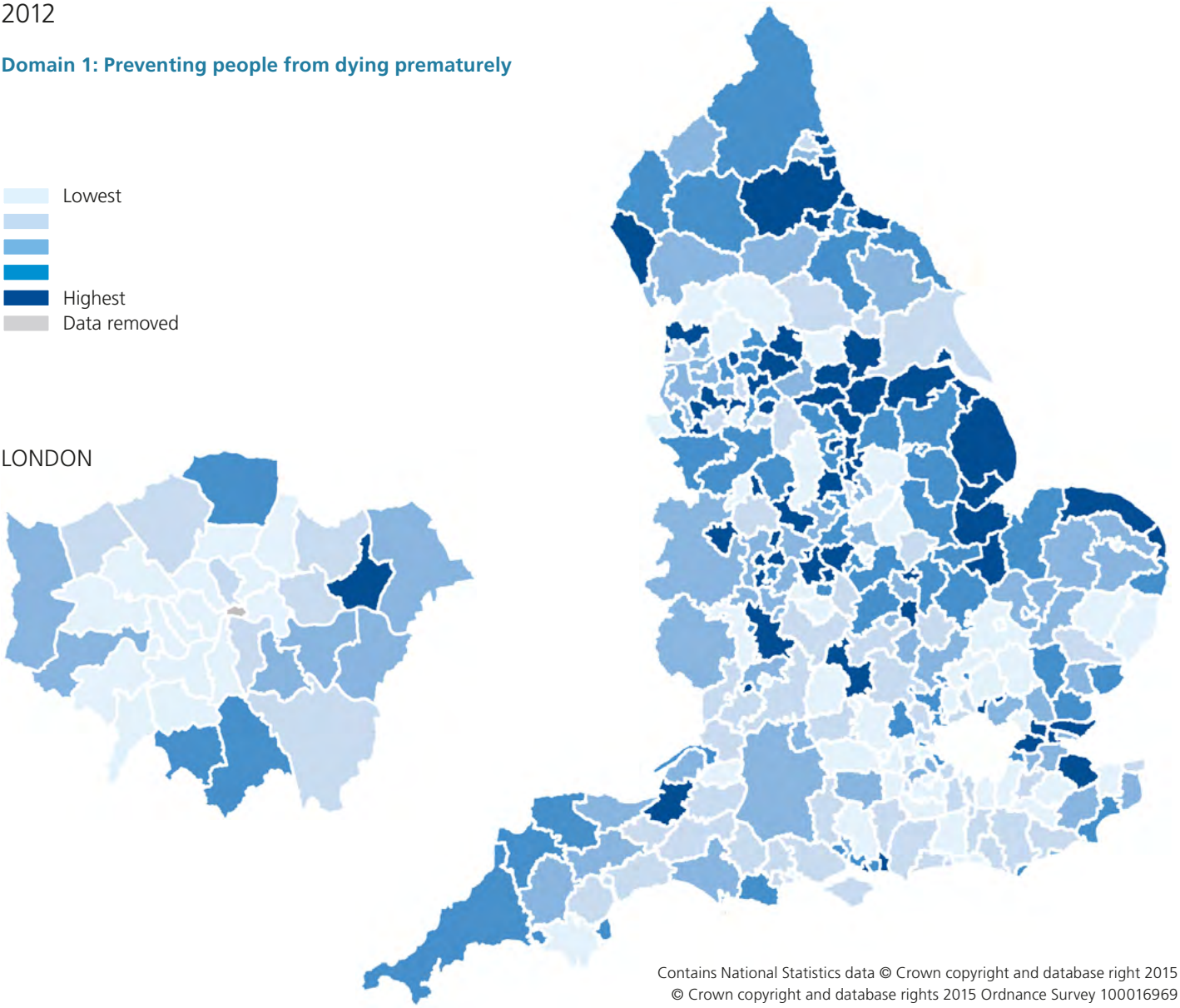
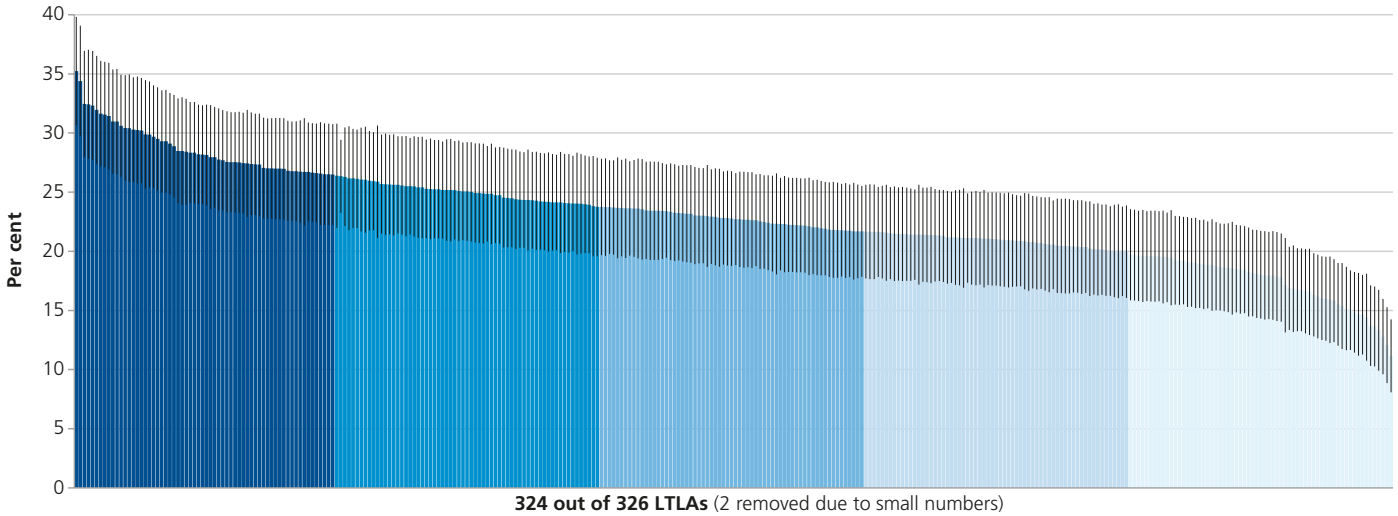
OBESITY

Map 24: Percentage of people aged 16 years and over who had a body mass index (BMI) greater than or equal to 30 kg/m^2 by lower-tier local authority

2012

Domain 1: Preventing people from dying prematurely





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: one-quarter of adults is now obese, and over half the adult population is either 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.

RESOURCES

- Public Health England. PHE Obesity. http://www.noo.org.uk/
- Sport England. Active People Survey 7. June 2013. http://archive.sportengland.org/research/active_people_survey/active_people_survey_7.aspx
- Change 4 Life website. http://www.nhs.uk/change4life/Pages/change-for-life.aspx
- Department of Health. Healthy Lives, Healthy People: A Call to Action on Obesity in England. October 2011. https://www.gov.uk/government/publications/healthy-lives-healthy-people-a-call-to-action-on-obesity-in-england
- Department of Health. Equality Analysis. A call to action on obesity in England. October 2011. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213721/dh_130511.pdf
- NICE Pathways. Obesity overview. http://pathways.nice.org.uk/pathways/obesity
- 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

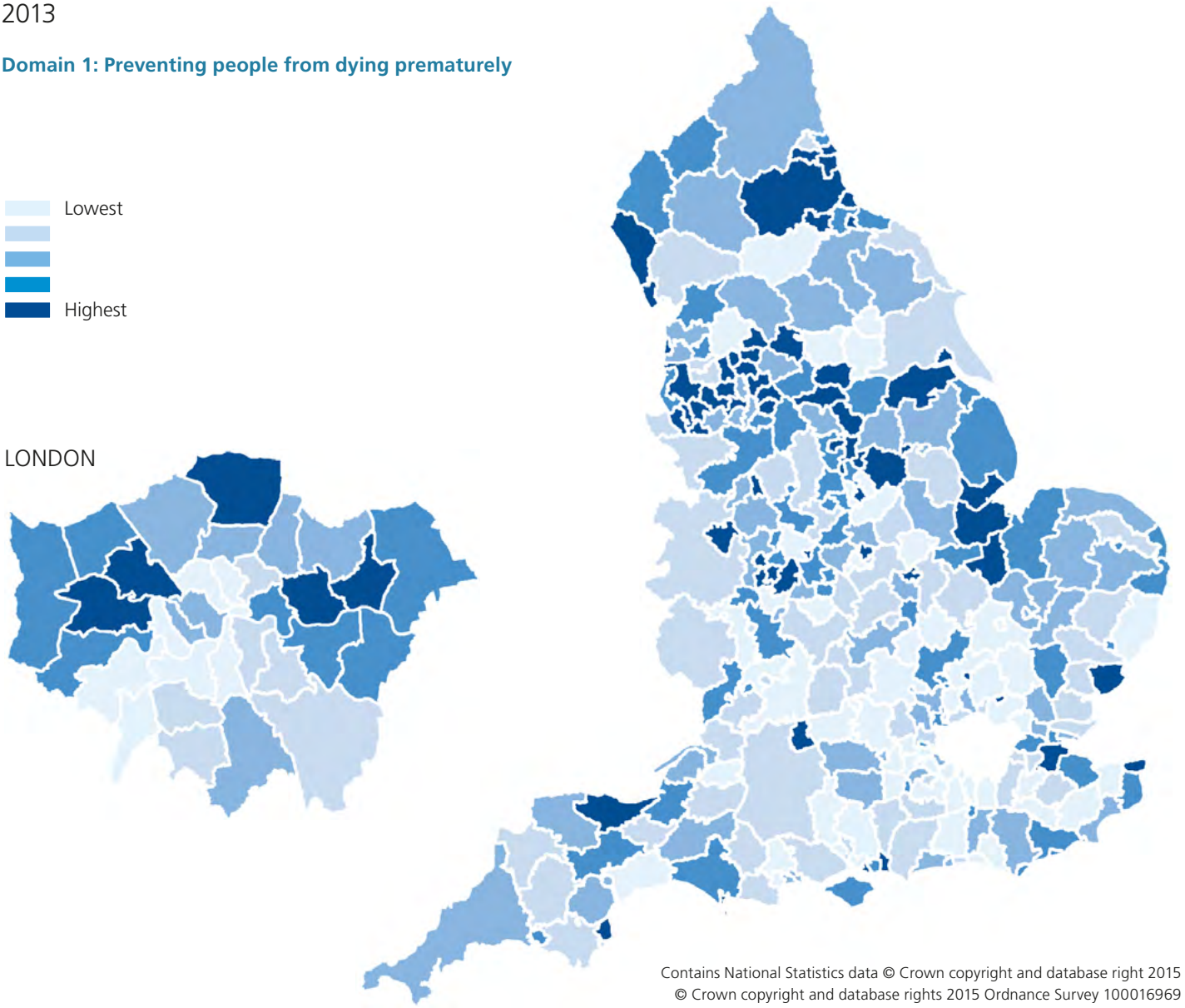
6 Fair society, healthy lives: the Marmot Review: strategic review of health inequalities in England post-2010. Marmot Review, London, 2010. http://www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review

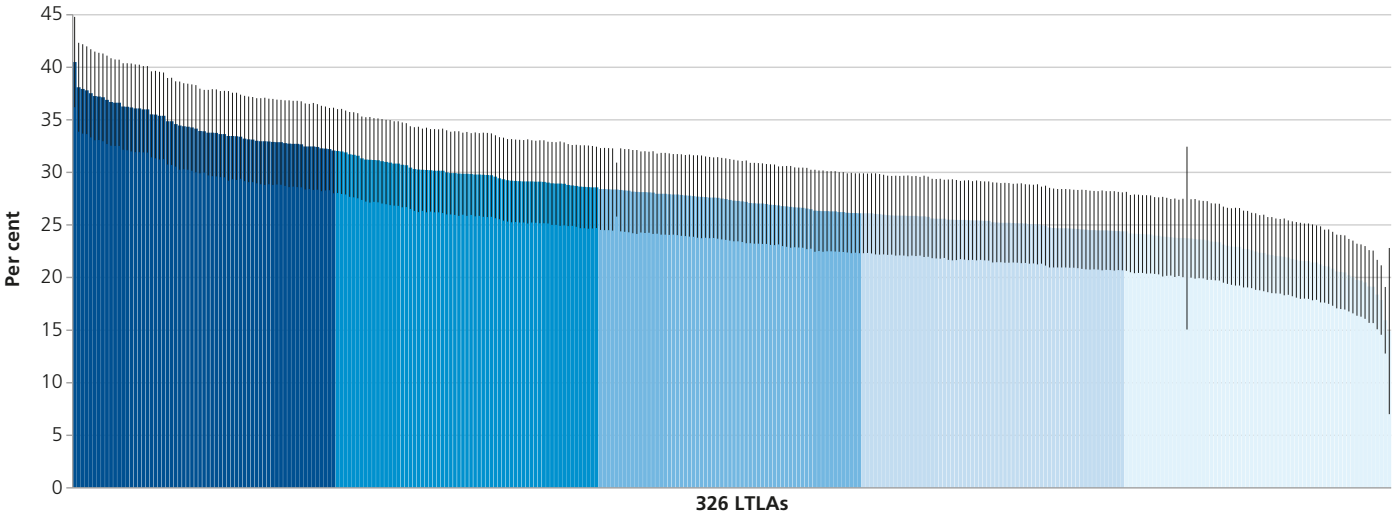
PHYSICAL ACTIVITY

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





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 chronic 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 chronic 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

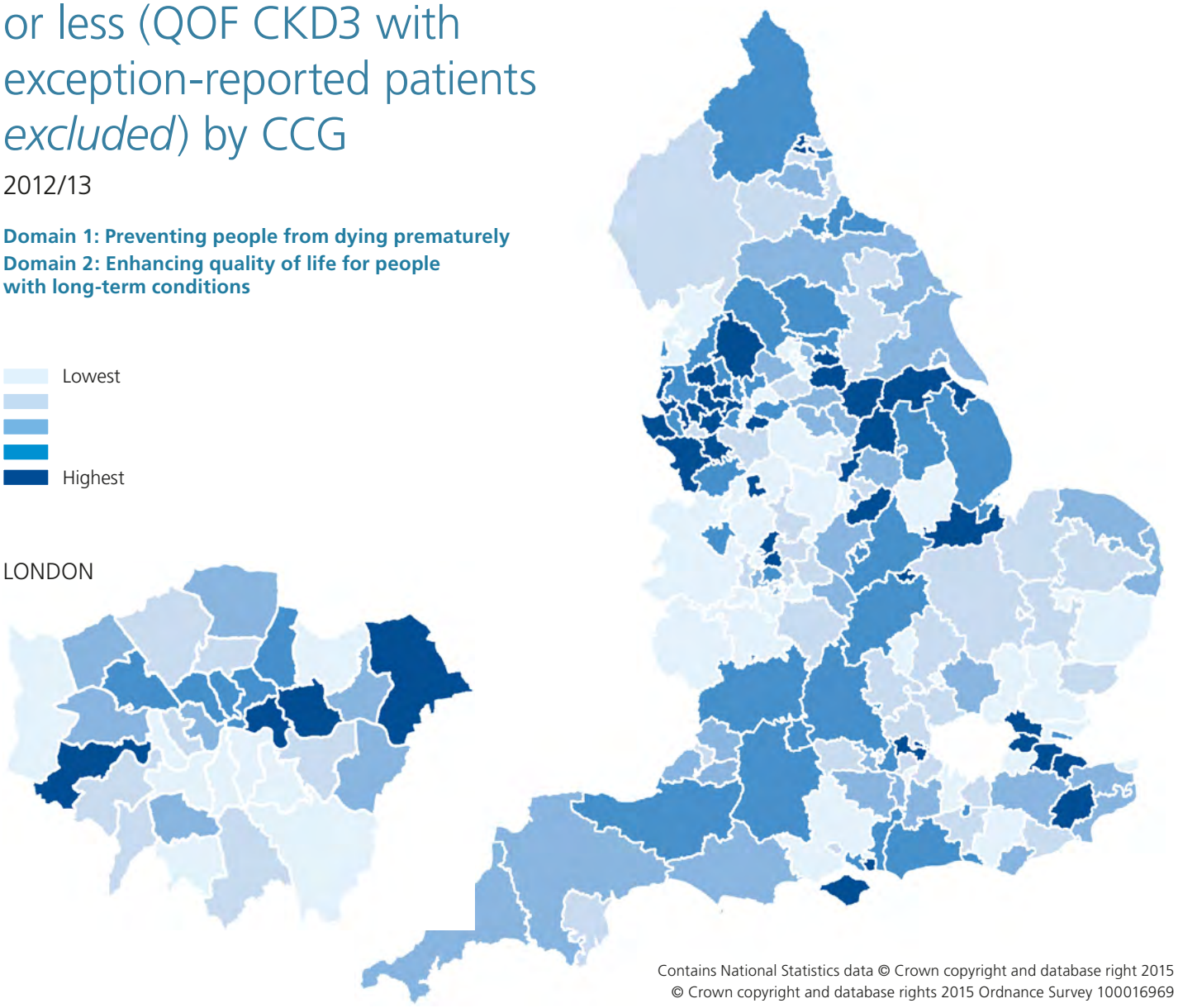
5 There are nine protected characteristics: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and belief, sex, and sexual orientation. http://www.legislation.gov.uk/ukpga/2010/15/section/4

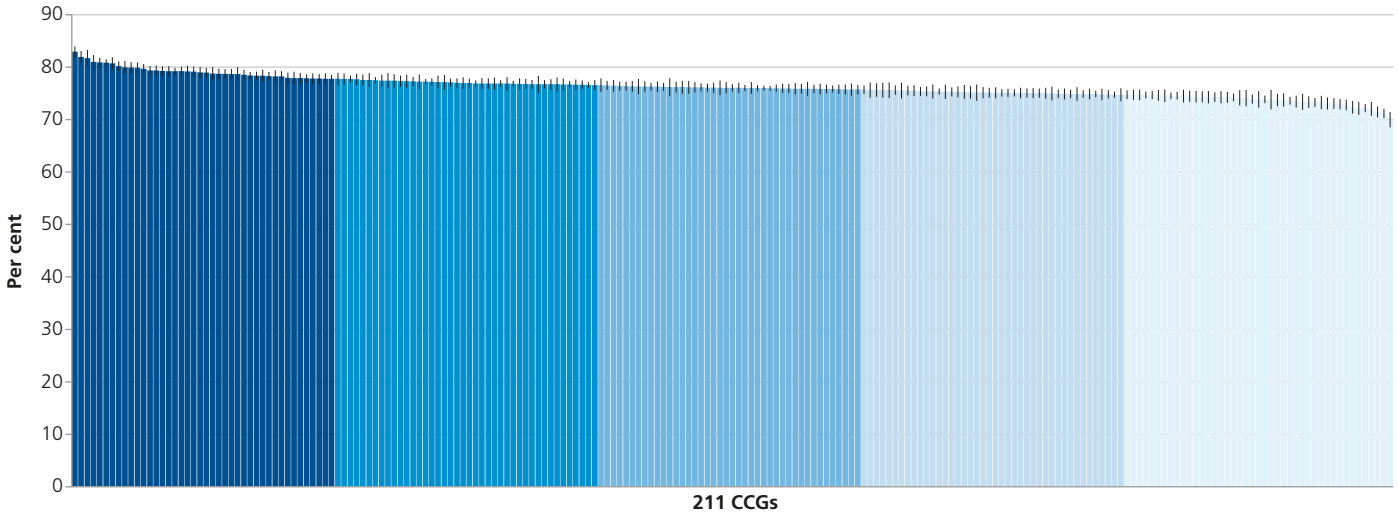
CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

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





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/

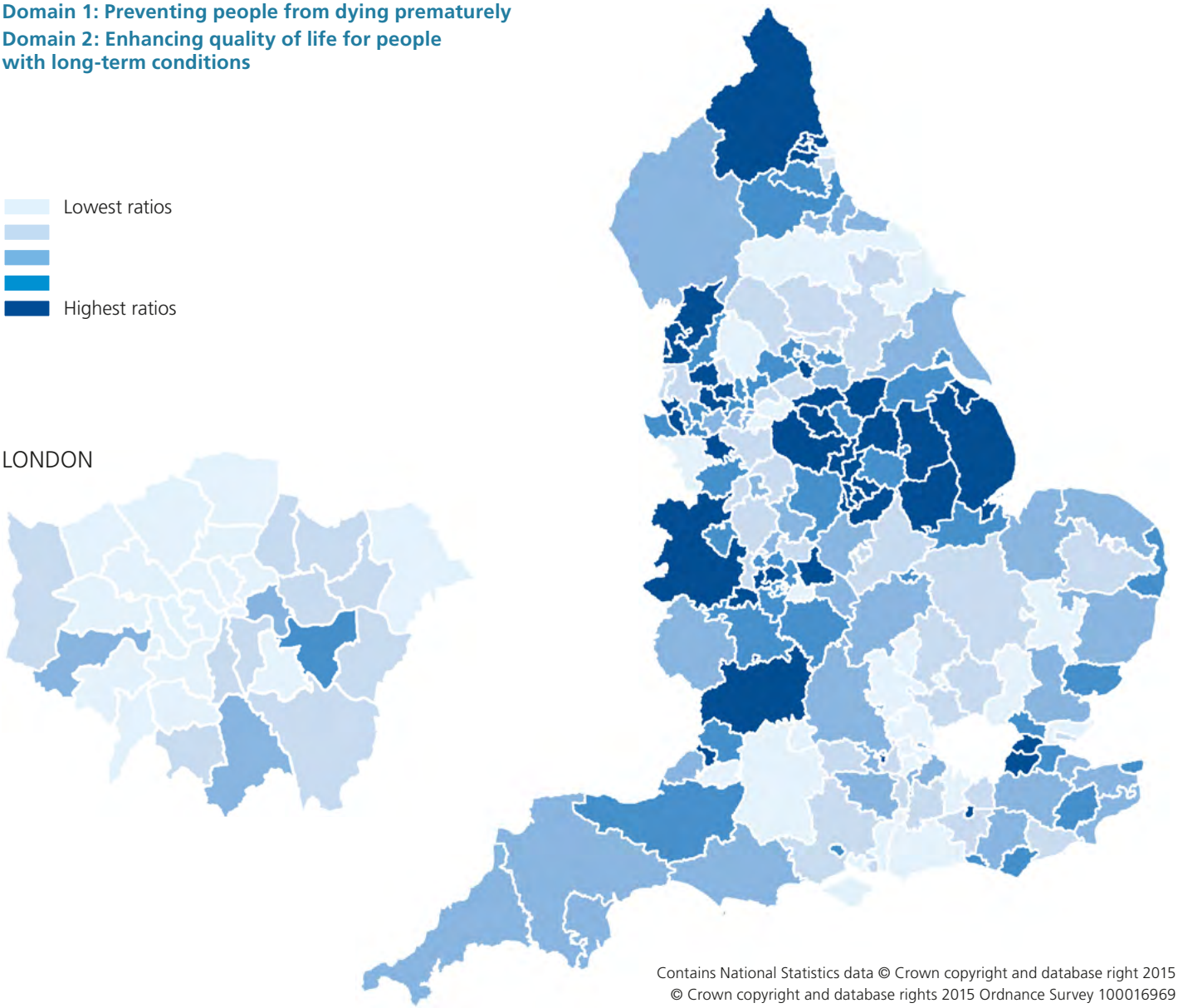
1 http://www.ckdaudit.org.uk/

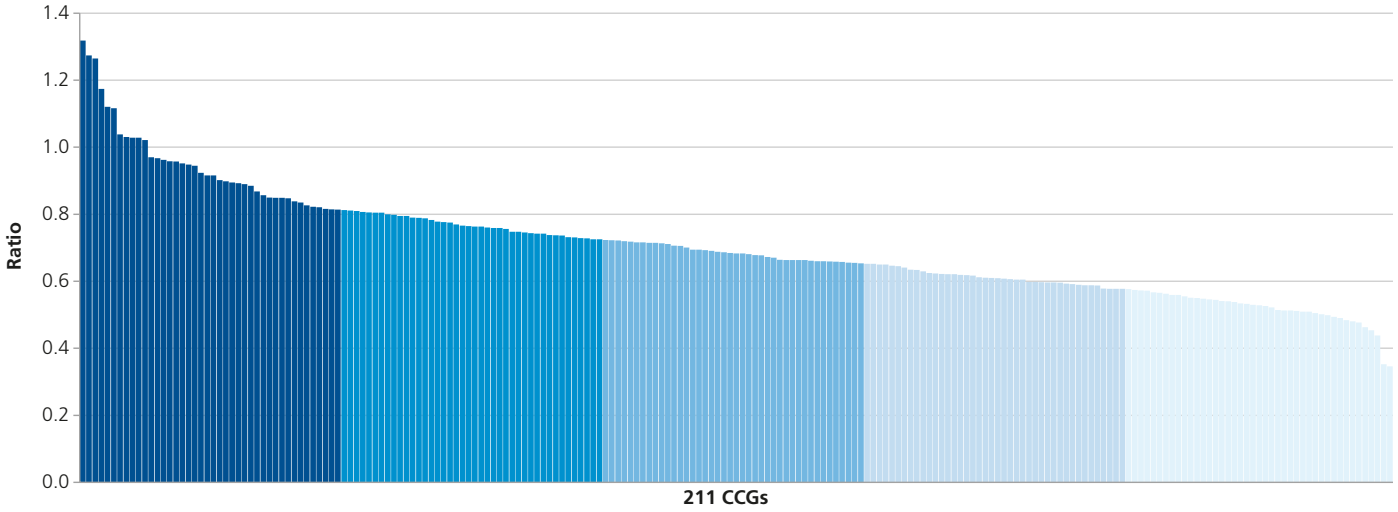
CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

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





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

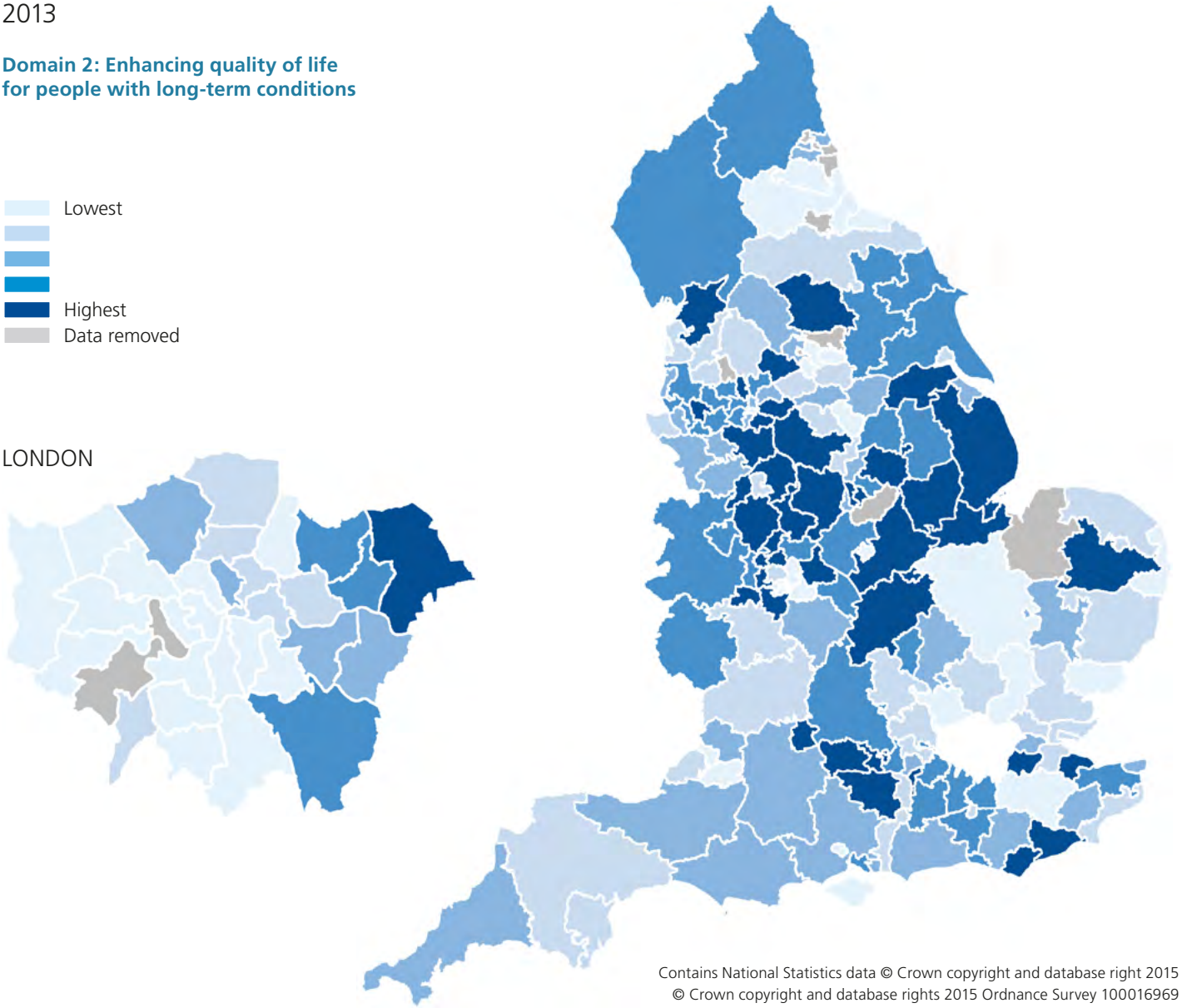
2 van der Velde, M, Matsushita, K, Coresh, J et al (2011) Lower estimated glomerular filtration rate and higher albuminuria are associated with all-cause and cardiovascular mortality. A collaborative meta-analysis of high-risk population cohorts. *Kidney Int* 79: 1341-1352. http://www.kdigo.org/pdf/van%20der%20Velde1.pdf

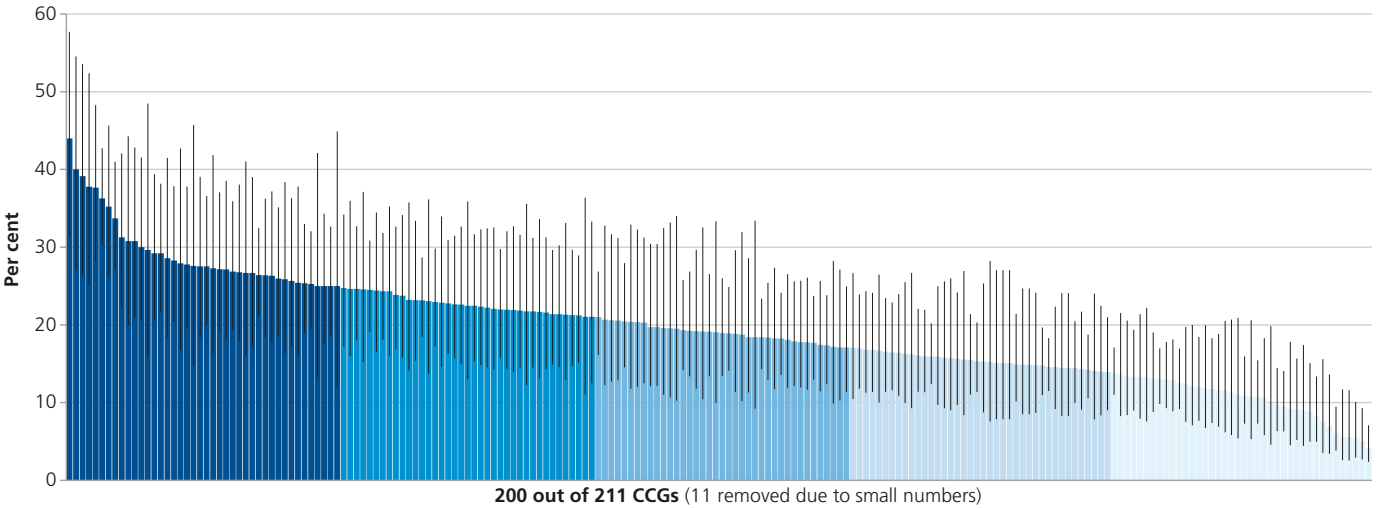
CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

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





200 out of 211 CCGs (11 removed due to small numbers)

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 patients reaching ESRD are suitable to have a kidney transplant; 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.

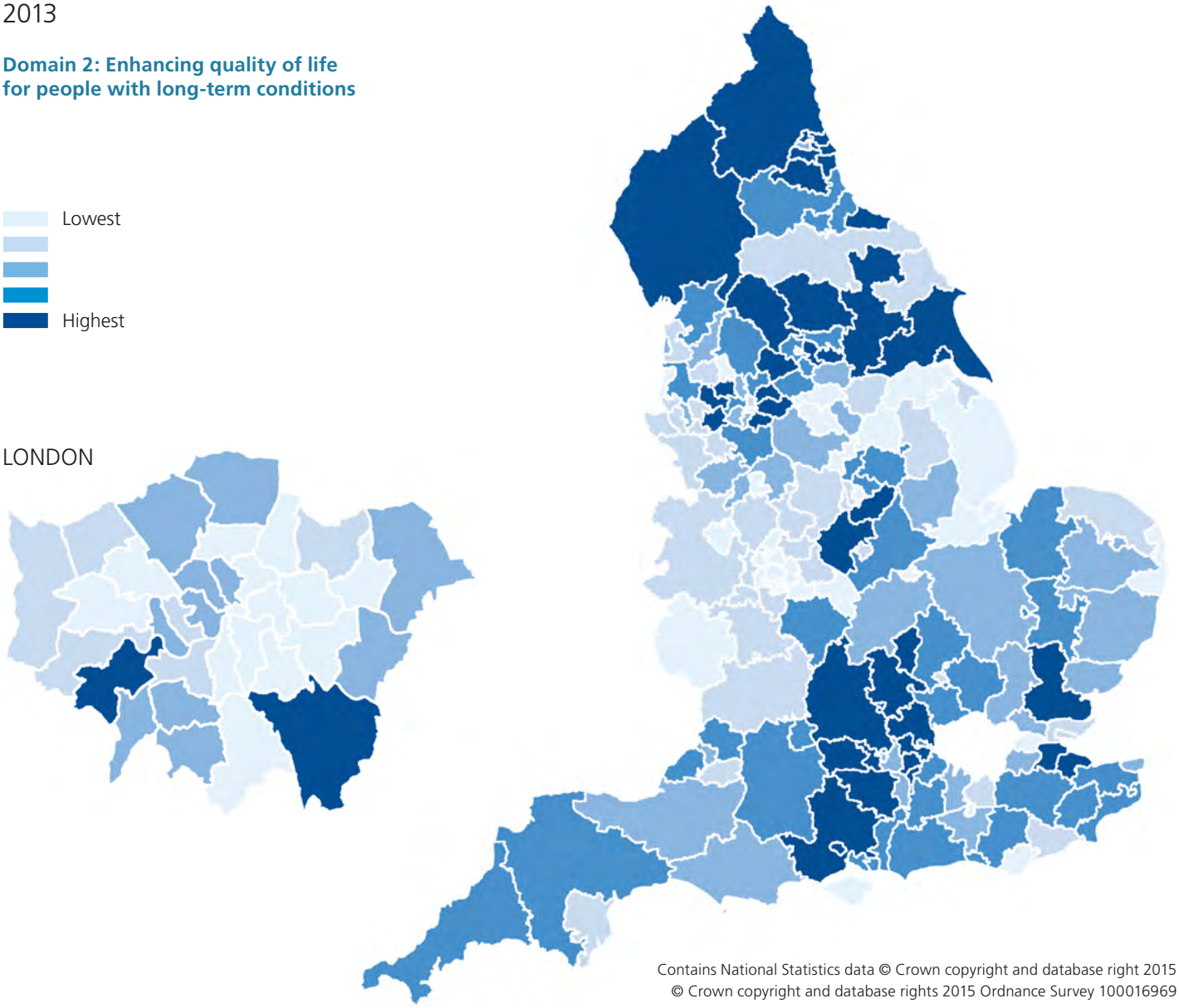
  http://www.odt.nhs.uk/uk-transplant-registry/organ-specific-reports/
- NICE. Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care. NICE guidelines [CG182]. July 2014. http://guidance.nice.org.uk/CG182
- NICE. Chronic kidney disease. 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/

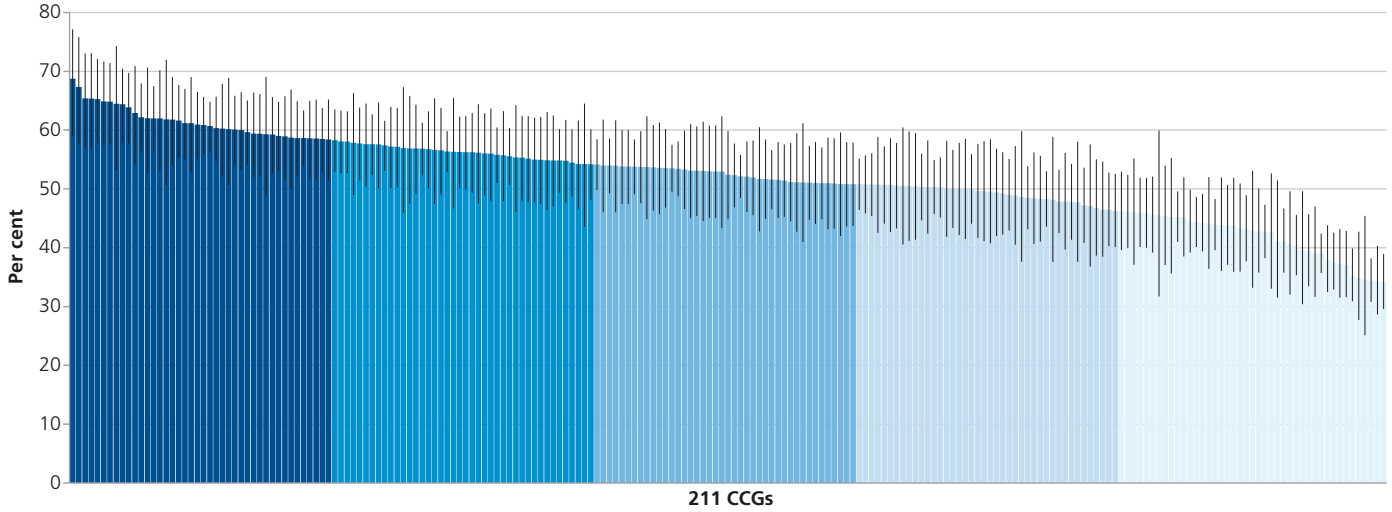
CARDIOVASCULAR FAMILY OF DISEASES: KIDNEY CARE

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



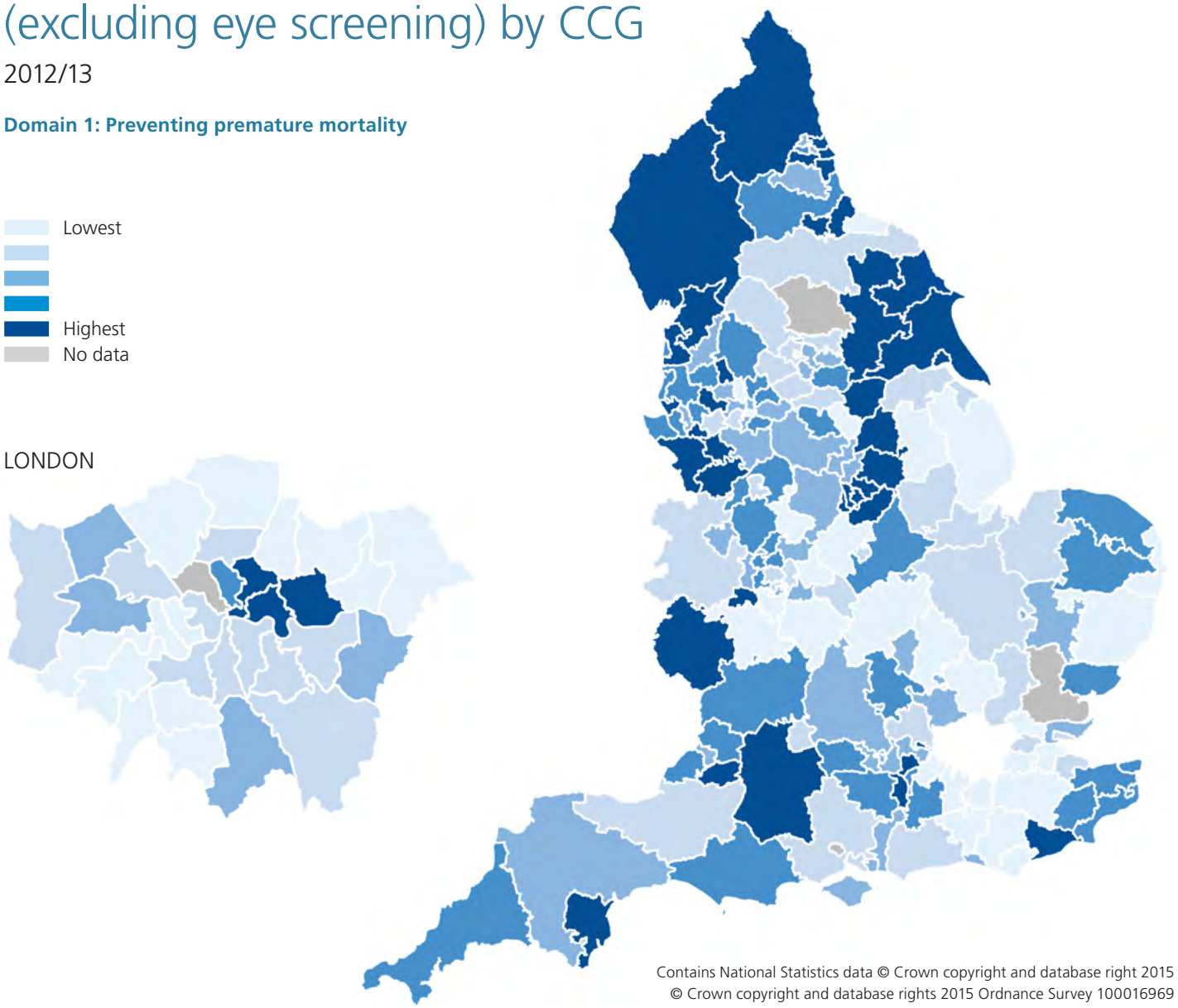


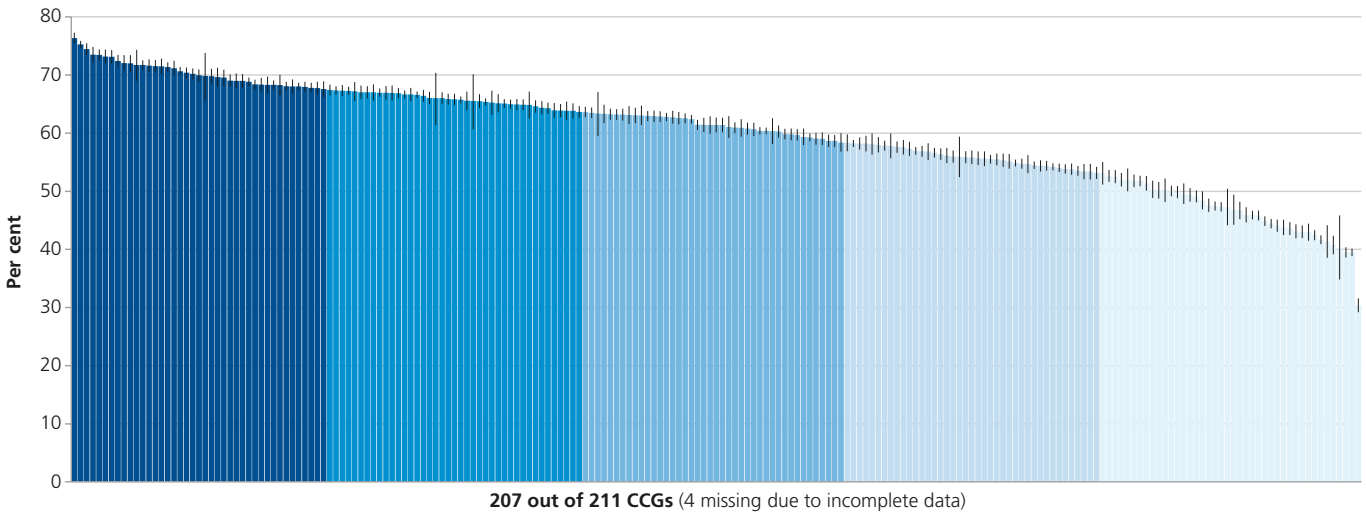
CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

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





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.

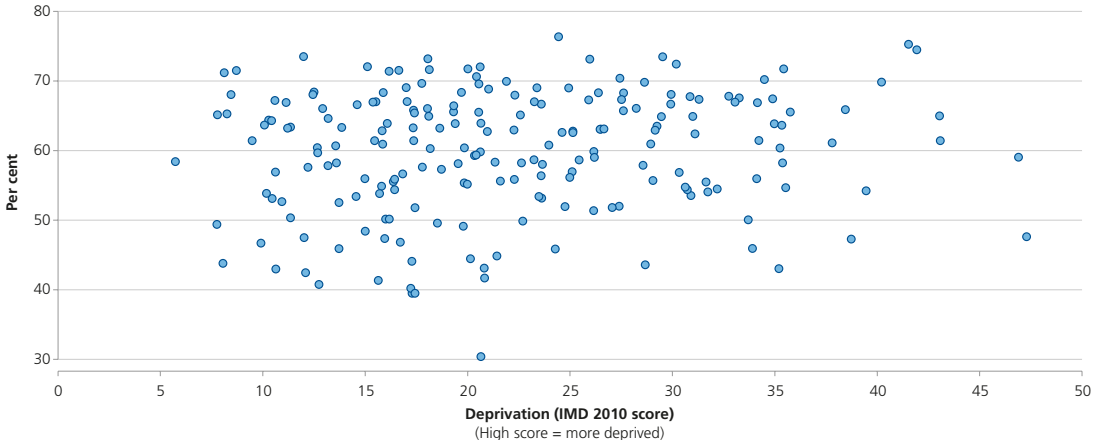
RIGHTCARE CASEBOOK

- 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/

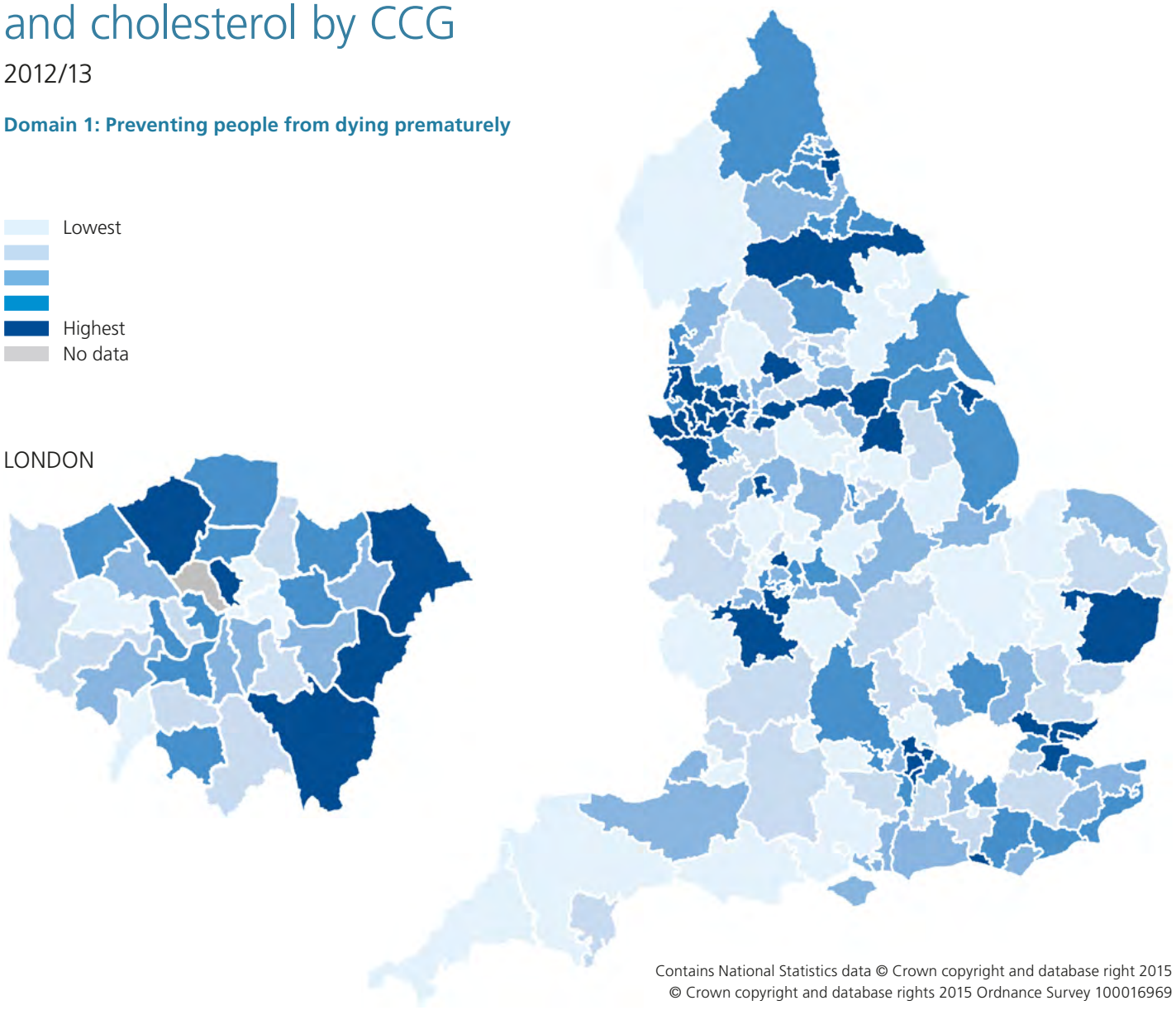
2 Data from four CCGs are missing.

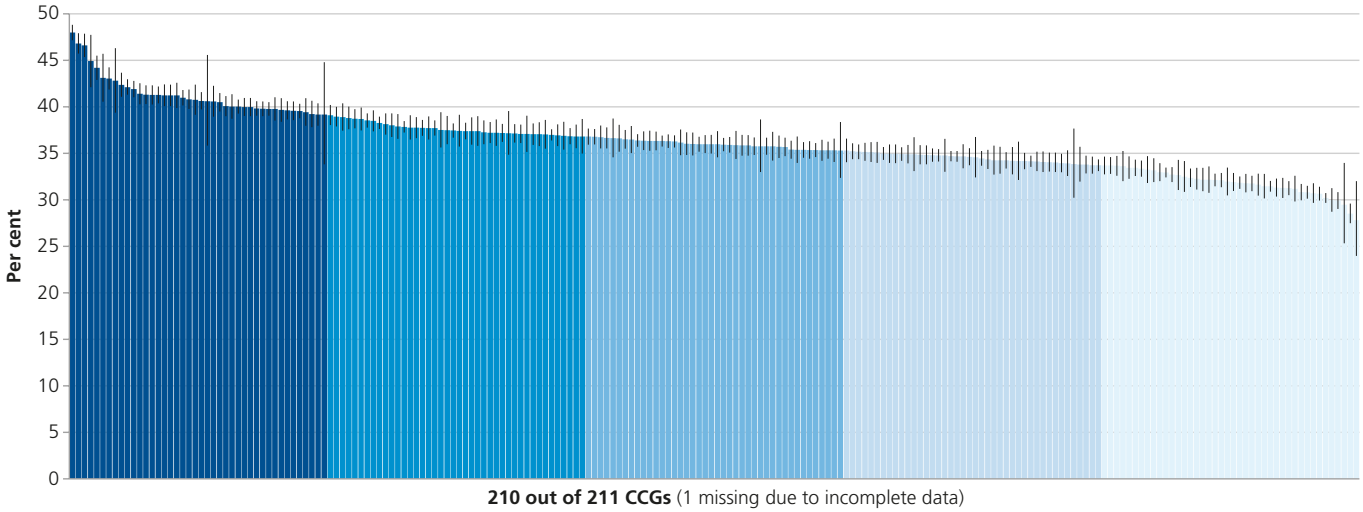
CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

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





210 out of 211 CCGs (1 missing due to incomplete data)

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%).

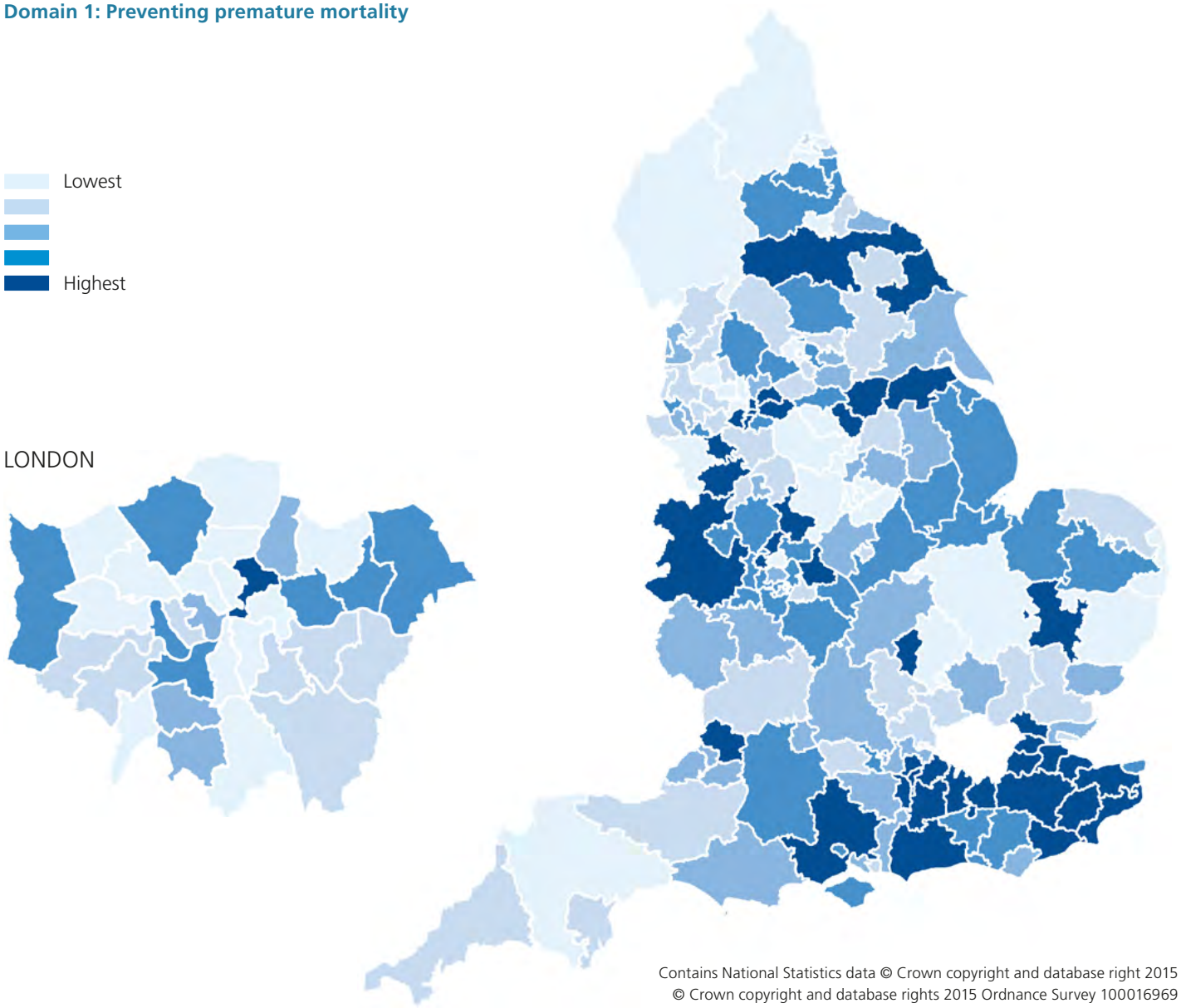
2 Data from one CCG are missing.

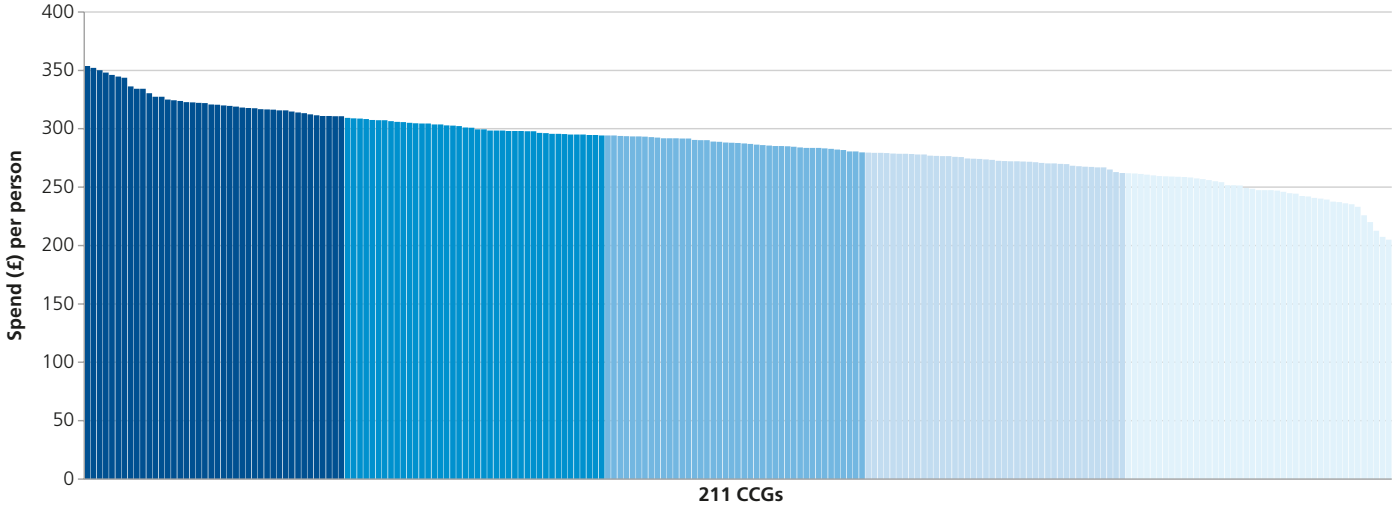
CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

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





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

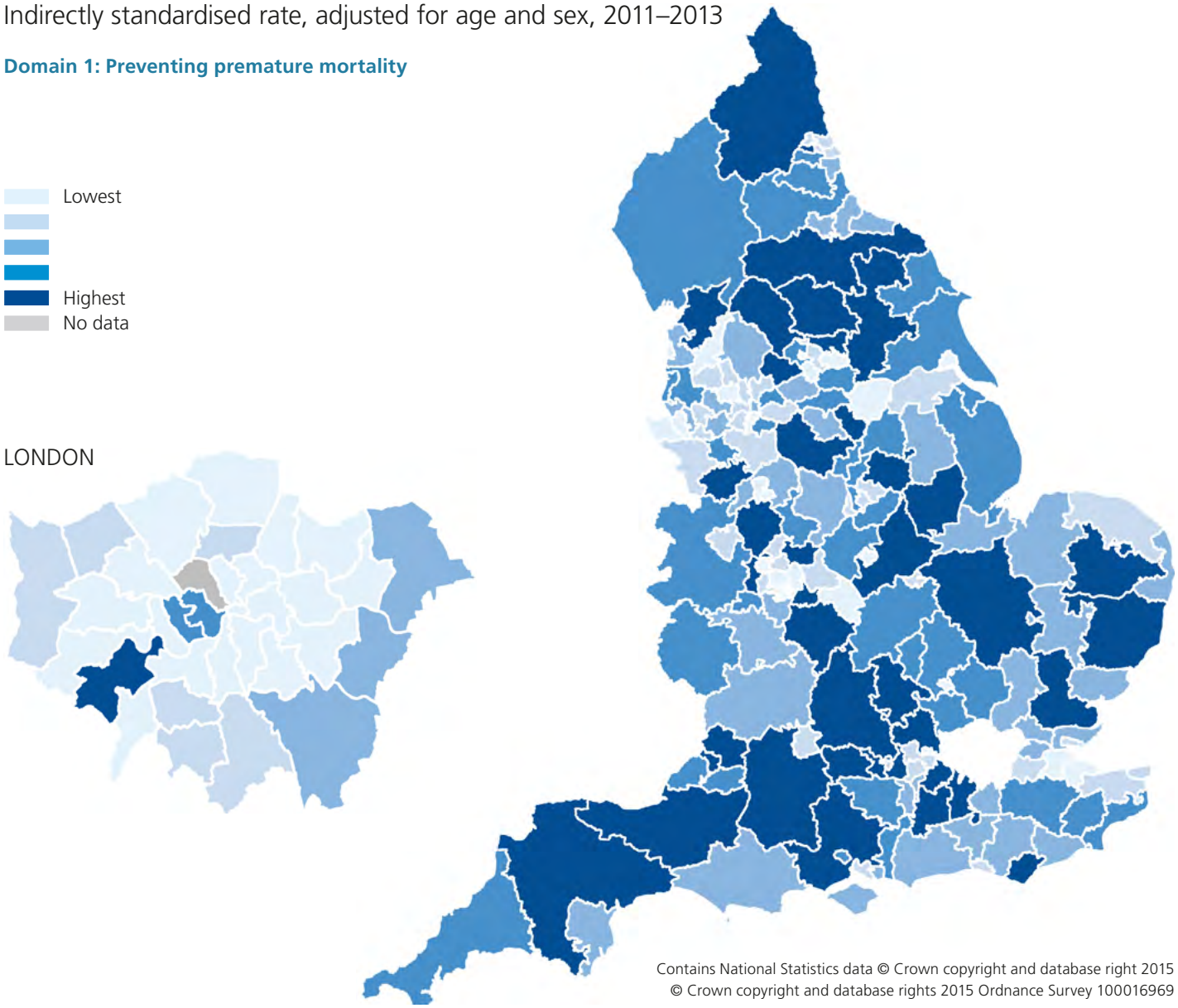
- NICE. Type 1 diabetes in adults: diagnosis and management.
  NICE guidelines [NG17]. August 2015.
  http://www.nice.org.uk/guidance/ng17
- NICE. Type 2 diabetes (partially updated by CG87).
  NICE guidelines [CG66]. May 2008.
  http://www.nice.org.uk/CG66
- NICE. Type 2 diabetes: The management of 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

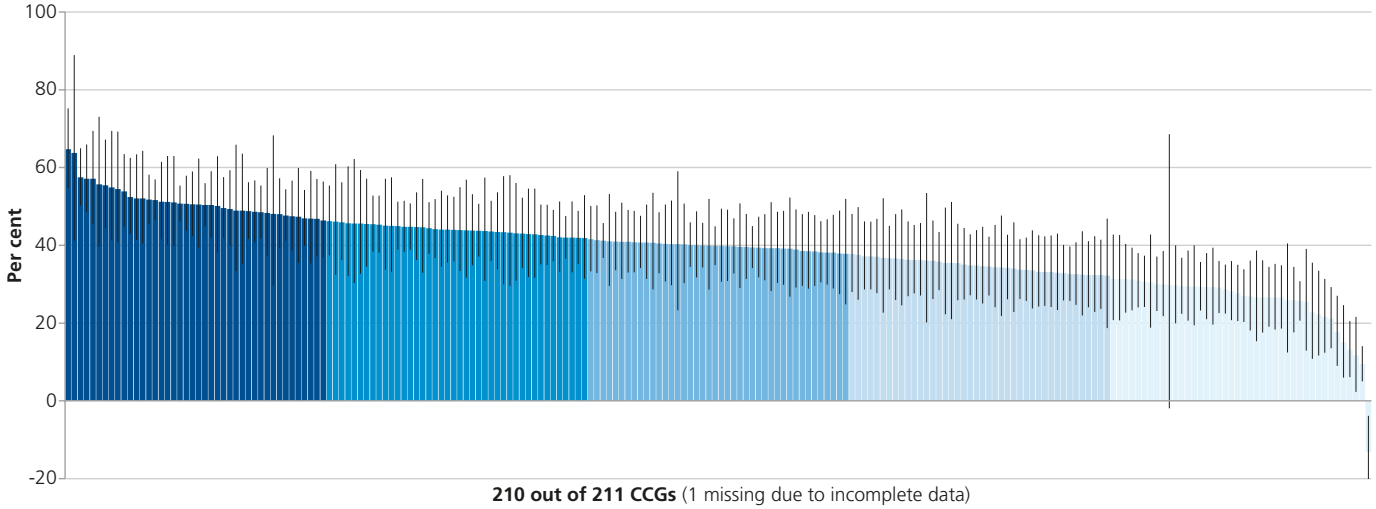
CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

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





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 macro- and microvascular disease, which is 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

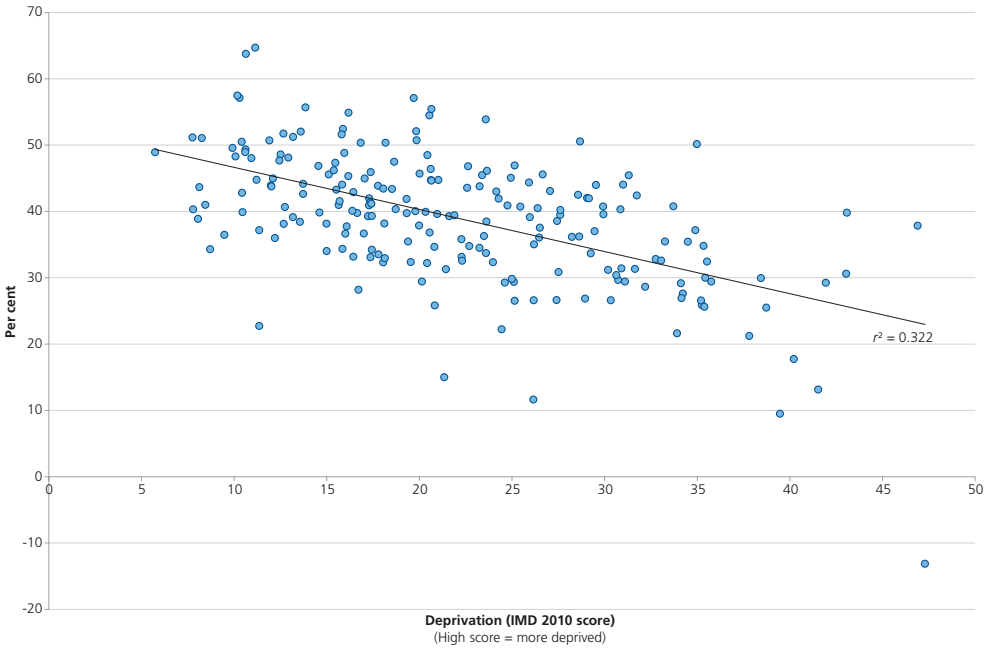


Figure 33.1: Additional risk of mortality among people in the NDA with Type 1 and Type 2 diabetes compared with the general population in relation to deprivation (IMD-2010)

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

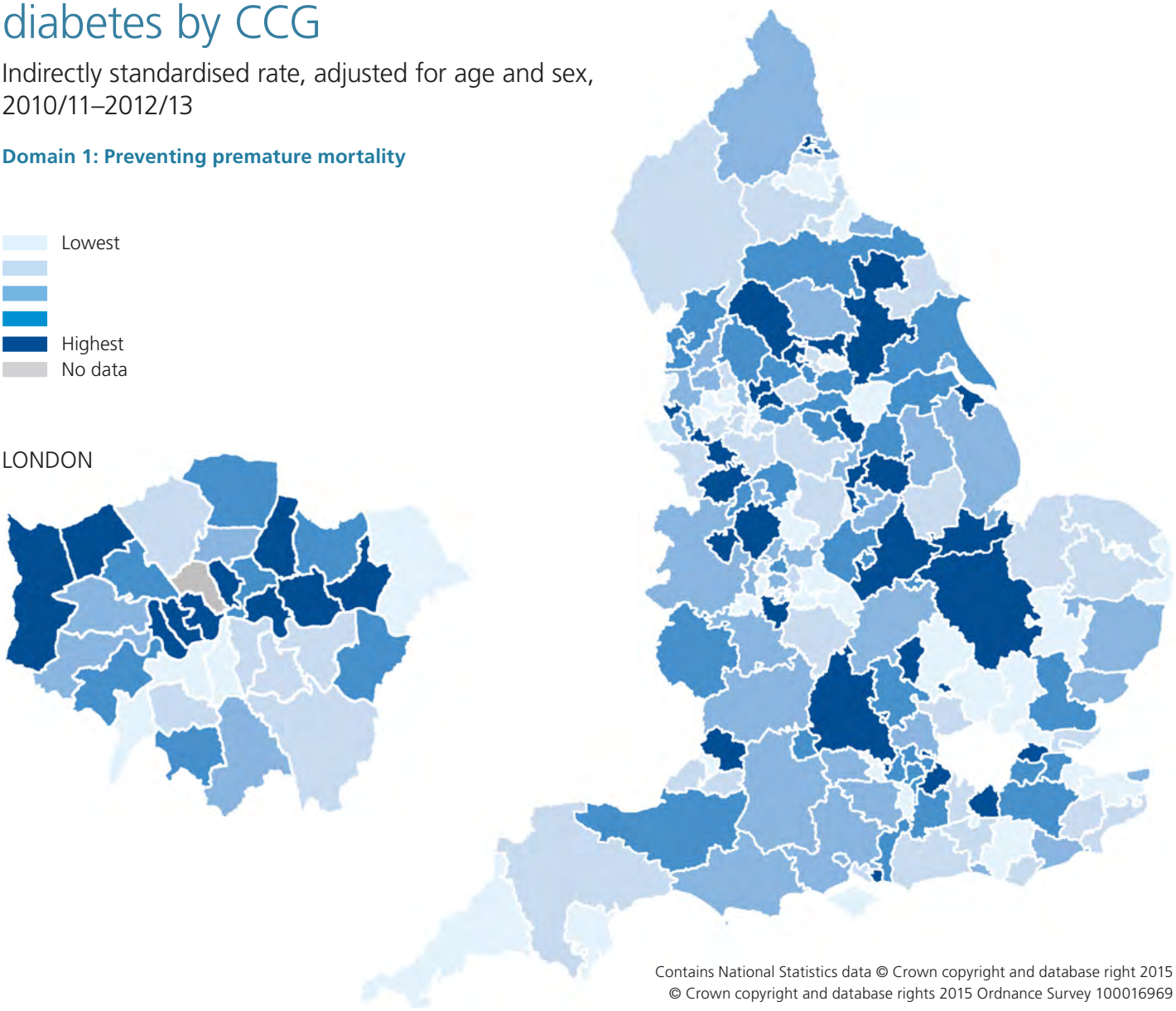
2 Data from one CCG are missing.

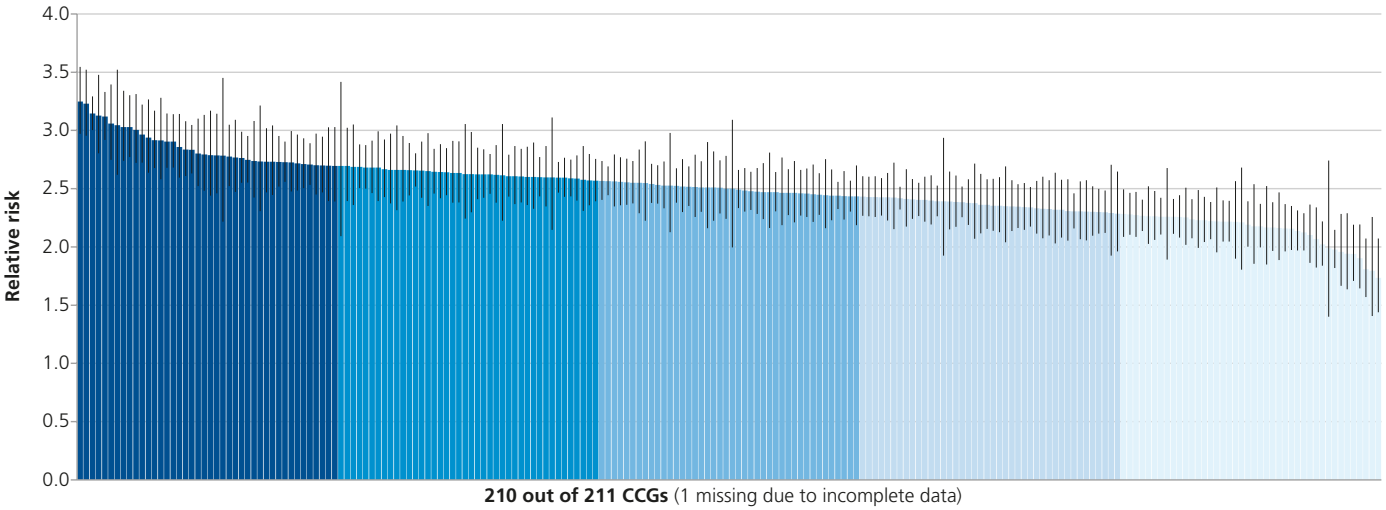
CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

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





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.

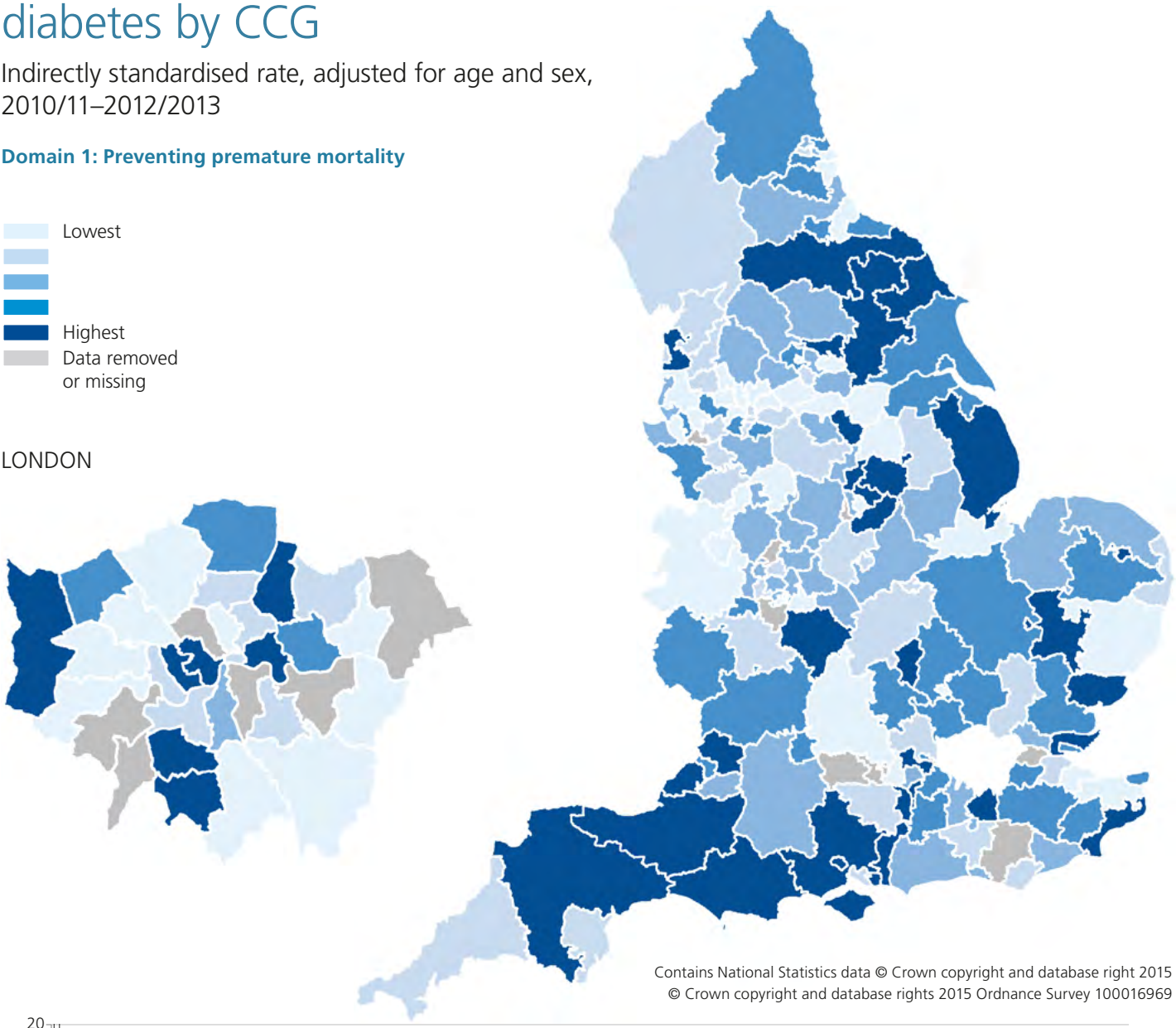
5 National Diabetes Audit 2010-2011. Report 2: Complications and Mortality. http://www.hscic.gov.uk/catalogue/PUB06325/nati-diab-aud-10-11-comp-and-mort-v3.pdf

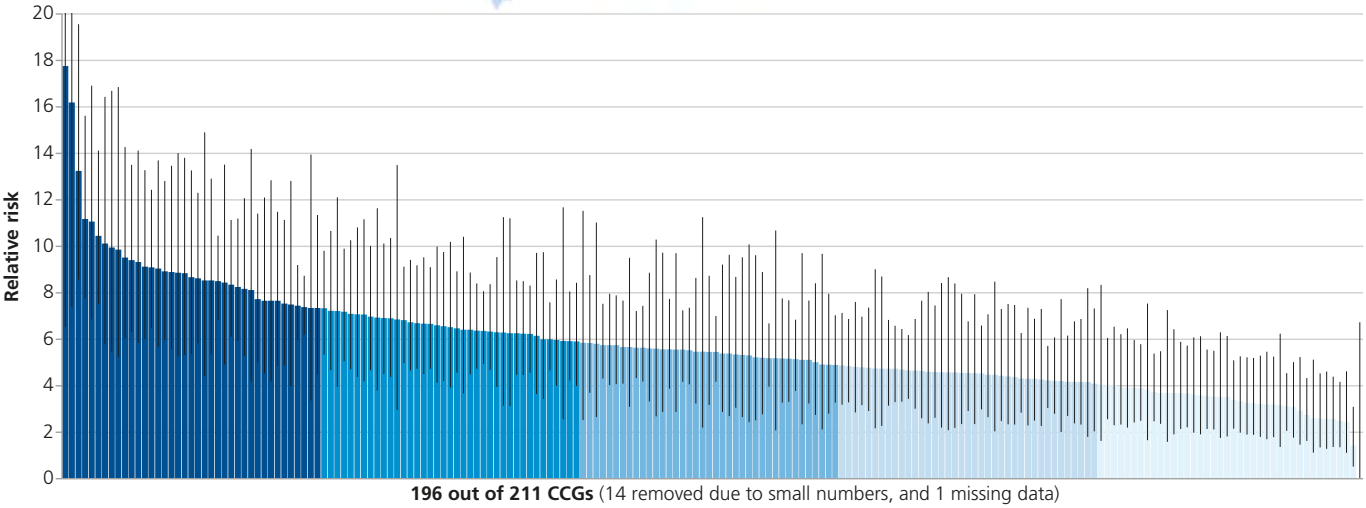
CARDIOVASCULAR FAMILY OF DISEASES: DIABETES

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





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. Chronic ulceration is the commonest precursor to major lower limb amputation (above the ankle). 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.

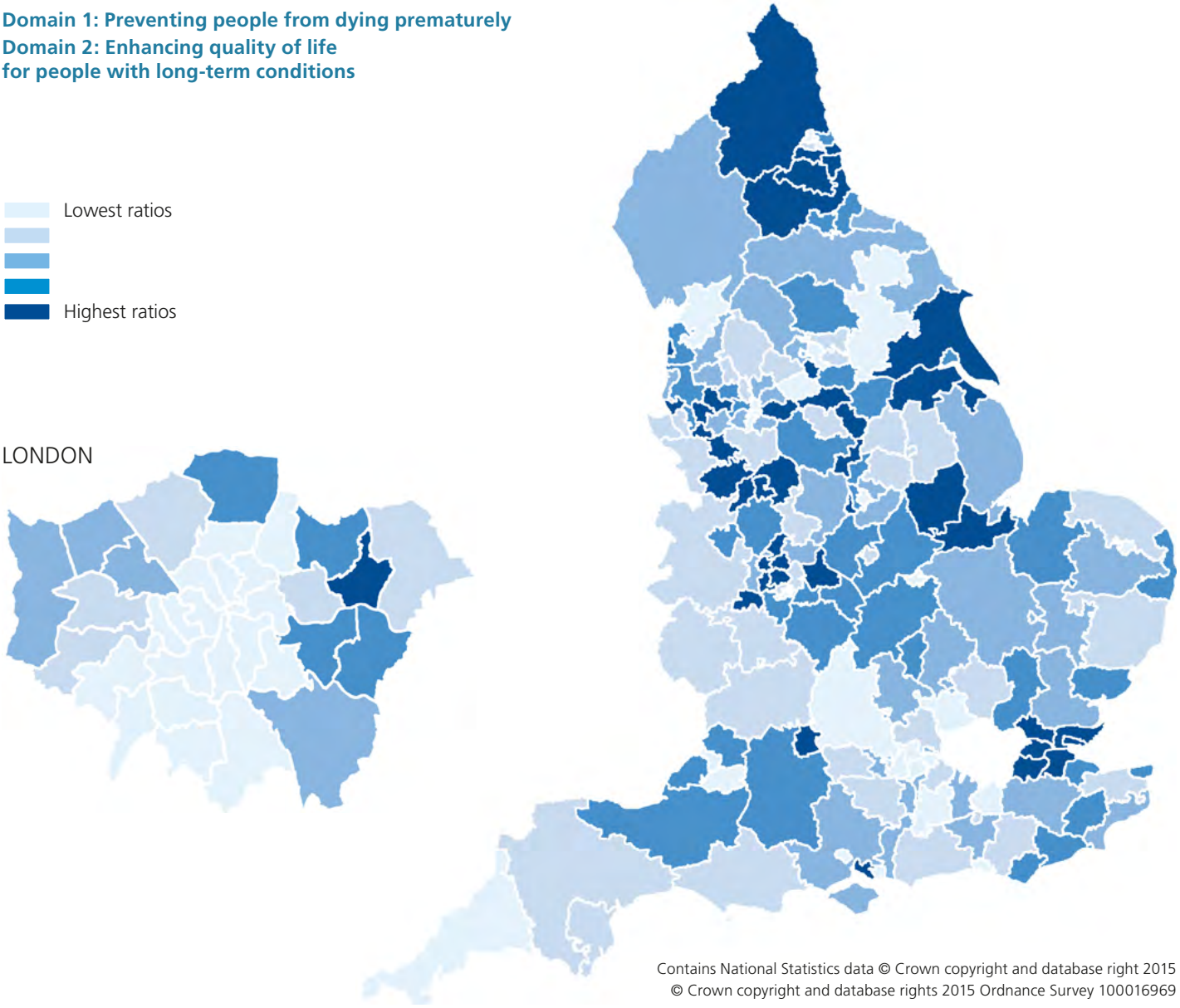
4 National Diabetes Audit 2010-2011. Report 2: Complications and Mortality. http://www.hscic.gov.uk/catalogue/PUB12738/nati-diab-audi-11-12-mort-comp-rep.pdf

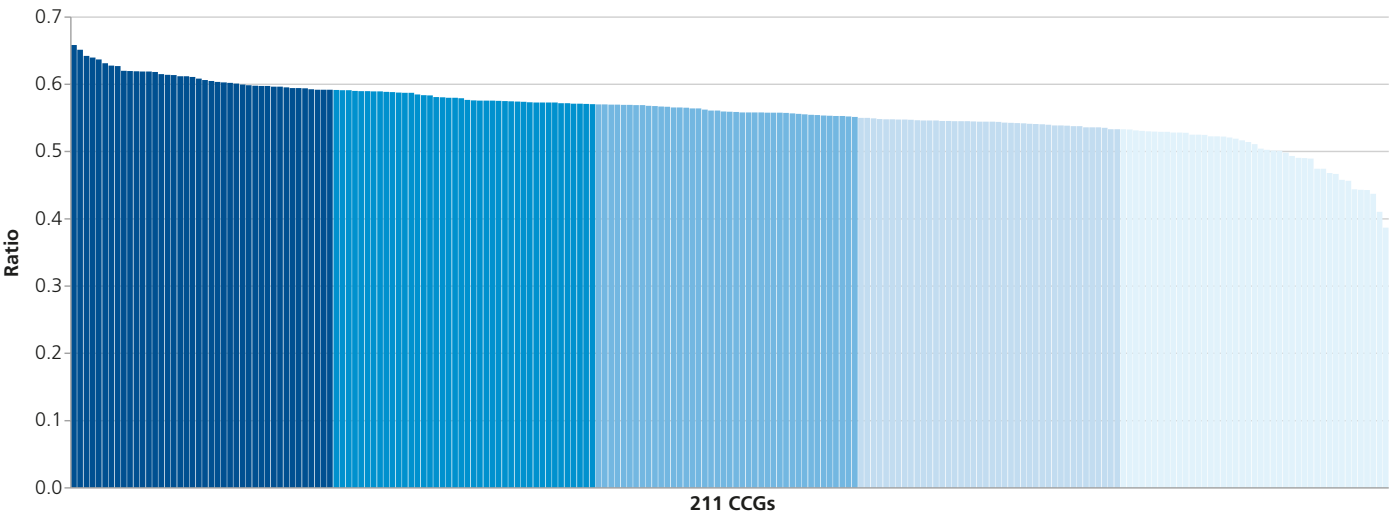
CARDIOVASCULAR FAMILY OF DISEASES: HEART

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





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

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

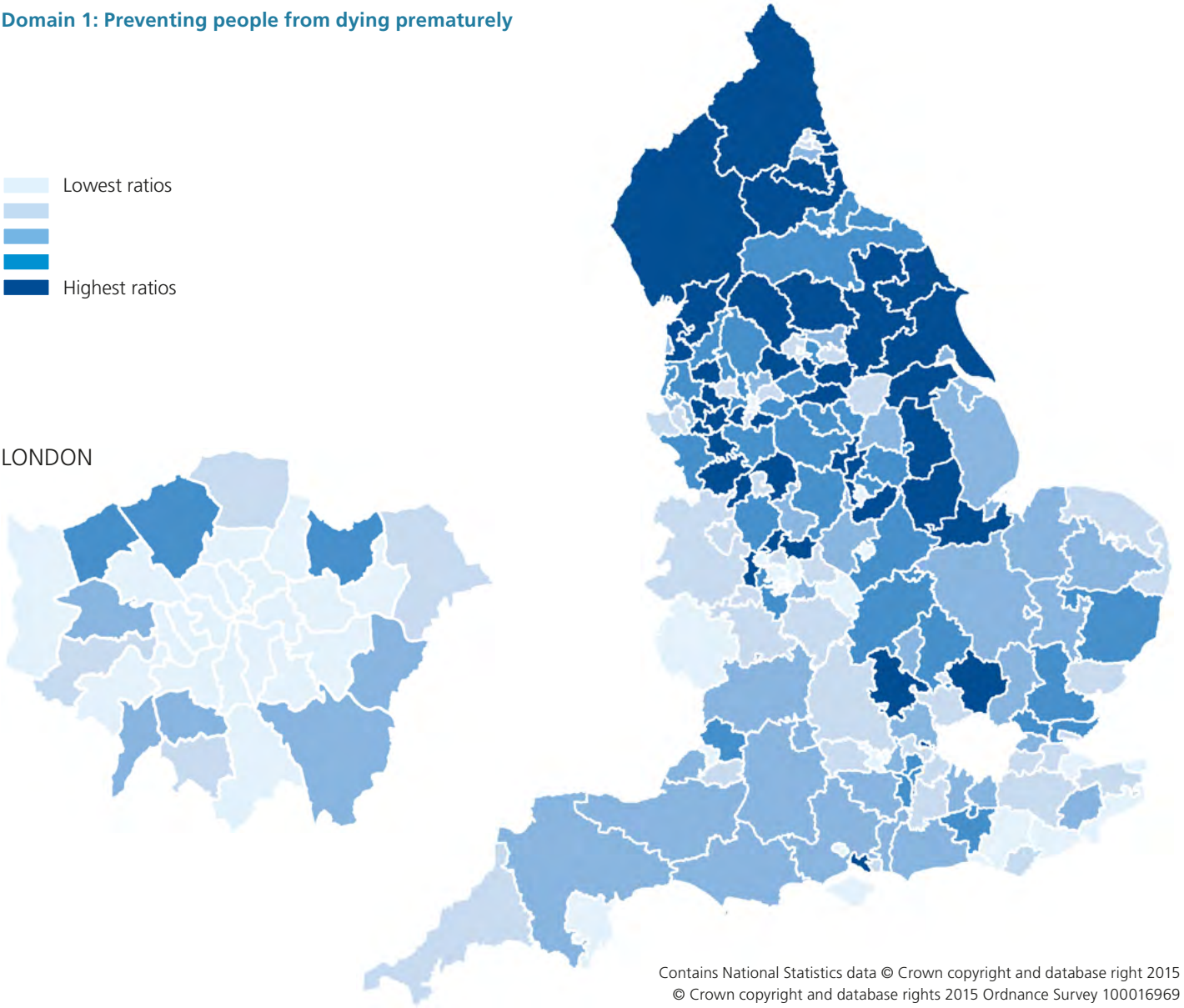
4 http://www.makingeverycontactcount.co.uk/

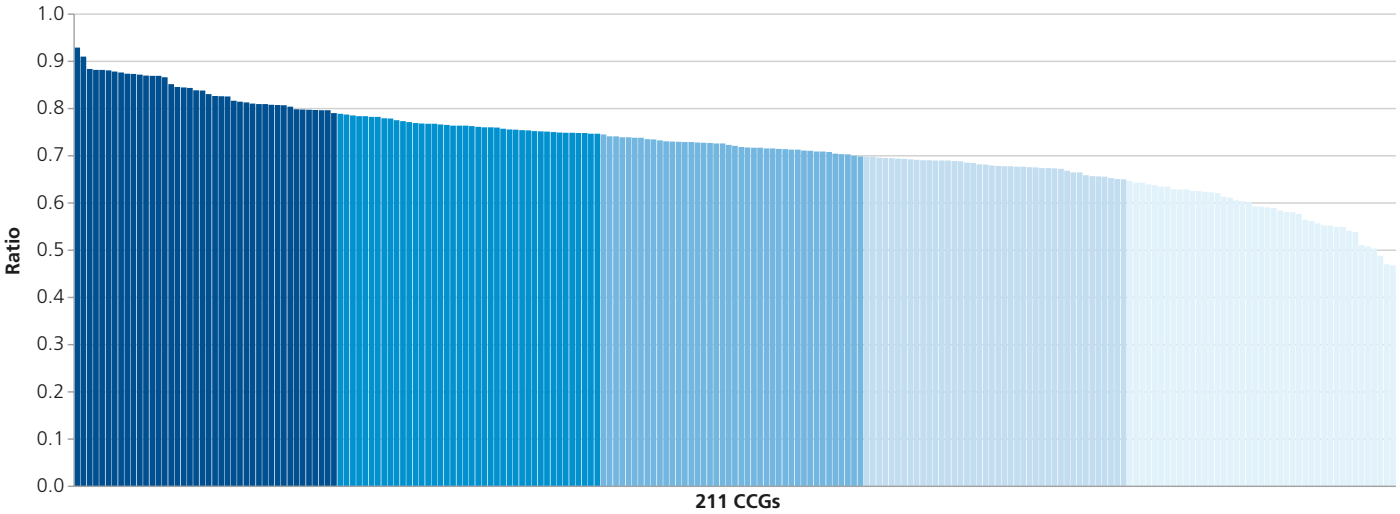
CARDIOVASCULAR FAMILY OF DISEASES: HEART

Map 37: Ratio of reported to expected prevalence of coronary heart disease (CHD) by CCG

2013/14

Domain 1: Preventing people from dying prematurely





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

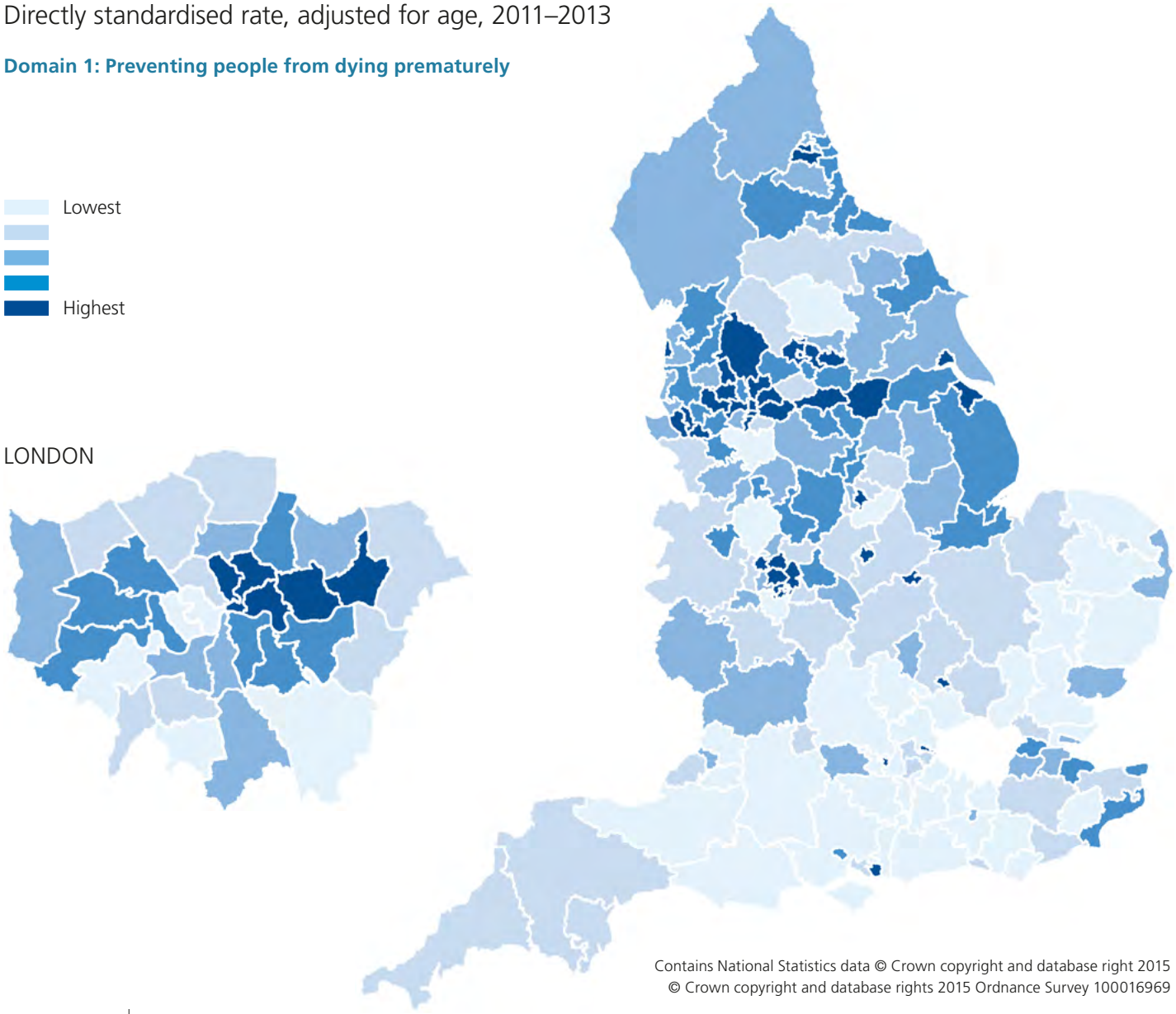
3 http://www.makingeverycontactcount.co.uk/

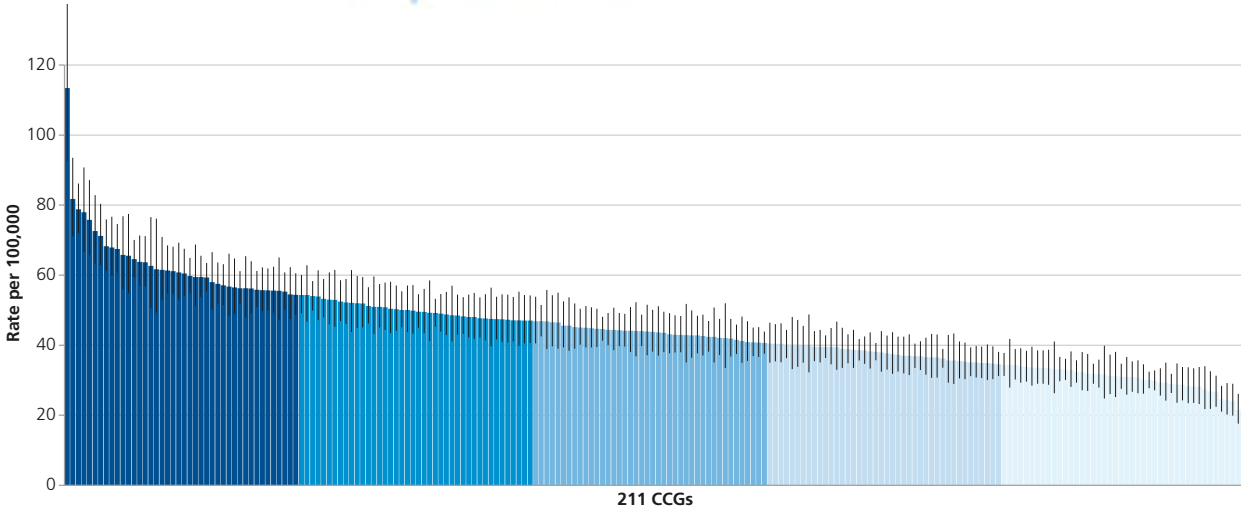
CARDIOVASCULAR FAMILY OF DISEASES: HEART

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





Context

The largest component of premature mortality from cardiovascular disease and the top cause of premature mortality in England is coronary heart disease (CHD).

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

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

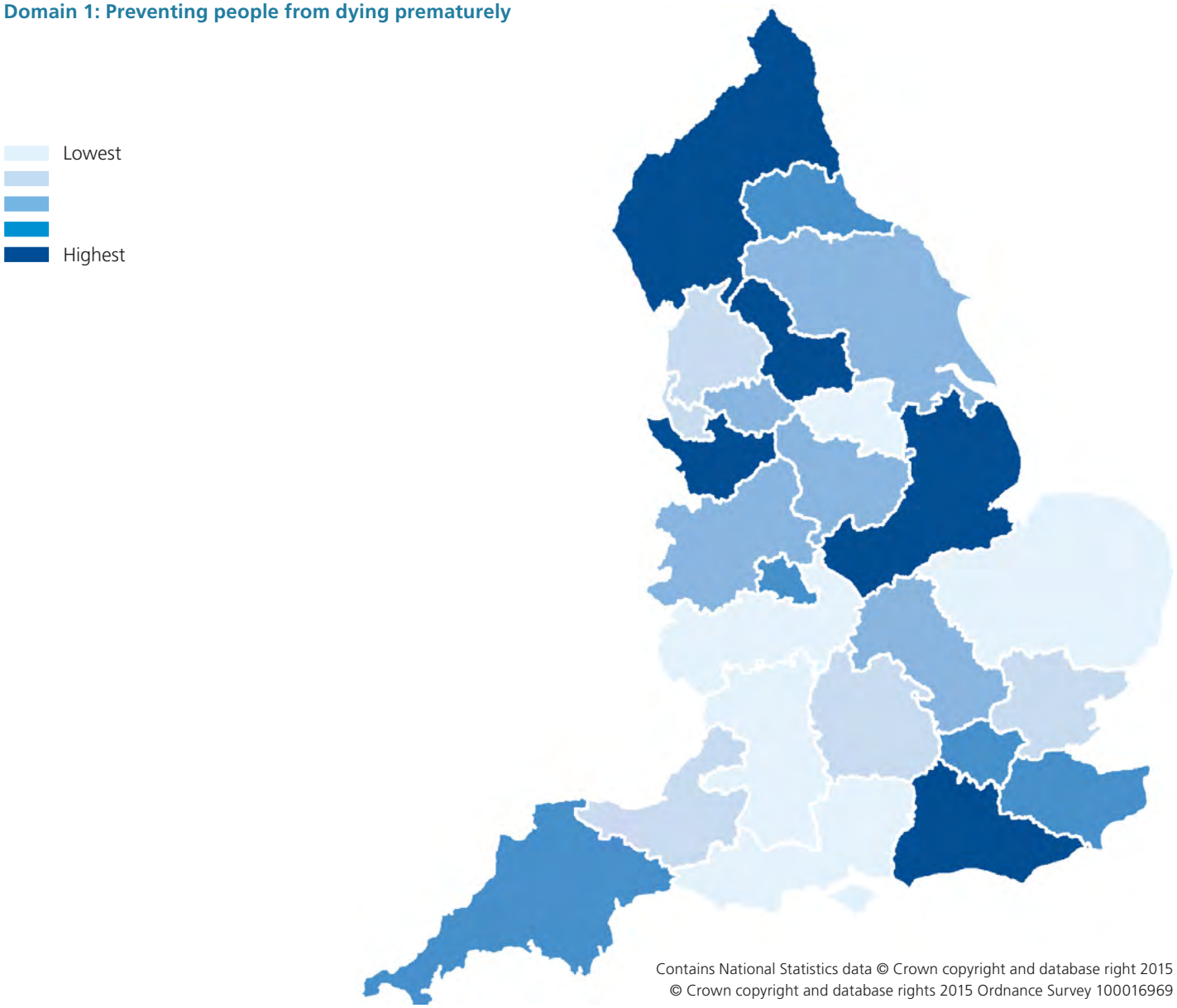
3 http://www.makingeverycontactcount.co.uk/

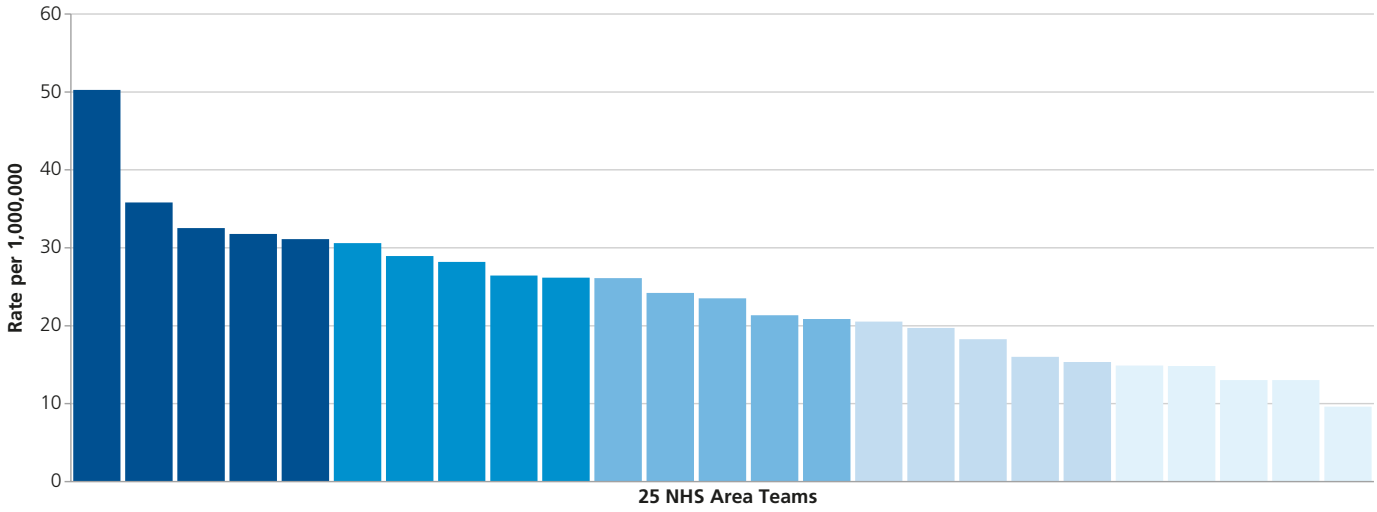
CARDIOVASCULAR FAMILY OF DISEASES: HEART

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





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

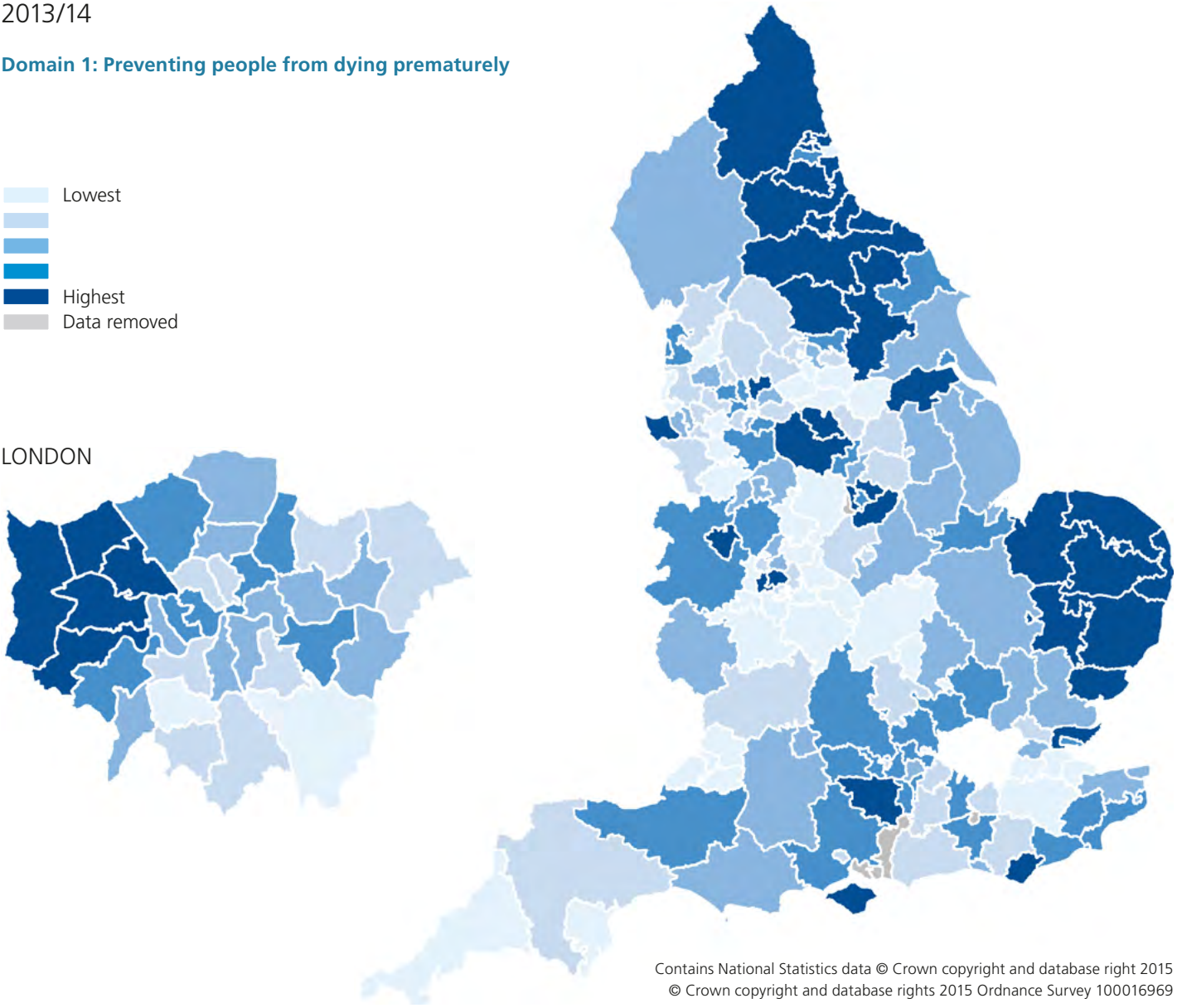
4 Kapadia SR, Leon MB, Makkar RR et al. 5-year outcomes of transcather aortic valve replacement compared to standard therapy for patients with inoperable aortic stensosis (PARTNER 1): a randomised controlled trial. *Lancet* 2015; 2015 Mar 15. pii: S0140-6736(15)60290-2. doi: 10.1016/S0140-6736(15)60290-2. [Epub ahead of print] http://www.ncbi.nlm.nih.gov/pubmed/25788231

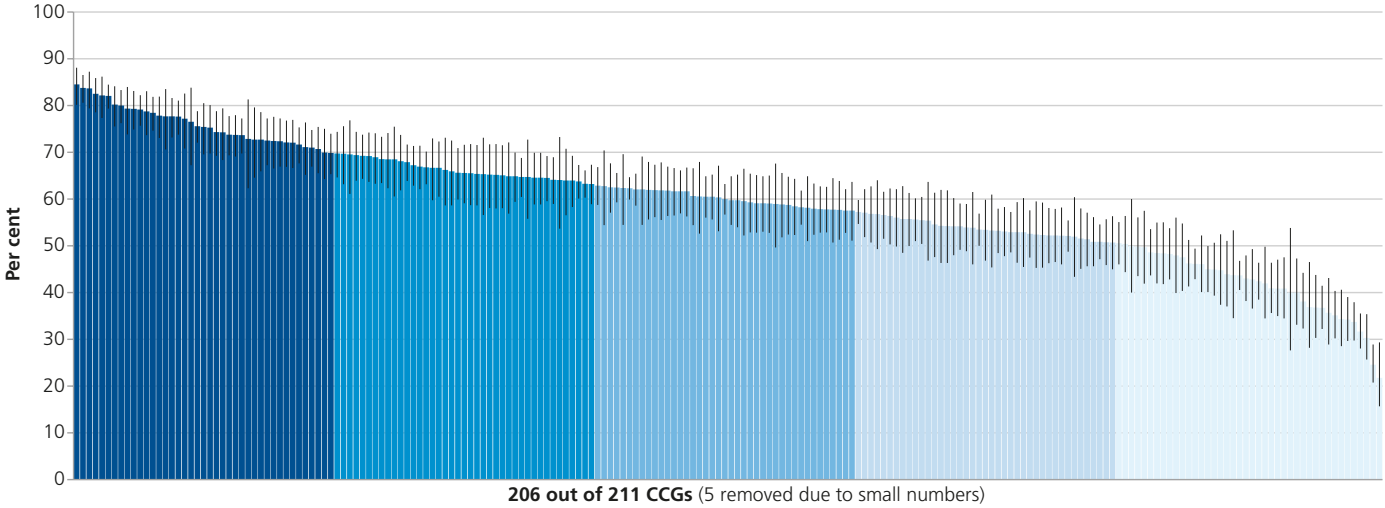
CARDIOVASCULAR FAMILY OF DISEASES: STROKE

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





206 out of 211 CCGs (5 removed due to small numbers)

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

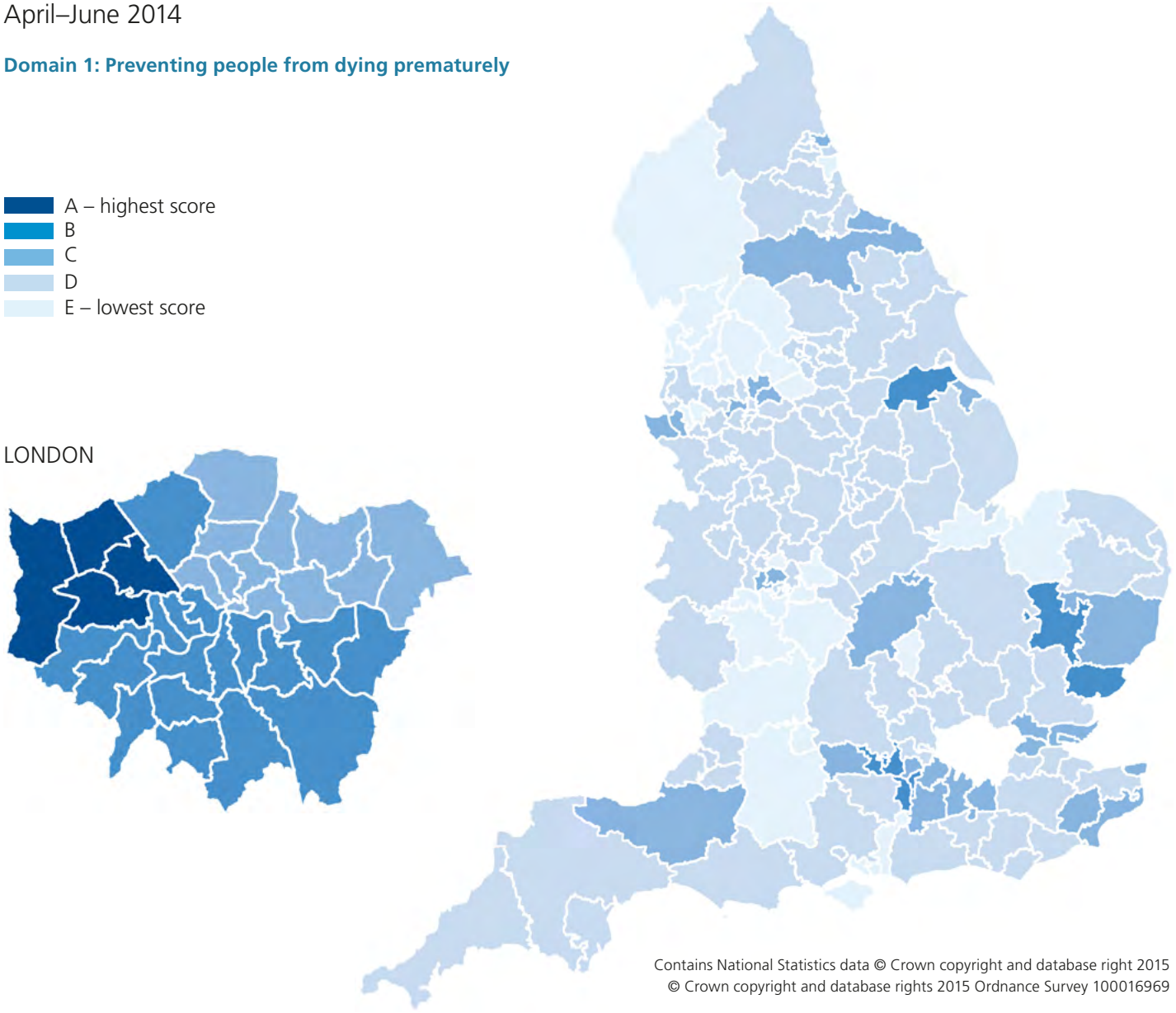
1 Data from five CCGs have been removed due to small numbers.

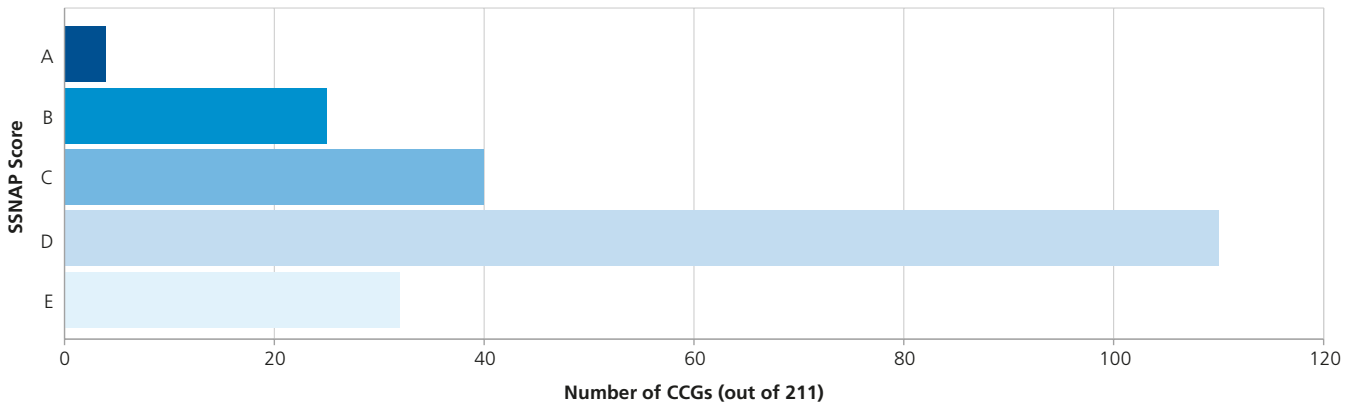
CARDIOVASCULAR FAMILY OF DISEASES: STROKE

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





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

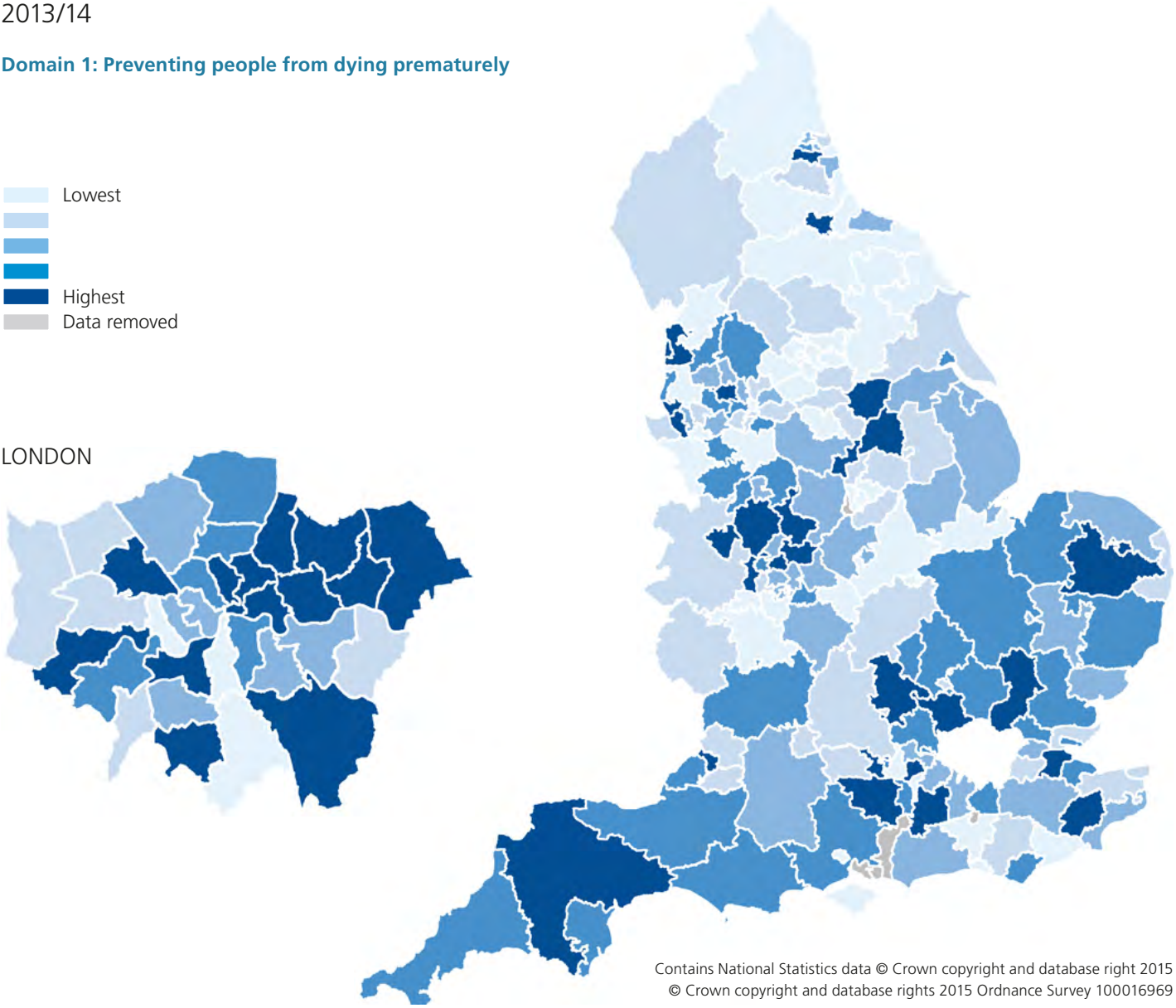
- Royal College of Physicians. SSNAP. https://www.strokeaudit.org/results.aspx
- Royal College of Physicians. Stroke Peer Review Scheme. https://www.rcplondon.ac.uk/resources/clinical-resources/standards-medical-record-keeping/stroke-peer-review-scheme
- Royal College of Physicians. Prepared for the 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

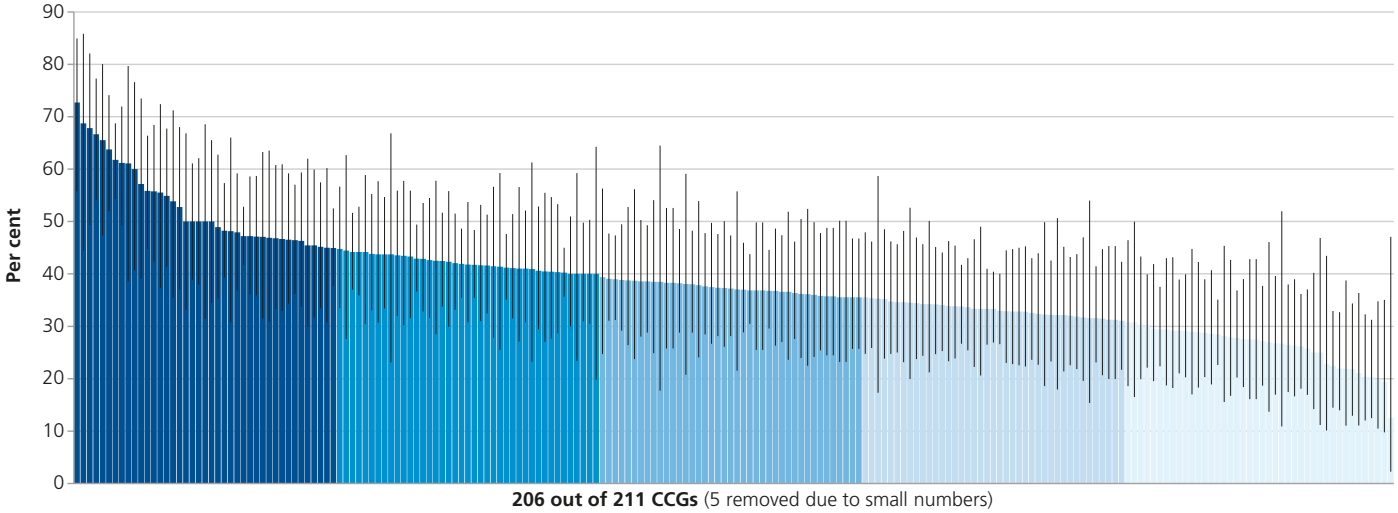
CARDIOVASCULAR FAMILY OF DISEASES: STROKE

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





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

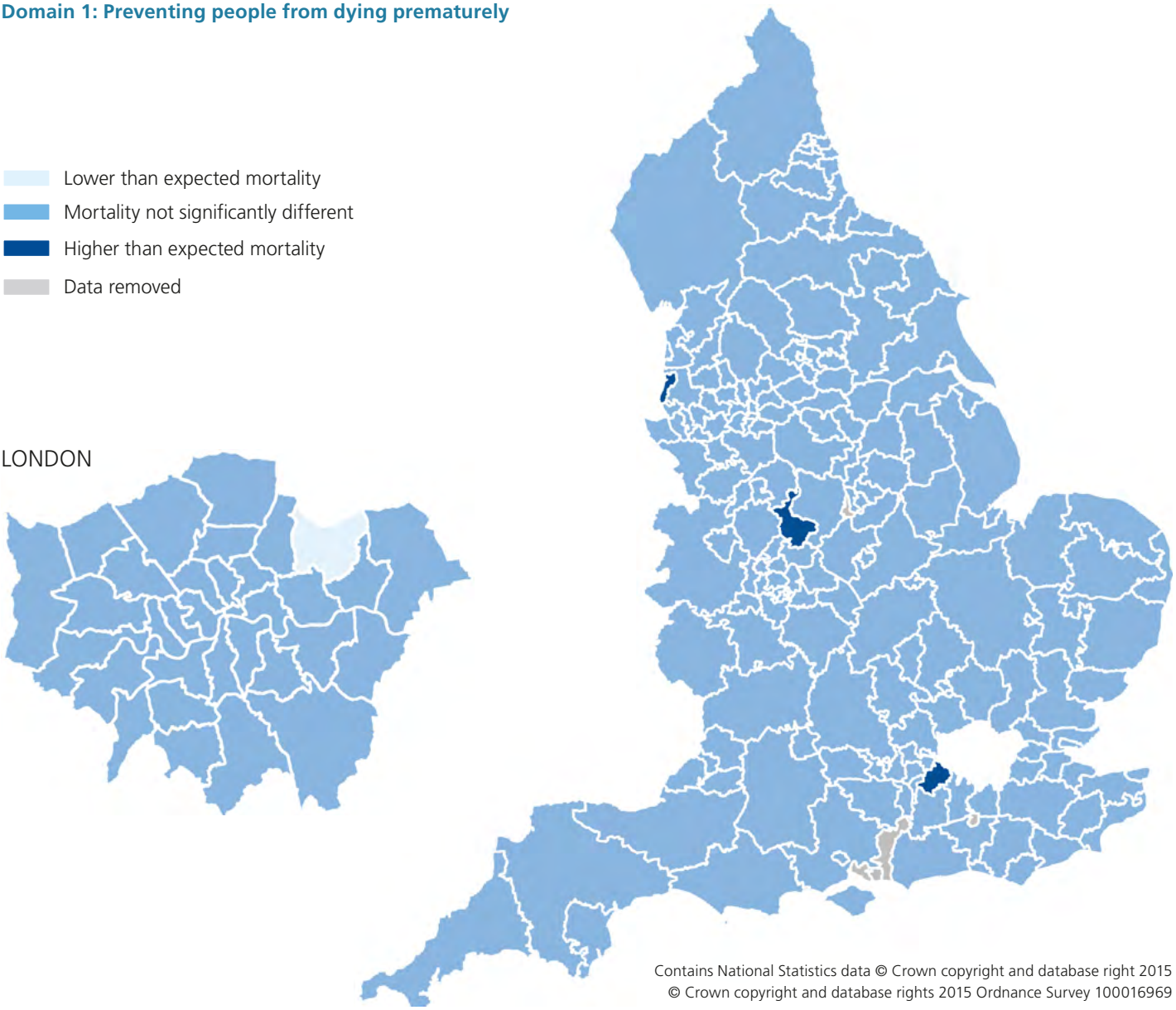
1 Data from five CCGs have been removed due to small numbers.

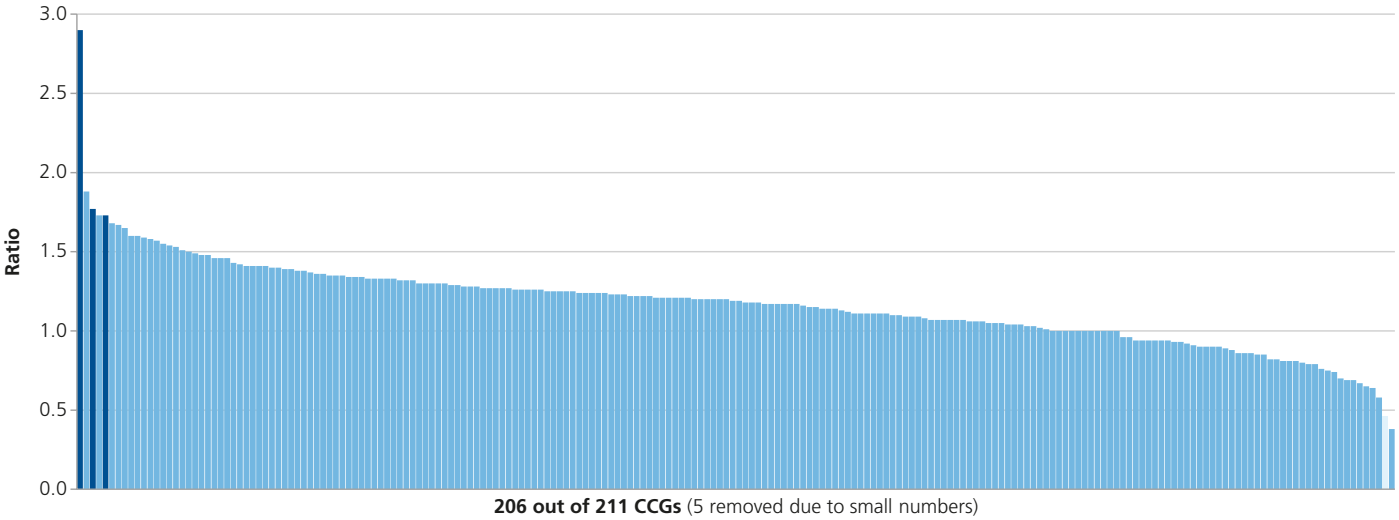
CARDIOVASCULAR FAMILY OF DISEASES: STROKE

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





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.

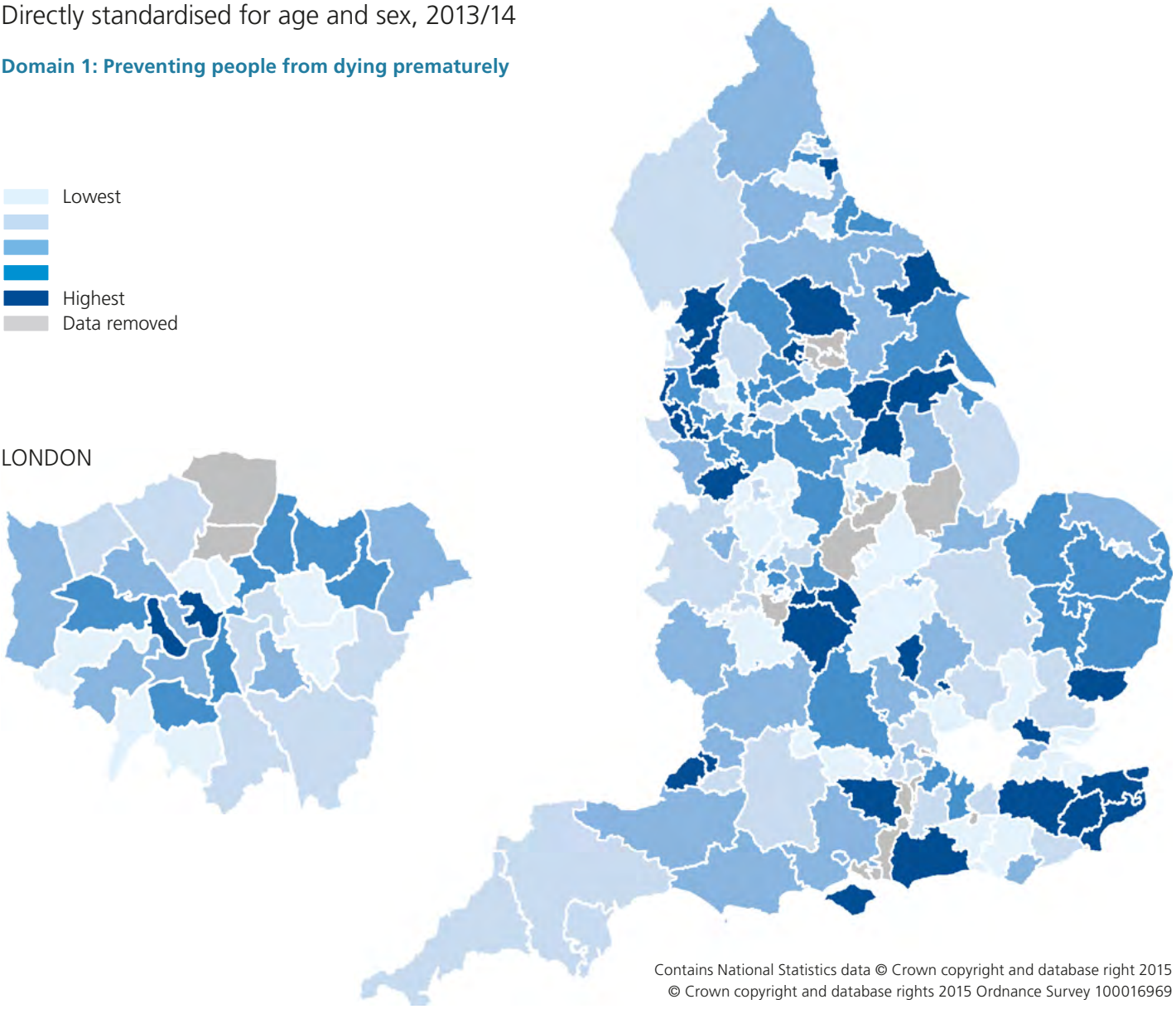
2 Bray BD, Avis S, Campbell J et al. Associations between stroke mortality and weekend working by stroke specialist physicians and registered nurses: prospective multicentre cohort study. PLoS Med 2014 Aug: 11(8): e1001705. Published online 2014 Aug 19. doi: 10.1371/journal.pmed.1001705. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4138029/

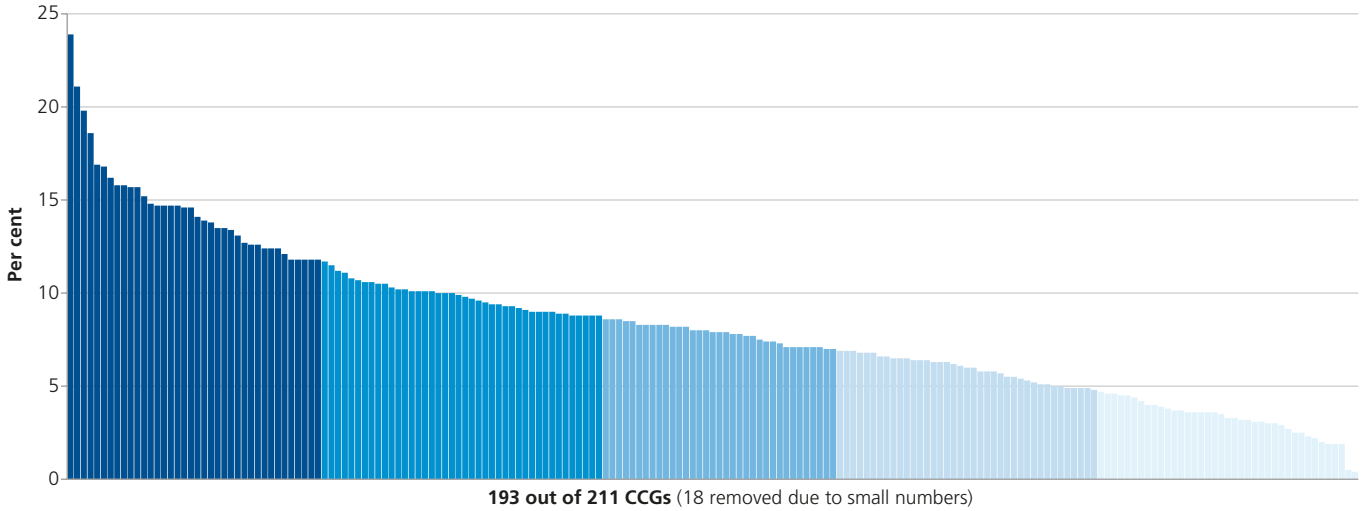
CARDIOVASCULAR FAMILY OF DISEASES: STROKE

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





193 out of 211 CCGs (18 removed due to small numbers)

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
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3 Data from 18 CCGs have been removed due to small numbers.

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)