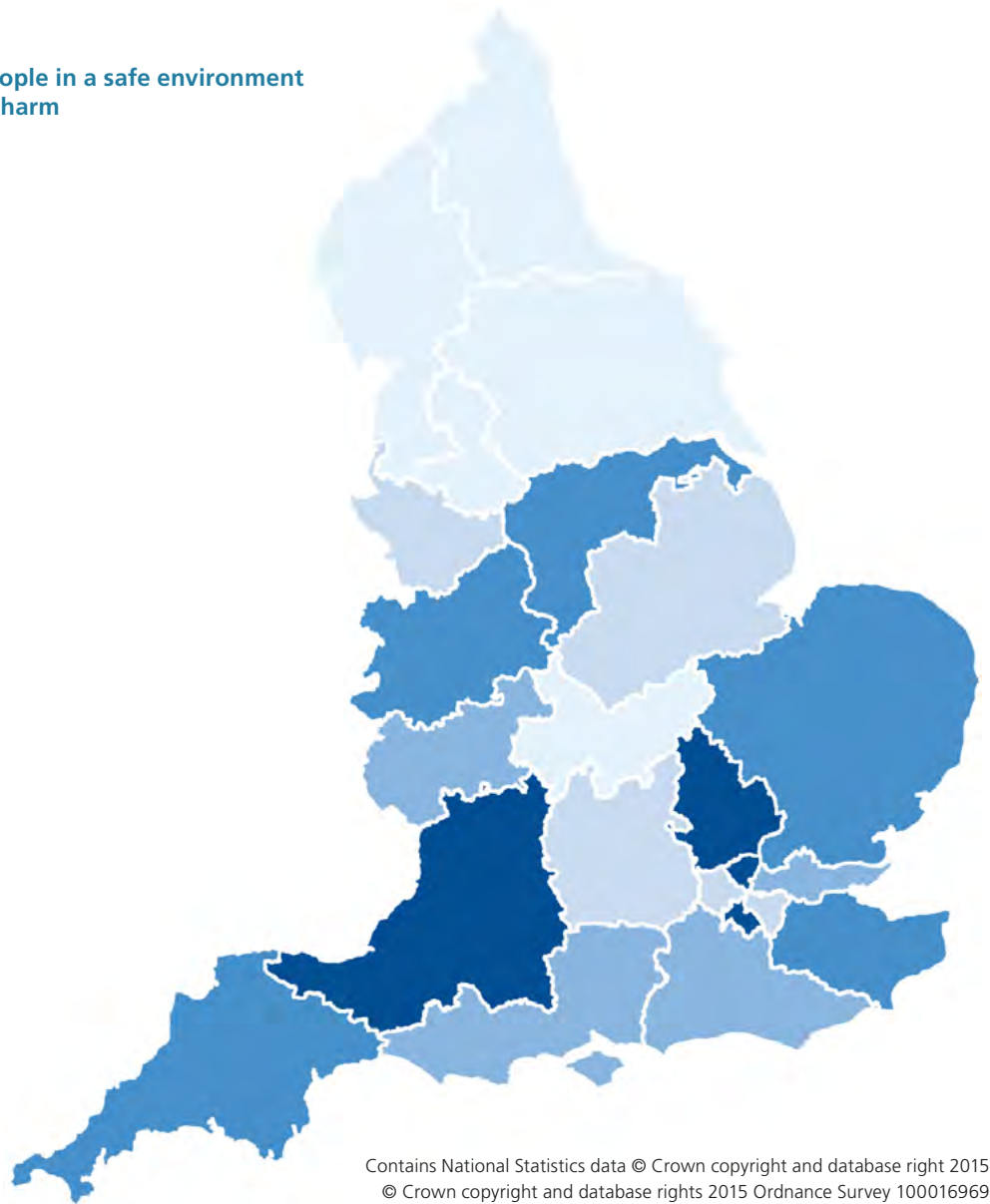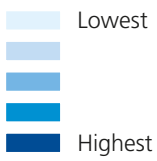
Context

Most neonatal care in hospital involves the management of premature babies. The number of premature babies is determined by local demography and socio-economic deprivation, and is less amenable to change through commissioning; however, sick babies of any gestation may be admitted to a neonatal unit for several reasons amenable to intervention.

The number of full-term admissions to specialist neonatal care is increasing year on year, and in many cases these admissions could be avoided reducing the separation of mother and baby.

The health of newborn babies can be affected by maternal health and lifestyle factors, including:

> smoking habit and alcohol consumption;

> conditions such as diabetes.

The quality of intrapartum and postnatal care can affect the need for specialist neonatal care – for instance, newborn babies can have respiratory distress syndrome as a complication of birth by Caesarean section, which may result in admission to a neonatal unit for treatment.

Reducing the admissions of full-term babies to specialist neonatal care:

> is beneficial for the families involved;

> could save substantial costs and thereby facilitate resource reallocation.

"Admission of full term babies to neonatal care" is a national quality indicator in the NHS Outcomes Framework 2015/16.

Magnitude of variation

For neonatal networks in England, the percentage of babies admitted to specialist neonatal care who were born at full term (≥37 weeks' gestational age at birth) ranged from 47.9% to 74.8% (1.6-fold variation).[1]

Although socio-economic deprivation affects neonatal mortality and morbidity, it has a greater impact on premature births and cannot explain the variation in this indicator because it includes all births.

Possible reasons for the degree of variation observed are differences in:

> coding;

> maternal health status;

> access to antenatal care;

> clinical practice in perinatal care or neonatal team clinical decision-making;

> the number of skilled midwives on postnatal wards;

> admission criteria to neonatal units, special care baby units and transitional care within individual hospitals.

There are parallels with the results of variations analysis of adult intensive care units, where bed capacity has an independent effect on the level of medical intervention irrespective of clinical need. The decision to admit a full-term baby to specialist neonatal care is influenced by:

> the baby's clinical condition;

> availability of cots.

Some of the variation observed may result from different levels of provision, thereby exemplifying a supply-side cause of unwarranted variation (see Glossary, page 273).

Options for action

To reduce or avoid the number of admissions, neonatal units need to undertake local clinical reviews of reasons for admission and identify appropriate areas for action and necessary service improvements. It is advisable that these reviews are undertaken jointly by maternity and neonatal services.

Each neonatal network needs to develop standardised guidelines for clinical admission criteria, and implement available best-practice resources for reducing term admissions.

Commissioners need to specify that service providers and clinicians implement NHS England's care bundle for reducing stillbirths (see "Resources"), the recommendations in which will reduce the risk of perinatal morbidity that would otherwise result in admission to neonatal care.

To reduce complications to newborn babies, commissioners and service providers could review:

> interventions to reduce alcohol and smoking during pregnancy;

> access to antenatal care and screening;

> the impact of Caesarean section undertaken prior to 39 completed weeks in conjunction with admissions of full-term babies to specialist neonatal care for management of respiratory symptoms;

> the adequacy of numbers of skilled staff, including 24-hour Consultant presence on delivery suite, and appropriateness of midwifery staffing;

> implementation and adherence to national guidance on antenatal, intrapartum and postnatal care and management.

Performance data could be analysed and benchmarked to enable comparisons:

> among units in each neonatal network;

> among neonatal networks in England;

> with other countries that have developed economies.

RESOURCES

> NICE. Postnatal care. NICE guidelines [CG37]. December 2014. http://www.nice.org.uk/CG037

> NICE. Specialist neonatal care quality standard. NICE quality standard [QS4]. October 2010. http://www.nice.org.uk/guidance/qs4

> NHS England. Saving Babies Lives: Reducing Stillbirth a neonatal death: A care bundle (sic). http://www.6cs.england.nhs.uk/pg/cv_content/content/view/148581/95584

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1   Data for the numerator have been provided by the Neonatal Data Analysis Unit, Imperial College London, from the National Neonatal Research Database.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 69: Percentage of normally formed full-term babies (≥37 weeks' gestational age at birth) admitted to neonatal intensive care who received therapeutic hypothermia by neonatal network

2013/14

Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

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Context

Neonatal encephalopathy is the fifth most common reason for babies born at full term (≥37 completed weeks' gestation) to be admitted to neonatal intensive care. The commonest cause for neonatal encephalopathy is hypoxic-ischaemic encephalopathy (HIE) secondary to perinatal asphyxia. For babies with HIE, early initiation of therapeutic hypothermia ("cooling") is now standard in specialist neonatal care in England.

The risk of death or severe handicap in survivors of moderate or severe HIE is approximately 25% and 75%, respectively.[1] Even those children without motor impairments:

› have lower cognitive scores on long-term follow-up;

› have poorer scholastic attainment in independent National Attainment Tests;

› often need educational support.[2]

This represents a considerable burden not only to the individual, the family and the NHS, but also to society as a whole.

Risk factors for HIE before delivery include maternal health, severe pre-eclampsia or placental insufficiency; during delivery, they include perinatal infection, placental abruption, misinterpretation of fetal well-being or reduced oxygen delivery to the fetus from, for example, cord prolapse or shoulder dystocia. Early recognition and management of these risk factors would help to minimise the incidence of HIE.

Early recognition and treatment of neonatal encephalopathy has an impact on mortality and long-term morbidity outcomes. Once recognised, early initiation of therapeutic hypothermia ("cooling") has been shown to reduce mortality and morbidity associated with HIE.

Magnitude of variation

For neonatal networks in England, the percentage of normally formed full-term babies admitted to neonatal intensive care who received therapeutic hypothermia ranged from 0.7% to 3.9% (5.4-fold variation).[3]

Possible reasons for the degree of variation observed include differences in:

› incidence;

› timing of diagnosis;

› thresholds for the initiation of therapeutic hypothermia ("cooling").

Variation in incidence may be due to differences in:

› maternal health status;

› access to specialist antenatal care;

› the number and skill-mix of midwifery teams;

› the clinical practice of obstetric teams.

Variation in diagnosis/treatment may be due to differences in:

› diagnosis of neonatal encephalopathy by neonatal teams;

› the interpretation of the threshold to initiate treatment;

› access to equipment and/or skill-mix to initiate and maintain therapeutic hypothermia.

Options for action

Commissioners need to specify that service providers:

› meet the standards for maternity and neonatal care outlined by NICE and the Royal Colleges (see "Resources");

› deliver high-quality antenatal care to all pregnant women, particularly women from different ethnic groups and in lower socio-economic groups.

Equitable service provision includes:

› antenatal education and information on antenatal health and nutrition;

› access to antenatal screening for infections and congenital malformations.

For these babies to receive the care they need in the right clinical setting as quickly as possible, it depends upon:

› appropriate assessment of high-risk pregnancies;

› allocation to the appropriate level of maternity care (and anticipating the level of neonatal care commensurate with the risk).

Maternity networks are responsible for ensuring that individual units within their network have the capacity and workforce to offer safe, appropriate and evidence-based practice, in order to reduce the numbers of babies born and admitted with neonatal encephalopathy.

Neonatal networks must monitor risk-adjusted outcomes for neonatal encephalopathy, and ensure the network, and each unit within the network, have the workforce skilled in assessing and treating HIE appropriately, and the equipment and staffing to initiate and maintain therapeutic hypothermia, in order to minimise mortality and long-term morbidity.

Commissioners and service providers are both responsible for investigating the causes of within- and between-network variation, ranging from public health measures to maternity care and neonatal care.

RESOURCES

› Royal College of Obstetricians and Gynaecologists (RCOG). Standards for Maternity Care. Published 1/06/2008. http://www.rcog.org.uk/womens-health/clinical-guidance/standards-maternity-care

› NICE Specialist neonatal care quality standard. NICE quality standard [QS4]. October 2010. https://www.nice.org.uk/guidance/qs4

› NICE. Therapeutic hypothermia with intracorporeal temperature monitoring for hypoxic perinatal brain injury. NICE interventional procedure guidance [IPG347]. May 2010. http://www.nice.org.uk/guidance/ipg347

1 Evans K, Rigby AS, Hamilton P, Titchiner N, Hall DM. The relationships between neonatal encephalopathy and cerebral palsy: a cohort study. J Obstet Gynaecol 2001;21(2):114-120. http://www.ncbi.nlm.nih.gov/pubmed/12521875

2 Marlow N, Rose AS, Rands CE, Draper ES. Neuropsychological and educational problems at school age associated with neonatal encephalopathy. Arch Dis Child Fetal Neonatal Ed 2005;90(5):F380-F387. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1721935/
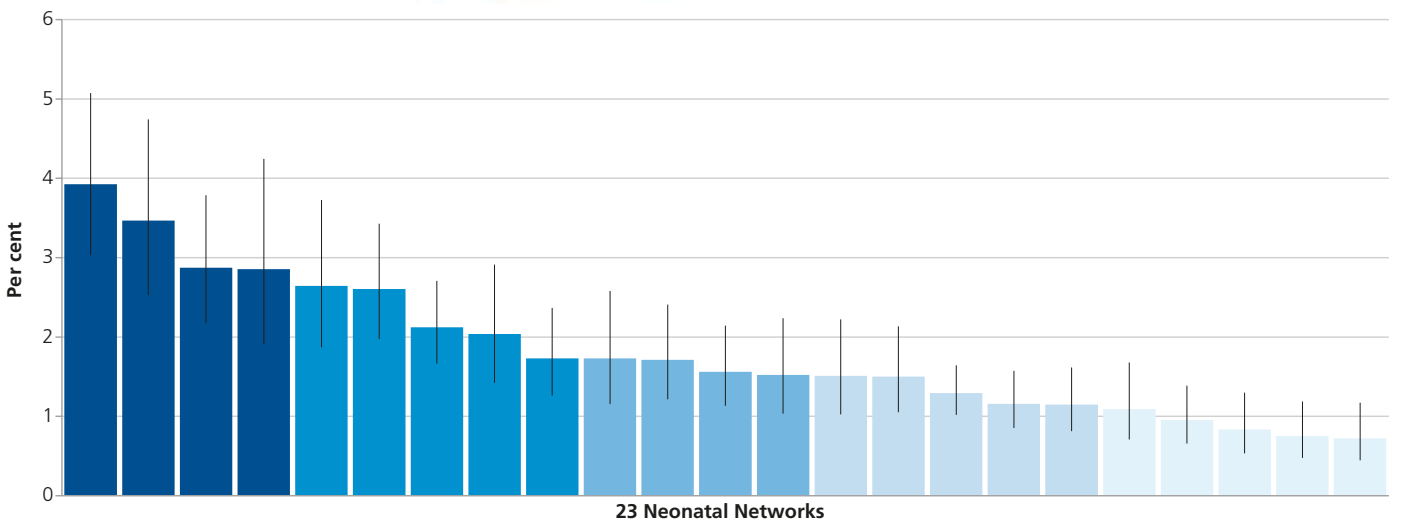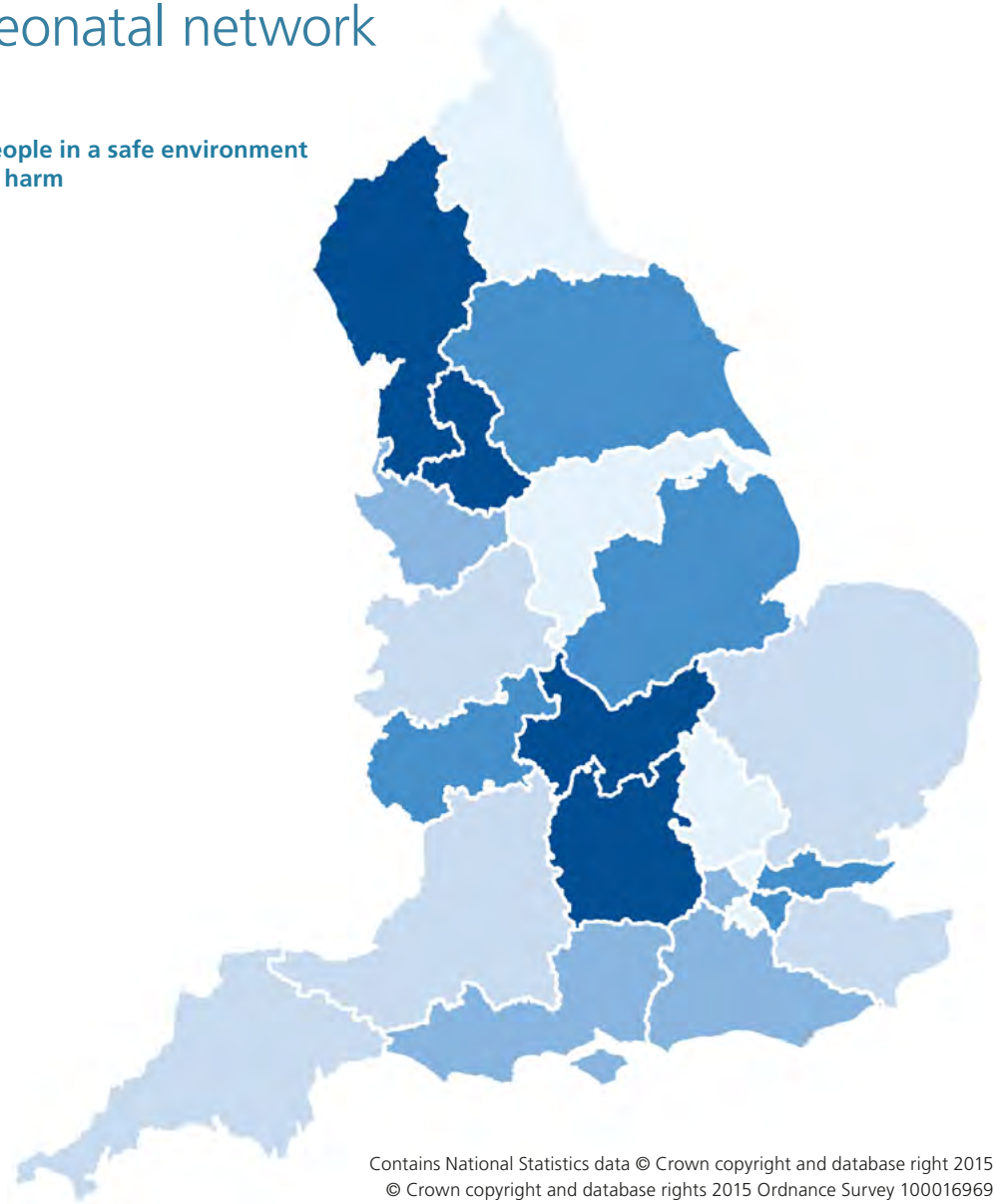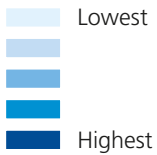
3 Data for the numerator have been provided by the Neonatal Data Analysis Unit, Imperial College London, from the National Neonatal Research Database.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 70: Rate of stillbirths and neonatal deaths (under 28 days) per all live-births and stillbirths by upper-tier local authority

2012

Domain 1: Preventing people from dying prematurely

Lowest

Highest
Data merged

LONDON

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150 out of 152 LAs (2 merged due to small numbers)

Rate per 1,000
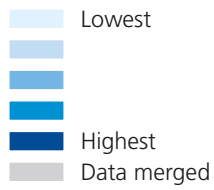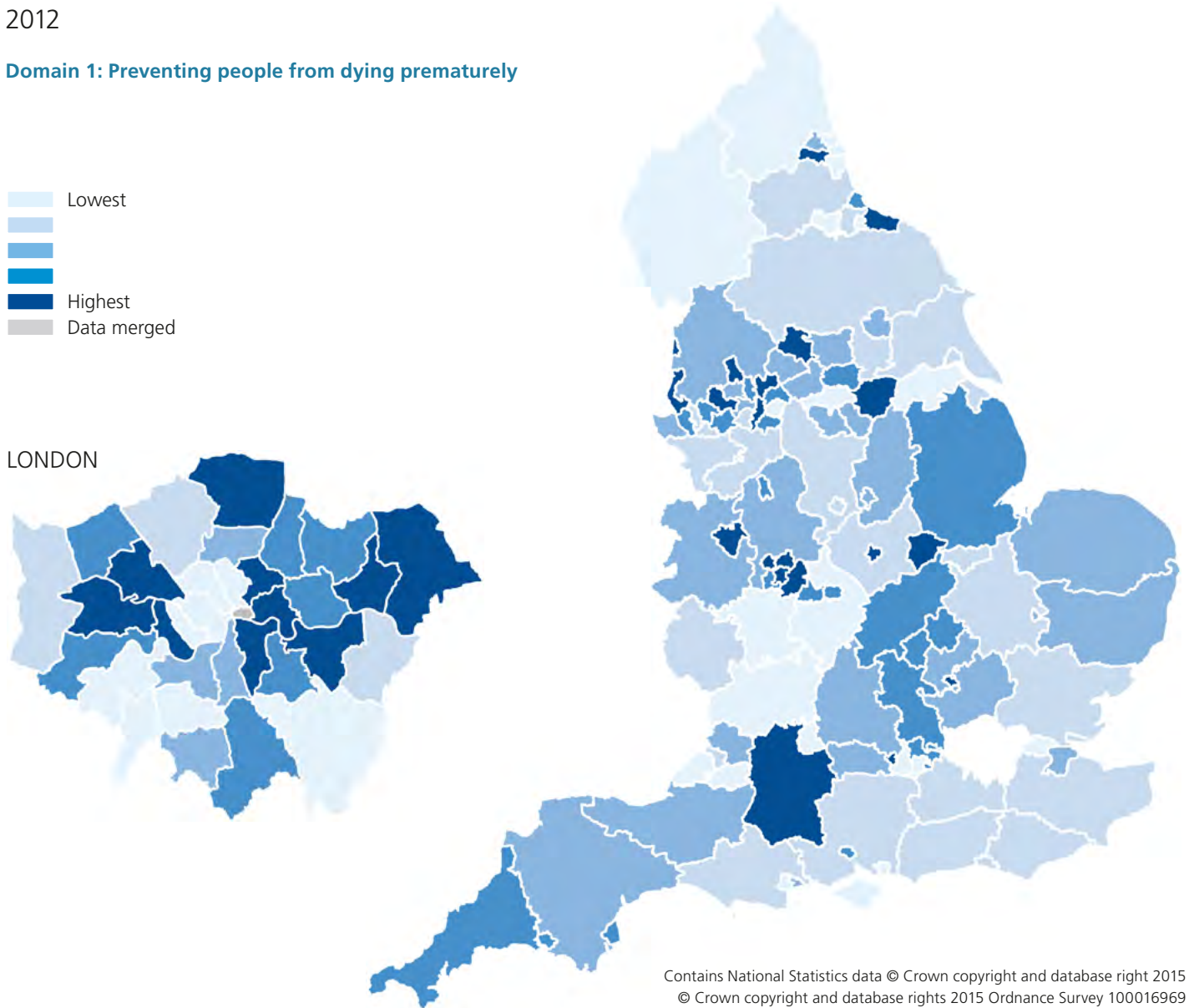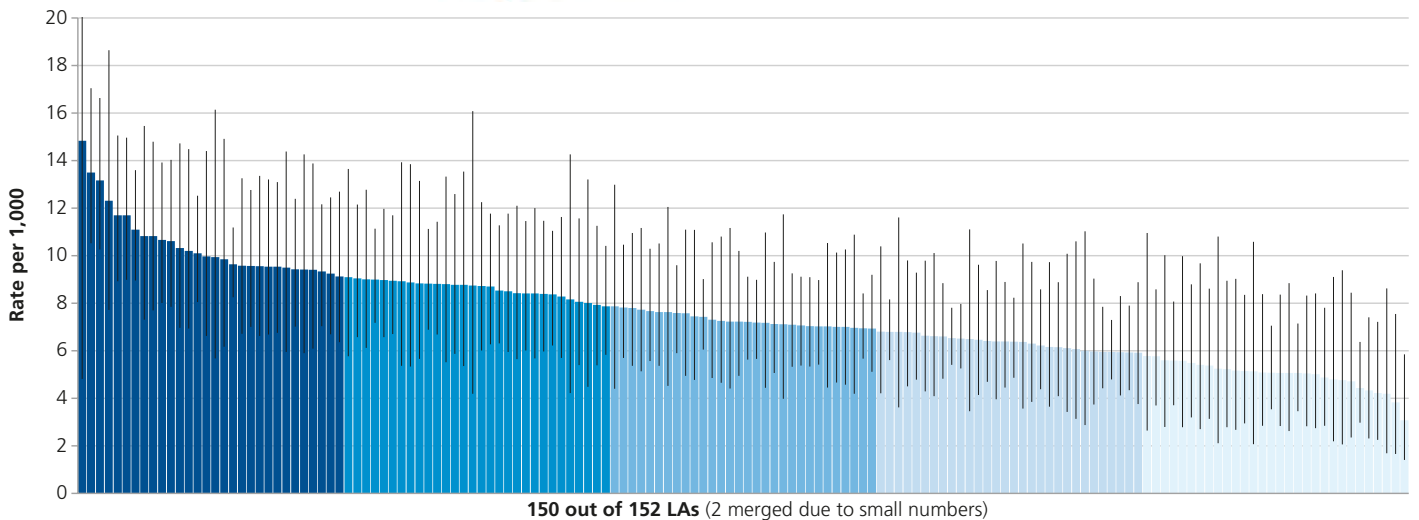
Context

Stillbirths and neonatal deaths affect around 1 in 150 pregnancies in the UK, and are among the most feared outcomes for any new parent. These deaths cause distress and anguish for a wide circle of family members, and have a profound effect on the healthcare professionals involved.

Stillbirths account for around 65% of perinatal deaths. In the UK, stillbirth is delivery of a baby showing no signs of life at birth at or after 24 weeks' gestation; other countries use different gestational age thresholds. More than 90% of stillbirths happen before the onset of labour. At least 50% of stillbirths are unexplained, however:

› 10% are due to lethal anomalies;

› 5% are related to maternal disease (mostly diabetes);

› 5–10% are intrapartum (many of these preterm);

› 10–15% are associated with abruption or other causes of bleeding;

› 10% are due to other specific causes, such as infection or pre-eclampsia.

Magnitude of variation

For upper-tier local authorities (UTLAs), the rate of stillbirths and neonatal deaths (under 28 days) ranged from 3.1 to 14.8 per all 1000 live-births and stillbirths (4.8-fold).[1] When the five UTLAs with the highest rates and the five UTLAs with the lowest rates are excluded, the range is 4.4–11.7 per all 1000 live-births and stillbirths, and the variation is 2.6-fold.

One reason for the degree of variation observed is differences in the demography of local populations. Socio-economic factors are an important predictor of stillbirth, as reflected in the spread of stillbirth across England. The correlation between social inequality and perinatal mortality is high, together with associated modifiable factors such as maternal smoking. Unexplained antepartum stillbirths account for 50% of the deprivation gap, and a greater understanding of these stillbirths is necessary to reduce socio-economic inequalities.[2]

Other factors that could contribute to the degree of variation observed are differences in:

› the penetration of novel techniques to treat life-threatening neonatal conditions, such as therapeutic hypothermia, which were being adopted during the time-period for this indicator and could explain some of the variation in neonatal survival;

› the reporting of early neonatal deaths – for deliveries before the threshold of viability (commonly referred to as 23 weeks' gestation), some practitioners may, despite the fact that a baby shows signs of life before death is confirmed, make a pragmatic decision not to record this as an early neonatal death but as a late fetal loss, which does not require issuing a birth and death certificate.

Options for action

The evidence base for interventions to reduce stillbirths is contentious, largely because it remains a relatively uncommon event, making it a challenge to design a study with an adequate level of power.

There are currently several national initiatives with the aim of reducing stillbirth. The first MBRRACE-UK report on perinatal deaths published in June 2015 (see "Resources") provides recommendations about action that can be taken by both commissioners and service providers. NHS England is leading the development of a care bundle for reducing stillbirth, "Saving Babies' Lives" (at the time of writing, soon to be published), which will be rolled out nationally.

Despite the lack of a robust evidence base, widespread commitment to national surveillance and audit of cases of stillbirth and neonatal deaths is needed through:

› the MBRRACE-UK programme (see "Resources");

› other initiatives that focus on specific sub-groups, such as the RCOG's "Each Baby Counts" programme, which focuses on intrapartum-related perinatal deaths (see "Resources").

There is a need to standardise local reviews of perinatal deaths in a structured tool. At the time of writing, the Department of Health and NHS England are in the process of considering how to develop such a tool.

It is possible to undertake targeted public health initiatives, such as interventions to reduce maternal smoking.

RESOURCES

› MBRRACE-UK: Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK.
https://www.npeu.ox.ac.uk/mbrrace-uk

› Manktelow BN, Smith LK, Evans TA et al on behalf of the MBRRACE-UK collaboration. Perinatal Mortality Surveillance Report. UK Perinatal Deaths for births from January to December 2013. June 2015. Department of Health Sciences, University of Leicester. https://www.npeu.ox.ac.uk/mbrrace-uk/reports

› Royal College of Obstetricians and Gynaecologists. Each Baby Counts.
https://www.rcog.org.uk/eachbabycounts

› Royal College of Obstetricians and Gynaecologists. Late Intrauterine Fetal Death and Stillbirth. Green-top Guideline No. 55. October 2010.
https://www.rcog.org.uk/globalassets/documents/guidelines/gtg-55-31072013.pdf

› Centre for Maternal and Child Enquiries (CEMACE) Perinatal Mortality 2009: United Kingdom. CEMACE: 2011.
http://www.hqip.org.uk/assets/NCAPOP-Library/CMACE-Reports/35.-March-2011-Perinatal-Mortality-2009.pdf

› Smith GCS. Prevention of stillbirth. The Obstetrician and Gynaecologist 2015; doi: 10.1111/tog.12197 http://onlinelibrary.wiley.com/doi/10.1111/tog.12197/abstract

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1 Owing to small numbers, Isles of Scilly local authority has been merged with Cornwall, and City of London local authority has been merged with Hackney.

2 Seaton SE et al. Socioeconomic inequalities in the rate of stillbirths by cause: a population-based study. BMJ Open 2012 Jun 25;2(3). pii: e001100.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3383980/

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 71: Percentage of preterm babies (<33 weeks' gestational age at birth) who received any maternal breast milk at discharge home from neonatal care by neonatal network

2013

Domain 4: Ensuring that people have a positive experience of care
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest

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23 Neonatal Networks

Per cent
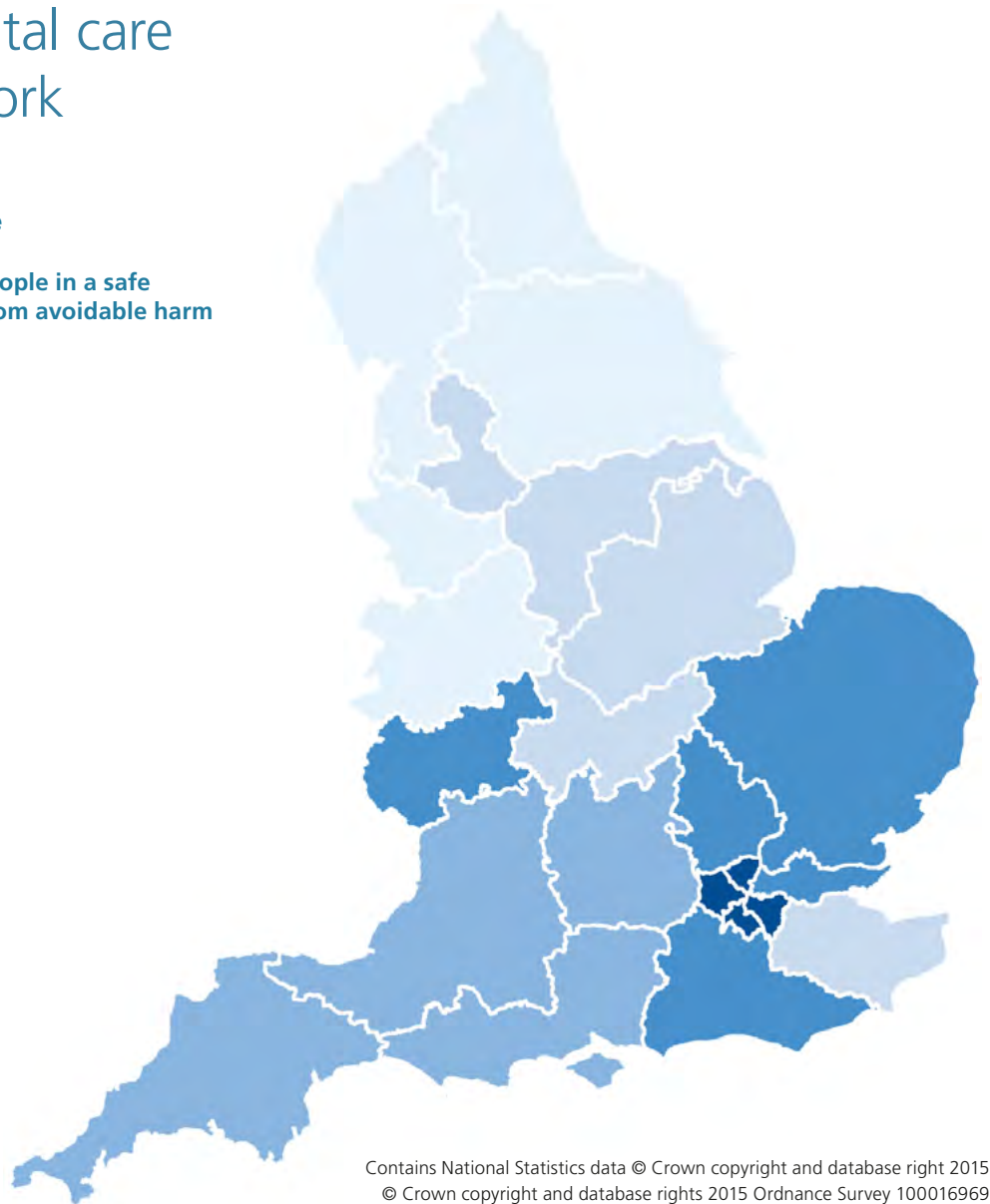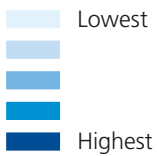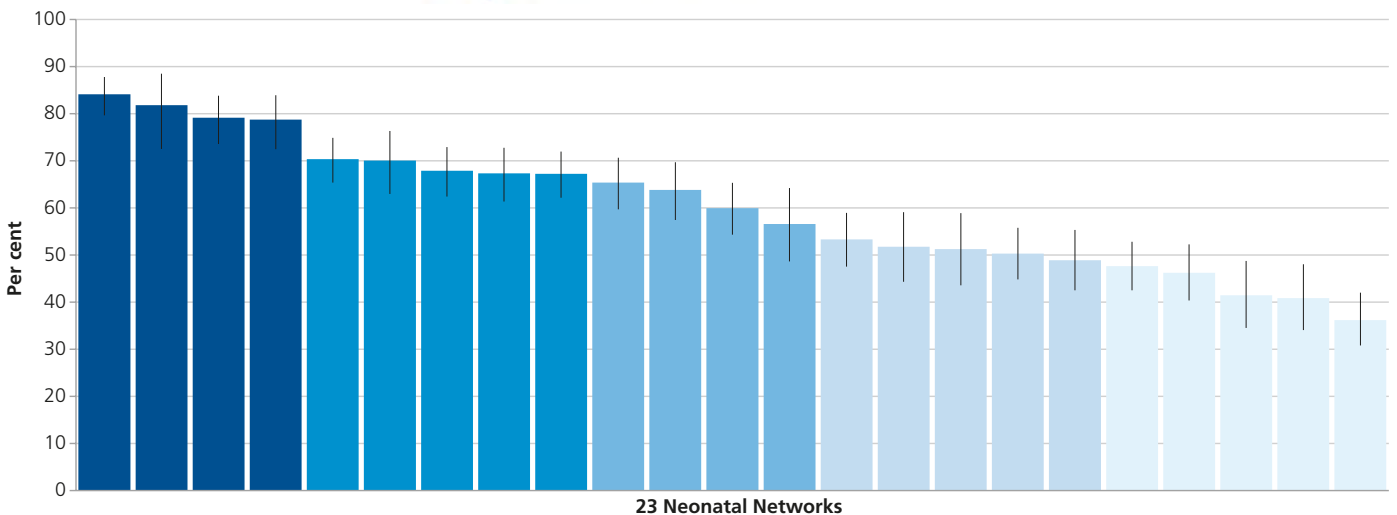
Context

Exclusive breastfeeding of infants up to 6 months is recommended by the World Health Organization and the Department of Health. This is not always possible in the first few weeks following delivery in infants born <33 weeks' gestation due to the babies' immaturity and clinical condition. The benefits of breast milk, however, in these babies include:

› reductions in serious gastro-intestinal (necrotising enterocolitis) and systemic infections;

› improved neurodevelopmental outcomes;

› improved maternal bonding and mental health.

In babies born <33 weeks' gestation, breast milk in the short and long term is associated with reduced mortality and morbidity when compared with breast-milk substitutes.[1]

As medical care advances, more babies born at earlier gestations are surviving for longer into childhood and beyond, resulting in a growing population of children with complex medical needs. The role of breastfeeding in this group has considerable potential for improving population health and increasing value to the NHS by:

› reducing neonatal complications resulting in lifelong morbidity;

› improving neurodevelopmental outcomes.

Many factors influence whether babies receive maternal breast milk during their stay on a neonatal unit and at discharge:

› maternal health at the time of birth;

› early lactation support;

› infants' nutritional needs during stay and at time of discharge;

› neonatal morbidity;

› production of maternal breast milk.

Preterm infants often have higher nutritional demands than those born at term. To address this, preterm infants may receive supplemented preterm formula, or breast milk that is fortified. Unless mothers are supported and encouraged to fortify breast milk in neonatal units, the need for nutritional supplementation may lead to use of supplemented preterm formula at the expense of breastfeeding.

Mothers of infants admitted to the neonatal unit are more likely to have undergone a traumatic delivery with obstetric complications. Maternal/infant separation and maternal anxiety associated with preterm delivery increase the challenges of initiating and sustaining breast-milk production. These mothers need much more support to initiate the expressing of breast milk, and to establish and maintain breastfeeding.

Magnitude of variation

For neonatal networks in England, the percentage of preterm babies who received any maternal breast milk at discharge home from neonatal care ranged from 36.2% to 84.1% (2.3-fold variation).[2]

The reasons for variation in breastfeeding rates among preterm infants are similar to those that influence breastfeeding rates overall: socio-economic status, and ethnicity.

The degree of impact of these social factors in babies born <33 weeks' gestation, however, is substantially less than that in babies born at full term due to the greater emphasis by neonatal units on the immediate short-term benefits of breast milk among preterm neonates.

Options for action

Each neonatal network needs:

› to identify the proportion of babies born at <33 weeks in the individual units;

› to establish the proportion of babies who received (i) exclusive breast milk at discharge, and (ii) some breast milk at discharge.

In addition, neonatal networks need to share and implement examples of good practice that have led to an increase in breastfeeding rates at discharge.

Commissioners need to specify that service providers:

› provide adequate support for mothers on neonatal units and on postnatal wards to initiate early expressing of breast milk within 6 hours following delivery;

› provide support in optimising maternal nutrition to enhance nutritional intake from maternal breast milk and thereby reduce the need for formula supplementation;

› make available appropriate equipment to allow early expression of milk;

› make available equipment for expressing breast milk following discharge or provide information on pump hire schemes in the community setting;

› allocate appropriate resource to facilitate the role of neonatal outreach staff in supporting ongoing breastfeeding in preterm infants;

› encourage mother-and-baby contact in the neonatal unit through "kangaroo" care to promote breast milk production;

› identify groups in whom breastfeeding rates are low and target interventions at these groups.

Health professionals need to be aware of the psychological effect of having a preterm infant, and to support mothers in understanding the importance of breast milk/breastfeeding in the care of their babies in a highly medicalised environment.

RESOURCES

› Best Beginnings. Resources to support breastfeeding, particularly for babies who require specialist neonatal unit care. http://www.bestbeginnings.org.uk/fbtb-sick-or-pre-term

› Battersby C, Santhakumaran S, Upton M et al on behalf of the East of England Perinatal Networks, the UK Neonatal Collaborative and the Neonatal Data Analysis Unit. Impact of a regional care bundle on maternal breast milk use in preterm infants: outcomes of the East of England Quality Improvement Programme. Arch Dis Child Fetal Neonatal Ed 2014; 99(5):F395-401.

1 Renfrew MJ, Craig D, Dyson L, McCormick F, Rice S, King SE et al. Breastfeeding promotion for infants in neonatal units: a systematic review and economic analysis. Health Technol Assess 2009;13(40). http://www.journalslibrary.nihr.ac.uk/__data/assets/pdf_file/0008/64718/FullReport-hta13400.pdf

2 Data for the numerator have been provided by the Neonatal Data Analysis Unit, Imperial College London, from the National Neonatal Research Database.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 72: Percentage of infants who were totally or partially breastfeeding at 6–8 weeks by upper-tier local authority

2012/13

**Domain 4: Ensuring that people have
a positive experience of care**
**Domain 5: Treating and caring for people in a safe environment
and protecting them from avoidable harm**

Lowest

Highest
Data merged
or missing

LONDON

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122 out of 152 UTLAs (27 missing data and 3 merged due to small numbers)
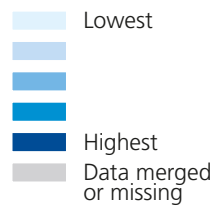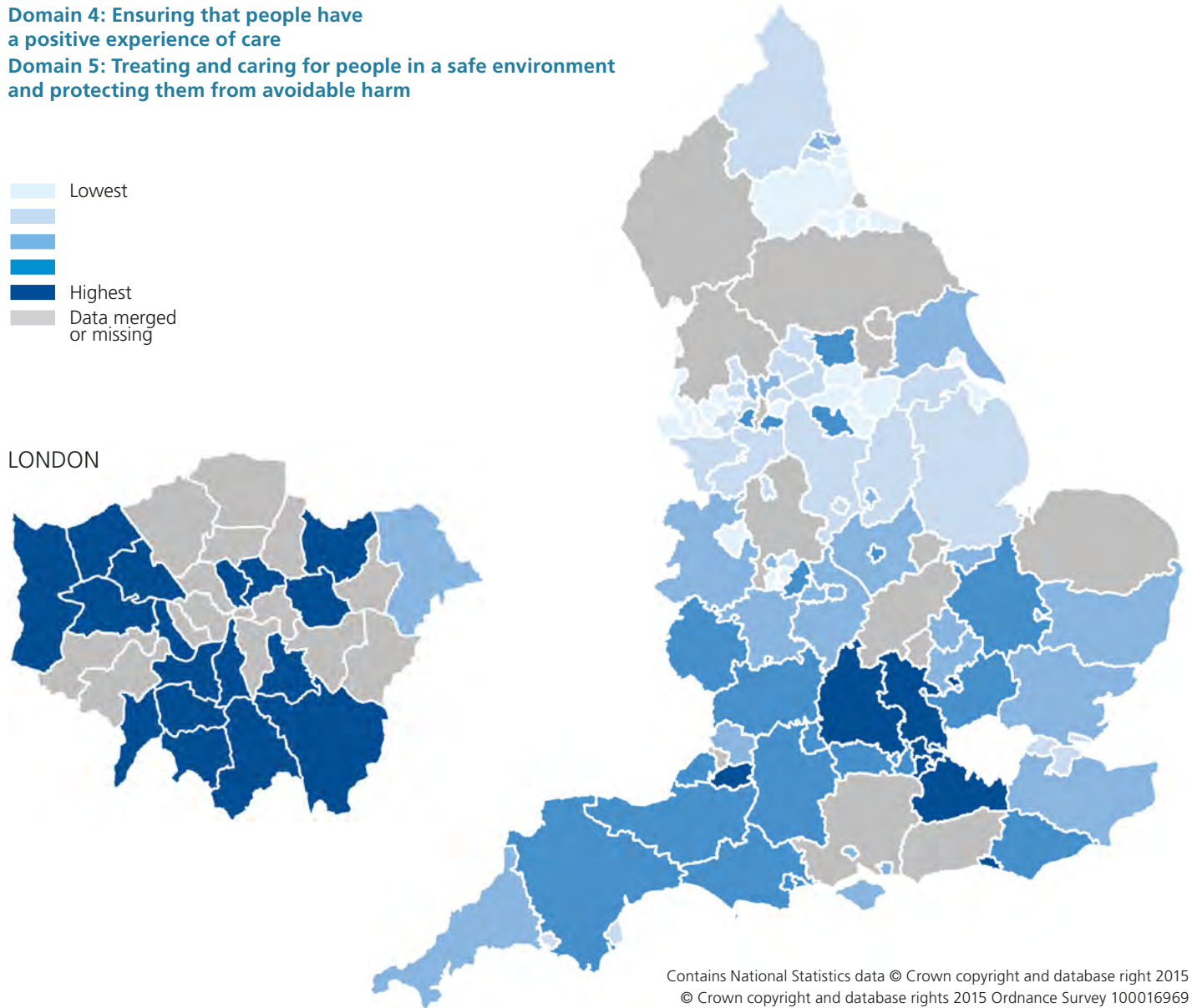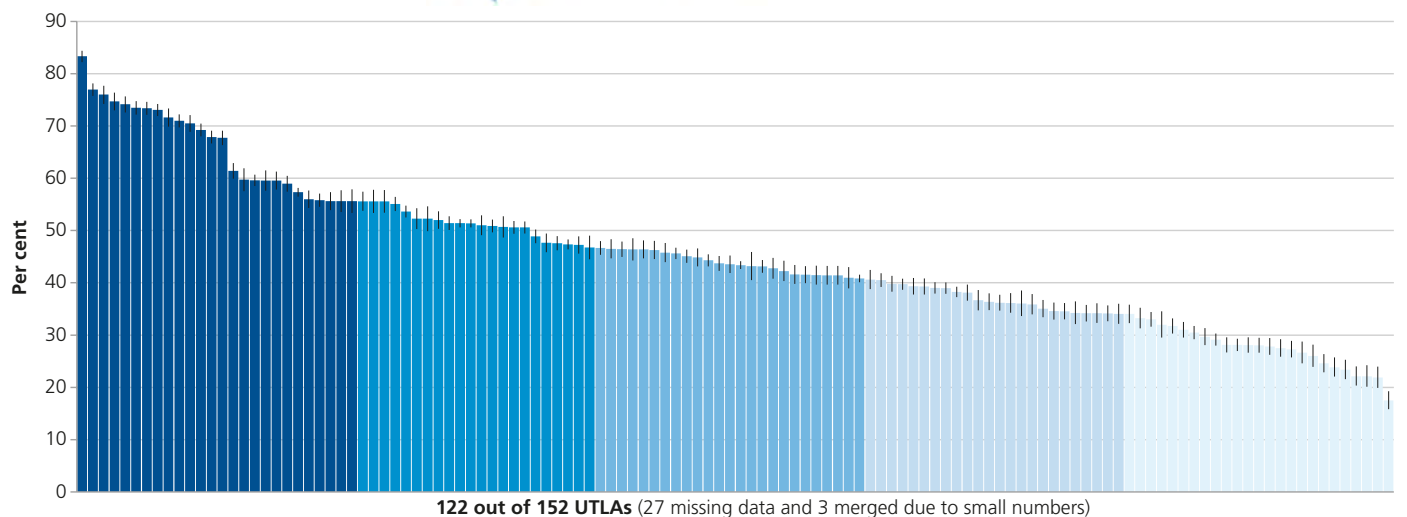
Context

The World Health Organization (WHO) and the Department of Health recommend exclusive breastfeeding of infants up to the age of 6 months. Although a minority of babies cannot be breastfed due to maternal health or other problems, the benefits of breastfeeding are well established: reduced hospital admissions of infants for diarrhoea and vomiting and for respiratory infections, and reduced risk of sudden infant death. It may reduce lifetime risk of obesity and diabetes. Women who breastfeed have a reduced risk of ovarian cancer and breast cancer. Increasing rates of breastfeeding in infants have a cost-benefit for families, the NHS and wider society.[1,2]

This indicator is in the Public Health Outcomes Framework 2013–16, and recommended as a national outcome measure in the Children & Young People's Outcomes Forum report.

Magnitude of variation

For upper-tier local authorities (UTLAs) in England, the percentage of infants who were totally or partially breastfeeding at 6–8 weeks ranged from 17.5% to 83.3% (4.8-fold variation).[3] When the four UTLAs with the highest percentages and the four UTLAs with the lowest percentages are excluded, the range is 23.4–74.2%, and the variation is 3.2-fold (see Table 72.1 for data from 2011/12[4]).

Although the exclusions are not directly comparable, the variation in breastfeeding appears to have persisted at just over threefold in recent years, possibly due to the negative correlation of breastfeeding with some socio-cultural factors.

Breastfeeding is a complex issue. Reasons for the degree of variation observed include differences in the level of deprivation in different localities[5], the ethnic profile in local populations, and maternal age.

These data suggest that considerable unwarranted variation exists. As many new mothers require support to initiate and sustain breastfeeding, reasons for unwarranted variation may include differences in the provision of, and access to local community midwifery support, health visitor support, and perinatal care.

Options for action

Any commissioning decisions and service changes need to be evidence-based, and take into account the needs of the local population. Commissioners need to specify that service providers review the proportion of infants being breastfed in the local population at 6–8 weeks following delivery:

› to assess whether performance locally compares favourably with that in other localities with similar populations;

› to understand the reasons for low rates of breastfeeding;

› to identify any unwarranted variations among social, ethnic or other groups in order to target relevant interventions and resources.

Commissioners need to ensure that local breastfeeding services and interventions are integrated with wider public health strategies, and with primary and community services.[6]

Commissioners also need to specify that service providers seek out and share good practice particularly among localities with a similar socio-economic and ethnic profile, ensuring adequate assistance for all mothers and families to establish breastfeeding, and to prolong its duration, including:

› education, both antenatal and postnatal;

› support through community midwives, health visitor services, GP surgeries, pharmacies and the third sector;

› public health messages about the benefits of breastfeeding.

Service providers need to identify local population groups with low breastfeeding rates in order to implement targeted interventions, not only to change cultural perceptions of breastfeeding but also to provide education and support that addresses socio-cultural factors. See "Resources" for projects in Scotland that used social marketing principles:

1. to raise breastfeeding rates among young women in lower socio-economic groups (NHS Ayrshire and Arran);

2. to make structural and procedural changes to enable the Breast Feeding Support Team to work better with community midwives and health visitors (NHS Fife).

RESOURCES

› NICE. Postnatal care. NICE guidelines [CG37]. December 2014. http://www.nice.org.uk/CG037

› NICE. Maternal and child nutrition. NICE guidelines [PH11]. March 2008. http://guidance.nice.org.uk/PH11

› National Social Marketing Centre and NHS Health Scotland. North West Kilmarnock Breastfeeding Project. http://www.healthscotland.com/uploads/documents/16561-NorthWestKilmarnockBreastfeedingProject.pdf

› National Social Marketing Centre and NHS Health Scotland. Fife Breastfeeding Support Project. http://www.healthscotland.com/uploads/documents/15848-FifeBreastfeedingSupportProject2011.pdf

1 Chief Medical Officer's annual report 2012: Our Children Deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

2 Pokhrel S, Quigley MA, Fox-Rushby J et al. Potential economic impacts from improving breastfeeding rates in the UK. *Arch Dis Child* doi:10.1136/archdischild-2014-306701. http://adc.bmj.com/content/early/2014/11/12/archdischild-2014-306701.full.pdf+html

3 Data are missing for 27 UTLAs; for three UTLAs, data have been merged due to small numbers: Isles of Scilly local authority with Cornwall, City of London local authority with Hackney, and Rutland local authority with Leicestershire.

4 For data prior to 2011/12, see ChiMat website http://atlas.chimat.org.uk/IAS/dataviews/view?viewId=22 (these data are available by UTLA for 2010/11-2013/14)

5 Oakley L et al. Factors associated with breastfeeding in England: an analysis by primary care trust. *BMJ* Open 2013; 3:e002765. http://bmjopen.bmj.com/content/3/6/e002765.full.pdf+html

6 Caroline Wright on behalf of Public Health England. Progress in Breastfeeding in London. 2013 report. http://www.lho.org.uk/Download/Public/18210/1/Progress%20in%20breastfeeding%20in%20London%20final%20report%2012%20Aug.pdf

Table 72.1: Percentage of infants who were totally or partially breastfeeding at 6–8 weeks for two consecutive financial years

Financial year	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2012/13	UTLA	17.5–83.3%	4.8	23.4–74.2%	3.2	
2011/12	UTLA	19.7–82.8%	4.2	22.7–75.7%	3.3	CMO's Annual Report 2012[1]

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 73: Score rating women's experience of labour and birth by NHS Trust

Directly standardised for age and parity, February 2013

**Domain 4: Ensuring that people have
a positive experience of care**
**Domain 5: Treating and caring for people in a safe environment
and protecting them from avoidable harm**

Lowest score

Highest score

LONDON

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Score out of 10
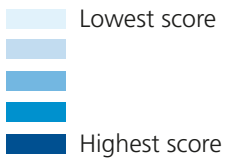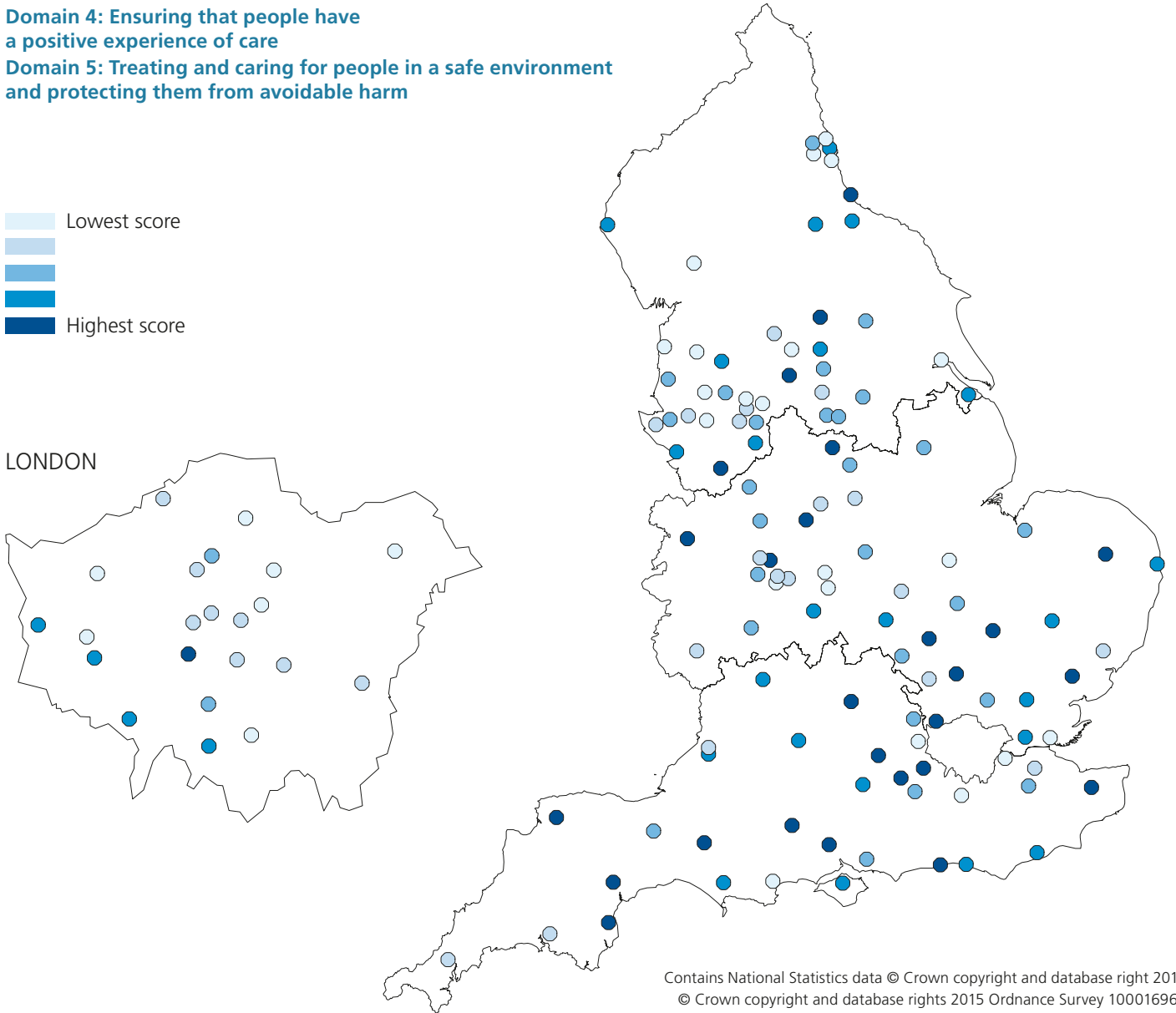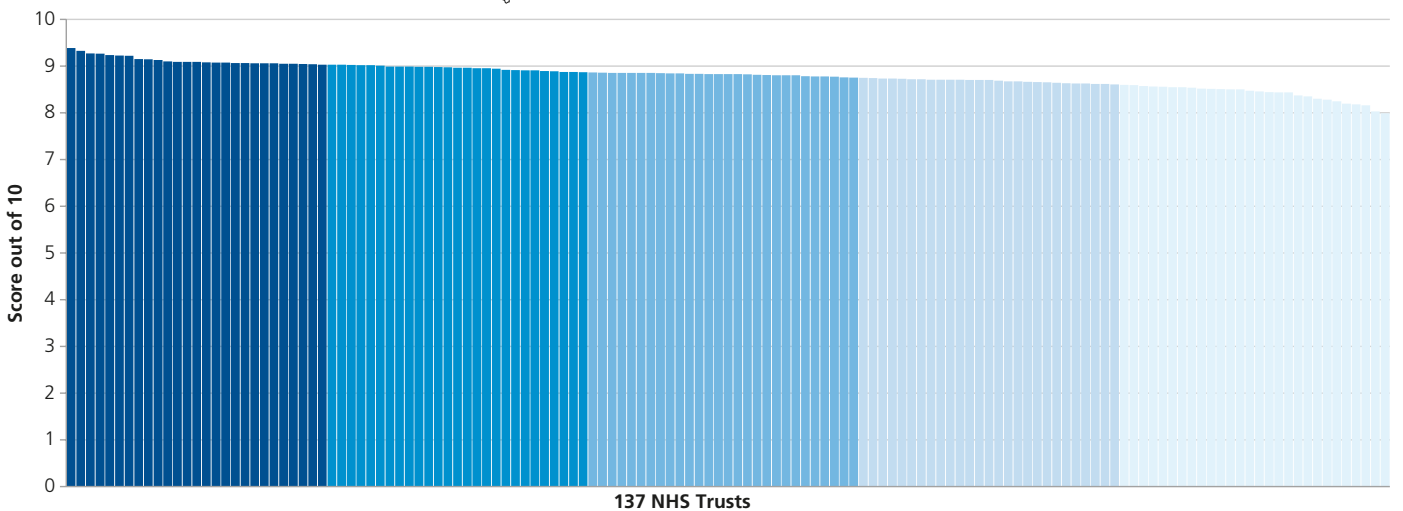
137 NHS Trusts

Context

Women's experiences of birth remain with them for decades and can influence the manner in which they relate to and bond with their baby. The experience of labour and birth, whether "good" or "bad", has considerable implications for a woman's psychological well-being and her relationships with her family.[1–4] For many women, even those who have given birth before, anticipation of labour and birth can give rise to anxiety, uncertainty and, on occasion, outright fear.

Women can be aided through good antenatal preparation, and especially through continuity of carer. Indeed, women place great value on dedicated one-to-one care from a midwife during labour and birth.[5]

This indicator is based on responses to the Care Quality Commission Maternity Services Survey 2013 from 23,000 women aged 16 years and over who had a live-birth during February 2013.[6] At the time of survey completion, England was experiencing its highest birth rate for 40 years.

Magnitude of variation

For NHS Trusts in England, the score rating women's experience of labour and birth ranged from 8.0 to 9.4 (1.2–fold variation). When the five NHS Trusts with the highest scores and the five NHS Trusts with the lowest scores are excluded, the range is 8.2–9.2, and the variation is 1.1-fold.

Reasons for the degree of variation observed include differences in:

› access to good-quality antenatal preparation classes – this is patchy, and often available only to women who are able to pay for private provision;

› women's expectations of, and level of preparation for, labour and birth, which will be influenced by their previous experiences, and cultural factors;

› the extent to which the experience is woman-centred and personalised, including a supportive environment, but in particular the availability of midwives to provide one-to-one care during the active phase of labour and the birth.

Options for action

Commissioners need to specify that service providers:

› comply with NICE guidance and quality standard (CG62, QS22 & NG4; see "Resources");

› include preparation for labour as part of antenatal care;

› support "continuity of carer" models for the whole package of care – antenatal, labour and birth – because they maximise the potential for positive experiences while minimising interventions[7];

› offer choice of midwifery-led birth options for women at low risk of complications, which will reduce intervention rates among this low-risk group and release the obstetric-led delivery units for those women who require this type of care (NICE CG190; see "Resources")[8];

› ensure midwifery staffing levels are sufficient to provide one-to-one care from a dedicated midwife for all women in labour irrespective of the prevailing workload.

Clinicians need to bear in mind that, in addition to the health of mother and baby at the end of labour and birth, women and their partners want the overall process to be positive. The way in which care is provided must be respectful, maintain the woman's dignity, and involve her as a central and active participant during the active phase of labour and birth. If interventions or changes to what had originally been planned need to be considered, it is important to involve the woman fully by taking time to provide the relevant information and explore all the options.

RESOURCES

› NICE. Intrapartum care: care of healthy women and their babies during childbirth. NICE guidelines [CG190]. December 2014. https://www.nice.org.uk/guidance/cg190

› NICE. Antenatal care. NICE guidelines [CG62]. March 2008. http://www.nice.org.uk/guidance/cg62

› NICE. Antenatal care. NICE quality standard [QS22]. September 2012. https://www.nice.org.uk/guidance/qs22

› NICE pathways. Antenatal care overview. http://pathways.nice.org.uk/pathways/antenatal-care

› NICE. Safe midwifery staffing for maternity settings. NICE guidelines [NG4]. February 2015. http://www.nice.org.uk/guidance/ng4

› NICE pathways. Safe midwifery staffing for maternity settings overview. http://pathways.nice.org.uk/pathways/safe-midwifery-staffing-for-maternity-settings

› National Childbirth Trust, Royal College of Midwives and Royal College of Obstetricians and Gynaecologists. Making sense of commissioning Maternity Services in England – some issues for Clinical Commissioning Groups to consider. https://www.rcog.org.uk/globalassets/documents/guidelines/guidelines--supporting-commissioners/advice-to-ccgs.pdf

1 Grekin R, O'Hara M (2014) Prevalence and risk factors of postpartum posttraumatic stress disorder: A meta-analysis. *Clin Psychol Rev* 34(5): 389-401. http://www.ncbi.nlm.nih.gov/pubmed/24952134

2 Wiklund I, Edman G, Ryding D et al (2008) Expectation and experiences of childbirth in primiparae with caesarean section. *British Journal of Obstetrics and Gynaecology* 115(3): 324-31. http://www.ncbi.nlm.nih.gov/pubmed/18190368

3 Lemola S, Stadlmayr W, Grob A (2007) Maternal adjustment five months after birth: the impact of the subjective experience of childbirth and emotional support from the partner. *Journal of Reproductive and Infant Psychology* 25(3): 190-202. http://www.tandfonline.com/doi/abs/10.1080/02646830701467231

4 Simkin P. Just another day in a woman's life? Part 1 Women's long tern perceptions of their first birth experience. Birth 1991; 18: 203-210.

5 National Childbirth Trust (2013) Support overdue: women's experiences of maternity services. May 2013. http://www.thewi.org.uk/campaigns/current-campaigns-and-initiatives/more-midwives/?a=49857

6 Care Quality Commission Maternity Services Survey 2013. http://www.cqc.org.uk/content/maternity-services-survey-2013

7 Sandall J, Soltani H, Gates S et al. 2013. Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, 8, DOI: 10.1002/14651858.CD004667.pub3. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004667.pub3/abstract

8 Brocklehurst P et al (2011) Perinatal and maternal outcomes by planned place of birth for healthy women with low risk pregnancies: the Birthplace in England national prospective cohort study. *BMJ* 343:7840. http://www.bmj.com/content/343/bmj.d7400

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 74: Percentage of re-admissions to hospital following an elective Caesarean section that occurred within 28 days of discharge by CCG

2012/13

Domain 4: Ensuring that people have a positive experience of care
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest
Data removed

LONDON

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187 out of 211 CCGs (24 removed due to small numbers)
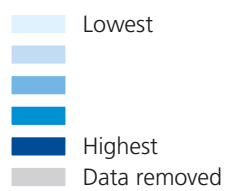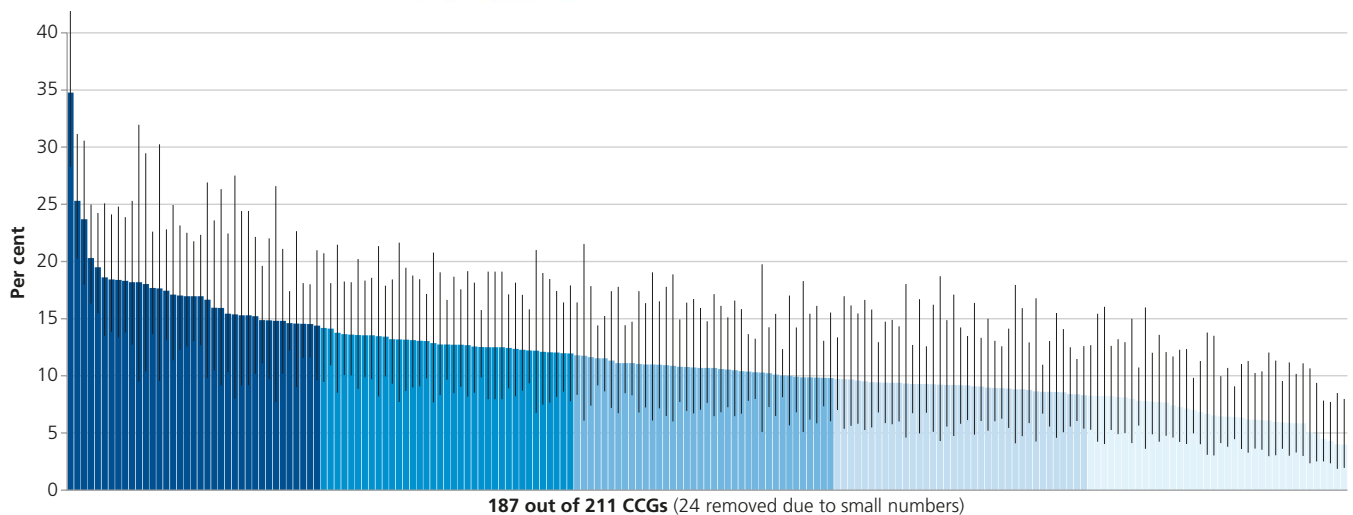
Context

Elective (or planned) Caesarean sections are those scheduled before the onset of labour[1], and are usually planned at least 48 hours in advance. In England, around 10% of all deliveries are carried out by elective Caesarean section.[2]

Elective Caesareans are performed for many reasons, including breech presentation, a small-for-gestational-age fetus, placental insufficiency or abnormality, elective repeat Caesarean section, and maternal request. When compared with emergency Caesarean section, elective Caesarean section offers an opportunity to anticipate and prevent as much as possible complications of birth.

Re-admission to hospital following an elective Caesarean section can be for a variety of maternal reasons: surgical site infection, chest or womb infection, urinary tract infection, uncontrolled postoperative pain, anaemia requiring a blood transfusion, venous thrombo-embolism, mental health conditions or, very rarely, visceral damage from the surgery. It can also occur for lactation problems or complications arising in the baby, where the mother is well but needs to be close and for this reason is accommodated on the postnatal ward. The emotional and social consequences of any re-admission arise from the length of time for which a new family is apart from one another.
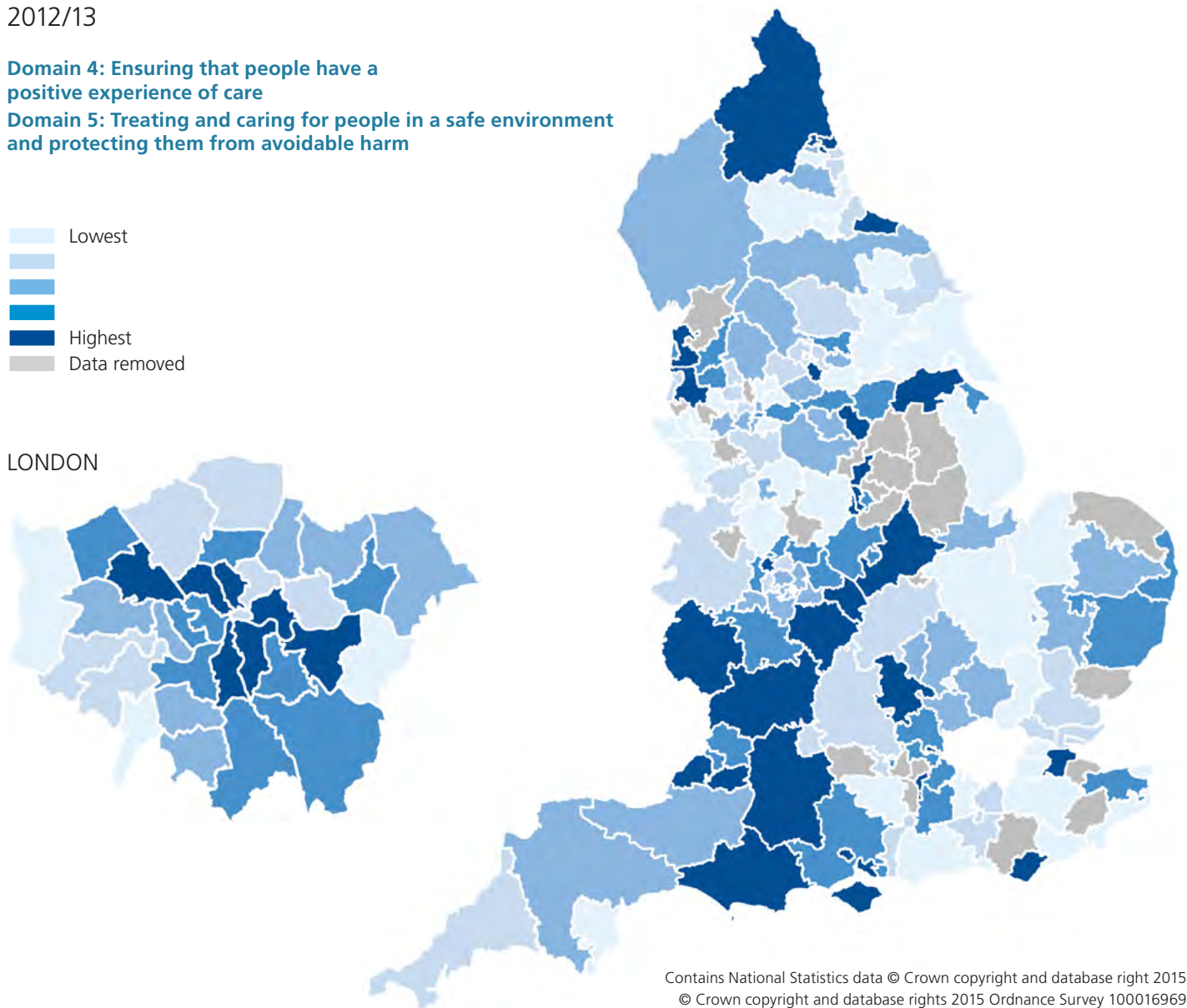
Magnitude of variation

For CCGs in England, the percentage of re-admissions to hospital following an elective Caesarean section that occurred within 28 days of discharge ranged from 4.0% to 34.8% (8.7-fold variation).[3] When the six CCGs with the highest percentages and the six CCGs with the lowest percentages are excluded, the range is 5.8–18.4%, and the variation is 3.2-fold.

One reason for the degree of variation observed is differences in the demography of local populations. Levels of obesity, smoking rates, co-morbidities (such as gestational or Type 1 or Type 2 diabetes) and socio-economic deprivation will have a direct impact on surgical complications. Higher rates of smoking and obesity will contribute to wound infection, endometritis and venous thrombo-embolism.

The degree of variation may also reflect different models of postnatal care, with some CCGs managing minor complications in the community, whereas others will rely to a greater extent on hospital services.

High re-admission rates may reflect a higher incidence of localised infections or difficulties in the education of breastfeeding, which may be the result of either discharge too soon from hospital or inadequate community support. Low re-admission rates could reveal reduced capacity in hospital; higher thresholds for re-admission may exist where there are bed shortages, particularly for borderline cases. These conflicting interpretations raise the issue of whether re-admission rates are valid measures of quality of care.

Options for action

To reduce re-admission rates, commissioners need to:

› place managed networks of community care into quality frameworks – a managed network of care that integrates community midwifery, health visitors, physiotherapists and general practitioners may be effective in reducing hospital re-admissions by tackling minor problems in the community, or offering near-patient testing to reduce the need for hospital-based tests;

› consider appropriate commissioning of enhanced community services to deal with specific problems related to re-admission.

Commissioners also need to specify that service providers:

› introduce a surgical checklist, including antibiotic administration;

› conduct clinical audit to determine local reasons for re-admission;

› consider local integration of re-admission data into maternity dashboard;

› review clinical pathways for re-admission and consider a joint hospital–community protocol for management of specific conditions;

› consider the cost-effectiveness of offering alternative accommodation to mothers who are attending hospital only to look after a baby who has been re-admitted.

Clinicians need to ensure that:

› women have appropriate advice relevant to their specific medical condition, and are prescribed appropriate prophylaxis (for venous thrombo-embolism or wound infection) following a risk assessment;

› handover documentation is complete to avoid data loss during the transition to a community healthcare provider.

RESOURCES

› NICE. Postnatal care. NICE guidelines [CG37]. December 2014. https://www.nice.org.uk/guidance/cg37

› NICE. Caesarean section. NICE guidelines [CG132]. November 2011. https://www.nice.org.uk/guidance/cg132

› NICE. Maternal and child nutrition NICE guidelines [PH11]. March 2008. https://www.nice.org.uk/guidance/ph11

› Royal College of Obstetricians and Gynaecologists. Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium. Green-top Guideline No. 37a. April 2015. https://www.rcog.org.uk/globalassets/documents/guidelines/gtg-37a.pdf

› Royal College of Obstetricians and Gynaecologists. Maternity Dashboard: Clinical Performance and Governance Score Card. Good Practice No. 7. January 2008. https://www.rcog.org.uk/globalassets/documents/guidelines/goodpractice7maternitydashboard2008.pdf

› Knight M, Kenyon S, Brocklehurst P, Neilson J, Shakespeare J, Kurinczuk JJ (Eds) on behalf of MBRRACE-UK. Saving Lives, Improving Mothers' Care - Lessons learned to inform future maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–2012. Oxford: National Perinatal Epidemiology Unit, University of Oxford 2014. https://www.npeu.ox.ac.uk/downloads/files/mbrrace-uk/reports/Saving%20Lives%20Improving%20Mothers%20Care%20report%202014%20Full.pdf

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1 NICE. Postnatal care. NICE guidelines [CG37]. December 2014. https://www.nice.org.uk/guidance/cg37

2 Health and Social Care Information Centre. NHS Maternity Statistics – England, 2012-13. http://www.hscic.gov.uk/catalogue/PUB12744

3 Data from 24 CCGs have been removed due to small numbers.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 75: Rate of emergency admissions to hospital of babies within 14 days of being born per number of deliveries by CCG

2012/13

Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest

LONDON

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211 CCGs
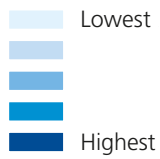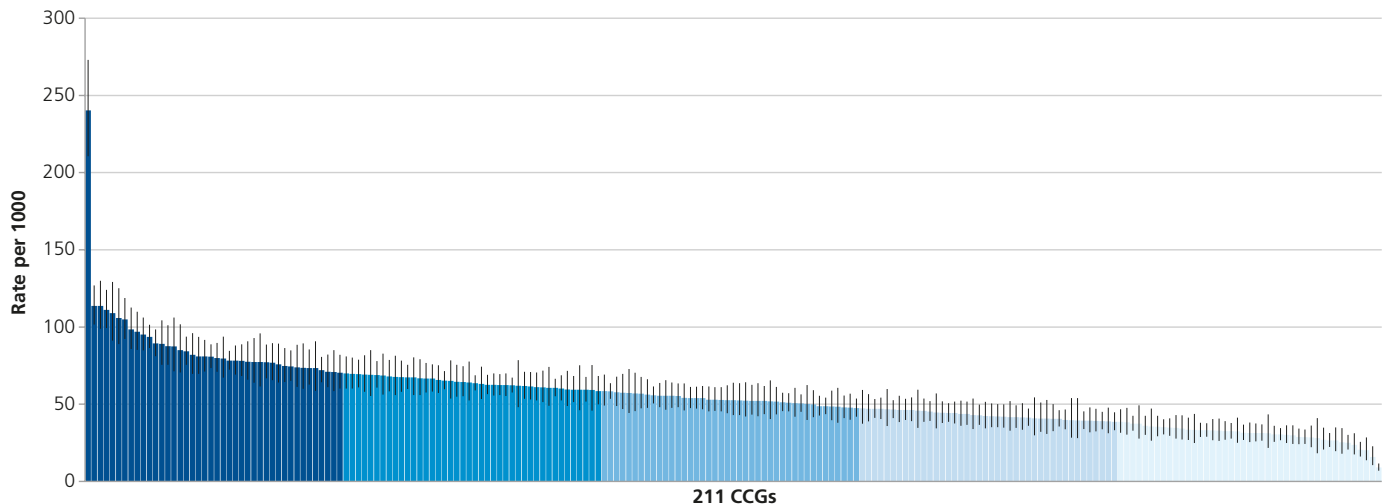
Context

In a review of maternity services in England, the Healthcare Commission drew attention to the problem of re-admission of mothers and babies.

> *"High levels of re-admissions of either mother or babies can suggest problems with either the timing or quality of health assessments before the initial transfer or with the postnatal care once the mother is home. Dehydration and jaundice are two common reasons for re-admission of babies and are often linked to problems with feeding. Half of the trusts had an admission rate of eight per 1,000 babies or greater for these conditions two or more days after birth."*[1]

Postnatal care provision crosses acute and primary healthcare sectors, with the majority of care taking place in the mother's home. Appropriate postnatal care includes:

> clinical examination, assessment of risk and observation of the woman and her baby;

> routine infant screening for potential disorders:

> support for infant feeding;

> ongoing provision of information and support.

Giving babies the best start in life through good-quality postnatal care means they are less likely to have health problems during childhood and into adulthood. Helping mothers to know which signs and symptoms indicate something serious, and what is normal gives them reassurance and confidence.

Magnitude of variation

For CCGs in England, the rate of emergency admissions to hospital of babies within 14 days of being born ranged from 9.0 to 240.3 per 1000 deliveries (26.7-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 26.4–98.4 per 1000 deliveries, and the variation is 3.7-fold.
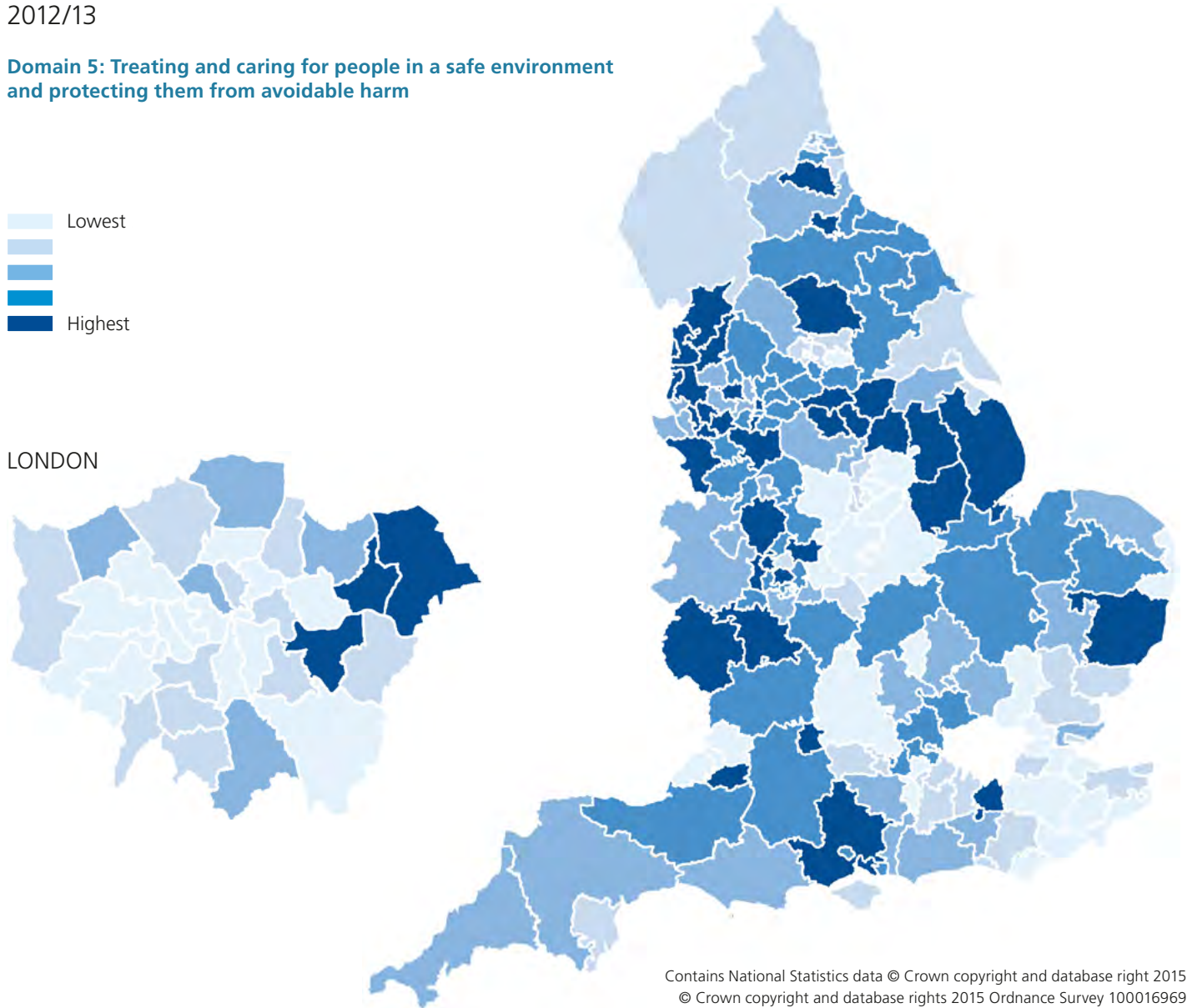
The data for 2011/12 by upper-tier local authority were relatively similar: after exclusions, the range was 24.3 to 107.1 per 1000 deliveries, and the variation was 4.5-fold.[2]

The degree of variation observed may be related to differences in:

> access to routine clinical examination, and appropriate duration of postnatal observation of the woman and her baby;

> access to routine infant screening to detect potential disorders:

> access to support for infant feeding in the immediate postnatal period;

> ongoing provision of information and support in the community;

> thresholds for referral and admission to hospital in emergency departments.

Options for action

Commissioners need to specify that service providers deliver antenatal education and information to parents.

Commissioners also need to specify that service providers implement NICE guidelines on postnatal care (see "Resources"), and in particular that:

> examination of the newborn is undertaken by suitably qualified healthcare professionals;

> each woman has her own personalised care plan which takes into account not only her needs but also her baby's;

> early postnatal discharge should occur only for low-risk deliveries and babies, and only where early postnatal community midwifery support is available.

Individualised assessments of mother and infant should be undertaken as soon as possible after delivery. At each postnatal contact, parents should be offered information and advice to enable them:

> to assess their baby's general condition;

> to identify signs and symptoms of common health problems in babies;

> to contact a healthcare professional or emergency service if required;

> to understand who to contact for further information and advice.

As a minimum standard, all maternity care providers could implement an externally evaluated structured programme that encourages breastfeeding, such as the Baby Friendly Initiative (see "Resources").

Healthcare professionals should care for newborn babies according to NICE guidance (see "Resources"), including:

> prompt evaluation and treatment for babies who develop jaundice, especially within the first 24 hours;

> for babies aged ≥24 hours, monitoring and systematically recording the intensity of the jaundice together with the baby's overall well-being with particular regard to hydration and alertness.

Healthcare professionals need to encourage the mother of a breastfed baby who has signs of jaundice to breastfeed frequently; if the baby is significantly jaundiced or appears unwell, evaluation of the serum bilirubin level should be carried out.

RESOURCES

> NICE. Postnatal care. NICE guidelines [CG37]. December 2014. http://www.nice.org.uk/CG037

> NICE. Neonatal jaundice. NICE guidelines [CG98]. May 2010. https://www.nice.org.uk/guidance/cg98

> Baby Friendly Initiative. http://www.babyfriendly.org.uk

> Royal College of Obstetricians and Gynaecologists. Standards for Maternity Care. Published 1/06/2008. http://www.rcog.org.uk/womens-health/clinical-guidance/standards-maternity-care

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1   Healthcare Commission (2008) *Towards better births: A review of maternity services in England.*

2   Chief Medical Officer's annual report 2012: Our Children Deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 76: Percentage of immunisation completion for routine vaccinations against diphtheria, tetanus, pertussis, polio and *Haemophilus influenzae* type b (DTaP/IPV/Hib) at 2 years by upper-tier local authority

2012/13

Domain 1: Preventing people from dying prematurely
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest
Data merged
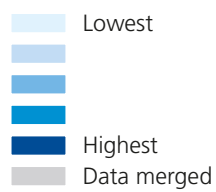
LONDON
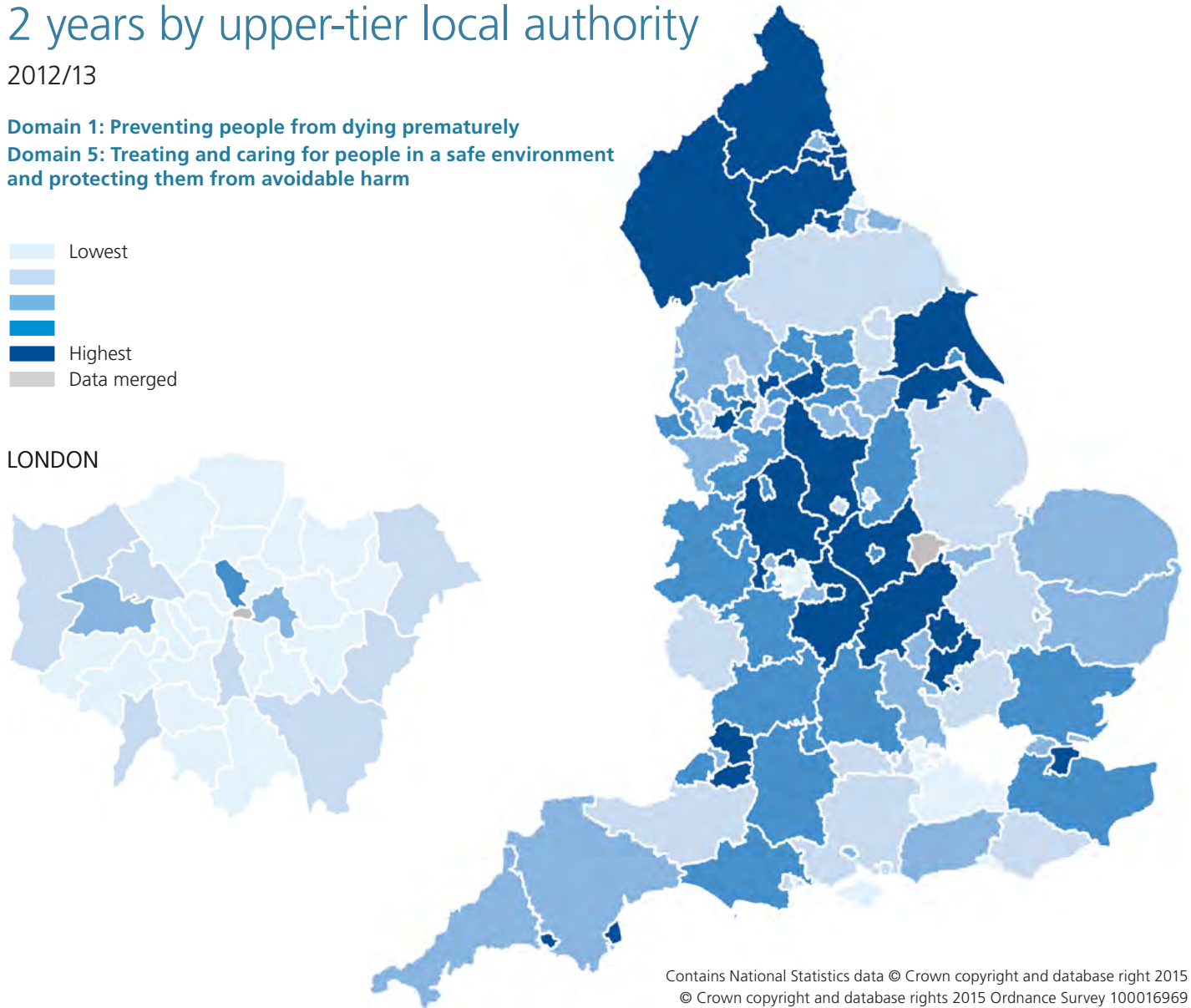
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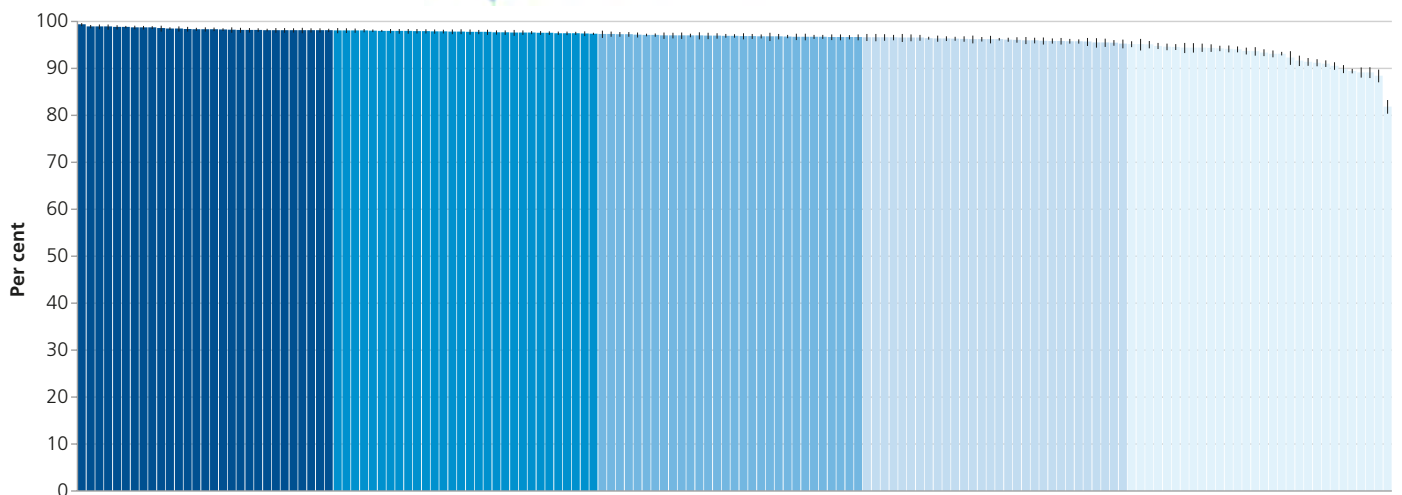
149 out of 152 UTLAs (3 merged due to small numbers)

Context

"Vaccination has greatly reduced the burden of infectious diseases. Only clean water, also considered to be a basic human right, performs better."[1]

Childhood immunisations have transformed the health of children worldwide. For individuals, they may:

› prevent infection;

› reduce deaths and morbidity from common, and often serious, infections;

› reduce rates of related illnesses, such as certain cancers or secondary infections.

High levels of population immunity to some infectious diseases may protect those who are not immunised, an effect known as "herd immunity".

Vaccines are cost-effective, and the economic benefits of the vaccines currently included in the routine childhood immunisation schedule for England have been demonstrated.[2]

Despite concerted efforts to promote uptake, opportunities for immunisation are missed.[3,4] Increased investment, such as in Surestart programmes, does not guarantee:

› improvement in overall rates[5];

› reduction of socio-economic inequalities in uptake[6].

In the UK, all infants at two years of age should have received doses of vaccination against diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type b, meningococcal meningitis type c, rotavirus, pneumococcus, measles, mumps and rubella (German measles).

Three vaccinations have been selected for visualisation, showing rate of:

› completion at two years for combined 5-in-1 vaccine for diphtheria, tetanus, pertussis, polio and *Haemophilus influenzae* type b (DTaP/IPV/Hib);

› completion at two years for pneumococcal conjugate vaccine (PCV)

› coverage at two years for measles, mumps and rubella (MMR) vaccine.

"Population vaccination coverage" is included in the Public Health Outcomes Framework 2013–16.

Magnitude of variation

Map 76: DTaP/IPV/Hib vaccine (page 204)

For upper-tier local authorities (UTLAs) in England, the percentage of immunisation completion for routine vaccinations against DTaP/IPV/Hib at two years ranged from 81.9% to 99.4% (1.2-fold variation).[7] When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded the range is 89.9% to 98.8%, and the variation is 1.1-fold (see Table 76.1 for data from 2011/12[8]).

This means that the percentage of children who did **not** receive the full course of DTaP/IPV/Hib vaccination ranged from 0.6% to 18.1% (30-fold variation); when the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 1.2% to 10.1% and the variation is 8-fold (see Table 76.2 for data from 2011/12[8]).

Map 77: PCV vaccine (page 207)

For UTLAs in England, the percentage of immunisation completion for routine vaccinations against PCV at two years ranged from 75.1% to 97.5% (1.3-fold variation).[7] When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded the range is 82.0–96.9%, and

1   Andre FE, Booy R, Bock HL et al (2008) Vaccination greatly reduces disease, disability, death and inequity worldwide. Bulletin of the World Health Organization 86; 81-160. http://www.who.int/bulletin/volumes/86/2/07-040089/en/

2   Health Protection Agency (2005) Protecting the health of the Nation's children: the benefit of vaccines: 2005. http://ia201119.eu.archive.org/tna/20061004085342/hpa.org.uk/hpa/publications/HPA_protect_health_children/protect_health_children.htm

3   Conway SP (1999) Opportunistic immunisation in hospital. Archives of Diseases in Childhood 81:422 doi:10.1136/adc.81.5.422. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1718117/pdf/v081p00422.pdf

4   Walton S, Elliman D, Bedford H (2007) Missed opportunities to vaccinate children admitted to a paediatric tertiary hospital. Archives of Diseases in Childhood 92:620 doi:10.1136/adc.2006.104778. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2083800/pdf/620.pdf

5   Melhuish E, Belsky J, Leyland AH et al (2008) Effects of fully-established Sure Start Local Programmes on 3-year-old children and their families living in England: a quasi-experimental observational study. Lancet 372:1641. http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(08)61687-6.pdf

6   Reading R, Colver A, Openshaw S et al (1994) Do interventions that improve immunisation uptake also reduce social inequalities in uptake? *British Medical Journal* 308:1142.

7   Owing to small numbers, Isles of Scilly local authority has been merged with Cornwall, City of London local authority has been merged with Hackney, and Rutland local authority has been merged with Leicestershire.

8   For data from 2009/10 by PCT, see Child Health Atlas, Maps 2-4, pages 24-27.

the variation is 1.2-fold (see Table 77.1 for data from 2011/12[8]).

This means that the percentage of children who did **not** receive the full course of PCV vaccination ranged from 2.5% to 24.9% (10-fold variation); when the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 3.1% to 18.0%, and the variation is 6-fold (see Table 77.2 for data from 2011/12[8]).

Map 78: MMR vaccine (page 208)

For UTLAs in England, the percentage of immunisation coverage for routine vaccinations against MMR at two years ranged from 77.4% to 98.4% (1.3-fold variation).[7] When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 82.8–96.9%, and the variation is 1.2-fold.[8]

This means that the percentage of children who did **not** receive the full course of MMR vaccination ranged from 1.6% to 22.6% (14-fold variation); when the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 3.1–17.2%, and the variation is 5.5-fold.

In comparison with 2011/12 data available for two of the indicators (combined DTaP/IPV/Hib vaccine and PCV vaccine), it would appear that the degree of variation observed has not diminished.

These data mask an overall improvement in vaccination coverage, in terms of median performance as well as in the range shifting (after exclusions) towards higher proportions of vaccinations. Although encouraging, the data highlight there is further scope for ensuring equitable uptake of vaccinations across England.

Table 76.1: Percentage of immunisation completion for routine vaccinations against DTaP/IPV/Hib at two years for two financial years

Financial year	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2012/13	UTLA	81.9–99.4%	1.2	89.9–98.8%	1.1	
2011/12	UTLA	85.7–98.8%	1.2	90.0–98.6%	1.1	CMO's Annual Report 2012[9]

Table 76.2: Percentage of children at two years who did not receive the full course of DTaP/IPV/Hib vaccination for two financial years

Financial year	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2012/13	UTLA	0.6–18.1%	30	1.2–10.1%	9	
2011/12	UTLA	1.2–14.3%	12	1.4–10.0%	7	CMO's Annual Report 2012[9]

Table 77.1: Percentage of immunisation completion for routine vaccinations against PCV at two years for two financial years

Financial year	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2012/13	UTLA	75.1–97.5%	1.3	82.0–96.9%	1.2	
2011/12	UTLA	74.7–97.0%	1.3	81.1–96.3%	1.2	CMO's Annual Report 2012[9]

Table 77.2: Percentage of children at two years who did not receive the full course of PCV vaccination for two financial years

Financial year	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2012/13	UTLA	2.5–24.9%	10	3.1–18.0%	6	
2011/12	UTLA	3.0–25.3%	8	3.7–18.9%	5	CMO's Annual Report 2012[9]

9   Chief Medical Officer's annual report 2012: Our Children deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 77: Percentage of immunisation completion for routine vaccinations against pneumococcal disease (PCV) at 2 years by upper-tier local authority

2012/13

Domain 1: Preventing people from dying prematurely
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest
Data merged

LONDON

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Per cent
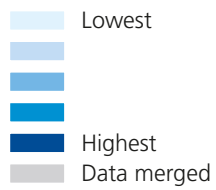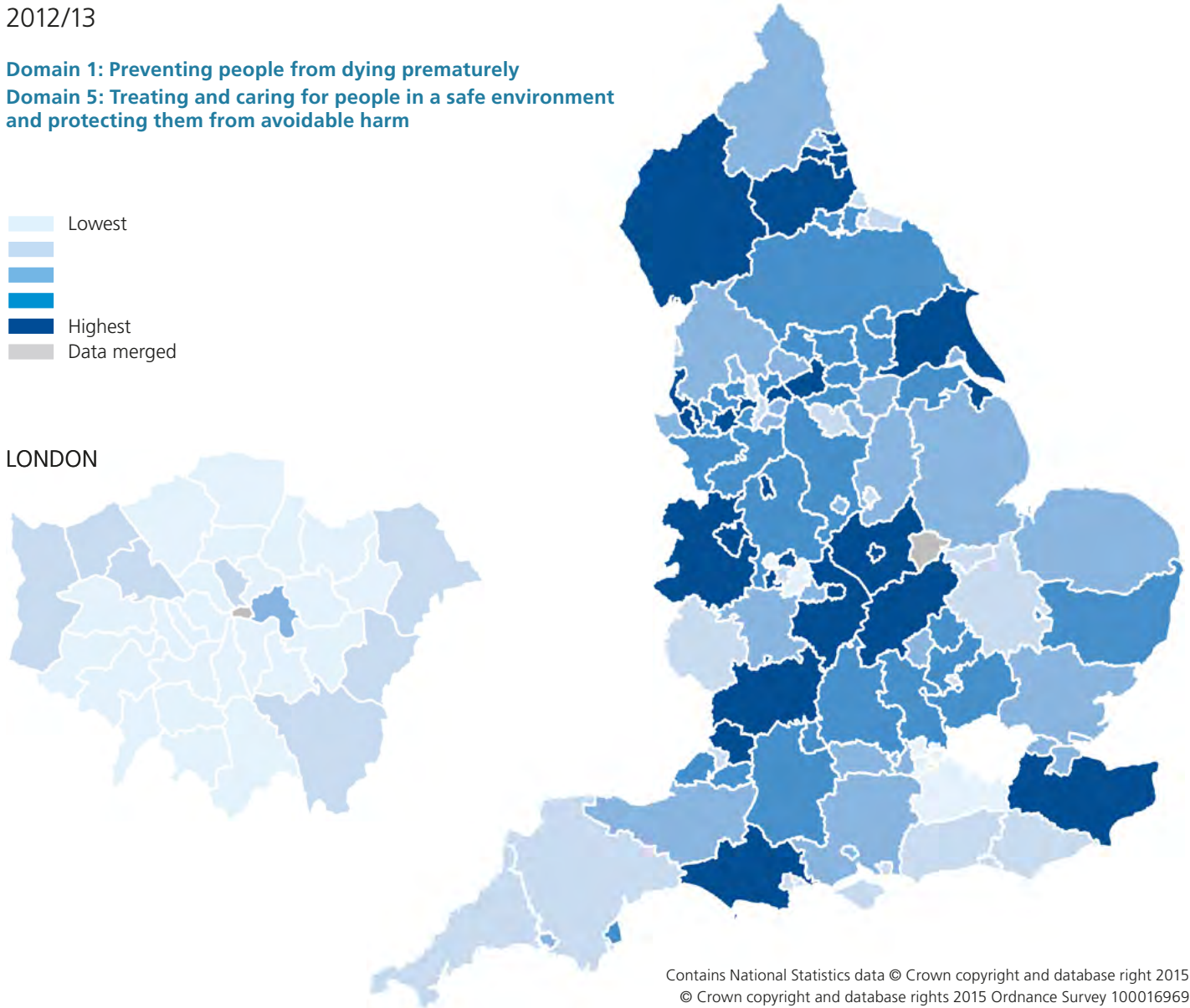
149 out of 152 UTLAs (3 merged due to small numbers)

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 78: Percentage of immunisation coverage for routine vaccinations against measles, mumps and rubella (MMR) at 2 years by upper-tier local authority

2012/13

Domain 1: Preventing people from dying prematurely
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest
Data merged

LONDON

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149 out of 152 UTLAs (3 merged due to small numbers)
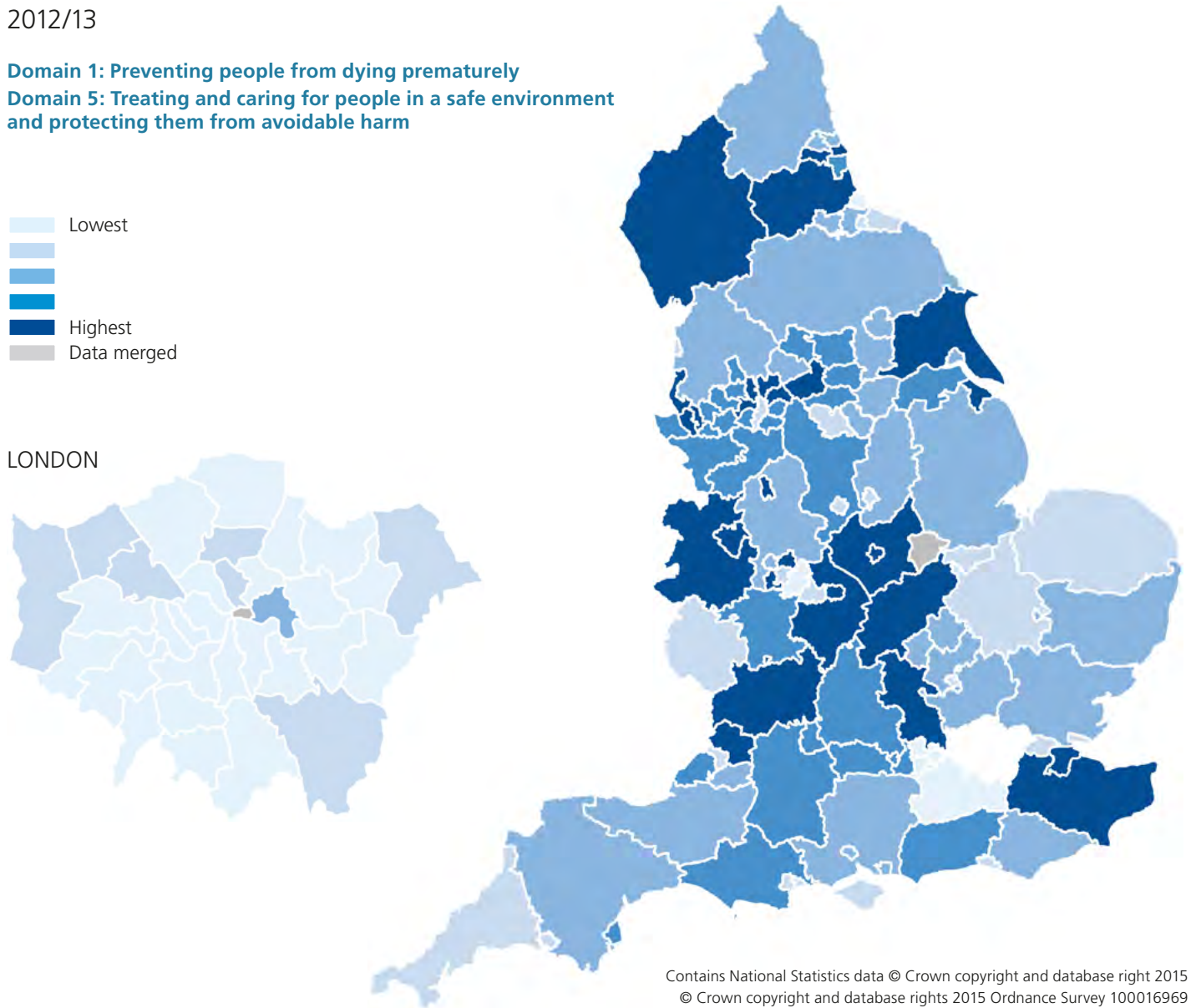
Possible reasons for the degree of variation observed in the uptake of immunisation include differences in:

> access to immunisation services;

> families' cultural and/or religious beliefs;

> families' perceptions of the risks associated with vaccination.

Options for action

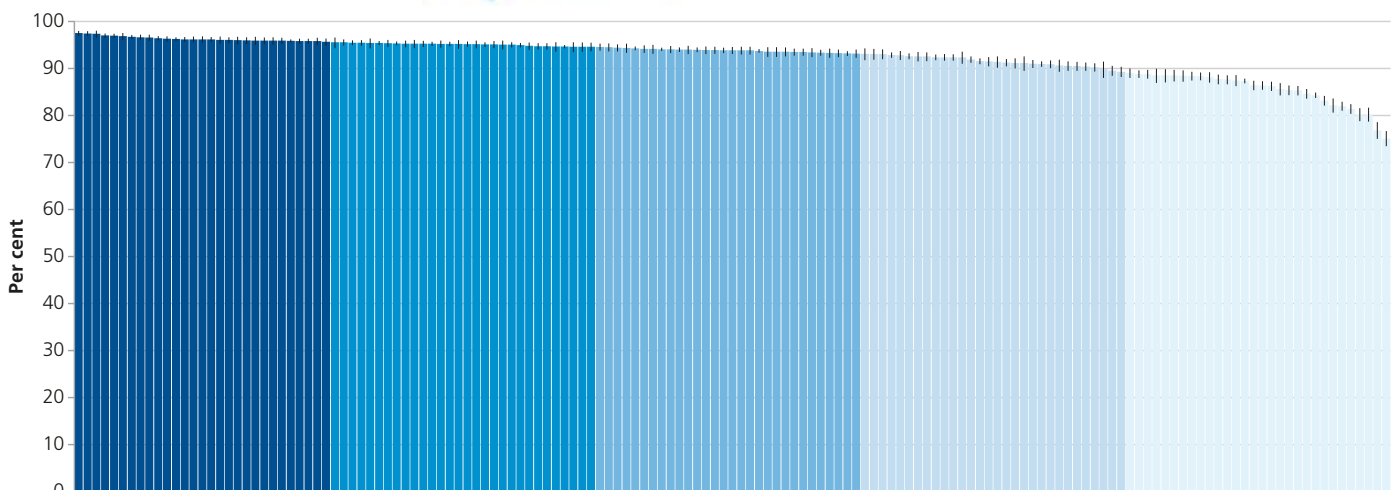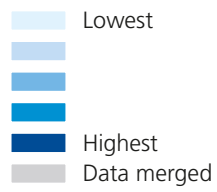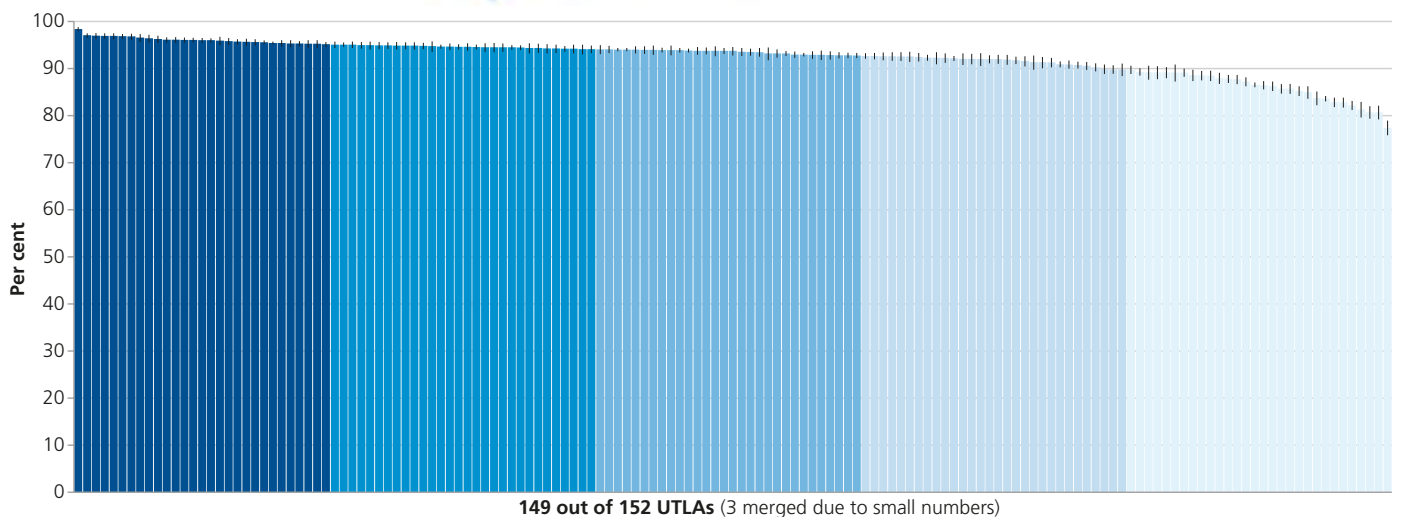NICE recommends that commissioners ensure local systems for information and data collection can identify children who have missed immunisations, and offer parents or carers the opportunity for their child to receive them in a timely manner (see "Resources").

Although the improvements shown in the population coverage for certain vaccines is welcome, they may not reflect a uniform improvement across all population subgroups. Commissioners need to specify that service providers target at-risk groups for improvement in immunisation rates, particularly among children who:

> have missed previous immunisations;

> are not registered with a GP;

> are from certain ethnic minority groups or non-English-speaking families;

> are vulnerable, such as children with disabilities or a long-term illness, looked-after children, children who are homeless and children who are asylum seekers.

To increase immunisation uptake in groups in whom it is low, NICE (see "Resources") recommends:

> improving access to immunisation services, such as by extending clinic times, and ensuring that clinics are "child friendly";

> providing parents or carers with tailored information and support, and the opportunity to discuss any concerns they might have;

> checking a child's immunisation status during health appointments and when they join nurseries, playgroups or schools, and offering them vaccination(s).

When working to increase uptake rates, it is important to bear in mind that the reasons why some children undergo partial immunisation may be different from those given by people who refuse to have their children immunised with one or more vaccines.[10]

To improve and maximise immunisation rates at a population level, especially in light of recent changes in the structure and organisation of commissioning and public health in England, there is a need for:

> clinical leadership among public health, primary care and secondary care health professionals;

> effective joint working among organisations and professionals.

The role of child public health, currently the least well-represented specialist function of community paediatric teams[11], is vital to the promotion of child health in general, and of immunisation as a key aspect of child health promotion.

CASE-STUDIES

> NHS Manchester Immunisation Promotion Project (IPP): Adopting 'active patient management principles' (see Case-study 3, page 264)

> For a report on increasing the uptake of MMR vaccinations in London using social marketing principles, see "Resources"

RESOURCES

> NICE. Reducing differences in the uptake of immunisations. NICE guidelines [PH21]. September 2009. http://www.nice.org.uk/PH21

> Commissioning Support for London. Increasing the uptake of MMR in London. Report of social marketing project. November 2009. http://www.londonhp.nhs.uk/wp-content/uploads/2011/03/MMR-Social-Marketing-Project-Report-Nov09.pdf

> Chisnell J on behalf of Devon County Council. Factors influencing vaccination uptake. Literature Review. June 2014. http://www.england.nhs.uk/south/wp-content/uploads/sites/6/2014/08/influe-vacc-lit-rev.pdf

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10 Samad L, Tate AR, Dezateux C et al. (2006) Differences in risk factors for partial and no immunisation in the first year of life: prospective cohort study. British Medical Journal 332:1312. prospective cohort study. *British Medical Journal* 332:1312. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1473111/pdf/bmj33201312.pdf

11 Royal College of Paediatrics and Child Health. Medical Workforce Census 2011. June 2013, RCPCH, London. http://www.rcpch.ac.uk/system/files/protected/page/RCPCH%20census%20FINAL_0.pdf

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 79: Rate of admission to hospital for dental caries in children aged 1–4 years per population by CCG

Age-specific rate, 1–4 years, 2010/11–2012/13

Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest
Data removed

LONDON

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182 out of 211 CCGs (29 removed due to small numbers)
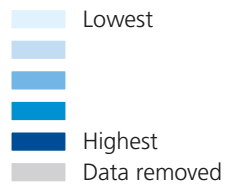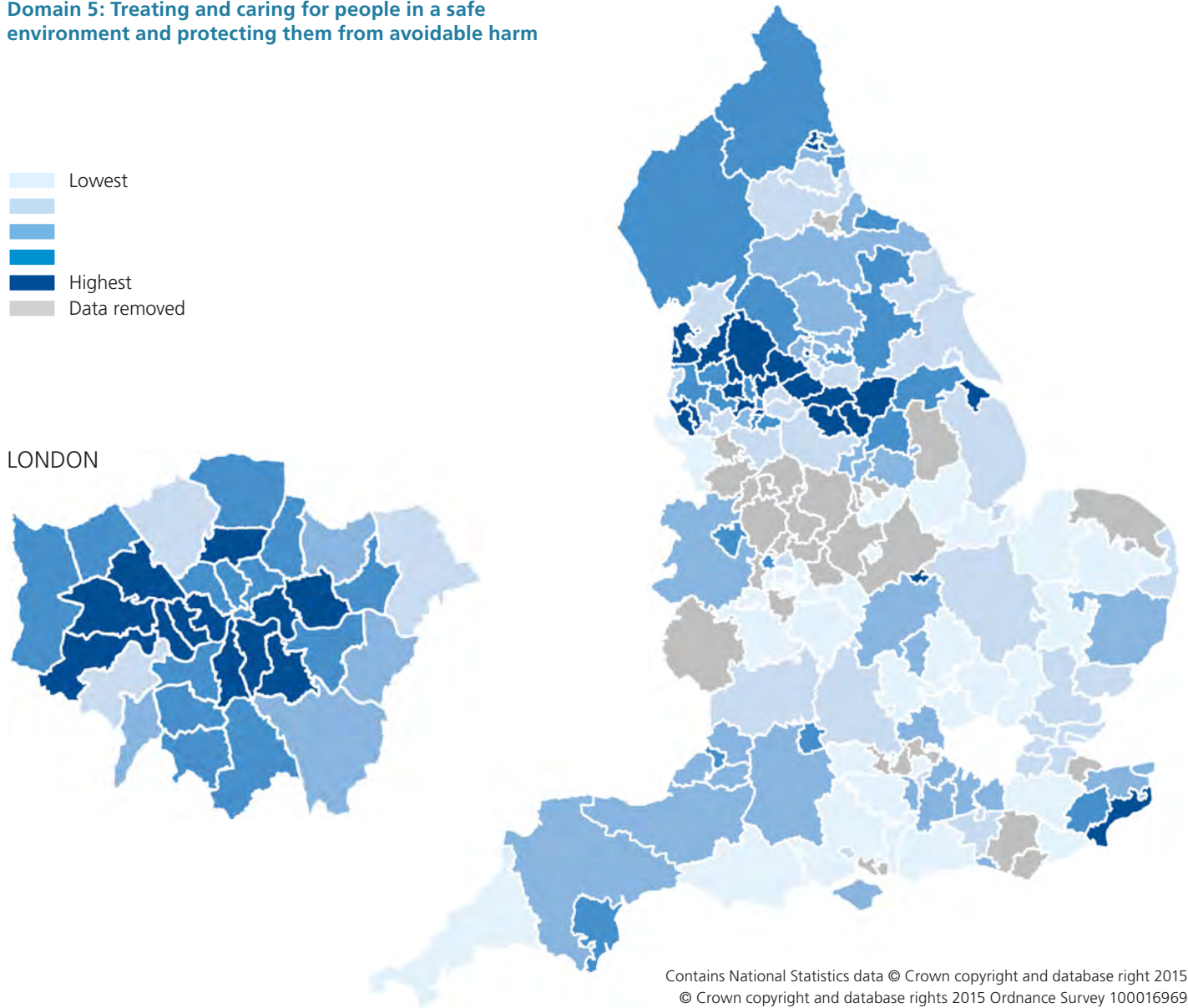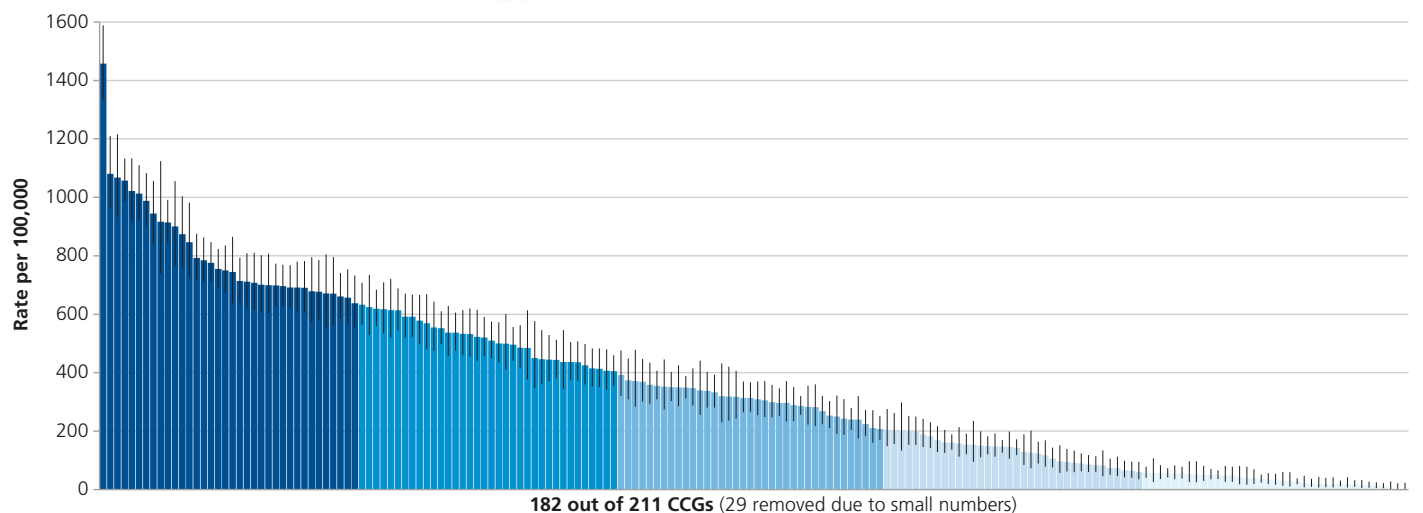
Context

Tooth decay in childhood is common, but preventable. Early childhood caries can have considerable impact on the health and well-being of pre-school children, and represents a sizeable burden on healthcare services in the form of emergency hospital and dental attendances, hospitalisation and operative intervention.

The occurrence of early childhood caries is a public health problem that is multifactorial in origin. It is associated with socio-economic deprivation, but has specific risk factors that include a diet rich in fermentable carbohydrates, poor oral hygiene practices, and the acquisition of specific cariogenic bacteria.[1]

Dental health in England has improved over the past 50 years, as a result of public health interventions such as oral health education, dietary changes and improved access to dental services. Despite these improvements, dental health remains a problem particularly among the most-deprived population groups.

Dental extraction in children under 5 years old cannot usually be done safely outside the hospital setting; for most cases, it requires in-hospital support for anaesthesia. This indicator includes, therefore, the majority of elective dental extractions in this age-group, as well as emergency admissions for caries.

"Tooth decay in children aged 5" is included in the Public Health Outcomes Framework 2013–16.

Magnitude of variation

For CCGs in England, the rate of admission to hospital for dental caries in children aged 1–4 years ranged from 0 to 1458 per 100,000 population.[2] When the six CCGs with the highest rates and the six CCGs with the lowest rates are excluded, the range is 15–988 per 100,000 population, and the variation is 66.0-fold (see Table 79.1 for data from 2011/12 by local authority).

There are marked socio-economic inequalities associated with oral health, related to:

› an increased risk of developing caries;

› poor access to dental care.

Although the rate of admission for dental caries is correlated with deprivation, the degree of variation observed is very high, and cannot be explained by population factors alone.

Reasons for unwarranted variation include differences in:

› preventive and public health interventions in the population;

› early recognition of children at risk of developing dental caries;

› access to dental care;

› assessment of dental emergencies and criteria for admission for operative intervention.

Options for action

The hospital admission rate is only one indicator of the state of dental health among children and young people, and it is highly likely to under-estimate the population prevalence of disease.

Commissioners and local authorities need:

› to monitor closely the dental health of their local population of young children, including prevalence and incidence data;

› to promote public education on dental health, including dietary choices, oral hygiene and regular dental review;

› to maximise access to dental services and early interventions, in particular among at-risk groups such as deprived populations;

› to prioritise evidence-based preventive interventions, such as water fluoridation.

Commissioners need to specify that service providers follow NICE guidance (see "Resources"), including:

› undertaking oral health needs assessments;

› developing a local strategy on oral health;

› delivering community-based interventions and activities.

RESOURCES

› NICE (2002). Oral health promotion: A guide to effective working in pre-school settings. http://www.nice.org.uk/proxy/?sourceUrl=http%3a%2f%2fwww.nice.org.uk%2fnicemedia%2fdocuments%2fohp_preschool.pdf

› NICE. Oral health: approaches for local authorities and their partners to improve the oral health of their communities. Guidelines [PH55] October 2014. http://www.nice.org.uk/guidance/PH55

› European Academy of Paediatric Dentistry (2008). Guidelines on prevention of early dental caries: An EAPD Policy Document. http://www.eapd.eu/dat/1722F50D/file.pdf

› SIGN. Dental interventions to prevent caries in children. Guideline No 138, March 2014. http://www.sign.ac.uk/guidelines/fulltext/138/index.html

Table 79.1: Rate of admission to hospital for dental caries in children aged 1–4 years per 100,000 population for two time-periods

Time-period	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2010/11–2012/13	CCG	0–1458	-	15–988	66	
2009/10–2011/12	Upper-tier local authority	7–1550	221	26–1041	40	CMO's Annual Report 2012[3]

1 Harris R, Nicoll AD, Adair PM, Pine CM. Risk factors for dental caries in young children: a systematic review of the literature. Community Dental Health 2004; 21:71-85. http://www.who.int/oral_health/media/en/orh_cdh_0304_05_risk_factors.pdf

2 Data for 29 CCGs have been removed due to small numbers.

3 Chief Medical Officer's annual report 2012: Our Children Deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 80: Percentage of pupils in school Reception Year (aged 4–5 years) with healthy weight by upper-tier local authority

Academic year 2013/14

Domain 1: Preventing people from dying prematurely
**Domain 2: Enhancing quality of life
for people with long-term conditions**

Lowest

Highest
Data merged
or missing
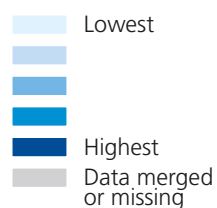
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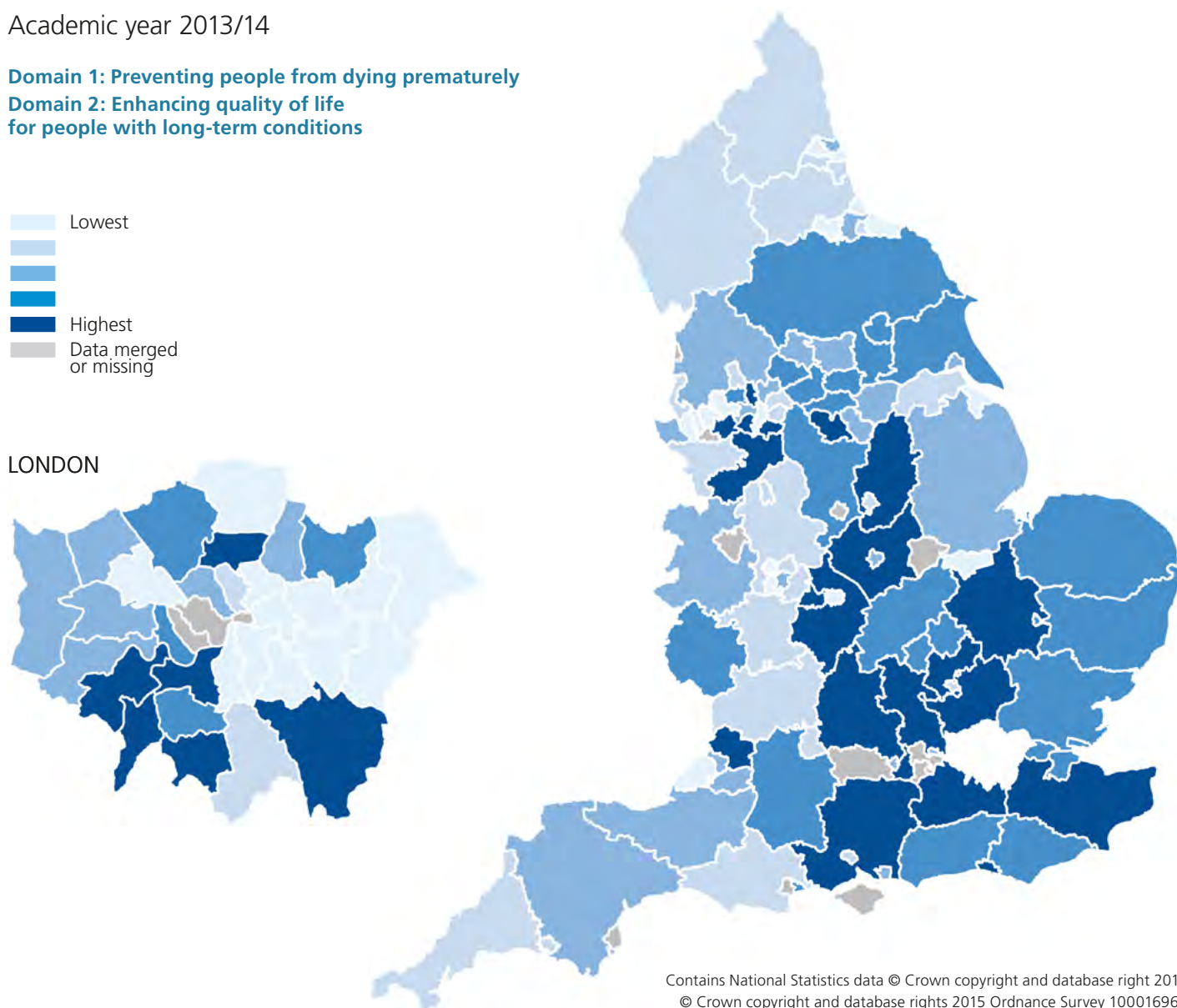
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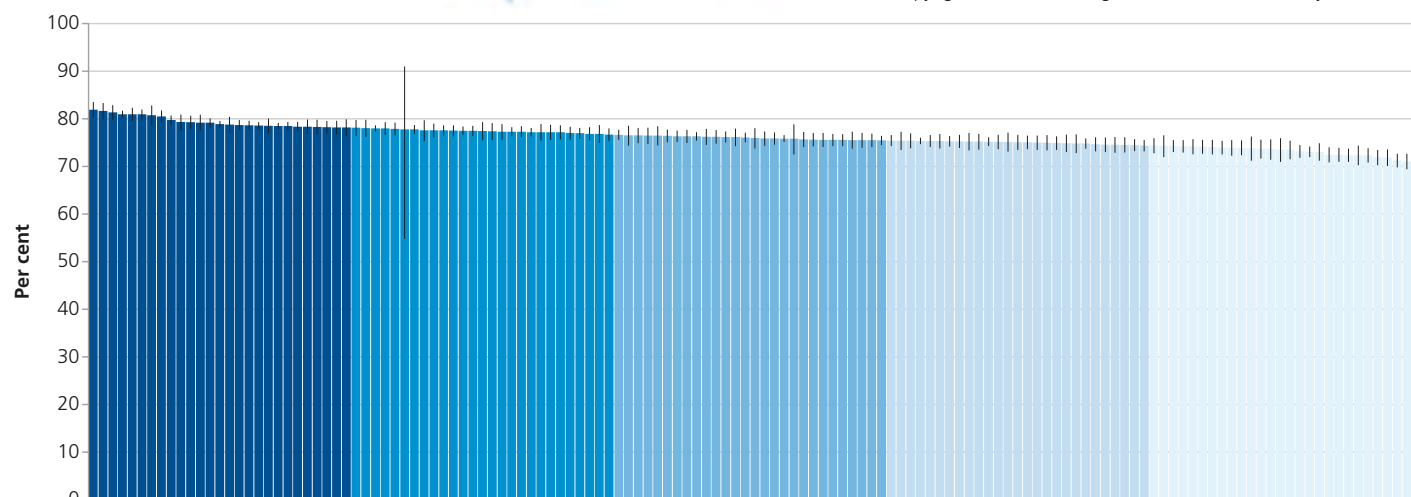
137 out of 152 UTLAs (13 missing data and 2 merged due to small numbers)

Per cent

Context

Obesity is a considerable public health problem, both in England and globally, and there is strong evidence of a positive association between obesity and an increased risk of mortality.[1]

Childhood obesity presents a particular challenge for two main reasons:

› childhood obesity rates have been steadily increasing for the past decade; data for pupils in school Year 6 show annual increases in obesity prevalence by 0.32% per year[2], although there is some evidence to suggest that rates may now be reaching a plateau;

› it is associated with an increased risk of obesity/overweight in adulthood.

Obesity is strongly associated with poor physical and emotional health, including:

› Type 2 diabetes mellitus;

› non-alcoholic liver disease, the most common chronic disease of the liver in children and young people in countries with developed economies;

› lower self-reported physical and psychosocial well-being;

› an increased lifetime risk of cardiovascular disease, and of certain cancers.

The causes of obesity are complex and multifactorial. Rates of obesity vary among age-groups, between genders, and by geographical distribution and socio-economic status. Over the past few years, social inequalities in obesity appear to have been increasing.[2]

An overview of the social and biological aspects of obesity is provided in the Foresight report (see "Resources").

The National Child Measurement Programme (NCMP) measures the height and weight of over one million children aged 4–5 and 10–11 years each year in primary schools in England. These surveillance data can help to increase understanding of the patterns and trends in underweight, healthy weight, overweight, and obesity among children.

Excess weight in 4–5 and 10–11 year-olds is included in the Public Health Outcomes Framework 2013–16.

For this indicator, healthy weight is defined as a body mass index (BMI) greater than the 2nd centile but less than the 85th centile of the UK90 growth reference.

Magnitude of variation

Map 80: Healthy weight in pupils in school Reception Year

For upper-tier local authorities (UTLAs) in England, the percentage of pupils in school Reception Year (aged 4–5 years) with healthy weight ranged from 70.9% to 81.9% (1.2-fold variation).[3] When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 72.3–80.9%, and the variation is 1.1-fold.

This means that across England, after exclusions, 19.1–27.7% of 4–5 year-old children are an unhealthy weight (overweight, obese or underweight; 1.6-fold variation), which equates to 2–3 children in every ten 4–5 year-olds. The UTLA data for 2011/12 were similar: after exclusions, the range was 17.8–26.8% (1.5-fold variation).[4]

Map 81: Healthy weight in pupils in school Year 6

For UTLAs in England, the percentage of pupils in school Year 6 (aged 10–11 years) with healthy weight ranged from 52.4% to 75.3% (1.4-fold variation).[5] When the five UTLAs with the highest percentages and the five UTLAs with the lowest percentages are excluded, the range is 57.0–71.3%, and the variation is 1.2-fold.

This means that across England, after exclusions, 28.7–43.0% of 10–11 year-old children are an unhealthy weight (overweight, obese or underweight; 1.5-fold variation), which equates to 3–4 children in every ten 10–11 year-olds. The UTLA data for 2011/12 were similar: after exclusions, the range was 28.1–40.6% (1.4-fold variation).[4]

The degree of variation observed in healthy weight is related to differences in the level of deprivation, which in turn is associated with children's diet and level of physical activity.

For both age-groups, there is a clear association between obesity and living in an area of deprivation, with obesity prevalence among the most deprived 10% of areas nearly twice that among the least deprived 10% of areas. Moreover, the inequalities gap appears to be increasing:

› among children in school Year 6, the prevalence of obesity has been stable for the least deprived, but has been steadily increasing from 2006/07 to 2012/13 among the most deprived (see Figure 81.1, page 214);

› a similar disparity is seen for children in school Reception Year, with obesity prevalence remaining unchanged during that period for the most deprived, but a steady reduction among the least deprived.

For children classed as overweight, there is no such relationship with deprivation, either in school Reception Year or in school Year 6. This would suggest that progression from overweight to obesity is more common in children from more-deprived areas.

1   Berrington de Gonzalez A, Hartge P, Cerhan JR et al. Body-mass index and mortality among 1.46 million white adults. N Engl J Med. 2010; 363: 2211–9. [PMID: 21121834]. http://www.nejm.org/doi/pdf/10.1056/NEJMoa1000367

2   Public Health England (PHE) Obesity. http://www.noo.org.uk. [Accessed 11th Feb 2015].

3   Data from 13 UTLAs are missing; for 2 UTLAs, owing to small numbers, Isles of Scilly local authority has been merged with Cornwall, and City of London local authority has been merged with Hackney.

4   Chief Medical Officer's annual report 2012: Our Children deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

5   Data from seven UTLAs are missing; for two UTLAs, owing to small numbers, Isles of Scilly local authority has been merged with Cornwall, and City of London local authority has been merged with Hackney.

There is also variation in healthy weight by ethnic group, which is independent of the level of deprivation.

Other potential reasons for the degree of variation observed include differences in:

› local food environments (see "Resources" for a link to a map of density of fast food outlets in relation to deprivation);

› access to green space and other environments for physical activity;

› parental knowledge and education.

Options for action

To increase the proportion of children with healthy weight, commissioners, service providers and local Health and Wellbeing Boards in partnership need:

› to review the proportions of overweight and obese children and young people in local populations, and compare them with those in demographically similar localities;

› to ascertain whether local variations are warranted or unwarranted;

› to develop or refine a local strategy for reducing obesity including promoting targeted interventions for the most deprived populations – such interventions are likely to yield greatest reward, particularly those interventions addressing the progression from overweight to obesity.

The NCMP has an online tool (see "Resources") that can be used to investigate prevalence of underweight, healthy weight, overweight, and obesity for children in school Reception Year (age 4–5 years) and school Year 6 (age 10–11 years) at local authority level; data from 2006/07 to 2013/14 are now available. Data quality indicators are also available.

Treatment of obesity in children and young people is complicated by the fact that reducing caloric intake alone may interfere with growth and development. There is evidence that a coordinated and multi-component approach involving both healthy eating and physical activity can be effective, particularly if implemented as part of a school- or family-

based initiative, and delivered by adequately resourced and trained community- and school-based professionals.

NICE have produced evidence-based guidance on a life-course, pathway approach to prevention and interventions for obesity (see "Resources"). A life-course approach is also promoted in the national strategy for action on obesity in England "Healthy Lives, Healthy People" (see "Resources").

Evidence on interventions and policy is available in the Foresight report (see "Resources").

RESOURCES

› Public Health England National Child Measurement Programme (NCMP). NCMP Local Authority Profile. http://fingertips.phe.org.uk/profile/national-child-measurement-programme

› Government Office for Science. Foresight Report: Tackling Obesities – Future Choices. 2007. http://www.bis.gov.uk/assets/foresight/docs/obesity/17.pdf

› Public Health England (PHE) Obesity data and tools. http://www.noo.org.uk/visualisation

› Ridler C, Dinsdale H, Rutter H. National Child Measurement Programme: Changes in children's body mass index between 2006/7 and 2011/12. 2013. Oxford: National Obesity Observatory. http://www.noo.org.uk/uploads/doc/vid_17929_NCMP_Changes_children.pdf

› Department of Health. Healthy Lives, Healthy People: A call to action on obesity in England. London. 2011 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/134840/dh_130487.pdf.pdf

› NICE. Obesity: Guidance on the prevention of overweight and obesity in adults and children. NICE guidelines [CG43]. December 2006. http://www.nice.org.uk/cg043

› NICE. Obesity: identification, assessment and management of overweight and obesity in children, young people and adults. NICE guidelines [CG189]. November 2014. This guidance updates and replaces section 1.2 of NICE CG43 (see above). http://www.nice.org.uk/guidance/cg189

› Public Health England (PHE) Guide to online tools for valuing physical activity, sport and obesity programmes. October 2014. http://www.noo.org.uk/securefiles/150211_1446//online_tools_briefing_13011_%20FINAL.PDF

› Public Health England (PHE). Obesity and the environment. Fast food outlets. Relationship between density of fast food outlet and deprivation by local authority. http://www.noo.org.uk/uploads/doc/vid_15683_FastFoodOutletMap2.pdf

Figure 81.1: Obesity prevalence by deprivation decile and year of measurement: children in school Year 6 (aged 10–11 years) 2006/07–2012/13 (Public Health England. Patterns and trends in child obesity. A presentation of the latest data on child obesity. 2014. http://www.noo.org.uk/gsf.php5?f=14604&fv=19565)
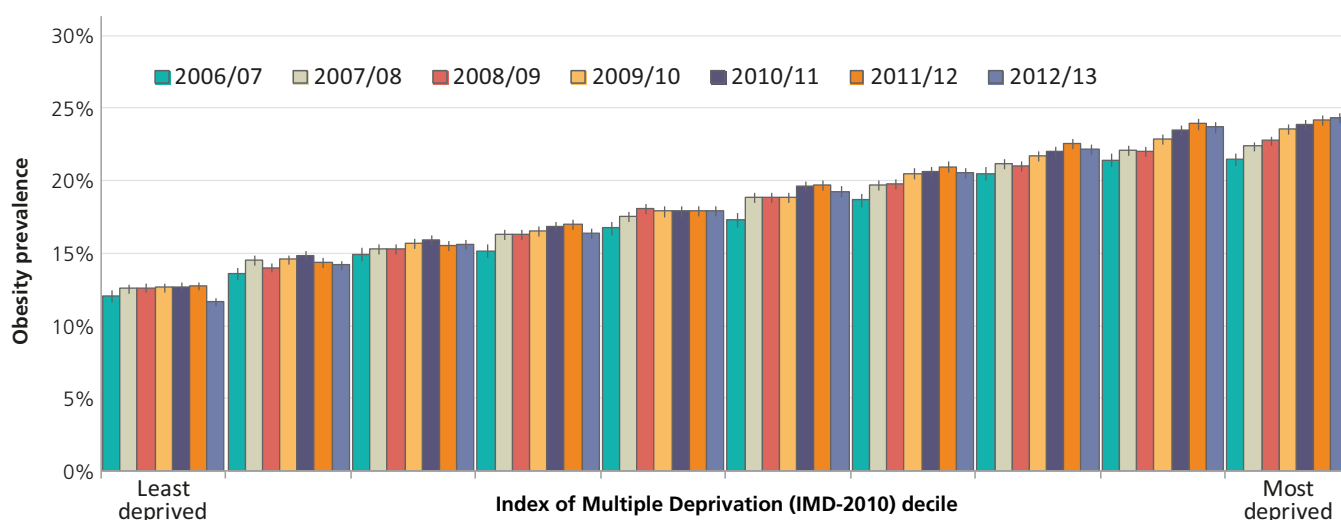
CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 81: Percentage of pupils in school Year 6 (aged 10–11 years) with healthy weight by upper-tier local authority

Academic year 2013/14

Domain 1: Preventing people from dying prematurely
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest

Data merged
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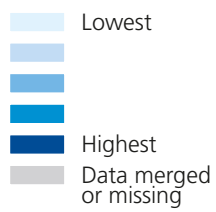
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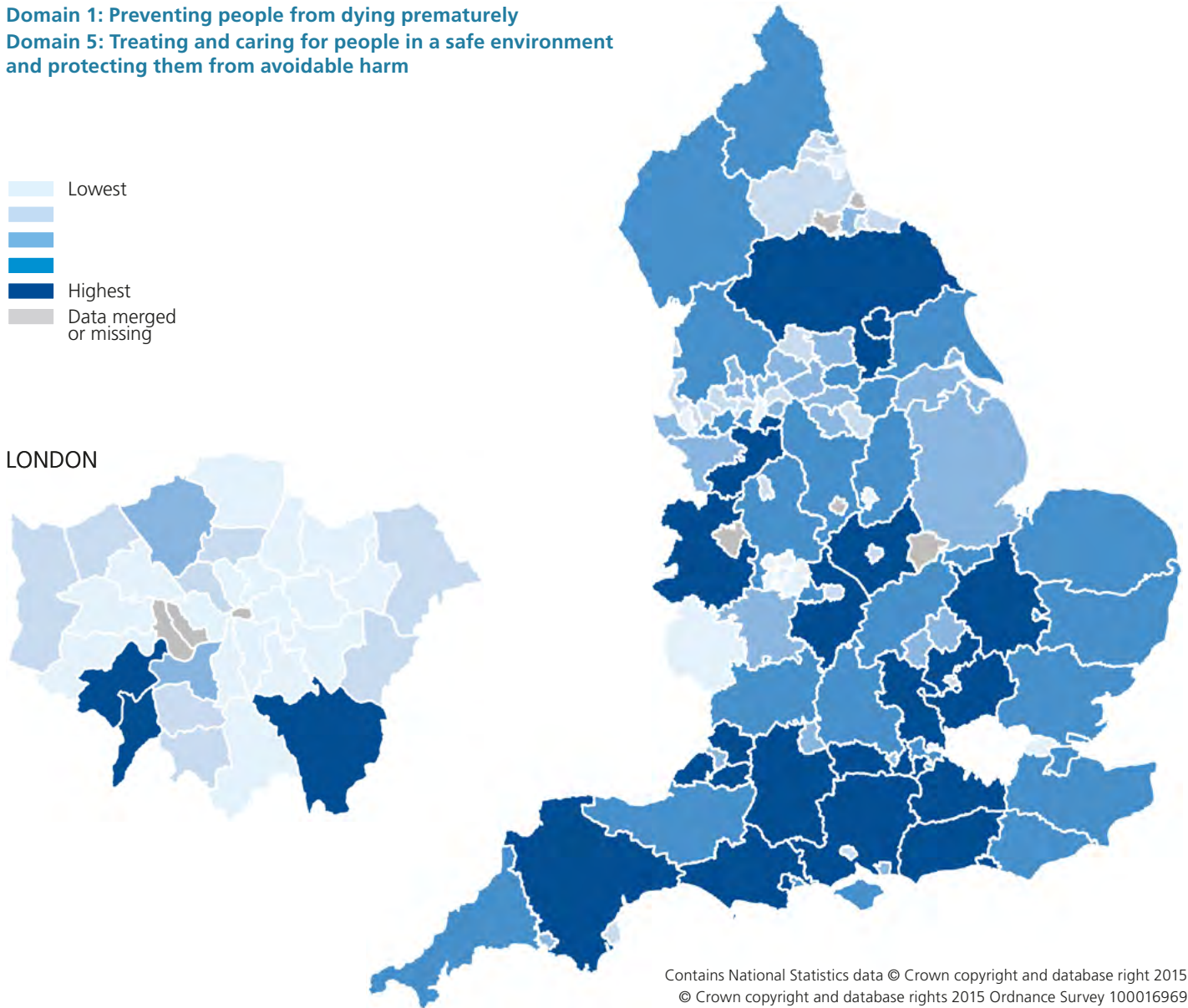
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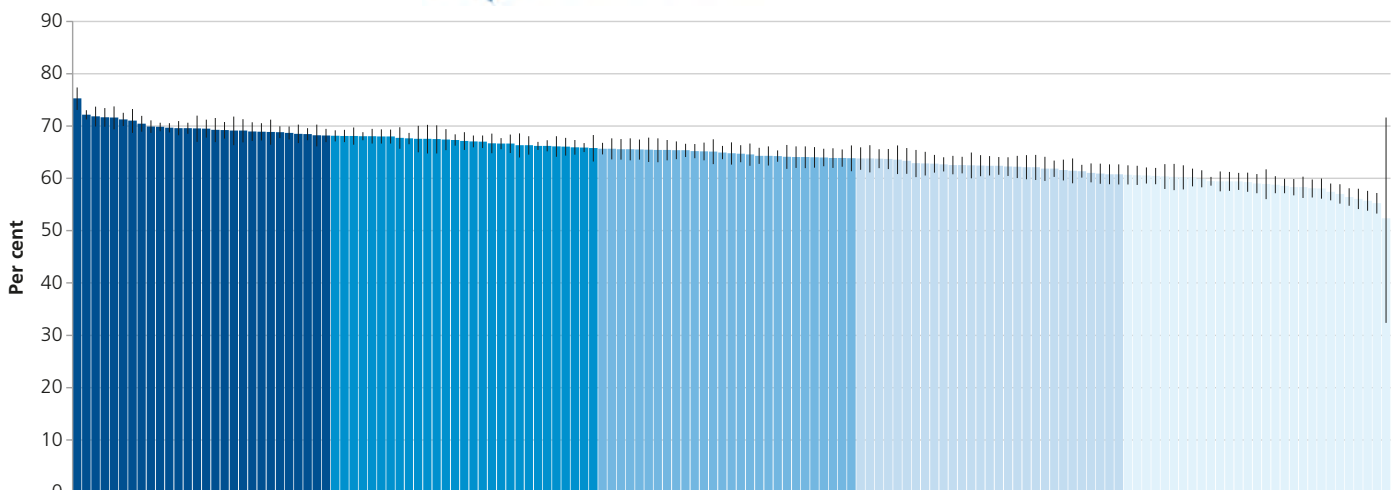
143 out of 152 UTLAs (7 missing data and 2 merged due to small numbers)

Per cent

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 82: Percentage of children and young people aged 0–24 years with diabetes in the National Paediatric Diabetes Audit (NPDA) whose median HbA1c measurement was less than 58 mmol/mol (7.5%) by paediatric diabetes unit

2012/13

Domain 2: Enhancing quality of life for people with long-term conditions
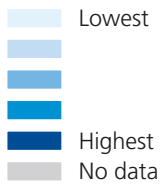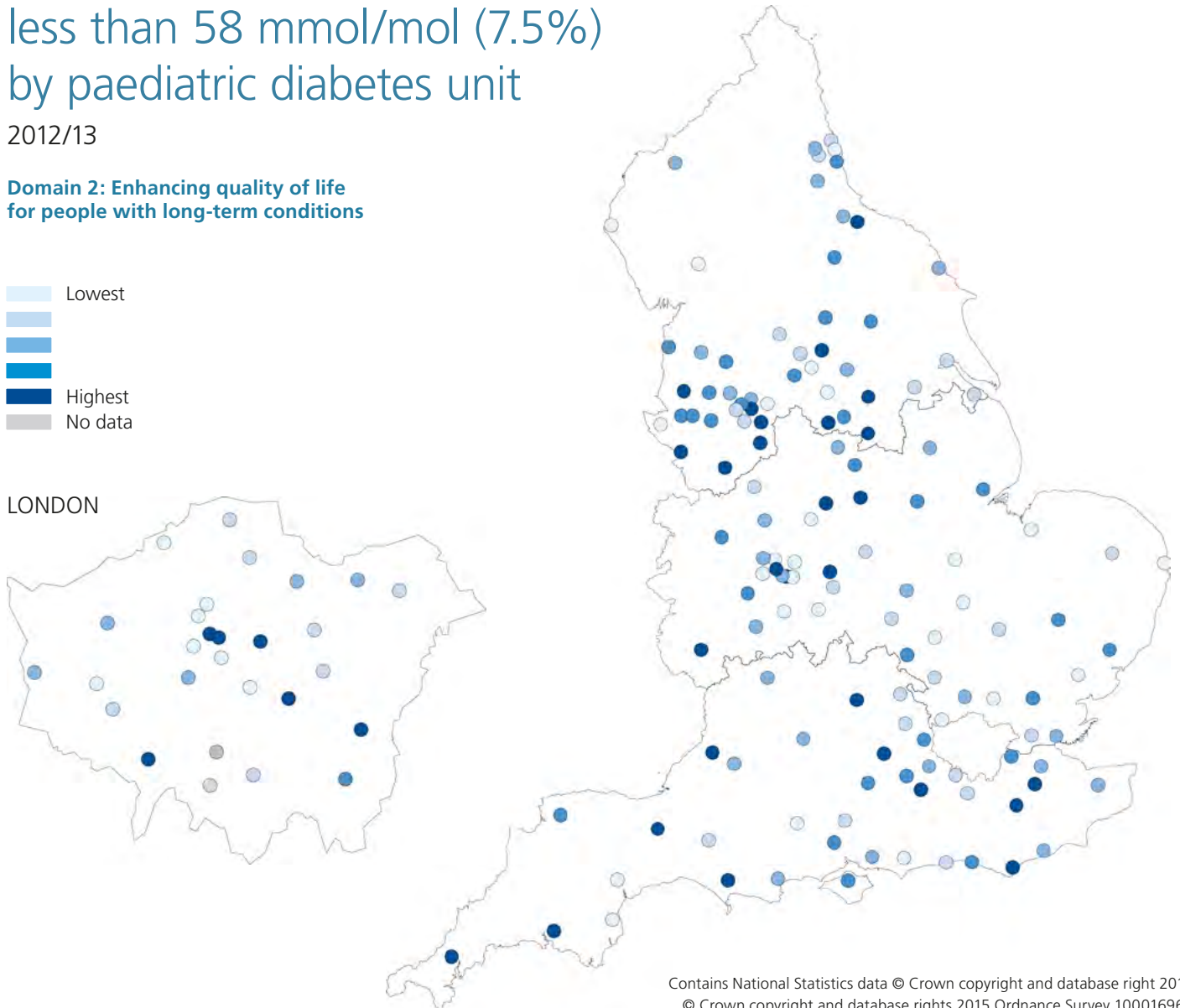
Lowest

Highest
No data

LONDON

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162 out of 163 Paediatric Diabetes Units (1 removed due to incomplete data)
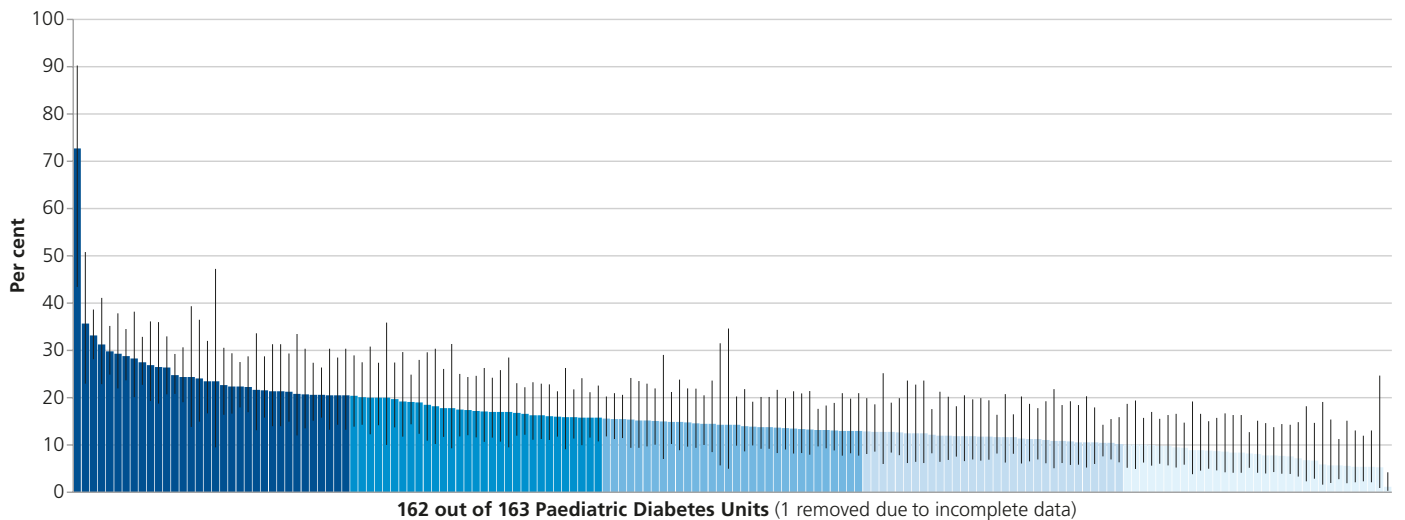
Context

Good blood glucose control reduces the risk of developing diabetic complications in the longer term. Glycated haemoglobin (HbA1c) is an indicator of average blood glucose levels over the previous 8–12 weeks. Until August 2015, national and international guidance recommended an HbA1c of lower than 58 mmol/mol for children with diabetes. Recent NICE guidance has reduced this threshold further to 48 mmol/mol.[1] The data presented here will therefore underestimate the proportion of children with suboptimal glycaemic control and who are at risk of complications.[1,2]

The National Paediatric Diabetes Audit (NPDA) publish outcomes for children and young people with diabetes in England annually. These data here come from the 2012/13 audit. As accurate 2013/14 data become available, this indicator will be updated in the online InstantAtlas.

Data from the NPDA show that only 15.9% of children and young people with diabetes in England in 2012/13 had an HbA1c value within the recommended target level of <58 mmol/mol[3], a decrease from 17.4% in 2011/12, but higher than the two years prior to that. The large majority of children who fall outside this range are at increased risk of developing complications.

By comparison, in Germany and Austria in 2011, 50–55% of children and young people aged under 21 years achieved an HbA1c of <58 mmol/mol.[4]

The magnitude of variation in glycaemic control of children and young people with diabetes is high both nationally and internationally.[5,6]

Paediatric diabetes care has been subject to a national Best Practice Tariff since 2012.

Magnitude of variation

For paediatric diabetes units in England, the percentage of children and young people aged 0–24 years with diabetes in the NPDA whose median HbA1c measurement was <58 mmol/mol ranged from 1.2% to 72.7% (60.6-fold variation).[7] When the five paediatric diabetes units with the highest percentages and the five paediatric diabetes units with the lowest percentages are excluded, the range is 5.6–29.3%, and the variation is 5.2-fold.

Reasons for warranted variation include differences in:

> the ethnic profile of the local population of children and young people with diabetes;

> the level of deprivation in different localities[3].

Despite this, warranted variation and individual patient behaviour cannot explain the relatively large degree of variation observed. Possible reasons for unwarranted variation include differences in:

> the nature of care provided at individual paediatric diabetes units;

> the way in which units provide education about the condition to children and young people and their families.

Options for action

Improvement in glycaemic control for children and young people at a population level requires a multifaceted approach, facilitated by managed clinical networks working in tandem with commissioners.

Commissioners need to specify that service providers and clinicians target resource and efforts at at-risk groups to ensure equity of health outcomes for children and young people with diabetes.

Commissioners also need to review minimum service specifications to ensure they are in line with current NICE guidance (see "Resources") and Department of Health policy on service configuration (see "Resources"). Local, regional and national peer-review of services can promote best practice, and help to assess performance and improve outcomes.

In accordance with NICE technology appraisal guidance (see "Resources"), where clinically indicated, service providers should give patients access to appropriate technologies, such as insulin pumps and continuous glucose monitoring.

To improve outcomes for children and young people with diabetes, education is pivotal. Commissioners need to specify that service providers deliver standardised self-management education programmes individually tailored for each child, their family and school.

Service providers also need to ensure that standardised specialist training is provided for all healthcare professionals involved in the care of children and young people with diabetes.

CASE-STUDIES

> Oxfordshire Childrens Diabetes Service – The Primary Schools Intervention Programme (see Case-study 4, page 265)

> See also Child Health Atlas, Case-study 1: Yorkshire and Humber Paediatric Diabetes Network. http://www.rightcare.nhs.uk/index.php/nhs-atlas/case-study-1-yorkshire-and-humber-paediatric-diabetes-network/

RESOURCES

> NICE. Diabetes (type 1 and type 2) in children and young people: diagnosis and management. NICE guidelines [NG18]. August 2015. http://www.nice.org.uk/guidance/ng18

> NICE. Continuous subcutaneous insulin infusion for the treatment of diabetes mellitus. NICE technology appraisal guidance [TA151]. July 2008. http://guidance.nice.org.uk/TA151

> NICE. Commissioning an insulin pump therapy service. http://www.nice.nhs.uk/usingguidance/commissioningguides/insulinpumps/commissioning.jsp

> Department of Health (2007) Making every young person with diabetes matter. http://www.diabetes.org.uk/Documents/Reports/MakingEveryYoungPersonMatter.pdf

> SWEET project e.V (http://www.sweet-project.eu): an international collaboration of paediatric diabetes services working to improve care through benchmarking clinical outcomes, comparing services and best practice, and sharing standards, guidance and research.

1 NICE. Diabetes (type 1 and type 2) in children and young people: diagnosis and management. NICE guidelines [NG18]. August 2015. http://www.nice.org.uk/guidance/ng18

2 ISPAD Clinical Practice Consensus Guidelines. https://www.ispad.org/content/ispad-clinical-practice-consensus-guidelines-2014

3 National Paediatric Diabetes Audit Report 2012/13. http://www.rcpch.ac.uk/system/files/protected/page/NPDA%202012-13%20Core%20Report%202nd%20FINAL%20v%203.3.pdf

4 DPV-Wiss database German & Austrian National database for children and young people with diabetes. http://buster.zibmt.uni-ulm.de/dpv/index.php/en/

5 http://www.hvidoeregroup.org/

6 http://www.sweet-project.eu

7 Data from one paediatric diabetes unit are missing.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 83: Emergency asthma admission rate for children aged 0–18 years per population by CCG

Age-specific rate, 0–18 years, 2012/13

**Domain 2: Enhancing quality of life
for people with long-term conditions
Domain 4: Ensuring that people have
a positive experience of care**

Lowest

Highest
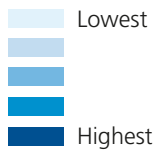
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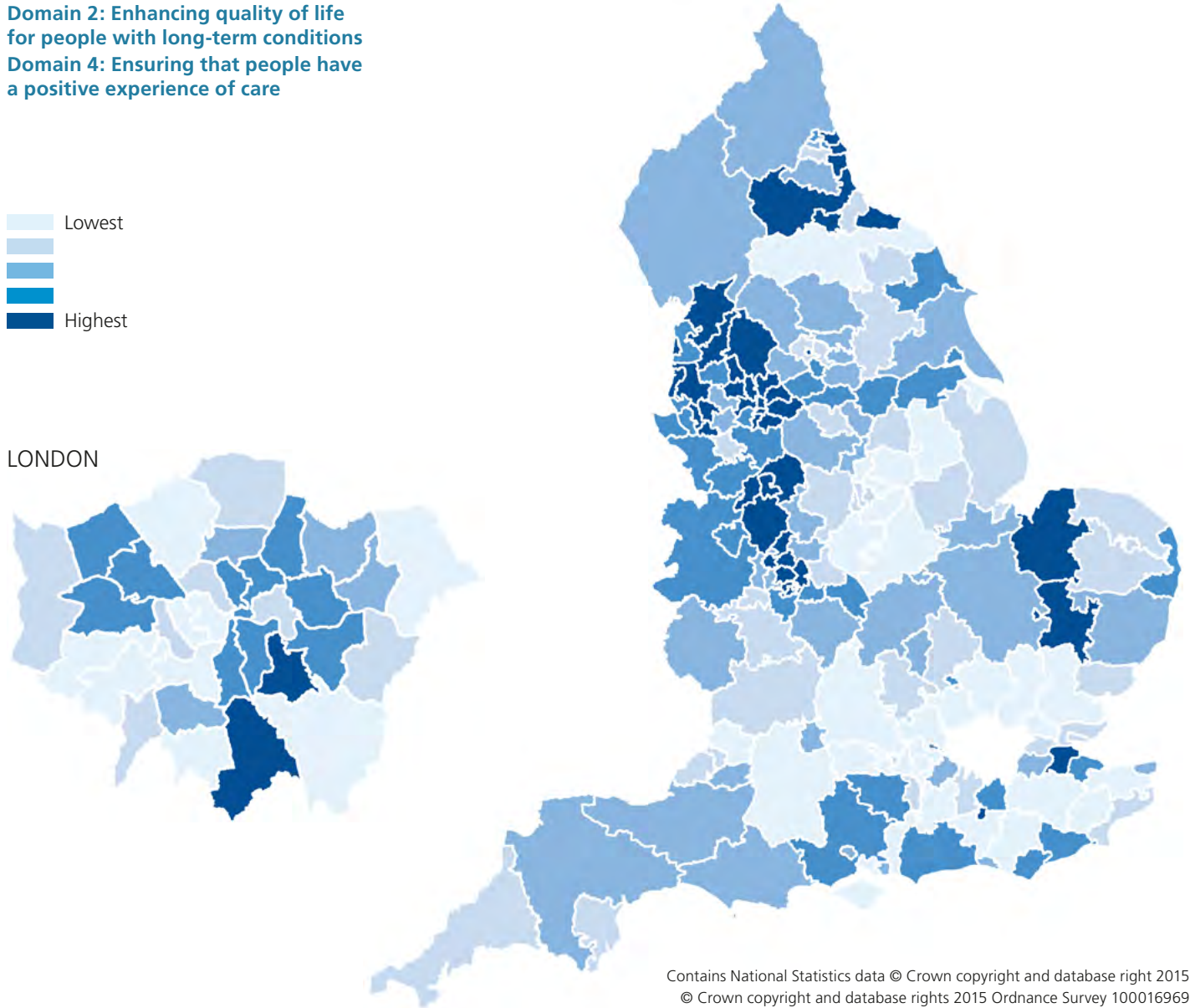
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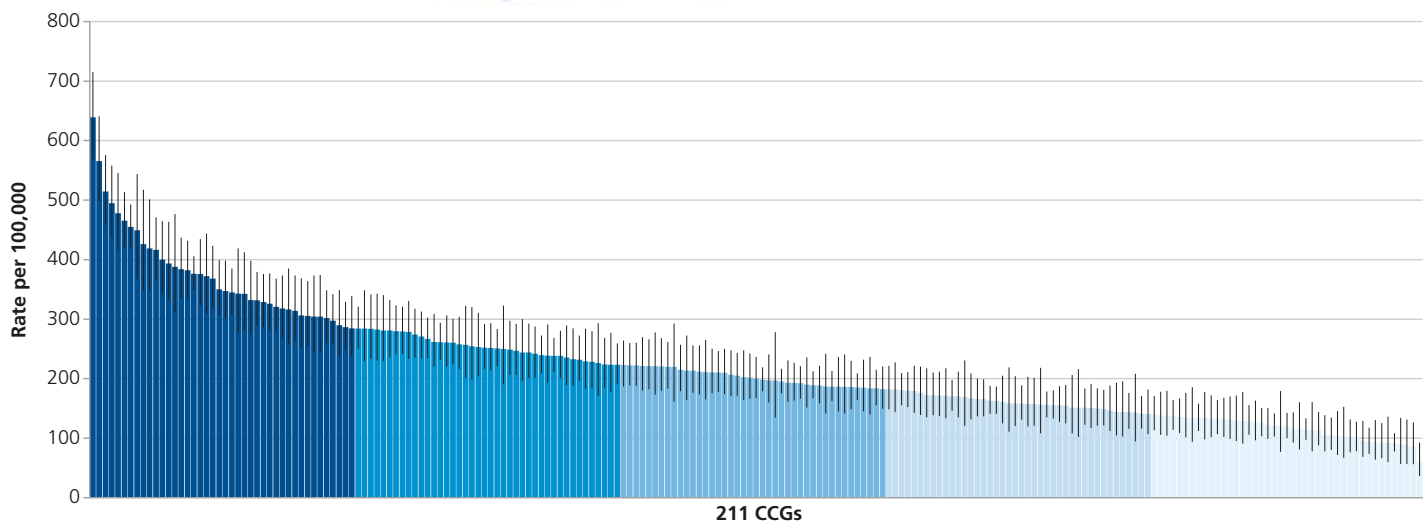
Context

Asthma is an inflammatory disorder affecting the airways, characterised by breathlessness, wheezing and coughing particularly at night. The most common type of asthma is allergic asthma triggered by immunoglobulin E (IgE) antibodies generated in response to environmental allergens such as dust mites, pollen and moulds.

Asthma is the commonest long-term medical condition in childhood. Of the 5.4 million people in the UK currently being treated for asthma, 1.1 million are children (~20%).

Emergency admissions should be avoided whenever possible.

Interventions that improve health outcomes for people with asthma include:

> self-management education that incorporates written personalised asthma actions plans (PAAPs);

> regular pro-active structured clinical reviews in primary care, including discussion and use of a written PAAP;

> education for clinicians.

Unplanned hospitalisation for asthma, diabetes and epilepsy in children and young people under 19 years is a national quality indicator in the NHS Outcomes Framework 2015/16.

Magnitude of variation

Map 83: Emergency admissions

For CCGs in England, the emergency asthma admission rate for children aged 0–18 years ranged from 60 to 639 per 100,000 population (10.6-fold variation). When the seven CCGs with the highest emergency admission

rates and the seven CCGs with the lowest emergency admission rates are excluded, the range is 93–449 per 100,000 population, and the variation is 4.8-fold (see Table 83.1 for data from 2011/12 by upper-tier local authority[1]).

The degree of variation observed in the rate of emergency admission may be due to:

> suboptimal symptom management and secondary prevention in the community;

> suboptimal emergency care in the accident and emergency (A&E) department;

> differences in admission criteria among paediatric units.

Bed capacity could also be a factor in determining admission criteria.

When compared with previous financial years, it would appear that the variation observed for emergency admission rates for children with asthma is relatively high and of a similar degree although as can be seen from Table 83.1, the geographical and population units of analysis are different. Nonetheless, it would appear there is scope for greater equity in the provision of asthma services across England.

Map 84: Mean length of stay

For CCGs in England, the mean length of stay for asthma in children aged 0–18 years ranged from 0.6 days to 2.4 days (4.4-fold variation). When the seven CCGs with the longest mean lengths of stay and the seven CCGs with the shortest mean lengths of stay are excluded, the range is 0.8–2.0 days, and the variation is 2.4-fold.

The degree of variation observed in length of stay in hospital may be related to disease severity. For geographical regions, however, these data show no

Table 83.1: Emergency asthma admission rate for children aged 0–18 years per 100,000 population for two financial years

Financial year	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2012/13	CCG	60.1–639.1	10.6	93.0–449.2	4.8	
2011/12	UTLA	73.4–484.4	6.6	102.2–384.1	3.8	CMO's Annual Report 2012[2]

1 For similar data from 2009/10 by PCT, see Child Health Atlas, Map 19, pages 56-57; for similar data from 2010/11 by PCT, see Respiratory Disease Atlas, Map 14, pages 46-47;

2 Chief Medical Officer's annual report 2012: Our Children Deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

correlation between emergency admission rate and mean length of stay, which would suggest there are other factors involved, such as differences in:

> inpatient management of asthma;

> discharge criteria for paediatric units.

Bed capacity could also be a factor in determining discharge criteria.

Options for action

To identify unwarranted variation in the local management of long-term conditions such as asthma, commissioners can use the Disease Management Information Toolkit (DMIT; see "Resources").

As the causes of asthma are multifactorial, action to reduce emergency admission requires a whole pathway approach, including public health, and primary and secondary care. Commissioners need to specify that all service providers:

> use the British Thoracic Society/Scottish Intercollegiate Guidelines Network (BTS/SIGN) guidelines (see "Resources") as the basis of the clinical asthma pathways for which they are responsible locally;

> implement the NICE quality standards for asthma (see "Resources") that are relevant to children.

Hospital-based admission is an opportunity to review self-management skills. Service providers need to ensure that:

> every child with asthma has a written PAAP according to the BTS/SIGN guideline on management of asthma, and the NICE quality standards for asthma; symptom-based plans are generally preferable for children;

> every child admitted to hospital with an acute exacerbation of asthma has a structured review by a member of a specialist respiratory team before discharge, in accordance with the NICE quality standards for asthma.

Primary care service providers could audit the number and percentage of children with asthma receiving an annual review, and in particular those children who:

> over-use bronchodilators;

> are on higher treatment steps;

> have asthma attacks;

> have complex needs;

> belong to an at-risk ethnic minority group and who have attended emergency care.

Commissioners need to ensure that service providers support clinicians:

> in implementing up-to-date evidence on best practice, such as omalizumab for severe persistent allergic asthma;[3]

> by providing training interventions especially for clinicians in primary care that include educational outreach visits.

Any school-based asthma education programmes need to be targeted at the children's health professionals as well as the children themselves.

School nursing, primary care and paediatric asthma networks need to work together to optimise other vital aspects of the overall care of the child with asthma such as:

> parental education;

> school medication management.

RESOURCES

> Disease Management Information Toolkit (DMIT). http://atlas.chimat.org.uk/IAS/dmit

> NICE. Quality standards for asthma. NICE quality standard [QS25]. February 2013. http://www.nice.org.uk/guidance/qs25

> BTS/SIGN. SIGN 141. British guideline on the management of asthma. A national clinical guideline. October 2014. https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-2014/

> BTS/SIGN. QRG 141. British guideline on the management of asthma. Quick reference guide. October 2014. https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-quick-reference-guide-2014/

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3   NICE. Omalizumab for treating severe persistent allergic asthma (review of technology appraisal guidance 133 and 201). NICE technology appraisal guidance [TA278]. April 2013. http://publications.nice.org.uk/omalizumab-for-treating-severe-persistent-allergic-asthma-review-of-technology-appraisal-guidance-ta278

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 84: Mean length of stay (days) for asthma in children aged 0–18 years by CCG

2012/13

Domain 2: Enhancing quality of life for people with long-term conditions
Domain 4: Ensuring that people have a positive experience of care

Lowest

Highest

LONDON

Days

3.0

2.5

2.0

1.5

1.0

0.5

0.0

211 CCGs
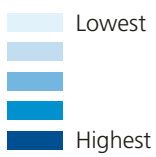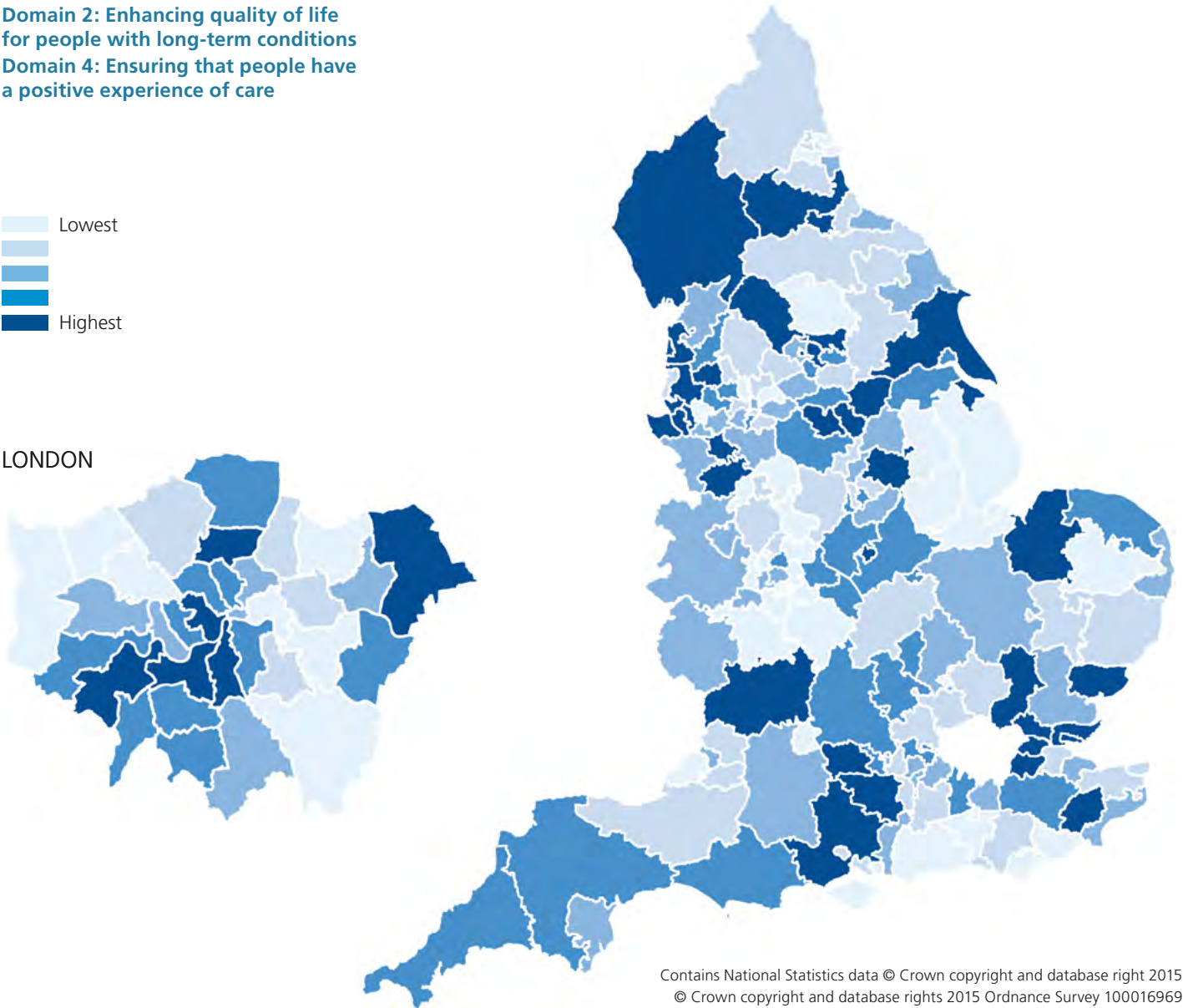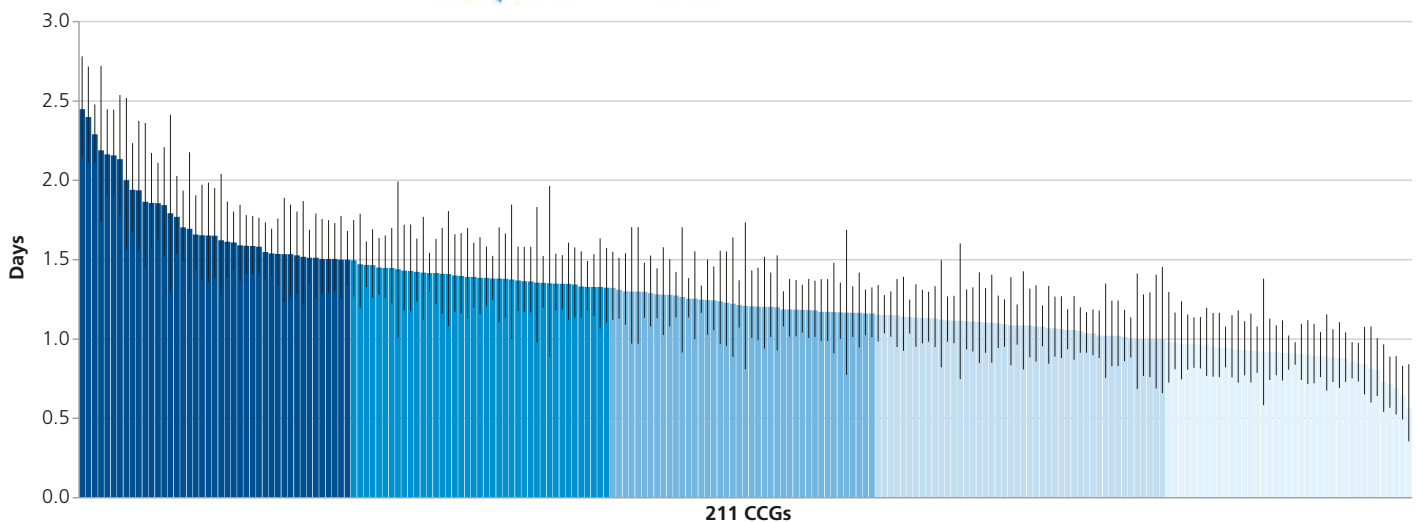
CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 85: Rate of admission to hospital for self-harm in children and young people aged 10–24 years per population by upper-tier local authority

Directly standardised rate, adjusted for age, 2012/13

Domain 2: Enhancing quality of life for people with long-term conditions
Domain 4: Ensuring that people have a positive experience of care
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest
Data merged

LONDON

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150 out of 152 LAs (2 merged due to small numbers)
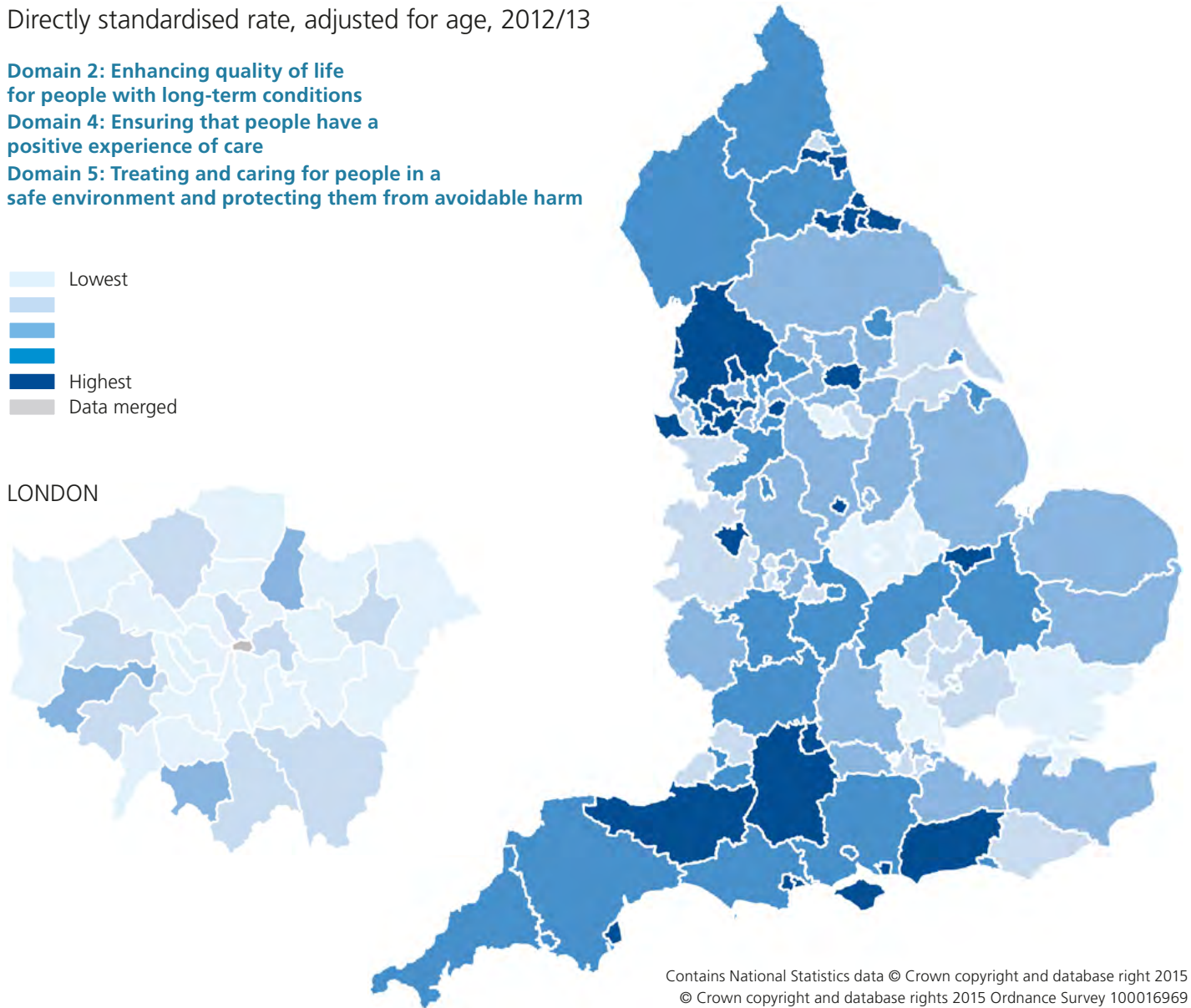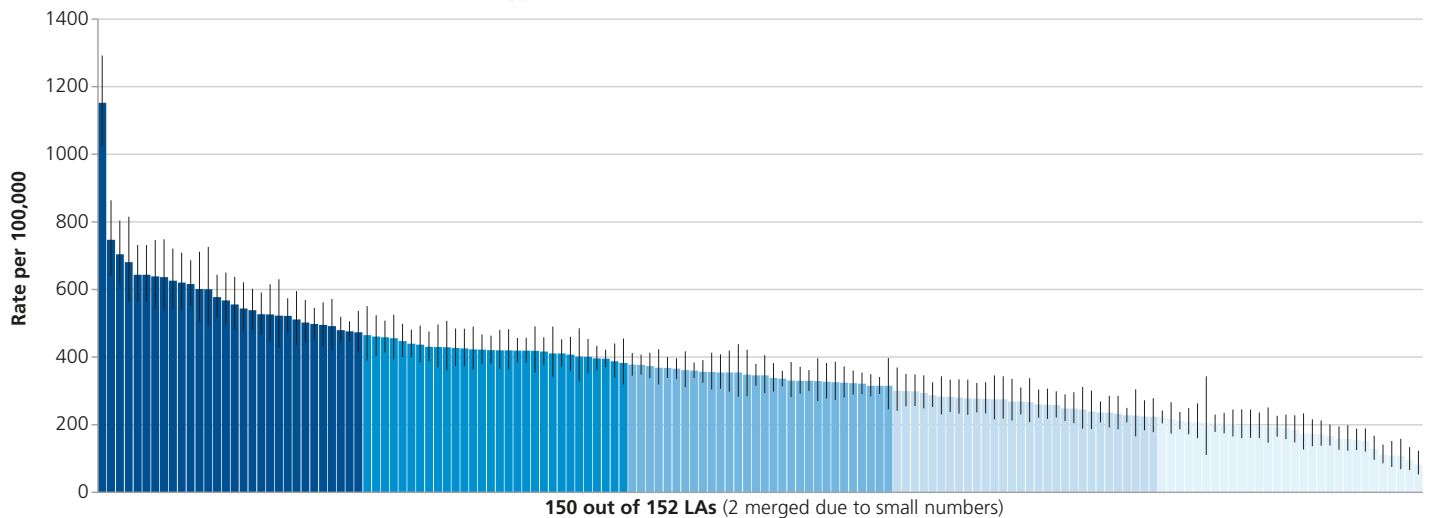
Context

Self-harm refers to a variety of deliberate actions through which young people physically hurt themselves. Most commonly, this involves self-injury (such as cutting or burning), or self-poisoning with medications. This indicator does not include other activities sometimes referred to as "self-harm", such as over- or under-eating, body tattooing or piercing, and excessive consumption of recreational drugs and alcohol.

In most young people, self-harm is a maladaptive response to underlying emotional distress. Self-harm is more prevalent among young people with underlying mental health problems. Although self-harm is associated with a slightly higher risk of suicide, the vast majority of young people who self-harm do not have suicidal intentions.[1]

Young people who present to emergency departments with self-harm undergo a specialist assessment by Child and Adolescent Mental Health Services (CAMHS) professionals prior to discharge, which, in practice, may lead to an emergency hospital admission.

Negative attitudes and lack of expertise among professionals in emergency departments and acute hospitals can be detrimental to the care experience of young people who self-harm.

"Hospital admissions as a result of self-harm" is a national quality Indicator in the Public Health Outcomes Framework 2013–16.

Magnitude of variation

For upper-tier local authorities (UTLAs) in England, the rate of admission to hospital for self-harm in children and young people aged 10–24 years ranged from 82 to 1152 per 100,000 population (14.0-fold variation).[2] When the five UTLAs with the highest rates and the five UTLAs with the lowest rates are excluded, the range is 128–644 per 100,000 population, and the variation is 5.0-fold.

Reasons for the degree of variation observed include differences in:

> the prevalence of mental health problems in local populations, which is correlated with risk factors such as socio-economic deprivation, learning disability, and childhood adversity (e.g. adverse family circumstances, and childhood trauma);

> the provision of primary prevention, including support for young people at school and in the community;

> early recognition of the problem by parents, carers, and health and education professionals;

> access to early interventions;

> access to effective secondary prevention interventions for children and young people who present as an emergency;

> clinical thresholds for admission to hospital following an episode of self-harm;

> access to timely specialist CAMHS assessment in the emergency department to avoid the need for hospital admission unless there are medical or psychiatric indications.

Options for action

Commissioners need to undertake local surveillance to ascertain trends in and the prevalence of self-harm in children and young people to underpin the allocation of resources for mental health promotion, prevention, and early intervention in the local population of children and young people.

To improve the quality of care and support for children and young people who self-harm:

> commissioners need to specify to service providers and clinicians that the relevant care pathways, from community care to hospital care through to specialist mental health services, comply with the NICE quality standard and associated commissioning support tools (see "Resources");

> professionals in emergency departments and acute hospitals need to use resources, such as those provided on MindEd, the children and young people's mental health e-portal (see "Resources"), to increase specific learning and engage in professional development.

Children and young people presenting to emergency departments with self-harm represent the tip of the iceberg, however; the majority of incidents of self-harm among young people never present to any health services. Therefore, although hospital admissions for self-harm are opportunities for secondary prevention, it is likely that the following interventions will have a greater impact on outcomes:

> mental health promotion;

> early identification, including public education and training for health and education professionals on risk factors and signs of self-harming behaviour in children and young people;

> early intervention, including support from community mental health and youth work professionals;

> primary prevention, including population approaches to increase resilience, such as commissioning for improved mental health in schools.

Research is needed to determine whether there is variation in the prevalence of self-harm, access to timely CAMHS assessment in the emergency department, or the decision to admit young people to hospital for inpatient care.

RESOURCES

> NICE. Quality standard for self-harm. NICE quality standard [QS34]. June 2013. http://www.nice.org.uk/guidance/qs34/

> CMG50: NICE support for commissioning for self-harm. http://www.nice.org.uk/guidance/qs34/resources/cmg50-nice-support-for-commissioning-for-selfharm

> Children & Young People's Mental Health Coalition. Guidance for schools on how to support children and young people's mental health: "Resilience and Results". http://www.cypmhc.org.uk/resources/resilience_results/

> MindEd. http://www.minded.org.uk

> No health without mental health. A cross-government mental health outcomes strategy for people of all ages. 2011. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213761/dh_124058.pdf

> HMG/DH. The Children and Young Persons Improving Access to Psychological Therapies (CYP IAPT) programme, aimed at improving the care and outcomes of patients in CYP IAPT services in England. http://www.cypiapt.org

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1   Hawton K, James A. Suicide and deliberate self-harm in young people. BMJ 2005; 330; 891-894. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC556165/pdf/bmj33000891.pdf

2   Owing to small numbers, Isles of Scilly local authority has been merged with Cornwall, and City of London local authority has been merged with Hackney.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 86: Rate of children and young people aged 0–18 years with three or more admissions to hospital per year for mental health problems per population by CCG

Age-specific rate, 0–18 years, 2012/13

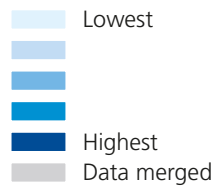**Domain 2: Enhancing quality of life
for people with long-term conditions**

Lowest

Highest

LONDON

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209 out of 211 CCGs (2 missing due to small numbers)

Rate per 100,000
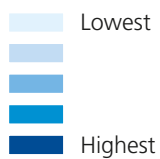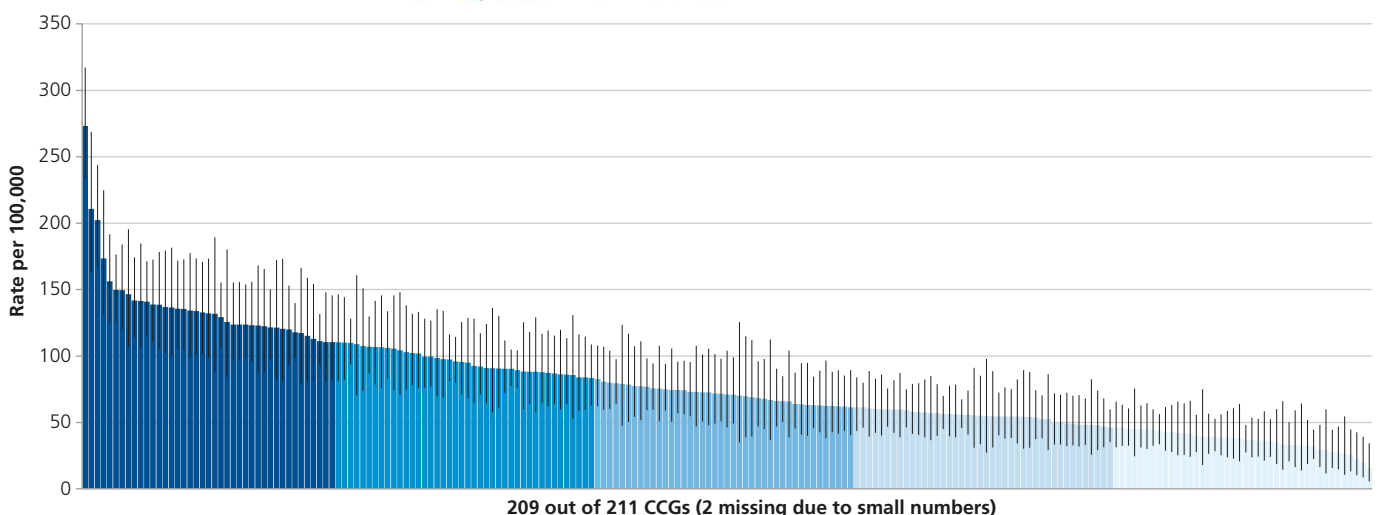
Context

Approximately one in ten (10%) of 5- to 16-year-olds have a mental health disorder diagnosed at some point during childhood.[1] This proportion rises steeply in adulthood, to one in four adults experiencing a mental disorder in any one year.[2] Half of the adults who will be diagnosed with mental illness will have shown symptoms by 14 years of age, and three-quarters of adults diagnosed will have shown symptoms by 20 years of age.[3]

The societal cost of mental ill health has been estimated at £105 billion, and is predicted to increase.[4] Much of this cost is the consequence of early onset disorders, which are recurrent or persistent. There are clinical and financial reasons to provide children and young people with mental health disorders with the most effective intervention in as timely a way as possible.

For this indicator, the focus is those children and young people with recurrent emergency admissions to hospital for mental health disorders. Recurrent emergency admissions could indicate:

› severity of the mental health problems;

› children and young people for whom community-based mental healthcare is inadequate;

› a combination of the two reasons listed above.

Children and young people experiencing recurrent emergency admissions to hospital for mental health problems might benefit from therapy in specialist child and adolescent mental health inpatient facilities, for which capacity is limited. In selected patients, such inpatient psychiatric admissions can be crucial, conferring benefit on those children most in need. Evidence-based management of this limited resource is critical.
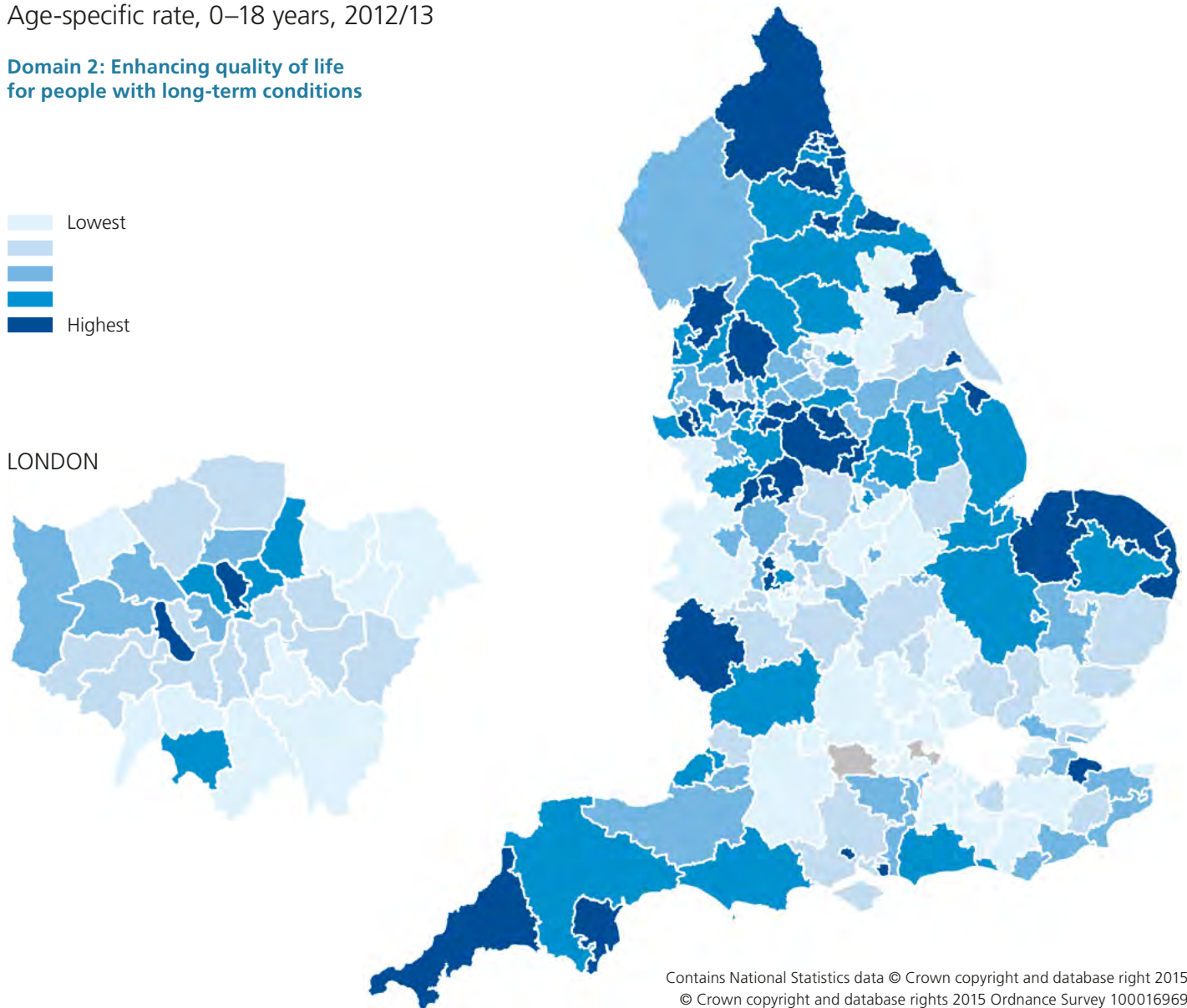
Magnitude of variation

For CCGs in England, the rate of children and young people aged 0–18 years with three or more admissions to hospital per year for mental health problems ranged from 16 to 273 per 100,000 population (17.3-fold variation).[5] When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 29–147 per 100,000 population, and the variation is 5.0-fold.

Possible reasons for the degree of variation observed include differences in:

› the organisation, level of provision and extent of local specialist ambulatory care services and facilities;

› the application of diagnostic criteria for mental health problems in children and young people.

Options for action

Specialist ambulatory care services perform a gate-keeping role for inpatient care. Commissioners need to specify that service providers consider the provision of intensive ambulatory or outreach services for vulnerable groups, which may be clinically, and cost-, effective, together with admission to hospital when appropriate.

Commissioners also need to specify that service providers including clinicians review local data for case-mix, duration of treatment, and outcomes, and plan inpatient and ambulatory services accordingly. National data will be available through the child and adolescent mental health services (CAMHS) national dataset (see "Resources"), which will enable commissioners to investigate a range of indicators measuring the performance of local services.

It is important for CAMHS, local authorities and the voluntary sector to work in partnership to improve the quality and effectiveness of community-based mental health services for children and young people, which in turn will influence admission rates and lengths of stay. This could be achieved through partnership working on the Children and Young People's Improving Access to Psychological Therapies (CYP IAPT) programme (see "Resources").

RESOURCES

› Department of Health Children and Young People's Mental Health and Well-being Taskforce. Report on improving outcomes for children and young people's mental health is anticipated in Spring 2015. https://www.gov.uk/government/groups/children-and-young-peoples-mental-health-and-well-being-taskforce

› Department of Health (2011) No health without mental health. A cross-government mental health outcomes strategy for people of all ages. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213761/dh_124058.pdf

› Children & Young People's Mental Health Coalition. Children and Young People's Improving Access to Psychological Therapies (CYP IAPT) programme. http://www.cypiapt.org/

› Child and Adolescent Mental Health Services National dataset. http://data.gov.uk/dataset/effectiveness_of_child_and_adolescent_mental_health_camhs_services

› Royal College of Psychiatrists. Quality Network for Inpatient CAMHS (QNIC) standards. http://www.rcpsych.ac.uk/quality/quality,accreditationaudit/qnic1.aspx

1   Office for National Statistics (2005) Mental health of children and young people in Great Britain, 2004. Summary report. http://www.hscic.gov.uk/catalogue/PUB06116/ment-heal-chil-youn-peop-gb-2004-rep2.pdf

2   Mental Health Foundation (2007) The Fundamental Facts. The latest facts and figures on mental health. http://www.mentalhealth.org.uk/content/assets/PDF/publications/fundamental_facts_2007.pdf?view=Standard

3   Department of Health (2011) No health without mental health. A cross-government mental health outcomes strategy for people of all ages. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213761/dh_124058.pdf

4   Centre for Mental Health (2010) The economic and social costs of mental health problems in 2009/10. http://www.centreformentalhealth.org.uk/pdfs/economic_and_social_costs_2010.pdf

5   Data for 2 CCGs have been removed due to small numbers.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 87: Rate of accident and emergency (A&E) attendance in children and young people aged 0–19 years per population by CCG

Age-specific rate, 0–19 years, 2012/13

Domain 3: Helping people to recover from episodes of ill health or following injury
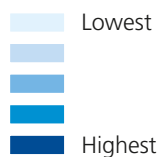
Lowest

Highest

LONDON
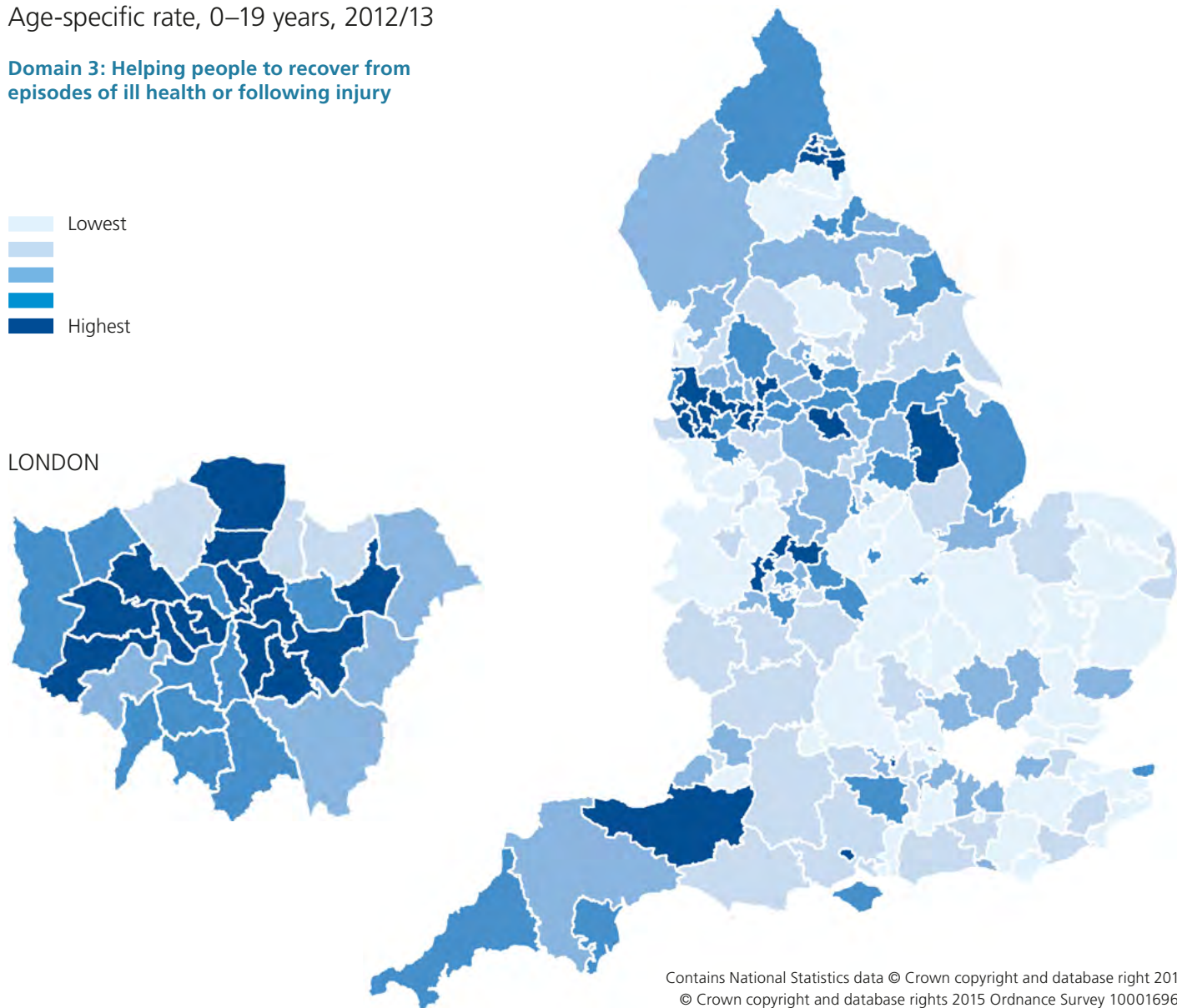
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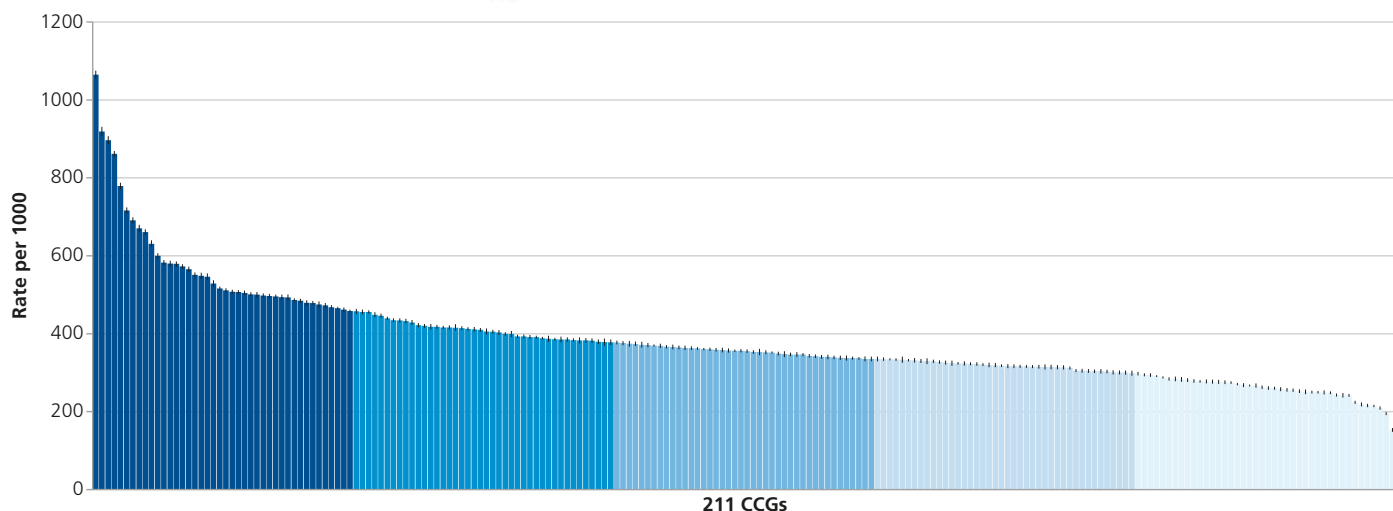
Context

In 2012/13, there were 18.3 million accident and emergency (A&E) attendances recorded at major A&E departments, single specialty A&E departments, walk-in centres and minor injuries units in England, representing an increase of 4% from 2011/12.[1] More than one-quarter (26.5%) of these attendances were made by children and young people aged 0–19 years.[1]

Attendance to A&E by children and young people is related to several factors, including:

› patient and carer knowledge and expectations of illness in childhood;

› the degree of public understanding about which urgent care services to access when;

› timely access to primary care.

In the recent NHS England Urgent and Emergency Care Review (see "Resources"), it was found that the capacity of primary care to manage the healthcare needs of children and young people is more stretched than it has ever been, and out-of-hours access is a particular issue.[2]

Emergency department attendance for accidental injury occurs most commonly in children aged under five years. The same age-group accounts for nearly 70% of self-referrals to A&E for medical problems, such as respiratory problems or feverish illnesses.[3] Targeting a reduction in the variation in A&E attendance for the under-5-year age-group is likely to realise considerable financial savings, and reduce pressure on overstretched A&E services.

Magnitude of variation

For CCGs in England, the rate of A&E attendance in children and young people aged 0–19 years ranged from 144 to 1065 per 100,000 population (7.4-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 224–671 per 100,000 population, and the variation is 3.0-fold.

The degree of variation observed after exclusions was similar when the rate of A&E attendances was assessed in children under 5 years of age (3-fold in 2009/10 by PCT[4]; 3.1-fold in 2011/12 by local authority[5]).

Reasons for the degree of variation include differences in:

› the provision of local primary and community care, particularly out-of-hours urgent care;

› public health measures such as accident prevention or family education on appropriate use of health services.

The provision of local primary and community care is likely to account for much of the ongoing variation in the demand for emergency care for young children.

Options for action

Commissioners need:

› to investigate variation in presentation to emergency departments to identify causes of unwarranted variation in their local area;

› to study the specific pattern of demand for emergency services in order to commission services that reflect local needs, and to ensure that the right balance of community- and hospital-based services is provided using a whole-system approach (see "Resources");

› to specify and assure the quality of local primary and community-based care to ensure children have the appropriate level of access to services other than those in A&E in relation to their healthcare needs.

Commissioners also need to specify to service providers that care delivered in emergency care settings meets the standards defined by the Intercollegiate Committee (see "Resources").

Primary care professionals and local hospital paediatricians need to agree on standards and guidelines for the management of common conditions. For instance, ensuring that NICE guidance on the recognition and management of a young (under 5 years of age) feverish child (see "Resources") is widely disseminated and followed.

Although injury and accident prevention is a public health issue, it is also the responsibility of local health services to support education on the prevention of injury.
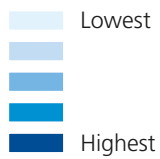
RESOURCES

› NHS England (2013) Transforming urgent and emergency care services in England. Urgent and Emergency Care Review. End of Phase 1 Report. High quality care for all, now and for future generations. November 2013. http://www.nhs.uk/NHSEngland/keogh-review/Documents/UECR.Ph1Report.FV.pdf

› NHS England (2014) Transforming urgent and emergency care services in England - Update on the Urgent and Emergency Care Review. http://www.nhs.uk/NHSEngland/keogh-review/Documents/uecreviewupdate.FV.pdf

› NICE. Feverish illness in children: Assessment and initial management in children younger than 5 years. NICE guidelines [CG160] May 2013. http://www.nice.org.uk/guidance/cg160

› Intercollegiate Committee for Standards for Children and Young People in Emergency Care Settings (2012) Standards for Children and Young People in Emergency Care Settings. http://www.rcpch.ac.uk/sites/default/files/page/Intercollegiate%20Emegency%20Standards%202012%20FINAL%20WEB.pdf

› Royal College of General Practice/Practitioners. Guidance for commissioning Integrated Urgent and Emergency Care (2011) A 'whole system' approach. August 2011. http://www.rcgp.org.uk/policy/~/media/Files/CIRC/Audit/Urgent_emergency_care_whole_system_approach.ashx

1   Health & Social Care Information Centre. Hospital Episode Statistics: Accident and Emergency Attendances in England 2012–13. http://www.hscic.gov.uk/catalogue/PUB13464/acci-emer-atte-eng-2012-2013-rep.pdf

2   NHS England (2013) High quality care for all, now and for future generations: Transforming urgent and emergency care services in England. The Evidence Base from the Urgent and Emergency Care Review. http://www.england.nhs.uk/wp-content/uploads/2013/06/urg-emerg-care-ev-bse.pdf

3   Sands R et al (2012) Medical problems presenting to paediatric emergency departments: 10 years on. Emergency Medicine Journal 29: 379-382.

4   NHS Right Care (2012) NHS Atlas of Variation in Healthcare for Children and Young People. March 2012. http://www.rightcare.nhs.uk/index.php/atlas/children-and-young-adults/

5   Chief Medical Officer's annual report 2012: Our Children Deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 88: Rate of elective admission to hospital for tonsillectomy in children aged 0–17 years per population by CCG

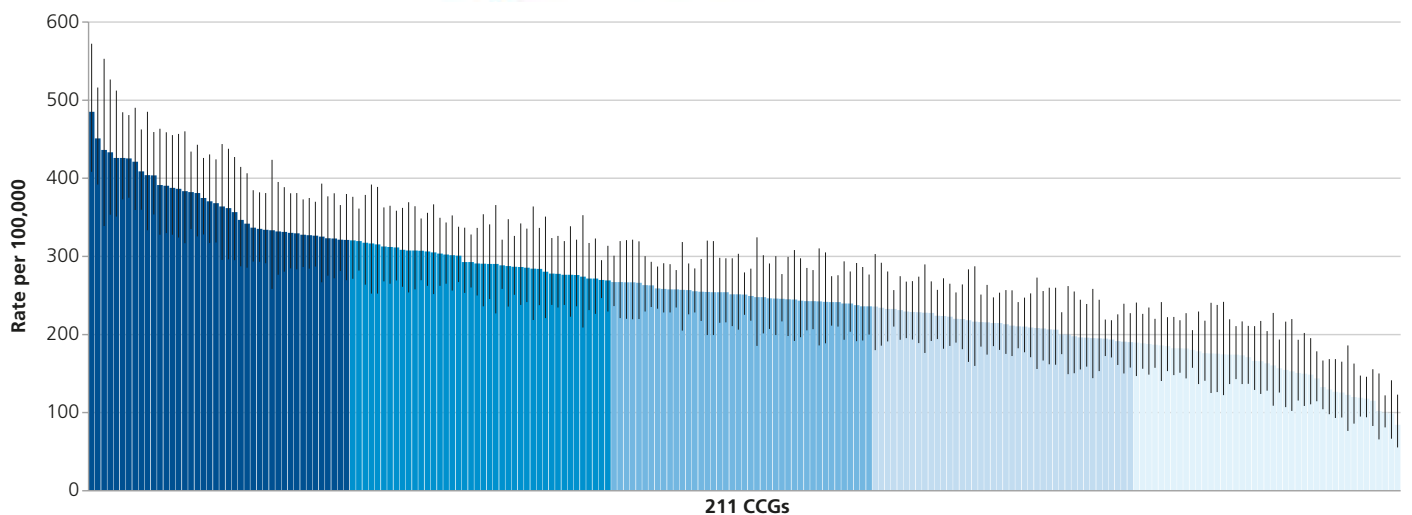Directly standardised rate, adjusted for age, 2012/13

**Domain 2: Enhancing quality of life
for people with long-term conditions**

Lowest

Highest

LONDON

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Rate per 100,000

211 CCGs
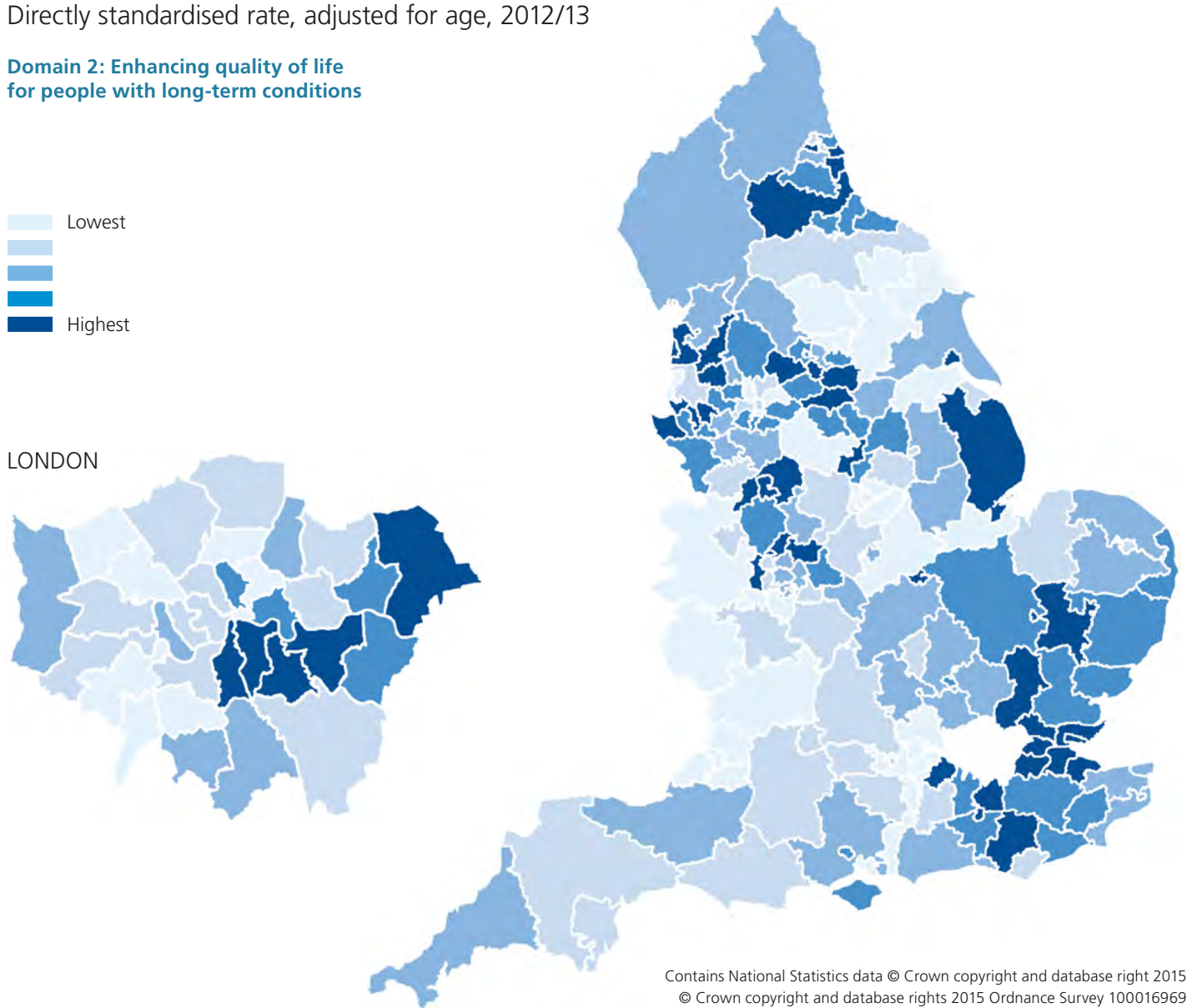
Context

The commonest indications for childhood tonsillectomy are recurrent tonsillitis and sleep-related breathing disorders (SRBD), including obstructive sleep apnoea (OSA).

In England, treatment for SRBD accounts for about 25% of tonsillectomies (combined with adenoidectomy) in children. Sleep-related breathing disorders and OSA comprise a spectrum of conditions where upper airway obstruction during sleep produces poor sleep quality, daytime fatigue, poor school performance and, in severe cases, serious disorders of cardiopulmonary function. There is currently a lack of robust evidence to inform the appropriate threshold for surgical intervention.

Over-use of tonsillectomy places increased demand on limited NHS resources, and can lead to unnecessary complications for those children in whom active monitoring might be a more appropriate strategy. Failure to intervene for children who fulfill the treatment criteria may be just as harmful, however, affecting the quality of life of the child and their family, as well as incurring increased costs from repeat attendances, antibiotic prescriptions, and hospital admissions, as well as loss of parental income.

Magnitude of variation

For CCGs in England, the rate of elective admission to hospital for tonsillectomy in children aged 0–17 years ranged from 84 to 485 per 100,000 population (5.7-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 120–421 per 100,000 population, and the variation is 3.5-fold (see Table 88.1 for 2011/12 data by upper-tier local authority[1]).

The reason for the degree of variation observed in tonsillectomy rates is often ascribed to differences in professional culture, referred to as a "surgical signature" by Wennberg (see Glossary, page 00).

The data for 2012/13 appear to show a further reduction in rates of tonsillectomy particularly for localities at the lower end of the range; however, there seems to have been little change in the degree of variation observed even though data from previous time-periods are presented at different geographies.

It is not possible to state with certainty what the "optimal rate" for tonsillectomy in children might be. The historical over-use of tonsillectomy in children has received much attention and been the subject of research and investigation, but there is a danger that this trend of over-use has been reversed in some localities to the extent that children who may benefit from the procedure are now unable to obtain access to it.

Options for action

Commissioners need to specify that service providers ask clinicians to investigate this further reduction in tonsillectomy rates at the lower end of the range to ascertain whether it reflects a clinically appropriate reduction in over-use locally, and not an indiscriminate reduction in activity, which could result in unmet need, poorer outcomes, and represent lower value in the long term.

Commissioners need to follow national guidelines (see "Resources") when commissioning services to ensure equity of access for clinically justified interventions, while reducing unnecessary interventions that divert resource from children who fulfil clinical criteria. The Scottish Intercollegiate Guidelines Network (SIGN) evidence-based indications for tonsillectomy for the treatment of recurrent tonsillitis (see "Resources") state that there are clinically proven benefits for selected children, and, barring exceptional individual cases, it would be equally inappropriate to withhold treatment as it is to provide it unnecessarily.

In the absence of national evidence-based clinical guidance for thresholds for tonsillectomy for SRBD, commissioners and clinicians need to reach agreement on local criteria, which need to be:

› based on the best available evidence;

› outcome- as well as process-based;

› benchmarked against the agreements made with other local commissioning bodies to ensure equity of access and high-quality outcomes.

There is also an urgent need to define evidence-based clinical and functional thresholds for surgical intervention in OSA based on high-quality research.

RESOURCES

› SIGN (2010) 117 Management of sore throat and indications for tonsillectomy. A national clinical guideline. April 2010. http://www.sign.ac.uk/guidelines/fulltext/117/index.html

› NICE. Surgical management of otitis media with effusion in children. NICE guidelines [CG60]. February 2008. http://guidance.nice.org.uk/CG60

› NHS Right Care, Royal College of Surgeons and ENT-UK (2013) Commissioning guide: Tonsillectomy. https://www.rcseng.ac.uk/healthcare-bodies/docs/published-guides/tonsillectomy

› NHS Right Care, Royal College of Surgeons and ENT-UK. Procedures Explorer Tool, to support commissioning for CCGs, which highlights local and regional variation for each surgical procedure. http://rcs.methods.co.uk/pet.html

Table 88.1: Rate of elective admission to hospital for tonsillectomy in children aged 0–17 years per 100,000 population for two financial years

Financial year	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2012/13	CCG	84–485	5.7	120–421	3.5	
2011/12	Upper-tier local authority	99–512	5.2	130–376	2.9	CMO's Annual Report 2012[2]

1 For data from 2007/08-2009/10 by PCT, refer to Child Health Atlas, Map 22, pages 62-63.

2 Chief Medical Officer's annual report 2012: Our Children deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 89: Percentage of all deaths in children aged 0–17 years with life-limiting conditions that occurred in hospital by NHS area team

2009–2013

Domain 4: Ensuring that people have a positive experience of care
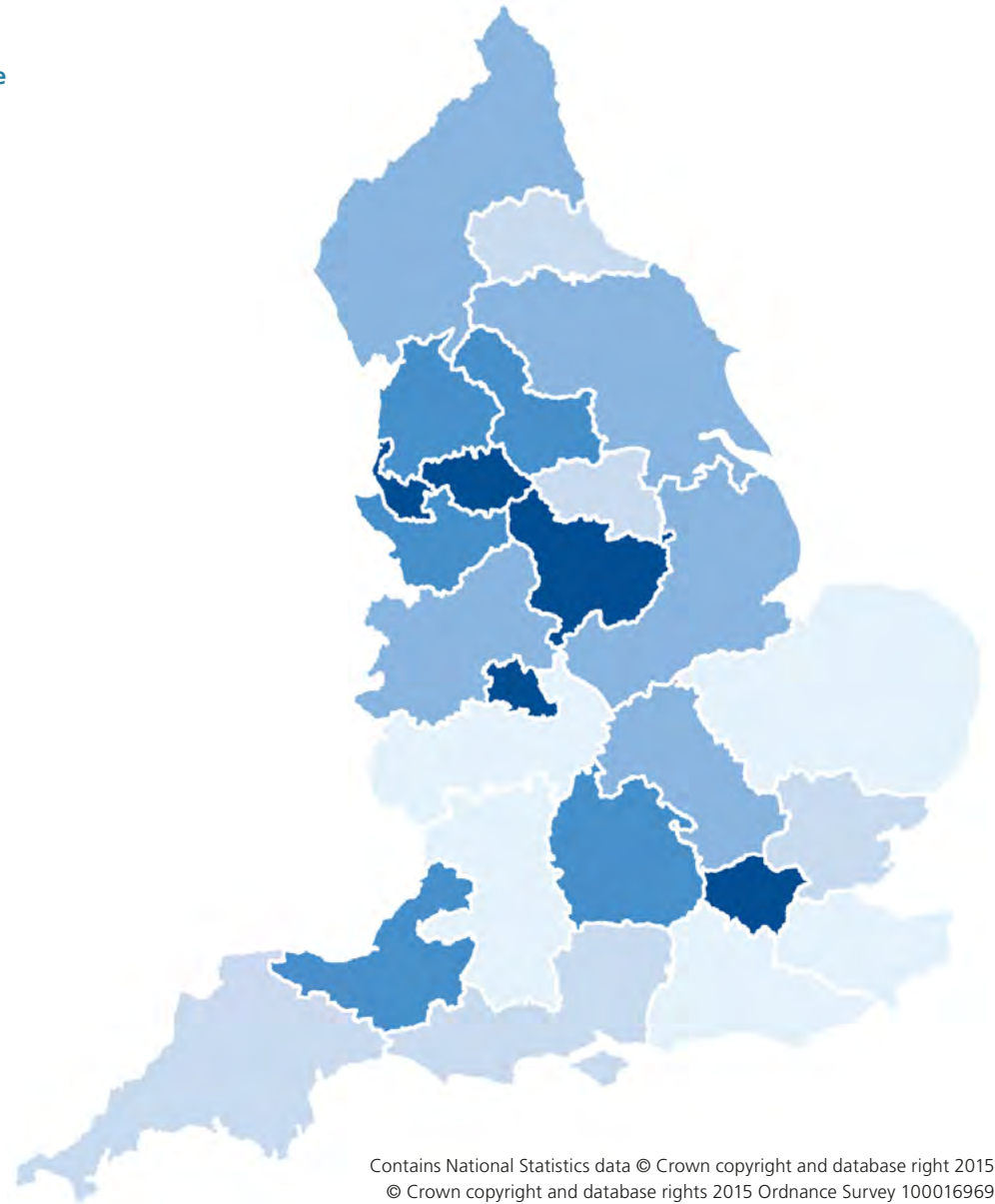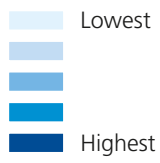
Lowest

Highest

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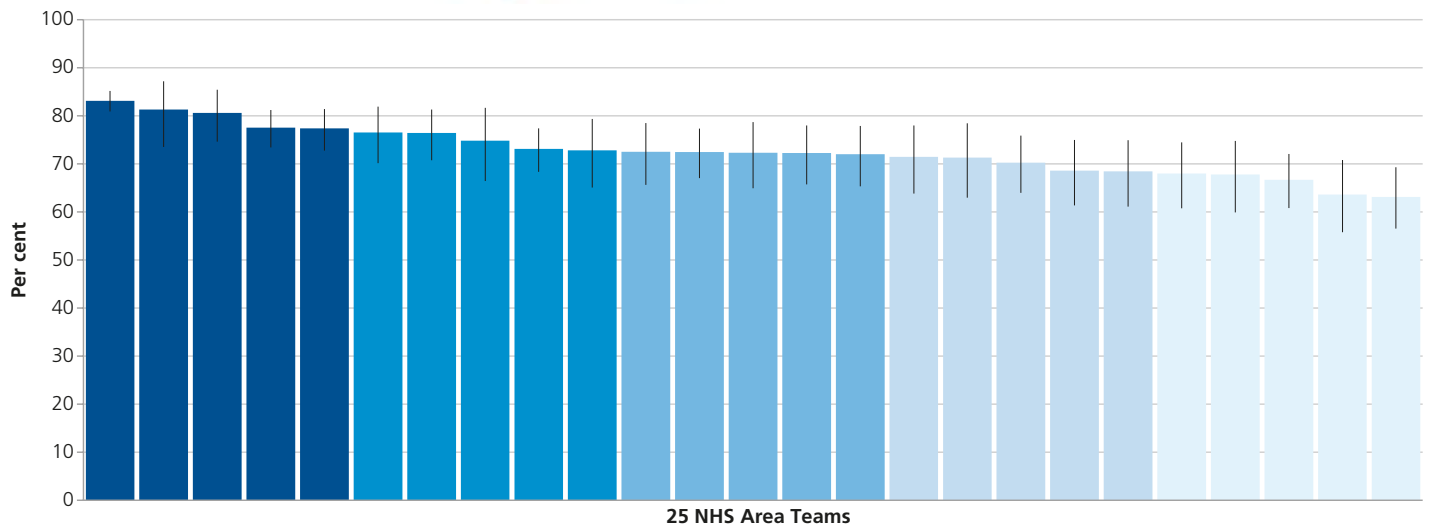

25 NHS Area Teams

Context

Life-limiting conditions are those for which no reasonable hope of cure exists, and from which children or young people will die prematurely. There are an estimated 49,000 children and young people with a life-limiting condition in the UK.[1]

Most children with life-limiting conditions and their families express a preference for death to take place at home. Lack of community support can prevent this preference being realised, even when it is medically possible to support death at home.

The focus of this indicator is the quality of palliative care services for children. Palliative care is an active process encompassing physical, emotional and social support for the child extending from the moment of diagnosis to maximising their quality of life, and providing support for the child's family during bereavement. It is not simply about "end of life" care.

Magnitude of variation

For NHS area teams in England, the percentage of all deaths in children aged 0–17 years with life-limiting conditions that occurred in hospital ranged from 63.1% to 83.1% (1.3-fold variation; see Table 89.1 for 2008–2012 data[2]).

Table 89.1: Percentage of all deaths in children aged 0–17 years with life-limiting conditions that occurred in hospital for two time-periods

Time period	Geography	Range	Fold difference
2009–2013	NHS area team	63.1–83.1%	1.3
2008–2012	NHS area team	73.3–92.2%	1.3

This means that the percentage of children dying out of hospital ranged from 16.9% to 36.9%, a variation of 2.2-fold. At NHS area team level, only 1–3 children out of ten with life-limiting conditions died at home or other preferred place of death, such as a specialist hospice.

Although the degree of variation has remained constant over the two time-periods, the percentage of children with life-limiting conditions dying in hospital has declined, as has the degree of variation in the percentage of children dying out of hospital (from 3.4-fold to 2.2-fold).

Despite this shift, the relatively high percentage of children dying in hospital may reflect the nature of service provision and level of support available to families outside hospital.

Options for action

Commissioners need to specify that service providers and clinicians review the proportion of children dying in local hospitals, and investigate whether this reflects family choice.

Commissioners also need to specify that the review includes other indicators relating to the quality of palliative care for children with life-limiting conditions and their families, such as:

> the number of children who have an end-of-life care plan;

> whether choice in place of death is offered to the child's family;

> whether there are adequate resources to provide care and support 24 hours a day 7 days a week within the child's home or other preferred place of death, such as a children's hospice.

Commissioners need to ascertain whether the workforce has the skills, knowledge and expertise to support children, together with their families, at the end of a child's life.

It is important that care teams work with a child's family:

> to clarify the family's wishes for end-of-life care in terms of not only the place of care but also the type of care;

> to identify the support and resources a family needs to enable their child to die in the place of their choice.

To ensure that efficient and effective 24-hour end-of-life care is available, commissioners and service providers need to consider modelling local services as a network with strong clinical leadership.

RESOURCES

> Department of Health (2008) Better Care: Better Lives – Improving outcomes and experiences for children, young people and their families living with life-limiting and life-threatening conditions. A framework for the level of service that commissioners and clinicians need to deliver for children's palliative care. http://eprints.uwe.ac.uk/5178/1/Download.pdf

> "Together for Short Lives": information and resources for professionals, and children and their families, including standards framework and core care pathways for children's palliative care services. http://www.togetherforshortlives.org.uk/assets/0000/4121/TfSL_A_Core_Care_Pathway__ONLINE_.pdf

> NHS England. 2013/14 NHS Standard Contract for Paediatric Medicine: Palliative Care. Particulars, Schedule 2 – The Services, A – Service Specifications. http://www.england.nhs.uk/wp-content/uploads/2013/06/e03-paedi-med-pall.pdf

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1   Fraser LK, Parslow RC, McKinney PA et al (2012) *Life-Limiting and Life-threatening Conditions in children and young people in the United Kingdom*; Final Report for Together for Short Lives: Paediatric Epidemiology Unit, Leeds University. https://www.togetherforshortlives.org.uk/assets/0000/1100/Leeds_University___Children_s_Hospices_UK_-_Ethnicity_Report.pdf
2   For 2005-2009 data by PCT, refer to the Child Health Atlas, Map 27, pages 72-73.

CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE

Map 90: Rate of mortality in infants aged under one year per all live-births by upper-tier local authority

2010-2012

Domain 1: Preventing people from dying prematurely
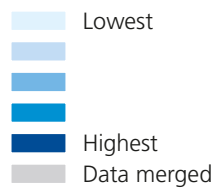
Lowest

Highest
Data merged

LONDON

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150 out of 152 UTLAs (2 merged due to small numbers)

Rate per 1,000
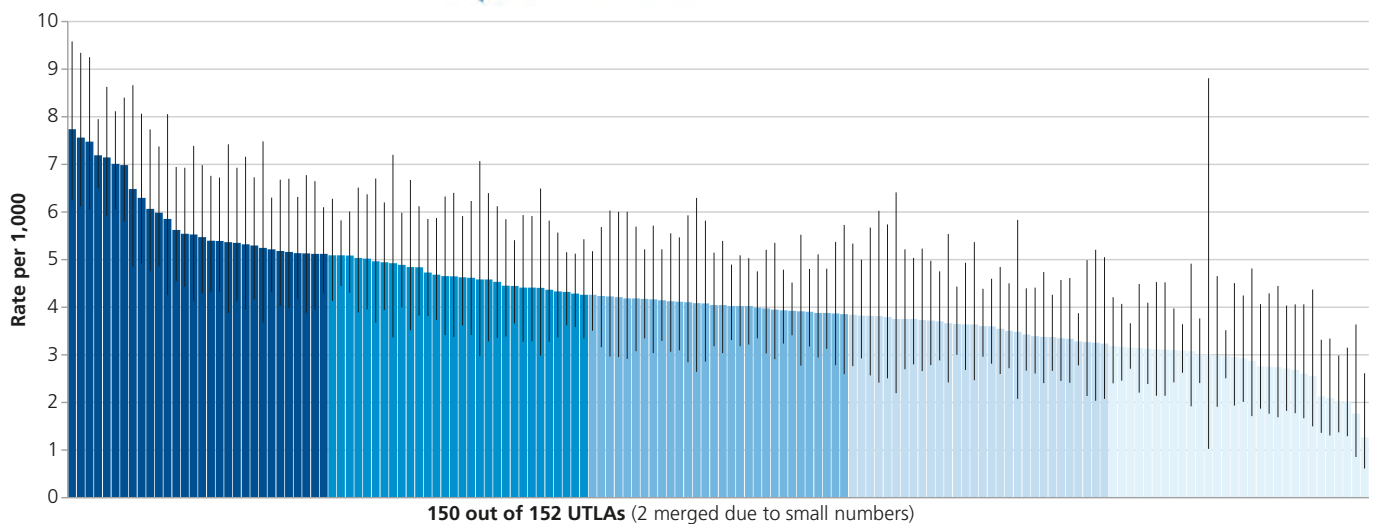
Context

Mortality is an important indicator of population health. For children in countries with developed economies, such as England, deaths are relatively rare. Despite this, the results of recent analyses have shown that child mortality in the UK, having been comparatively l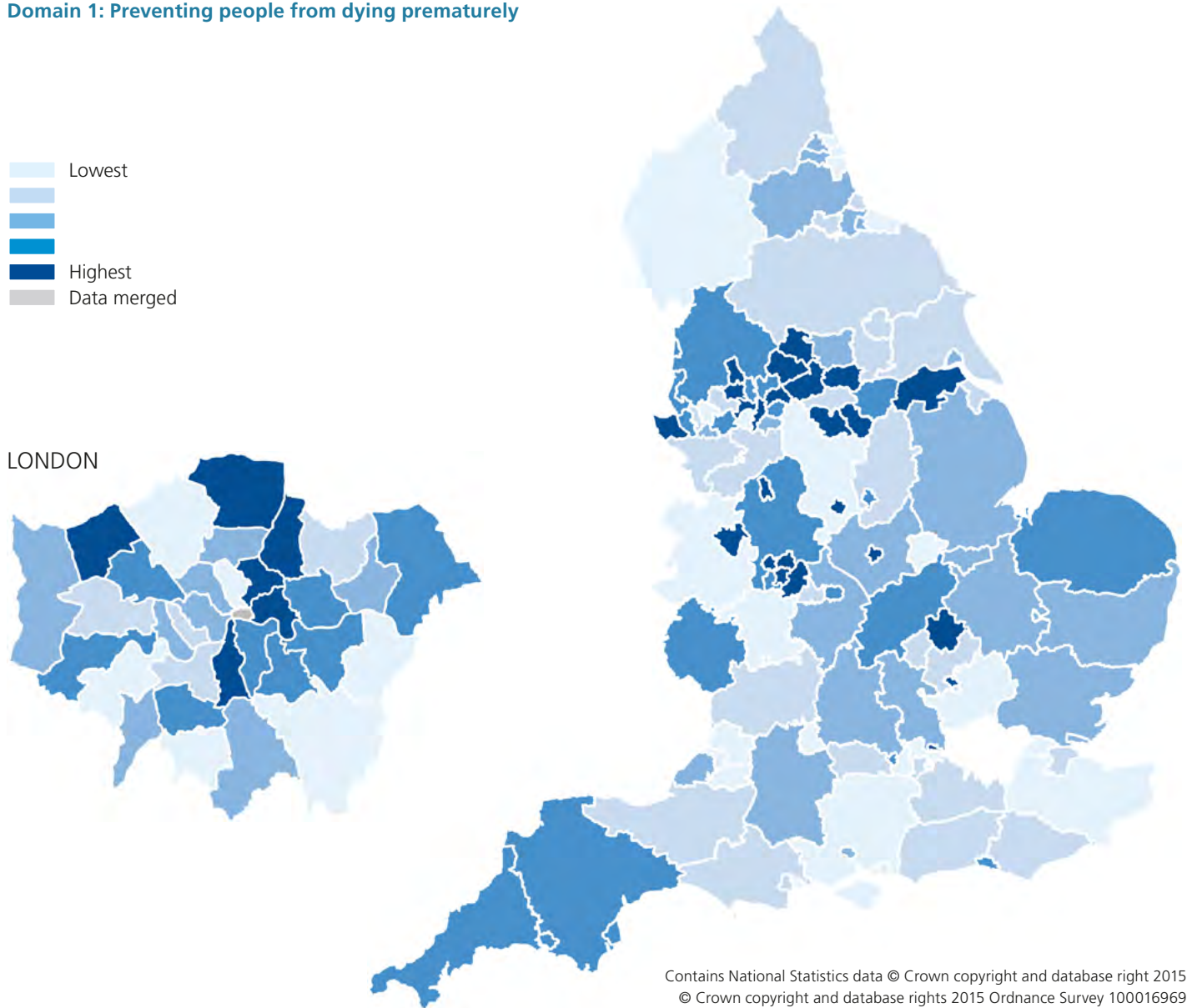ow a few decades ago, is now the worst among comparable countries in Western Europe.[1,2,3] Following an analysis of WHO data, Wolfe et al concluded that if the UK's health system did as well as that of Sweden as many as 1500 children might not die every year.[4]

According to ONS statistics, rates tend to be higher in the Midlands and north of England, with the exception of the north-east which has a trend towards lower mortality for all age-groups (it is significant only for infant deaths), and lower in the south and east of England.[5]

The indicator for infant mortality measures all deaths in children who die before their first birthday, and is associated with:

› maternal antenatal health and nutrition;

› perinatal and neonatal healthcare.

Low birthweight and prematurity are risk factors for infant mortality, and both are strongly correlated with deprivation. In turn, infant mortality is strongly correlated with deprivation and, as an outcome measure, it is related as much to the wider socio-economic determinants of health as to the quality of healthcare and related services.

Although the majority of childhood deaths occur in infancy, this peak often eclipses a second peak in adolescence. In the UK, 60–70% of children who die have a long-term condition.[6]

For adolescents, injury is the most common cause of death, although the rate of mortality from injury in the UK is relatively low when compared with that in other Western countries.[2] Much of the rest of adolescent mortality is related to non-communicable diseases. When compared with a group of European Union (EU) and other countries in the WHO Mortality Database (referred to as EU15+, comprising original members of the EU, and Australia, Canada, and Norway), the UK's performance is among the worst in every age-group.[2]

Infant mortality is included in the NHS Outcomes Framework 2015/16. Child mortality and infant mortality were recommended for inclusion as national outcome measures in the Children and Young People's Health Outcomes Forum report (2012)[7].

Magnitude of variation

Map 90: Infant mortality

For upper-tier local authorities (UTLAs) in England, the rate of mortality in infants aged under one year ranged from 1.3 to 7.7 per all 1000 live-births (6.1-fold variation).[8] When the five UTLAs with the highest rates and the five UTLAs with the lowest rates are excluded, the range is 2.1–7.0 per all 1000 live-births, and the variation is 3.3-fold (see Table 90.1 for data from 2009–11).

Map 91: Child mortality

For UTLAs in England, the rate of mortality in children

Table 90.1: Rate of mortality in infants aged under one year per all 1000 live-births for two time-periods

Time-period	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2010–2012	UTLA	1.3–7.7	6.1	2.1–7.0	3.3	
2009–2011	UTLA	2.2–8.0	3.6	2.6–7.5	2.9	CMO's Annual Report 2012[9]

1   Wolfe I, Macfarlane A, Donkin A et al on behalf of Royal College of Paediatrics and Child Health, National Children's Bureau and British Association for Child and Adolescent Public Health. Why children die: death in infants, children and young people in the UK. Part A. May 2014. http://ncb.org.uk/media/1130496/rcpch_ncb_may_2014_-_why_children_die__part_a.pdf

2   Viner RM, Hargreaves DS, Coffey C et al. Deaths in young people aged 0-24 years in the UK compared with the EU15+ countries, 1970-2008: analysis of the WHO Mortality Database. Lancet 2014; 384: 880-892. http://dx.doi.org/10.1016/S0140-6736(14)60485-2

3   Wang H, Liddell CA, Coates MM et al. Global, regional, and national levels of neonatal, infant, and under-5 mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 2014; 384: 957–79.

4   Wolfe I, Cass H, Thompson MJ et al. Improving child health services in the UK: insights from Europe and their implication for NHS reforms. *British Medical Journal* 2011; 342:d1277.

5   Sidebotham P, Fraser J, Fleming P et al. Patterns of child death in England and Wales. *Lancet* 2014; 384:904-914.

6   Hardelid P, Dattani N, Davey J et al. Overview of child deaths in the four UK countries. http://www.rcpch.ac.uk/system/files/protected/page/CHR-UK%20MODULE%20B%20REVISED%20v2%2015112013.pdf

7   Lewis I, Lenehan C (Co-chairs, Forum) (2012) Report of the Children and Young People's Health Outcomes Forum. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216852/CYP-report.pdf

8   Owing to small numbers, Isles of Scilly local authority has been merged with Cornwall, and City of London local authority has been merged with Hackney.

9   Chief Medical Officer's annual report 2012: Our Children Deserve Better: Prevention Pays. Annex 9: Atlas of Variation in Healthcare for Children and Young People. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252672/33571_2901304_CMO_Chapter_Anx_9.pdf

aged 1–17 years ranged from 4.0 to 22 per 100,000 population (5.5-fold variation).[8] When the five UTLAs with the highest rates and the five UTLAs with the lowest rates are excluded, the range is 6.0–20 per 100,000 population, and the variation is 3.3-fold (see Table 91.1 for data from 2009–2011). As the number of child deaths is relatively small, child mortality rates at UTLA level are subject to greater random variation. Consequently, the values for the range and fold difference are more likely to be exaggerated when compared with other indicators based on larger numbers of events.

The confidence intervals for this indicator are very wide: caution needs to be exercised when interpreting the data because the limits highlight that much of the variation within the indicator may not be statistically significant.

The main reason for the degree of variation observed in both infant and child mortality is differences in the level of socio-economic deprivation among localities.

Options for action

As the UK has not been able to match the gains in child, adolescent and young adult mortality made by other comparable countries since 1970, all commissioners and local authorities need to investigate and understand:

›   patterns of infant and child mortality in their local population;

›   the ways in which local patterns of infant and child mortality compare with those in populations that have similar demographic and socio-economic characteristics (refer to NHS RightCare's Commissioning for Value programme, as part of which it is possible to identify any CCG's 10 closest peers, referred to as "Similar 10" CCGs; see "Resources").

Particular emphasis should be placed on mortality patterns among high-risk groups, such as vulnerable young people, or adolescents with long-term conditions.

To take action on infant mortality, commissioners need to specify that service providers follow NICE guidance and overviews (see "Resources"), in particular through:

›   ensuring the provision of high-quality antenatal, intrapartum and neonatal care, including the appropriateness of staffing capacity and the

effectiveness of training of both community- and hospital-based health professionals

›   providing preventative interventions, such as nutrition and maternal support;

›   assuring the quality of health services particularly primary and secondary paediatric care.

Commissioners also need to resource and target improvements in the care of children and young people with non-communicable diseases, in particular addressing:

›   the needs of children with long-term conditions;

›   the need for effective health promotion with respect to overweight and obesity, and smoking habit.

RESOURCES

›   NHS England (2014) Saving Babies Lives: Reducing Stillbirth a neonatal death: A care bundle (sic). http://www.6cs.england.nhs.uk/pg/cv_content/content/view/148581/95584

›   Office for National Statistics (2013) Childhood, Infant and Perinatal Mortality in England and Wales, 2011. Released: 27 February 2013. http://www.ons.gov.uk/ons/dcp171778_300596.pdf

›   NICE. Antenatal care overview. http://pathways.nice.org.uk/pathways/antenatal-care

›   NICE. Postnatal care. NICE Guidelines [CG37]. December 2014. http://www.nice.org.uk/CG037

›   NICE. Specialist neonatal care quality standard. NICE quality standard [QS4]. October 2010. https://www.nice.org.uk/guidance/qs4

›   NICE. Maternal and child nutrition. NICE Guidelines [PH11]. March 2008. http://guidance.nice.org.uk/PH11. This guidance has been partially updated by PH56 Vitamin D: increasing supplement use among at-risk groups. NICE Guidelines [PH56]. November 2014. http://www.nice.org.uk/guidance/ph56

›   NHS England. Commissioning for Value. Scroll down towards the bottom of the page to find the file 'The data and methodology used to calculate the "Similar 10" CCGs'. It is located under the main heading "Commissioning for Value: Interactive Tools for CCGs – 2013 versions" and from thence under the subheading "Download the data behind the packs and interactive tools – 2013 versions". http://www.england.nhs.uk/resources/resources-for-ccgs/comm-for-value/

›   Public Health England. Reducing infant mortality in London: An evidence-based resource. June 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/431516/Reducing_infant_mortality_in_London_2015.pdf

Table 91.1: Rate of mortality in children aged 1–17 years per 100,000 population for two time-periods
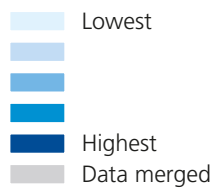
Time-period	Geography	Range	Fold difference	Range after exclusion	Fold difference after exclusion	Publication
2010–2012	UTLA	4.0–21.7	5.5	6.0–20.1	3.3	
2009–2011	UTLA	6.9–23.7	3.4	7.9–21.1	2.7	CMO's Annual Report 2012[9]

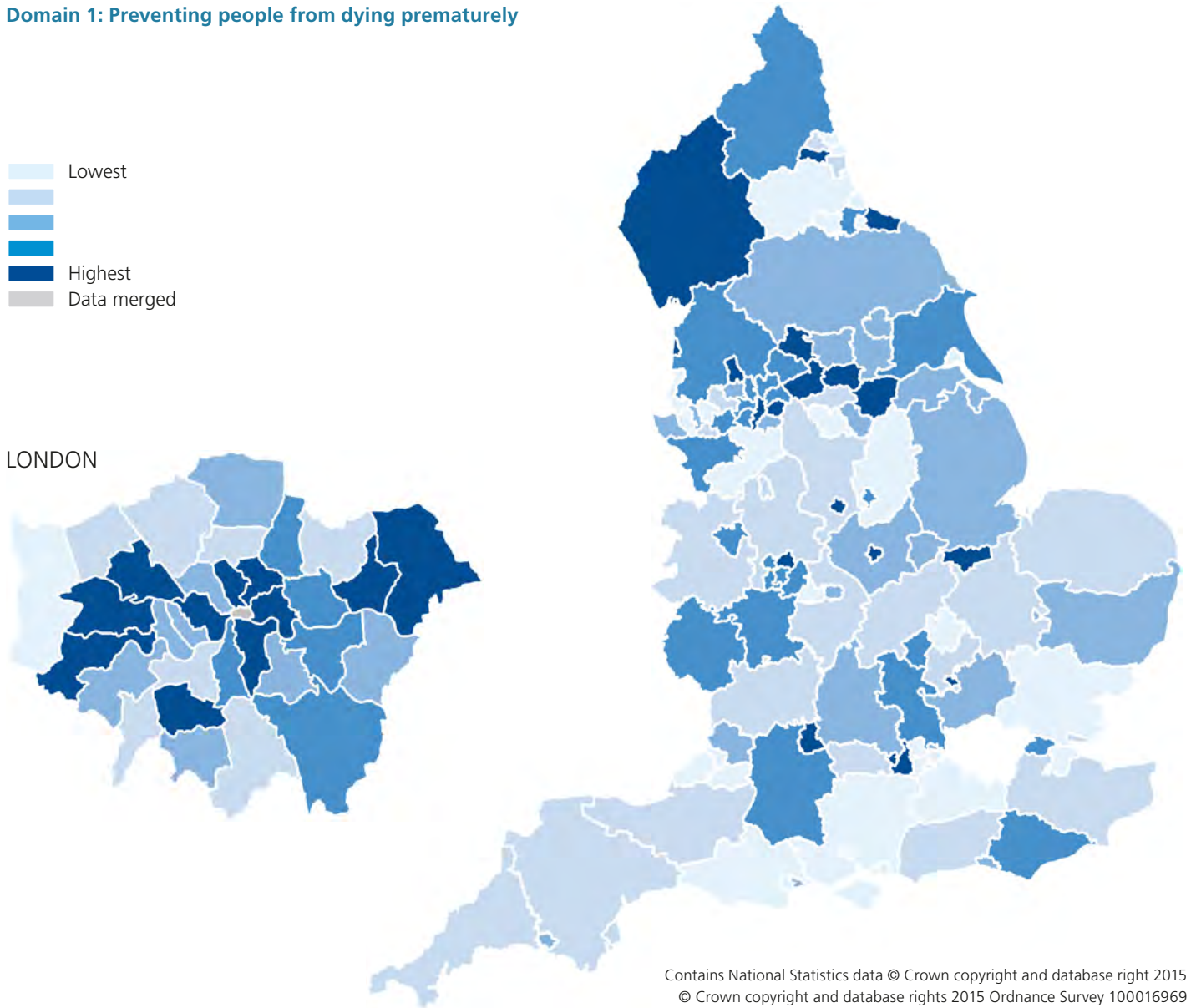**CARE OF MOTHERS, BABIES, CHILDREN AND YOUNG PEOPLE**

Map 91: Rate of mortality in children aged 1–17 years per population by upper-tier local authority

Directly standardised rate, adjusted for age, 2010–2012

Domain 1: Preventing people from dying prematurely

Lowest

Highest

Data merged

LONDON

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Rate per 100,000

150 out of 152 UTLAs (2 merged due to small numbers)
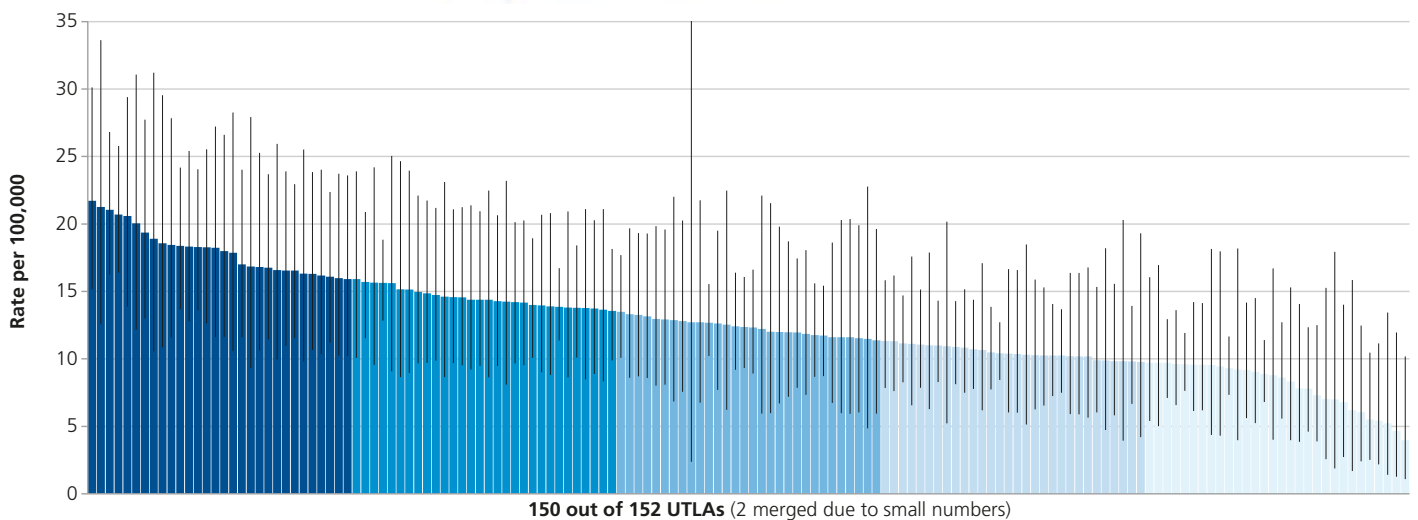
PROBLEMS OF LEARNING DISABILITY

Map 92: Prevalence rate of people with a learning disability aged 18 years and over on GP registers by CCG

2013/14

Domain 2: Enhancing quality of life for people with long-term conditions
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Lowest

Highest

LONDON

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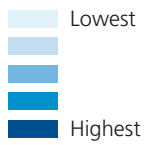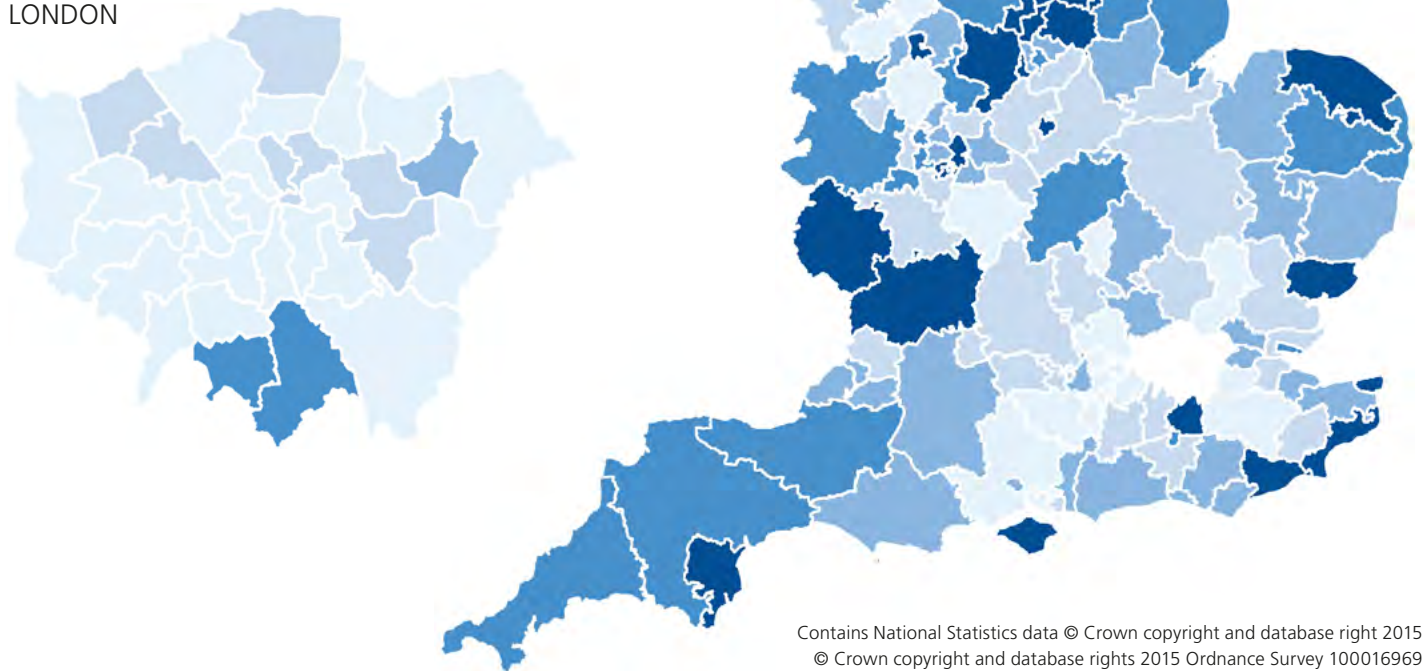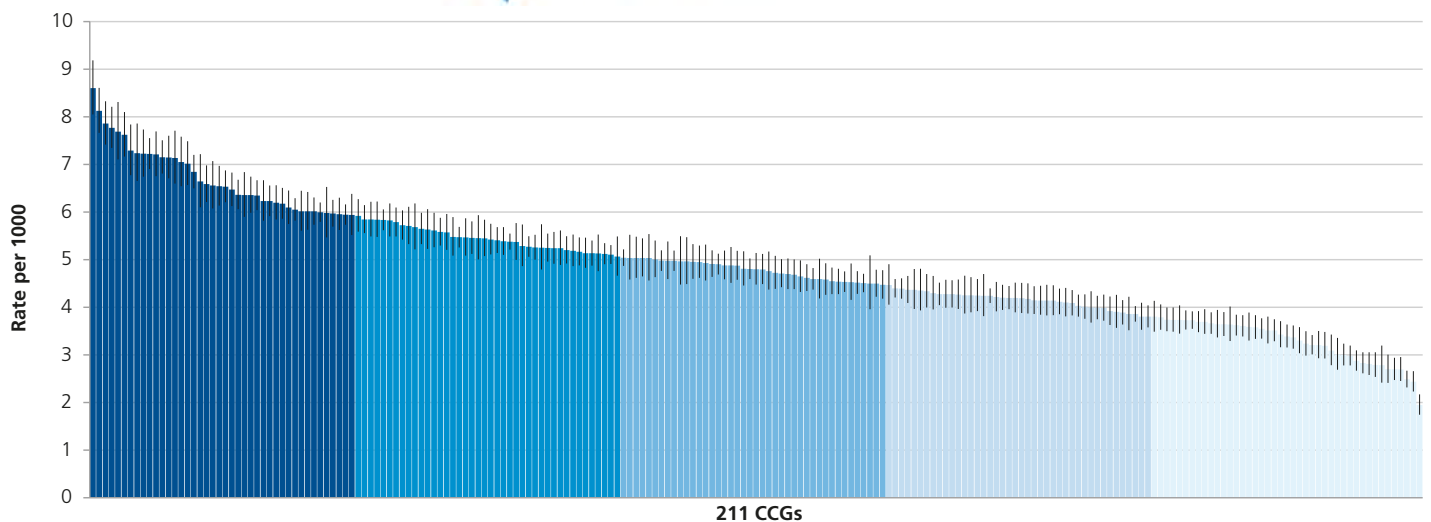© Crown copyright and database rights 2015 Ordnance Survey 100016969

Context

People with a learning disability have more health problems than other people arising from:

> higher rates of obesity and underweight;

> low rates of physical exercise;

> lack of understanding of when and how to use health services;

> the conditions that cause learning disabilities, e.g. Down syndrome and cerebral palsy;

> poor recognition by healthcare professionals of symptoms presented by people with learning disabilities due to "diagnostic overshadowing" (see "Glossary", page 268).

People with learning disability are also at risk of receiving poor-quality healthcare. The Confidential Inquiry into premature deaths of people with learning disabilities (CIPOLD; see "Resources") found that 37% of the 249 deaths they studied were from causes, and occurred at ages, usually classified as potentially amenable to good medical care. A multidisciplinary panel including family members of people with learning disability considered that 42% of these deaths were premature. A failure to recognise and provide for specific needs arising from learning disability was deemed a major contributor to mortality.

In 2006/07, learning disability registers were introduced under the Quality and Outcomes Framework (QOF):

> to enhance awareness of the health needs of people with learning disability;

> to facilitate annual health checks by GPs;

> to ensure communication of the specific needs of people with learning disability when they were referred to specialist services.

In England, at end March 2014, the overall prevalence of people with learning disability over the age of 18 years on GP registers was 4.8 per 1000 population, less than one-quarter of the proportion of children identified in schools as having moderate or more severe learning disability. School data are based on the results of universal testing in the school curriculum. The prevalence in primary care in England is similar to that for most adult service-use or benefit receipt-based registers of learning disability in other countries with developed economies.

NHS England is committed to improving the health and outcomes of people with learning disability,[1] by:

> increasing the take-up of routine health checks – GP health checks, cancer screening, and influenza immunisation;

> ensuring joint working across health and care through the locally led Joint Health and Social Care Self-Assessment Framework (JHSCAF)[2];

> understanding the causes of premature mortality through a new National Mortality Review Function to improve life-expectancy;

> working with the Care Quality Commission (CQC) to ensure all health services for people with learning disability are monitored and part of the inspection regime.

GP Registers are fundamental to supporting this work.

Magnitude of variation

For CCGs in England, the prevalence rate of people with a learning disability aged 18 years and over on GP registers ranged from 1.9 to 8.6 per 1000 population (4.4-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 2.8–7.2 per 1000 population, and the variation is 2.6-fold.

The indicator shows groups of CCGs in which it seems likely that rates of learning disability are genuinely high or low. Low rates seem to occur in localities where there is a high volume of inward economic migration: high property prices make the provision of adult residential care in these areas expensive. High rates are commonly seen in localities where people with learning disability have been resettled in relatively cheaper residential accommodation, and from which economic migrants have moved.

Options for action

Using the results of the JHSCSAF, NHS and other commissioners need to assess the health and social care needs of people with learning disability in partnership with the relevant local authority as part of the Joint Strategic Needs Assessment (JSNA) through the local Health and Wellbeing Board.

NHS Commissioners should specify that all service providers need to make "reasonable adjustments" in the organisation and delivery of healthcare so they can fulfil their obligation under the public sector Equality Duty[3], in the Equality Act 2010, of advancing "equality of opportunity" in public services. "Reasonable adjustments" include:

> special attention to ensure people with learning disability understand as well as they are able the nature of their health problems;

> additional care, explanation and often time to ensure that examinations and physical interventions can be undertaken safely and without unnecessary distress;

> careful assessment of individuals' capacity to consent to specific treatments, and appropriate actions under the Mental Capacity Act 2005[4] when they cannot;

> providing access to advocates to assist with major decisions.

RESOURCES

> Michael J (Chair) Healthcare for All. Report of the independent inquiry into access to healthcare for people with learning disabilities. July 2008. http://www.scie-socialcareonline.org.uk/healthcare-for-all-report-of-the-independent-inquiry-into-access-to-healthcare-for-people-with-learning-disabilities/r/a11G000000180RnIAI

> Heslop P, Blair P, Fleming P et al. Confidential Inquiry into premature deaths of people with learning disabilities (CIPOLD). Final report. March 2013. www.bris.ac.uk/cipold/fullfinalreport.pdf

> Hatton C, Emerson E, Glover G et al. People with learning disabilities in England 2013. Public Health England, December 2014. http://www.improvinghealthandlives.org.uk/securefiles/150603_1249//People%20with%20learning%20disabilities%20in%20England%202013.pdf

> ADASS, CQC, DH, HEE, LGA & NHS England. Transforming Care for People with Learning Disabilities – Next Steps. January 2015. http://www.england.nhs.uk/wp-content/uploads/2015/01/transform-care-nxt-stps.pdf

> Learning Disabilities Census Report – Further Analysis, 2015. 30 April 2015. http://www.hscic.gov.uk/catalogue/PUB17469

1 NHS England. Learning disabilities. http://www.england.nhs.uk/ourwork/qual-clin-lead/ld/

2 Public Health England. Joint Health and Social Care Self-Assessment Framework https://www.improvinghealthandlives.org.uk/projects/hscldsaf

3 Government Equalities Office. Equality Act 2010: guidance. February 2013. https://www.gov.uk/equality-act-2010-guidance

4 Office of the Public Guardian. Mental Capacity Act: making decisions. September 2014. https://www.gov.uk/government/collections/mental-capacity-act-making-decisions

EMERGENCY CARE

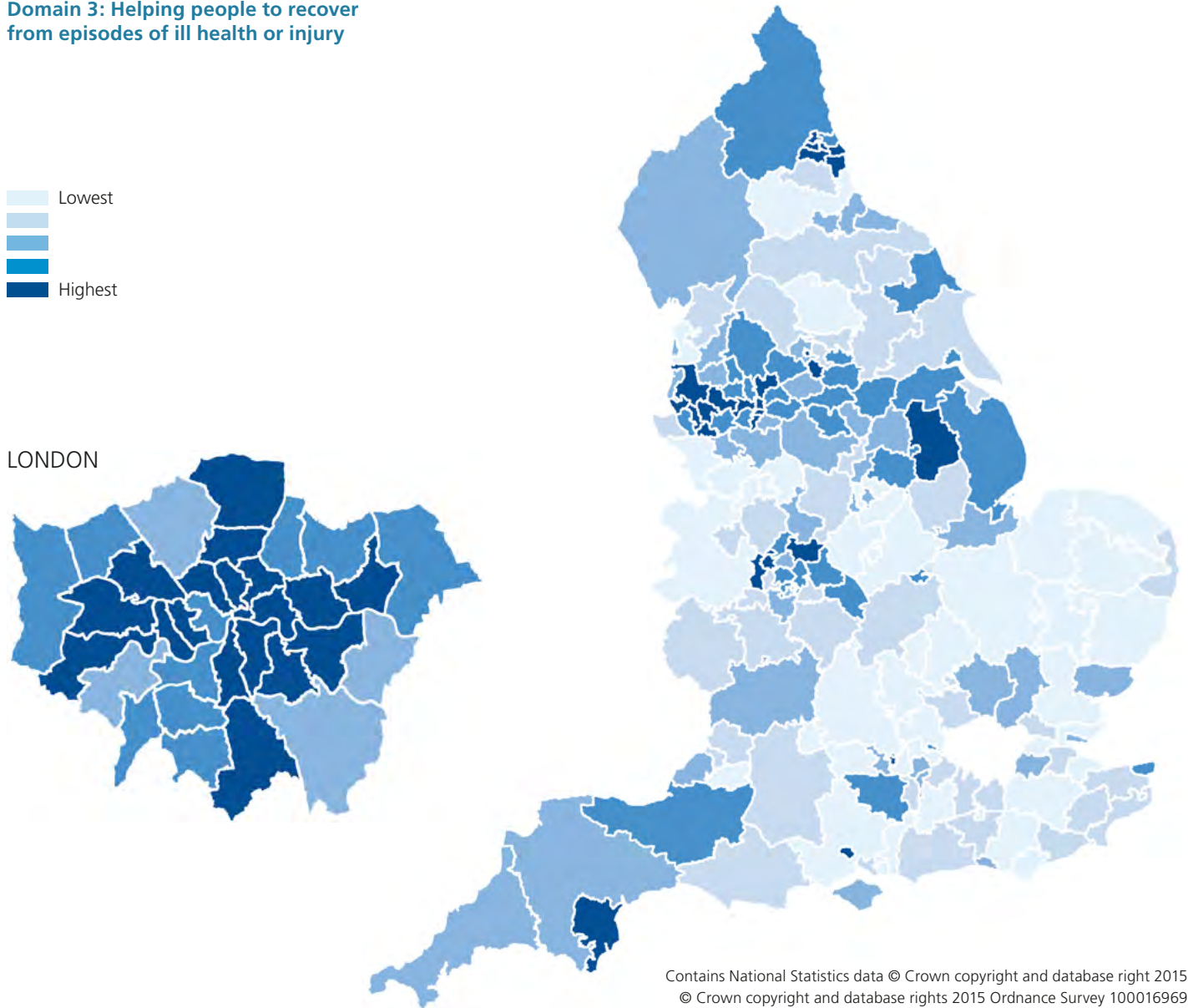# Map 93: Rate of accident and emergency (A&E) attendances per population by CCG

Directly standardised rate, adjusted for age and sex, 2012/13

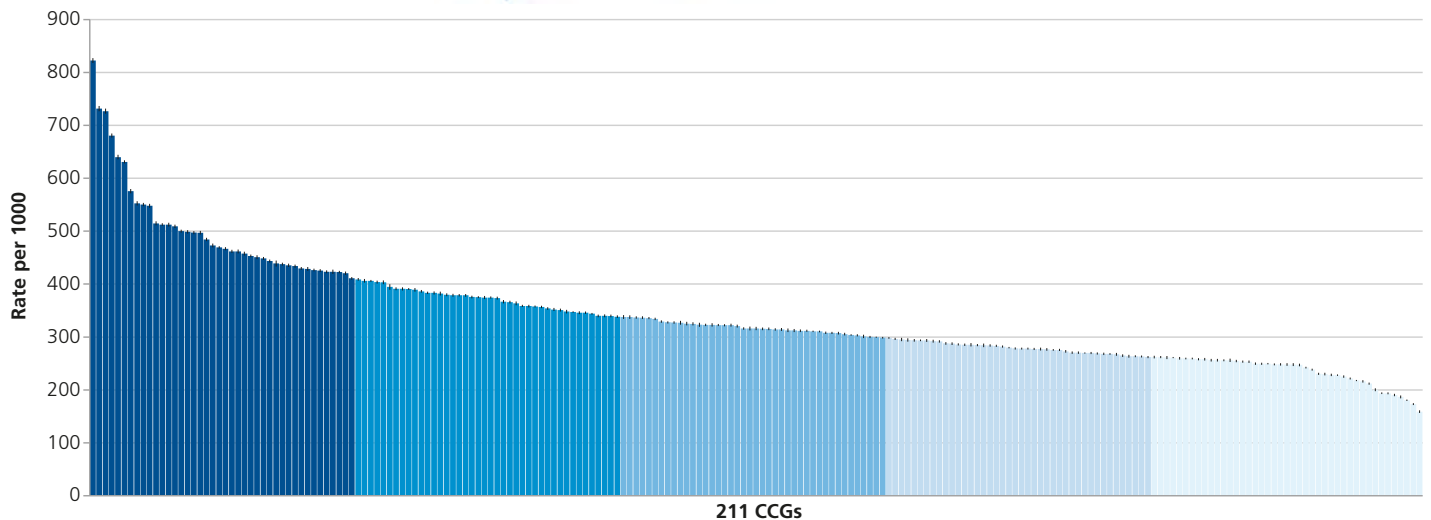**Domain 3: Helping people to recover from episodes of ill health or injury**

Lowest

Highest

LONDON

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211 CCGs

Rate per 1000
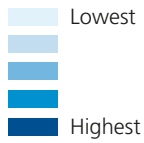
Context

In 2012/13 in England, there were almost 14.9 million attendances at Type 1 and Type 2 accident and emergency (A&E) departments, increasing to 15.2 million in 2014/15.[1]

Rates of A&E attendance have increased over recent years, with a particular growth in attendance by younger children, young adults and older people. Reasons for attendance vary with age:

> illness and injury in children;

> accidents in young people, which may be related to sport or alcohol consumption;

> acute episodes of illness or a deterioration in functional ability, often related to multisystem failure, in older people.

A&E Departments can also act as a "safety net":

> people attend because there is no alternative service available to them at that time;

> people attend on the advice of other healthcare providers;

> A&E departments are understood to be always open and able to deal with a wide range of problems in a prompt and reliable way.

Magnitude of variation

For CCGs in England, the rate of A&E attendances ranged from 158.8 to 822.6 per 1000 population (5.2-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 200.2–552.7 per 1000 population, and the variation is 2.8-fold.

Reasons for the degree of variation observed include differences in:

> health profiles of local populations, including the number of people with long-term disease, and levels of deprivation;

> injury rates in different areas;

> geographical factors – people are more likely to attend an A&E department if it is close to their home;

> the way different population groups access healthcare.

Reasons for unwarranted variation include differences in:

> ease of access to primary care and alternative urgent care services;

> access to other services and facilities in the community, e.g. community nurses for the management of long-term conditions;

> re-attendance rates, although some re-attendance is warranted when patients are advised to return should their condition deteriorate;

> the proportion of NHS 111 and 999 calls closed with telephone advice or managed without attendance at an A&E department, where clinically appropriate.

Options for action

To reduce attendances related to long-term disease, commissioners and service providers need to review long-term disease and case management for the local population, with the emphasis on care being available in the community.

To prevent attendances by older people who live in nursing or residential care homes, commissioners need to specify that service providers explore options that enable older people to remain in the home, rather than be taken to hospital (see Map 62, pages 176–177), or to receive end-of-life care in their usual

place of residence (see Map 67, pages 185–187). These include advanced care planning and additional input from primary care.

Improved capacity within, and access to, general practice will reduce A&E attendance rates. This can be supported by introducing new models of primary care access, for example:

> increased use of the telephone and electronic communication;

> an enhanced role for non-medical practitioners;

> the provision of minor ailments schemes in community pharmacies.

To reduce the number of NHS 111 calls that result in A&E attendance, commissioners and providers should consider how patient data can be more effectively shared between services, and the provision of enhanced clinical input, for example, through the development of an urgent care clinical hub.

To reduce the number of 999 calls resulting in conveyance by ambulance to A&E, commissioners and ambulance trusts need to collaborate to ensure that best use is made of telephone advice, definitive treatment at scene and conveyance to community services where appropriate. This is likely to involve an up-skilling of the ambulance workforce with enhanced support from primary and secondary care. NHS Blackpool and NHS Fylde & Wyre CCGs have achieved considerable improvements at very little cost through a "High Intensity Users" project led by an advanced paramedic (see "RightCare Casebook").

To reduce the overall number of attendances, commissioners and service providers need to review the attendance pattern at A&E, and consider the provision of alternative services to meet demand, such as an enhanced role for primary and community services, and the provision of effective social care, dentistry services and mental health services. Important components of this role are:

> primary and/or community service triage as the first point of contact in A&E departments;

> co-location of an Urgent Care Centre with A&E.

RIGHTCARE CASEBOOK

> Johnston M, Monteith R. Commissioning for Value: Reducing the Number of High Intensity Users of Unscheduled Services. Right Care Casebook Series. February 2015. bit.ly/rc_blackpool

RESOURCES

> NHS England. High quality care for all, now and for future generations: Transforming urgent and emergency care services in England – Urgent and Emergency Care Review End of Phase 1 Report. November 2013. http://www.nhs.uk/NHSEngland/keogh-review/Documents/UECR.Ph1Report.FV.pdf

> NHS England Urgent and Emergency Care Review Team. Transforming urgent and emergency care services in England – Update on the Urgent and Emergency Care Review. August 2014. http://www.nhs.uk/NHSEngland/keogh-review/Documents/uecreviewupdate.FV.pdf

> The King's Fund. A selection of policy analysis and other content regarding urgent and emergency care. http://www.kingsfund.org.uk/projects/urgent-emergency-care?gclid=CKzD4P7J1sECFfMZtAodX1wAsg

> NHS Interim Management and Support. Intensive Support Teams. Emergency Team documents. http://www.nhsimas.nhs.uk/index.php?id=340
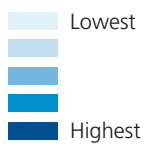
1 NHS England. A&E Attendances and Emergency Admissions 2012-13. http://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/weekly-ae-sitreps-2012-13/
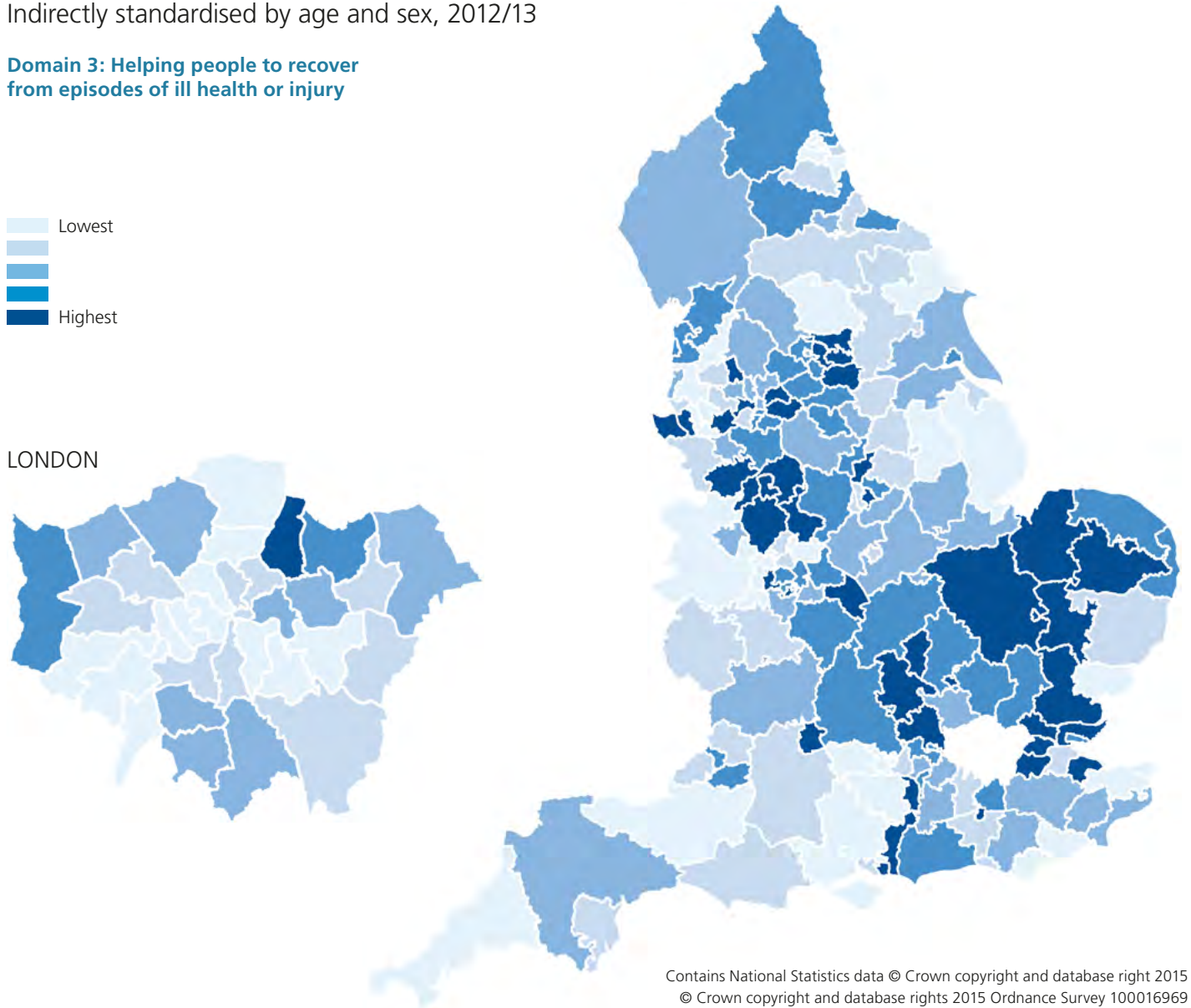
EMERGENCY CARE

Map 94: Percentage of accident and emergency (A&E) attendances that resulted in emergency admission to hospital by CCG

Indirectly standardised by age and sex, 2012/13

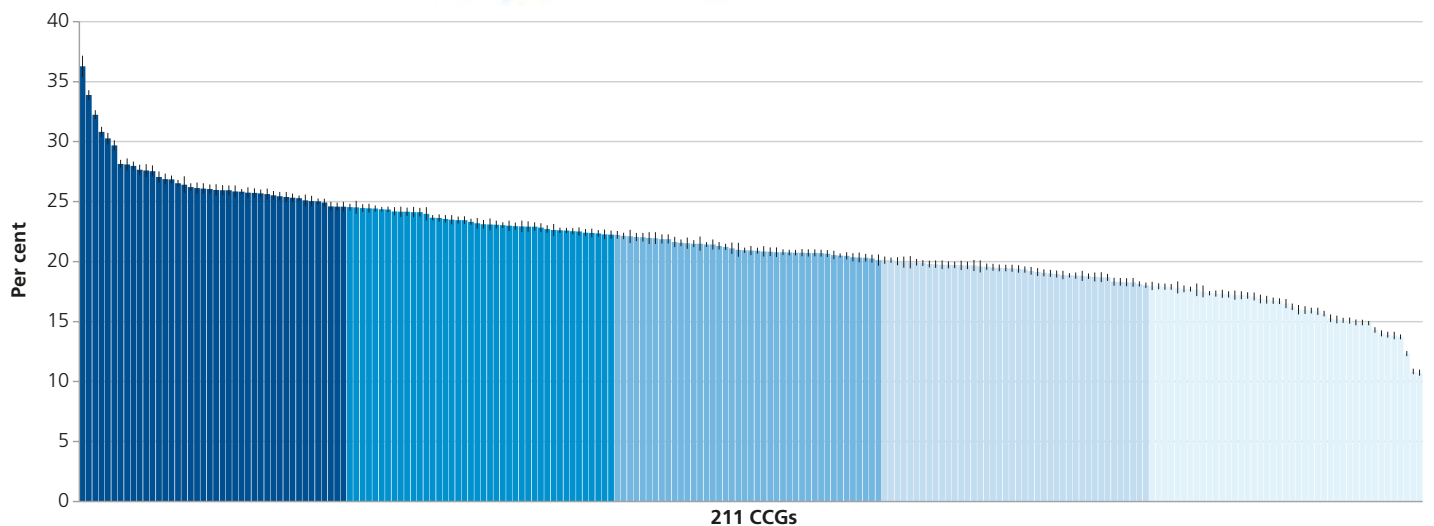**Domain 3: Helping people to recover from episodes of ill health or injury**

Lowest

Highest

LONDON

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Context

The majority of conversions of accident and emergency (A&E) attendances to emergency admissions to hospital are medical; only a minority are related to surgical conditions or trauma.

The conversion of an A&E attendance to an emergency hospital admission has a considerable impact on the cost of care.

Magnitude of variation

For CCGs in England, the percentage of A&E attendances that resulted in emergency admission to hospital ranged from 10.7% to 36.3% (3.4-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 14.3–28.1%, and the variation is 2.0-fold.

Although the degree of variation for this indicator is less than that seen for A&E attendances (see Map 93, pages 238–239), the cost of conversion to emergency admission to hospital is much greater than that for A&E attendance. Thus, the financial implications of variation in this indicator are of greater concern, and offer an opportunity for maximising value for patients and local populations by improving the quality of care.

Reasons for the degree of variation observed include differences in:

> access to primary and community services for long-term conditions;

> service models for urgent and emergency care, and, in particular, the availability of ambulatory emergency care;

> the availability of senior staff and diagnostics at the "front door" of the hospital;

> disease case-mix in local populations.

Although there are differences in case-mix, variation is still observed across the country in conversions for the same condition in the same age-group. This would indicate that there is some unwarranted variation in the conversion of A&E attendances to emergency admissions.

Another reason for unwarranted variation could be differences in access to good-quality primary and community care for long-term conditions at the time of need, which for some patients means their condition declines to a point at which a hospital stay is required.

Once a patient's condition requires an emergency response, the availability of ambulatory emergency care services, in which the patient can be treated without the need for admission to hospital, can have a considerable impact on variation (see "Resources").

Options for action

Commissioners and service providers need to review the case-mix seen at A&E departments locally, assess the percentage of A&E attendances that result in emergency admissions to hospital, and ascertain the reasons for the percentage observed.

> Percentage admissions could appear to be high if A&E departments deal with only major cases, and minor injuries are dealt with in other settings.

> Percentage admissions could appear to be low if a large proportion of minor injuries and/or primary-care problems are dealt with at A&E.

A key element in the review is to investigate short-stay admissions, and ascertain whether people are being admitted for assessment, rather than being assessed and then admitted, although advances in medical practice have led to progressive reductions in the overall length of stay.

Commissioners need to specify that service providers consider:

> ways to reduce unplanned admissions to hospital;

> introducing senior decision-making staff (e.g. consultants in Emergency and Acute Medicine working with primary care practitioners) at the "front door" of the hospital, together with immediate access to key diagnostic technologies such as CT scanning;

> the role of ambulatory emergency care in treating patients without the need for hospital admission (see "Resources") – this service has been shown to be highly effective, and should be developed further wherever possible.

RESOURCES

> Royal College of Emergency Medicine.
http://www.rcem.ac.uk/

> Ambulatory Emergency Care (AEC), including the AEC Delivery Network.
http://www.ambulatoryemergencycare.org.uk/

> The King's Fund. Managing ambulatory care sensitive conditions. From: Transforming our health care system. Ten priorities for commissioners. April 2013.
http://www.kingsfund.org.uk/current_projects/gp_commissioning/ten_priorities_for_commissioners/acs_conditions.html

> The King's Fund. Data Briefing. Emergency hospital admissions for ambulatory care-sensitive conditions: identifying the potential for reductions. April 2012.
http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/data-briefing-emergency-hospital-admissions-for-ambulatory-care-sensitive-conditions-apr-2012.pdf
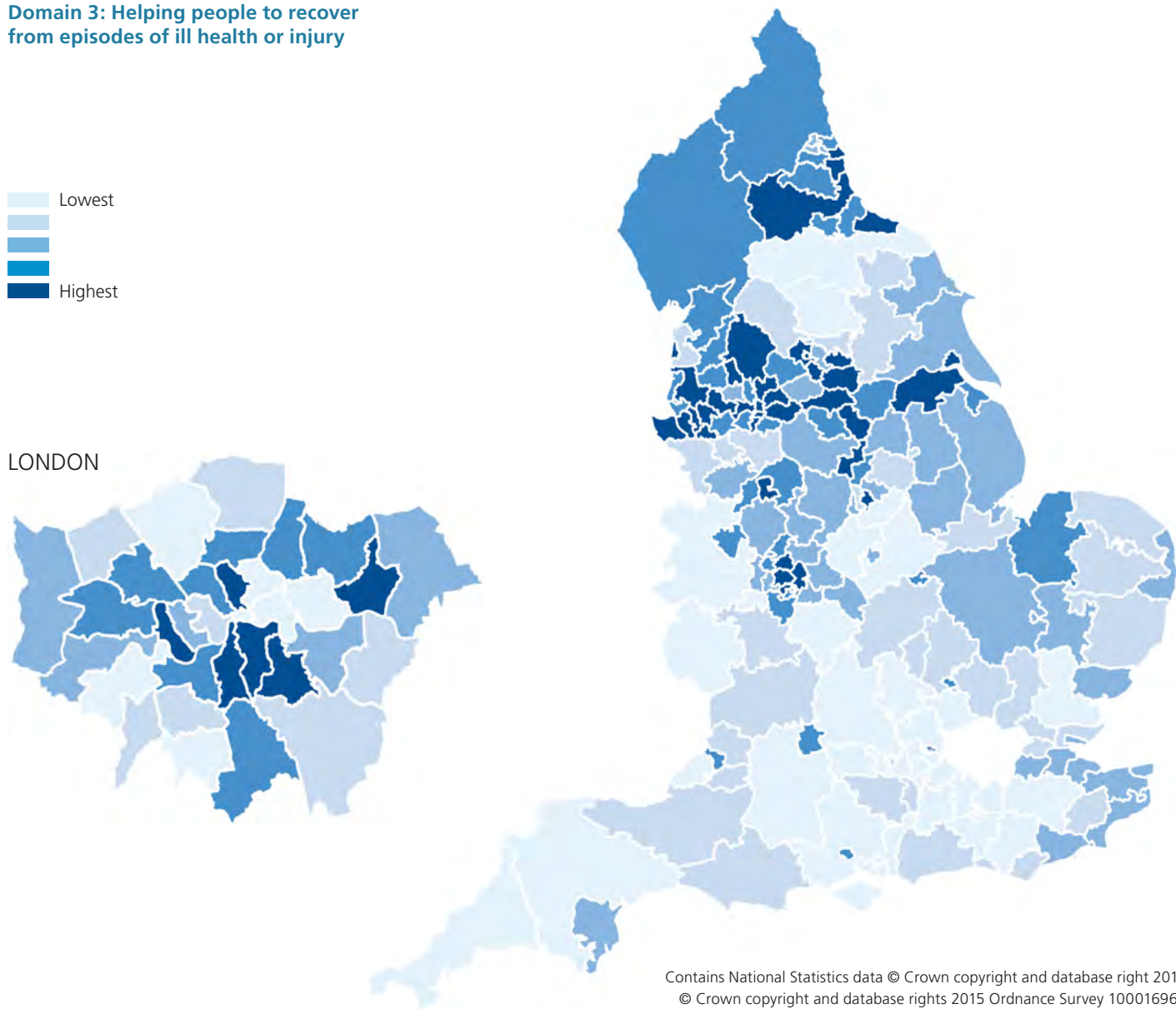
EMERGENCY CARE

Map 95: Rate of emergency admission to hospital for ambulatory care-sensitive conditions per population by CCG

Directly standardised rate, adjusted for age and sex, 2012/13

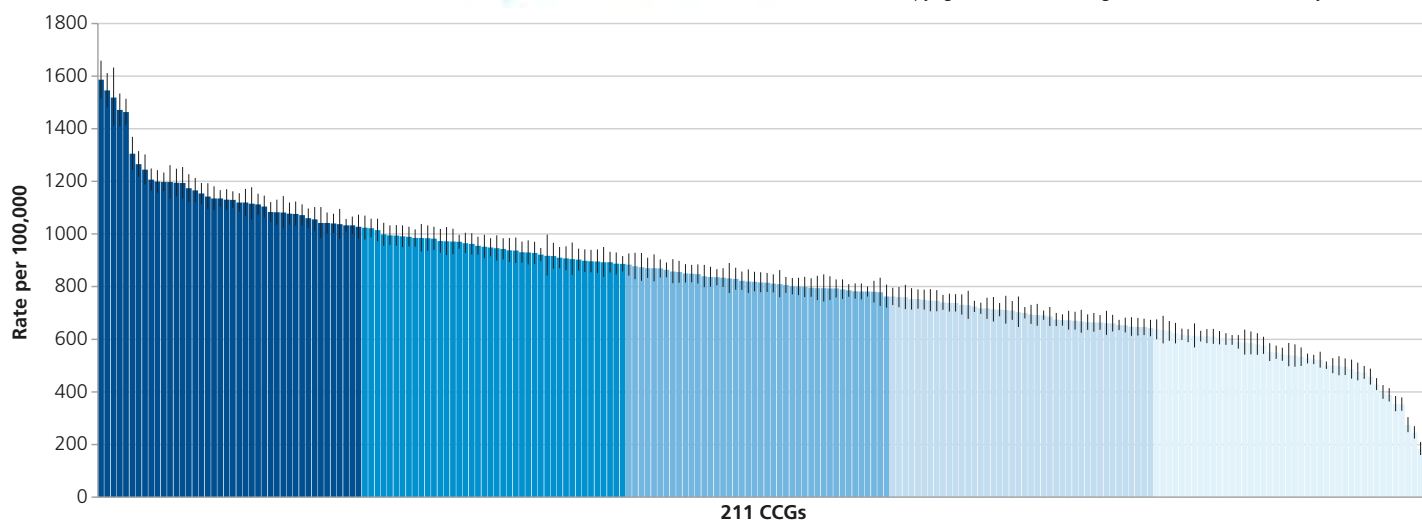**Domain 3: Helping people to recover from episodes of ill health or injury**

Lowest

Highest
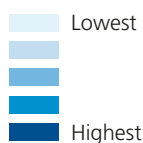
LONDON

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Context

Ambulatory care-sensitive conditions are long-term conditions for which it is possible to prevent acute exacerbations and reduce the need for hospital admission through active management.[1] Admissions to hospital beds can be reduced by introducing ambulatory emergency care (AEC) models, which avoid unnecessary overnight stays for emergency patients. This change in medical practice, with a shift towards treating people outside the acute hospital setting, has occurred for several reasons:

› to improve patient outcomes;

› to meet patients' preference not to be hospitalised;

› to reduce pressure on hospital beds.

In 2011/12, the NHS Institute worked with acute trusts, commissioners and primary care teams to support and accelerate the local development of ambulatory care through the spread and adoption of good practice and utilisation of improvement methodologies – the AEC Delivery Network (see "Resources").

Following on from the Institute's work, NHS Elect now hosts the programme. Five consecutive cohorts have completed the programme, with teams reporting considerable progress in converting emergency admissions into "same-day" emergency episodes, thereby reducing avoidable admissions. The Network delivers two cohorts per year; one starting in the Spring and one in the Autumn.

The King's Fund made managing ambulatory care-sensitive conditions one of its ten priorities for commissioners to transform the healthcare system.[1]

Magnitude of variation

For CCGs in England, the rate of emergency admission to hospital for ambulatory care-sensitive conditions ranged from 184 to 1586 per 100,000 population (8.6-fold variation). When the seven CCGs with the highest rates and the seven CCGs with the lowest rates are excluded, the range is 429–1245 per 100,000 population, and the variation is 2.9-fold.

Reasons for the degree of variation observed include differences in:

› the number of admissions to hospital that are necessary;

› the co-morbidities patients may have;

› the social circumstances of some patients – whether they are able to cope with the condition at home or whether they need to be cared for in hospital.

Possible reasons for unwarranted variation include:

› the organisation of local services, including the availability of community services and facilities;

› the capacity and level of expertise among healthcare personnel in the local community, for example, nurses able to administer intravenous drugs;

› the extent of collaborative working among accident and emergency departments, ambulance services, primary care, and different secondary care specialities;

› access, including rapid access, to diagnostic services.

Options for action

Taking into account local capacity, commissioners and service providers need to work together to review the range of long-term conditions for which active case management and supported self-management can be used to prevent acute exacerbations, and reduce the need for emergency hospital admissions in the local population, for example:

› diabetes;

› epilepsy (see Map 14, pages 70–71);

› chronic obstructive pulmonary disease (COPD; see Map 22, pages 86–87);

› asthma (see Map 23, pages 88–89, and Map 82, pages 216–217).

Commissioners need to specify that service providers:

› develop care pathways for appropriate ambulatory care-sensitive conditions;

› learn from the work of other services, and participate in the AEC Delivery Network where possible.

A best practice tariff for Ambulatory Care was introduced in 2012, which has been helpful in addressing some of the financial barriers to the effective implementation of new services. Commissioners and providers need to work together to build on this and explore opportunities for further service improvement.

RESOURCES

› Ambulatory Emergency Care (AEC), including the AEC Delivery Network. http://www.ambulatoryemergencycare.org.uk/

› The King's Fund. Managing ambulatory care sensitive conditions. From: Transforming our health care system. Ten priorities for commissioners. April 2013. http://www.kingsfund.org.uk/current_projects/gp_commissioning/ten_priorities_for_commissioners/acs_conditions.html

› The King's Fund. Data Briefing. Emergency hospital admissions for ambulatory care-sensitive conditions: identifying the potential for reductions. April 2012. http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/data-briefing-emergency-hospital-admissions-for-ambulatory-care-sensitive-conditions-apr-2012.pdf

› Future Hospital Commission. Future hospital: Caring for medical patients. A report from the Future Hospital Commission from the Royal College of Physicians. September 2013. https://www.rcplondon.ac.uk/sites/default/files/future-hospital-commission-report_0.pdf
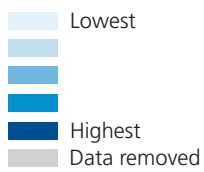
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1   The King's Fund. Managing ambulatory care sensitive conditions. From: Transforming our health care system. Ten priorities for commissioners. April 2013. http://www.kingsfund.org.uk/current_projects/gp_commissioning/ten_priorities_for_commissioners/acs_conditions.html
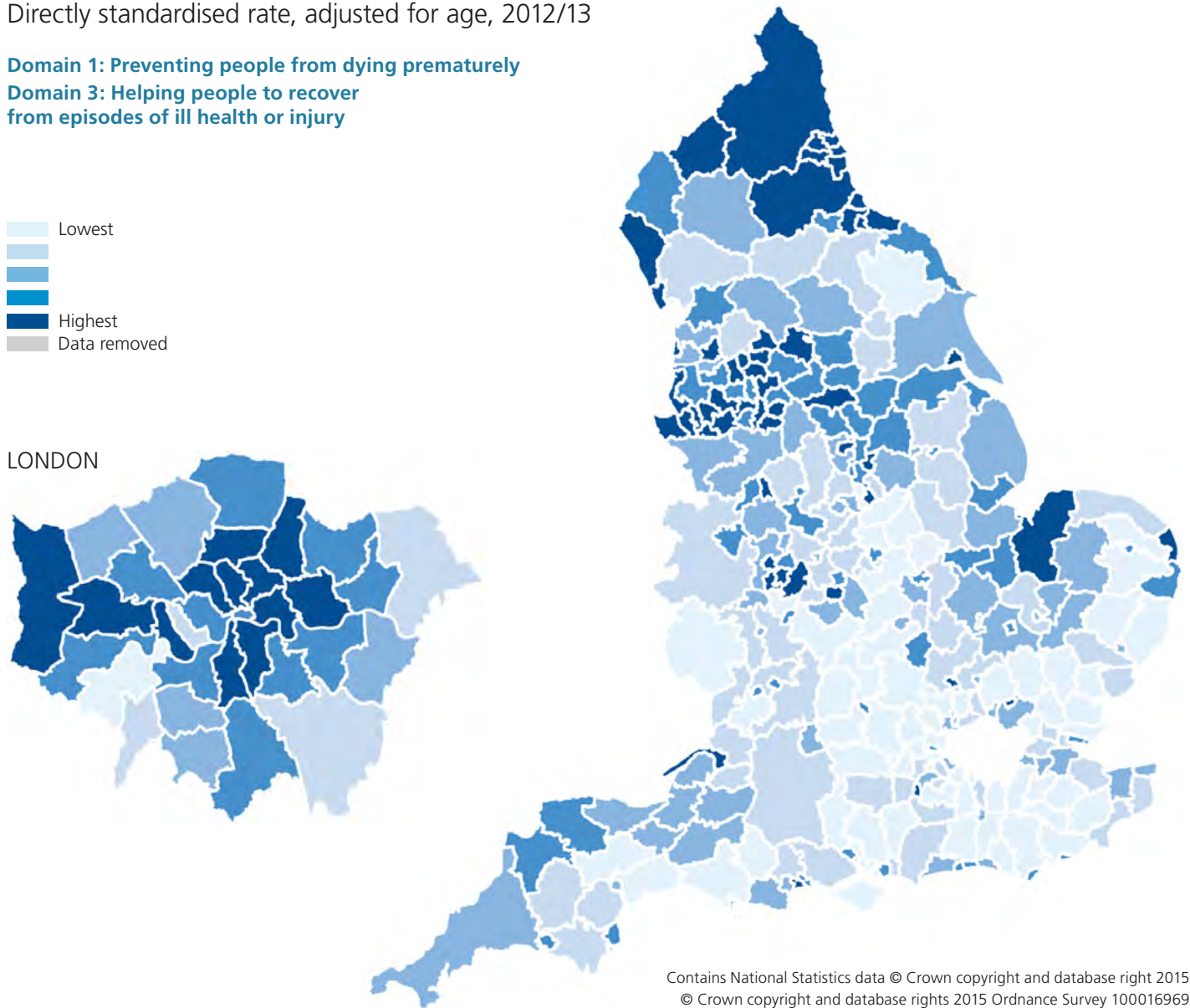
CARE OF ALCOHOL-RELATED CONDITIONS

Map 96: Rate of admission to hospital for alcohol-related causes (broad measure[1]) per population by lower-tier local authority

Directly standardised rate, adjusted for age, 2012/13

Domain 1: Preventing people from dying prematurely
Domain 3: Helping people to recover from episodes of ill health or injury

Lowest

Highest
Data removed

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326 LTLAs

Rate per 100,000
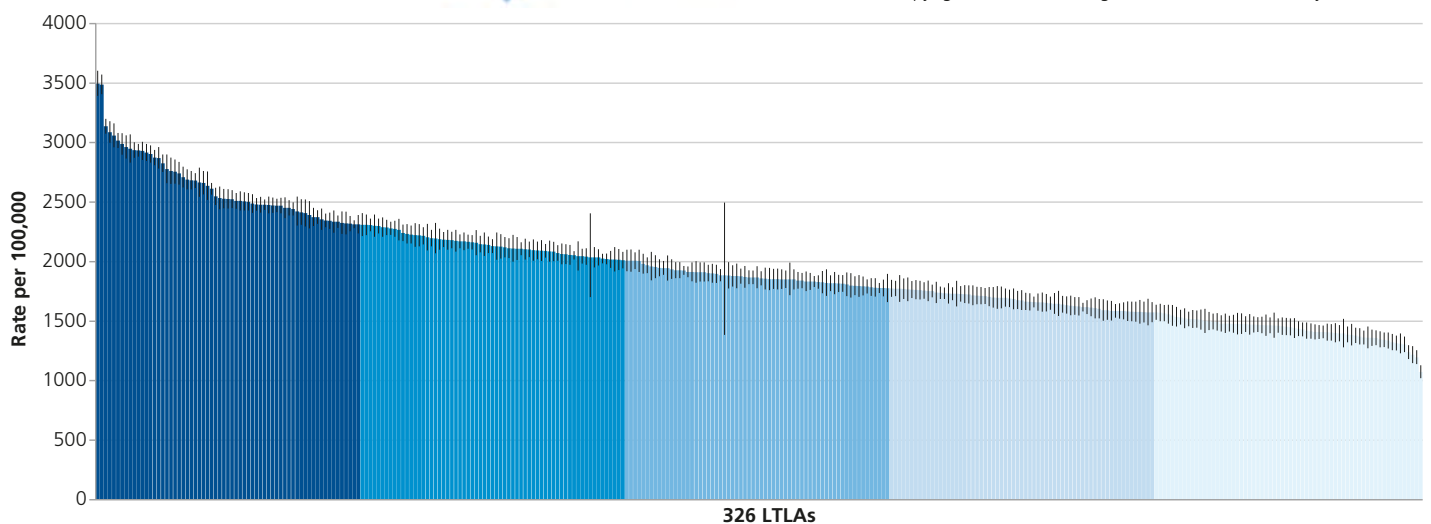
Context

In England, nine million people consume alcohol at levels that pose risks to health.[2] Alcohol misuse is thought to cost the country around £21 billion a year.[3] In 2011, the Department of Health estimated that the NHS costs of alcohol-related harm were £3.5 billion at 2009/10 prices[4] (see Table 96.1).

Table 96.1: NHS costs of alcohol-related harm, 2009/10[4]

Category of cost	Cost (£ million)
Hospital inpatient & day visits: • Directly attributable to alcohol misuse • Partly attributable to alcohol misuse	385 1386
Hospital outpatient visits	246
Accident and emergency visits	696
Ambulance services	449
NHS GP consultations	112
Practice nurse consultations	16
Dependency prescribed drugs	8
Specialist treatment services	122
Other healthcare costs	60
Total	**3480**

People being admitted to hospital, where alcohol is the main reason for the admission (narrow measure), has increased by 10% in the last 5 years. The alcohol-related mortality rate decreased by 5% between 2008 and 2013 to 45.3 per 100,000 population.

The conditions associated with alcohol use include injuries and trauma (some associated with alcohol-related violence or road traffic incidents), gastro-intestinal disease including liver disease, cancers, stroke, heart diseases, respiratory diseases, and co-existing mental health problems.

Magnitude of variation

For lower-tier local authorities (LTLAs) in England, the rate of admission to hospital for alcohol-related causes ranged from 1074 to 3496 per 100,000 population (3.3-fold variation). When the ten LTLAs with the highest rates and the ten LTLAs with the lowest rates are excluded, the range is 1346–2935 per 100,000 population, and the variation is 2.2-fold.[5]

Some or much of the degree of variation observed is likely to be due to differences in the rates of alcohol use across England, although other factors such as differences in coding for association with alcohol could also explain some of the variation.

Options for action

NHS organisations need to work with local authorities and other partners through Health and Wellbeing Boards.

Commissioners need to specify that health service providers:

› work in partnership to implement the actions identified by Public Health England as those most effective for local areas to reduce alcohol-related harm (see Box 96.1);

› explore opportunities under Making Every Contact Count[6] for early detection of those drinking above lower-risk levels and encourage reductions in alcohol consumption;

› develop local alcohol treatment pathways (see "Resources");

› implement the recommendations in *Alcohol care in England's hospitals: An opportunity not to be wasted*[2];

› ensure acute providers have Alcohol Care Teams that provide a seven-day-a-week service (see "Case-study").

1 Persons admitted to hospital where the primary diagnosis or any of the secondary diagnoses are an alcohol-attributable code; children age less than 16 years were only included for alcohol-specific conditions and for low birthweight. LAPE 2015 User Guide. http://fingertips.phe.org.uk/profile/local-alcohol-profiles

2 Public Health England. Alcohol care in England's hospitals. An opportunity not to be wasted. November 2014. http://www.alcohollearningcentre.org.uk/News/NewsItem/?cid=6859

3 Health Committee. Written evidence from the Department of Health (GAS 01). Annex B, paragraph 2. http://www.publications.parliament.uk/pa/cm201213/cmselect/cmhealth/132/132we02.htm

4 Department of Health updated previous published estimates at 2006/07 prices using the same methodology as in The cost of alcohol harm to the NHS in England. An update to the Cabinet Office (2003) study. July 2008. Health Improvement Analytical Team, Department of Health.

5 For 2009/10, 2010/11 and 2011/12 data by PCT, see Liver Disease Atlas, Map 9, pages 62–63.

6 http://www.makingeverycontactcount.co.uk/

Box 96.1: Effective interventions in local areas prioritising a reduction in alcohol-related harm

A. Create environments that support lower-risk drinking for those who choose to drink
› Local behaviour change campaigns that include alcohol
› Local Responsibility Deals that include alcohol
› Directors of Public Health to make effective use of their statutory powers under the Licensing Act 2003[7]
› Use powers to restrict the irresponsible sale of alcohol

B. Increase the identification of and reduce consumption in drinking above lower-risk levels
› Implement alcohol risk assessment within NHS Health Check and the GP Contract targeting newly registered patients
› Offer additional identification and brief advice (IBA) opportunities in a range of settings, particularly primary care

C. Intervene with those experiencing alcohol-related harm
› Effective use of hospital-based alcohol services

D. Reduce dependancy and improve recovery
› Accessible specialist treatment matched to local need
› Good-quality treatment services, in line with NICE guidance

CASE-STUDY

› Moriarty KJ. Alcohol Care Teams: reducing acute hospital admissions and improving quality of care. 2014. NICE Quality and Productivity: Proven Case Study. Provided by: The British Society of Gastroenterology and Bolton NHS Foundation Trust. http://arms.evidence.nhs.uk/resources/qipp/29420/attachment
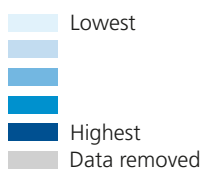
RESOURCES

› NICE. Alcohol-use disorders: preventing harmful drinking. NICE guidelines [PH24]. June 2010. http://guidance.nice.org.uk/PH24

› NICE. Alcohol-use disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence. NICE guidelines [CG115]. February 2011. http://guidance.nice.org.uk/CG115

› NICE. Alcohol-use disorders: Diagnosis and clinical management of alcohol-related physical complications. NICE guidelines [CG100]. June 2010. http://guidance.nice.org.uk/CG100

› NICE pathways. Alcohol-use disorders overview. http://pathways.nice.org.uk/pathways/alcohol-use-disorders

› Public Health England. PHE Alcohol Learning Resources. http://www.alcohollearningcentre.org.uk/

› Public Health England. Alcohol care in England's hospitals. An opportunity not to be wasted. November 2014. http://www.alcohollearningcentre.org.uk/News/NewsItem/?cid=6859

› Royal College of Emergency Medicine. Alcohol. A toolkit for improving care. June 2015. On College Guidelines webpage, scroll down to QEC Resource Toolkits. http://www.rcem.ac.uk/Shop-Floor/Clinical%20Guidelines/College%20Guidelines/

› Department of Health (2009) Local Routes: Guidance for developing alcohol treatment pathways. http://www.alcoholpolicy.net/2009/12/local-routes-guidance-for-developing-alcohol-treatment-pathways-published.html

› Public Health England. Local Alcohol Profiles for England (LAPE). http://fingertips.phe.org.uk/profile/local-alcohol-profiles

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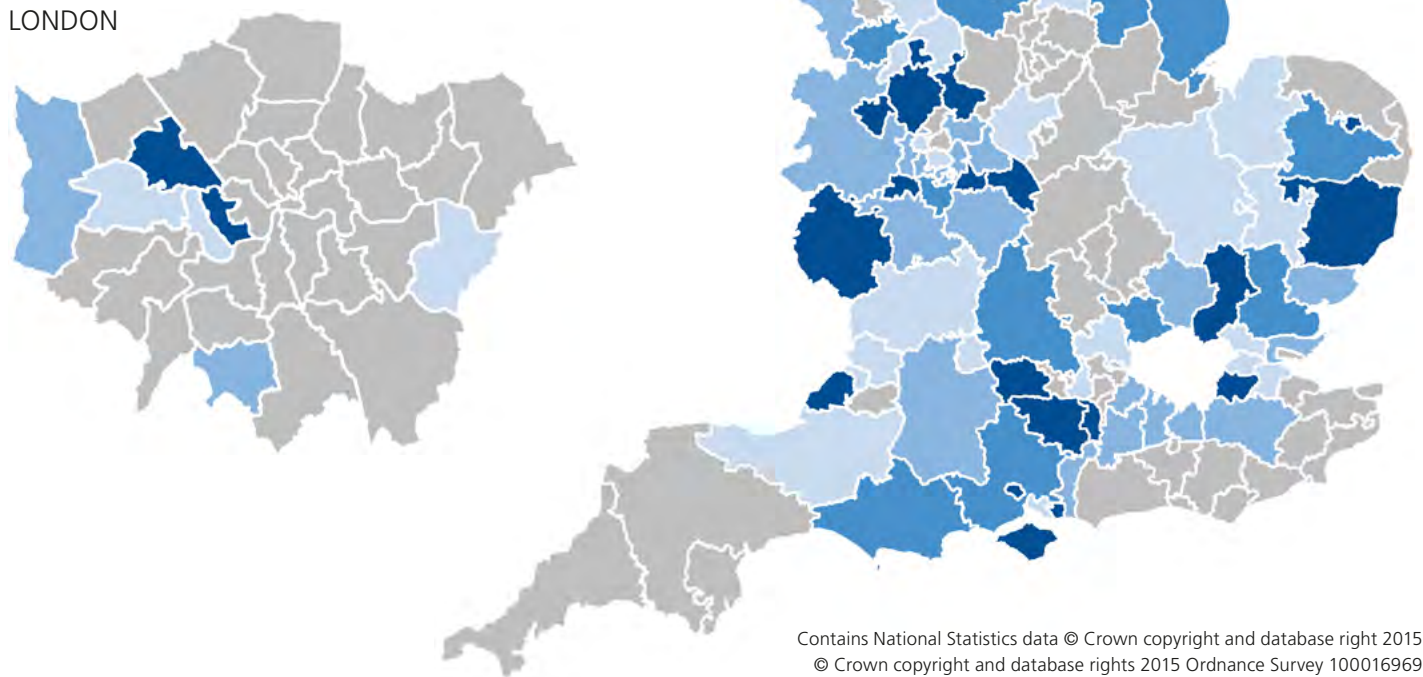7 http://www.legislation.gov.uk/ukpga/2003/17/contents

CRITICAL CARE

Map 97: Percentage of elective admissions for abdominal aortic aneurysm (AAA) or aorto-bifemoral bifurcation graft procedures that had planned access to adult critical care by CCG

2013/14

Domain 1: Preventing people from dying prematurely
Domain 4: Helping people to recover from periods of ill health or injury

Lowest

Highest
Data removed

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133 out of 211 CCGs (78 removed due to small numbers)

Per cent
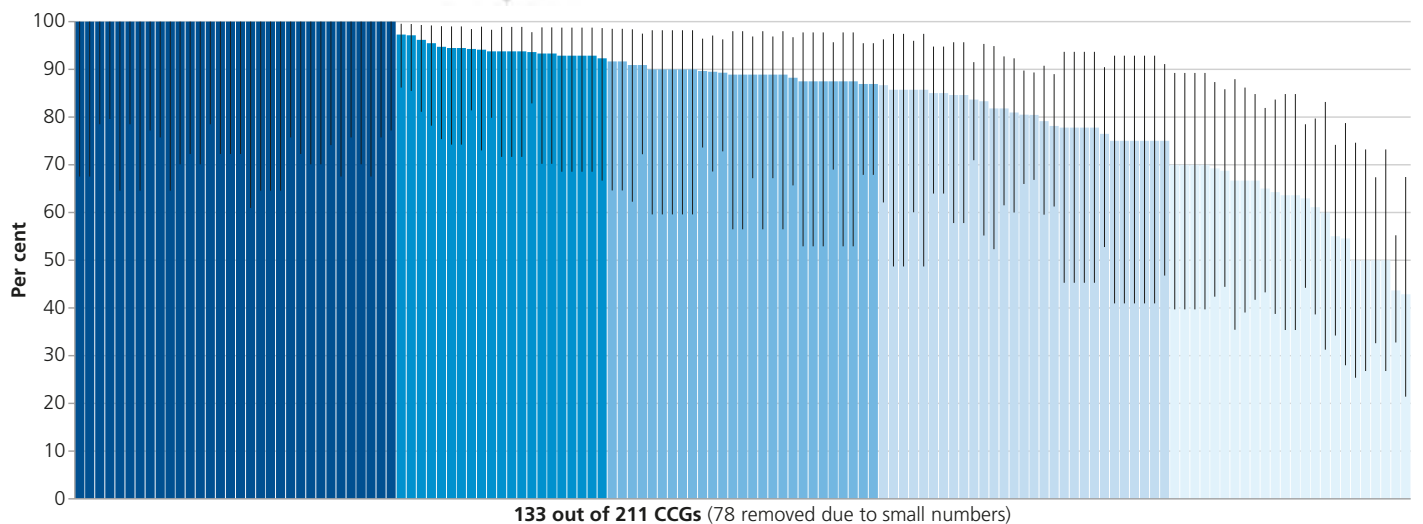
Context

Outcomes after surgery have been improving over the last decade despite the context of an ageing population with increasing co-morbidities. In addition to standards of care during surgery, surgical outcomes depend on good-quality peri-operative care, including access to critical care support. Critical care (also known as intensive care) involves the treatment of patients who have, are at risk of or are recovering from potentially life-threatening failure of one or more body organ systems.[1]

Much work has been done to improve cardiac surgery in specialist units, where the majority of procedures are elective and critical care support is routine, such as for valvular surgery. Major general surgery, which includes most major gastro-intestinal and vascular procedures, however, is undertaken in every acute hospital to treat a wide range of conditions, with only limited critical care support. A much higher proportion of non-cardiac surgical patients are treated as an emergency, and general surgical emergency admissions are the largest group of all surgical admissions in the UK, resulting in a high percentage of all surgical deaths.

Mortality after elective major gastro-intestinal or vascular surgery greatly exceeds that of elective cardiac surgery by 2–3-fold, and is much higher for non-cardiac surgical patients treated as an emergency: in the UK, 170,000 patients undergo higher risk non-cardiac surgery each year, 100,000 of whom will develop complications, resulting in 25,000 deaths. For these patients, emergency surgery and unscheduled management of complications is common.

High-risk patients comprise about 10% of the overall group of surgical inpatients, and have a hospital mortality rate of 10–15%. To reduce the risk of mortality and morbidity, and the degree of variation in surgical outcomes, requires:

› the rapid, reliable and accurate identification of patients who are at high risk of post-operative mortality and morbidity – risk factors include age and degree of organ dysfunction;

› the adoption of formal pathways for both elective and emergency surgery to address the clinical needs of the patient, which will also aid the identification of high-risk patients;

› improved post-operative care through the use of critical care.

Critical care is an essential component of the clinical pathway for surgery. It offers patients improved survival and the lowest possible morbidity, and it is important to ensure that patients receive the level of post-operative care they require to achieve optimal outcomes. In many countries, patients undergoing major surgery routinely receive a higher level of post-operative care than patients in the UK. Indeed, some clinicians in the UK wait for organ failure to occur before they consider critical care, and The Royal College of Surgeons and Department of Health Working Group found that the peri-operative pathway of patients requiring emergency surgical management was "frequently disjointed, protracted and not always patient centred".[2] Moreover, that outcomes varied substantially, and could be improved.[2]

Magnitude of variation

Map 97: AAA or aorto-bifemoral bifurcation grafts

For CCGs in England, the percentage of elective admissions for abdominal aortic aneurysm (AAA) or aorto-bifemoral bifurcation graft procedures that had planned access to adult critical care ranged from 42.9% to 100.0% (2.3-fold variation).[3] When the four CCGs with the highest percentages and the four CCGs with the lowest percentages are excluded, the range is 50.0–100.0%, and the variation is 2-fold.

For this indicator, the confidence intervals are very wide (as displayed on the chart), and caution is needed when interpreting the data because the limits indicate that much of the variation within the indicator may not be statistically significant. Equally, as the number of events is relatively small for this indicator, it is subject to greater random variation. Consequently, the values for the range and fold difference are more likely to be exaggerated when compared with other indicators based on larger numbers of events.

1   The Royal College of Anaesthesia. Intensive Care Medicine. What is intensive care (critical care)? http://www.rcoa.ac.uk/special-areas-of-training/intensive-care-medicine/

2   The Royal College of Surgeons of England and Department of Health Working Group on Peri-operative Care of the Higher Risk General Surgical Patient. The Higher Risk General Surgical Patient. Towards Improved Care for a Forgotten Group. 2011. https://www.rcseng.ac.uk/publications/docs/higher-risk-surgical-patient/

3   Data from 78 CCGs have been removed due to small numbers.

Possible reasons for the degree of variation observed include differences in:

> the prevalence of disease in local populations;

> the volume of major and urgent surgery;

> patients' age and co-morbidities;

> existence and use of formal clinical pathways;

> clinical location for immediate post-operative care.

Map 98: Excision colorectal surgery

For CCGs in England, the percentage of emergency admissions for excision colorectal surgery that had planned access to adult critical care ranged from 0.0% to 96.6%.[4] When the six CCGs with the highest percentages and the six CCGs with the lowest percentages are excluded, the range is 22.9–81.5%, and the variation is 3.6-fold.

Possible reasons for the degree of variation observed include differences in:

> the prevalence of disease, such as diverticulitis and ischaemic bowel disease (e.g. strangulated hernia and ischaemic colitis), in local populations;

> the volume of major and urgent surgery;

> patients' age and co-morbidities;

> lack of awareness of level of risk for non-cardiac general surgery patients;

> existence and use of formal clinical pathways;

> access to pre-operative assessment;

> timing of and access to diagnostic services;

> access to theatre;

> timing of surgery;

> timing of clinical decision about the need for critical care;

> seniority of clinician making the decision about the need for critical care;

> clinical location for immediate post-operative care.

Options for action

Commissioners need to specify that service providers:

> review the volume of surgery undertaken locally considered to be high risk, assess the critical care requirements for high-risk patients, and ensure provision of sufficient critical care beds to provide appropriate support during the post-operative period;

> undertake the pre-operative assessment in clinics of patients in high-risk groups undergoing elective surgery and institute targeted measures to improve their fitness for surgery;

> establish arrangements for more urgent surgical patients to be given pre-operative assessments;

> develop and promote the use of formal clinical pathways for elective and emergency abdominal surgery to address the needs of patients and prevent organ failure;

> use information from national audits, such as the National Emergency Laparotomy Audit (NELA; see "Resources") to improve patient care.

Service providers need to ensure that clinicians in secondary care:

> develop and improve their skills for estimating patients' levels of risk, using validated tools, such as POSSUM (Physiological and Operative Severity Score for the enUmeration for Mortality and Morbidity validated tool for abdominal surgery; see Smith and Tekkis under "Resources");

> apply the tool before and after the operation, such that a decision about the need for critical care support can be re-visited.

In addition, clinicians in primary care can increase their skills levels to support the identification of patients' fitness for elective surgery.

RESOURCES

> NICE. Acutely ill patients in hospital. Recognition of and response to acute illness of adults in hospital. NICE guidelines [CG50]. July 2007. https://www.nice.org.uk/guidance/cg50

> NHS England. Service Specification No. D16. NHS Standard Contract for Adult Critical Care. Schedule 2 – The Services – A. Service Specifications. 2014. https://www.engage.england.nhs.uk/consultation/specialised-services-policies/user_uploads/adlt-critical-care-serv-spec.pdf

> Smith JJ, Tekkis PP (2015) Risk Prediction in Surgery. http://www.riskprediction.org.uk/background.php

> Findlay GP, Goodwin APL, Protopapa K et al. Knowing the Risk. A review of the peri-operative care of surgical patients. A report by the National Confidential Enquiry into Patient Outcome and Death (2011). http://www.ncepod.org.uk/2011report2/downloads/POC_fullreport.pdf

> Critical Care Minimum Data Set Overview: http://www.datadictionary.nhs.uk/data_dictionary/messages/supporting_data_sets/data_sets/critical_care_minimum_data_set_fr.asp?shownav=1
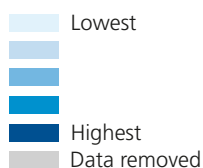
> National Emergency Laparotomy Audit. http://nela.org.uk/reports

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4 Data from 20 CCGs have been removed due to small numbers.
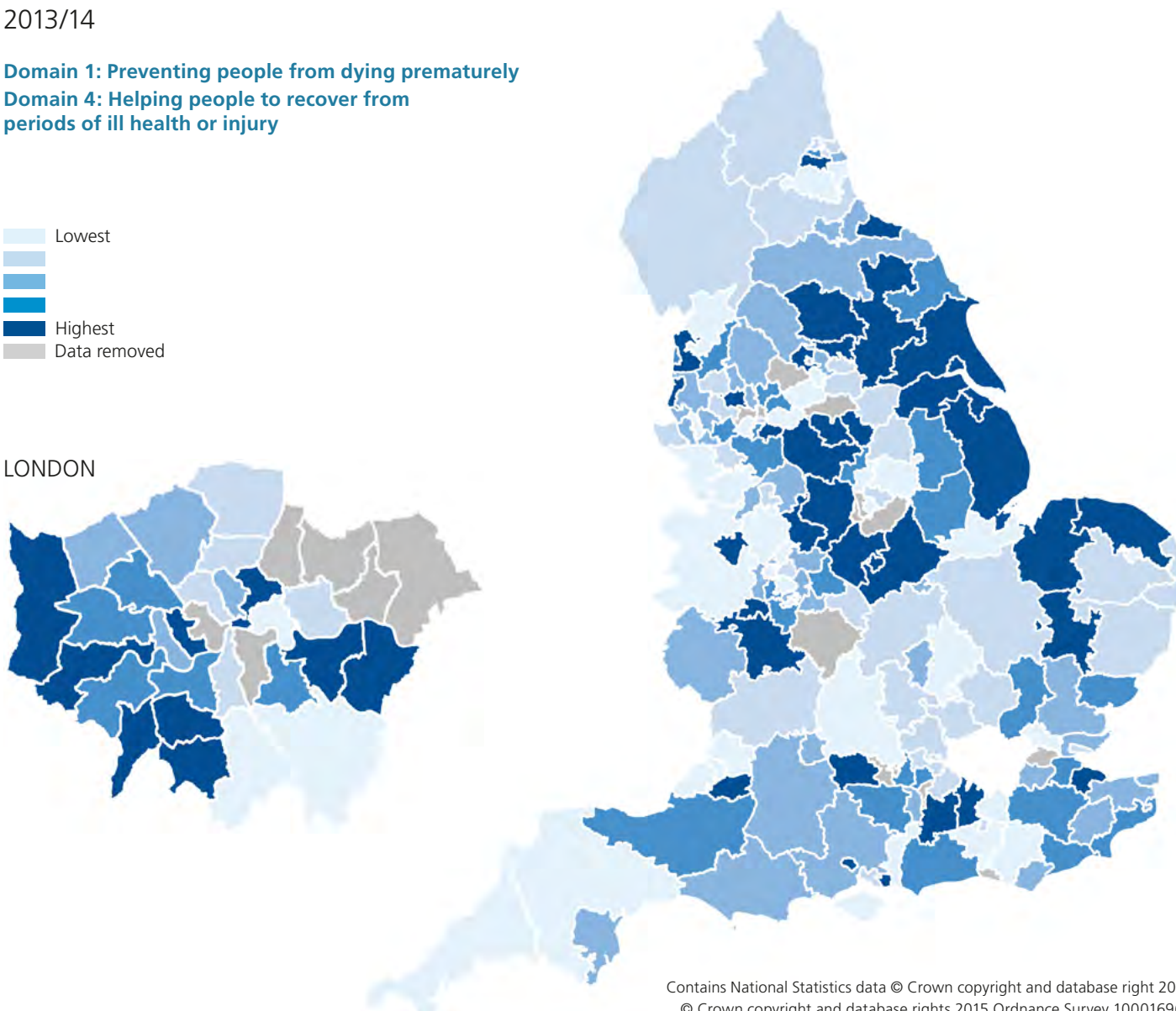
CRITICAL CARE

Map 98: Percentage of emergency admissions for excision colorectal surgery that had planned access to adult critical care by CCG
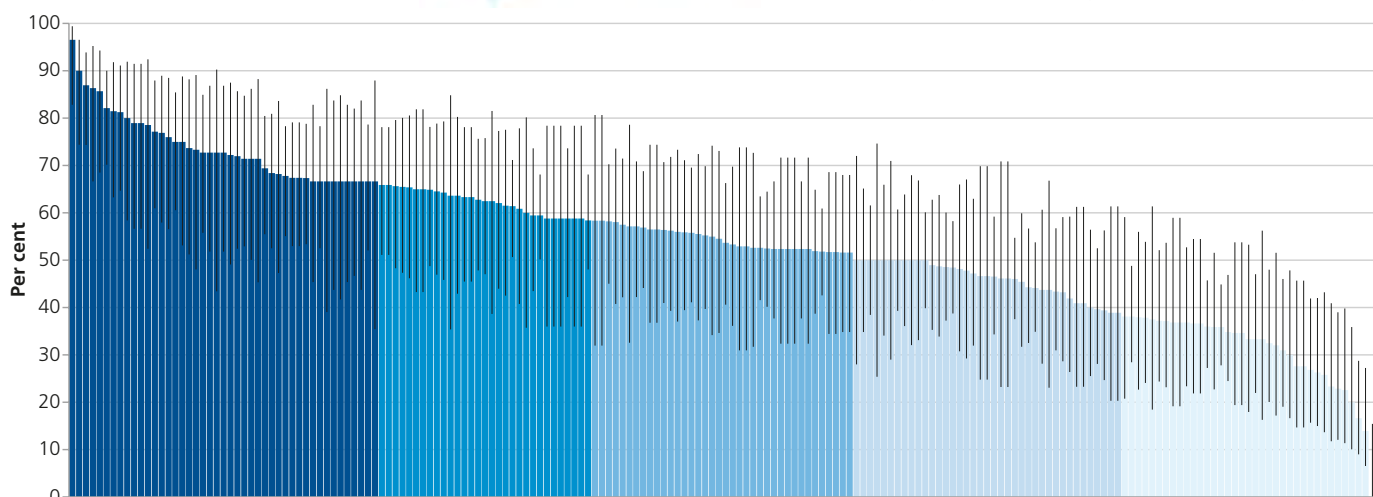
2013/14

Domain 1: Preventing people from dying prematurely
Domain 4: Helping people to recover from periods of ill health or injury

Lowest

Highest
Data removed

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**191 out of 211 CCGs** (20 removed due to small numbers)

Per cent

INTERVENTIONAL RADIOLOGY

Map 99: Percentage of NHS Trusts that had formal arrangements for 24-hour access to nephrostomy by strategic health authority

November 2013

**Domain 1: Preventing people from dying prematurely**

SHA variation

- Lowest
- Highest

IR provision at NHS Trusts

- ● Formal out-of-hours provision
- ○ No formal out-of-hours provision
- ◐ Non-responder

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Per cent

10 Strategic Health Authorities
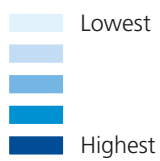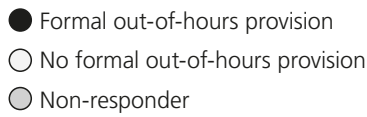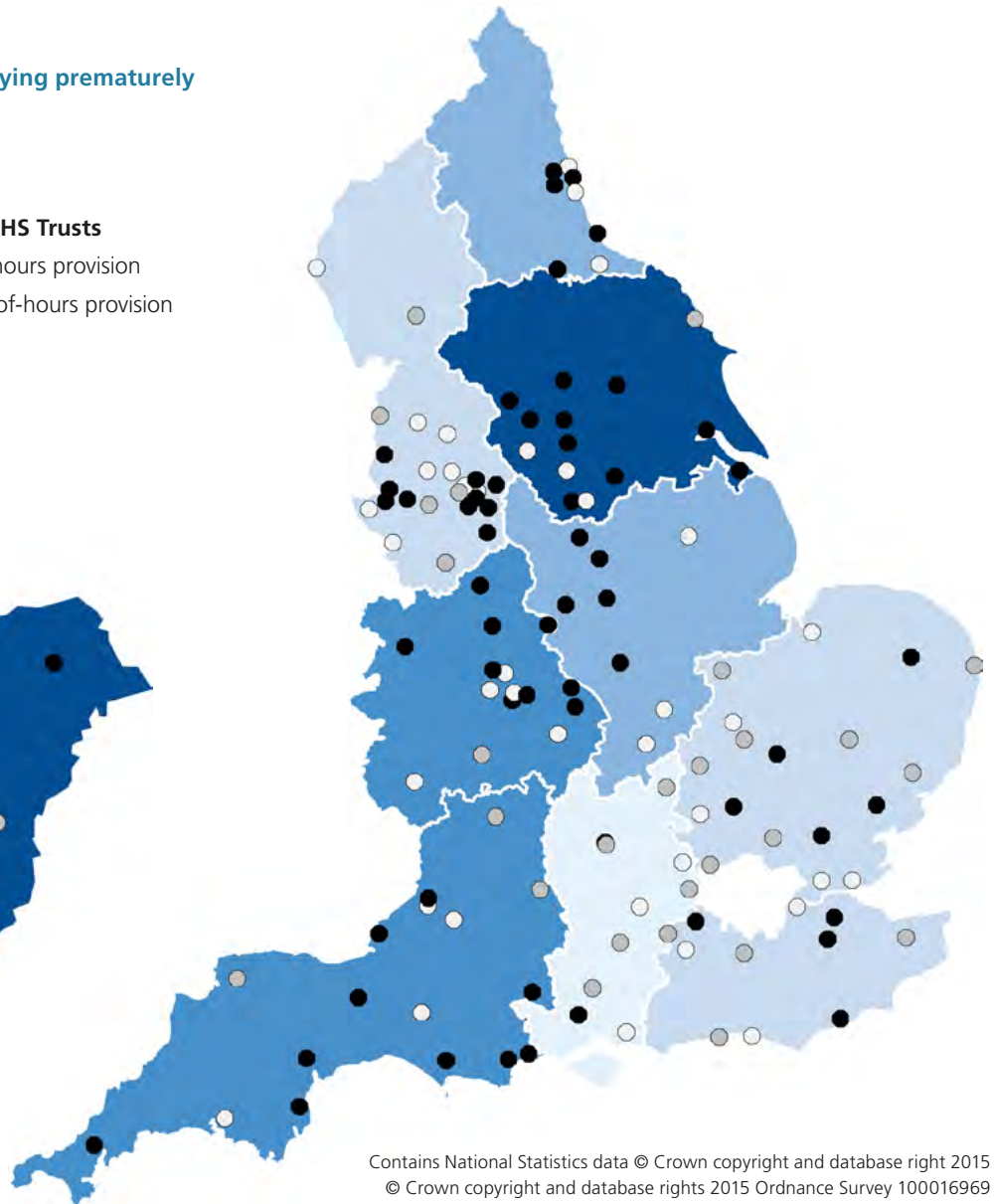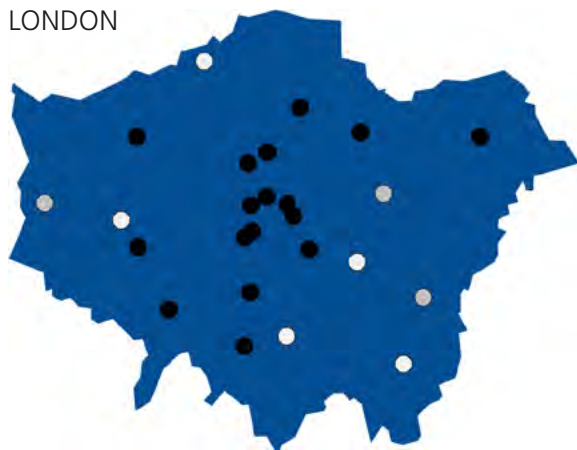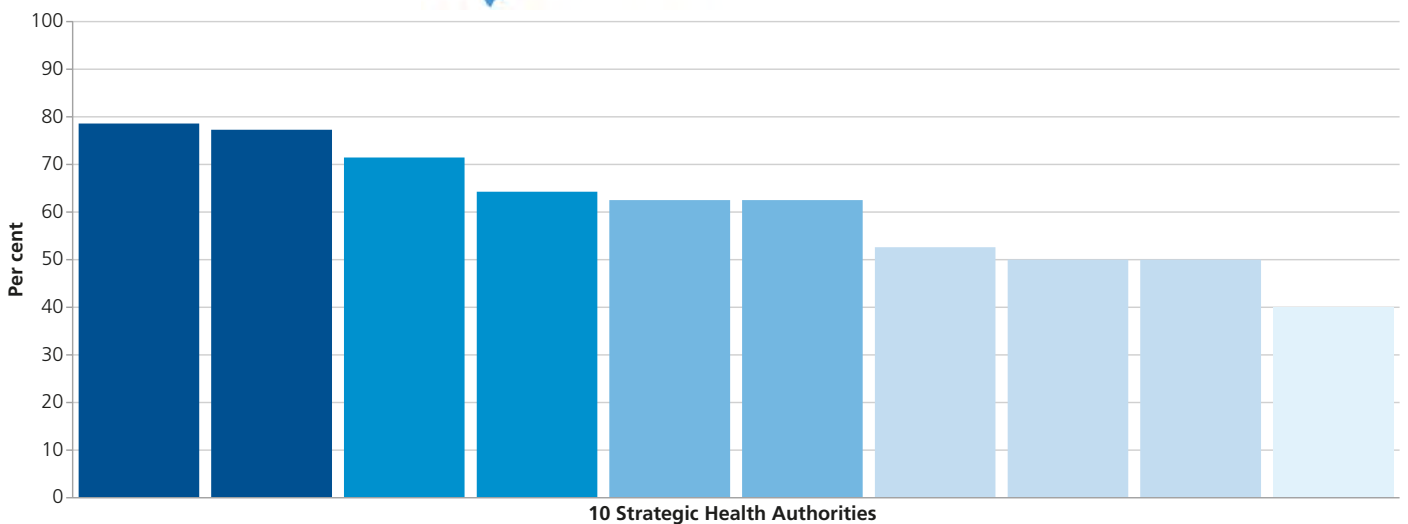
Context

Interventional radiology (IR) refers to a range of techniques that use radiological image guidance to target therapy, and interventional radiologists are trained in both radiology and interventional therapy.

Most IR treatments are minimally invasive alternatives to open and laparoscopic surgery, with the advantages over the latter treatments of:

› reduced risk;

› shorter hospital stays;

› lower costs;

› increased patient comfort;

› quicker convalescence and return to work.[1]

A wide range of conditions can be treated with IR, and IR services can often be life-saving, therefore, access to these services is necessary seven days a week.

Since 2011, there has been an annual survey by NHS Improving Quality (NHSIQ) of all hospitals in England to assess the level of provision of weekend and out-of-hours IR services. In 2011 and 2012, clinicians were asked to rate their IR services, but in 2013 and 2014 clinicians were asked to provide an overview of provision of four specific IR services:

› nephrostomy – in people with kidney stones, IR involves placing a tube in the kidney to allow urine to drain, and removing the stones with a variety of instruments placed through the skin into the kidney[1];

› endovascular intervention – in people with expanded arteries or aneurysms, IR treatment involves re-lining the vessel with a stent graft[1];

› embolisation for haemorrhage – haemorrhage is the most common vascular emergency treated by IR,

and bleeding often can be stopped permanently by embolisation[1];

› embolisation for post-partum haemorrhage – for women who suffer uncontrolled bleeding after childbirth IR can be used to stop bleeding[1], and can avoid the need for hysterectomy.

The delivery of IR services requires specialist expertise in the form of specifically trained radiologists, nurses and radiographers. Being able to provide such a skilled workforce is challenging for most NHS Trusts. As a result, not all NHS Trusts are able to provide 24-hour access to IR services in the most effective way; some hospitals depend on informal and ad-hoc arrangements to deal with emergencies out of hours. Indeed, in the IR survey, ad-hoc or informal arrangements was the most common response to the question why cover for IR services was less than 24/7.

Despite an overall improvement in the formal provision of IR services over the four-year period of the survey, the questions are not directly comparable from 2011 to 2014. A more direct comparison is possible between the questions in the surveys for 2013 and 2014 (see Table 99.1); however, the response rate in 2013 and in 2014 was different, and some hospitals did not respond to both years of the survey. A core of 79–82 hospitals responded to the survey in both 2013 and 2014.

For this series of indicators, the 2013 data have been used, although the results for the 2014 survey are now available (see "Resources"). The 2013 data were selected because it is possible to show not only which NHS Trusts had formal out-of-hours IR provision, but also the degree of variation in service provision across England using the strategic health authority (SHA) as a level of geography. Although the SHA is no longer part of the NHS structure, it is a useful proxy measure for larger

Table 99.1: Percentage of hospitals responding to the NHSIQ survey that were providing formal out-of-hours IR services in 2013 and 2014

	Formal out-of-hours provision (% hospitals)		Hospitals responding in 2013 & 2014 (n= 82, 79, 81 & 81, respectively)	
	2013	**2014**	**% with improvement in formal out-of-hours provision**	**% with decline in formal out-of-hours provision**
Nephrostomy	62.9% (73/116)	65.6% (61/93)	17.1%	11.0%
Endovascular intervention	60.3% (70/116)	77.8% (70/90)	19.0%	3.8%
Embolisation for general haemorrhage	71.9% (82/114)	67.4% (62/92)	6.2%	14.8%
Embolisation for post-partum haemorrhage	49.1% (57/116)	59.8% (55/92)	21.0%	9.9%

1 Kessel D (2013) What is Interventional Radiology? British Society of Interventional Radiology website.
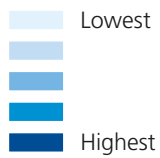   http://www.bsir.org/patients/what-is-interventional-radiology/

INTERVENTIONAL RADIOLOGY

Map 100: Percentage of NHS Trusts that had formal arrangements for 24-hour access to endovascular intervention by strategic health authority
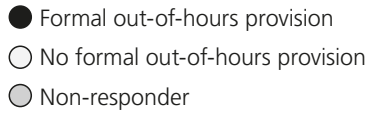
November 2013

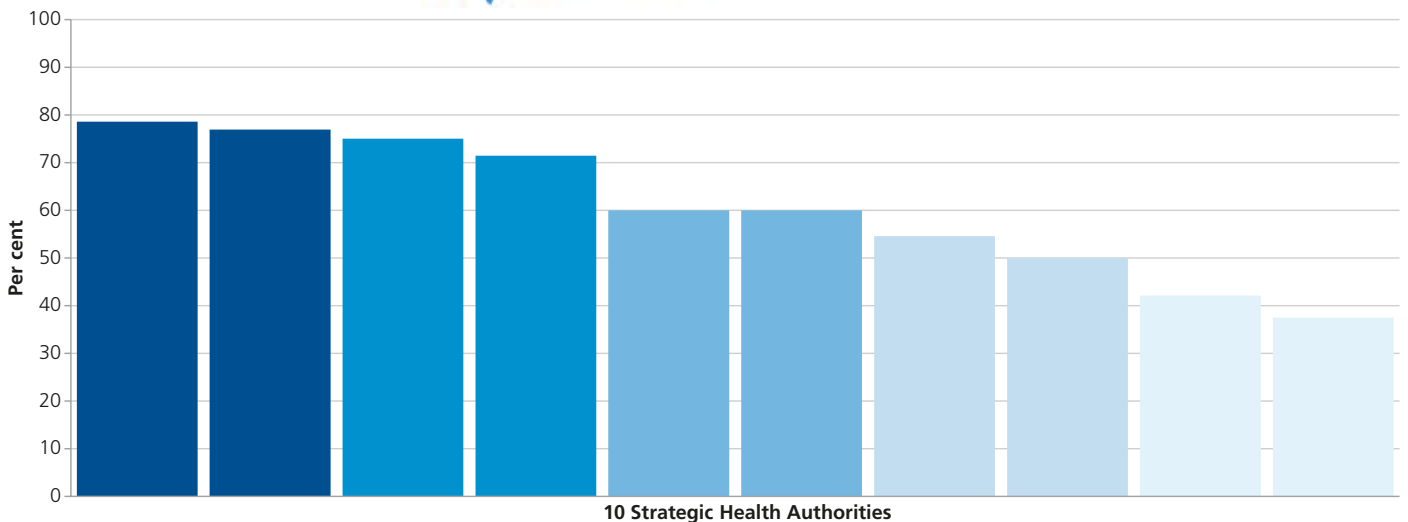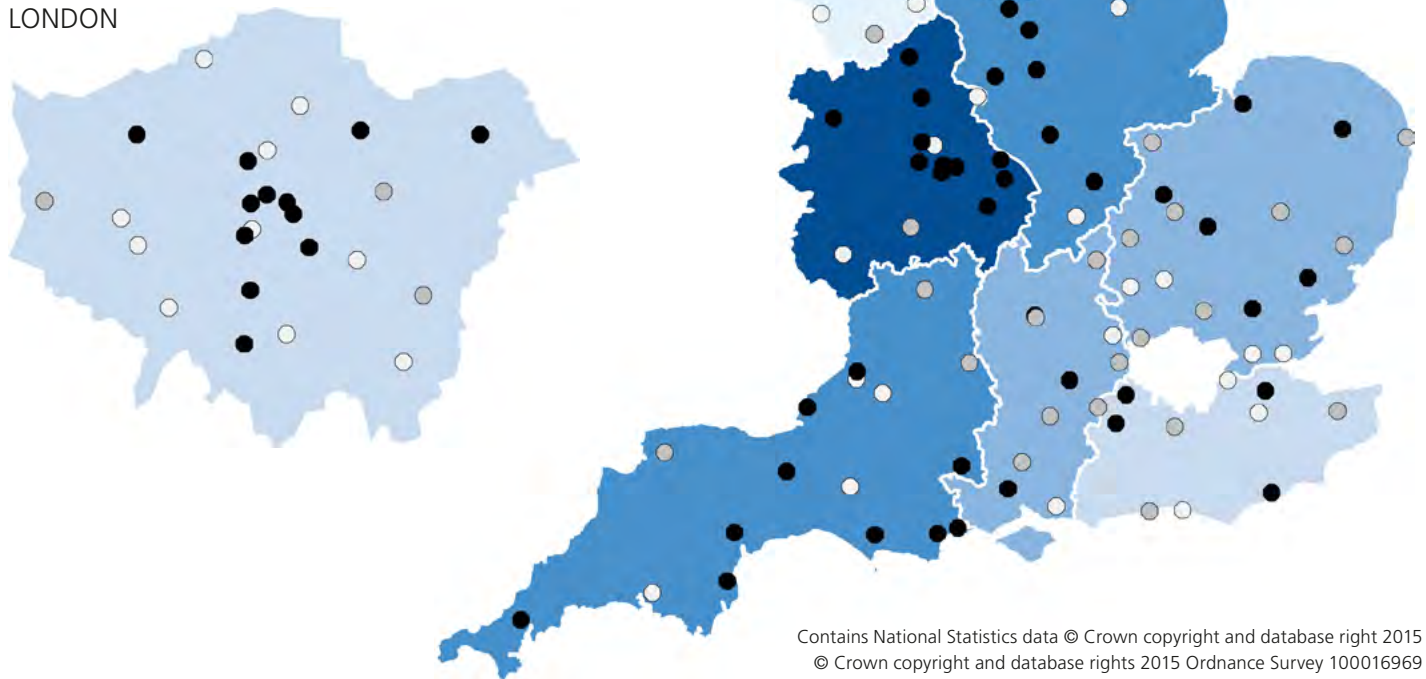**Domain 1: Preventing people from dying prematurely**

SHA variation

Lowest

Highest

IR provision at NHS Trusts

● Formal out-of-hours provision

○ No formal out-of-hours provision

◐ Non-responder

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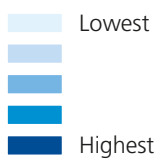
10 Strategic Health Authorities

INTERVENTIONAL RADIOLOGY

Map 101: Percentage of NHS Trusts that had formal arrangements for 24-hour access to embolisation for haemorrhage by strategic health authority
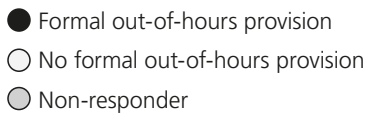
November 2013

Domain 1: Preventing people from dying prematurely
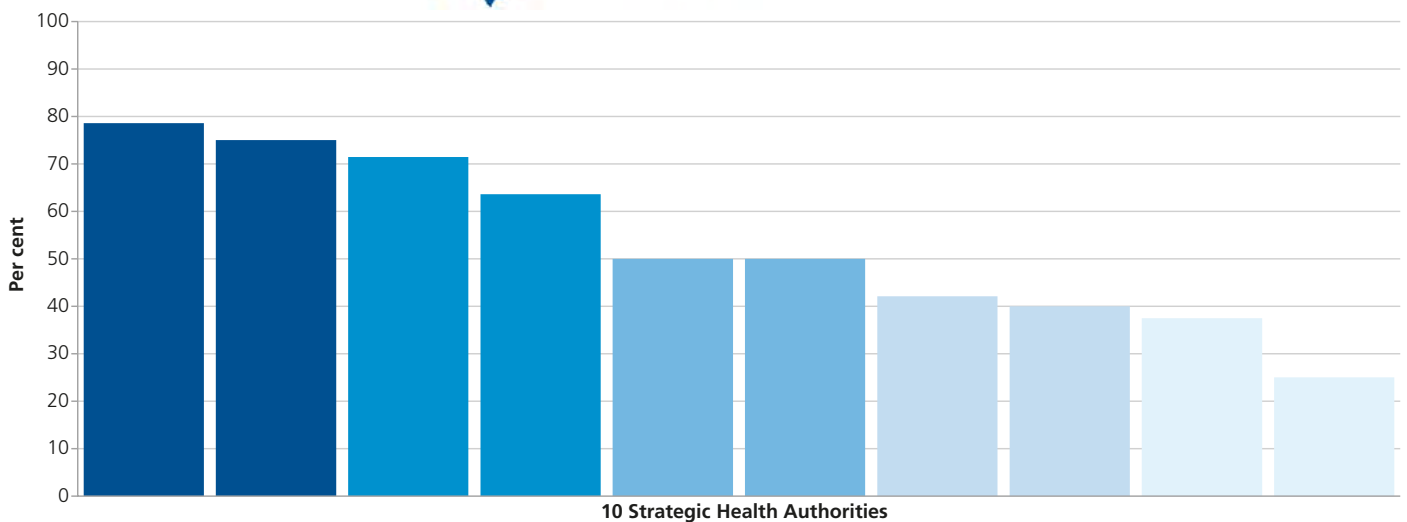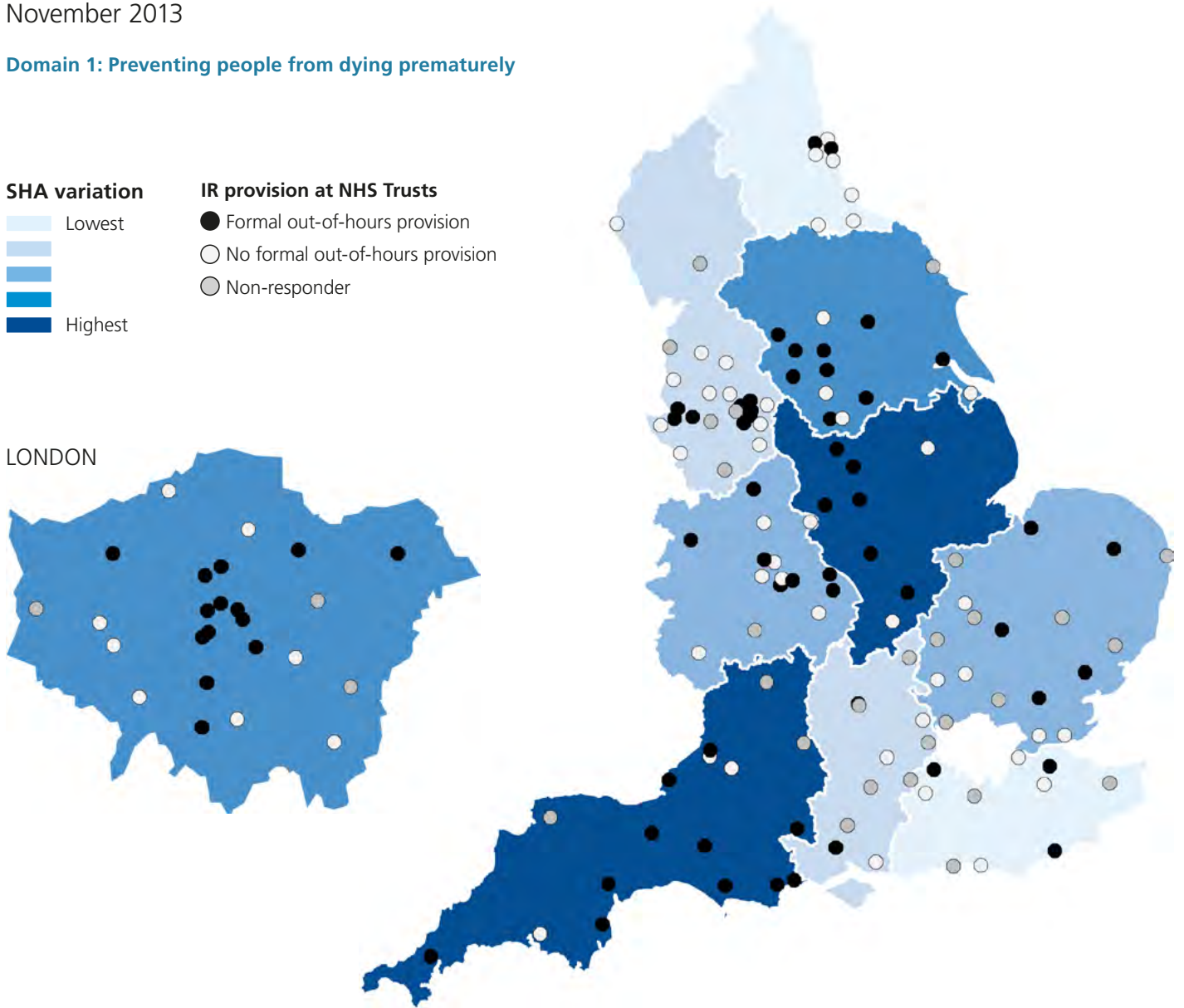
SHA variation

	Lowest
	Highest

IR provision at NHS Trusts

● Formal out-of-hours provision
○ No formal out-of-hours provision
◐ Non-responder

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10 Strategic Health Authorities

populations; moreover, the larger geography is relevant to the need to develop an optimal system for out-of-hours IR services via a network of providers across a geographical area (see Options for action).

Magnitude of variation

Map 99: Nephrostomy

For SHAs in England, the percentage of NHS Trusts that had formal arrangements for 24-hour access[2] to nephrostomy ranged from 40.0% to 78.6% (2.0-fold variation).

Map 100: Endovascular intervention

For SHAs in England, the percentage of NHS Trusts that had formal arrangements for 24-hour access[2] to endovascular intervention ranged from 37.5% to 78.6% (2.1-fold variation).

Map 101: Embolisation for haemorrhage

For SHAs in England, the percentage of NHS Trusts that had formal arrangements for 24-hour access[2] to embolisation for haemorrhage ranged from 25.0% to 78.6% (3.1-fold variation).

Map 102: Embolisation for post-partum haemorrhage

For SHAs in England, the percentage of NHS Trusts that had formal arrangements for 24-hour access[2] to embolisation for post-partum haemorrhage ranged from 25.0% to 75.0% (3.0-fold variation) .

For this series of four indicators, the reasons for the degree of variation observed are similar, the main one being differences in the availability of an appropriately skilled workforce, the components of which include differences in:

› interventional radiologist appointments;

› interventional nurse appointments;

› interventional nurse rota;

› interventional radiographer rota;

› network approach to service delivery;

› new interventional radiology facility.

The balance among these factors may be different at different NHS Trusts.

Options for action

Commissioners need to work with service providers to consider what models of IR service provision are appropriate to provide safe and effective care seven days a week for their local population. Part of this consideration is whether it is appropriate for every hospital to deliver every IR intervention seven days a week. Commissioners need to explore whether it is possible to develop networks of service providers across a geographical area in order that everyone in need in the local population has access to IR.

RESOURCES

› NHS Improving Quality. Interventional Radiology Provision in 2014. A Survey of English NHS Trusts. Carried out by NHS Improving Quality in conjunction with the British Society for Interventional Radiology. http://www.nhsiq. nhs.uk/media/2647301/nhsiq_irsurvey.pdf

› The Royal College of Radiologists in collaboration with the British Society of Interventional Radiology. Provision of Interventional Radiology Services. October 2014.[3] https://www.rcr.ac.uk/sites/default/files/publication/ BFCR%2814%2912_POIR.pdf

› Interventional Radiology (IR): Improving Quality and Outcomes for Patients. A Report from the National Imaging Board. November 2009. http://webarchive. nationalarchives.gov.uk/20130107105354/http://www. dh.gov.uk/en/Publicationsandstatistics/Publications/ PublicationsPolicyAndGuidance/DH_109130

› Interventional Radiology: guidance for service delivery. A Report from the National Imaging Board. Sponsored by the Department of Health. November 2010. https://www.gov.uk/government/uploads/system/ uploads/attachment_data/file/215929/dh_122191.pdf

› NICE. Endovascular stent-grafts for the treatment of abdominal aortic aneurysms. NICE technology appraisal guidance [TA167]. February 2009. http://www.nice.org.uk/guidance/TA167

› Joint Working Group to produce guidance on delivering an Endovascular Aneurysm Repair (EVAR) Service. Royal College of Radiologists, British Society of Interventional Radiology, The Vascular Society of Great Britain and Ireland, The Vascular Anaesthesia Society of Great Britain and Ireland, and MHRA Committee on the Safety of Devices. Delivering an Endovascular Aneurysm Repair (EVAR) Service. December 2010. http://www. vascularsociety.org.uk/wp-content/uploads/2012/11/ mhra_8pp_leaflet_amended_more_pages_web_ version.pdf
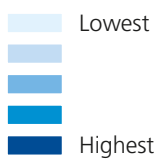
2   Formal arrangements for 24-hour access refers to sites where core service provision is provided on site or via formal network pathways to an agreed recipient trust.

3   This document will be subject to revision in November 2015.

INTERVENTIONAL RADIOLOGY

Map 102: Percentage of NHS Trusts that had formal arrangements for 24-hour access to embolisation for post-partum haemorrhage by strategic health authority
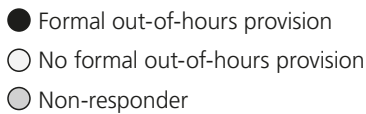
November 2013
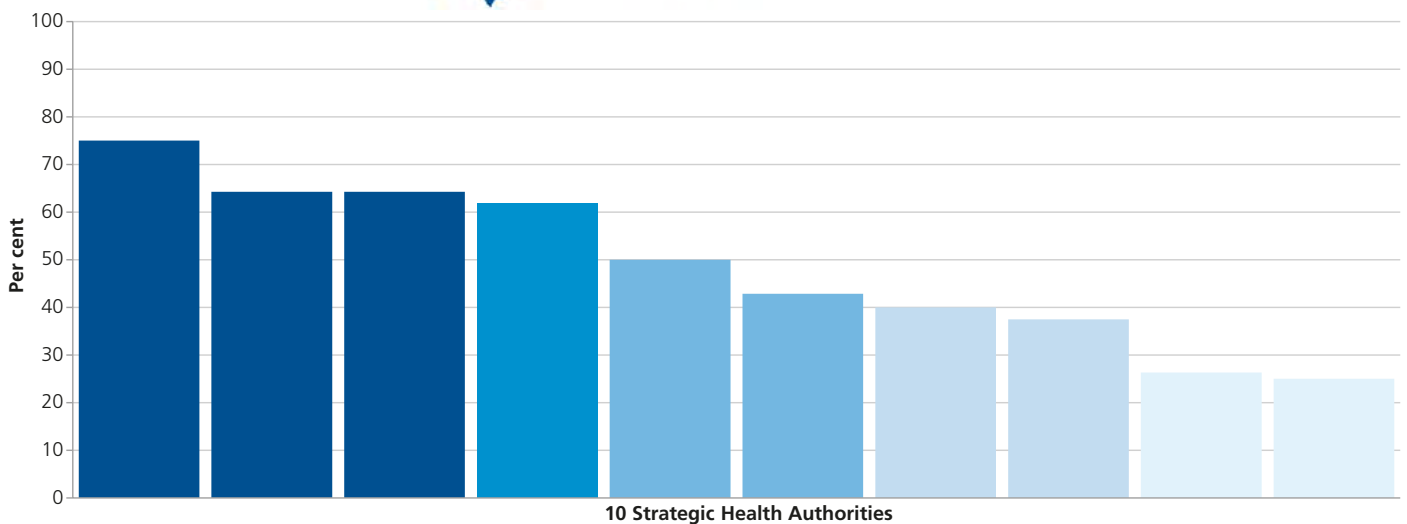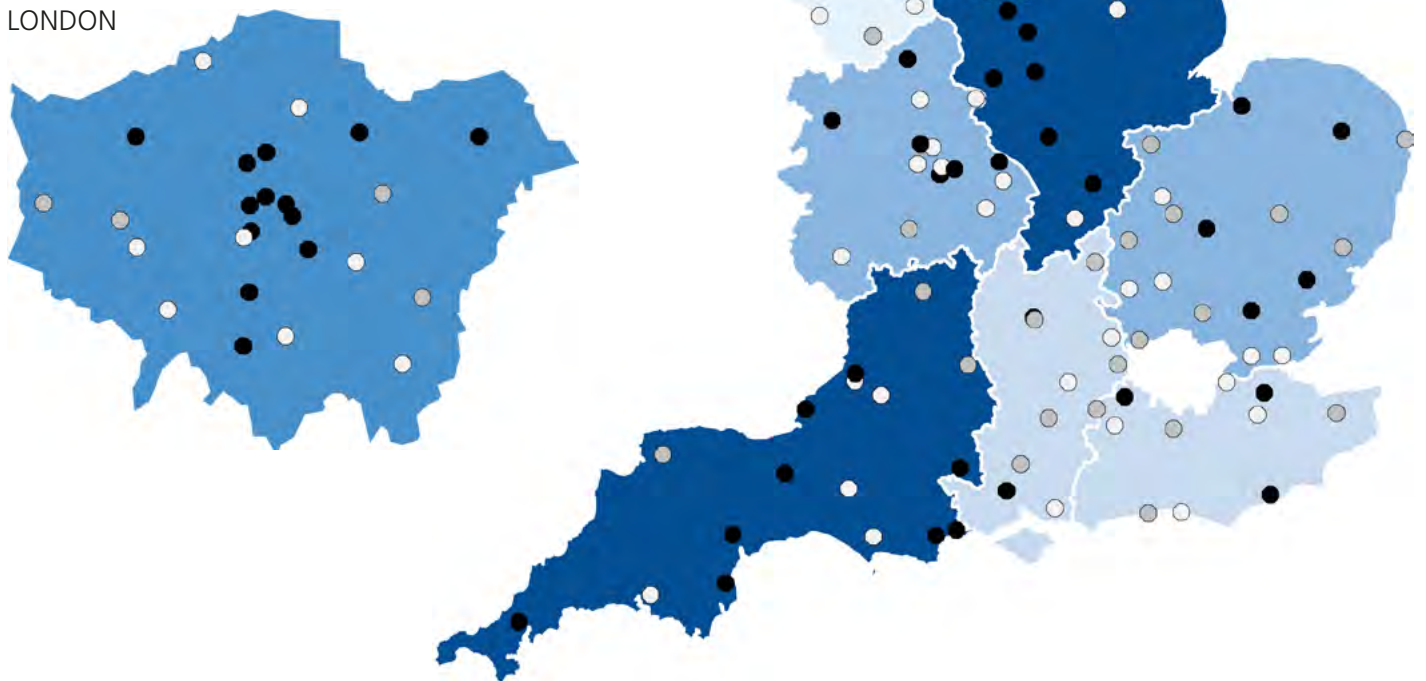
Domain 1: Preventing people from dying prematurely

SHA variation
Lowest
Highest

IR provision at NHS Trusts
● Formal out-of-hours provision
○ No formal out-of-hours provision
◐ Non-responder

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Additional visualisations

Figure 16.1: **Rate of years of life lost (directly standardised) in people aged under 75 years for major causes of death per 10,000 population in England 2008–2010 (source: HSCIC)**
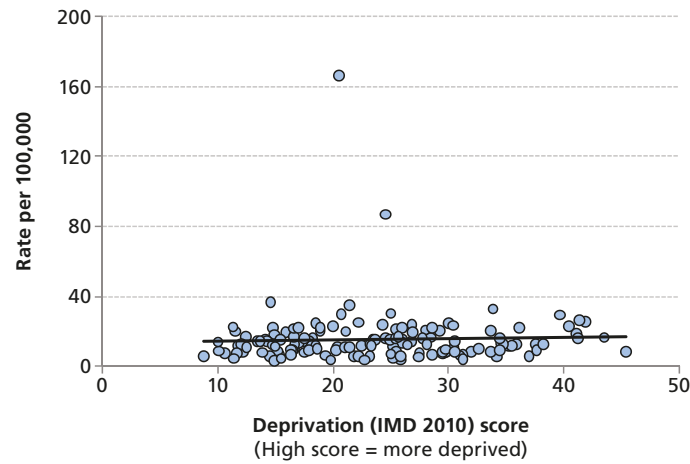
Figure 19.1: Rate of respiratory physiology sleep studies commissioned per 1000 population January 2007 to March 2013[1] [Source: Diagnostic waiting times reporting of the monthly waiting times and activity reporting (DM01)]
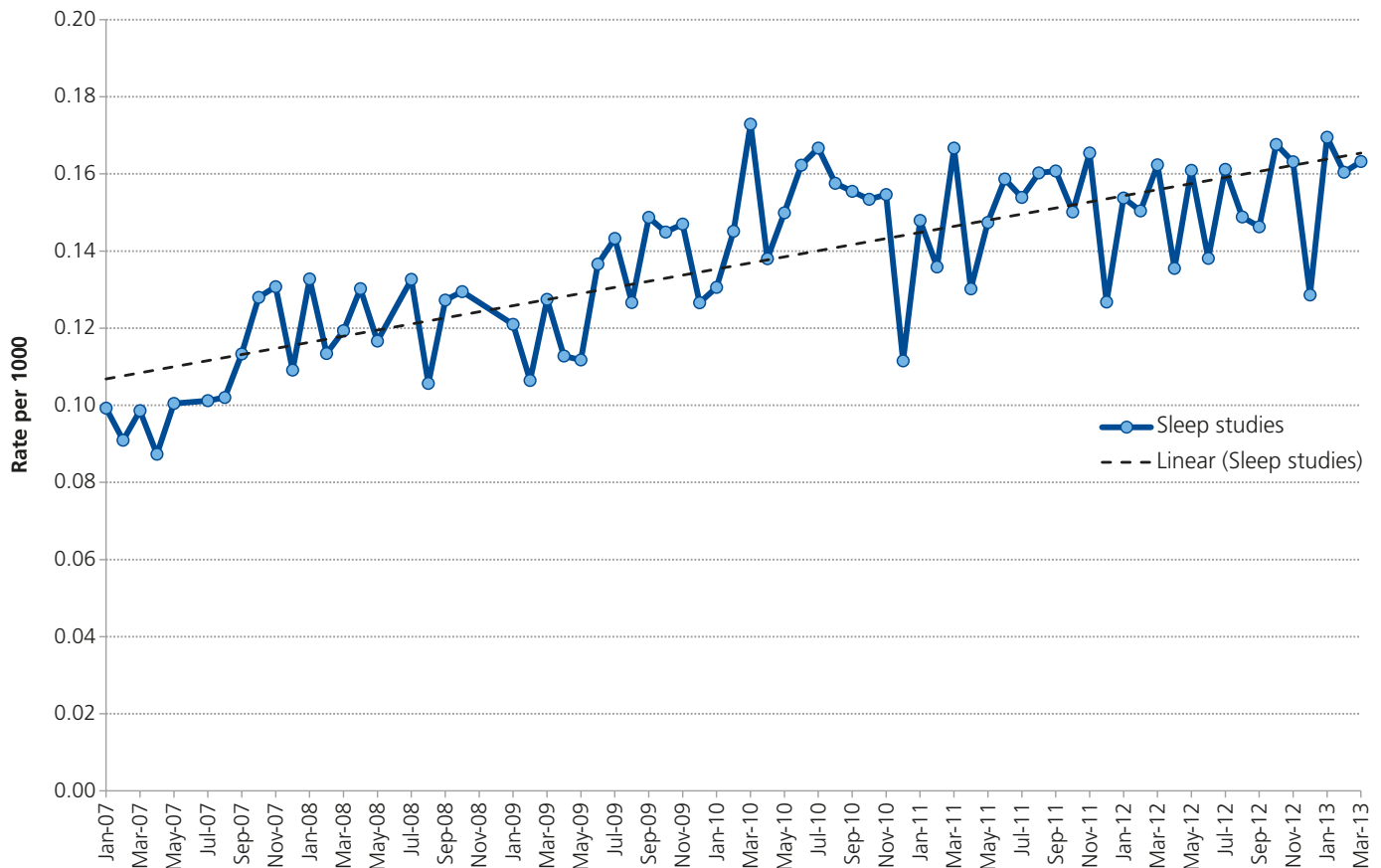
1   Data from June 2007, June 2008, November 2008 and December 2008 have been removed due to data quality.

Figure 20.1: Potential to increase survival in people with COPD who quit smoking

Figure 31.1: People with Type 1 and Type 2 diabetes in the NDA who met HbA1c, blood pressure and cholesterol targets in relation to deprivation (IMD 2010)

Case-study 1: Reducing antibiotic prescribing for self-limiting respiratory tract infections in primary care

Problem:

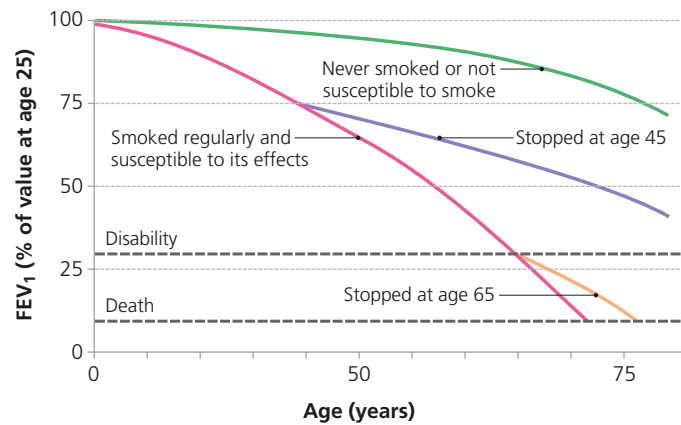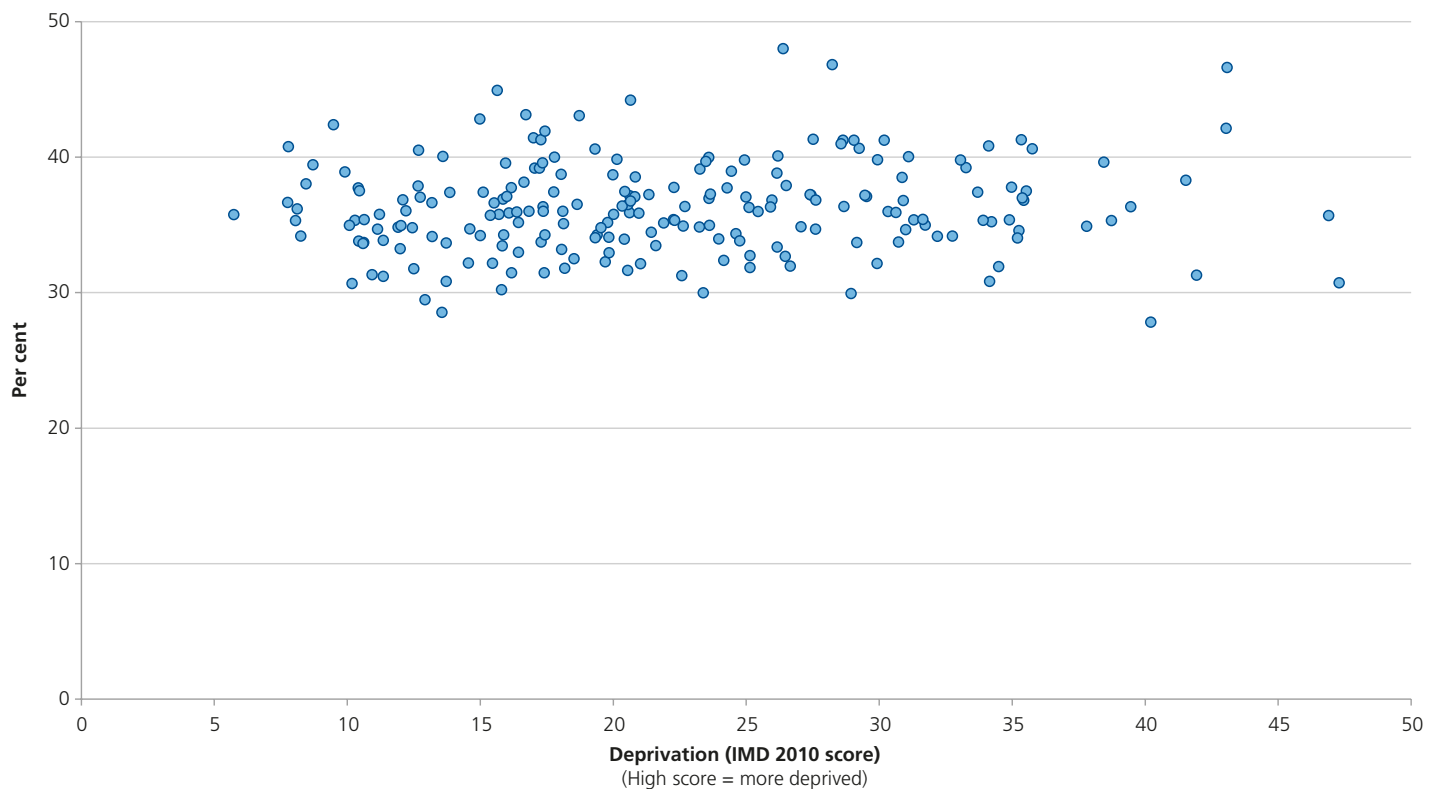At Churchill Medical Centre, Surrey, an average of 40% of patients with upper respiratory tract symptoms were prescribed antibiotics.

Response:

A multidisciplinary team of "champions" was established across the practice to develop evidence-based messages from NICE clinical guidelines (CG69[1]). Staff from the medical centre were recruited as part of the campaign, and receptionists were briefed on key messages before the campaign was launched. A patient information poster was originated highlighting common illnesses that do not require treatment with antibiotics, which was displayed in waiting and consultation rooms. A one-page evidence-based information sheet was also developed which clinicians could give to their patients. This sheet included advice on:

› the usual duration of coughs and colds;

› the inefficiency of antibiotics for the treatment of coughs and colds;

› when it was appropriate to call for help.

Outcomes:

Audit results from October 2012 to January 2013 showed a reduction in antibiotic prescribing for:

› coughs and colds from 54.5% to 37.7% of patients;

› upper respiratory tract infections from 32.6% to 19.7% of patients.

Key message:

The action taken was "low-tech", and therefore easily reproducible in many general practices.

REFERENCE:

› Smith P, McQuattie K, Hogg K. Reducing antibiotic prescribing for self-limiting respiratory tract infections in primary care: a pilot study. *SelfCare* 2014; 5(5): 110-114. http://www.selfcarejournal.com/view.article.php?id=10155

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1   NICE. Respiratory tract infections - antibiotic prescribing: Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care. NICE guidelines [CG69]. July 2008. http://www.nice.org.uk/CG069

Case-study 2: Multifaceted interventions to promote prudent prescribing of antibiotics in primary care

Problem

The problem was twofold:

› the prescribing behaviour of primary care clinicians in Derbyshire concerning the inappropriate and/or over-use of antibiotics, particularly cephalosporins and quinolones;

› the level of public awareness of the appropriate treatment for common illnesses, particularly coughs and colds.

Response

A systematic review of interventions for promoting prudent prescribing of antibiotics by general practitioners was undertaken, the results of which suggested that multifaceted interventions maximise acceptability.

Four main types of intervention were used:

› Education and support for GP practices, in particular GPs, non-medical prescribers, and out-of-hours and other clinical staff (see Box CS2.1);

› the development of evidence-based treatment guidelines (see Box CS2.2);

› antibiotic prescribing leads (champions) – four GPs help promote the key antibiotic prescribing messages, and promote and assist with education sessions;

› Other initiatives, including three-monthly review of prescribing data for GP practices with feedback and the facility to benchmark against peers, new antimicrobial guidance sent to community pharmacists to promote the provision of consistent advice to patients requesting treatment for common illnesses, specific education or training sessions targeted at dentists, district nurses, and community pharmacists, messages on urine sensitivity reports that co-amoxiclav, cephalosporins and ciprofloxacin may be associated with an increased risk of

Clostridium difficile infection, and circulation of a paper on reducing rates of *Clostridium difficile* infection in the community.

Box CS2.1: Education and support interventions for GP practices

› Education sessions on healthcare-associated infections and evidence-based antibiotic prescribing, during which prescribing rates for all GP practices were circulated, followed by group discussions

› Key resources issued to all attendees including NICE quick reference guide to prescribing for respiratory tract infections, local treatment guidelines, other evidence-based summaries, and an article on implementing change when managing infections in primary care

› GP education and support visits (based on targeted prescribing performance or at the request of the practice)

› Further assistance, e.g. antibiotic audits with feedback of results, the provision of support materials (posters, leaflets, and the provision of standard operating procedures (SOPs) for delayed prescribing in dispensing and non-dispensing practices

---

Box CS2.2: Topics covered by evidence-based treatment guidelines

› Antimicrobial treatment

› Appropriate antibiotic prescribing and learning from local *Clostridium difficile* infection cases

› Diagnosis and management of lower urinary tract infections (UTIs)

› Management of *Clostridium difficile* infection

Outcomes

Clinicians who attended the education sessions were positive in their feedback, listing actions they planned to undertake (see Box CS2.3), and outlining personal learning points (see Box CS2.4).

Box CS2.3: Examples of actions clinicians planned to undertake after education sessions

› Use delayed prescriptions

› Change prescribing for UTIs

› Be more confident about not giving antibiotics

› Use leaflets

Box CS2.4: Examples of actions clinicians planned to undertake after education sessions

› Evidence regarding the use of delayed prescriptions

› Choice of antibiotics for UTIs in pregnancy

› Urine sampling and testing

› Risk of *Clostridium difficile* infection with different antibiotics

---

Prescribing of cephalosporins and quinolones decreased over 3 years from 2009/10 to 2012/13, and in 2013 the prescribing level for cephalosporins was one-third less than the national average and that for quinolones was one-quarter less than the national average.

Key message

A local evidence-based initiative using a multifaceted approach to improve the appropriateness of antibiotic prescribing that could be readily implemented or adapted in other localities.

REFERENCE:

› Harris DJ. Initiatives to improve antibiotic prescribing in primary care. *Journal of Antimicrobial Chemotherapy* 2013; 68: 2424-2427. http://jac.oxfordjournals.org/content/early/2013/09/11/jac.dkt360.full.pdf

Case-study 3: NHS Manchester Immunisation Promotion Project (IPP) – Adopting 'active patient management' principles

Problem

In Manchester, an urban population with relatively high levels of deprivation and population transience, the local vaccination uptake was falling in relation to the national target.

Response

An Immunisation Promotion Project was set up in 2011, and adopted the 'active patient management' approach pioneered by the Heart of Birmingham Teaching PCT.

The project team found the main factors contributing to low uptake were:

› under-reporting of administered vaccines;

› inaccurate records due to children having moved out of the area;

› lack of a targeted follow-up service for children who had missed appointments.

The team decided to focus on improving organisational systems to improve uptake, in particular:

1. data cleaning, which involved reconciling data held on the local Child Health Information System (CHIS) with primary care records to provide a more accurate measure of vaccination coverage;

2. actively contacting the families of children found to be under-immunised, referred to as "tail-gunning".

Data were extracted from CHIS fortnightly. All children showing as under-immunised 3 months before their first, second or fifth birthdays were entered into a single fail-safe database containing each child's demographic details, GP, and outstanding immunisations. Immunisation histories were checked with general practices: if outstanding vaccinations were genuine, parents were contacted directly by telephone by the local Choose and Book team to facilitate appointments. Having been informed of an appointment date by parents or practices, the project team called the practice on the day after the scheduled appointment to confirm that the vaccination had been given.

Outcomes

During 2011/12, the project team identified 4384 under-immunised children. The immunisation history was resolved for 1485 of these children:

› 535 (36%) had received their vaccines but this had not been accurately recorded;

› 475 (32%) no longer lived in the area;

› 446 (30%) were brought up to date with their vaccinations after being contacted by the project team;

› for 29 children (2%), their parents refused vaccination.

Key message

Organisational systems are crucial in the maintenance of a high vaccination uptake (see Box CS3.1) – increasing coverage rates requires the systematic identification and follow-up of children who are under-immunised. It is also important to remove "ghost" patients, who cause the denominator to be inflated, thereby leading to an under-estimation of coverage.

Box CS3.1: Requisites for a successful immunisation programme

› Accurate data

› A robust, well-organised call/recall system

› A good working relationship with the local child health team

---

Resources

Resources required for the project included the salary for the project lead, the cost of data cleaning, and the cost of commissioning the "tail-gunning" service from the local; Choose and Book team. The project team did not provide any additional financial incentives to general practices to take part in the project.

REFERENCE:

› Gowland A, Perrett K. Adopting 'active patient management' principles. Vaccines in Practice 2012; 5: 2-3.

Case-study 4: Oxfordshire Childrens Diabetes Service – The Primary Schools Intervention Programme

Problem

Poorly controlled diabetes adversely affects a child's education. The child can experience concentration difficulties and alterations in mood and behaviour associated with high blood glucose levels, and acute cognitive effects associated with low blood glucose levels. If children develop Type 1 diabetes at an early age, they are dependent on an adult to check their blood glucose levels and administer insulin. It is important, therefore, that children with Type 1 diabetes receive support while at school.

Context

In the UK, 40% of children with Type 1 diabetes are of primary-school age. Historically, school teachers have regarded the care of children with diabetes as "medical" as opposed to "self-care". This view has prevented many children's diabetes services from using an intensive insulin regime for the treatment of primary-school children because it requires blood glucose testing in the middle of the day.

With the development of newer insulin analogues, better glycaemic control could be obtained with treatment regimens such as multiple-dose injections (MDI) and insulin pumps, for which insulin is required every time a child eats, together with a long-lasting insulin once a day. Such insulin regimens require:

› monitoring of blood-glucose levels 2–7 times a day;

› counting carbohydrate intake to adjust rapid-acting insulin dose or pump bolus at every meal;

› using correction doses for high glucose levels;

› treating hypoglycaemia appropriately.

Response

Parents of primary schoolchildren were asked about the problems they faced at school (see Box CS4.1) due to the anxieties about or ignorance of Type 1 diabetes by school staff.

> **Box CS4.1: Problems experienced at primary school identified by parents of children with Type 1 diabetes**
>
> › Poor management of hypoglycaemia
>
> › Children prevented from going on school trips
>
> › Parents felt pressurised to give up work in order to attend school every day to administer insulin

In 2004, Oxfordshire Childrens Diabetes Service started all toddlers on MDI regimes, and from 2006 all children on MDI regimes. To ensure this programme of treatment was effective, it was necessary to negotiate with the Local Education Authority (LEA) and PCT to establish a diabetes management programme in primary schools (see Box CS4.2). This was a lengthy process (~2–3 years), which involved:

› addressing various barriers from concerns about legal indemnity on behalf of the LEA to the nervousness of school staff in administering injections, especially if they were ignorant of the condition originally;

› negotiating funding;

› developing protocols;

› defining the responsibilities of all parties very clearly.

A paediatric diabetes specialist nurse (PDSN) was employed to work directly with schools.

Box CS4.2: Oxfordshire Primary Schools Intervention Programme

1. A primary-school aged child is diagnosed with Type 1 diabetes

2. Schools diabetes specialist nurse discusses with parents what support they feel they need from the child's school

3. A care plan is drawn up with the parents

4. The school Head Teacher is sent an introductory document, and a meeting with the school DSN is arranged

5. The introductory document describes the condition of diabetes, and explains the need for testing and the administration of insulin during the school day; it also defines the responsibilities the school, the parents and the diabetes team

6. Volunteers are trained by the DSN, and the parent agrees to go to the school to supervise until both the parent and volunteer are happy that the volunteer is competent (this process could take days or weeks)

7. The school DSN certifies volunteer competency

8. The hand-held Communication Record Book is used: parents provide carbohydrate content of meals, insulin doses for meals, correction doses for high blood sugar; volunteers follow advice, and sign for insulin doses given

9. All equipment is provided and updated by parents

10. There is annual evaluation of the Schools Intervention Programme including feedback, monitoring of risk events, and review of protocols through the Diabetes multidisciplinary clinical governance meetings

From 2010 to 2012, the PDSNs trained volunteers, identified by the schools, for three hours in:

› the basic management of diabetes;

› the specifics of the care plan for an individual child, all of which were drawn up in partnership with each child's parents.

Volunteers were also taught how to use a hand-held Communication Record Book, designed by one of the PDSNs.

To allow for illness and annual leave, the aim was to train a minimum of three volunteers per child with Type 1 diabetes.

Outcomes

In total, 342 volunteers were trained to care for 132 children, a ratio of 2.6 volunteers to one child.

Over the period of the project, glycaemic control has improved in the 4–11 years age-group (ANOVA $p<0.001$; see Table CS4.1).

Table CS4.1: Improvement in glycaemic control during the Oxfordshire Primary Schools Intervention Project

Time-period	HbA1c level
2001–2004	8.38 (1.09)%
2005–2008	7.74 (0.81)%
2009–2012	7.58 (0.69)%

There has been increasing use of insulin pumps.

Informal feedback from parents is that the system is working well. There have been a small number of problems:

› there have been three needlestick injuries (school staff tried to re-sheath pen needles against instructions in training protocols);

› on a few occasions, the wrong dose of insulin has been administered.

Only one school refused to carry out the agreed care.

Key Message

Specialist diabetes services can take the initiative in changing the culture, skill sets and competencies in schools in order to support children with diabetes in achieving the goal of improved glycaemic control.

REFERENCE:

› Pal R, Edge J. Oxfordshire Childrens Diabetes – The Primary Schools Intervention Programme. BMJ Quality Improvement Report 2013; 2: doi: 10.1136/bmjquality.u201068.w692 http://qir.bmj.com/content/2/1/u201068.w692.full

Glossary of Essential Terms

Introduction

Much of the disagreement that occurs during the commissioning or management of services arises because different people use the same term but have a different understanding of its meaning. This Glossary is provided to help develop a shared or common language. If there is a clear, short or memorable definition from the literature, this has been cited and presented in italics; where definitions in the literature do not meet any of these criteria, one has been composed.

Access to healthcare

Facilitating access is concerned with helping people to command appropriate health care resources in order to preserve or improve their health. There are at least four aspects.
1. *If services are available, in terms of adequate supply of services, then a population may 'have access' to health care.*
2. *The extent to which a population 'gains access' to health care also depends on financial, organisational and social or cultural barriers that limit utilisation. Thus utilisation is dependent on the affordability, physical accessibility and acceptability of services and not merely the adequacy of supply.*
3. *The services available must be relevant and effective if the population is to 'gain access to satisfactory health outcomes'.*
4. *The availability of services, and barriers to utilisation, have to be evaluated in the context of differing perspectives, health needs and the material and cultural settings of diverse groups in society.*

Source: Gulliford M et al (2001) *Access to Health Care. Report of a Scoping Exercise for the National Co-ordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO).* http://www.kcl-phs.org.uk/martin/reprints/accessscopingexercise_report.pdf

Appropriate

A procedure is termed appropriate if its benefits sufficiently outweigh its risks to make it worth performing …

Source: Kahan JP et al (1994) Measuring the necessity of medical procedures. *Medical Care* 32: 352-365.

Audit

While inspection has traditionally focused on organizational systems and processes, rather than the assessment of internal control systems, audit has usually been the mechanism for examining internal controls (…). However, audit is more associated with stewardship of resources, whereas inspection traditionally is primarily concerned with 'professional and service standards' (…).

Source: Scrivens E (2005) Quality, Risk and Control in Health Care. Open University Press (page 128).

Average, *see* **Mean**

British National Formulary (BNF)

The British National Formulary is a joint publication of the British Medical Association and the Royal Pharmaceutical Society. It provides prescribers, pharmacists and other healthcare professionals with up-to-date information about the use of medicines.

Burden of disease

The burden of disease is a measurement of the gap between a population's current health and the optimal state where all people attain full life expectancy without suffering major ill-health.

Source: World Health Organization. Health Promotion Glossary Update. [Modified definition (WHO, 2000).] http://www.who.int/healthpromotion/about/HPR%20Glossary_New%20Terms.pdf

Care pathway

… the expected course of events in the care of a patient with a particular condition, within a set timescale.

Source: Kitchiner D, Davidson D, Bundred P (1996) Integrated Care Pathways: effective tools for continuous evaluation of clinical practice. *J Eval Clin Pract* 2; 65-69.

Clinical guidelines

… systematically developed statements to assist practitioner and patient decisions about appropriate healthcare for specific circumstances.

Source: Timmermans S, Berg M (2003) *The Gold Standard. The challenge of evidence-based medicine and standardization in health care.* Temple University Press, Philadelphia.

Commissioner

… to be the advocate for patients and communities, securing a range of appropriate high-quality health care services for people in need [and] to be the custodian of tax-payers' money; this brings a requirement to secure best value in the use of resources.

Source: House of Commons Health Committee (2010) Commissioning. Fourth Report of Session 2009-10. Volume 1. http://www.publications.parliament.uk/pa/cm200910/cmselect/cmhealth/268/268i.pdf

Commissioning

Commissioning in the NHS is the process of ensuring that the health and care services provided effectively meet the needs of the population. It is a complex process with responsibilities ranging from assessing population needs, prioritising health outcomes, procuring products and services, and managing service providers.

Source: Department of Health (2010) Commissioning [Archived content]. http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/managingyourorganisation/commissioning/index.htm

Confidence intervals

Confidence intervals give the range within which the true size of a treatment effect (which is never precisely known) lies, with a given degree of certainty (usually 95% or 99%).

Source: Evans I, Thornton H, Chalmers I (2006) *Testing Treatments. Better Research for Better Healthcare.* The British Library.

Costs

Cost is not solely financial. Cost may be measured as the time used, the carbon produced, or the benefit that would be obtained if the resources were used for another group of patients (i.e. the opportunity cost).

Culture

Culture is the shared tacit assumptions of a group that it has learned in coping with external tasks and dealing with internal relationships.

Source: Schein EH (1999) *The Corporate Culture Survival Guide.* John Wiley & Sons (page 186).

Deprivation

Deprivation is a concept that overlaps, but is not synonymous with poverty. Absolute poverty can be defined as the absence of the minimum resources for physical survival, w*hereas relative poverty relates to the standards of living in a particular society at a specific time. The different concepts of deprivation include the following:*

› *Material deprivation, which reflects the access people have to material goods and resources. Access to these goods and resources enables people "to play the roles, participate in relationships and follow the customary behaviour which is expected of them by virtue of their membership in society" (as described by Townsend).*

› *Social deprivation has been separately distinguished as relating to people's roles and relationships, membership and social contacts in society.*

› *Multiple deprivation relates to the occurrence of several forms of deprivation concurrently, such as low income, poor housing, and unemployment. This can be particularly stressful for* families.

Source: http://www.show.scot.nhs.uk/publications/isd/deprivation_and_health/background.HTM

Diagnostic overshadowing
(in the context of learning disabilities)

… symptoms of physical ill health are mistakenly attributed to either a mental health/behavioural problem or as being inherent in the person's learning disabilities.

Source: Emerson E, Baines S. Health Inequalities & People with Learning Disabilities in the UK: 2010. Improving Health and Lives: Learning Disabilities Observatory. https://www.improvinghealthandlives.org.uk/uploads/doc/vid_7479_IHaL2010-3HealthInequality2010.pdf

Effective care

The extent to which an intervention, procedure regimen, or service produces a beneficial outcome under ideal circumstances (e.g., in a randomized controlled trial).

Source: Canadian Agency for Drugs and Technologies in Health (2009) *Optimal Therapy Report: Cost effectiveness of blood glucose test strips in the management of adult patients with diabetes mellitus.* Volume 3, Issue 3.

Efficiency

See also Productivity

… efficiency can be defined as maximising well-being at the least cost to society.

Source: Mitton C, Donaldson C (2004) *Priority setting toolkit. A guide to the use of economics in healthcare decision making.* BMJ Publishing Group.

Equity

Equity is a subjective judgment of fairness.

Evidence

Evidence is generally considered to be information from clinical experience that has met some established test of validity, and the appropriate standard is determined according to the requirements of the intervention and clinical circumstance. Processes that involve the development and use of evidence should be accessible and transparent to all stakeholders.

Source: Olsen LA, Goolsby WA, McGinnis JM; Roundtable on Evidence-Based Medicine (2009) *Leadership Commitments to Improve Value in Health Care: Finding Common Ground: Workshop Summary.* National Academies Press. Free to download at: http://www.nap.edu/catalog.php?record_id=11982

Frailty

… a wide range of age-related changes affecting cell metabolism, organ function, mental health, homeostasis and integration. When individuals lose critical amounts of reserve at any or all of these levels, then they become particularly vulnerable to adverse health states such as functional dependency, hospital admission or even death. The tipping point may be a new event, even a mild acute illness or a fall. This state of vulnerability is called frailty.

Source: Martin F. Comprehensive Assessment of the Frail Older Patient. January 2010. British Geriatrics Society. http://www.bgs.org.uk/index.php/topresources/publicationfind/goodpractice/195-gpgcgassessment

Health

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Source: Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19 June-22 July 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. The definition has not been amended since 1948. http://www.who.int/suggestions/faq/en/index.html

Health needs

… objectively determined deficiencies in health that require health care, from promotion to palliation.

Source: World Health Organization (WHO). Health Systems Strengthening Glossary. http://www.who.int/healthsystems/hss_glossary/en/index.html

Healthy life-expectancy

See also Life-expectancy and Life-expectancy at birth

Average number of years that a person can expect to live in "full health" by taking into account years lived in less than full health due to disease and/or injury.

Source: World Health Organization (WHO) Health statistics and health information systems. Health Status Statistics: Mortality. http://www.who.int/healthinfo/statistics/indhale/en/

Index of Multiple Deprivation (IMD)

See also Deprivation

The English Indices of Multiple Deprivation identify the most deprived areas across the country. They combine a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score for each small area in England. The Indices are used widely to analyse patterns of deprivation, identify areas that would benefit from special initiatives or programmes and as a tool to determine eligibility for specific funding streams.

Source: Office of National Statistics. Index of Multiple Deprivation. What is the Index of Multiple Deprivation? http://www.ic.nhs.uk/services/population-geography-information/geographical-information/index-of-multiple-deprivation

Inequalities in health

Inequalities in health are objectively measured differences in health status, healthcare access and health outcomes.

Input, Output and Outcome

Input is a term used by economists to define the resources used, such as the number of hospital beds, to produce the output, such as the number of patients admitted per bed per year.

The economists' terminology is different from the language utilised in quality assurance, in which the terms structure, process and outcome are used. Input equates to structure and process, i.e. the number of beds and the number of admissions per bed, respectively. However, the outcome is distinct from the output. Outcome includes some measure of the effect the process has had on the patients, for example, the number of patients who were discharged to their own home.

Integrated care

Clinical integration, where care by professionals and providers to patients is integrated into a single or coherent process within and/or across professions such as through use of shared guidelines and protocols.

Source: Kodner DL, Spreeuwenberg C (2002) Integrated care: meaning, logic, applications and implications – a discussion paper. *International Journal of Integrated Care* 2: 1-6.

Intermediate care

… a range of integrated services to promote faster recovery from illness, prevent unnecessary acute hospital admission and premature admission to long-term residential care, support timely discharge from hospital and maximise independent living

Source: Department of Health. Intermediate Care – Halfway Home. Updated Guidance for the NHS and Local Authorities. July 2009. http://webarchive.nationalarchives.gov. uk/20130107105354/http:/www.dh.gov.uk/prod_ consum_dh/groups/dh_digitalassets/@dh/@en/@pg/ documents/digitalasset/dh_103154.pdf

International Classification of Diseases (ICD)

The International Classification of Diseases is the standard diagnostic tool for epidemiology, health management and clinical purposes. This includes the analysis of the general health situation of population groups. It is used to monitor the incidence and prevalence of diseases and other health problems.

It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records. In addition to enabling the storage and retrieval of diagnostic information for clinical, epidemiological and quality purposes, these records also provide the basis for the compilation of national mortality and

morbidity statistics by WHO Member States. It is used for reimbursement and resource allocation decision-making by countries.

ICD-10 was endorsed by the Forty-third World Health Assembly in May 1990 and came into use in WHO Member States as from 1994. The 11th revision of the classification has already started and will continue until 2015.

Source: World Health Organization. International Classification of Diseases (ICD). http://www.who.int/classifications/icd/ en/

Life-expectancy

*See also **Healthy life-expectancy** and **Life-expectancy at birth***

Life-expectancy at a specific age is the average number of additional years a person of that age could expect to live if current mortality levels observed for ages above that age were to continue for the rest of that person's life.

Source: Population Division, DESA, United Nations. World Population Ageing 1950-2050, Annex 1. http://www.un.org/esa/population/publications/ worldageing19502050/pdf/95annexi.pdf

Life-expectancy at birth

*See also **Healthy life-expectancy** and **Life-expectancy***

… , life-expectancy at birth is the average number of years a newborn would live if current age-specific mortality rates were to continue.

Source: Population Division, DESA, United Nations. World Population Ageing 1950-2050, Annex 1. http://www.un.org/esa/population/publications/ worldageing19502050/pdf/95annexi.pdf

Mean (average)

The mean is the sum of values, e.g. size of populations, divided by the number of values, e.g. number of populations in the sample.

Medical care epidemiology

… studies the use of health care services among populations living within the geographic boundaries of "natural" health care [populations].

Source: Wennberg JE (2010) *Tracking Medicine. A Researcher's Quest to Understand Health Care*. Oxford University Press.

Medical signature

See also **Surgical signature**

The patterns of variation in the discharge rates for medical conditions have their own recognizable "medical signatures". The medical signature, however, is strikingly unlike the surgical signature. The typical surgical signature reflects the idiosyncratic way in which surgery varies – high rates of one procedure and low rates of another. Moreover, the overall likelihood of having surgery (the total surgical discharge rate) does not correlate closely with the likelihood of having any specific procedure.

By contrast, the risk of hospitalization for a specific high variation medical condition tends to be closely associated with the total discharge rate for all medical conditions in the hospital referral region. Indeed, the practice profiles captured by the medical signature suggest that the rules governing decisions about whether to hospitalize patients (rather than treat them elsewhere) are subject to a kind of "thermostat" of supply, set for the hospital referral region that establishes the level of risk of hospitalization for high variation medical conditions. The level at which the thermostat is set is independent of morbidity levels in the community or the specific condition for which the patient is being treated.

Source: Dartmouth Medical School, Center for the Evaluative Clinical Sciences (1998) *The Dartmouth Atlas of Health Care 1998.* AHA Publishing Inc.

Network

If a system is a set of activities with a common set of objectives, the network is the set of organisations and individuals that deliver the systems.

Outcome, *see* **Input**

Output, *see* **Input**

Over-diagnosis

A condition is diagnosed that would otherwise not go on to cause symptoms or death.

Source: Elmore JG, Fletcher SW (2012) Overdiagnosis in Breast Cancer Screening: Time to Tackle Underappreciated Harm. *Annals of Internal Medicine* 156; 536.

Over-use

See also **Under-use**

Overuse describes a process of care in circumstances where the potential for harm exceeds the potential for benefit. Prescribing an antibiotic for a viral infection like a cold, for which antibiotics are ineffective,

constitutes overuse. The potential for harm includes adverse reactions to the antibiotics and increases in antibiotic resistance among bacteria in the community. Overuse can also apply to diagnostic tests and surgical procedures.

Source: RWJ Foundation, USA.

Patient decision aid

Patient decision aids are … intended to supplement rather than replace patient-practitioner interaction. They may be leaflets, interactive media, or video or audio types. Patients may use them to prepare for talking with a clinician, or a clinician may provide them at the time of the visit to facilitate decision making. At a minimum, patient decision aids provide information about the options and their associated relevant outcomes.

Source: Elwyn G (2006) Developing a quality criteria framework for patient decision aids; online international Delphi Consensus process. *British Medical Journal*, 333: 417–427.

Population healthcare

The aim of population healthcare is to maximise value and equity by focusing not on institutions, specialties or technologies, but on populations defined by a common symptom, condition or characteristic, such as breathlessness, arthritis, or multiple morbidity.

Population medicine

Population medicine is a style of clinical practice in which the clinician is focused not only on the individual patients referred but also on the whole population in need.

Preference-sensitive treatment decisions

Preference sensitive treatment decisions involve making value trade-offs between benefits and harms that should depend on informed patient choice.

Source: O'Connor AM et al (2007) Toward the 'Tipping Point': Decision aids and informed patient choice. *Health Affairs* 26: 716-725.

Preference-sensitive care

…, "elective", or "preference-sensitive" care, interventions for which there is more than one option and where the outcomes will differ according to the option used because patients delegate decision making to doctors, physician opinion rather than patient preference often determines which treatment patients receive. I argue that this can result in a serious but commonly overlooked medical error: operating on

the wrong patients – on those who, were they fully informed, would not have wanted the operation they received.

Source: Wennberg JE (2010) *Tracking Medicine. A Researcher's Quest to Understand Health Care*. Oxford University Press.

Productivity

*See also **Efficiency***

Productivity is the relationship between inputs and outputs, such as the number of operations per theatre per year; efficiency is the relationship between outcomes and inputs, such as the number of successful operations per theatre per year.

Protocol

An agreed framework outlining the care that will be provided to patients in a designated area of practice. They do not describe how a procedure is performed, but why, where, when and by whom the care is given.

Source: Working in Partnership Programme, NHS (2006) Using protocols, standards, policies and guidelines to enhance confidence and career development. http://www.rcn.org.uk/__data/assets/pdf_file/0004/176368/Tool5.8-UsingProtocols.pdf

Public health

The science and art of promoting and protecting health and well-being, preventing ill-health and prolonging life through the organised efforts of society.

Source: The Faculty of Public Health. What is public health. http://www.fph.org.uk/what_is_public_health

Quality

Quality is the degree to which a service meets pre-set standards of goodness.

Source: Donabedian A, personal communication.

Quality of life[1]

… individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.

Source: World Health Organization (WHO) Programme on Mental Health. WHOQOL: Measuring Quality of Life. The World Health Organization Quality of Life Instruments (The WHOQOL-100 and the WHOQOL-BREF). http://www.who.int/mental_health/media/68.pdf

Range

The range is the difference between the highest and lowest value in the sample. The range provides a crude measure of the spread of the data.

Re-ablement

… services for people with poor physical or mental health to help them accommodate their illness by learning or re-learning the skills necessary for daily living.

Source: Department of Health. Homecare Re-ablement. Efficiency Delivery: supporting sustainable transformation. Retrospective Longitudinal Study November 2007. http://webarchive.nationalarchives.gov.uk/20120907090129/http:/www.csed.dh.gov.uk/_library/Resources/CSED/CSEDProduct/Longit_Study_Final_Version__NEW_FORMAT_.pdf

Rehabilitation

Rehabilitation in the community supports people with identified deterioration in their ability to manage at home as a result of a change in their health. Community rehabilitation services aim to reduce avoidable hospital admissions, minimise significant risk, facilitate early hospital discharge and enable people to remain independent in their own home.

Safety

Patient safety can, at its simplest, be defined as: The avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the process of healthcare. … the reduction of harm should be the primary aim of patient safety, not the elimination of error.

Source: Vincent C (2006) *Patient Safety*. Churchill Livingstone.

Self-management

… self-management is especially important for those with chronic disease, where only the patient can be responsible for his or her day-to-day care over the length of the illness. For most of these people self-management is a lifetime task.

Source: Lorig KR, Holman HR (2003) Self-Management Education: History, Definition, Outcomes, and Mechanisms. *Annals of Behavioural Medicine* 26; 1-7. doi 10.1207/S153124796ABM2601_01

Shared decision-making

In a shared decision, a health care provider communicates to the patient personalized information about the options, outcomes, probabilities, and scientific uncertainties of available treatment options, and the patient communicates his or her values and the relative importance he or she places on benefits and harms.

Source: Wennberg JE (2010) *Tracking Medicine. A Researcher's Quest to Understand Health Care*. Oxford University Press.

Standard deviation

*See also **Variance***

The standard deviation is a measure of spread, and is the square root of the variance.

Standards

A minimum level of acceptable performance or results or excellent levels of performance or the range of acceptable performance or results.

Source: Kohn LT, Corrigan JM, Donaldson MS (eds) Committee on Quality of Health Care in America, Institute of Medicine (2000) *To Err is Human. Building a Safer Health System.* National Academy Press, Washington.

Structure

Structure comprises the inter-relation of healthcare facilities through which health services are provided. Healthcare is a localised activity, provided by the organisations that form the general healthcare structure, including hospitals, GP practices, clinics, ambulatory care, rehabilitation centres, home care and long-term-nursing care.

Supply-sensitive care

It differs in fundamental ways from both effective care and preference-sensitive care. Supply-sensitive care is not about a specific treatment per se; rather, it is about the frequency with which everyday medical care is used in treating patients with acute and chronic illnesses. Remedying variation in supply-sensitive care requires coming to terms with the "more care is better" assumption. Are physician services and hospitals in high-cost, high-use regions overused?

Source: Wennberg JE (2010) *Tracking Medicine. A Researcher's Quest to Understand Health Care*. Oxford University Press.

Surgical signature

*See also **Medical signature***
Surgical signatures reflect the practice patterns of individual physicians and local medical culture, rather than differences in need – or even differences in the local supply of surgeons.

Source: Dartmouth Medical School, Center for the Evaluative Clinical Sciences (1998) *The Dartmouth Atlas of Health Care 1998*. AHA Publishing Inc.

System

A system is a set of activities with a common set of objectives for which an annual report is produced.

Under-use

*See also **Over-use***

Underuse refers to the failure to provide a health care service when it would have produced a favourable outcome for a patient. Standard examples include failure to provide appropriate preventive services to eligible patients (e.g. Pap smears, flu shots for elderly patients, screening for hypertension) and proven medications for chronic illnesses (steroid inhalers for asthmatics; aspirin, beat-blockers and lipid-lowering agents for patients who have suffered a recent myocardial infarction).

Source: RWJ Foundation, USA.

Unwarranted variation

Variation in the utilization of health care services that cannot be explained by variation in patient illness or patient preferences.

Source: Wennberg JE (2010) *Tracking Medicine. A Researcher's Quest to Understand Health Care*. Oxford University Press.

Value

… value is expressed as what we gain relative to what we give up – the benefit relative to the cost.

Source: Institute of Medicine of the National Academies (2008) *Learning Healthcare System Concepts v. 2008. The Roundtable on Evidence-Based Medicine, Institute of Medicine*. Annual Report.

Value for money

Value for money is achieved "by focusing on the productivity of staff and on prevention rather than cure, as well as by carefully allocating resources to people in greatest need and by adopting the most effective approaches."

Source: The Cabinet Office (2008) *Excellence and fairness: achieving world class public services* (page 12).
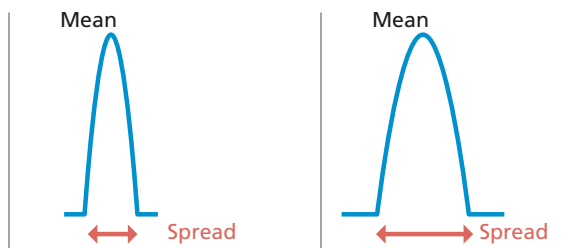
Variation

Everything we observe or measure varies. Some variation in healthcare is desirable, even essential, since each patient is different and should be cared for uniquely. New and better treatments, and improvements in care processes result in beneficial variation.

Source: Neuhauser D, Provost L, Bergman B (2011) The meaning of variation to healthcare managers, clinical and health-services researchers, and individual patients. *BMJ Qual Saf* 20 (Suppl 1); i36-i40. doi: 10.1136/bmjqs.2010.046334

Variance

See also **Range**
The variance is another measure of spread, which describes how far the values in the sample lie away from the mean value. It is the average of the squared differences from the mean and is a better measure of spread than the range.

This figure illustrates how two populations may have the same mean value, but different degrees of variation or spread: the second population shows greater variation than the first.

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