England and Wales Guidance for doctors completing the Medical Certificate of the Cause of Death ('the death certificate')

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The purposes of death certification

Death certification serves a number of functions. A medical certificate of cause of death (MCCD) enables the deceased's family to register the death. This provides a permanent legal record of the fact of death and enables the family to arrange disposal of the body, as well as to settle the deceased's estate.

Information from death certificates is used to measure the relative contributions of different diseases to mortality. Statistical information on deaths by cause is important for monitoring the health of the population, designing and evaluating public health interventions, recognising priorities for medical research and health services, planning health services and assessing the effectiveness of those services. Death certificate data are extensively used in research into the health effects of exposure to a wide range of risk factors through the environment, work, medical and surgical care, and other sources.

After registering the death, the family gets a certified copy of the register entry, which includes an exact copy of the cause of death information that you give. This provides them with an explanation as to how and why their relative died. It also gives them a permanent record of information about their family medical history, which may be important for their own health and that of future generations. For all of these reasons it is extremely important that you provide clear, accurate and complete information about the diseases or conditions that caused your patient's death.

Planned changes to death certification

The government has announced plans to change the laws on death investigation, certification and the coroner service.[1] These changes will address the issues raised by the Shipman Inquiry and the Fundamental Review of Death Certification. However, the law has not

changed yet. When new legislation is passed, doctors will receive instructions on the changes and the date from which they should be implemented. Changes are not likely to take effect before 2007-8. This guidance is to remind you of the duties placed on medical practitioners under current legislation, and to clarify best practice.

Who should certify the death?

When a patient dies it is the duty of the doctor who has attended in the last illness to issue the MCCD if they are able to do so (although see below regarding referral to the coroner). Though there is no clear legal definition of "attended", this is generally accepted to mean a doctor who has cared for the patient during the illness that led to death and so is familiar with the patient's medical history, investigations and treatment. The certifying doctor should also have access to relevant medical records and the results of investigations.

In hospital there may be several doctors in a team caring for the patient. It is ultimately the responsibility of the consultant in charge of the patient's care to ensure that the death is properly certified. Any subsequent enquiries, such as for the results of post-mortem or ante-mortem investigations, will be addressed to the consultant.

In general practice more than one GP may have been involved in the patient's care and so be able to certify the death. If no doctor who cared for the patient can be found, the death must be referred to the coroner to investigate and certify the cause.

If the attending doctor has not seen the patient within the 14 days preceding death, and has not seen the body after death either, the registrar is obliged to refer the death to the coroner before it can be registered. In these circumstances, the coroner may give permission for a doctor who was involved in the patient's care at some time to certify, despite the prolonged interval, and the registrar will then accept the MCCD. Here practices vary between coroners; some will allow certification by a doctor who attended outside the 14 days and some will not. Yet others disregard the provision for viewing after death, and insist that the doctor issuing the MCCD must have seen the patient in the last 14 days of life. However, a doctor who has not been directly involved in the patient's care at any time during the illness from which they died cannot certify under current legislation. The doctor should, in these circumstances, provide the coroner with any information that may help to determine the cause of death. The coroner may then provide this information to the registrar of deaths. It

will be used for mortality statistics, but the death will be legally "uncertified" if the coroner does not investigate through an autopsy, an inquest, or both.

Referring deaths to the coroner

Registrars of births and deaths are under a legal duty to report certain categories of deaths to the coroner before they can be registered; these include deaths associated with accident, suicide, violence, neglect (by self or others) and industrial disease. Also deaths occurring during an operation, or before full recovery from an anaesthetic, as well as deaths occurring in, or shortly after release from, police or prison custody should be reported. In practice, doctors usually report such deaths themselves and seek the advice of the coroner. The Office for National Statistics (ONS) encourages doctors to do this and to explain to the family why the death is being referred, as well as how and when they will learn the outcome of the referral. The coroner should also be informed if there is no doctor who attended the deceased available to certify, or the certifying doctor did attend the deceased but has not seen them either within 14 days before death, or after death.

Strictly speaking, the doctor should complete an MCCD even when death has been referred to the coroner as, if the coroner decides that the death does not require investigation, the registrar can be instructed to use the doctor's MCCD to register the death. In practice, most coroners ask that a doctor does not complete the MCCD unless directed to do so after discussion.

When a death is referred, it is up to the coroner to decide whether or not it should be further investigated. It is very important that the coroner is given all of the facts relevant to this decision. As above, the doctor should discuss the case with the coroner before issuing an MCCD if at all uncertain as to the cause of death, or whether he or she should certify. This allows the coroner to make enquiries and decide whether or not any further investigation is needed, before the family tries to register the death. The coroner may decide that the death can be registered and direct the doctor to complete the MCCD. For example, 75% of deaths with fractured neck of femur mentioned on the certificate are registered from the MCCD completed after discussion with the coroner, whereas only about 15% go to inquest, and 10% are registered after a coroner's autopsy. Omitting to mention on the certificate conditions or events that contributed to the death, in order to avoid referral to the coroner, is unacceptable. If these come

to light when the family registers the death, the registrar will be obliged to refer it to the coroner. If the fact emerges after the death is registered, an inquest may still be held.

In Scotland, deaths that may have been related to adverse effects of medical or surgical treatment, or to standards of care, or about which there has been any complaint, are reportable to the procurator fiscal. While this is not a requirement in England and Wales, it is anyway advisable to refer deaths in these categories to the coroner.

How to complete the cause of death section

Doctors are expected to state the cause of death to the best of their knowledge and belief; they are not expected to be infallible. However, it is likely that there will be increased scrutiny of death certification and patterns of mortality by local and national agencies as a result of the Shipman Inquiry, even before any changes to the law. Suspicions may be raised if death certificates appear to give inadequate or vague causes of death. For example, deaths under the care of an orthopaedic surgeon that do not mention any orthopaedic condition or treatment, or deaths in an acute hospital from old age, with no disease, injury or operation mentioned, may prompt further investigation. Doctors who consistently use only vague or uninformative causes of death, or terminal conditions such as bronchopneumonia, may find that these are queried and checked against hospital and/or primary care records. The level of certainty as to the cause of death varies. What to do, depending on the degree of certainty or uncertainty about the exact cause of death, is discussed below.

Sequence leading to death, underlying cause and contributory causes

The MCCD is set out in two parts, in accordance with WHO recommendations in the *International Statistical Classification of Diseases and Related Health Problems (ICD).* You are asked to start with the immediate, direct cause of death on line 1a, then to go back through the sequence of events or conditions that led to death on subsequent lines, until you reach the one that initiated the fatal sequence. The condition on the lowest line of part one that is used will usually be selected as the underlying cause of death for statistical purposes. Remember that this underlying cause may be a longstanding, chronic disease or disorder that predisposed the patient

to later fatal complications. You should also enter any other diseases, injuries, conditions, or events that contributed to the death, but were not part of the direct sequence, in part two of the certificate.

Example:

1a. Intraperitoneal haemorrhage

1b. Ruptured secondary deposit in liver

1c. Adenocarcinoma of ascending colon

2. Non-insulin dependant diabetes mellitus

1a. Cerebral infarction

1b. Thrombosis of basilar artery

1c. Cerebrovascular atherosclerosis

In some cases, a single disease may be wholly responsible for the death. In this case, it should be entered on line 1a.

Example:

1a. Meningococcal septicaemia

More than three conditions in the sequence

The MCCD in use in England and Wales currently has three lines in part one for the sequence leading directly to death. If you want to include more than three steps in the sequence, you can do so by writing more than one condition on a line, indicating clearly that one is due to the next.

Example:

1a. Post-transplant lymphoma

1b. Immunosuppression following renal transplant

1c. Glomerulonephrosis due to insulin dependent diabetes mellitus

2. Recurrent urinary tract infections

More than one disease may have led to death

If you know that your patient had more than one disease or condition that was compatible with the way in which he or she died, but you cannot say which the most likely cause of death was, you should include them all on the certificate. They should be written on the same line and you can indicate that you think they contributed equally by writing "joint causes of death" in brackets.

Example:

1a. Cardiorespiratory failure

1b. Ischaemic heart disease and chronic obstructive pulmonary disease

(joint causes of death)

2. Osteoarthritis

1a. Heart failure

1b. Ischaemic heart disease

1c. Hypercholesterolaemia, widespread atherosclerosis and non-insulin dependent diabetes mellitus

Where more than one condition is given on the lowest used line of part one, ONS will use the internationally agreed mortality coding rules in ICD-10 to select the underlying cause for routine mortality statistics. However, since 1993 ONS also codes all of the other conditions mentioned on the certificate. These multiple cause of death data are used by ONS in a variety of routine and *ad hoc* analyses, and are

made available for research. This provides useful additional information on the mortality burden associated with diseases that are not often selected as the main cause of death. For example, diabetes mellitus is mentioned on death certificates four times as often as it is selected as the underlying cause of death.

In contrast to the above, if you do not know that your patient actually had any specific disease compatible with the mode and circumstances of death, you must refer the death to the coroner. For example, if your patient died after the sudden onset of chest pain that lasted several hours and you have no way of knowing whether he or she may have had a myocardial infarct, a pulmonary embolus, a thoracic aortic dissection, or another pathology, it is up to the coroner to decide what investigations to pursue.

Results of investigations awaited

If in broad terms you know the disease that caused your patient's death, but you are awaiting the results of laboratory investigation for further detail, you need not delay completing the MCCD. For example, a death can be certified as bacterial meningitis once the diagnosis is firmly established, even though the organism may not yet have been identified. Similarly, a death from cancer can be certified as such while still awaiting detailed histology. This allows the family to register the death and arrange the funeral; however, you should indicate clearly on the MCCD that information from investigations might be available later. You can do this by circling "2" on the front of the MCCD for autopsy information, or by ticking box "B" on the back of the certificate for results of investigations initiated ante-mortem. It is important for public health surveillance to have this information on a national basis; for example, to know how many meningitis and septicaemia deaths are due to meningococcus, or to other bacterial infections. The registrar will write to the certifying doctor if a GP, or to the patient's consultant if in hospital, with a form requesting further details to be returned to ONS.

Old age

Old age should only be given as the sole cause of death in very limited circumstances. These are that:

- You have personally cared for the deceased over a long period (many months or years)
- You have observed a gradual decline in your patient's general health and functioning
- You are not aware of any identifiable disease or injury that contributed to the death
- You are certain that there is no reason that the death should be reported to the coroner (but see below)

You should bear in mind that coroners, crematorium referees, registrars and organisations that regulate standards in health and social care, may ask you to support your statement with information from the patient's medical records and any investigations that might have a bearing on the cause of death. You should also be aware that the patient's family may not regard old age as an adequate explanation for their relative's death and may request further investigation.

It would be considered unlikely that patients would die of old age, with no apparent disease or injury, in an acute hospital. Similarly, patients dying under the care of surgeons with no surgical condition, or orthopaedic surgeons with no injury or musculoskeletal condition mentioned, would not be expected to die of old age alone and such certificates may be queried. You can specify old age as the underlying cause of such deaths, but you should mention in part one or part two, as appropriate, any other conditions that may have contributed to the death. If fractures are to be mentioned, the case should first be discussed with the coroner.

Example:

1a. Pathological fractures of femoral neck and thoracic vertebrae

1b. Severe osteoporosis

1c. Old age

2. Fibrosing alveolitis

1a. Old age

2. Non-insulin dependent diabetes mellitus, essential hypertension and diverticular disease

1a. Hypostatic pneumonia

1b. Dementia

1c. Old age

When the chief medical statistician first advised in 1985 that old age or senility would be accepted as the sole cause of death in some circumstances, he recommended a lower age limit of 70 years. There is no statutory basis for this limit and some crematorium referees have set higher limits for accepting applications for cremation when the only cause of death is old age. The average life expectancy at birth for men is now about 76 years, and for women it is 80 years. After much discussion, the ONS Death Certification Advisory Group has recommended that deaths certified as due to old age or senility alone should be referred to the coroner, unless the deceased was over 80, the conditions listed above are all fulfilled and there is no other reason that the death should be referred. However, some coroners require that they be informed of all deaths where the doctor wishes to give this as the sole cause of death, so they can decide whether or not to allow certification.

Natural causes

The term "natural causes" alone, with no specification of any disease on a doctor's MCCD, is not sufficient to allow the death to be registered without referral to the coroner. If you do not have any idea as to what disease caused your patient's death, it is up to the coroner to decide what investigations are needed.

Organ failure

Do not certify deaths as due to the failure of any organ, without specifying the disease or condition that led to the organ failure. Failure of most organs can be due to unnatural causes, such as poisoning, injury or industrial disease. This means that the death will have to be referred to the coroner if no natural disease responsible for organ failure is specified.

Example:

1a. Renal failure

1b. Necrotising-proliferative nephropathy

1c. Systemic lupus erythematosus

2. Raynaud's phenomenon and vasculitis

1a. Liver failure

1b. Hepatocellular carcinoma and liver cirrhosis

1c. Chronic Hepatitis B infection

1a. Congestive cardiac failure

1b. Essential hypertension

Conditions such as renal failure may come to medical attention for the first time in frail, elderly patients in whom vigorous investigation and treatment may be contraindicated, even though the cause is not known. When such a patient dies, you are advised to discuss the case with the coroner before certifying. If the coroner is satisfied that no further investigation is warranted, the registrar can be instructed to register the death based on the information available on the MCCD. The registrar cannot accept an MCCD that gives only organ failure as the cause of death, without instruction from the coroner.

Abbreviations

Do not use abbreviations on death certificates. The meaning may seem obvious to you in the context of your patient and the medical history, but it may not be clear to others. For example, does a death from "MI" refer to myocardial infarction or mitral incompetence? Is "RTI" a respiratory or reproductive tract infection, or a road traffic incident? The registrar should not accept a certificate that includes any abbreviations. You, or the patient's consultant, may be required to complete a new certificate with the conditions written out in full, before the death can be registered. This is inconvenient for you and for the family of the deceased. The same applies to medical symbols.

Specific causes of death

Stroke and cerebrovascular disorders

Try to avoid the term "cerebrovascular accident" if at all possible and consider using terms such as "stroke" or "cerebral infarction" instead. If you cannot avoid the term, be sure to explain to the deceased's family that the death was from a disease, not an accident. Give as much detail about the nature and site of the lesion as is available to you. For example, specify whether the cause was haemorrhage, thrombosis or embolism, and the specific artery involved, if known. Remember to include any antecedent conditions or treatments, such as atrial fibrillation, artificial heart valves, or anticoagulants that may have led to cerebral emboli or haemorrhage. Death related to treatment should be discussed with the coroner before issuing the MCCD and some coroners will require investigation by autopsy, and possibly hold an inquest.

Example:

1a. Subarachnoid haemorrhage

1b. Ruptured aneurysm of anterior communicating artery

1a. Intraventricular haemorrhage

1b. Warfarin anticoagulation

1c. Pulmonary embolism following hysterectomy for uterine fibroids with menorrhagia

Deaths from neoplasms

Malignant neoplasms (cancers) remain a major cause of death. Accurate statistics are important for planning care and assessing the effects of changes in policy or practice. Where applicable, you should indicate whether a neoplasm was benign, malignant, or of uncertain behaviour. Please remember to specify the histological type and anatomical site of the cancer.

Example:

1a. Carcinomatosis

1b. Small cell carcinoma of left main bronchus

1c. Heavy smoker for 40 years

2. Hypertension, cerebral arteriosclerosis, ischaemic heart disease.

You should make sure that there is no ambiguity about the primary site if primary and secondary tumour sites are mentioned. Do not use the terms “metastatic” or “metastases” unless it is clear whether you mean metastasis to, or metastasis from, the named site.

Example:

1a. Intraperitoneal haemorrhage

1b. Widespread metastases to liver

1c. Primary adenocarcinoma of ascending colon

2. Non-insulin dependent diabetes mellitus

1a. Pathological fractures of left shoulder, spine and shaft of right femur

1b. Widespread skeletal metastases

1c. Adenocarcinoma of breast

(But see above comments regarding discussion of fractures with the coroner.)

1a. Lung metastases

1b. Testicular teratoma

If you mention two sites that are independent primary malignant neoplasms, make that clear.

Example:

1a. Massive haemoptysis

1b. Primary small cell carcinoma of left main bronchus

2. Primary adenocarcinoma of prostate

If a patient has widespread metastases, but the primary site could not be determined, you should state this clearly.

Example:

1a. Poorly differentiated metastases throughout abdominal cavity

1b. Adenocarcinoma from unknown primary site

If you do not yet know the tumour type and are expecting the result of histopathology, indicate that this information may be available later by initialing box "B" on the back of the certificate. You, or the consultant responsible for the patient's care, will be sent a letter requesting this information at a later date. In the case of leukaemia, specify whether it is acute, sub-acute or chronic, and the cell type involved.

Example:

1a. Neutropenic sepsis

1b. Acute myeloid leukaemia

1a. Haemorrhagic gastritis

1b. Chronic lymphocytic leukaemia

2. Myocardial ischaemia, valvular heart disease

Diabetes mellitus

Always remember to specify whether your patient's diabetes was insulin dependent/type one, or non-insulin dependent/insulin resistant/type two. If diabetes is the underlying cause of death, specify the complication or consequence that led to death, such as ketoacidosis**.**

Example:

1a. End-stage renal failure

1b. Diabetic nephropathy

1c. Insulin dependent diabetes mellitus

1a. Septicaemia - fully sensitive Staphylococcus aureus

1b. Gangrene of both feet due to peripheral vascular disease

1c. Non-insulin dependent diabetes mellitus

2. Ischaemic heart disease

Deaths involving infections and communicable diseases

Mortality data are important in the surveillance of infectious diseases, as well as monitoring the effectiveness of immunisation and other prevention programmes. If the patient's death involved a notifiable disease, you should inform your local Health Protection Unit (HPU) about the case, unless you have already done so. If you are not sure whether a case is notifiable, or what investigations are needed, you can get advice from your local HPU or consultant in communicable disease control (CCDC).

In deaths from infectious disease, you should state the manifestation or body site, eg, pneumonia, hepatitis, meningitis, septicaemia, or wound infection. You should also specify:

- The infecting organism, eg, pneumococcus, influenza A virus, meningococcus

- Antibiotic resistance, if relevant, eg, methicillin resistant Staphylococcus aureus (MRSA), or multiple drug resistant mycobacterium tuberculosis

- The source and/or route of infection, if known, eg, food poisoning, needle sharing, contaminated blood products, post-operative, community or hospital acquired, or health care associated infection.

You need not delay completing the certificate until laboratory results are available, provided you are satisfied that the death need not be referred to the coroner. However, you should indicate by ticking box "B" on the back of the certificate that further information may be available later. A letter will then be sent to you, or to the patient's consultant, requesting this information. The coded cause of death will then be amended for statistical purposes.

Example:

1a. Bilateral pneumothoraces

1b. Multiple bronchopulmonary fistulae

1c. Extensive, cavitating pulmonary tuberculosis (smear and culture positive)

2. Iron deficiency anaemia

Failure to specify the infecting organism can lead to unnecessary investigation. For example, every year deaths are certified as being due to spinal or paraspinal abscess, without stating the organism(s) involved. These are then coded as tuberculosis following the ICD index. Unless ONS can establish that the abscess was due to another organism, the local CCDC will then have to investigate whether or not it was TB. Remember to specify any underlying disease or treatment, such as chemotherapy, radiotherapy, autoimmune disease or organ transplant, which may have suppressed the patient's immunity and so led to death from infection. Deaths related to treatment should be discussed with the coroner first.

Health care associated infections

It is a matter for your clinical judgment as to whether a condition the patient had at death, or in the preceding period, contributed to their death, and so whether it should be included in part one or part two of the MCCD. However, families may be surprised if you do not mention on the death certificate something that they believe contributed to their relative's death. ONS receives frequent queries from a wide range of sources about mortality related to health care associated infections, and complaints about the quality of information given about them on death certificates.

Example:

1a. Methicillin resistant Staphylococcus aureus septicaemia

1b. Immunosuppression

1c. Non-Hodgkin's lymphoma

1a. Carcinomatosis

1b. Adenocarcinoma of the prostate

2. Chronic obstructive pulmonary disease and catheter-associated Escherichia coli urinary tract infection

Deaths from pneumonia

Pneumonia may present in previously fit adults, but often it occurs as a complication of another disease affecting the lungs, mobility, immunity, or swallowing. Pneumonia may also follow other infections and may be associated with treatment for disease, injury or poisoning, especially when ventilatory assistance is required. Remember to specify, where possible, whether it was lobar or bronchopneumonia and whether primarily hypostatic, or related to aspiration. You should include the whole sequence of conditions and events leading up to it. If known, specify whether the pneumonia was hospital or community acquired. If it was associated with mechanical ventilation, or invasive treatment, this should be clearly stated.

Example:

1a. Pneumococcal lobar pneumonia

1b. Influenza A

2. Ischaemic heart disease

For many years, bronchopneumonia was given as the immediate cause of death on a large proportion of certificates in England and Wales. This may have reflected common terminal chest signs and symptoms, rather than significant infection in many cases. The proportion of certificates that mention bronchopneumonia has been steadily falling for 20 years. If you do report bronchopneumonia, remember to include any predisposing conditions, especially those that may have led to

paralysis, immobility, or wasting, as well as chronic respiratory conditions such as chronic bronchitis.

Example:

1a. Aspiration pneumonia

1b. Motor neurone disease

2. Pressure ulcers on sacrum and heels

Deaths from injuries

All deaths involving any form of injury or poisoning must be referred to the coroner. However, if the death is not one for which an inquest is mandatory and the coroner instructs you to certify, remember to include details as to how the injury occurred and where it happened, such as at home, in the street, or at work.

Example:

1a. Pulmonary embolism

1b. Fractured neck of femur

1c. Tripped on loose floor rug at home

2. Moderate left sided weakness and difficulty with balance since haemorrhagic stroke five years ago.

Hemiarthroplasty two days after fracture

Remember to state clearly if a fracture was pathological, that is due to an underlying disease process such as a metastasis from a malignant neoplasm, or other conditions such as osteoporosis.

Deaths due to substance misuse

Deaths from diseases related to chronic alcohol or tobacco use need not be referred to the coroner, provided the disease is clearly stated on the MCCD.

Example:

1a. Carcinomatosis

1b. Bronchogenic carcinoma upper lobe left lung

1c. Smoked 30 cigarettes a day

2. Chronic bronchitis and ischaemic heart disease.

However, deaths due to acute or chronic poisoning, and deaths involving drug dependence, or misuse of substances other than alcohol and tobacco, must be referred.

Finally, remember that there are instructions for certifiers in the front of every book of MCCDs. These remain current, except for the change in lower age limit at which "old age" is thought to be acceptable as the sole cause of death (now 80 instead of 70, as covered in detail above). Doctors should familiarise themselves with the instructions, and consult them if they are in any doubt about whether, or how, to certify a death.

1 *Reforming the Coroner and Death Certification Service: A position paper*. March 2004, Home Office. Cm 6159.

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Nb. For details of death registration documentation in Scotland and Northern Ireland, please visit the General Register Office website http://www.gro.gov.uk/medcert/