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Prospective audit of records of deceased patients received in hospital mortuary

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Mortuary services in hospitals have generally been given little attention by clinicians, the media, or the public. However, recent stories about improper storage of bodies and organs have generated public interest in both pathology and mortuary services.¹⁻³

Response to the media stories shows that the public expects the standards of care and attention given to the deceased to be the same as those for living patients. However, our experience, and that of pathology colleagues, suggests that clinical staff do not pay enough attention to the documentation related to deceased patients. Although this is understandable given the increasing workload of clinical staff and staff shortages, it is unacceptable. To investigate the errors or omissions in the documentation accompanying deceased patients, we audited the documents accompanying all deceased patients in the hospital over four years.

Methods and results

We prospectively audited the documentation relating to 7761 bodies received in the mortuary of the Walsall Hospitals NHS Trust during 1996-2000. Bodies were received from funeral directors and ambulance crews as well as hospital wards. We checked wrist bands, labels, and identification papers against the patients' registration details on the hospital patient management system for any discrepancies. We also checked accuracy of recording the presence of a pacemaker and property for each body. Bodies for which there was one or more discrepancy were classified as failed cases. Annual failure rates are expressed as the percentage of failures in a financial year (April to March). The study was part of an ongoing internal quality assurance audit, and ward managers and funeral directors were

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BMJ 2002;324:1009-10

Accuracy of documentation for bodies received in hospital mortuary

Financial year (April-March)	Total No of bodies	No (%) with documentation failure	Type of discrepancy (hospital deaths only)					
			Name*	Address	Unit No	Wristband	Property	Pacemaker
1996-7:								
All bodies	1920	196 (10.2)						
Hospital deaths	1484	177 (11.9)	12	8	24	87	38	8
1997-8:								
All bodies	1835	143 (7.8)						
Hospital deaths	1312	139 (10.6)	6	2	14	73	27	17
1998-9:								
All bodies	1947	95 (4.9)						
Hospital deaths	1363	94 (6.9)	3	11	9	49	16	6
1999-2000:								
All bodies	2059	60 (2.9)						
Hospital deaths	1460	58 (4.0)	4	6	7	28	11	2

*Minor typographical errors are excluded.

sent memorandums pointing out any errors and omissions every six months.

In 1996-7, the failure rate for bodies from all sources was 10.2% (table). This figure fell in the study period to 2.9% in 1999-2000. The bodies received from the hospital accounted for most cases of failed documentation. When the failure rate was calculated for hospital deaths alone, it fell from 11.9% in 1996-7 to 4.0% in 1999-2000.

Comment

That the documentation of about 10% of deceased patients contained errors at the beginning of the study suggests that clinical staff were paying insufficient attention to the identification and details of deceased patients. Although some of the discrepancies were arguably less important, such as errors in unit number or address, a substantial proportion could have had serious consequences. These include misidentification of the body (body received in the mortuary with the wrong name) or property and non-notification of pacemakers.

Pathology is one of the most intensely scrutinised medical specialties. Clinical Pathology Accreditation (UK) sets standards for medical laboratories and mortuaries and insists on external quality control measures and regular internal audits. However, the mandatory quality assurance procedures refer only to the internal

quality control of all examinations and do not specifically refer to mortuary services.⁴ Our experience of inspections by Clinical Pathology Accreditation is that little emphasis is put on regular internal quality control audit of the mortuary or on any other internal quality assurance procedures. The error rate fell during our study, probably because staff were regularly alerted to errors as part of the audit. We therefore believe that such audits are essential for a mortuary to run effectively and safely and to gain public confidence.

We thank Colin Humphries and Rachel Jones for collecting routine data and Tony Board for suggesting a regular mortuary audit. We also thank Angela Turner for typing the manuscript.

Contributors: PS was responsible for initiating and coordinating the audit and data analysis. YLH was responsible for reviewing the literature, interpreting the results, and writing and editing the paper. EL was responsible for statistical analysis and also helped edit the paper. YLH is the guarantor.

Funding: None.

Competing interests: None declared.

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(Accepted 22 October 2001)

RESEARCH POINTERS

Unexplained differences in sex ratios at birth in Europe and North America

The male:female ratio at birth by latitude in Europe is the reverse of that in North America. A temperature related effect cannot account for this

In mammals, male live births exceed female ones. In humans, the ratio of male births to total births is expected to be 0.515. In Europe during 1990-5 this differed significantly with increasing geographical latitude.¹ We analysed and compared the male to female ratio in Europe and North America over 50 years.

Methods and results

We obtained annual data on male and female live births from the World Health Organization (WHO) for the North American continent for 1958-97 and for European countries for 1950-99. Overall < 3% of data were missing.

European countries were banded by latitude. Southern countries (latitude 35-40°) included Bulgaria, Greece, Italy, Malta, Portugal, and Spain. Central Europe (40-55°) included Austria, Belgium, Czech Republic, France, Germany, Hungary, Ireland, Luxembourg, Netherlands, Poland, Romania, Switzerland, and the United Kingdom. Nordic countries (> 55°) include Denmark, Finland, Iceland, Norway, and Sweden. North America was divided by latitude into Canada (> 50°), the United States (30-50°), and Mexico (< 30°).

We analysed contingency tables using χ^2 and χ^2 for trend and obtained 95% confidence intervals for ratios by using the Fleiss equations. $P \leq 0.05$ was taken as significant.

Results

Significantly more boys were born in southern countries (table) than in central Europe ($\chi^2=57$, $P < 0.0001$) or the Nordic countries ($\chi^2=8.8$, $P=0.003$; χ^2 for trend=120, $P < 0.0001$). The difference between central Europe and the Nordic countries was not significant. All had a male to female ratio < 0.515, with a resultant male birth deficit of 12 744 in the Mediterranean, 212 780 in central Europe, and 13 169 in the Nordic countries (total deficit of male births 238 693).

A low male to female ratio was found in Mexico, a higher ratio in the United States, and an even higher ratio in Canada (χ^2 for trend=57, $P < 0.0001$). All had a male to female ratio < 0.515, with a resultant male birth deficit of 21 993 in Canada, 410 932 in the United States, and 521 789 in Mexico (total deficit 954 714).

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BMJ 2002;324:1010-1