Certifying the cause of death: an audit of wording inaccuracies

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Abstract

Aims: To audit wording and formulation inaccuracies in certifying the cause of death.

Methods: Five hundred causes of death were analysed from the counterfoils of medical death certificates (Form 66). Wording and formulation inaccuracies were defined as terms contrary to the notes given to doctors in books on death certificates.

Results: One or more inaccuracies were identified in 29% of cases. In 5.8% of cases, the inaccuracies were sufficiently serious to warrant further action or enquiry by the Registrar of Births and Deaths, including referral to Her Majesty's Coroner.

Conclusions: Most inaccuracies could have been avoided by adhering to the notes for medical practitioners contained in books of death certificates. The wording and formulation of causes of death warrants special prominence in undergraduate and postgraduate medical education. The topic should be audited and medical practitioners should pay particular attention to cases worthy of referral to HM Coroner.

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Death certificates should be written in "the prescribed form and in no other". This statement is highlighted to all medical practitioners in notes at the beginning of books containing medical death certificates. It is a major function of the Registrar General, through Registrars of Births and Deaths, to check the suitability of all completed death certificates for registration purposes. Accuracy is essential for both statistical and medicolegal reasons. With about 600 000 causes of death being issued annually in the United Kingdom, it is unfortunate that little information is available on how doctors perform in the wording and formulation of the cause of death.

Methods

At the time of certifying the cause of death, doctors enter the same information on a counterfoil which is retained. Having received appropriate permission from the relevant consultants, counterfoils were obtained from the medical and surgical wards of Rotherham District Hospital. The first 500 counterfoils completed after July 1991 were used for the study. No counterfoil indicated that the case had been referred to Her Majesty's Coroner for further action. Information regarding doctors (hospital grade, date, and place of qualification) were obtained from hospital records and the Medical Register.

Results

A total of 49 different doctors' signatures were associated with the counterfoils. Inaccuracies were associated with 42 doctors (range 1–7 per individual). Only 10 death certificates had been completed with no inaccuracies by the seven doctors; accordingly, valid statistical comparisons with those completing inaccurately could not be made. Doctors with no inaccuracies, however, included a similar high percentage (86%) of "junior house officer" grade compared with those with inaccuracies (82%), and both groups had similar periods of experience after qualification (means 5.8 and 5.6 months, respectively). Rotherham District Hospital is located near Sheffield University Medical School and this is reflected in over 92% of doctors in both groups graduating locally.

One inaccuracy was identified in 29% of cases and two inaccuracies in 4.4%. In 5.8%, the inaccuracies were sufficiently serious to have warranted further action, or enquiry, by the Registrar of Births and Deaths.

The main groups of inaccuracies are shown in the table. Although the counterfoils included medical abbreviations, these were not considered in the study in the absence of the formal death certificate.

Certain clinical statements are considered to imply a mode of dying and are viewed as unacceptable for inclusion in the cause of death. A mode of dying was stated in 20% of cases and in 1% it was given as an unqualified cause of death. Inappropriate terms included

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<th>Percentage of wording inaccuracies found in the cause of death given</th>
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<tr>
<td>Mode of dying (qualified)</td>
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<td>Mode of dying (unqualified)</td>
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<td>Symptoms (unqualified)</td>
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<tr>
<td>Referral to HM Coroner advisable</td>
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<td>Non-existent terminology</td>
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<td>Poor terminology</td>
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<tr>
<td>Cerebrovascular accident</td>
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<td>Carcinomatosis (unqualified)</td>
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<td>Septicaemia (unqualified)</td>
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cardiac failure (n = 31), cardiac arrest (n = 17), respiratory arrest (n = 13), coma (n = 7), debility (n = 4), heart failure (n = 4) and renal failure (n = 4).

Clinical symptoms were given as an unqualified cause of death in 0-6% of cases and terms included angina, dysphagia, and chest pain.

Although doctors have no statutory obligation to report cases to HM Coroner, both the notes and reverse side of the death certificate list various circumstances in which it is desirable to do so. In 3% of cases a death certificate had been issued with no indication that the stated cause of death warranted referral to HM Coroner. In 1-4% of cases, surgery or anaesthesia was given as an unqualified cause of death including terms such as operation, laparotomy, insertion of Atkinson tube and general anaesthesia. Industrial lung disease was stated as the cause of death in 0-6%, and in 1% the cause had clear traumatic implications. The latter included four patients with fractured femurs (unqualified) and one with an extradural haemorrhage.

In 0-6% of cases non-existent diagnostic terms were used (lymphomatosis, leukaemato-sis, and atheromatosis) and in a further 0-6% of cases the causes Parts A and B of the cause of death were either reversed or not related. For example, carcinoma of the gall bladder was stated to have resulted from liver failure and bronchial carcinoma to have been due to ischaemic heart disease.

Advice is given in the notes on how to avoid indefinite and ambiguous terminology. Cerebrovascular accident is specifically mentioned as an undesirable term in view of lay people possibly associating the term with violence. Despite this advice, however, cerebrovascular accident was given as the cause of death in 5-6% of cases.

Advice is also given in the notes that the value of information is enhanced when the stated cause of death is as specific as possible. In 3-2% of cases, however, carcinomatosis or metastatic disease was given as the cause of death with no indication as to whether the primary site was known or unknown. And in 130 malignant cases, only 11-5% made reference to histopathological type. No case of malignancy made specific reference to subsite. In 0-2% of cases the term septicaemia was used with no qualification regarding the causative organism.

Three percent of cases included the term bronchopneumonia, although the notes state that there is no requirement to do so when it is the terminal event of major disease.

Discussion
The identification of one or more wording inaccuracies in 29% of cases of death does little to support a comment made by the Office of Population Censuses and Surveys that “our general experience in the handling of death certificates shows that most certifying doctors are punctilious and precise in completing them.” Although this may be the general impression to be gained from the registered causes of death, by this stage there will have been expert intervention by the Registrar of Births and Deaths. It must be viewed as unlikely that the problem is unique to Rotherham and indeed, previous personal consultant experience is that similar inaccuracies are extremely common in teaching hospitals. The 5-8% of inaccuracies which warranted the Registrar of Births and Deaths to make further enquiries or take further action (such as referral to HM Coroner) must be viewed with particular concern. Such a course of events can cause considerable distress and anxiety to relatives and can also create substantial inconvenience by delaying funeral arrangements. Personal experience indicates that such inaccuracies are frequently transferred verbatim to cremation certificates, and it is unusual for either signatories of Part C or crematorium referees to request changes to Part B.

With specific reference to the diagnosis of malignancy, it has been shown that there is frequently a poor correlation between the clinical diagnosis of terminal malignancy and necropsy findings. Accordingly, it seems reasonable to suggest that the diagnosis of malignancy should not be accepted as a cause of death in the absence of histopathological or cytological proof. It seems reasonable for the Registrar General to relegate the term carcinomatosis into the group of statements regarded as a “mode of dying” and for it not to appear on death certificates.

Careful consideration must be given to possible reasons for the high percentage of inaccuracies identified by the study. As most medical and surgical house officer posts in Rotherham are occupied by United Kingdom medical graduates, the study provided no evidence that a major problem is one of English language comprehension. Indeed, the three examples of non-existent terminology were given by English graduates. Similarly, the study provided no information as to whether inexperience at the house officer grade was a contributory factor. However, a further study comparing inaccuracies in relation to experience could be revealing.

The most likely explanation for many of the inaccuracies revealed by the study is inadequate medical education. Aspects of death certification have traditionally been incorporated into the forensic medicine/pathology part of the undergraduate curriculum and it is well recognised that in recent years, there has been a substantial reduction in the number of hours allocated to the subject. Significantly, just before this study was completed, changes were made to medical education in South Yorkshire in relation to this subject. For example, death certification has been allocated greater prominence in the undergraduate curriculum and is now included in junior hospital doctor induction courses. Consequently, it is planned to repeat this study after an appropriate interval to assess whether these educational improvements are paralleled by improvements in certification. It seems that
only a small percentage of cases with wording inaccuracies are due to a poor level of knowledge in general medicine and surgery.

In summary, the study has shown that the working and formulation of the cause of death is a topic that warrants special prominence in both undergraduate and postgraduate medical education. The topic needs to be audited and, theoretically, the audit loop should be easily closed by improved education. Special emphasis should be placed on the fact that excellent advice on the wording of the cause of death is featured in all books of death certification. Doctors need to pay particular attention to cases worthy of referral to HM Coroner.

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1 Form 66. Forms for Medical Certificates of the Cause of Death under the Births and Deaths Registration Act 1953. London HMSO, 1–40.
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