A selection of published research papers from the UK literature relating to the accuracy of medical certificates of the cause of death

**Death certification: do consultant pathologists do it better?**
**Fernando D, Oxley JD, Nottingham J.**
Source
Department of Histopathology, Northampton General Hospital, Northampton, UK.
Abstract
The completion of the medical certificate of cause of death is required for registration of a death, and this data helps plan healthcare services for the country. Many audits have shown them to be inaccurately completed by junior doctors, but the authors examined whether advice from consultant pathologists could improve this. Using the Office for National Statistics guidelines, the authors found that only 56% of the certificates were appropriately completed. The planned introduction of medical examiners to England and Wales is aimed at improving this situation, but consultant pathologists will still issue causes of death following postmortems, and it would seem prudent to train pathologists as well.

**Discrepancies between clinical and autopsy diagnosis and the value of post mortem histology; a meta-analysis and review.**
**Roulson J, Benbow EW, Hasleton PS.**
Source
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Abstract
The autopsy is in decline, despite the fact that accurate mortality statistics remain essential for public health and health service planning. The falling autopsy rate combined with the Coroners Review and Human Tissue Act have contributed to this decline, and to a falling use of autopsy histology, with potential impact on clinical audit and mortality statistics. At a time when the need for reform and improvement in the death certification process is so prominent, we felt it important to assess the value of the autopsy and autopsy histology. We carried out a meta-analysis of discrepancies between clinical and autopsy diagnoses and the contribution of autopsy histology. There has been little improvement in the overall rate of discrepancies between the 1960s and the present. At least a third of death certificates are likely to be incorrect and 50% of autopsies produce findings unsuspected before death. In addition, the cases which give rise to discrepancies cannot be identified prior to autopsy. Over 20% of clinically unexpected autopsy findings, including 5% of major findings, can be correctly diagnosed only by histological examination. Although the autopsy and particularly autopsy histology are being undermined, they are still the most accurate method of determining the cause of death and auditing accuracy of clinical diagnosis, diagnostic tests and death certification.

**Death certification: an audit of practice entering the 21st century.**
**Swift B, West K.**
Source
Department of Histopathology, Sandringham Building, Leicester Royal Infirmary, Infirmary Square, Leicester LE1 5WW, UK.

Abstract
AIM:
Death certification, a legal duty of doctors, continues to be poorly performed despite Royal College recommendations and increased education at an undergraduate level. Therefore, the current performance of certifying doctors was audited within a large teaching hospital entering the new century.

METHODS:
A total of 1000 completed certificate counterfoils were examined retrospectively for appropriateness of completion and the ability to construct a logical cause of death cascade.

RESULTS:
Only 55% of certificates were completed to a minimally accepted standard, and many of these failed to provide relevant information to allow adequate ICD-10 coding. Nearly 10% were completed to a poor standard, being illogical or inappropriately completed.

CONCLUSIONS:
The results show no improvement in the state of certification. Possible interventions to improve outcomes are discussed; however, in light of a recent high profile legal case a current Home Office review of death certification may suggest the passing of statutory law to ensure accurate completion.


Incomplete and inaccurate death certification--the impact on research.
Morton L, Omar R, Carroll S, Beirne M, Halliday D, Taylor KM.

Source
Imperial College School of Medicine, National Heart and Lung Institute at Hammersmith Hospital Campus, London.

Abstract
BACKGROUND:
The objectives of this study were (1) to investigate the extent of erroneous and/or omitted information on death certificates of patients implanted with Bjork-Shiley Convexo-Concave (BSCC) heart valves; (2) to determine whether this information could be associated with a possible under-reporting of acute mechanical failure of this valve.

METHODS:
A review was carried out of death certificates and clinical notes for patients implanted in the United Kingdom with BSCC valves. This was a multicentre study (38 hospitals) based at the Cardiothoracic Department, NHLI, Imperial College School of Medicine at Hammersmith Hospital, London. The subjects were 478 patients implanted with a BSCC valve between 1979 and 1986 who died in the following years: 1984, 1987, 1990, 1993 and 1996. The main outcome measures were: (1) percentage of death certificates that record the presence of a valve prosthesis; (2) percentage of death certificates that record the presence of a valve prosthesis for patients who had a post mortem; (3) percentage of death certificates that record inaccurate or incomplete information related to the surgery; (4) percentage of death certificates that do not record a post mortem where one is known to have been performed.

RESULTS:
Twenty-one per cent (101/478) of the total number of death certificates record the presence of the valve prosthesis. Thirty-five per cent (43/123) of the death certificates for patients who had a post mortem record the presence of a valve prosthesis. Six per cent (30/478) of death certificates report inaccurate information related to the valve surgery. Twenty-five per cent (118/478) of the total number of death certificates recorded a single cause of death. Twenty-three per cent (110/478) of
all death certificates reviewed recorded only the mode of dying. Eight per cent (10/123) of the total number of death certificates for patients who had a post mortem did not record a post mortem.

CONCLUSIONS:
The relatively high number of death certificates that do not record the presence of a valve prosthesis and the observed under-reporting of post mortems may lead to inaccurate reporting of the number of BSCC valves that fail. Previous recommendations to improve accuracy in death certification appear to have gone unheeded, and changes in the way certificates are completed for patients with implanted cardiac devices should be considered.

Information on death certificates: cause for concern?
James DS, Bull AD.
Source
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Abstract
AIMS:
To assess the frequency with which the cause of death on death certificates included the relevant details requested of certifying doctors, especially in deaths due to malignant disease, but also including certain other deaths where specific information would be expected to be included.
METHODS:
Consecutive series of certificates attributing death to malignancy, pneumonia, an acute cerebrovascular event, and renal failure were inspected and compared with the categories identified in the International Classification of Disease. Review of clinical notes and of laboratory data was used to determine the number of cases in which detailed histological diagnoses were available.
RESULTS:
A histological diagnosis was available in 79.1% of cases of deaths due to malignancy, but was recorded on only 23.6% of certificates. Haematologists performed best (69.6%) and general surgeons worst (2.8%). The sites of primary tumours were recorded in detail in only 23 of 89 cases of tumours of the large bowel (22/36), lung (1/35) and stomach (0/18). In cases of pneumonia the causative organism was recorded in only 4 of 330. In cases of an acute cerebrovascular event one of 70 was recorded as being due to haemorrhage. A distinction between cerebral or precerebral arterial occlusion (embolism/thrombosis) and cerebral haemorrhage was not recorded in any of the other cases. In cases of renal failure a cause was not recorded in 75 of 95.
CONCLUSIONS:
Despite consistent encouragement to record all relevant details on death certificates this study shows that doctors fail to do so in most cases. Such a failure diminishes information available to the Office of Population Censuses and Surveys, affecting mortality statistics and gives further cause for concern about standards of certification. Means by which the standard of certification might be improved are discussed, including screening of certificates by a medically qualified person prior to registration.

Certifying the cause of death: an audit of wording inaccuracies.
Slater DN.
Source
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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 under-graduate and postgraduate medical education. The topic should be audited and medical practitioners should pay particular attention to cases worthy of referral to HM Coroner.


Death certification and epidemiological research. Medical Services Study Group of the Royal College of Physicians of London.
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Abstract
The cause of death shown on 191 death certificates was compared with the cause indicated by the hospital case notes, the consultants’ opinions, and the necropsy findings. All 191 deaths occurred among medical hospital patients aged under 50. In 39 cases there was a major discrepancy between the two sources over the cause of death and in another 54 there was a minor but epidemiologically important difference. Death certificates are not primarily intended for epidemiological research, but researchers often rely on them. This and other studies have shown, however, that death certificates are often inaccurate records of the cause of death—even coroner’s certificates issued after a coroner’s necropsy. The accuracy of death certificates might be improved if coroners consulted clinicians more closely and if senior hospital staff completed hospital death certificates.