

Assessment of compliance with the Code of Practice for Official Statistics

Statistics on Mandatory Surveillance of Healthcare-Associated Infections in England

(produced by Public Health England)

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The UK Statistics Authority is an independent body operating at arm's length from government as a non-ministerial department, directly accountable to Parliament. It was established on 1 April 2008 by the *Statistics and Registration Service Act 2007*.

The Authority's overall objective is to promote and safeguard the production and publication of official statistics that serve the public good. It is also required to promote and safeguard the quality and comprehensiveness of official statistics, and good practice in relation to official statistics.

The Statistics Authority has two main functions:

1. oversight of the Office for National Statistics (ONS) – the executive office of the Authority;
2. independent scrutiny (monitoring and assessment) of all official statistics produced in the UK.

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NATIONAL STATISTICS STATUS

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.



All official statistics should comply with all aspects of the *Code of Practice for Official Statistics*. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is a producer's responsibility to maintain compliance with the standards expected of National Statistics, and to improve its statistics on a continuous basis. If a producer becomes concerned about whether its statistics are still meeting the appropriate standards, it should discuss its concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

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1 Summary of findings

1.1 Introduction

1.1.1 This is one of a series of reports¹ prepared under the provisions of the *Statistics and Registration Service Act 2007*². The Act allows an appropriate authority³ to request an assessment of official statistics against the *Code of Practice for Official Statistics*⁴ in order for them to gain National Statistics status. This report is in response to such a request. The report covers the sets of statistics referred to in this report as mandatory surveillance of healthcare-associated infections (HCAI) statistics, produced by Public Health England (PHE) and reported in:

- *MRSA, MSSA and E. coli bacteraemia and C. difficile infection: quarterly epidemiological commentary*⁵ (Quarterly commentary)
- *MRSA, MSSA and E. coli bacteraemia and C. difficile infection: annual epidemiological commentary*⁶ (Annual commentary)
- *Clostridium difficile infection: monthly data by NHS acute trust*⁷
- *Clostridium difficile infection: monthly data by attributed clinical commissioning group*⁸
- *Clostridium difficile infection: annual data*⁹
- *MRSA bacteraemia: monthly data by post infection review assignment*¹⁰
- *MRSA bacteraemia: monthly data by attributed clinical commissioning group*¹¹
- *MRSA bacteraemia: annual data*¹²
- *MSSA bacteraemia: monthly data by NHS acute trust*¹³
- *MSSA bacteraemia: monthly data by attributed clinical commissioning group*¹⁴

¹ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html>

² http://www.opsi.gov.uk/Acts/acts2007/pdf/ukpga_20070018_en.pdf

³ Subsection 12(7) of the Act defines 'appropriate authority' as Ministers of the Crown, Scottish Ministers, Welsh Ministers, Northern Ireland departments or the National Statistician

⁴ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

⁵ <https://www.gov.uk/government/statistics/mrsa-mssa-and-e-coli-bacteraemia-and-c-difficile-infection-quarterly-epidemiological-commentary>

⁶ <https://www.gov.uk/government/statistics/mrsa-mssa-and-e-coli-bacteraemia-and-c-difficile-infection-annual-epidemiological-commentary>

⁷ <https://www.gov.uk/government/statistics/clostridium-difficile-infection-monthly-data-by-nhs-acute-trust>

⁸ <https://www.gov.uk/government/statistics/clostridium-difficile-infection-monthly-data-by-attributed-clinical-commissioning-group>

⁹ <https://www.gov.uk/government/statistics/clostridium-difficile-infection-annual-data>

¹⁰ <https://www.gov.uk/government/statistics/mrsa-bacteraemia-monthly-data-by-post-infection-review-assignment>

¹¹ <https://www.gov.uk/government/statistics/mrsa-bacteraemia-monthly-data-by-attributed-clinical-commissioning-group>

¹² <https://www.gov.uk/government/statistics/mrsa-bacteraemia-annual-data>

¹³ <https://www.gov.uk/government/statistics/mssa-bacteraemia-monthly-data-by-nhs-acute-trust>

- *MSSA bacteraemia: annual data*¹⁵
- *Escherichia coli (E. coli) bacteraemia: monthly data by NHS acute trust*¹⁶
- *Escherichia coli (E. coli) bacteraemia: monthly data by attributed clinical commissioning group*¹⁷
- *Escherichia coli (E. coli) bacteraemia: annual data*¹⁸

1.1.2 This report was prepared by the Authority's Assessment team, and approved by the Regulation Committee on behalf of the Board of the Statistics Authority, based on the advice of the Director General for Regulation.

1.2 Decision concerning designation as National Statistics

1.2.1 The Authority judges that the statistics covered by this report do not fully comply with the *Code of Practice for Official Statistics* in the ways summarised in section 1.5. The Authority judges that the sets of statistics listed in paragraph 1.1.1 cannot be designated as new National Statistics products until the Authority has confirmed that appropriate actions have been undertaken by PHE to meet the Requirements listed in section 1.5. PHE is expected to report its completed actions to the Authority by February 2016.

1.2.2 PHE has informed the Assessment team that it has started to implement the Requirements listed in section 1.5. The Statistics Authority welcomes this.

1.3 Summary of strengths and weaknesses

1.3.1 Antimicrobial resistance is becoming a global threat to health and, using HCAI surveillance statistics, PHE performs the vital task of monitoring, responding to, and limiting outbreaks of life-threatening infectious diseases for which antibiotics are of limited use. Public health teams use the data to monitor the rates of infection in their area; to monitor outbreaks of infections and check that trends are decreasing in both community and hospital settings; to identify seasonal variations in disease outbreaks.

1.3.2 The sets of statistics covered by this assessment are produced from a well-established, mandatory collection of data about the affected population in England, using consistent data definitions. The statistics are widely used by health commissioners to monitor the performance of the hospitals and the community organisations from which they commission care, to ensure that the infection control targets are being met and that the strategies to reduce infections are working. Hospital infection control teams use the data to prepare benchmarking information for providers within their area; and to prepare papers for committee meetings to enable lessons to be learned and improvements to

¹⁴ <https://www.gov.uk/government/statistics/mssa-bacteraemia-monthly-data-by-attributed-clinical-commissioning-group>

¹⁵ <https://www.gov.uk/government/statistics/mssa-bacteraemia-annual-data>

¹⁶ <https://www.gov.uk/government/statistics/escherichia-coli-e-coli-bacteraemia-monthly-data-by-nhs-acute-trust>

¹⁷ <https://www.gov.uk/government/statistics/escherichia-coli-e-coli-bacteraemia-monthly-data-by-attributed-clinical-commissioning-group>

¹⁸ <https://www.gov.uk/government/statistics/escherichia-coli-e-coli-bacteraemia-annual-data>

be acknowledged. However, the fact that the reporting of HCAs by the non-NHS sector is not mandatory means that not all of the affected population is represented in the data. This incomplete capture could lead to patchy response planning and continued spread of infection.

- 1.3.3 PHE has worked well with known users of the HCAI statistics, to disseminate data and commentary that meets their needs. However, *Annual commentary*, for example, is aimed at the expert user and assumes the reader possesses knowledge about the causes of HCAs, about how the data flow into PHE and about the wider context of antimicrobial resistance. The statistical report is not accessible for the less-expert user and this is a weakness, especially when considering that the public themselves can have an impact on lessening the problem of antimicrobial resistance.
- 1.3.4 PHE has not demonstrated publicly its own awareness of the risks posed by the data sources to the quality of the HCAI statistics, including those posed by the performance targets that are set. PHE does not publish any information (either its own or data suppliers’) about the quality assurance and audit arrangements for the administrative data submitted by the NHS or local authorities.

1.4 Detailed recommendations

- 1.4.1 The Assessment team identified some areas where it felt that PHE should improve the production and presentation of its mandatory surveillance of healthcare-associated infections statistics. Those which are essential for PHE to address in order to strengthen its compliance with the *Code* and to enable designation as National Statistics are listed – as Requirements – in section 1.5, alongside a short summary of the key findings that led to each Requirement being made. Other recommended changes, which the Assessment team considers would improve the statistics and the service provided to users but which are not formally required for their designation as National Statistics, are listed – as Suggestions – in section 1.6.

1.5 Requirements for designation as National Statistics

- 1.5.1 This section includes those improvements that PHE is required to make in respect of its statistics on Mandatory Surveillance of Healthcare-Associated Infections in order to fully comply with the *Code of Practice for Official Statistics*, and to enable designation as National Statistics.

Finding	Requirement	
PHE has not investigated the needs of the wider public for HCAI statistics, nor published the results of recent user surveys and	1	a) Publish a plan to investigate the use made of statistics by the wider public, such as patient groups and the voluntary sector; b) Publish information about the use made of HCAI statistics by all users; c) Publish information about users’ experience of HCAI statistics, the format and the timing of

workshops. PHE should:		reports; d) Consider releasing the monthly data tables in a more timely manner to meet user needs (para 3.4).
PHE did not inform all users well in advance of changes to the methods used in compiling the statistics. PHE should:	2	Provide a written commitment to the Authority that it will publicly announce its intention to make changes to the statistical reports or methods well in advance and in accordance with the National Statistician's guidance (para 3.6).
Data suppliers told us that they are unclear whether they are able to request corrections to their data and PHE does not explain all data changes. PHE should:	3	a) Clarify to data suppliers that they are able to submit updated data and when this would be reflected in the statistics; b) Provide a statement explaining the nature and extent of revisions at the same time that they are released in the monthly, quarterly and annual statistical reports (para 3.7).
PHE has not demonstrated publicly its own awareness of the risks posed by the data sources to the quality of the HCAI statistics. PHE should:	4	a) Determine the appropriate scale of assurance and documentation required for the administrative data used to compile the HCAI statistics, based on pragmatic and proportionate judgement about the quality of the data and the public interest profile of the statistics; b) Communicate the requirement to data suppliers; c) Publish an appropriate level of detail to inform users about all the quality assurance and audit arrangements for the administrative data, taking into consideration the Authority's report <i>Quality Assurance of Administrative Data</i> (para 3.15).
PHE does not provide enough information about the quality of the statistics. PHE should:	5	Publish more information about the quality of the statistics in relation to use, including the main sources of bias and error, and other aspects of the European Statistical System (ESS) definition of quality (para 3.16).
PHE does not provide any information about comparability and	6	Publish information about the comparability and coherence of HCAI statistics with similar statistics for the other countries of the UK (para 3.18).

coherence with similar statistics produced by the devolved administrations. PHE should:		
The statistical reports lack wider contextual detail, explanatory commentary and sound statistical practice in parts of their presentation. PHE should:	7	<p>a) Improve the commentary, including information about the context, so that it aids user interpretation of the statistics;</p> <p>b) Adopt formats for the presentation of statistics in graphs that enhance interpretability.</p> <p>As part of meeting this Requirement, PHE should also consider the points detailed in annex 1 and annex 2 (para 3.26).</p>
The monthly spreadsheets do not include appropriate signposting to metadata or <i>Annual commentary</i> . PHE should:	8	Provide links or other appropriate signposting between the monthly reports and associated metadata (para 3.28).
The statistics are not available in a format that meets the minimum expectations proposed in the <i>Open Data White Paper: Unleashing the Potential</i> . PHE should:	9	Publish the data associated with these statistics in an open format that equates to at least a Three Star level under the Five Star Scheme (para 3.29).
PHE has not published the pre-release access list for these statistics. PHE should:	10	Publish a pre-release access list for statistics about the mandatory surveillance of HCAs (para 3.33).
PHE has not published its Statement of Administrative Sources. PHE should:	11	Publish its Statement of Administrative Sources (para 3.34).

1.6 Suggestions for extracting maximum value from the statistics

1.6.1 This section includes some suggestions for improvement to PHE’s statistics on the mandatory surveillance of healthcare-associated infections, in the interest of the public good. These are not formally required for designation, but the Assessment team considers that their implementation will improve public confidence in the production, management and dissemination of official statistics.

We suggest that PHE:

1	Produce a separate methodological and quality document to which the statistical reports and data tables are linked and refer to the GSS guidance titled <i>Communicating uncertainty and change</i> (para 3.12).
2	Refer to and apply the GSS guidance about releasing statistics in spreadsheets (para 3.28).

2 Subject of the assessment

2.1 Introduction

2.1.1 Healthcare-associated infections (HCAs) are infections that can arise either through medical or surgical interventions in a healthcare setting or simply from being in contact with a healthcare setting. These include infections that may be picked up outside of the hospital setting, although still within the healthcare environment, such as in a community-based health establishment. Tackling preventable HCAs is one of the UK Government's key priorities in relation to healthcare. The incidence of MRSA bacteraemia and *C. difficile* are included as indicators in the NHS Outcomes Framework 2014/15¹⁹. The collection and reporting of the statistics by the NHS is mandatory and is therefore grounded in regulation (through the *Health and Social Care Act 2008 Code of Practice on the prevention and control of infections and related guidance*²⁰ and the *Health and Social Care Act 2012*²¹). However, the reporting of HCAs to PHE by independent healthcare providers is still voluntary. HCAs include a wide range of infections, but the statistics being assessed here relate only to those for which the surveillance is mandatory. These are caused by the following pathogens:

- Meticillin-resistant *Staphylococcus aureus* (MRSA)
- Meticillin-sensitive *Staphylococcus aureus* (MSSA)
- *Clostridium difficile* (*C. difficile*)
- *Escherichia coli* (*E. coli*)

2.1.2 Most strains of *Staphylococcus aureus* respond to the more commonly used antibiotics, but some strains are more resistant. Those resistant to the antibiotic meticillin are termed meticillin-resistant *Staphylococcus aureus* (MRSA) and often require different types of antibiotic to treat them. Those that are sensitive to meticillin are termed meticillin-sensitive *Staphylococcus aureus* (MSSA). Most *E.coli* strains are part of the normal flora of the gut and are harmless, but some can cause serious illness. *C. difficile* is a bacterium and is a common cause of hospital-acquired diarrhoea. The infection will tend to affect greater numbers in specific groups – for example, infants are at greater risk due to the higher percentage of bacteria in the gut and the elderly and people with serious underlying illnesses are also at greater risk often due to their increased exposure to more antibiotics along with an often already compromised immune system. These infections can all pose a serious health risk to patients, staff and visitors in a healthcare setting. In addition to the morbidity risks and in some cases mortality risks²², they can also result in significant extra costs to the NHS. NHS England currently operates a 'zero tolerance' approach to MRSA infections and aims at a significant reduction in the incidence of *C. difficile* and *E. coli*.

¹⁹ <https://www.gov.uk/government/publications/nhs-outcomes-framework-2014-to-2015>

²⁰ <https://www.gov.uk/government/publications/the-health-and-social-care-act-2008-code-of-practice-on-the-prevention-and-control-of-infections-and-related-guidance>

²¹ http://www.legislation.gov.uk/ukpga/2012/7/pdfs/ukpga_20120007_en.pdf

²² <http://www.ons.gov.uk/ons/rel/vsob1/mortality-statistics--deaths-registered-in-england-and-wales--series-dr-/2013/stb-deaths-registered-in-england-and-wales-in-2013-by-cause.html>

2.1.3 PHE, which is an executive agency of the Department of Health (DH), was formed in April 2013 following the amalgamation of the Health Protection Agency (HPA), the National Treatment Agency (NTA) and various Public Health Observatories in England. PHE, and previously HPA, has been monitoring the surveillance of MRSA since April 2001, although it was not mandatory until April 2004.

2.2 Users and uses of the statistics

2.2.1 The incidence of HCAs can be volatile, with underlying patterns changing to reflect new or different treatments and the implementation of interventions and enhanced precautions. For example, the counts of MRSA infections originating from skin and soft tissue sources have increased in recent years while those associated with intravenous lines have declined. It is therefore particularly important to ensure that relevant data are collected that will allow professionals to make the correct judgements about where healthcare resources should be placed. The major users and uses of these statistics are:

- hospitals and care homes – to reduce preventable mortality and morbidity within the NHS
- NHS acute trust hospitals and Clinical Commissioning Groups (CCG)²³ – to monitor against performance targets
- public health officials – to detect and manage any outbreaks or indications of problem areas
- DH – to inform government about performance against the NHS outcome frameworks; to make comparisons either across England, across the UK or across Europe; to input into future policies and to provide information about the impact of key interventions and precautionary strategies

2.2.2 HCAs are regularly discussed in the UK Parliament and the media, as well as in academic settings. The topic also features in the House of Commons Science and Technology Committee meetings about Antimicrobial Resistance (AMR)²⁴.

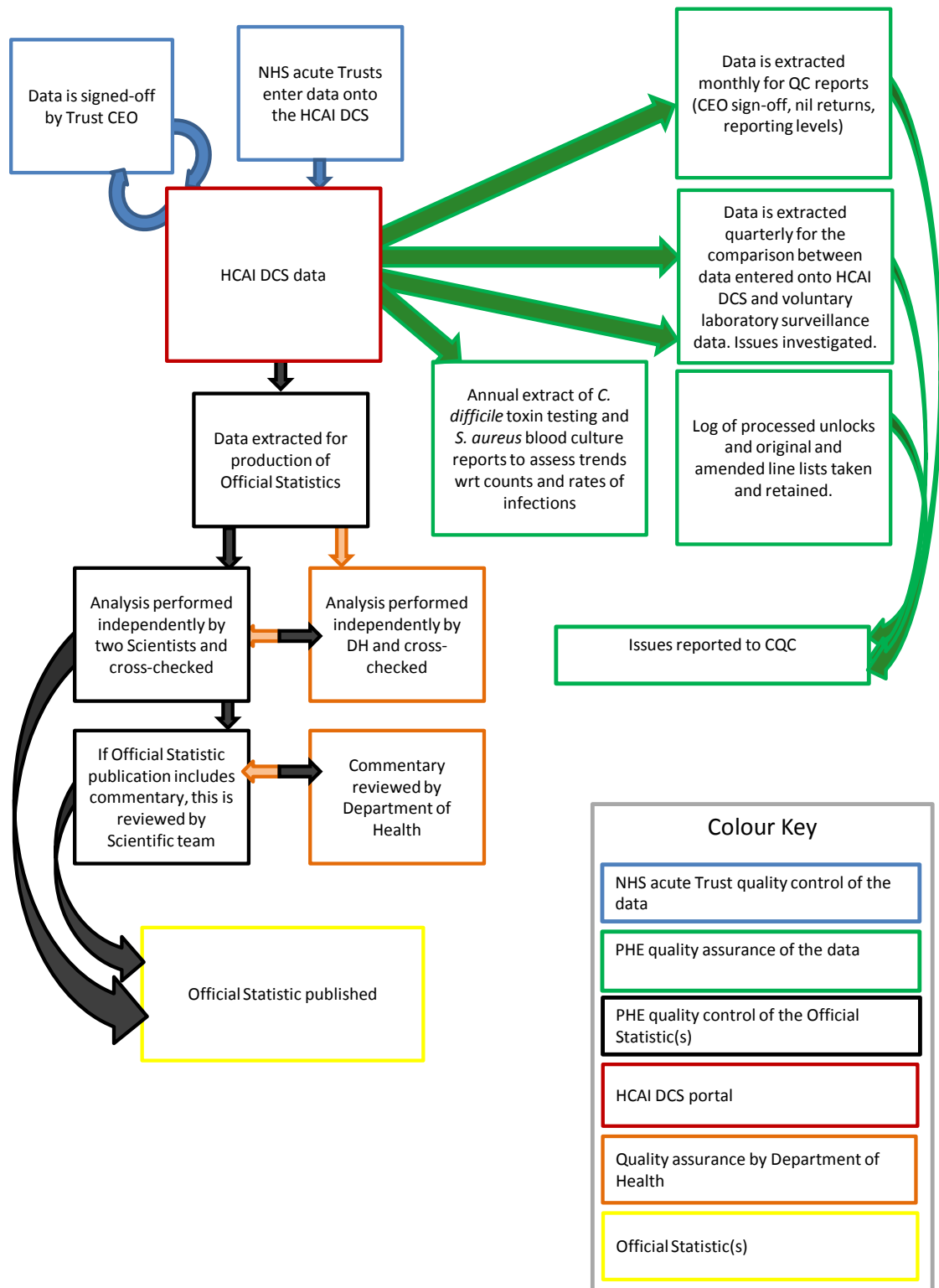
2.3 Data collection

2.3.1 The data for the statistics are collected at trust level and entered onto the data capture system run by PHE. During the course of this Assessment PHE told us of its plans to implement a new data capture system in 2015, which will include new functionality to enable independent sector organisations to input data. Progress on rolling out the system appears to be slower than expected and more detailed information about timings is not available. PHE has produced a diagram (illustrated in figure 1) illustrating the current data flows.

²³ <https://www.england.nhs.uk/commissioning/>

²⁴ <http://www.publications.parliament.uk/pa/cm201415/cmselect/cmsctech/509/50902.htm>

Figure 1: HCAI data collection flow



Source: PHE

2.3.2 MRSA is treated differently from the other infections as screening takes place on admission or pre-admission to hospital and a Post Infection Review (PIR) is completed rather than a Root Cause Analysis (RCA) after the infection is

confirmed. The following process outlines how a case becomes included in the monthly statistical summaries:

- a case is detected, either through screening or by clinical symptoms
- the blood isolates are sent to the designated pathological laboratory
- the trust infection control team decides to attribute the cause of the infection
- all confirmed cases are entered into the data capture system by a member of the trust infection control team
- the data are signed off by the trust Chief Executive Officer (CEO) by the 15th day of the month following the incident
- PHE staff extract the data shortly after the 16th day of each month
- PHE staff carry out quality assurance processes, including cross-referencing cases recorded on the separate voluntary surveillance scheme
- PHE publishes the monthly HCAI statistical around 4 to 6 weeks after extraction

2.4 The history of the statistical collection

- 2.4.1 The surveillance of MRSA became mandatory for the NHS in 2004 and the mandatory surveillance of other infections were subsequently introduced in England, as outlined in Table 1.
- 2.4.2 PHE publishes monthly excel spreadsheets for each infection two to four weeks after data extraction and up to six weeks following month end, which include counts for the previous thirteen months attributed to CCGs and NHS trusts.
- 2.4.3 In addition to the excel spreadsheets, PHE publishes two reports covering all four HCAs: a quarterly report titled *MRSA, MSSA and E. coli bacteraemia and C. difficile infection: quarterly epidemiological commentary* and an annual report titled *MRSA, MSSA and E. coli bacteraemia and C. difficile infection: annual epidemiological commentary*. As the titles suggest, these reports offer extended analyses, commentary and illustrations on the counts, rates and patterns observed in these HCAs.
- 2.4.4 PHE publishes the quarterly and annual epidemiological bulletins in PDF format, with supplementary data tables published in excel formats. The monthly data tables are all available in excel format only. This equates to a level of two stars under the Five Star Scheme that forms part of the Open Standards Principles proposed in the *Open Data White Paper: Unleashing the Potential* and adopted as UK government policy in November 2012.

Table 1: Frequency and introduction of the mandatory surveillance data and reports in England

Bacterium	Date of introduction of mandatory surveillance	Name of monthly data tables	Name of annual tables	Description
MRSA	April 2004	<i>MRSA bacteraemia: monthly data by post infection review assignment and</i> <i>MRSA bacteraemia: monthly data by attributed clinical commissioning group</i>	<i>MRSA bacteraemia: annual data</i>	Summary counts of confirmed MRSA cases attributable to NHS trust or CCG.
<i>C. difficile</i>	April 2007	<i>C. difficile infection: monthly data by NHS acute trust and</i> <i>C. difficile infection: monthly data by attributed clinical commissioning group</i>	<i>C. difficile infection: annual data</i>	Summary counts of confirmed <i>C. difficile</i> cases attributable to NHS acute trust or CCG.
MSSA	January 2011	<i>MSSA bacteraemia: monthly data by NHS acute trust and</i> <i>MSSA bacteraemia: monthly data by attributed clinical commissioning group</i>	<i>MSSA bacteraemia: annual data</i>	Summary counts of confirmed <i>MSSA bacteraemia</i> cases attributable to NHS acute trust or CCG.
<i>E. coli</i>	June 2011	<i>E. coli bacteraemia: monthly data by NHS acute trust and</i> <i>E.coli bacteraemia: monthly data by attributed clinical commissioning group</i>	<i>E. coli bacteraemia: annual data</i>	Summary counts of confirmed <i>E. coli bacteraemia</i> cases attributable to NHS acute trust or CCG.

Source: PHE

2.5 Reviews by other organisations

2.5.1 The National Audit Office carried out a review in 2009, *Reducing Healthcare-Associated Infections in Hospitals*²⁵ which concluded that DH had largely been successful in reducing MRSA bloodstream and *C. difficile* infections and praised the focussed and centralised approach. However, the review mentioned that there was a lack of robust comparable data on other infection risks.

2.6 Complementary statistics

2.6.1 The Health Protection Scotland²⁶, the Welsh Government²⁷ and the Northern Ireland Public Health Agency²⁸ all produce statistics on mandatory surveillance.

2.6.2 The European Centre for Disease Prevention and Control (ECDC) coordinates the European Antimicrobial Resistance Surveillance Network (EARS-Net) to which PHE submits annual reports of MRSA cases detected in England. ECDC produces an annual publication²⁹ showing the results for all EU member countries and two EEA countries.

2.6.3 PHE also operates voluntary surveillance of the same pathogens within the independent sector. It publishes these statistics on a six-monthly³⁰ and an annual³¹ basis, but since case reporting is not compulsory, these data are not as complete as those collected from the public sector. Although not included in this Assessment, PHE has informed the Assessment team that it is in the process of requesting that these statistics be assessed against the *Code of Practice for Official Statistics* once the new data capture system has been launched.

2.6.4 PHE also sends statistics and information about HCAs in England to the World Health Organisation to inform the global report³² on surveillance of antimicrobial resistance.

2.7 Costs

2.7.1 The cost to PHE of producing the HCAs mandatory surveillance statistics was £6,050 for the financial year 2014/15. The data used to produce these statistics are collected for operational public health purposes. The cost given here

²⁵ <http://www.nao.org.uk/report/reducing-healthcare-associated-infections-in-hospitals-in-england/>

²⁶ http://www.hps.scot.nhs.uk/pubs/Publication_Detail.aspx

²⁷ <http://gov.wales/topics/health/protection/communicabledisease/infections/surveillance/?lang=en>

²⁸ <http://www.publichealthagency.org/directorate-public-health/health-protection/healthcare-associated-infections>

²⁹ http://www.ecdc.europa.eu/en/publications/_layouts/forms/Publication_DispForm.aspx?List=4f55ad51-4aed-4d32-b960-af70113dbb90&ID=1205

³⁰ <https://www.gov.uk/government/statistics/mrsa-mssa-and-e-coli-bacteraemia-and-clostridium-difficile-infection-6-monthly-data-for-independent-sector-healthcare-organisations>

³¹ <https://www.gov.uk/government/statistics/mrsa-mssa-and-e-coli-bacteraemia-and-clostridium-difficile-infection-annual-data-for-independent-sector-healthcare-organisations>

³² http://www.who.int/topics/drug_resistance/en/

reflects the additional amount required to produce the statistics from these data.

3 Assessment findings

Principle 1: Meeting user needs

The production, management and dissemination of official statistics should meet the requirements of informed decision-making by government, public services, business, researchers and the public.

3.1 PHE told us that it is currently undertaking a strategic review to prioritise the provision of its products and services – including statistical outputs – to respond to the needs of users, including Local Government and the NHS. The statistics team provides data for DH’s English Surveillance Programme for Antimicrobial Utilisation and Resistance³³ (ESPAUR). Organisation-wide initiatives to identify and engage with users, include active membership of:

- the surveillance subgroup of the Advisory Committee on Antimicrobial Resistance and Healthcare-Associated Infections³⁴ (ARHAI)
- the Health Statistics User Group³⁵ (HSUG)
- the Knowledge and Intelligence User Reference Group³⁶

The statistics team is effective at engaging with known users from government, the scientific community, the NHS and local authorities, but has not provided evidence during this Assessment that it engages effectively with a wider audience, such as patient groups and the voluntary sector³⁷, on this important health topic.

3.2 The statistics team told us that a stakeholder event undertaken in 2009 indicated that HCAI users thought that some of the statistical reports did not suit the needs of all users and that more-timely information was required. As a result of this feedback, PHE made two changes to its routine mandatory surveillance statistical report:

- the introduction of monthly estimates of the level of infections from November 2009
- a quarterly epidemiological analysis to accompany the routine quarterly publication of data

3.3 PHE currently investigates views on its statistics from known users in both formal and informal ways. PHE staff go to ad hoc meetings with colleagues from DH and NHS England at which HCAI statistics are discussed and suggestions for changes or improvements are made. However, PHE told us

³³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/362374/ESPAUR_Report_2014__3_.pdf

³⁴ The Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infections (ARHAI) is an independent scientific committee that advises on minimising the risk of healthcare associated infections

³⁵ <http://www.statsusernet.org.uk/HealthStatisticsUserGroup/Home/>

³⁶ The Knowledge & Intelligence User Reference Group (KIURG) provides a common system of high level governance for PHE’s intelligence and information products to ensure that they meet users’ needs and address PHE’s priorities

³⁷ <http://mrsaactionuk.net/monthly%20statistics.html>

that “It is our intention to hold these meetings according to a pre-agreed quarterly schedule and to implement a standing agenda for these meetings.” PHE staff email known users to quickly gather views on particular issues related to its surveillance statistics, such as the proposal to include a third party category in published MRSA bacteraemia PIR outputs. The PHE Surveillance Group³⁸ co-ordinated an email survey of known users and posted a request on StatsUserNet³⁹ asking for feedback about all PHE surveillance and health data products during September and October 2014. The statistics team shared the feedback from the survey with the Assessment team; however, it has not yet published this feedback, or any actions arising from the survey. In November 2014, the Health Statistics User Group (HSUG) and the Royal Statistical Society (RSS) Official Statistics Section held a user workshop on the ‘Availability and Use of Information on Infectious Diseases’. PHE is waiting for a report of the workshop before deciding on any actions arising from the user feedback.

- 3.4 Users who responded to our call for feedback for this Assessment made many suggestions for improvements to the statistics, which are noted in annex 2 and they also commented that the statistics team members were helpful and responsive when contacted directly. Some users felt that publication of monthly data tables up to six weeks after the end of the reporting period was very late and that perhaps the data could be made available sooner (perhaps labelled as 'non-validated' data), to allow commissioners earlier access to the complete data. As part of the designation as National Statistics, PHE should: a) publish a plan to investigate the use made of statistics by the wider public, such as patient groups and the voluntary sector; b) publish information about the use made of HCAI statistics by all users; c) publish information about users' experience of HCAI statistics, the format and the timing of reports; and d) consider releasing the monthly data tables in a more timely manner to meet user needs⁴⁰ (Requirement 1).

³⁸ The PHE Surveillance Group (PHESG) leads the priority programme work on surveillance and is working to improve the effectiveness of PHE surveillance and health data outputs.

³⁹ <http://www.statsusernet.org.uk/Home/>

⁴⁰ In relation to Principle 1, Practices 2 and 5 of the *Code of Practice*

Principle 2: Impartiality and objectivity

Official statistics, and information about statistical processes, should be managed impartially and objectively.

- 3.5 PHE pre-announces the publication of the HCAI statistical reports on the Release Calendar⁴¹ and publishes them monthly, quarterly and annually. PHE presents the statistics in an objective manner.
- 3.6 PHE did not provide evidence that it notified all users well in advance of changes to the methods used in compiling the statistics concerning, for example, the publication of MRSA bacteraemia data tables according to post-infection review (PIR) outcome in April 2013 and the inclusion of a 'third party' category in the MRSA bacteraemia PIR in April 2014. The changes to the PIR process in April 2014 were introduced in response to a need identified by NHS frontline users following consultation with local and regional NHS colleagues as well as with DH stakeholders. Those responsible for entering data into PHE's HCAI data capture system are aware of forthcoming changes by the system alert function on the data capture system, but other users are not made aware. As part of the designation as National Statistics, PHE should provide a written commitment to the Authority that it will publicly announce its intention to make changes to the statistical reports or methods well in advance and in accordance with the National Statistician's guidance^{42 43} (Requirement 2).
- 3.7 PHE has published its *Official Statistics Revisions and Corrections Policy*⁴⁴. The statistics team told us that it accepts any late additions or changes to the data regardless of when they are received and the time period to which they relate. All updates received are routinely included in the next scheduled publication, both at NHS trust and national levels. However, the statistics team told us that "We will only publish written explanations of these changes in the event that they materially affect previously reported data". Data suppliers told us that they are unclear as to whether they are able to request corrections to their data after they have been submitted. The statistical reports do not state which of the statistics (if any) have been revised and no link is made to the published policy in the reports. As part of the designation as National Statistics, PHE should: a) clarify to data suppliers that they are able to submit updated data and when this would be reflected in the statistics; and b) provide a statement explaining the nature and extent of revisions at the same time that they are released in the monthly, quarterly and annual statistical reports⁴⁵ (Requirement 3).

⁴¹ <https://www.gov.uk/government/statistics/announcements>

⁴² <http://www.statisticsauthority.gov.uk/national-statistician/ns-reports--reviews-and-guidance/national-statistician-s-guidance/presentation-and-publication-of-official-statistics.pdf>

⁴³ In relation to Principle 2, Practice 4 of the *Code of Practice*

⁴⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/383416/PHE_Revisions_and_Corrections_Policy_V01.00_Nov14.pdf

⁴⁵ In relation to Principle 2, Practice 6 of the *Code of Practice*

Principle 3: Integrity

At all stages in the production, management and dissemination of official statistics, the public interest should prevail over organisational, political or personal interests.

- 3.8 No incidents of political pressures, abuses of trust or complaints relating to professional integrity, quality or standards were reported to, or identified by, the Assessment team.
- 3.9 To ensure that its statistical reports are free from any threats to their integrity, PHE held a workshop in October 2013 to train statisticians about the *Code of Practice for Official Statistics*. The Lead Official for Statistics is accountable for the content and timing of the statistical reports.

Principle 4: Sound methods and assured quality

Statistical methods should be consistent with scientific principles and internationally recognised best practices, and be fully documented. Quality should be monitored and assured taking account of internationally agreed practices.

- 3.10 In light of the de-designation of police recorded crime statistics in January 2014 (in Assessment report 268), the Statistics Authority published⁴⁶ a regulatory standard that confirms the quality assurance arrangements that are required for statistics compiled using administrative data to comply with the *Code of Practice*. The *Administrative Data Quality Assurance Toolkit*⁴⁷ is the mechanism that the Authority is using to determine compliance in relation to four areas of practice:
- operational context and administrative data collection
 - communication with data supply partners
 - quality assurance principles, standards and checks by data suppliers
 - producers' QA investigations & documentation
- 3.11 The judgement by statistical producers about the suitability of the administrative data for use in producing official statistics should be pragmatic and proportionate. It should be made in the light of an evaluation of the likelihood of quality issues arising in the data that may affect the quality of the statistics. It should also reflect the nature of the public interest served by the statistics. Statistical producers should determine the types of assurance and documentation required to inform users about the quality assurance arrangements for administrative data.
- 3.12 *Annual commentary* explains why the data are collected and the data capture system includes instructions for data suppliers for submitting data. PHE told the Assessment team that it “partly relies on trust CEO sign-off to assure itself of quality”. Once the data are received, PHE applies rules to assure itself of the quality of the data and begins to consider the narrative that it will present alongside the statistics. However, PHE has not published any information about these processes or related quality guidelines.
- 3.13 PHE’s approach to auditing the collection of data about mandatory surveillance of infections is to match the results with those obtained through a voluntary surveillance scheme which uses a completely different data source. For *E. coli*, for example, *Annual commentary* states that the voluntary surveillance system records around 80 per cent of the cases included in the mandatory data capture system. However, it does not describe the impact on the quality of the data for the other 20 per cent of cases that are not reported in the voluntary system; nor does it describe whether this percentage is as expected or what factors might cause it to vary.

⁴⁶<http://www.statisticsauthority.gov.uk/assessment/monitoring/administrative-data-and-official-statistics/index.html>

⁴⁷<http://www.statisticsauthority.gov.uk/assessment/monitoring/administrative-data-and-official-statistics/quality-assurance-toolkit.pdf>

- 3.14 PHE has not demonstrated publicly its own awareness of the risks posed by the data sources to the quality of the HCAI statistics, including those posed by the NHS performance targets that are set. PHE does not publish any information (either its own or data suppliers') about the quality assurance and audit arrangements for the administrative data submitted by the NHS. As part of the designation as National Statistics, PHE should: a) determine the appropriate scale of assurance and documentation required for the administrative data used to compile the HCAI statistics, based on pragmatic and proportionate judgement about the quality of the data and the public interest profile of the statistics; b) communicate the requirement to data suppliers; and c) publish an appropriate level of detail to inform users about the quality assurance and audit arrangements for the administrative data, taking into consideration the Authority's report *Quality Assurance of Administrative Data*⁴⁸ (Requirement 4).
- 3.15 The statistics team liaises with colleagues within the UK and Ireland, through the UK and Ireland HCAI Surveillance Group, and the statistics team plans to formalise the current dialogue with UK colleagues by meeting annually to discuss developments and comparability between relevant outputs. The Lead Official told us that he and colleagues are working towards the mandatory collection of surveillance data from independent care organisations in England. Given the increasing use of the independent sector to provide publicly funded healthcare in England, the Authority views this as a positive step towards producing a more complete picture of HCAI infections in the UK, which will also facilitate comparisons within the UK of the mandatory surveillance results for the different HCAI infections.
- 3.16 The end of each chapter relating to the four infections in *Annual commentary* includes details about how the data are collected and how the cases are assigned or apportioned. *Annual commentary* mentions that some data collection fields are not mandatory and that some cases are excluded from analysis where the gender field has not been completed. The implication for the accuracy of the statistics is not discussed and more information should be provided about where and how caution should be applied when using the statistics. Additionally, *Annual commentary* does not provide sufficient explanation of why the median number of days from the onset of the infection is chosen, rather than the mean. *Annual commentary* does quote confidence intervals around rates, but no further guidance is given about how to interpret these and the distribution of the underlying data is not explained. As part of the designation as National Statistics, PHE should publish more information about the quality of the statistics in relation to use, including the main sources of bias and error, and other aspects of the European Statistical System (ESS) definition of quality^{49 50} (Requirement 5). We suggest that in meeting this Requirement, PHE produce a separate methodological and quality document to

⁴⁸ In relation to Principle 4, Practice 3 and Protocol 3, Practice 5 of the *Code of Practice*

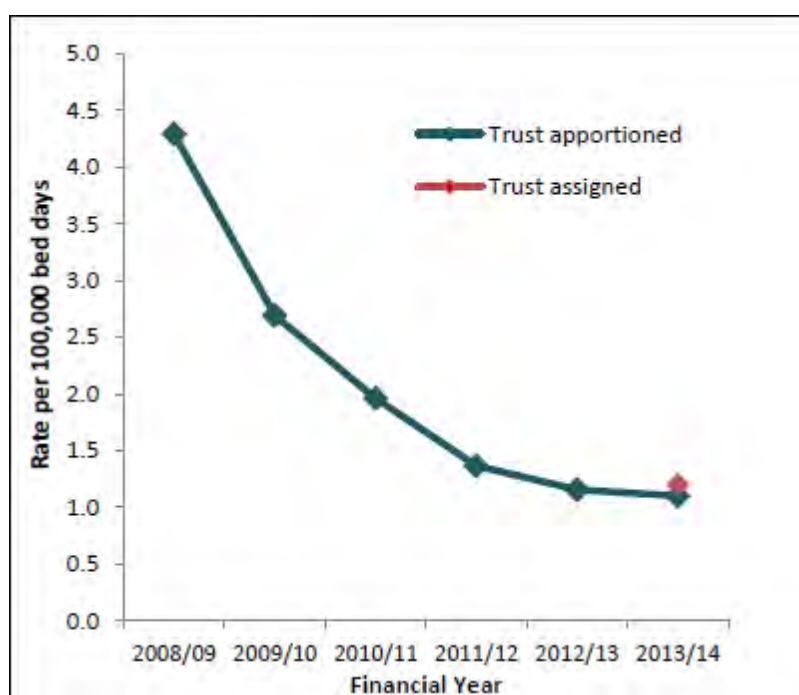
⁴⁹ The five dimensions of the Quality Assurance Framework of the European Statistical System are relevance, accuracy and reliability, timeliness and punctuality, accessibility and clarity, comparability and coherence

⁵⁰ In relation to Principle 4, Practice 3 and Principle 8, Practice 1 of the *Code of Practice*

which the statistical reports and data tables are linked and refer to the GSS guidance titled *Communicating uncertainty and change*⁵¹.

- 3.17 PHE has published a consistent historical time series after changes to methods have been made: for example, *Annual commentary* published in 2014 was the first to apportion the MRSA bacteraemia data to trust and CCGs, after the PIR process. *Annual commentary* has continued to report the data based on the previous method of apportioning cases and it also includes a comparison of the impact of the different methods on the time series (see Figure 2). However, users have commented that having two sets of data was confusing.

Figure 2: Trust apportioned/assigned rates (2008/09 to 2013/14)



Source: PHE

- 3.18 Health Protection Scotland⁵², the Welsh Government⁵³ and the Northern Ireland Public Health Agency⁵⁴ all produce statistics on mandatory surveillance, but the PHE statistical reports do not mention these, nor do they make comparisons with the statistics produced by these devolved administrations or provide links to their respective publications. Similarly, the statistical reports do not include any comparisons with any other countries even though they submit data to EARS-Net⁵⁵. *Annual commentary* in particular would benefit from the inclusion of comparative data to allow users to see how the rates in England compare with other administrations in the UK and beyond. *Annual commentary* provides links to other relevant PHE statistics and to other NHS and population

⁵¹ <https://gss.civilservice.gov.uk/statistics/presentation-and-dissemination/communicating-uncertainty-change/>

⁵² http://www.hps.scot.nhs.uk/pubs/Publication_Detail.aspx

⁵³ <http://gov.wales/topics/health/protection/communicabledisease/infections/surveillance/?lang=en>

⁵⁴ <http://www.publichealthagency.org/directorate-public-health/health-protection/healthcare-associated-infections>

⁵⁵ <http://www.ecdc.europa.eu/en/activities/surveillance/EARS-Net/Pages/index.aspx>

data where these have been used in calculations presented in the report. No reference is made either to the many topical academic research papers that exist on healthcare-associated infections or to global research about antimicrobial resistance – which would add a rich context to these statistics. As part of the designation as National Statistics, PHE should publish information about the comparability and coherence of HCAI statistics with similar statistics for the other countries of the UK⁵⁶ (Requirement 6).

⁵⁶ In relation to Principle 4, Practice 3 of the *Code of Practice*

Principle 5: Confidentiality

Private information about individual persons (including bodies corporate) compiled in the production of official statistics is confidential, and should be used for statistical purposes only.

- 3.19 PHE provided evidence to the Assessment team that it takes all necessary steps to protect the confidentiality of the data it collects. This includes:
- confidentiality clauses in the terms and conditions of employment contracts
 - adherence to the recommendations included in the Caldicott Committee's *Report on the Review of Patient Identifiable Information*⁵⁷
 - following the anonymisation standards published by the Health and Social Care Information Centre⁵⁸
 - adopting a Standard Operating Procedure for Disclosure Control consistent with the Government Statistical Service disclosure control policy⁵⁹

⁵⁷ http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4068403

⁵⁸ <http://www.hscic.gov.uk/isce>

⁵⁹ <http://www.ons.gov.uk/ons/guide-method/best-practice/disclosure-control-policy-for-tables/index.html>

Principle 6: Proportionate burden

The cost burden on data suppliers should not be excessive and should be assessed relative to the benefits arising from the use of the statistics.

3.20 PHE's mandatory surveillance of HCAI infections statistics is based on data provided from administrative/operational sources and data suppliers are mandated to submit this information to PHE for public health purposes. The data capture system is used for a variety of surveillance and infection control purposes, not just the production of the statistics currently being assessed. PHE is obliged to complete an annual Review of Central Returns⁶⁰ (ROCR) which details the financial burden placed upon the NHS by the mandatory collection of HCAI data. This was estimated to be £319,286 per year in October 2014.

⁶⁰ http://www.hscic.gov.uk/media/11698/ROCR-schedule-of-approved-collections-for-October-2014/pdf/SCCI_ScheduleV1.pdf

Principle 7: Resources

The resources made available for statistical activities should be sufficient to meet the requirements of this Code and should be used efficiently and effectively.

- 3.21 PHE is undertaking a strategic review, part of which will consider work programme priorities, budgets and staffing structures. The statistics team told us that “A new ‘National Infection Service’ may impact how the HCAI statistics are delivered and any changes will be informed by user need and through consultation on a product by product basis.”
- 3.22 The HCAI data capture system collects all the data used in the production of the mandatory surveillance statistics. The primary purpose of the data capture system is to provide epidemiological data for public health purposes and these statistics are a by-product of this. The additional cost to PHE resulting from the production of the HCAI statistics was £6,050 for the financial year 2014/15.

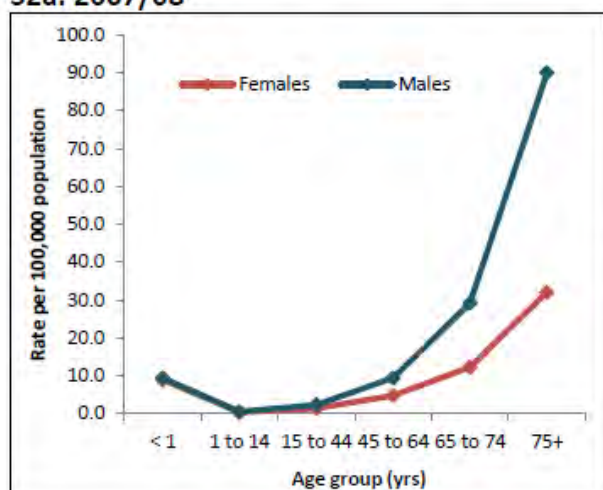
Principle 8: Frankness and accessibility

Official statistics, accompanied by full and frank commentary, should be readily accessible to all users.

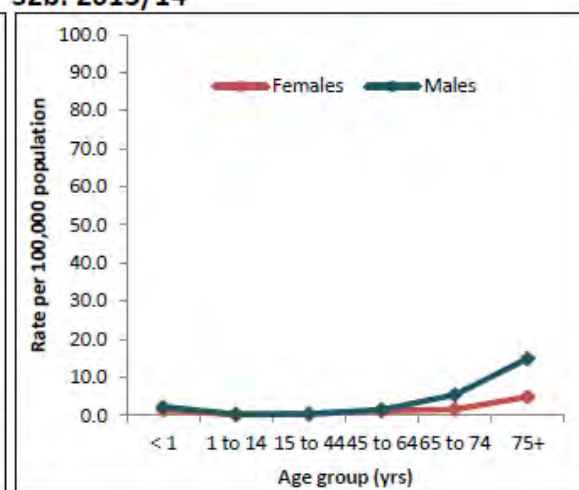
- 3.23 Both *Annual commentary* and *Quarterly commentary* give clear descriptions of the infection counts recorded, and the 'zero tolerance' target set for MRSA cases is also explained. However, the rationale for including some infections but not others in mandatory surveillance is not explained. Neither *Annual commentary* nor *Quarterly commentary* provide an explanation of what the statistics actually mean in a wider context and who might benefit or otherwise from what is shown. A clearer indication would be useful of whether these statistics are used to measure the quality of healthcare or for benchmarking, or how they might input into policy making or decisions about resource allocation. More explanation about the policy that surrounds these statistics would help to place them in a national and international context that could tie in some of the more global issues that are relevant. Neither publication includes information about the strengths and limitations of the statistics regarding use.
- 3.24 More appropriate choices about the best charts to use to depict the data could have been made. One example to illustrate this point is on page 16 in figure S2 (reproduced below) where a line chart is used to illustrate the age and sex-specific MRSA bacteraemia rates. The data are categorical and so a better choice might have been to use a bar chart for clarity.

Figure S2: Age- and sex- specific MRSA bacteraemia rates per 100,000 population, England

S2a. 2007/08



S2b. 2013/14



- 3.25 The descriptions of changes to the patterns and trends observed in recent years are detailed in *Annual commentary*, but there is little discussion about why changes may have occurred. For example, the report notes the recent fall in MRSA rates, but does not mention the interventions that may or may not have contributed to this observed decrease. A discussion of the results shown in each table is included in *Annual commentary*, but not in *Quarterly commentary*. For a user who might be accessing *Quarterly commentary* on an

infrequent basis, it would be helpful to give more explanation of what they might be able to deduce from the report.

- 3.26 As part of the designation as National Statistics, PHE should: a) improve the commentary, including information about the context, so that it aids user interpretation of the statistics; and b) adopt formats for the presentation of statistics in graphs that enhance interpretability⁶¹ (Requirement 7). As part of meeting this Requirement PHE should consider the points detailed in annex 1 and annex 2.
- 3.27 PHE issues press alerts on the same day as the statistical reports and additionally uses social media to publicise their release. Users who responded to us as part of this Assessment told us that they were generally content to receive email alerts from PHE when it published new statistics.
- 3.28 PHE produces monthly spreadsheets two to four weeks after data extraction and up to six weeks following the end of the month to which the data relate which are valued by many users. Those who responded to us as part of this Assessment suggested improvements to the granularity of the data released (see annex 2). For example, some users wanted to see the statistics reported at hospital and speciality level. Some users also mentioned the usefulness of being able to determine which hospital-acquired cases resulted from elective or emergency patients⁶². Each spreadsheet has a contents page, but no title is given and they are not linked to any metadata or guidance. As part of the designation of National Statistics, PHE should provide links or other appropriate signposting between the monthly reports and associated metadata⁶³ (Requirement 8). In meeting this Requirement, we suggest that PHE apply the GSS guidance about releasing statistics in spreadsheets⁶⁴.
- 3.29 PHE publishes the quarterly and annual epidemiological bulletins in PDF format, with supplementary data tables published in excel formats. The monthly data tables are all available in excel format only. This equates to a level of two stars under the Five Star Scheme that forms part of the Open Standards Principles proposed in the *Open Data White Paper: Unleashing the Potential* and adopted as UK government policy in November 2012. As part of the designation of National Statistics, PHE should publish the data associated with these statistics in an open format that equates to at least a Three Star level under the Five Star Scheme⁶⁵ (Requirement 9).

⁶¹ In relation to Principle 8, Practice 2 of the *Code of Practice*

⁶² Please refer to the NHS data dictionary for the definitions of these terms at <http://www.datadictionary.nhs.uk/>

⁶³ In relation to Principle 8, Practice 6 of the *Code of Practice*

⁶⁴ <https://gss.civilservice.gov.uk/statistics/presentation-and-dissemination/releasing-statistics-spreadsheets/>

⁶⁵ In relation to Principle 8, Practice 6 of the *Code of Practice*

Protocol 1: User engagement

Effective user engagement is fundamental both to trust in statistics and securing maximum public value. This Protocol draws together the relevant practices set out elsewhere in the Code and expands on the requirements in relation to consultation.

3.30 The requirements for this Protocol are covered elsewhere in this report.

Protocol 2: Release practices

Statistical reports should be released into the public domain in an orderly manner that promotes public confidence and gives equal access to all, subject to relevant legislation.

- 3.31 PHE breached the *Code of Practice for Official Statistics* in July 2014 in respect of the late publication of *Annual commentary*. PHE dealt with the breach speedily, but did not notify the details of the breach to the National Statistician at the time.
- 3.32 PHE is clearly identified as the producer of the reports and the statisticians involved are listed, but it would be helpful to indicate who the responsible statistician was.
- 3.33 PHE provided a pre-release access list for HCAI statistics to the Assessment team, but has not published it recently. The pre-release access list used to be routinely published on the HPA website. As part of the designation as National Statistics, PHE should publish a pre-release access list for statistics about the mandatory surveillance of HCAs⁶⁶ (Requirement 10).

⁶⁶ In relation to Protocol 2, Practice 7 of the *Code of Practice*

Protocol 3: The use of administrative sources for statistical purposes

Administrative sources should be fully exploited for statistical purposes, subject to adherence to appropriate safeguards.

3.34 PHE has not yet produced a Statement of Administrative Sources (SoAS). As part of the designation as National Statistics, PHE should publish its Statement of Administrative Sources⁶⁷ (Requirement 11).

⁶⁷ In relation to Protocol 3, Practice 5 of the *Code of Practice*

Annex 1: Compliance with Standards for Statistical Reports

- A1.1 In November 2012, the Authority issued a statement on *Standards for Statistical Reports*⁶⁸. While this is not part of the *Code of Practice for Official Statistics*, the Authority regards it as advice that will promote both understanding and compliance with the *Code*. In relation to the statistical reports associated with Healthcare-associated Infections Statistics, this annex comments on compliance with the statement on standards. The comments included in this annex are based on a review of the most recent editions of the reports listed in 1.1.1 as at March 2015.
- A1.2 In implementing any Requirements of this report (at paragraph 1.5) which relate to the content of statistical reports, we encourage PHE to apply the standards as fully as possible.

Include an impartial narrative in plain English that draws out the main messages from the statistics

- A1.3 *Annual commentary* begins with a list of key points and some commentary that leads the reader into the detail contained later in the report. *Annual commentary* is laid out with a background section that covers mandatory surveillance in general and then a chapter on each of the infections in turn. Before these specific chapters, there is a section on 'Supplementary Commentaries' which includes a list of the titles of all the tables included within the report. This takes up four pages and it is not obvious that the infection titles are hyperlinks to tables on the website. *Quarterly commentary* does not include any key findings that cover all four bacteria so it reads more like four separate reports joined together.
- A1.4 The descriptions of changes to the patterns and trends observed in recent years are detailed in *Annual commentary*, but there is little in the way of discussion about why changes may have occurred. For example, the report notes the recent fall in MRSA rates, but does not mention the healthcare interventions that may or may not have contributed to this observed decrease. Additionally, the report mentions the reduction in MRSA bacteraemias associated with catheters/indwelling lines and the rise in those associated with skin/soft tissue infection, but there is no discussion as to why this may be the case. A discussion of the results shown in each table is included in *Annual commentary*, but not in *Quarterly commentary*. The discussion and the relevant table(s) to which the discussion relates are often in different parts of the report, which can make the discussion difficult to interpret.
- A1.5 *Quarterly commentary* primarily describes what can already be observed in the tables without any additional commentary about what may lie behind the figures. This report provides no explanation of what the statistics actually mean and who might benefit or otherwise from what is shown. For a user who might be accessing the quarterly publication on an infrequent basis, it would be helpful to give more explanation of what they should be deducing from the report. The most recent *Quarterly commentary* noted the increasing rates of *E.*

⁶⁸ <http://www.statisticsauthority.gov.uk/news/standards-for-statistical-reports.html>

coli per 100,000 population, but there are no details about why this steady increase has occurred.

- A1.6 The use of bed-days as a denominator to present comparable NHS rates of trust-assigned and trust-apportioned cases is not intuitive for the less-expert user and more explanation could be added to explain why it is chosen as the denominator. The reports contain some jargon and although some terms are explained in the glossary at the back of the reports, others such as 'gram-negative bacteraemia' are not explained.

Include information about the context and likely uses of the statistics

- A1.7 Neither *Annual commentary* nor *Quarterly commentary* contain sufficient detail about how the statistics relate to the wider social context. Some discussion is included in *Annual commentary* about where an infection may be acquired, but no mention is made of whether the statistics should be used to measure the quality of healthcare more generally and given that MRSA rates are measured as part of the NHS Outcome Framework 2014/15, this would seem to be useful and relevant. Why these particular infections are part of mandatory surveillance and not others is not explained in the commentary.
- A1.8 A clearer indication would be useful of whether these statistics can be used to measure the quality of healthcare or for benchmarking or even how they might input into policy or decisions about resource allocation. More explanation about the policy that surrounds these statistics would help to place them in a national and international context that could tie in some of the more global issues that are relevant.
- A1.9 *Quarterly commentary* reads as an update to the previous edition or as a supplement to *Annual commentary* because it has no commentary about the value in producing these statistics and what further contribution they can make. It would be beneficial to include a link within *Quarterly commentary* to both *Annual commentary* and to the useful *Healthcare Associated Infection Operation Guidance and Standards for Health Protection Units*⁶⁹.

Include information about the strengths and limitations of the statistics in relation to their potential use

- A1.10 Neither *Annual commentary* nor *Quarterly commentary* highlight sufficiently the fact that the statistics are estimates. *Annual commentary* does quote confidence intervals around rates, but there is no explanation given about how users should interpret these and the distribution of the underlying data is not clear. *Annual commentary* also mentions that some fields are non-mandatory and the implication is made that this will affect the way in which the statistics should be interpreted, but more is required in terms of discussing where and how caution should be applied. *Annual commentary* states that the field 'source of bacteraemia' is not a mandatory field, but no discussion about the significance of this in relation to the statistics is included.

⁶⁹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/332051/HCAI_Operationalguidancefinalamended_05July2012.pdf

- A1.11 The introduction of the Post Infection Review (PIR) for MRSA and then the subsequent addition of a new 'third party' assignment category are mentioned in the reports as having been introduced to support the 'zero tolerance' targets for MRSA bacteraemia. *Annual commentary* states that a PIR helps to better establish where an infection was acquired, but it may not be very clear to a less-expert user why the 'third party' category might be beneficial. Additionally, no clear guidance is included on how a user should interpret the statistics in light of these changes and where caution might be needed when reading the reports.
- A1.12 The end of each chapter relating to the four infections in *Annual commentary* includes details about how the data are collected and how the cases are assigned or apportioned. Trends are included in both reports but there is no mention of any uncertainty that may be present in the statistics. These sections could be improved if the strengths and limitations that result from following the data definition processes were included.

Be professionally sound

- A1.13 *Annual commentary* includes a map to illustrate regional differences, which helps to give a picture of where MRSA rates in the population have been higher. Some of the charts are not the most appropriate choice to depict the data – this can be seen in the use of charts in figures S2, S5, S9 and S11 in *Annual commentary*. One example to illustrate this point is on page 16 in figure S2 where a line chart is used to illustrate the age and sex-specific MRSA bacteraemia rates, but the data is categorical and so a better choice might have been to use a bar chart for clarity. Also the line chart in figure S5 on page 25 only has 3 points with very little movement over time so the inclusion of the chart does not really add any value.
- A1.14 MRSA and MSSA bacteraemia cases in the population are shown as rates per 100,000 and healthcare-associated rates as trust-apportioned cases per 100,000 bed-days. Although some explanation of the different denominators is given at the end of *Annual commentary*, there is no explanation of why population rates are used as the denominator in calculating trust-based infections.

Include, or link to, appropriate metadata

- A1.15 The titles of *Annual commentary* and *Quarterly commentary* describe the coverage and frequency of the statistics, although the timing of the next release is not made explicit. PHE is clearly identified as the producer of the reports and the statisticians involved are listed, but it would be helpful to indicate who the responsible statistician was.
- A1.16 PHE provides links to other relevant PHE statistics and also to other NHS, European and population data where these have been used in calculations, but no explanations of how these statistics relate to each other are included. No reference is made either to the many topical academic research papers that

exist on healthcare-associated infections or to anti-microbial resistance in general – which would add a rich context to these statistics.

- A1.17 PHE does not mention any revisions in its statistical reports nor does it provide a link to its revisions policy.
- A1.18 PHE does not include details of forthcoming changes to either the collection or production of the statistics in any of its publications. For example, PHE expects to roll out a new data capture system in 2015, but it does not mention this in its statistical reports, and given that it may mean improvements in coverage with some fields then it seems likely that users would be interested to know about it.
- A1.19 Health Protection Scotland, the Welsh Government and the Northern Ireland Public Health Agency all produce statistics on mandatory surveillance, but the statistical reports do not mention these, nor do they make comparisons with the statistics produced by these devolved administrations or provide links to their respective publications. Similarly, the statistical reports do not include any comparisons with any other countries even although they submit data to EARS-Net. *Annual commentary* in particular would benefit from the inclusion of comparative data to allow users to see how the rates in England compare with other areas of the UK and beyond.
- A1.20 PHE produces monthly spreadsheets which are valued by users. The latest month is added on to every subsequent release (and the oldest month is dropped) to reflect 13 months worth of data and it would be beneficial to include a link to *Annual commentary* which would give access to the glossary and a fuller explanation of technical terms.

Annex 2: Summary of Assessment process and users' views

- A2.1 This Assessment was conducted from September 2014 to May 2015.
- A2.2 The Assessment team – Caroline Jones and Jo Mulligan – agreed the scope of and timetable for this assessment with representatives of PHE in September 2014. The Written Evidence for Assessment was provided on 27 November 2014. The Assessment team subsequently met PHE during March 2015 to review compliance with the *Code of Practice*, taking account of the written evidence provided and other relevant sources of evidence.

Summary of users contacted, and issues raised

- A2.3 Part of the Assessment process involves our consideration of the views of users. We approach some known and potential users of the set of statistics, and we invite comments via an open note on the Authority's website. This process is not a statistical survey, but it enables us to gain some insights about the extent to which the statistics meet users' needs and the extent to which users feel that the producers of those statistics engage with them. We are aware that responses from users may not be representative of wider views, and we take account of this in the way that we prepare Assessment reports.
- A2.4 The Assessment team received 14 responses from the user consultation. The respondents were grouped as follows:
- | | |
|------------------|----|
| Local government | 2 |
| NHS | 10 |
| Regulatory body | 2 |
- A2.5 The statistics are widely used by various bodies involved with healthcare. For example, commissioning organisations use the data to monitor the performance of the hospitals and the community organisations from which they commission care, to ensure that the infection control targets are being met and that the strategies to reduce infections are working. Hospital infection control teams use the data to prepare benchmarking information for providers within their area; and to prepare papers for committee meetings to enable lessons to be learned and improvements to be acknowledged. Public health teams use the data to monitor the rates of infection in their area; to monitor outbreaks of infections and check that trends are decreasing in both community and hospital settings; to identify seasonal variations in disease outbreaks. The Care Quality Commission⁷⁰ (CQC) runs an inspection programme to assess how well NHS trusts are protecting patients, workers and others from the identifiable risks of HCAs. The statistics are used to devise indicators to inform their programmes of infection prevention and inspection; for analysis and briefings for the inspection of individual providers; and with comparable data from each nation for monitoring and tracking infection outbreaks across the UK.
- A2.6 All users noted that the statistics team was helpful and responsive when contacted directly. Some users felt that publication of monthly data tables up to six weeks after the end of the reporting period was very late and that perhaps

⁷⁰ <http://www.cqc.org.uk/content/about-us>

the data could be made available sooner (perhaps labelled as 'non-validated' data), to allow commissioners earlier access to the data. Users found the data capture system too inflexible since they did not know how to have errors corrected (for example unknown NHS numbers or incorrect data entry) after the cut-off date. This meant that they were potentially being marked for causing an infection when another organisation was actually responsible, with the added problem that the HCAI data were no longer in line with their own performance management data. Several users mentioned their frustrations in using the current system and the 'current limited functionality' and said that further reporting of progress on the rollout would be welcomed.

A2.7 Suggestions for improvements included:

- the same data from more community providers
- more demographic information, GP location code and risk factors in the monthly datasets
- display data by PHE centre⁷¹
- provide benchmarking analysis of comparable trusts and CCGs
- provide analyses of the performance of community and hospital providers together at a local level
- allow errors to be amended in the system
- provide more straightforward information about how the statistics are generated and what they mean for non-specialist or non-clinical users
- more granularity of the published data by hospital, ward and speciality

Key documents/links provided

Written Evidence for Assessment document.

⁷¹ The 15 PHE centres are the access routes into the organisation. Each local centre director is a partner in the local public health system.

