

Semantics of Death Certification

STEPHEN LEADBEATTER, MB, *Lecturer in Forensic Pathology,*
University of Wales College of Medicine, Cardiff

'A man's dying is more the survivors' affair than his own'[1]. This opinion applies as well to medical certification of cause of death as to disposal of property but is not, apparently, an opinion common among the medical profession, many of whom regard death certification as a tedious chore to be delegated to the least qualified member of the clinical team for completion in whatever manner he pleases. Such practice, however, may lead to distress to relatives, inaccurate national statistics and inappropriate use of resources.

In an early paper on the accuracy of medical certificates of cause of death Emery[2] drew attention to two possible sources of error: the wording of a certificate, and the degree of correlation between clinical opinion and subsequent autopsy findings. The second category has been the subject of several papers [3,4] in recent years and has occupied the attention of the Working Party of the Royal College of Physicians and the Royal College of Pathologists concerned with Medical Aspects of Death Certification[5]. However, there is little information about the first category.

This Department has become increasingly concerned by the wording of causes of death seen on cremation certificates and requests for autopsies. Subsequent discussion with certifying practitioners has revealed little knowledge or appreciation of the principles of death certification. This article provides data on the number of causes of death that are poorly worded and discusses the possible consequences of such poor semantics.

Current Practice

Issue of the medical certificate of cause of death is the statutory obligation of the doctor in attendance upon the deceased during the last illness[6]. Guidance on the completion of this certificate is printed in the book of medical certificate forms[7]. Briefly, the cause of death is recorded in a form recommended by the World Health Organisation, comprising Part I, which is the sequence of conditions leading directly to death, and Part II, which lists other conditions that have contributed to death but are not related to those listed in Part I. However many conditions are listed in Part I the last-mentioned should be the initiating condition of the sequence resulting in death and should be a cause, not a mode, of death, a mode being a clinical state which may result from many, unspecified, causes.

The medical certificate of cause of death is then transmitted by the qualified informant to the Registrar of

Births and Deaths who must register particulars of the death as prescribed in the Births, Deaths and Marriages Regulations, 1968[8]: these particulars include the cause of death. Unlike the certifying practitioner, who has only a common law obligation to report a death to H.M. Coroner, the Registrar of Births and Deaths has a statutory obligation to report those deaths which fall into categories prescribed in Regulation 51 of the above Regulations[8].

H.M. Coroner, after preliminary inquiry, has three courses of action open to him[9].

(a) If he is satisfied that he has no jurisdiction he issues Part A of Form 100 ('Pink Form A') informing the Registrar that no further inquiry is necessary and directing him to register the cause of death as stated by the certifying practitioner.

(b) If he is satisfied that he has jurisdiction he may order a postmortem examination, the results of which may indicate that the death was due to natural causes and that no inquest is necessary; he then issues Part B of Form 100 ('Pink Form B') directing the Registrar to register the cause of death as stated by the practitioner who performed the postmortem examination.

(c) If he has jurisdiction and is obliged to hold an inquest, with or without postmortem examination, he will, at the conclusion of the inquest, issue Form 99 ('Coroner's Certificate After Inquest') from which the Registrar registers the cause of death as determined at the inquest.

The causes of death registered by these diverse routes are transmitted to the Office of Population Censuses and Surveys where they are coded in accordance with the International Classification of Diseases[10]. The coders, who are clerical officers, follow coding rules laid down by the World Health Organisation[10], the application of which reveals the best causal sequence from the information contained in Parts I and II. If a sequence cannot be derived or a certificate indicates that further information may be available, a request for clarification is sent to the certifying practitioner or, for a death in hospital, the consultant responsible for the care of that patient. In many cases, however, there is no reply to such a request[11].

Materials and Method

In a large general hospital the books of Medical Certificates of Cause of Death completed by clinicians are retained in the Death Registration Office; a clerical officer enters other details regarding deaths in a Death

Register. The counterfoils of death certificates issued by clinicians from 1979 to 1983 inclusive were scrutinised after receiving permission from the hospital administration. If a cause of death was not completed in the recommended form it was classified as showing one of the following inaccuracies:

1. No cause given.
2. Multiple causes given, sequence not clear.
3. Single cause given, relevant details absent.
4. Single cause given, error in layout.

Each cause of death was assigned to only one of these categories.

Only when an inaccuracy was obvious from a cause of death as given on a counterfoil was that cause assigned to a category; in those causes of death where there might be debate as to whether a condition was causal rather than contributory, or vice versa, the clinicians' opinions were respected and those causes were not categorised. Examples from each category are given in Table 1.

The numbers of causes of death in each category are given in Table 2. When a cause of death was considered to contain an inaccuracy the certificate counterfoil was

scrutinised to determine whether there was an indication that further information might be available at a later date; the Death Register and Autopsy Records were also scrutinised to determine whether an autopsy had been requested and performed. This information is given in Table 3.

Details of those counterfoils which contained no adequate cause of death were noted and the Register of Deaths Reported to Coroner, held in the Coroner's Court, was consulted to determine whether these deaths had been reported, who had reported them and what course of action had been pursued by H.M. Coroner. This information is recorded in Table 4.

Discussion

The results indicate that an unacceptably large number of medical certificates of cause of death are imprecise or inaccurately completed and that at the time of completion of many of these certificates the certifying practitioners are in possession of all the information regarding the deaths that is, or will be, available. It would appear,

Table 1. Examples of inaccurate death certification.

| No cause given | Multiple causes given—sequence not clear | Single cause given—relevant detail absent | Single cause given—error in layout |
|--------------------------------|--|---|--|
| 1a. Cardiac arrest | 1a. Renal failure | 1a. Carcinomatosis | 1a. Lymphangitis carcinomatosis |
| 1b. — | 1b. Myeloma | 1b. — | 1b. — |
| 1c. — | 1c. Hypertension | 1c. — | 1c. — |
| II — | II Pelvic peritonitis | II — | II Carcinoma of stomach |
| 1a. Respiratory failure | 1a. Myocardial infarction | 1a. Malignant ascites | 1a. Septicaemia |
| 1b. Cardiac failure | 1b. Polycystic kidneys | 1b. — | 1b. Systemic lupus erythematosus |
| 1c. — | 1c. Duodenal ulcer | 1c. — | 1c. — |
| II — | II Duodenal ulcer | II — | II Steroid therapy |
| 1a. Acute renal failure | 1a. Bronchopneumonia | 1a. Carcinoma of lung | 1a. Heart failure |
| 1b. — | 1b. Parkinson's disease | 1b. — | 1b. C.O.A.D. |
| 1c. — | 1c. Fracture neck of right femur | 1c. — | 1c. Acute chest infection |
| II — | II Malignant disease | II — | II — |
| 1a. Intrapulmonary haemorrhage | 1a. D.I.C. | 1a. Obliterative arteritis | 1a. G.I. Haemorrhage |
| 1b. Thrombocytopenia | 1b. Bladder Ca. | 1b. — | 1b. Marrow depression |
| 1c. Mycotic septicaemia | 1c. Aortic aneurysm | 1c. — | 1c. Cytotoxic therapy |
| II — | II Prostate Ca. | II — | II Ca. breast with lung and retinal secondary deposits |

Table 2. Number of causes of death in each category.

| Year | No. of counterfoils | No cause given | | Multiple causes given—sequence not clear | | Single cause given—relevant detail absent | | Single cause given—error in layout | | Total | |
|------|---------------------|----------------|------|--|-----|---|-----|------------------------------------|-----|-------|------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 1979 | 300 | 52 | 17.3 | 1 | 0.3 | 15 | 5 | 12 | 4 | 80 | 26.7 |
| 1980 | 259 | 51 | 19.7 | 3 | 1.2 | 12 | 4.6 | 16 | 6.2 | 82 | 31.7 |
| 1981 | 454 | 63 | 13.9 | 7 | 1.5 | 23 | 5.1 | 15 | 3.3 | 108 | 23.8 |
| 1982 | 542 | 52 | 9.6 | 6 | 1.1 | 23 | 4.2 | 31 | 5.7 | 112 | 20.7 |
| 1983 | 530 | 70 | 13.2 | 7 | 1.3 | 34 | 6.4 | 20 | 3.8 | 131 | 24.7 |

Table 3. Action taken when cause of death considered to contain an inaccuracy. a—autopsy performed. b—autopsy requested but not performed. c—counterfoil indicated further information might be available.

| Year | No cause given | | | Multiple causes given—sequence not clear | | | Single cause given—relevant detail absent | | | Single cause given—error in layout | | | Total number of imprecise causes in which further detail potentially available | |
|------|----------------|---|---|--|---|---|---|---|---|------------------------------------|---|---|--|------|
| | a | b | c | a | b | c | a | b | c | a | b | c | No. | % |
| 1979 | 12 | 6 | — | — | — | — | 1 | — | — | 1 | — | — | 20 | 25 |
| 1980 | 3 | 8 | — | — | — | — | — | — | — | 2 | — | — | 13 | 15.9 |
| 1981 | 4 | 4 | 1 | 1 | 1 | — | — | — | — | — | — | — | 11 | 10.2 |
| 1982 | 8 | 1 | — | 1 | — | — | 2 | — | — | — | 1 | — | 13 | 11.6 |
| 1983 | 6 | 6 | — | — | — | — | 1 | — | — | 2 | — | — | 15 | 11.5 |

Table 4. Deaths without stated cause.

| | 1979 | 1980 | 1981 | 1982 | 1983 |
|--|------|------|------|------|------|
| Death certificate counterfoils on which no cause of death is stated | 52 | 51 | 63 | 52 | 70 |
| Number of deaths without stated cause reported to H.M. Coroner by certifying practitioner | 9 | 7 | 12 | 7 | 7 |
| Number of deaths without stated cause reported to H.M. Coroner by Registrar of Births and Deaths | 3 | 2 | 4 | 6 | 3 |
| H.M. Coroner's course of action: | | | | | |
| 'Pink Form A' | 11 | 9 | 15 | 10 | 9 |
| 'Pink Form B' | 1 | — | — | — | — |
| Inquest | — | — | 1 | 3 | 1 |

therefore, that these certificates are so completed because of ignorance of, or failure to apply, the principles of death certification and not because relevant information is lacking. Previous research[12] has shown a national uniformity in death certification practice: there is no reason to believe practice in this hospital differs from that elsewhere.

Information contained in medical certificates of cause of death is important in epidemiological research[13] and forms the basis of national mortality statistics which may be concerned in the allocation of resources within the Health Service. It is important that certifying practitioners complete causes of death in the recommended form so that data derived therefrom reflect accurately clinical knowledge and opinion. The causes of death discussed in this article might not permit this.

The Registrar of Births and Deaths is required by Regulations to report to H.M. Coroner any death 'the cause of which appears to be unknown'[8]. The information upon which the Registrar, a lay person, makes this decision is that laid before him by the qualified informant and, therefore, so far as medical data are concerned, is confined to the cause of death as stated by the certifying practitioner: an immediate and possibly distressing consequence of a medical certificate of cause of death upon which there is no adequate cause of death is that it may be reported to H.M. Coroner.

It can be seen from Table 4, however, that such reporting does not occur in the majority of these deaths: there is a failure of what the Brodrick report[14] described as 'the long-stop function' of the Registrar in identifying the unusual death. The explanation of this failure lies in

the wording of many causes of death: to the lay person a cause of death given as 'Ia Respiratory failure, Ib Cardiac failure, Ic Acute renal failure, II Liver failure' appears perfectly adequate in that the deceased has obvious reason to be deceased; however, there is no cause given for the failure of the systems.

When the Registrar reports a death because it appears to be of unknown cause, H.M. Coroner will make preliminary inquiries but, in law, can only assume jurisdiction if the death is 'a violent or unnatural death or a sudden death the cause of which is unknown'[9]. In many of these deaths preliminary inquiry will reveal no violent or unnatural element: H.M. Coroner may then assume jurisdiction only if he has reasonable cause to suspect that the death whose cause is apparently unknown is sudden. In many cases H.M. Coroner's only course of action is to complete Part A of Form 100: an anomaly arises in that the Registrar may, indeed must, report a death whose cause is inadequately or incorrectly stated but, because H.M. Coroner cannot assume jurisdiction after preliminary inquiry, he must register that inadequate or inaccurate cause of death. It can be seen from Table 4 that this is the course of action followed in most of those deaths which are actually reported: the conclusion in the Brodrick report that '... the Coroner's primary function, at present, is to help to establish the cause of death ...'[14] is more idealistic than practicable.

It is obvious that certifying practitioners may cause unnecessary distress to relatives and unnecessary work for Registrars, H.M. Coroners, OPCS statisticians and, indeed, themselves through what are basically simple semantic errors. It is interesting to speculate what in-

crease in precision of death certification would be afforded by the implementation of the Brodrick recommendations[14] that a practitioner should have a statutory obligation to report to H.M. Coroner a death whose cause he could not certify 'with accuracy and precision' and that failure to comply with this obligation should be punishable by a fine.

Failing this, however, the quality of death certification can be improved only by education; such education, in the most important statutory obligation of medical practice, appears perfunctory in many medical schools and no more thorough in postgraduate training. This deficiency must be remedied, not only by formal tuition at undergraduate level, where admittedly the topic appears remote, but also by supervision and example during provisional registration and beyond.

References

1. Mann, Thomas (1928) *The Magic Mountain*. London: Martin Secker.
2. Emery, J. L. (1962) *Proceedings of the Royal Society of Medicine*, 55, 738.
3. Waldron, H. A. and Vickerstaff, L. (1977) *Intimations of quality: antemortem and postmortem diagnosis*. London: Nuffield Provincial Hospitals Trust.
4. Cameron, H. M. and McGoogan, E. (1981) *Journal of Pathology*, 133, 273.
5. The Royal College of Physicians and the Royal College of Pathologists (1982) *Journal of the Royal College of Physicians of London*, 16, 205.
6. Births and Deaths Registration Act, 1953. London: HMSO.
7. Forms for Medical Certificates of the Cause of Death (1985) London: HMSO
8. The Registration of Births, Deaths and Marriages Regulations, 1968. London: HMSO.
9. Knapman, P. A. and Powers, M. J. (1985) *The Law and Practice on Coroners*. Chichester: Barry Rose.
10. World Health Organisation (1977) *Manual of international statistical classification of diseases, injuries and causes of death*, ninth revision. Geneva: WHO.
11. Busuttill, A., Kemp, I. W. and Heasman, M. A. (1981) *Health Bulletin*, 39, 146.
12. Diehl, A. K. and Gau, D. W. (1982) *Journal of Epidemiology and Community Health*, 36, 146.
13. Royal College of Physicians of London (1978) *British Medical Journal*, 2, 1063.
14. Brodrick Committee (1971) *Report of the Committee on Death Certification and Coroners*. London: HMSO.

Book Review

Searching the medical literature—a guide to printed and on-line sources by J. Welch and T. A. King. Chapman & Hall, London, 1985. 154 pages. Price £15.

There are over 10,000 medical journals now published and the number is increasing continuously. Keeping up to date with medical developments even in one's own specialty is becoming extremely difficult. The ten or so journals taken regularly pile up on the desk and it is an effort to scan the titles, let alone read the articles.

It is against this background that the invitation comes to give a lecture or write a review about recent developments in your chosen field. The memory, that imperfect repository of facts, can recall vague details such as the *Lancet* had a useful leader last year or the *JRCP* (or was it the *BMJ*?) had a useful article in '82 (or was it '83?). But there's always the nagging feeling that out there in the mass of literature there is an article crucial to the endeavour.

To assist the profession to search the literature systematically there have been for many years indexing and abstracting services. Print sources for searching the periodical literature have been available since the 1870s. In recent years these have been supplemented by on-line data bases which at first could only be accessed by professional librarians but are now available to be interrogated by anybody with a home computer and a modem.

This book is subtitled 'a guide to printed and on-line sources' and it is the first book written by information scientists for the general medical reader. Although the section on print sources is useful, there will be little in it that is new to those who are regular users of *Index Medicus* and *Excerpta Medica*. The chapter concerned with on-line sources, however, will be a revelation to most readers, who are introduced to the services provided by hosts such as Dialog, DIMDI and Data-Star. Drug information services are the subject of a separate chapter and there are further sections on sources of statistical information, the reference literature and sources of advice for medical communicators.

The authors have used refreshingly little jargon in discussing the technology, the data-base overviews show a similar clarity and the search examples illustrate well the techniques involved. The overall coverage is comprehensive and the book should prove an extremely useful reference tool. But useful to whom? Medical librarians will certainly find it a succinct and well-organised first point of reference, and as background reading for the medical profession the book may well clarify some issues. But the lack of objective evaluation of the services and of guidance about preferred sources will limit its use for the doctor who is only an occasional searcher of the medical literature.

A. M. S. MASON