

**DEATHS REGISTERED IN NORTHERN
IRELAND WITH METHICILLIN RESISTANT
STAPHYLOCOCCUS AUREUS (MRSA)
MENTIONED ON THE DEATH CERTIFICATE
(1997-2004)**



Introduction

1. This report adds further statistics to those originally published by the NISRA in October 2004 on deaths registered in Northern Ireland where methicillin resistant *Staphylococcus Aureus* was recorded on the death certificate. The report contains three tables

- Table 1: Number of deaths with *Staphylococcus Aureus* and MRSA mentioned and recorded as the underlying cause on the death certificate by registration year 1997-2004
- Table 2: Number and percentage of deaths with *Staphylococcus Aureus* and MRSA mentioned on the death certificate by age at death, 2004
- Table 3: Number and percentage of deaths with *Staphylococcus Aureus* and MRSA mentioned on the death certificate by underlying cause of death (ICD), 2004

Further information is available from NISRA on request.

Table 1: Number of deaths with Staphylococcus Aureus and MRSA mentioned and recorded as the underlying cause on the death certificate by registration year 1997-2004

Year	1997	1998	1999	2000	2001	2002	2003	2004	Total (1997-2004)
<u>Mentions</u>									
All <i>Staphylococcus Aureus</i>	14	14	22	17	33	35	41	52	228
MRSA	7	10	13	14	17	26	30	44	161
Percentage of <i>Staphylococcus Aureus</i> mentions that were MRSA	50%	71%	59%	82%	52%	74%	73%	85%	71%
<u>Underlying cause</u>									
All <i>Staphylococcus Aureus</i>	1	1	3	1	17	15	7	12	57
MRSA*	1	0	0	1	7	10	4	8	31
<u>Percentage of mentions selected as underlying cause</u>									
All <i>Staphylococcus Aureus</i>	7%	7%	14%	6%	52%	43%	17%	23%	25%
MRSA*	14%	0%	0%	7%	41%	38%	13%	18%	19%

*The ICD code specifies *Staphylococcus Aureus* as the underlying cause of death and a search on the text field shows if it was the methicillin resistant form.

- Table 1 shows that the number of deaths with *Staphylococcus Aureus* and MRSA recorded on the death certificate has generally increased year on year over the period 1997 to 2004. The overall total number of deaths remained broadly stable between 1997 and 2004 with around 15,000 deaths per annum.

3. In overall terms, between 1997 and 2004, *Staphylococcus Aureus* was mentioned on 228 deaths. Of these 228 deaths, 161 included a mention of MRSA. Twenty-five per cent of deaths with *Staphylococcus Aureus* recorded on the death certificate had *Staphylococcus Aureus* recorded as the underlying cause. The deaths with *Staphylococcus Aureus* recorded as the underlying cause then had the text field of the death certificate searched to find if they were the methicillin resistant form of *Staphylococcus Aureus*. It was found that 19 per cent of certificates with MRSA mentioned had MRSA recorded as the underlying cause of death.

Table 2: Number and percentage of deaths with *Staphylococcus Aureus* and MRSA mentioned on the death certificate by age at death, 2004

	Age-group				Total
	Under 16	16-44	45-74	75+	
Deaths with all <i>Staphylococcus Aureus</i> mentioned (2004)					
Number	0	1	13	38	52
<i>Percentage of total</i>	<i>0%</i>	<i>2%</i>	<i>25%</i>	<i>73%</i>	<i>100%</i>
Deaths with MRSA mentioned (2004)					
Number	0	1	10	33	44
<i>Percentage of total</i>	<i>0%</i>	<i>2%</i>	<i>23%</i>	<i>75%</i>	<i>100%</i>

4. Table 2 shows that deaths with *Staphylococcus Aureus* and MRSA recorded on the death certificate are primarily in the very elderly.

Table 3: Number and percentage of deaths with *Staphylococcus Aureus* and MRSA mentioned on the death certificate by underlying cause of death (ICD), 2004

Underlying Cause of Death (ICD)	ICD10 code	Deaths with all <i>Staphylococcus Aureus</i> mentioned 2004		Deaths with MRSA mentioned 2004	
		Number	Percentage	Number	Percentage
Infectious & Parasitic Diseases	A00-B99	8	15%	5	11%
Neoplasms	C00-D48	5	10%	5	11%
Endocrine, Nutritional and metabolic diseases	E00-E90	2	4%	2	5%
Diseases of the Circulatory System	I00-I99	13	25%	11	25%
Diseases of the Respiratory System	J00-J99	9	17%	7	16%
Diseases of the Digestive System	K00-K93	3	6%	3	7%
Diseases of Skin, Musculoskeletal System and Connective tissue	L00-M99	4	8%	3	7%
Diseases of the Genitourinary System	N00-N99	4	8%	4	9%
External causes of mortality	V01-Y98	2	4%	2	5%
Other causes	All other codes	2	4%	2	5%
Total		52	100%	44	100%

5. Patients who die with MRSA are often already seriously ill with another condition, as the data on underlying cause of death presented in table 3 illustrates. The table shows that where *Staphylococcus Aureus* and MRSA is mentioned on a death certificate, the most likely underlying cause of death is either diseases of the circulatory system (25%), or diseases of respiratory system (17%).

Method used to identify MRSA related cases

6. All deaths occurring in Northern Ireland are registered with the General Register Office. After the death of a patient a qualified medical practitioner notes the cause of death of the deceased on the death certificate. This information is used to identify the underlying disease or circumstances, which initiated the train of events leading to death. The World Health Organisation International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD) is used to classify this information. This process is line with standard practice across the developed world.
7. However, information on methicillin resistant *Staphylococcus Aureus* (MRSA) cannot be derived from the standard statistical classification, as the latest revision of ICD has no code to identify MRSA. Typically, patients who die with MRSA infections are vulnerable to a number of other conditions or have a chronic illness. In general, these diseases are used to classify the main cause of death using ICD.
8. However, it is possible to quantify the number of deaths in which MRSA has been mentioned on the death certificate; this has been derived by examining, both electronically and manually, the cause of death written by the doctor on the death certificate. To assist this process research has been undertaken in England and Wales to identify which ICD codes are related to MRSA¹. This information has been used in the analysis undertaken for this paper.
9. In summary, the method used to identify MRSA cases was as follows. Firstly, the text on all death certificates was searched electronically for the words methicillin resistant *Staphylococcus Aureus* the phrase MRSA or variants of these. Secondly, a more detailed manual search was undertaken of those specific death certificates with ICD codes which may be related to MRSA as noted in Griffiths *et al*¹.
10. The tables in this paper update a previous paper published in October 2004 on deaths involving MRSA between 1997 and 2003. Additional work has been done on searching the cause of death text field on the death certificate and looking at the coding and therefore some figures are different from the previous report. There has also been a refinement to the method used to select the underlying cause of death

¹ "Deaths involving MRSA: England and Wales, 1999-2003". Health Statistics Quarterly 25, p60-65. Available at http://www.statistics.gov.uk/downloads/theme_health/HSQ25.pdf

from previous analysis, the code A41.9 (septicaemia, unspecified) has also been used to select 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.

Further Information

11. Further information on the statistics provided in this publication can be obtained from:

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