Death registrations with staphylococcal ICD-9 codes by year of death. Results are numbers (percentages)

Year of death	1993	1994	1995	1996	1997	1998	Total 1993-8
No of certificates with any mention of MRSA	47 (7.5)	88 (11.4)	187 (18.3)	290 (22.8)	377 (26.2)	398 (25.0)	1387 (20.6)
Staphylococcal infection final underlying cause of death	216 (34.3)	249 (32.3)	344 (33.7)	435 (34.2)	483 (33.6)	546 (34.3)	2273 (33.8)
Total deaths with any mention of staphylococcal codes	630 (100)	772 (100)	1020 (100)	1271 (100)	1439 (100)	1591 (100)	6723 (100)

ICD-9=international classification of diseases, 9th revision.
MRSA=methicillin resistant *Staphylococcus aureus*.

each line of the death certificate, including underlying and contributory conditions. We calculated age group specific annual mortality using mid-year population estimates from the Office for National Statistics.

MRSA was mentioned on 1387/6723 (20.6%) death certificates that included an ICD-9 code for staphylococcal infection (table). The percentage of certificates mentioning MRSA increased from 7.5% in 1993 to 25.0% in 1998. The final underlying causes of death indicated by death certificates that also mentioned MRSA included infections, neoplasms, and disease of nearly every system of the body.

The number of certificates mentioning staphylococcal infection and the number of deaths with staphylococcal infection as the underlying cause increased each year. Each year, a similar proportion of certificates mentioned staphylococcal infection as the underlying cause of death; in these certificates, the proportion mentioning MRSA increased from 8% in 1993 to 44% in 1998 (13/156 *v* 114/258). MRSA accounted for all of the increase in deaths due to staphylococcal infection in this period: MRSA in staphylococcal septicaemia increased from 3% to 28% (3/87 v 37/134), staphylococcal pneumonia from 13% to 44% (6/47 *v* 24/54), and unspecified bacterial infection, staphylococcus from 19% to 83% (4/21 *v* 53/64).

In certificates mentioning MRSA where staphylococcal infection was the final underlying cause of death, mortality was higher in men and in older people. For 86% of the certificates, the age of the person who died was over 64. In 1998 mortality ranged from 0.4 per 100 000 for women aged 45-64 to 14.8 per 100 000 for men over 84.

Comment

Infections due to MRSA seem to be an increasing cause of mortality in England and Wales. Improved reporting is unlikely to explain the increase. The greatest rise in MRSA occurred for deaths in which invasive staphylococcal infection was given as the final underlying cause, so antimicrobial resistance probably influenced the success of medical management.

Our study highlights the limitations of using routine mortality data for monitoring the impact of MRSA. There is no code for this infection in either ICD-9 or ICD-10. The Office for National Statistics could introduce routine automated searches of computerised text or assign one of the unused ICD-10 "U" codes available for special studies to MRSA.

Further improvements in surveillance and control of healthcare associated infection and mortality should be a priority if MRSA related deaths are to be prevented.[4] Recent initiatives, such as the requirement since April 2001 for all NHS trusts to report *S aureus* bacteraemia, will help towards achieving this goal.[5]

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Does declaration of competing interests affect readers' perceptions? A randomised trial

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Conflict of interest has been defined as a set of conditions in which professional judgment concerning a primary interest (such as patient welfare or the validity of research) can be influenced by a secondary interest (such as financial gain).[1] Despite increasing evidence that conflict of interest influences authors' conclusions,[2–4] we found no research into the effect on readers' perceptions of research. We studied whether a declaration of financial competing interest influences readers' perceptions of the interest, importance, relevance, validity, and believability of a study.

Participants, methods, and results

We randomly selected 300 *BMJ* readers from the BMA's membership database, which contains indi-

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Score* distributions for readers' perceptions of papers with and without declaration of competing interests. Figures are percentage of readers

	Group 1: with competing interests (n=86)†			Group 2: without competing interests (n=84)‡			
Question	Positive§ rating	Negative§ rating	Mean (SD)	Positive§ rating	Negative§ rating	Mean (SD)	P value¶
Interest	15.1	45.4	2.59 (0.87)	33.3	31.0	2.99 (0.91)	0.004
Importance	16.3	45.3	2.59 (0.90)	31.0	35.8	2.94 (0.96)	0.016
Relevance	26.7	45.4	2.70 (1.1)	41.6	31.0	3.15 (1.1)	0.006
Validity	20.9	52.3	2.53 (0.99)	40.5	32.1	3.04 (1.0)	0.001
Believability	31.4	43.0	2.73 (1.1)	51.2	19.1	3.33 (0.92)	<0.001

*Low scores indicate low interest, importance, relevance, validity, and believability.
†Competing interests: the authors are employees of Tohen Research Laboratories, Tohen and Co, Inc, Connecticut, and potentially own stock and/or hold stock options in the company.
‡Competing interests: none declared.
§Rating of 4 or 5 was positive; rating of 1 or 2 was negative.
¶Independent *t* test.

vidual reader characteristics. All readers were sent a short report indicating that the impact of pain from herpes zoster on patients' daily functioning may be substantial.[5] Readers in group 1 were sent a version of this paper with different named authors to the original and with a declaration that they were employees of a fictitious company and potentially held stock options in the company. Readers in group 2 were sent a version of the same paper with the same named authors as in group 1 but with a statement that these authors were from an ambulatory care centre and had no competing interest. Readers were asked to rate the study in terms of interest, importance, relevance, validity, and believability on 5 point Likert scales (1=extremely uninteresting to 5=extremely interesting). We estimated that 86 readers were needed in each group to achieve a power of 90% to detect a difference in scores between the groups of 0.5 units on the 5 point scale. We used a simple two sample *t* test with the conventional 5% significance level and assumed a common standard deviation of 1.0.

Three questionnaires were returned by family members as the addressee was considered unfit to participate. Six were sent to the wrong address. We excluded one more as the recipient was an institution. In total, 170/290 (59%) questionnaires were returned (86 in group 1, 84 in group 2). Non-responders were significantly younger (mean age 40.7 years (SD 13.9, range 19-93 years)) than responders (44.7 (SD 15.5, 20-82) years in group 1 and 44.8 (16.9, 19-86) years in group 2) ($t=-2.3$, df=276.2; P=0.022). There was no significant difference in the proportion of men between non-responders (65%) and responders (58% in group 1; 64% in group 2) ($\chi^2=0.44$, df=1; P=0.51).

Independent *t* tests showed that readers in group 1 thought the study was significantly less interesting, important, relevant, valid, and believable than readers in group 2 (table). Within each group, scores for each item were poorly correlated to age ($r\leq 0.22$), and there were no significant differences in scores by sex.

Comment

Declaration of competing interests may have a significant effect on readers' perceptions of the scientific credibility of published medical research. *BMJ* readers reported that data showing the impact of pain from herpes were less interesting, important, relevant, valid and believable when the authors were employees of a fictitious pharmaceutical company compared with an ambulatory care centre.

Our study has several weaknesses. The response rate was low and responders were older than non-responders. However, within each group there was no relation between age or sex and scores. Readers knew they were being studied and thus responses might not reflect the way they usually evaluate a manuscript. We used only one manuscript with one competing interest statement. It is possible that the unfamiliar name of the fictitious company might have influenced readers' responses. Future research should explore different types of competing interest statements with different manuscripts and samples of readers.

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Endpiece

Age and wisdom

The older I grow the more I distrust the familiar doctrine that age brings wisdom.

Henry Louis Mencken (1880-1956), American editor and critic

Submitted by Fred Charatan, retired geriatric physician, Florida