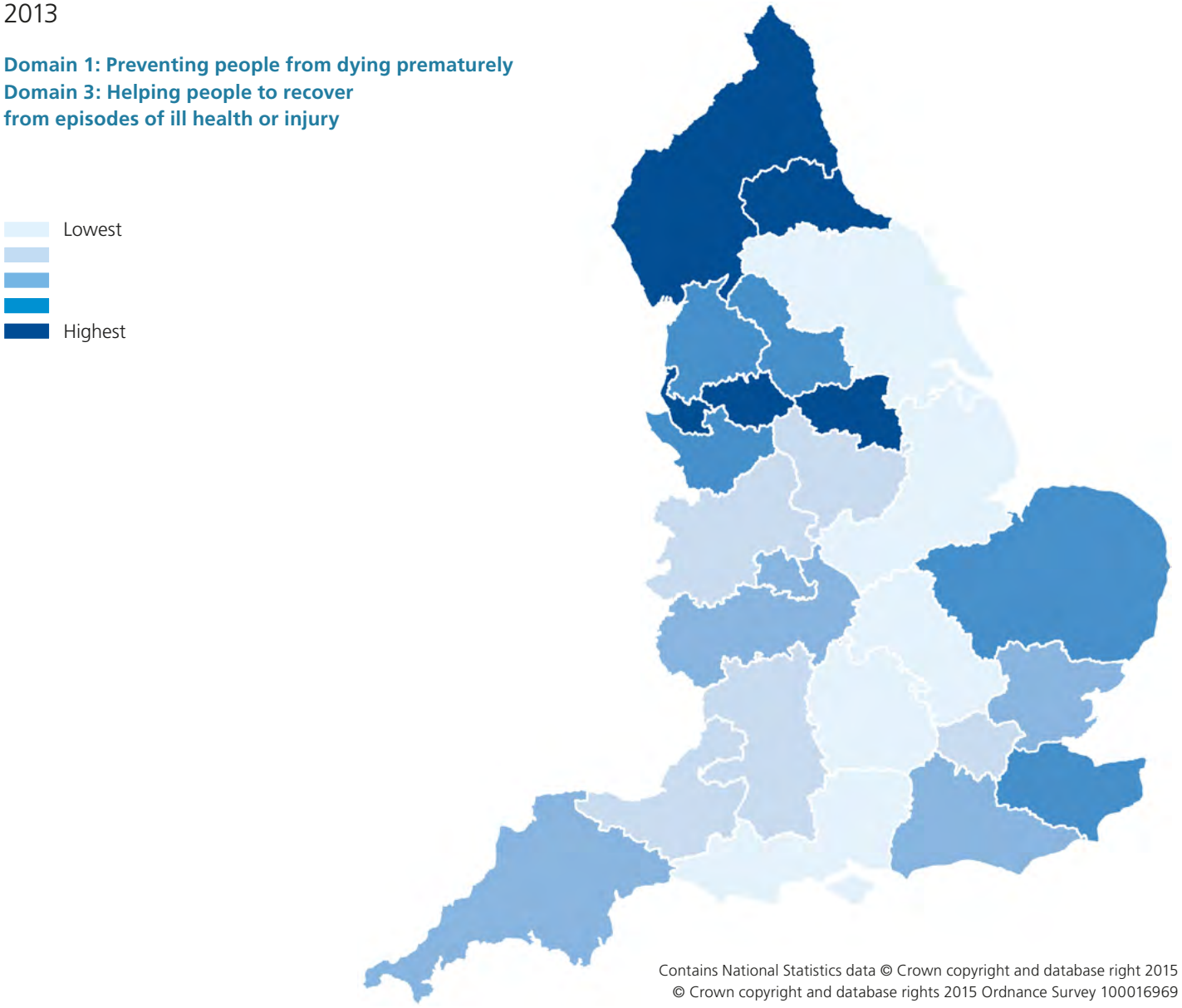
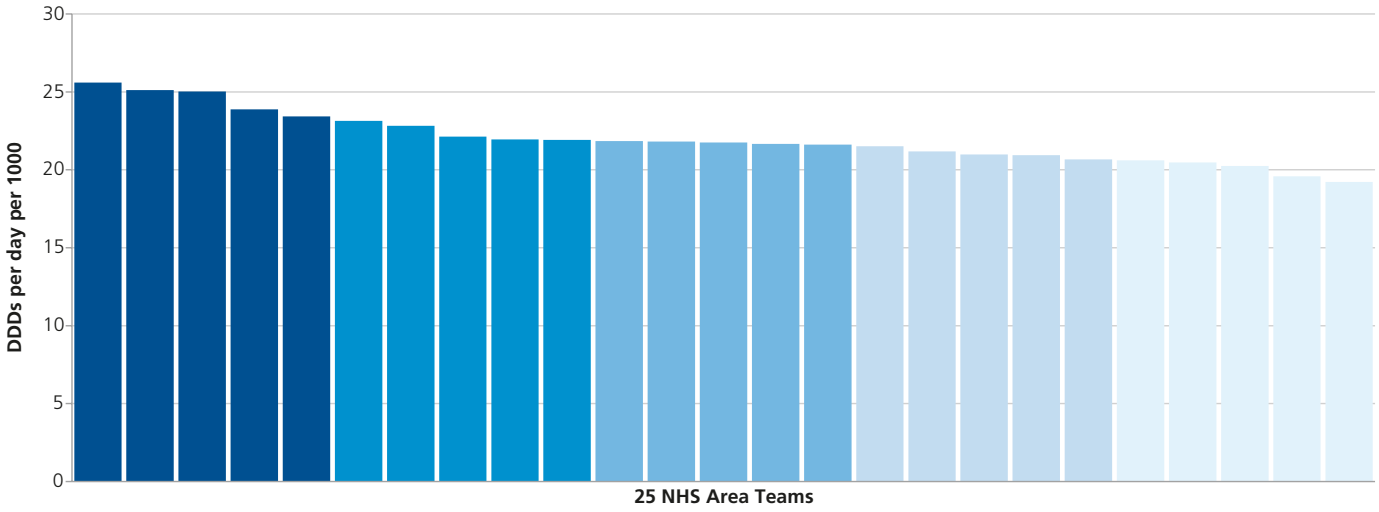
INFECTIOUS DISEASES

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

2013

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





Context

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

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

- increasing treatment failure for the most commonplace infections, such as urinary tract infections (UTIs) and pneumonia;
- a decrease in the treatment options available in situations where antibiotics are vital, such as when treating severe sepsis, when the immune system functions poorly with chemotherapy for malignancies or after transplantation.

The dissemination of information on antibiotic usage is critical:

- to reduce over-use;
- to improve prescribing practices;
- to lessen pressure for bacteria to develop resistance to antibiotics, especially as it is 30 years since a new class of antibiotics was introduced.

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

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

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

- GPs prescribed 79% of antibiotics;
- dentists and other community prescribers prescribed 6%.

The remaining 15% was prescribed in hospitals.

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

- general practice use increased by 4%;
- prescribing to hospital inpatients increased by 12%;
- other community prescriptions increased by 32%.

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

- changes in the number of patients presenting with infections requiring antibiotics;
- over-prescribing of antibiotics by clinicians.

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

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

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

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

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

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

Magnitude of variation

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

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

- usage in the NHS area team with the highest total usage was over 30% higher than that in the NHS area team with the lowest total usage;
- usage in the NHS area team with the highest level of prescribing in general practice was over 40% higher than that in the NHS area team with the lowest level of prescribing in general practice.

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

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

- the prevalence of infection in local populations;
- the level of prescribing by private providers (these data are not included in this indicator);
- ease of access to healthcare, particularly secondary care.

Options for action

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

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

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

- to benchmark their antibiotic use with that of other providers caring for similar populations;
- to compare local data with regional and national trends.

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

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

- applying evidence-based optimal standards for routine antibiotic use;
- providing educational programmes and developing competency for all staff prescribing antibiotics to patients;
- using effective communication techniques to highlight antibiotic issues to all stakeholders, including the public;
- auditing the impact and outcome of the stewardship processes;
- optimising outcomes for patients who receive antibiotics.

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

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

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

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

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

RESOURCES

- Davies S. Annual Report of the Chief Medical Officer 2011: Volume Two. Infections and the Rise of Antimicrobial Resistance. https://www.gov.uk/government/publications/chief-medical-officer-annual-report-volume-2
- Department of Health and Department for Environment Food & Rural Affairs. UK Five Year Antimicrobial Resistance Strategy 2013-2018. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244058/20130902_UK_5_year_AMR_strategy.pdf
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- Royal College of General Practitioners. TARGET Antibiotics Toolkit. http://www.rcgp.org.uk/clinical-and-research/target-antibiotics-toolkit.aspx
- Public Health England. Primary care guidance diagnosing and managing infections. First published 1 February 2013. https://www.gov.uk/government/collections/primary-care-guidance-diagnosing-and-managing-infections
- Public Health England and Department of Health Advisory Committee on ARHAI. Antimicrobial prescribing and stewardship competencies. September 2013. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/253094/ARHAIprescrcompetencies__2_.pdf
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- NICE Pathways. Antimicrobial stewardship overview. http://pathways.nice.org.uk/pathways/antimicrobial-stewardship
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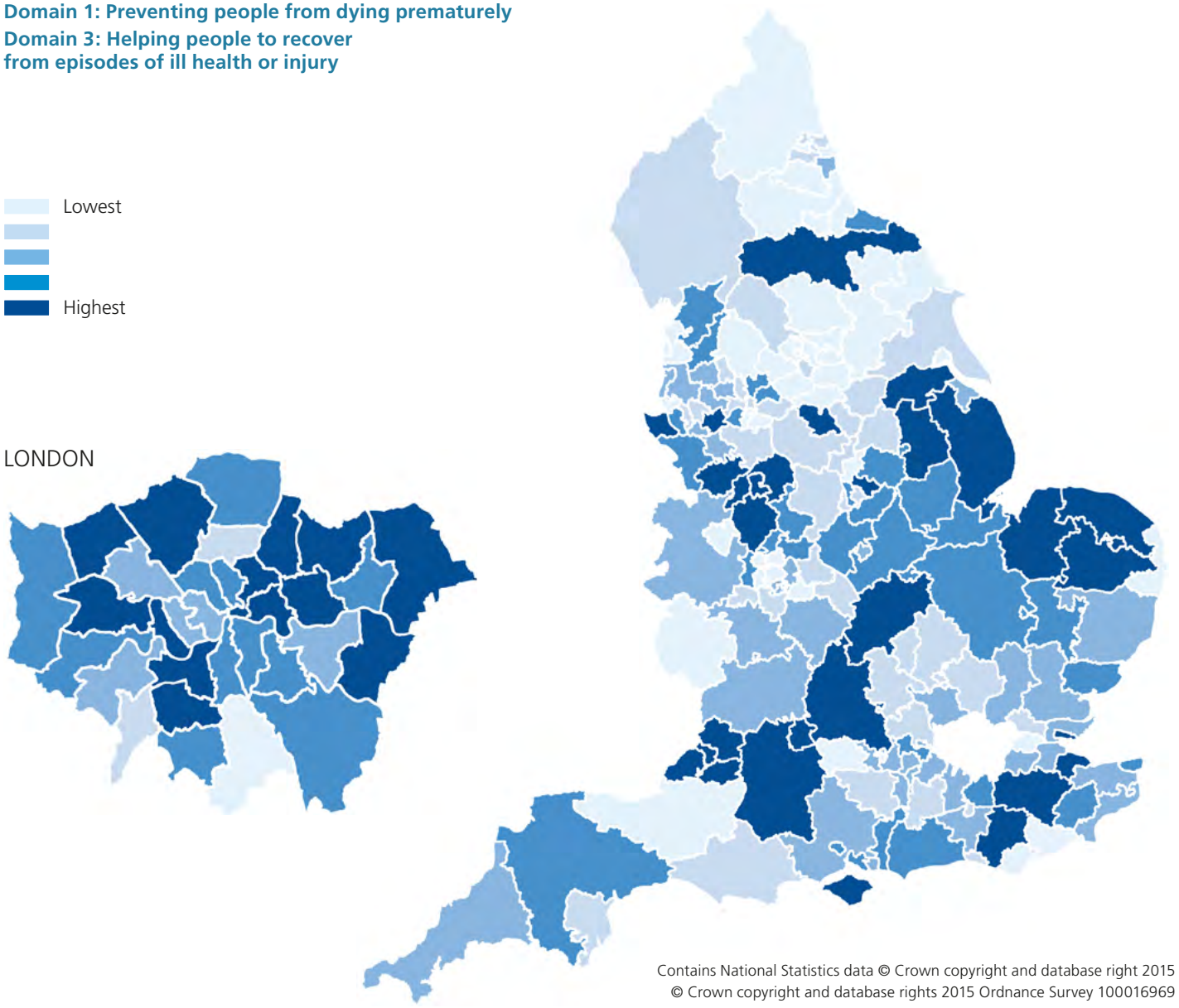
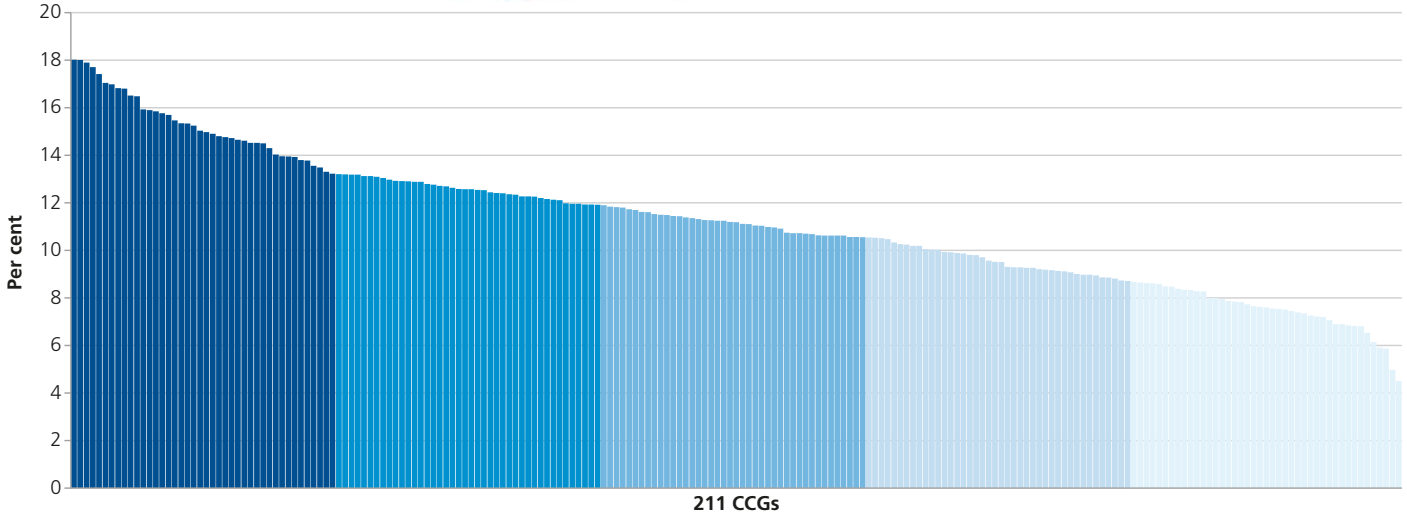
INFECTIOUS DISEASES

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

2013

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





Context

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

- changes in the numbers of patients presenting with infections;
- over-prescribing by clinicians.

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

The Department of Health's Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) recommends monitoring the proportion of antibiotics from the cephalosporin, fluoroquinolone and co-amoxiclav classes (known as the key antibiotics) as antimicrobial prescribing quality measures (APQMs) for antibiotic prescribing in primary healthcare (predominantly general practice).[1,2] In primary care, antibiotics from these classes are widely considered to be 'second-line' treatment options for the most common community-acquired infections. Indiscriminate use creates unnecessary selection pressure for resistant pathogens including *Clostridium difficile*.[3] The goal of implementing this APQM in primary care is the reduction in proportion of broad-spectrum antibiotic items to less than 10% of total antibiotic items by CCG by 2018. In England in 2013, the median proportion of prescription items for key antibiotics (cephalosporin, fluoroquinolone and co-amoxiclav classes) in primary care by CCG was 11% of total antibiotic items.

Magnitude of variation

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

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

- the prevalence of infection in local populations;
- ease of access to healthcare;
- the level of prescribing among general practices;
- the level of prescribing in private practice;
- the number of patients not registered with a general practice.

Options for action

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

- follow and implement NICE, RCGP and PHE guidelines (see "Resources") and other evidence-based strategies for safely reducing antibiotic prescribing in primary care (see "Resources": Little et al 2013 & 2014; Francis et al 2009);
- undertake audits at practice level to embed appropriate prescribing behaviour in clinical practice.

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

CASE-STUDIES

- Churchill Medical Centre, Surrey: reducing antibiotic prescribing for self-limiting respiratory tract infections in primary care (Case-study 1, page 261)
- Derbyshire: multifaceted interventions to promote prudent prescribing of antibiotics in primary care (Case-study 2, page 262)

RESOURCES

- English surveillance programme antimicrobial utilisation and resistance (ESPAUR). Report 2014. https://www.gov.uk/government/publications/english-surveillance-programme-antimicrobial-utilisation-and-resistance-espaur-report
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- Royal College of General Practitioners. TARGET Antibiotics Toolkit. http://www.rcgp.org.uk/clinical-and-research/target-antibiotics-toolkit.aspx
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- Stemming the Tide of Antibiotic Resistance (STAR). Visiting the STAR Educational Program. http://www.stemmingthetide.org/

1 Department of Health and Defra. UK five year antimicrobial resistance strategy 2013-2018. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244058/20130902_UK_5_year_AMR_strategy.pdf

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

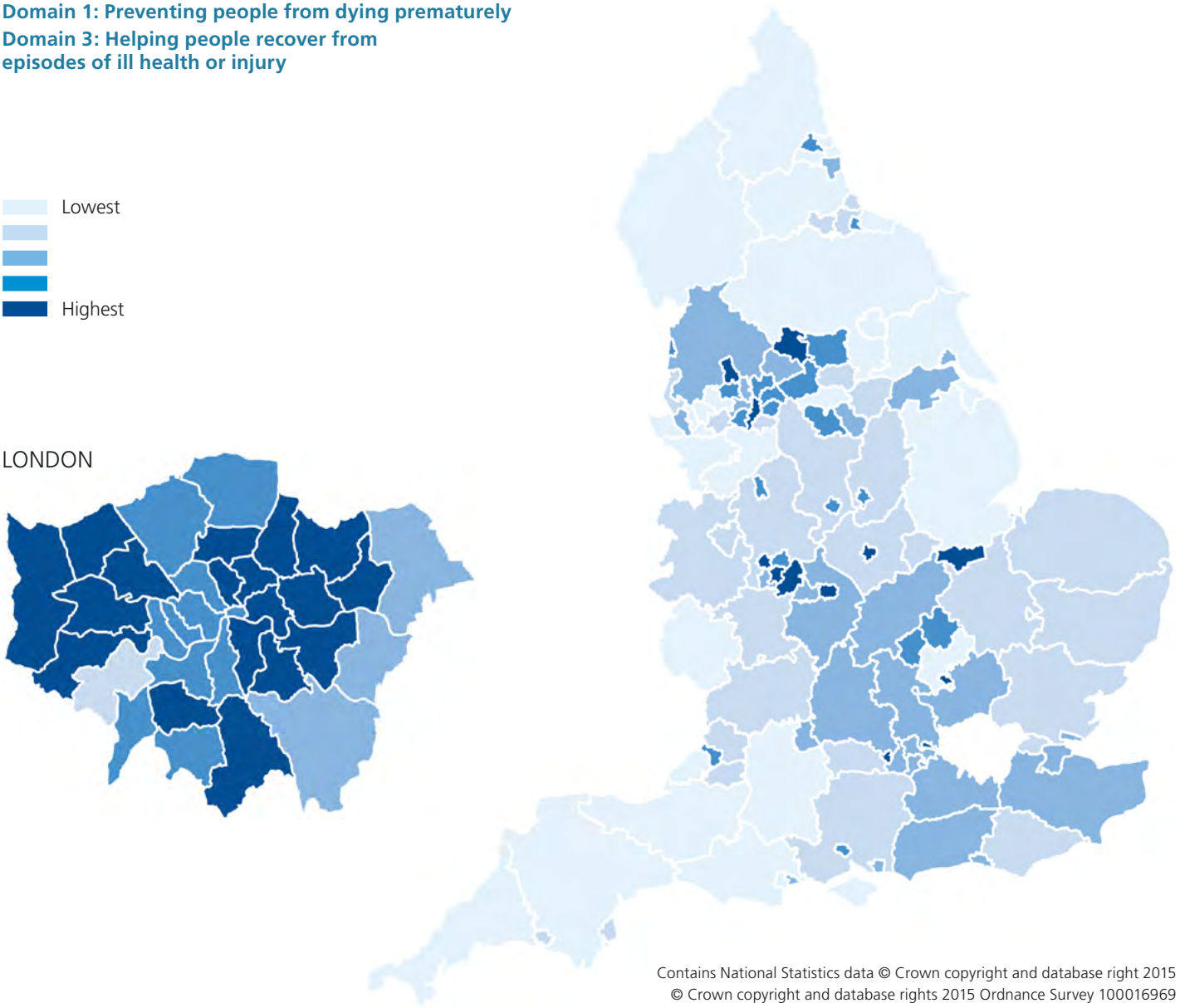
3 Hensgens MP, Goorhuis A, Dekkers OM, Kuijper EJ. Time interval of increased risk for Clostridium difficile infection after exposure to antibiotics. *J Antimicrob Chemother* 2012; 67(3):742-748. http://jac.oxfordjournals.org/content/67/3/742.long

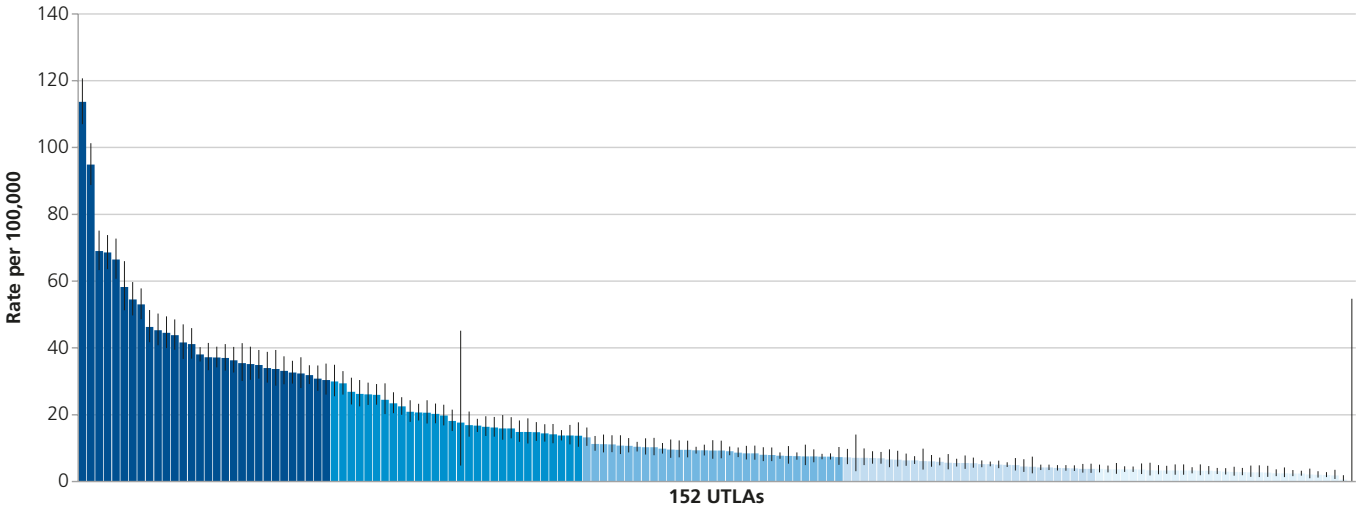
INFECTIOUS DISEASES

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

2011–2013

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





Context

Following major declines during most of the 20th century, in England the incidence of tuberculosis (TB) increased steadily from the late 1980s to 2005, and has remained at relatively high levels since. In 2013, there were 7290 cases reported, an incidence of 13.5 cases per 100,000 population. There has been a small decline in incidence in the past two years, but it is too early to ascertain whether this is the start of a downward trend.

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

Magnitude of variation

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

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

- exposure to TB;
- progressing from TB infection to active TB disease once infected.

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

- those born in countries with a high burden of TB – 73% of all TB cases notified in the UK in 2013 were born abroad, and the majority of these (85%) had lived in the UK for at least two years prior to notification;
- ethnic minority groups born in the UK who have frequent contact with high TB-burden countries – in 2013, the rate of TB in UK-born Indian, Pakistani and Black-African ethnic groups was at least ten times higher than that in the UK-born White population;
- those with certain social risk factors – in 2013, 3.3% of notified TB cases had a current or past history of homelessness, and 2.9% had a current or past history of imprisonment;
- those living in overcrowded accommodation, especially when combined with one of the other factors above.

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

- those with immunosuppression, HIV (even when not immunosuppressed) or diabetes;
- babies and young children;
- smokers;
- people with poor nutrition;
- people with drug or alcohol use problems.

Options for action

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

- to develop a local TB control plan based on the ten evidence-based areas for action (Box 3.1) in Annexe 1 of the Collaborative TB Strategy (see "Resources");
- to ensure appropriate commissioning, delivery and monitoring of TB services.

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

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

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

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

RESOURCES

- Public Health England. Tuberculosis (TB): collaborative strategy for England. January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf
- Public Health England. Reports of Cases of Tuberculosis to the National Enhanced Tuberculosis Surveillance System, 2004 to 2013. Official Statistics. September 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/358226/TB_Official_Statistics_230914.pdf
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- Public Health England. TB Strategy Monitoring Indicators. http://fingertips.phe.org.uk/profile/tb-monitoring

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

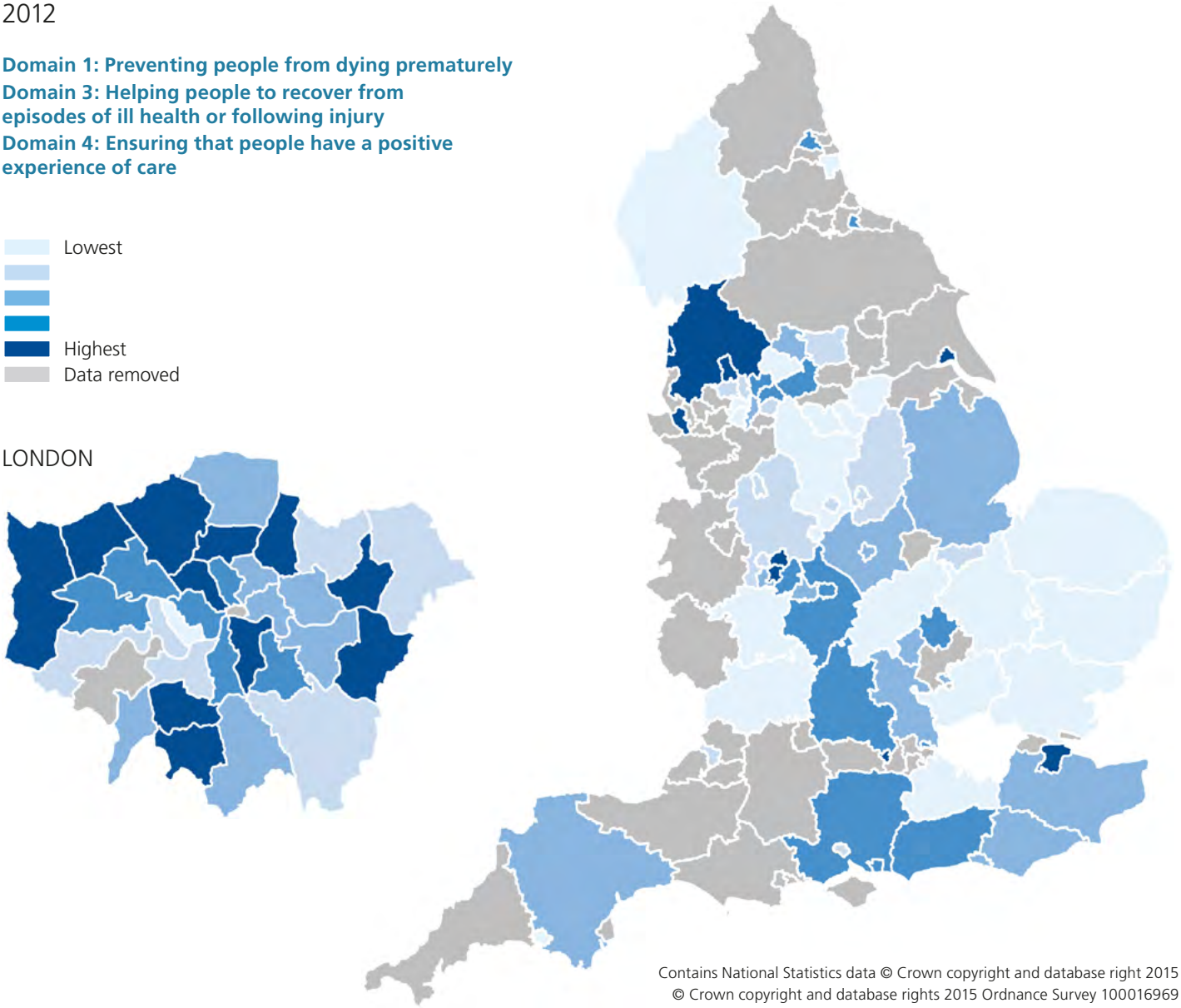
2 At the time of writing, this guidance is scheduled for an update in October 2015.

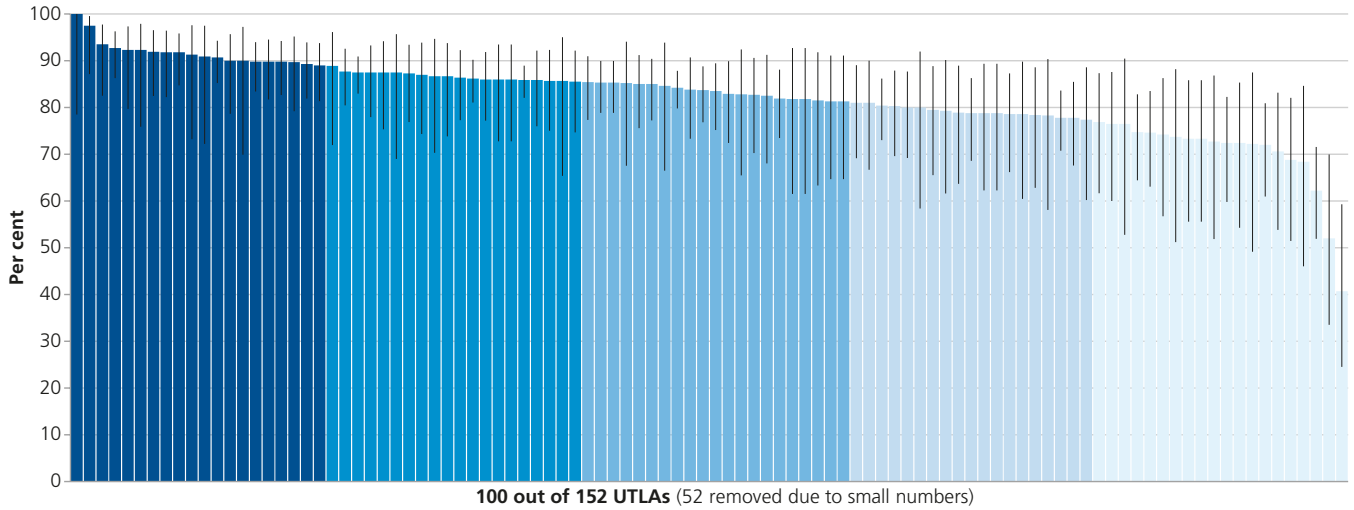
INFECTIOUS DISEASES

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

2012

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





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

Context

Prompt diagnosis of tuberculosis (TB) and appropriate management and treatment completion is crucial:

- to ensure a favourable outcome for individual patients;
- to prevent ongoing transmission.

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

Tuberculosis is curable; however, if left untreated or if treated inappropriately, the disease can be fatal. Without treatment, one-third of all pulmonary TB cases die. People who do not receive a full course of treatment can develop drug-resistance, long-term health problems, and remain infectious for prolonged periods of time, presenting an infection risk to others.

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

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

Magnitude of variation

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

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

- die while being treated – a higher proportion of people who die are older;
- are lost to follow-up (either in the UK or abroad);
- are still on treatment due to treatment interruptions or side-effects;
- have social risk factors.

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

- the structure and quality of TB services across England;
- the provision of specialist TB services, TB clinical nurse specialists and outreach/DOT workers to support patients with complex medical or social needs enabling them to complete treatment;
- access to or participation in a TB clinical network to support expert review of complex cases;
- access to specialist unit co-supervision.

Options for action

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

- to work with Public Health England and NHS England to review services in their local area;
- to develop plans to address gaps in the provision of high-quality universal clinical, public health and social care services for TB, based on NICE guidance (see "Resources").

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

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

In localities where there may be under-served populations:

- public health, healthcare and other professionals should follow NICE guidelines PH37 (see "Resources");
- NHS and other commissioners need to consider ways of reaching these populations, such as the approach developed by the University College London Hospital "Find & Treat" service.

CASE-STUDY

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

RESOURCES

- Public Health England. Tuberculosis (TB): collaborative strategy for England. January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf
- Public Health England. Reports of Cases of Tuberculosis to the National Enhanced Tuberculosis Surveillance System, 2004 to 2013. Official Statistics. September 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/358226/TB_Official_Statistics_230914.pdf
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- Local Government Association. Tackling Tuberculosis – Local government's public health role. July 2014.http://www.local.gov.uk/publications/-/journal_content/56/10180/6337454/PUBLICATION
- Royal College of Nursing. Public health – topics: Tuberculosis (TB) website. http://www.rcn.org.uk/development/practice/public_health/topics/tuberculosis
- Public Health England. TB Strategy Monitoring Indicators. http://fingertips.phe.org.uk/profile/tb-monitoring

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

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

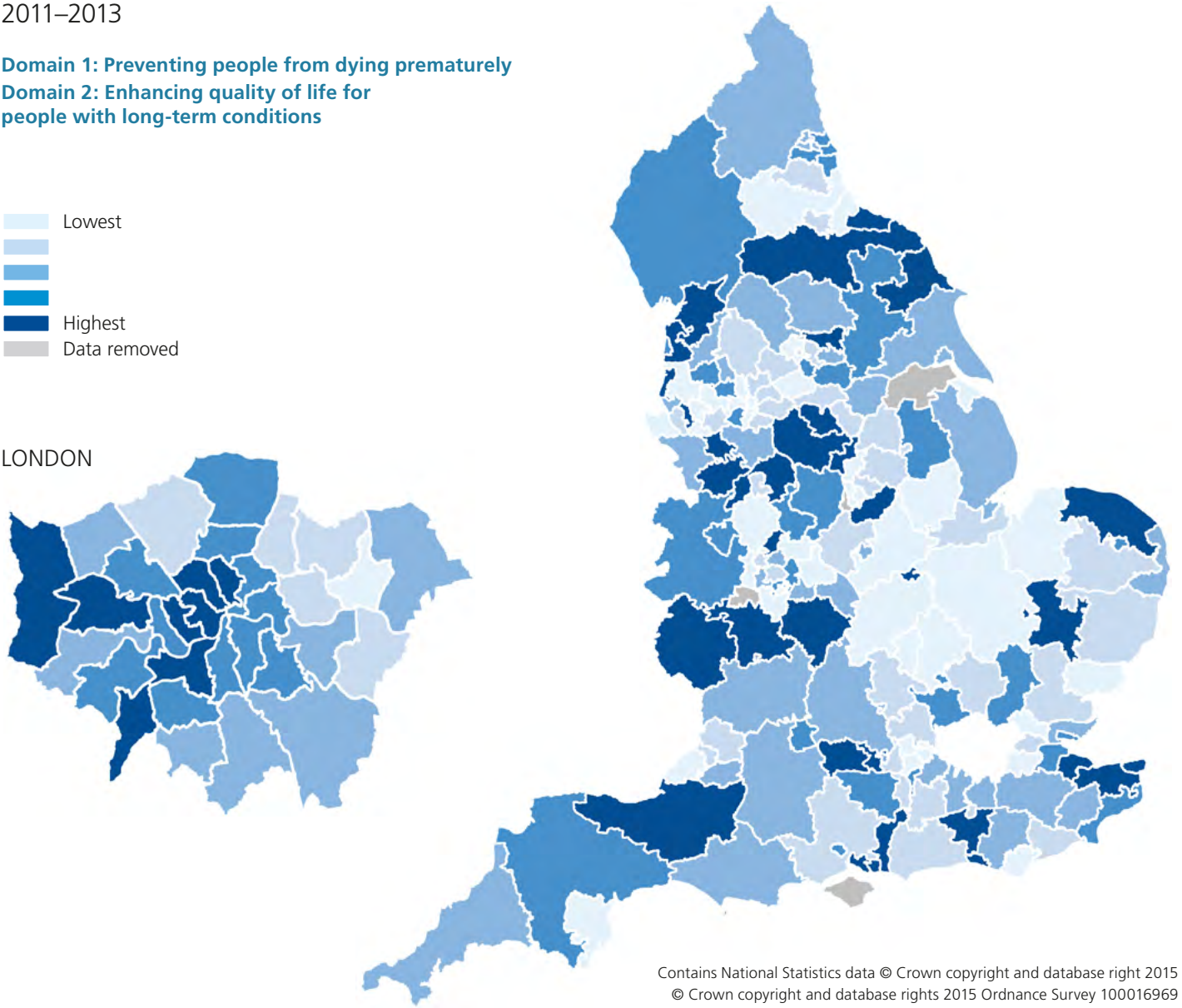
3 At the time of writing, this guidance is scheduled for an update in October 2015.

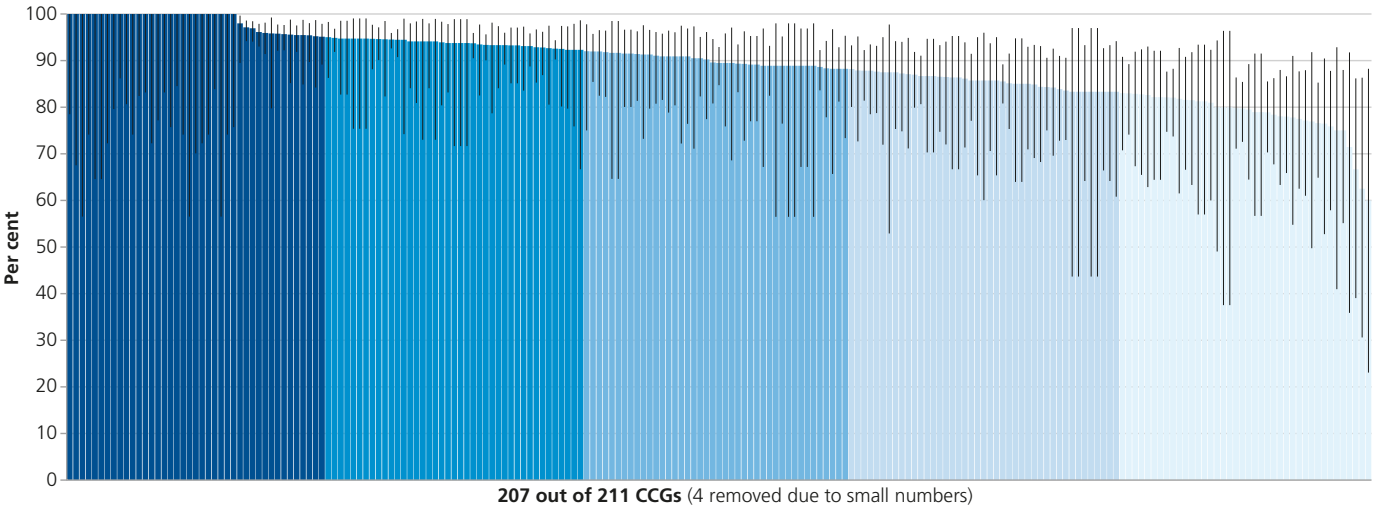
INFECTIOUS DISEASES

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

2011–2013

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





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

Context

In the UK in 2013, an estimated 107,800 people were living with HIV, 6000 people were diagnosed with HIV infection, and 320 people were reported with AIDS.

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

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

- to initiate life-saving anti-retroviral therapy;
- to facilitate the delivery of important interventions for reducing HIV transmission.

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

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

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

Magnitude of variation

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

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

- being diagnosed outside sexual health clinics and subsequently referred to an HIV clinic for care;
- severity of illness;
- co-morbidity;
- acceptance of care.

Factors at the service level can include differences in:

- local policies and practice;
- the coordination among and efficiency of all the services in the system of care for a local population;
- the occurrence of local epidemics.

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

Options for action

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

- expand HIV testing in non-GUM settings;
- comply with NICE guidelines PH33 and PH34 on increasing uptake of HIV testing in certain population groups;
- standardise and strengthen the referral processes, which is particularly important for late presenters who are at increased risk of mortality and morbidity;
- monitor referral after diagnosis and linkage to care, and assess the impact of these factors on the quality of HIV care;
- aim to achieve the standards of care recommended by the BHIVA and NHS England (see "Resources").

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

RESOURCES

- British HIV Association. Standards of Care for People Living with HIV 2013. http://www.bhiva.org/documents/Standards-of-care/BHIVAStandardsA4.pdf
- NHS England (2013) B06/S/a. 2013/14. NHS Standard Contract For Specialised Human Immunodeficiency Virus Services (Adults). Section B Part 1 – Service Specifications. http://www.england.nhs.uk/wp-content/uploads/2013/06/b06-spec-hiv-serv.pdf
- NHS England (2013) B06/S/b. 2013/14. NHS Standard Contract For Specialised Human Immunodeficiency Virus Services (Children). Section B Part 1 – Service Specifications. http://www.england.nhs.uk/wp-content/uploads/2013/06/b06-spec-hiv-child.pdf
- NICE pathways. HIV testing and prevention overview. http://pathways.nice.org.uk/pathways/hiv-testing-and-prevention
- Yin Z, Brown AE, Kall M et al. Patients' referral pathway in the first year of HIV care. HIV Medicine 2014; 15 (Suppl. 3): 7. http://www.bhiva.org/documents/Conferences/2014Liverpool/Presentations/140403/ZhengYin.pdf
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- NICE. Increasing the uptake of HIV testing in black Africans in England. NICE guidelines [PH33]. March 2011. http://www.nice.org.uk/guidance/ph33
- NICE. Increasing the uptake of HIV testing among men who have sex with men. NICE guidelines [PH34]. March 2011. http://www.nice.org.uk/guidance/ph34

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