

Improving feedback of surveillance data on antimicrobial consumption, resistance and stewardship in England: putting the data at your Fingertips

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The provision of better access to and use of surveillance data is a key component of the UK 5 Year Antimicrobial Resistance (AMR) Strategy. Since April 2016, PHE has made data on practice (infection prevention and control; antimicrobial stewardship) and outcome (prevalence of AMR, antibiotic use and healthcare-associated infections) available through Fingertips, a publicly accessible web tool (<https://fingertips.phe.org.uk/profile/amr-local-indicators>). Fingertips provides access to a wide range of public health data presented as thematic profiles, with the above data being available through the 'AMR local indicators' profile. Local data on a range of indicators can be viewed at the level of National Health Service acute trusts, Clinical Commissioning Groups or general practitioner practices, all of which can be compared with the corresponding aggregate values for England to allow benchmarking. The data can be viewed in a range of formats including an overview showing counts and rates, interactive maps, spine charts and graphs that show temporal trends over a range of time scales or allow correlations between pairs of indicators. The aim of the AMR local indicators profile on Fingertips is to support the development of local action plans to optimize antibiotic prescribing and reduce AMR and healthcare-associated infections. Provision of access to relevant information in an easy to use format will help local stakeholders, including healthcare staff, commissioners, Directors of Public Health, academics and the public, to benchmark relevant local AMR data and to monitor the impact of local initiatives to tackle AMR over time.

Background

The UK 5 Year Antimicrobial Resistance (AMR) Strategy, published in 2013, lists seven key areas for action, one of which is 'better access to and use of surveillance data'.¹ PHE took this forward through the English Surveillance Programme for Antimicrobial Utilization and Resistance (ESPAUR).² Initial work focused on improving the quality and quantity of data on antimicrobial use and resistance and publishing annual reports.³ Since April 2016, these data together with additional healthcare-associated infection and infection prevention and control data have been made available through Fingertips, a publicly accessible web tool maintained by PHE. Fingertips provides access to a wide range of local public health data presented as thematic profiles, with the above data being available through the 'AMR local indicators' profile.⁴ Each dataset is available in a range of formats, including an overview showing counts and rates, interactive maps, spine charts and graphs that show temporal trends or allow correlations between pairs of indicators (Figure 1).⁴ The data are presented over a range

of time scales including financial year, quarter or month. In addition to being visible on screen, all data may be downloaded as Excel files to allow further analysis. A user guide is available for download and a 'Definitions' tab in the system provides comprehensive information about each indicator and the rationale for inclusion.

AMR local indicators

The Fingertips AMR local indicators' profile comprises five domains that provide data on AMR, antibiotic prescribing, healthcare-associated infection, infection prevention and control (IPC), and antimicrobial stewardship. The data in each domain are broken down geographically and can be viewed at the level of National Health Service (NHS) acute trusts (groups of hospitals under the same management), Clinical Commissioning Groups (CCGs; clinically-led statutory NHS bodies responsible for the planning and commissioning of healthcare services for their local area) or general practitioner (GP) practices (primary care delivered by GPs and other

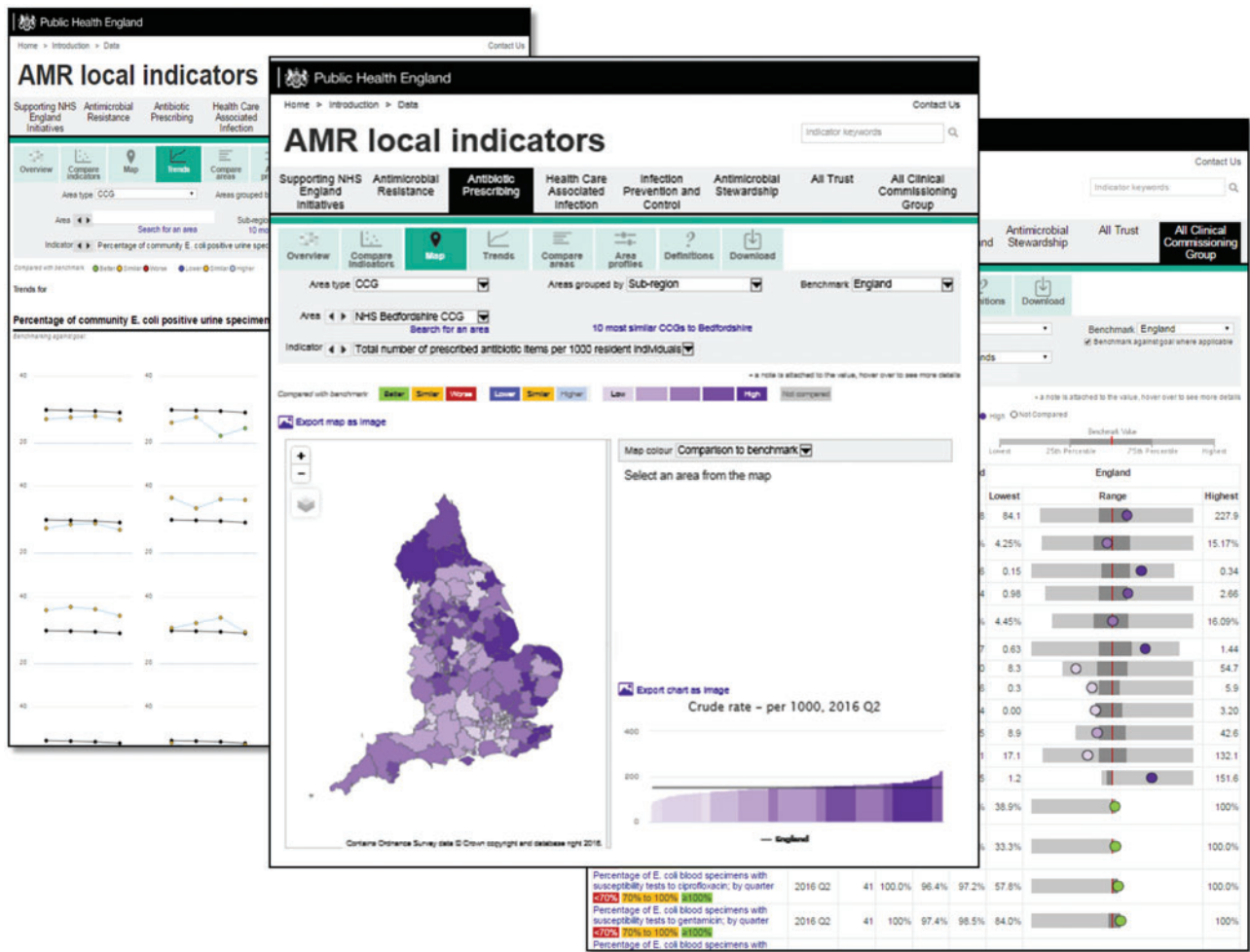


Figure 1. Examples of different formats for viewing data in the AMR local indicators profile on Fingertips.

healthcare workers), all of which can be compared with the corresponding aggregate values for England. For ease of use, related data items are also grouped together and presented in three additional domains, namely one for NHS acute trusts, one for CCGs and one for activities supporting NHS England initiatives to tackle resistance, particularly the NHS England AMR CQUIN (Commissioning for Quality and Innovation) goals for 2016/17.⁵

The data presented are derived from available sources including NHS Digital,⁶ the national mandatory surveillance schemes for *Clostridium difficile* infection, *Escherichia coli* and staphylococcal bacteraemia⁷ and surgical site infection,⁸ PHE curated microbiology laboratory information management systems,⁹ healthcare worker influenza surveillance,¹⁰ and NHS Business Service Authority and acute trust data submitted as part of NHS England's AMR CQUIN.⁵

Data items available on Fingertips

As of November 2016, data for a total of 74 AMR local indicators were available, with the breakdown of data by acute trust, CCG or GP practice shown in Table 1. The data items in each domain are outlined below.

AMR domain

AMR indicators include rates of MRSA bacteraemia (by acute trust and CCG), the proportions of *E. coli* from blood tested for susceptibility to a range of key antibiotics and the proportions reported as resistant (by CCG) and the proportions of *E. coli* and non-specified coliforms from community urine specimens that are tested and reported as resistant to trimethoprim and nitrofurantoin (by CCG).

Antibiotic prescribing domain

Prescribing indicators include: (i) DDDs of all antibiotics, piperacillin/tazobactam and carbapenems dispensed by acute trusts per 1000 admissions and per 1000 occupied bed-days; (ii) quarterly and 12 month rolling CCG data for total number of prescribed antibiotic items in primary care settings per 1000 residents and per STAR-PU (Specific Therapeutic group Age-sex-Related Prescribing Units) and the proportion that are broad-spectrum; (iii) quarterly GP practice data on numbers of prescribed antibiotic items per 1000 registered patients and per STAR-PU and the proportion that are broad-spectrum (cephalosporins, quinolones or co-amoxiclav) by

Table 1. AMR local indicators available on the PHE Fingertips web portal as of November 2016

Domain ^a	No. of indicators available at indicated geographies		
	acute trust	CCG	GP
AMR	1	14	–
Antibiotic prescribing	6	7	4
Healthcare-associated infections	21	14	–
Infection prevention and control	4	–	–
Antimicrobial stewardship	2	1	–

^aRelevant data items in the five listed domains are also provided in three other domains for all acute trusts, CCGs and activities supporting NHS England initiatives to reduce AMR, respectively.

quarter; and (iv) quarterly CCG and GP practice data on the ratio of trimethoprim to nitrofurantoin prescribing.

Healthcare-associated infection domain

This domain includes CCG rates and counts for *Clostridium difficile* infection and bacteraemia caused by *E. coli*, MRSA and MSSA, with the same data for acute trusts as well as hospital-onset *E. coli* bacteraemia. Also included are inpatient and readmission-detected orthopaedic (hip and knee replacement) surgical site infection rates by NHS Trust.

Infection prevention and control domain

The indicators for the IPC domain include the proportion of single rooms (both with and without en-suite facilities) in acute trusts, the trust PLACE (Patient-Led Assessments of the Care Environment) cleanliness scores¹¹ and the proportion of frontline healthcare workers in each acute trust vaccinated against seasonal influenza.

Antimicrobial stewardship domain

These indicators include the outcomes of trust reviews of the Start Smart Then Focus antimicrobial stewardship toolkit, the proportion of antibiotic prescriptions with evidence of review within 72 h and the numbers of Antibiotic Guardians per 100 000 CCG population.¹²

Making use of the data

Sustainability and transformation plans

In December 2015, the NHS outlined a new approach to ensuring healthcare delivery was centred on the needs of local populations, based around local development of sustainability and transformation plans that target a range of healthcare issues, including local

actions to reduce AMR through improved antibiotic stewardship and reducing rates of infection.¹³ The provision of data relating to AMR local indicators via Fingertips will be a valuable tool for facilitating development, implementation and monitoring of local action plans.

Supporting NHS England commissioning initiatives

To support the national AMR strategy, NHS England introduced the Quality Premiums (2015/16) and CQUIN (2016/17) payment frameworks to reduce total and broad-spectrum prescribing in primary and secondary care.^{5,14} From 2017 to 2019 the Quality Premium will also include ambitions to reduce Gram-negative bloodstream infections across the healthcare economy, while focusing on improving compliance with PHE's evidence-based urinary tract infection treatment guidelines¹⁵ to reduce empirical trimethoprim and increase nitrofurantoin prescribing. During the same period, the CQUIN will continue to focus on reducing total antibiotic prescribing and use of broad-spectrum antibiotics (carbapenems and piperacillin/tazobactam) in acute trusts with stewardship teams focusing on reviewing local antibiotic prescribing practice.

Discussion

The aim of the AMR local indicators profile on Fingertips is to support local action to reduce inappropriate prescribing, AMR and healthcare-associated infections by ensuring that relevant data are made available in an easy to understand format. By sharing these data transparently and openly, PHE aims to stimulate cross-organizational working and learning that may assist in our aim of preserving antibiotics for future generations.

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Transparency declarations

None to declare.

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