Office for National Statistics

Deaths involving MRSA: Wales QMI

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3 October 2014

Next release:
To be announced

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1 . Methodology background

National Statistic	
Survey name	Deaths involving MRSA: Wales QMI
Frequency	Annual
How compiled	Sample based survey
Geographic coverage	Wales
Last revised	3 October 2014

2 . Executive summary

Staphylococcus aureus (S. aureus): is an opportunistic bacterial pathogen associated with the colonisation of the skin and mucosal surfaces of humans without causing any harm. It is more common on skin that is broken, for example, by a cut or sore. S. aureus can cause problems when it gets the opportunity to enter the body. This is more likely to happen in people who are already unwell. Meticillin-resistant Staphylococcus aureus (MRSA) is a variety of S. aureus that is resistant to a group of antibiotics known as beta-lactams. This makes it more difficult to treat MRSA infections.

Deaths involving MRSA in Wales presents statistics on the number of deaths and mortality rates where MRSA was mentioned on the death certificate. Data are broken down by sex, age group and place of death.

The number of deaths where MRSA is mentioned on the death certificate in Wales is extracted from our Deaths Registrations Database. The number of deaths and mid-year population estimates we produce are used to calculate age-specific and age-standardised mortality rates.

Figures are presented for deaths registered in the latest year, with previously released figures for comparison purposes.

A number of important changes have been made to our reporting of MRSA deaths. First, the scope of the annual bulletin has been reduced. Beginning with 2013 data, the bulletin will cover only Wales rather than England and Wales, with production costs being jointly funded by Public Health Wales NHS Trust and the Welsh Government. This follows the response to our Consultation on proposed cuts to a number of statistical outputs, which is due to reduced ONS funding. The second change is methodological in nature and involves the use of the recently implemented 2013 European Standard Population (2013 ESP) in calculating age-standardised rates. This new standard population replaces the 1976 ESP, which no longer reflects the age distribution of the population in Europe. Historical data from 1993 onwards have been rebased on the 2013 ESP. Further information on the change in ESP is available in the How the output is created section. Lastly, the methods used in calculating standard errors and confidence intervals have been modified (details are available in the Validation and quality assurance section).

This document contains the following sections:

- Output quality
- About the output
- How the output is created
- Validation and quality assurance
- Quality and Methodology Information (QMI) replaced Summary Quality Reports (SQR) from April 2011
- Concepts and definitions
- Other information, relating to quality trade-offs and user needs
- Sources for further information or advice

3 . Output quality

This document provides a range of information that describes the quality of the data and details any points that should be noted when using the output.

We have developed Guidelines for Measuring Statistical Quality; these are based upon the five European Statistical System (ESS) quality dimensions. This document addresses these quality dimensions and other important quality characteristics, which are:

- relevance
- timeliness and punctuality
- coherence and comparability
- accuracy
- output quality trade-offs
- assessment of user needs and perceptions
- accessibility and clarity

More information is provided about these quality dimensions in the sections below.

4 . About the output

Relevance

(The degree to which statistical outputs meet users' needs.)

MRSA statistics are important for monitoring trends in healthcare-associated infections (HCAIs). The statistics are widely used to inform policy, planning and research in both public and private sectors and they enable policymakers and healthcare establishments to target their resources most effectively.

Incidence and mortality data for S. aureus and MRSA infections in Wales are primarily used by Public Health Wales to highlight the burden of MRSA and to monitor and evaluate intervention programmes aimed at reducing this burden. They are also used by local health boards (LHBs) and individual healthcare establishments.

The surveillance of MRSA bloodstream infections is managed by the Welsh Healthcare Associated Infection Programme (WHAIP), which is part of Public Health Wales. These organisations collect data on incidence of bloodstream infections only, not other types of infections caused by MRSA. Therefore, our data on deaths involving all types of MRSA infections, when used alongside incidence figures, provide a more robust picture of the burden of this bacterial agent.

Deaths involving S. aureus and MRSA statistics have been produced by the Office for National Statistics (ONS) since 1993 (see the How the output is created section for more information). Figures for recent years show a large decrease in the number and rate of deaths where S. aureus and MRSA were the underlying cause of death or were mentioned anywhere on the death certificate. The incidence figures reported by Public Health Wales also follow a similar trend. The decreases may in part be due to interventions that are targeted at improving hospital-based infection-control practices.

MRSA is a healthcare-associated infection, meaning that it is more likely to be picked up in medical and care communal establishments where patients are often being treated for other, unrelated illnesses. As a result, there is a high level of interest in where these deaths occur, despite the fact that death certificates only tell us where a person died, not where any infection was acquired.

Because of improvements in the classification and coding of communal establishments, the place of death definition we use has been revised. In particular, the NHS and non-NHS nursing home and private residential home categories have been replaced with local authority and non-local authority care home categories to reflect current user needs. The allocation and coding of individual establishments to place of death categories is a continual exercise that will improve the quality of this new classification.

The majority of deaths in Wales occur in hospital. It is therefore expected that most deaths involving S.aureus and MRSA will occur in hospital. At present, we do not produce figures by individual hospital establishment.

For the period 2001 to 2007, data were provided for number of deaths involving MRSA for individual communal establishments such as hospitals, hospices and care homes which had at least one death involving MRSA in this period. However, this was discontinued because of problems with the data, causing stakeholders to question the reliability of the figures. The issue with communal establishments was mainly because the place where a death occurred (and subsequent recording on the death certificate) cannot always be reliably translated into a specific, known healthcare organisation or site.

Timeliness and punctuality

(Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.)

Mortality data for a particular year are usually released in June of the next year, following rigorous quality checks. The MRSA report is released annually in August or September for data relating to the previous calendar year, that is 8 or 9 months after the reference period and only 2 to 3 months after data for the reference year are published.

Figures are released around the same time every year and are always punctual.

For more details on related releases, the GOV.UK Statistics Release Calendar and our release calendar provide 12 months' advance notice of release dates. In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the Code of Practice for Official Statistics.

5 . How the output is created

Deaths involving MRSA in Wales is compiled using information supplied when a death is registered. Information about all deaths registered in Wales is held on our Deaths Registrations Database. Further details about this database, as well as the methods used to quality assure the data, can be found in Mortality Statistics: Metadata.

We code all deaths according to the International Classification of Diseases (ICD) produced by the World Health Organization (WHO). Since 1993, we have stored the text of death certificates on a database, along with all the ICD coding relating to causes identified on the death certificate. We use a combination of ICD codes and this text to identify death certificates on which S. aureus and MRSA are mentioned.

The 10th Revision of ICD (ICD-10) has been used to code deaths in Wales since 2001. The ICD-10 codes used to select deaths, to then search manually, are identified in Box 1 and Box 2 of the reference table accompanying each release. Initially, all deaths are extracted where an infection specifically related to Staphylococcus or S. aureus is mentioned on the death certificate. These deaths are extracted using the ICD-10 codes given in Box 1. The text of these death certificates is then searched both electronically and manually to identify MRSA.

In addition, all deaths that have non-specific infections (ones which may have been caused by Staphylococcal or S. aureus or other causative organisms) mentioned on the death certificate are extracted. The codes used to identify these non-specific infections are given in Box 2. The text of these death certificates is then searched manually to identify S. aureus and MRSA.

Deaths with an underlying cause of S. aureus are identified by selecting those deaths with a mention of S. aureus that also have as the underlying cause one of the causes of death listed in Box 1 or Box 2. The same procedure is followed for the identification of those deaths with MRSA as the underlying cause. Where MRSA is mentioned on the death certificate, the ICD-10 code A41.9 (septicaemia, unspecified) is taken to indicate that MRSA was also the underlying cause of death. This is because this code is sometimes selected as the underlying cause of death when MRSA septicaemia is mentioned on the death certificate.

Since 1986, we have used the internationally recommended death certificate for neonatal deaths (infants under 28 days old). This certificate is designed to record all conditions found at death, but means that neonates cannot be assigned an underlying cause of death. However, as the data required are deaths where S. aureus and MRSA are mentioned on the death certificate, neonates have been included. Neonatal deaths are extracted in the same way as described above for post-neonatal deaths.

There are two types of rates reported in this bulletin: age-specific and age-standardised. We have a Microsoft Excel template that demonstrates how age-standardised rates are calculated.

Mortality rates are calculated using the number of deaths and latest mid-year population estimates (MYPE) provided by the Population Estimates Unit at ONS. Information about the methods used to calculate MYPEs can be found in the Mid-year population estimates short methods guide.

Age-specific rates may be calculated for given age groups and are defined as the number of deaths divided by the population in the age group expressed per million (or thousand) population. While these rates can be compared between times, places and sub-populations, the tables containing them are usually large and may be difficult to assimilate. In addition, where there are very few deaths these rates will be imprecise and may be difficult to interpret.

Age-standardisation nullifies the effect of differing age structures on overall death rates. The figures presented in the bulletin have been age-standardised using the direct method of standardisation. In this method, the age-specific rates for each year are applied to a standard population structure to obtain the number of cases expected in each age group in the standard population. The numbers of expected cases are then added up across all age groups and divided by the total standard population to obtain a summary rate figure.

The ESP is an artificial population structure used to weight mortality or incidence data to produce age-standardised rates. Eurostat, the statistical office of the EU, decided at the end of 2012 to bring this population structure up to date. Beginning with 2013 mortality data, the 2013 ESP has been used as the standard population structure. The ESP is the same for both males and females, allowing comparisons to be made between sexes and geographical areas.

The ESP has become an accepted methodological standard in health statistics in the UK and the rest of Europe, and is used in the calculation of age-standardised rates by ONSus, other government departments, the NHS and academic health researchers. The ESP used in the previous publications of MRSA statistics was first introduced in 1976, but it has since been recognised that it is no longer representative of the age -structure of the population of EUEuropean Union Member States. In light of this, Eurostat implemented a new version of the ESP in 201311. In addition, weONS, on behalf of the Government Statistical Service (GSS), haves carried out a public consultation on how to implement the new ESP in the UK12.

The 2013 ESP takes into account changes in the EU population, providing a more current, methodologically sound and widely acceptable basis for the calculation of age-standardised rates (Eurostat, 2013). The 1976 and 2013 ESPs differ in two ways. First, the 2013 ESP gives the populations in older age groups greater weighting than the 1976 ESP. Second, the age distribution of the 1976 ESP has an upper limit of 85 years and over, while the 2013 ESP is further disaggregated to include age groups 85 to 89 years, 90 to 94 years and 95 years and over.

An ONS report examining the impact of the change in ESP on mortality data showed that sex- specific rates, for causes where deaths predominantly occur at older ages, are significantly higher under the 2013 ESP compared with the 1976 ESP. This is because the larger number of older people in the 2013 ESP exerts more influence on such rates than the 1976 ESP. Since deaths involving MRSA occur predominantly at older ages, the rates presented here are greater in magnitude than those previously published using the 1976 ESP for the same periods. However, the difference between death rates based on the old and new ESP is purely methodological and does not indicate an actual increase in previously published numbers of deaths or death rates.

Table 1: The 2013 European Standard Population

Age group	Population	Abridged version
Under 1	1,000	1,000
1 to 4	4,000	4,000
5 to 9	5,500	5,500
10 to 14	5,500	5,500
15 to 19	5,500	5,500
20 to 24	6,000	6,000
25 to 29	6,000	6,000
30 to 34	6,500	6,500
35 to 39	7,000	7,000
40 to 44	7,000	7,000
45 to 49	7,000	7,000
50 to 54	7,000	7,000
55 to 59	6,500	6,500
60 to 64	6,000	6,000
65 to 69	5,500	5,500
70 to 74	5,000	5,000
75 to 79	4,000	4,000
80 to 84	2,500	2,500
85 to 89	1,500	1,500
90 to 94	800	-
95 and over	200	-
90 and over	-	1000

Source: Office for National Statistics

Notes:

1. Use “to” throughout this table

6 . Validation and quality assurance

Accuracy

(The degree of closeness between an estimate and the true value.)

The number of deaths caused by MRSA is difficult to estimate. Trends in mortality are usually monitored using the underlying cause of death (the disease that initiated the train of events leading directly to death). However, MRSA (and other healthcare-associated infections) are often not the underlying cause of death. Those who die with MRSA are usually patients who were already very ill, and it is their existing illness, rather than MRSA, that is often designated as the underlying cause of death. There is therefore an interest in the number of deaths where MRSA contributed to the death only conditions that contribute directly to the death should be recorded on the death certificate. Results presented in the bulletin identify deaths where the underlying cause was MRSA and also where MRSA was mentioned as the underlying cause or as a contributory factor in the death.

Mortality statistics achieve 100% coverage since it is a legal requirement that all deaths are registered. In Wales, deaths should be registered within 5 days of the death occurring, but there are some situations that result in the registration of the death being delayed. In such cases registration of the death may not take place in the same calendar year as the death occurred. This is most likely to occur in cases where the death is referred to a coroner and an inquest is held.

Deaths are referred to a coroner in cases such as where the cause of death is unknown, where the deceased was not seen by a doctor before or after death or where the death was violent, unnatural or suspicious. If the coroner chooses to hold an inquest, the death can only be registered once the inquest has taken place. Current evidence shows that the average (median) registration period for deaths mentioning MRSA and S. aureus, and where both were identified as the underlying cause of death, is 3 days. Further information about the process of death registration can be found in Mortality Statistics: Metadata.

The accuracy of mortality statistics is dependent on the quality of information supplied when deaths are certified and registered. An incorrect underlying cause of death may be provided by the doctor completing the death certificate. Many thousands of practicing doctors complete death certificates and the nature and amount of training they have had in death certification varies greatly. Inaccurate information may also be supplied by the informant (usually a relative of the deceased) who must use the death certificate to register the death with the registrar. It is not possible to measure the magnitude of errors such as these.

Guidance on death certification, with specific reference to healthcare-associated infections, was issued to doctors in May 2005 (revised in 2010). This was followed by a message from the Chief Medical Officer to all doctors reminding them of their responsibilities with respect to death certification and drawing their attention to the guidance (Department of Health, 2005).

MRSA and S. aureus death rates are calculated using the latest available mid-year population estimates. We have revised mid-2002 to 2010 population estimates in light of the 2011 Census. Consequently, all death rates relating to this period have now been revised.

Information about the checks carried out on the data we hold to ensure their quality can be found in Mortality Statistics: Metadata.

Age-specific rates were not calculated where there were fewer than three deaths in a cell for age- specific rates or 10 deaths in a year for age-standardised rates, denoted by "••". It is our practice not to calculate rates based on such small numbers, as they are imprecise and susceptible to inaccurate interpretation. Age-standardised rates that were calculated from 10 to 19 deaths are distinguished by italic type as a warning to the user that their precision may be affected by the small number of events.

Age-standardised rates are published with 95% confidence intervals (CIs) to allow the user to identify significant differences between males and females and over time. Significance is assigned on the basis of non-overlapping CIs. While more formalised and accurate methods of significance testing are available, the non-overlapping CI method is used because it is both simple to calculate and easily understood.

The methods used in previous bulletins to calculate standard errors and 95% CIs have now been modified. Data from 2013 onwards are based on the methods described in the next section while historical data have been revised in light of the new methods.

Modifications to standard error and confidence interval calculations

Age-standardised rates

Standard error

In previous publications, the standard error for age-standardised rates was calculated using a simple approximation method as shown below. The standard error is denoted as SE(ASR) and calculated as:

$$SE(ASR) = \frac{ASR}{\sqrt{N}}$$

Where:

ASR is the age-standardised rate

N is the total number of deaths in all age groups in each year

The age-standardised rate is a weighted sum of age-specific death rates where the age-specific weights represent the relative age distribution of the standard population (in this case the 2013 ESP). Therefore, it is more accurate to calculate its variance as the sum of the age-specific variances and to estimate its standard error as the square root of the variance as shown below.

$$SE(ASR) = \sqrt{\frac{\sum_i \left(w_i^2 \frac{r_i^2}{d_i} \right)}{\left(\sum_i w_i \right)^2}}$$

Where: wi is the number of individuals in the standard population in age group i. ri is the crude age-specific rate in the local population in age group i. di is the number of deaths in the local population in age group i.

The standard error calculation has now been modified so that it takes into account the variance of the weighted sum of age-specific rates.

Confidence intervals

The mortality data in this release are not subject to sampling variation as they were not drawn from a sample. Nevertheless, they may be affected by random variation, particularly where the number of deaths or probability of dying is small. To help assess the variability in the rates, they have been presented alongside 95% CIs.

The choice of the method used in calculating confidence intervals for rates will in part depend on the assumptions made about the distribution of the deaths data these rates are based on. Traditionally, a normal approximation method has been used in calculated confidence intervals on the assumption that MRSA deaths are normally distributed. However, the annual number of deaths involving MRSA are relatively small (usually fewer than 100), and may be assumed to follow a Poisson probability distribution. In such cases, it is more appropriate to use the confidence limit factors from a Poisson distribution table to calculate the confidence intervals instead of a normal approximation method.

The method now used in calculating confidence intervals for rates based on fewer than 100 deaths was proposed in Confidence intervals for weighted sums of poisson parameters and described in a 2008 APHO technical briefing. In this method, confidence intervals are obtained by scaling and shifting (weighting) the exact interval for the Poisson distributed counts (number of deaths in each year). The weight used is the ratio of the standard error of the age-standardised rate to the standard error of the number of deaths. The lower and upper 95% CIs are denoted as ASR ^{lower} and ASR ^{upper}, respectively, and calculated as:

$$ASR_{lower} = ASR + (D_1 - D).\sqrt{\frac{v\,(ASR)}{v\,(D)}}$$

$$ASR_{upper} = ASR + (D_{_u} - D).\sqrt{\frac{v\,(ASR)}{v\,(D)}}$$

Where: Dl and Du are the exact lower and upper confidence limits for the number of deaths, calculated using confidence limit factors from a Poisson probability distribution table D is the number of deaths in each year v (ASR) is the variance of the age-standardised rate v(D) is the variance of the number of deaths

Where there are 100 or more deaths in a year the 95% confidence intervals for age-standardised rates are calculated using the normal approximation method:

$$\mathrm{ASR_{LL/UL}/UL} = \mathrm{ASR} \pm 1.96 \cdot \mathrm{SE}$$

Where: ASRLL/UL represents the upper and lower 95% confidence limits, respectively, for the age- standardised rate

Age-specific rates

For age-specific rates, the exact Poisson limit factors for the number of deaths was multiplied by the rate to calculate the 95% confidence intervals where there are fewer than 100 deaths in a particular age group.

$$\mathrm{LL(R)} = \mathrm{L} \cdot \mathrm{R and UL(R)} = \mathrm{U} \cdot \mathrm{R}$$

Conversely, the normal approximation method is used where there are 100 or more deaths:

$$\mathrm{R_{LL/UL}} = R \pm 1.96 \cdot \frac{R}{\sqrt{N}}$$

Where: LL and UL are the lower and upper 95% confidence limits, respectively R is the age-specific rate L and U are the exact lower and upper Poisson confidence limit factors for the age-specific number of deaths

Coherence and comparability

(Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain, for example, geographic level.)

In the UK, causes of death are coded according to the ICD produced by the WHO. The Ninth Revision of ICD was used in Scotland until 1999 and in England and Wales and Northern Ireland until 2000. The 10th Revision has since been in use. Consequently, for the year 2000, results for England and Wales are not directly comparable with those for Scotland.

The introduction of ICD-10 in England and Wales in 2001 had a significant effect on mortality rates for some diseases, causing a discontinuity in mortality trends for these causes of death. A list of ICD-10 and equivalent ICD-9 codes used to identify potential MRSA deaths can be found in Table A and Table B in an article on Trends in MRSA in England and Wales. This ensures that comparable time series are available going back to 1993.

The scope of the annual MRSA bulletin has been reduced. Beginning with 2013 data, the bulletin will cover only Wales rather than England and Wales, with production costs being jointly funded by Public Health Wales NHS Trust and the Welsh Government. This follows the response to our consultation on proposed cuts to a number of statistical outputs, which was due to reduced ONS funding. Statistics on MRSA deaths in England has been discontinued. The National Records of Scotland (NRS), formerly the General Register Office for Scotland (GROS) produces statistics for Scotland and the Northern Ireland Statistics and Research Agency (NISRA) produces statistics for Northern Ireland.

The approach used by NRS in selecting MRSA deaths differs from our approach. From 1996 to 2000, NRS carried out an electronic search of their database using ICD-9 codes specifically related to Staphylococcal infections (same as those we use) to identify mentions of MRSA (or variants due to spelling errors). In addition, the database search was extended to cover the whole of Scotland for mentions of MRSA. ONS did not search its entire deaths database for additional infections that may have been caused by MRSA for this period; only a subset of deaths was searched using the ICD-9 codes for non-specific infections.

For 2001 onwards, NRS use only ICD-10 codes specifically related to Staphylococcal infections to extract deaths, while we use specific and non-specific codes given in the statistical bulletin.

Concepts and definitions

(Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.)

Definitions and concepts used in the bulletin and accompanying tables.

International Classification of Diseases (ICD) is the standard diagnostic tool for epidemiology, health management and clinical purposes. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records. In addition to enabling the storage and retrieval of diagnostic information for clinical, epidemiological and quality purposes, these records also provide the basis for the compilation of national mortality and morbidity statistics by WHO Member States. It is used for reimbursement and resource allocation decision-making by countries. Currently ICD-10 is in use.

Staphylococcus aureus (S. aureus) – This is an opportunistic bacterial pathogen associated with the colonisation of the skin and mucosal surfaces of humans without causing any harm. It is more common on skin that is broken, for example, by a cut or sore. People who have S. aureus on or in their body but who are unharmed by it are described as colonised. S. aureus can cause problems when it gets the opportunity to enter the body. This is more likely to happen in people who are already unwell.

Meticillin-resistant Staphylococcus aureus (MRSA) – This is a variety of S. aureus that is resistant to a group of antibiotics known as beta-lactams. This makes it more difficult to treat MRSA infections.

Underlying cause – This is defined by WHO as “the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury”, in accordance with the rules of the International Classification of Diseases.

Mention – This is defined as any reference to MRSA or S. aureus on a death certificate regardless of whether either was also identified as the underlying cause of deaths.

Legislation

Although there is no specific legislation governing the production of MRSA deaths, there is legislation surrounding the collection of deaths data in general. The existing provisions for the registration of deaths and the processing, reporting and analysis of mortality data appear in different legislation that reflects the distinct and separate roles of the Registrar General for England and Wales and the UK Statistics Authority. This legislation can be found in Mortality Statistics: Metadata.

Other information

Output quality trade-offs (Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

Population projections or mid-year population estimates are often used as the denominator when calculating rates. While there is a preference for the latter, they may not be available during the production phase of the MRSA bulletin. In such cases population projections are used.

Although mid-year population estimates are now produced earlier than they were, in the event that they are unavailable during production of the bulletin, population projections will be used to enable timely publication. The decision to do this was made to meet user need for timely figures. Users have indicated a preference for this balance between timeliness and quality.

Assessment of user needs and perceptions (The processes for finding out about uses and users, and their views on the statistical products.)

Feedback from users is invited in the statistical bulletin. Direct email and telephone correspondence is maintained with a range of users including government users, students and academics, and members of the general public. Details of the nature of any enquiries or additional data requested are held on a customer database.

Feedback was sought in the 2009 bulletin and responses were received from key stakeholders including the Department of Health and NHS Primary Care Trusts. Comments were made on the presentation of the bulletin and concerns were raised about the timing of the data and the possibility of quarterly data being available. These comments have been taken on board and the layout of the bulletin has been significantly improved. However, it has not been possible to change the timing of releases because the publication is dependent on deaths registrations data that are published at the end of each year.

7 . Other information

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8 . Sources for further information or advice

Accessibility and clarity

(Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.)

We provide datasets containing the latest figures on deaths involving MRSA .

This is accompanied by a statistical bulletin containing commentary and contextual information about these data.

General information about the collection, production and quality of mortality data is available in Mortality Statistics : Metadata.

Our recommended format for accessible content is a combination of HTML web pages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. Our website also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. Available formats for content published on our website but not produced by us, or referenced on our website but stored elsewhere, may vary. For further information please refer to the contact details at the top of the page.

For information regarding conditions of access to data, please refer to:

- terms and conditions (for data on the website)
- copyright and reuse of published data
- pre-release access (including conditions of access)
- access to microdata via the Virtual Microdata Laboratory
- accessibility

In addition to this Quality and Methodology Information, quality information relevant to each release is available in the background notes of the statistical bulletin.