

# Improving the certification of death and the usefulness of routine mortality statistics

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## Introduction

The conviction of Dr Harold Shipman for murdering 15 of his patients and the recent audit of his practice carried out by Professor Richard Baker, have raised many issues about the certification of death by doctors<sup>1</sup>. Inevitably, there have been calls for a radical overhaul of the system<sup>2</sup>. There are many problems with the certification and registration of death, and various proposals have been made to improve death certification and the accuracy and usefulness of routine mortality statistics. Current law enshrines the process of death certification and death registration in restrictive legislation, which prevents some such proposals from being implemented. However, the usefulness of death certificates and the quality of mortality statistics could be substantially improved if doctors simply completed certificates more accurately, without any additional changes in the legislation governing death certification.

## Why are accurate mortality statistics important?

Mortality statistics are of fundamental public health importance (Box 1). They are a key component of the resource allocation formulae in use in the NHS, they help monitor the health of the population, and they play a major role in determining public health policy. Despite this, many doctors do not realise that mortality statistics are derived from the Medical Certificate of the Cause of Death (more commonly known as a 'death certificate') that they themselves complete. Hence, they may be unaware either of

the importance of completing death certificates accurately or of the range of uses to which mortality statistics are put.

## What is wrong with mortality statistics?

Doctors are often poorly trained in completing death certificates accurately and this leads to many errors in certificates<sup>3,4,5</sup>. Concerns about the accuracy of death certification are long-standing and are not confined to the United Kingdom<sup>6,7</sup>. Undergraduate and postgraduate deans and the Royal Colleges all accept the importance of death certification and mortality statistics. However, undergraduate training is patchy and none of the postgraduate bodies has any responsibility for training in death certification. Both the Royal Colleges of Physicians of London and the Royal College of Surgeons of England have recently reiterated their view that this area is a responsibility of undergraduate teachers (Natasha Crowcroft, personal communication). Most deaths occur in hospital and in monitoring these deaths, the NHS is using statistics derived from information given by the most junior person on the team, with the least experience, and who has to draw on whatever little training he or she received whilst an undergraduate. For the rest of a doctor's career, no organisation will review the quality of their death certification or include this as a topic for postgraduate training or examination, clinical governance, audit or for continuing professional development.

## How does the system of certification work?

The system of death certification is complex, in part because several organisations, professional groups and departments are involved in the process of certification and registration of death. These agencies include doctors and coroners, local authorities (who employ the registrar of births and deaths), the police, the Home Office (responsible for appointing coroners), and the Office for National Statistics (responsible for the provision of medical advice and professional support to registrars of births and deaths,

**Box 1. Major uses of data derived from the certification and registration of death**

- Monitoring the health of the population
- Making international comparisons of health and health care services
- Determining NHS priorities
- Allocating NHS resources
- Performing health needs assessment
- Assessing the effect of health service interventions
- Monitoring the quality of clinical care in clinical governance programmes.

and the production of routine mortality statistics from death certification and registration data). Those who provide the data (doctors and coroners) are often not interested in the prime objectives of the information, and many doctors see the process of death certification as a burdening administrative duty. Coroners are interested in detecting foul play but most are not medically qualified and the precise cause of death may sometimes be of little interest to them. Registrars provide a service to the family of the deceased and are responsible for referring cases to the coroner if appropriate and if the case has not already been referred by a doctor. The Department of Health, researchers, regional observatories and departments of public health and health authorities are extensive users of mortality data but are not involved in the process of certification or the monitoring of data collection.

### Why is the death certificate in the current format?

The current format of the death certificate was prescribed in 1926 legislation and can not be changed without primary legislation (ie through an act of parliament). The Office for National Statistics has called for a change in the Registration of Births and Deaths Act to allow the death certificate to be updated more easily, but parliamentary time has never been available to do this because the government has many other pressing priorities. This has meant that the information that is collected on the death certificate cannot be changed. Furthermore, death certification cannot be changed from a paper to an electronic process to take advantage of developments in information technology.

Several factors limit the usefulness of routine mortality statistics as a measure of the quality and outcome of clinical care. Currently, the certifying doctor has to sign the certificate but does not have to print his or her name or give his or her GMC number, which can make it difficult to identify them at a later stage. If the patient died in hospital, the name of the patient's consultant is recorded on the certificate. However, there is no similar requirement to record the name of the patient's general practitioner for deaths that occur in the community, if he or she is not the doctor certifying the death. The NHS number of the patient is also not collected, which limits the ability to link the information on the death certificate with other information such as hospital admissions data.

### What is the role of the coroner?

A doctor who attended the deceased during their last illness is required to complete a death certificate. If not, they should not complete a death certificate but instead should refer the death to the coroner. There are a number of other reasons why a death should be referred to a coroner (Box 2)<sup>8</sup>. However, these have no basis in legislation and consequently, doctors have only a common law duty to refer deaths to the coroner<sup>9</sup>. There are currently no statutory requirements about referring deaths to coroners that are specific to doctors; and many deaths, for example those that are violent or unnatural, are referred directly by the police. Some deaths are referred by the Registrar of Births

## Key Points

**Death certification provides mortality statistics which are essential for determining the allocation of NHS budgets, planning health services, and for monitoring the health of the population.**

**The quality of undergraduate and postgraduate medical training in death certification is very variable, which leads to many errors in death certificates.**

**The legislation governing death certification needs to be amended and the training received by medical students and doctors in issues related to death certification needs to be improved.**

and Deaths when the informant (usually a relative) tries to register the death. These are usually deaths which should have been referred by the certifying doctor but were not (for example, deaths from organ failure where either an underlying cause of death was not given or where the certifying doctor has not made it clear that the death was due to natural causes). Relatives can find this very distressing as the referral usually comes as a surprise to them and it can delay funeral arrangements. Currently, about 30% of all deaths are referred to a coroner and around 22% of all deaths are eventually certified by a coroner<sup>10</sup>.

The coroner has three main roles in respect of death. These are to ascertain the medical cause of death; to remove doubt and suspicion in individual cases; and to detect and deter crime. Most coroners are not medically qualified and their prime interest is in excluding foul play. The coroner's system is administered by three different organisations with the Home Office, local government, and the Lord Chancellor's Department all involved. After a death is referred to the coroner, the coroner must decide whether an inquest is needed. In many cases, the coroner will conclude that the death is natural and will issue a death certificate. If the death could be due to natural causes but no doctor is able to issue a certificate, a post-mortem will be carried out. If this shows that the death was from natural causes,

#### Box 2. A death should be referred to the coroner if:

- the cause of death is unknown
- the deceased was not seen by the certifying doctor either after death or within the 14 days before death
- the death was violent or unnatural, or there are suspicious circumstances
- the death may be due to an accident (whenever it occurred)
- the death may be due to self-neglect or neglect by others
- the death may be due to an industrial disease or may be related to the deceased's employment
- the death may be due to an abortion
- the death occurred during an operation or before recovery from the effects of anaesthesia
- the death may be a suicide
- the death occurred during or shortly after detention in police or prison custody.

the coroner will issue a certificate and also a cremation form, if this is required. Finally, if the post mortem shows that the death is not due to natural causes, an inquest must be held.

Some doctors may issue an inaccurate cause of death on a death certificate to avoid referral to the coroner<sup>11</sup>. However, a suspicious death can be missed because a doctor has issued a plausible death certificate and the patient's family has not been aware that their relative's death may have been unnatural, which happened in the case of the patients murdered by Dr Harold Shipman. Coroners currently have no responsibility for investigating deaths that are not referred to them; nor is it anyone's duty to refer to coroners deaths that take place in general practitioners' surgeries. However, following the conviction of Dr Shipman, it is likely that general practitioners' terms of service will be amended and they will have to notify their health authority of any such deaths.

Many coroners also introduce 'local' rules about categories of deaths that should be referred<sup>12</sup>. For example, in the mid-1990s there was widespread publicity in the medical press about a coroner in the South West of England who asked doctors to refer all deaths from AIDS to him on the grounds that they were 'unnatural'. Differing criteria for referral can cause problems for junior doctors, many of whom move about the country and have to adapt to whatever rules are applied by the local coroner. Coroners also have to meet the costs of all pathology investigations carried in the investigation of a death from their (usually very limited) budget. Consequently, the vigour with which coroners investigate a death may be influenced by the resources available to them. If a post mortem is carried out, the standard to which it is performed may vary widely from area to area. Coroners also do not have automatic access to the result of investigations that are pending at the time of referral, such as bacteriological culture results where someone has died rapidly from meningococcal disease.

### What is the purpose of cremation forms?

The main function of cremation forms is to prevent evidence of a crime being destroyed. Clearly, in the case of Dr Shipman, the countersigning and refereeing of the cremation forms he completed did not achieve this objective. As with death certification, the legislative framework surrounding cremation forms and the forms themselves are both antiquated. No systematic analysis of the information collected in cremation forms is routinely carried out. Consequently, the detection of patterns relies on chance and the memory of the referee. The structure of the form and the guidance it contained has long been thought unsatisfactory and to need updating<sup>13,14</sup>.

### What can be done to improve the system?

The training of doctors in death certification clearly needs to be improved. A training package and video are already available from the Office for National Statistics and a computerised training package is in development<sup>15</sup>. The computerised training package could eventually form the template for

#### Box 3. Possible changes to death certification and cremation forms

- A new Births and Deaths Registration Act with primary legislation which is permissive and which encompasses legislation relating to coroners and cremations
- Secondary legislation to specify the form of the death certificate and to enable electronic certification of death
- Name and GMC number of certifying doctor to be printed on the death certificate
- Name and GMC number of patient's general practitioner to be recorded on certificate for deaths that occur in the community
- NHS number of patient to be recorded on death certificate
- Improve training in death certification for medical students, coroners, and midwives.

electronic death certification, designed to reject incorrectly completed certificates if and when legislation allows this.

The introduction of questions on death certification into undergraduate and postgraduate medical examinations and into continuous professional development could help improve knowledge of death certification. Improving the quality of the data will increase the power of mortality statistics to detect unusual patterns of deaths. The primary purpose of death certification and mortality statistics have never been to detect homicide by health care workers or other individuals and, however modified, are never likely to be able to do this<sup>16</sup>.

Better use could be made of the skills which health authorities can bring to monitoring deaths. Health authorities have a statutory responsibility to monitor and promote the health of their population. Hence they have an interest in producing accurate mortality data as well as monitoring the quality of care in hospitals, where the majority of deaths (about 60% of all deaths) take place. Monitoring death rates at general practice level is more difficult and is associated with many problems<sup>16</sup>; these include random variation and the effect of patients with high death rates such as the elderly and residents of nursing homes and hospices.

As autopsy rates fall, it is becoming increasingly important that certifiers make use of all available information to justify the cause of death they give on the certificate<sup>3</sup>. A joined-up system of death certification would integrate clinical information from hospital and primary care and link this to data collected for the cremation certificate. This would require a comprehensive review of the legislation relating to the certification and registration of death.

### Conclusions

The system of death certification provides mortality statistics, which are essential for the work of the NHS and for a wide range of other bodies, and also for comparing the health of the population with that of other countries. Detecting a homicide by a doctor has never been a primary purpose of the system and its ability to function as such is limited. The current system of death certification is complex and the legislation relating to it

antiquated. There has been a long-standing need to improve the quality of death certification by doctors. Royal Colleges and postgraduate deans should recognise that accurate death certification is part of good medical practice. The skills are best developed when a doctor has a full understanding of the clinical and pathological processes leading to the death of their patients as well as the implications of the information for health services as a whole. High quality death certification should be seen as part of good clinical governance and should be included in post-graduate examinations for all specialties and in programmes of continuous professional development.

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## References

- 1 Baker R. Harold Shipman's clinical practice: a clinical audit commissioned by the Chief Medical Officer. Department of Health: London, 2000.
- 2 O'Neill B. Doctor as murderer. *Br Med J* 2000;**320**:329–30.
- 3 Maudsley G, Williams EMI. 'Inaccuracy' in death certification - where are we now? *J Public Health Med* 1996;**18**:56–66.
- 4 Slater DN. Certifying the cause of death: an audit of wording inaccuracies. *J Clin Path* 1993;**46**:232–4.
- 5 Maudsley G, Williams EMI. Death certification by house officers and general practitioners – practice and performance. *J Public Health Med* 1993;**15**:192–201.
- 6 Cochrane AL, Moore F. Death certification from the epidemiological point of view. *Lancet* 1981;**ii**:742–3.
- 7 Modelmog D, Rahlenbeck S, Trichopoulos D. Accuracy of death certificates: a population based, complete coverage, one year autopsy study in East Germany. *Cancer Causes Control* 1992;**3**:541–6.
- 8 Coleman MP. *Death certification and referral to the coroner*. Office for National Statistics: London, 1996.
- 9 Leadbetter S, Knight B. Reporting deaths to the coroner. *Br Med J* 1993;**306**:1018.
- 10 Devis T, Rooney C. Death certification and the epidemiologist. *Health Statistics Quarterly*; 1999;1:21–33.
- 11 Calder SJ, Anderson GH, Gregg PJ. Certification of cause of death in patients dying soon after proximal femoral fracture. *Br Med J* 1996;**312**:1515.
- 12 Start RD, Delargy-Aziz Y, Dorries CP, Silcocks PB, Cotton DWK. Clinicians and the coronial system: an assessment of the ability of clinicians to recognise reportable deaths. *Br Med J* 1993;**306**:1038–41.
- 13 Horner S. Crisis in Cremation. *Br Med J* 1998;**317**:485–6.
- 14 Pledger G. Medical examiners employed by health authorities should audit death certificates. *Br Med J* 1999;**318**:1559.
- 15 Death Certification Advisory Group. *Death Counts: Death Certification Training Pack*. Office for National Statistics: London, 1996.
- 16 Frankel S, Sterne J, Davey Smith G. Mortality variation as a measure of general practitioner performance: implications of the Shipman case. *Br Med J* 2000;**320**:489.

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