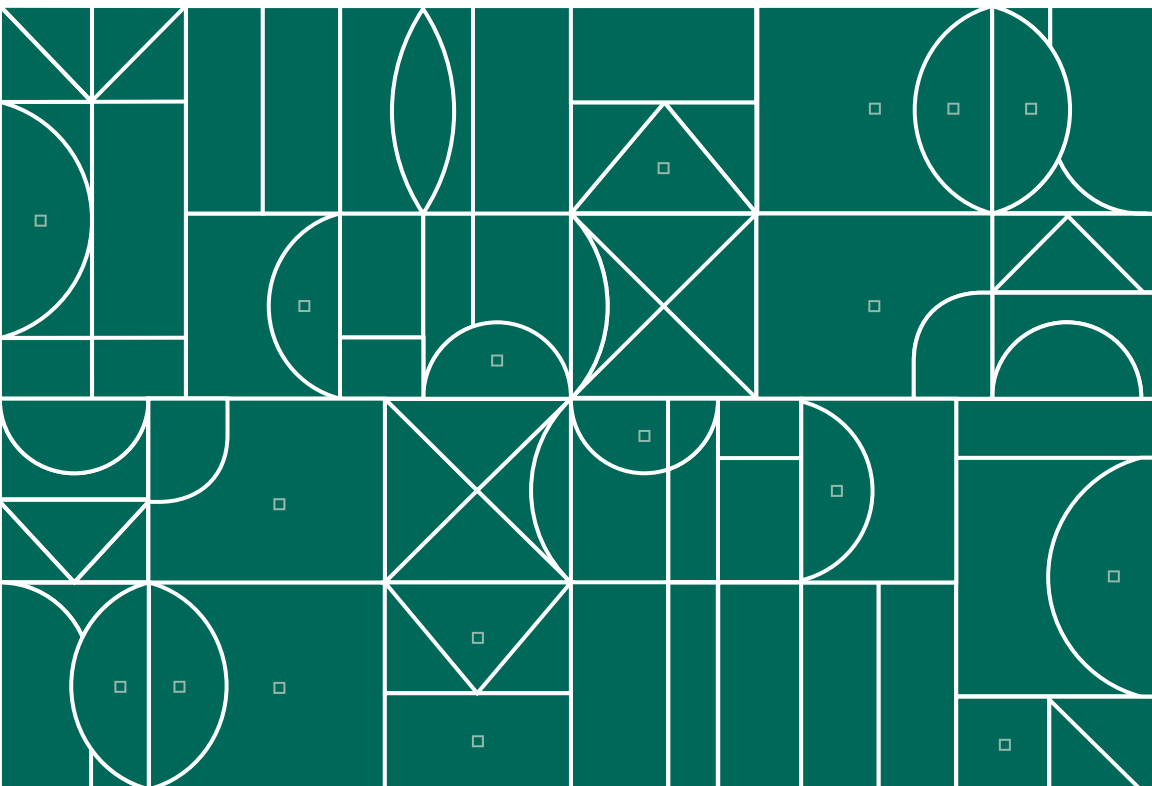


NATIONAL CENTER FOR HEALTH STATISTICS
National Vital Statistics System

Physician's Handbook on Medical Certification of Death

2023 Revision



**Centers for Disease
Control and Prevention**
National Center for
Health Statistics

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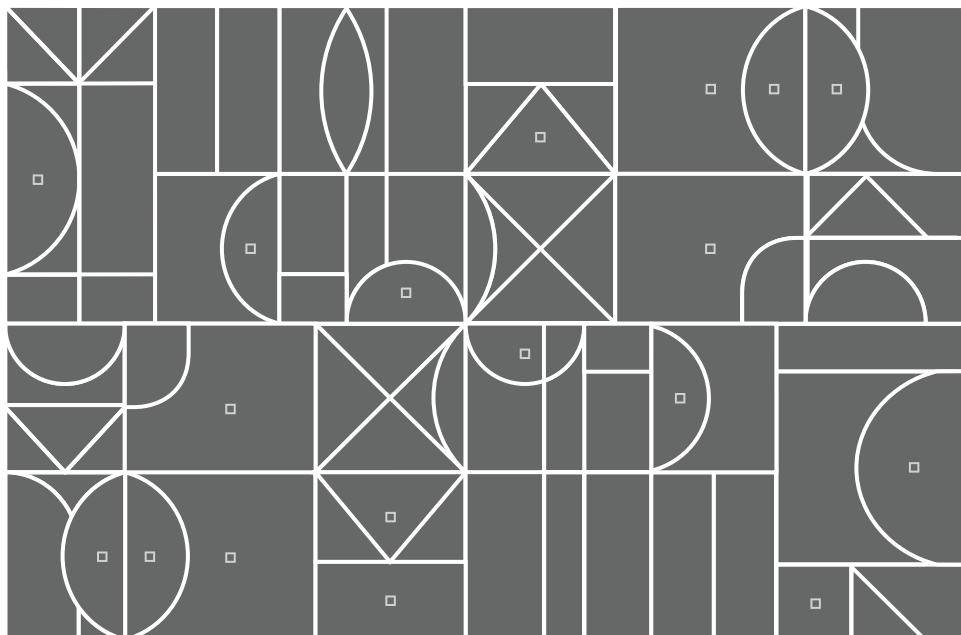
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Physician's Handbook on Medical Certification of Death

2023 Revision



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Health Statistics

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Preface

This handbook contains instructions for physicians on cause-of-death certification for the 2003 revision of the U.S. Standard Certificate of Death; it is a model that can be adapted by any vital statistics registration area. It was prepared by the Department of Health and Human Services, Centers for Disease Control and Prevention's National Center for Health Statistics.

For detailed information on completing other items on the death certificate, refer to the *Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting* and the *Funeral Director's Handbook: Death Registration and Fetal Death Reporting*.

Keywords: mortality • cause of death • death certificate • data quality • National Vital Statistics System

Acknowledgments

This publication was originally prepared by staff members from the National Center for Health Statistics, Division of Vital Statistics (DVS), led by Donna L. Hoyert, Ph.D. Arialdi M. Miniño, M.P.H., and Robert N. Anderson, Ph.D., also contributed to that effort. Mary Anne Freedman, M.A., former DVS Director, reviewed the contents. Randy Hanzlick, M.D., Gregory G. Davis, M.D., and Lillian R. Blackmon, M.D., provided expert medical review. Henry Thiede, M.D., Kenneth C. Schoendorf, M.D., and Sonja Rasmussen, M.D. provided additional medical input.

This handbook updates the previous version. This version includes updated data; example certifications reflecting electronic death registration; specific guidance on the certification of deaths related to drugs, dementia, and diabetes; and an Alzheimer disease case history and example certification. Lee Anne Flagg, Ph.D., led the revision, with contributions from Donna L. Hoyert and Robert N. Anderson, Chief of the Mortality Statistics Branch. Steven Schwartz, Ph.D., current DVS Director, also contributed to this effort. National Center for Health Statistics Office of Information Services, Information Design and Publishing Staff edited and produced this handbook: editor Danielle Taylor and typesetter and graphic designer Simon McCann.

Introduction

Purpose

This handbook is designed to familiarize physicians, other medical certifiers (for example, physician assistants and nurse practitioners, depending on state or local laws and rules), medical students, and others with the vital registration system in the United States and to provide instructions for completing and submitting death certificates. This handbook emphasizes certification of medical information, a critical part of the death certificate, which is primarily the responsibility of the physician.

Note that the United States includes 57 vital registration jurisdictions: the 50 states, New York City, the District of Columbia, and the 5 U.S. territories, subsequently referred to as “states.”

Importance of death registration

The death certificate is a permanent record of the fact of death, and depending on the state where the death occurred, it may be needed to obtain a disposition permit (for example, burial, cremation, entombment, or transport). State law specifies the required time frame for completing and filing the death certificate.

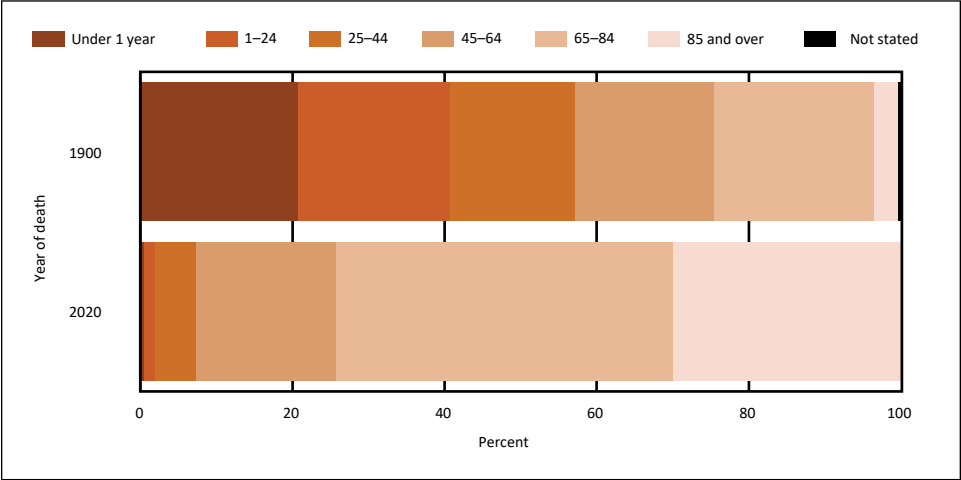
The death certificate provides important personal information about the decedent and about the circumstances and cause of death. This information has many uses related to the settlement of the estate and provides family members with closure, peace of mind, and documentation of the cause of death.

The death certificate is the source for local, state, and national mortality statistics (Figures 1–3). It may be used to determine which medical conditions receive research and development funding; set public health goals; and measure health status at local, state, national, and international levels. The National Center for Health Statistics (NCHS) publishes summary mortality data in the *National Vital Statistics Report* “Deaths: Final Data” and other publications (available from: https://www.cdc.gov/nchs/nvss/mortality_products.htm). Mortality data files are also published through CDC WONDER, available from: <https://wonder.cdc.gov/>.

These mortality data are valuable to physicians because they can be used for research and to influence funding that supports medical and health research, which may ultimately alter clinical practice. Research topics include identifying disease etiology and progression, evaluating diagnostic and therapeutic techniques, examining factors associated with medical problems (1), and highlighting areas where medical research may be needed to reduce mortality.

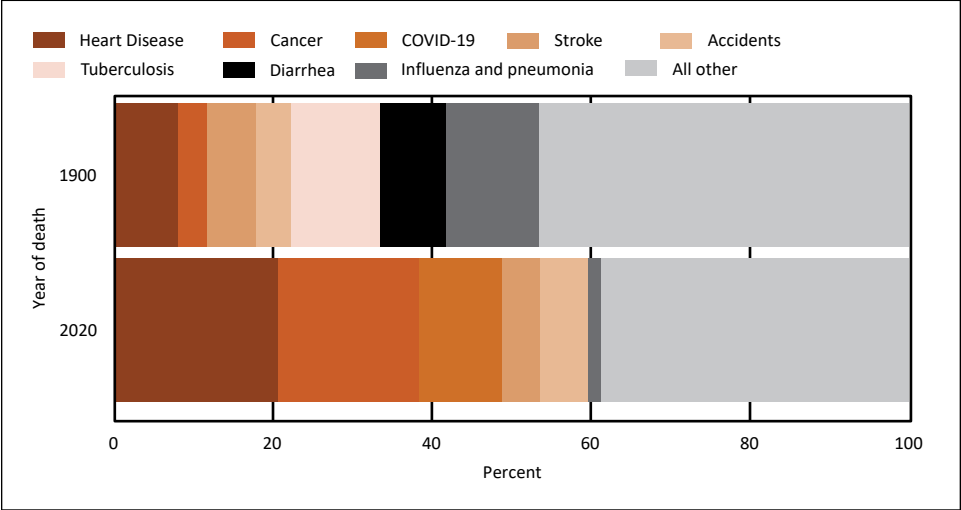
Analyses typically focus on a single condition reported on the death certificate, but some analyses do consider all conditions mentioned. Such analyses are important for studying

Figure 1. Percentage of deaths, by age: United States, 1900 and 2020



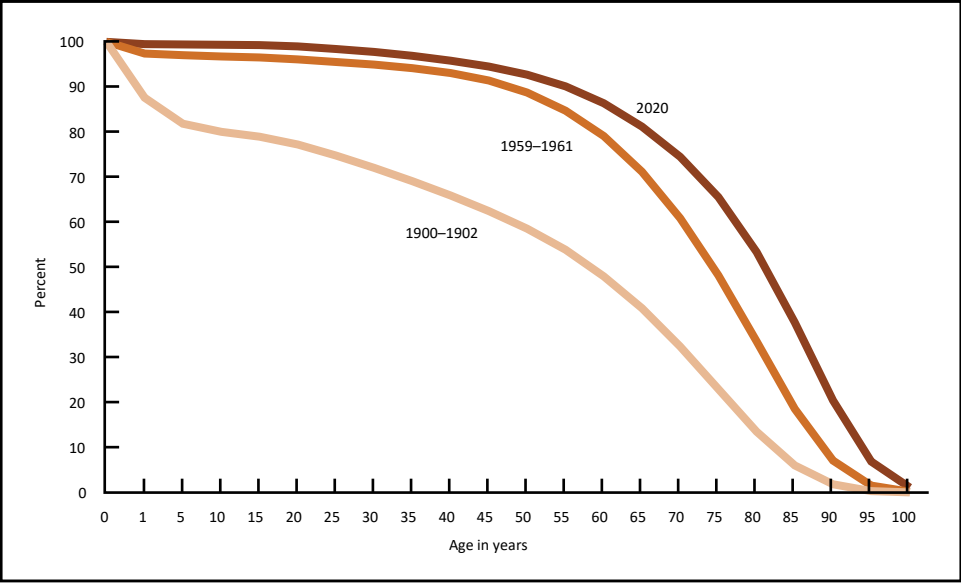
NOTE: Deaths in 1900 included 10 states and the District of Columbia. Deaths in 2020 included the entire United States.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Figure 2. Percentage of deaths, by cause: United States, 1900 and 2020



NOTES: Deaths in 1900 included 10 states and the District of Columbia. Deaths in 2020 included the entire United States. Deaths in 1900 were published in 1947 using the *International Classification of Diseases, Fifth Revision (ICD-5)*, and deaths in 2020 were published using ICD-10. The following are the ICD-5 and ICD-10 codes, respectively, for the causes of death shown: Heart disease: 90-95 and I00-I09, I11, I13, I20-I51. Cancer: 45-55 and C00-C97. COVID-19: (not applicable for 1900) U07.1. Stroke: 83 and I60-I69. Accidents: 169-195 and V01-X59, Y40-Y86, Y88. Tuberculosis: 13-22 and A16-A19. Diarrhea: 119-120 and A09. Influenza and pneumonia: 33, 107-109 and J09-J18. COVID-19 is Coronavirus Disease 2019.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Figure 3. Percentage surviving to a specific age for people born in 1900–1902, 1959–1961, and 2020, United States



SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

certain diseases and conditions and for investigating relationships between conditions reported on the same death certificate (for example, types of fatal injuries and automobile crashes or types of infections and HIV).

Because statistical data derived from death certificates are only as accurate as the information on the certificate, it is very important that all people involved with the registration of deaths strive not only for complete registration, but also for accuracy and promptness in reporting these events. Furthermore, it is important for the certifier to provide as detailed information as possible because information that is more specific is of greater utility for statistical and public health purposes.

U.S. Standard Certificate of Death

The registration of deaths is a state or local function supported by individual state or local laws and regulations. The original death certificates are registered in the states and stored according to state practice. Each state has a contract with NCHS that allows the federal government to use information from that state's records to produce national vital statistics. NCHS compiles the data collected by the states through the National Vital Statistics System (2,3).

To ensure consistency in the National Vital Statistics System, NCHS provides leadership and coordination in the development of a standard certificate of death for the states

to use as a model. The standard certificate is revised periodically to ensure that the data collected relate to current and anticipated needs. During the revision process, a review panel evaluates each item on the standard certificate for its registration, legal, genealogical, statistical, medical, and research value. The panel that recommended the current U.S. Standard Certificate of Death includes the American Medical Association, National Association of Medical Examiners, College of American Pathologists, and American Hospital Association (2).

Most state certificates are similar to the standard certificate in content and arrangement. Minor changes are sometimes made to comply with a state's laws or regulations or to meet specific information needs. Having similar forms promotes consistent data and comparable national statistics. This also allows for comparison of an individual state's data with national data and with data from other states. Uniform death certificates also increase their acceptability as legal records.

Electronic death registration

Many states now use electronic death registration systems (EDRS), which are typically secure web-based systems for registering deaths electronically. These systems are designed to simplify the data collection process and enhance communication between medical certifiers, medical examiners and coroners, funeral directors, and local registrars as they work together to register deaths. EDRS are generally similar to the standard certificate in content and structure. The example certifications shown in this guidance are consistent with a generic EDRS, but systems can vary by state. Minor modifications are sometimes needed to meet the specific needs of a state. Some EDRS have built-in edits, prompts, or alerts to improve data quality. Regardless, many of the principles of reporting cause of death on a paper certificate apply to reporting cause of death in EDRS. The process of submitting a death certificate varies by state, so information on the proper procedure for submitting a death certificate in a given state can be obtained from the state or local registrar.

Confidentiality of vital records

To encourage appropriate access to vital records, NCHS promotes the development of model vital statistics laws concerning confidentiality (4). A state's laws and supporting regulations define which people have authorized access to vital records. Some states have few restrictions on access to death certificates. However, most states have restrictions on access to death certificates. Additionally, legal safeguards protecting the confidentiality of vital records have been strengthened over time in some states.

Physician's responsibility

The physician's principal responsibility in death registration is to complete the medical part of the death certificate. In this role of medical certifier, the physician performs the final act of patient care. The physician provides closure with a complete and accurate death certificate that will allow the family to close the decedent's affairs. At the same time, the physician performs a service for the larger community by providing important public health data.

The physician should:

- Be familiar with local regulations on medical certifications for deaths without medical attendance or involving external causes that may require the physician to report the case to the medical examiner or coroner.
- Complete relevant portions of the death certificate.
- Deliver the signed or electronically authenticated death certificate to the funeral director promptly so that the funeral director can submit it to the registrar within the state's prescribed time period.
- Assist the registrar by answering questions promptly.
- Deliver a supplemental report of cause of death to the state's vital records or statistics office when autopsy findings or additional investigation reveals the cause of death to be different from what was originally reported.

In some states, hospitals and other institutions are authorized to initiate preparation of the death certificate when the death occurred in that hospital or institution. In these cases, the attending physician will usually complete the cause-of-death section and sign the certificate at the hospital or institution. States with EDRS may authenticate the certification in other ways than using a signature on paper. In all cases, the attending physician is responsible for certifying the cause of death. And in most cases, they will both pronounce death and certify the cause of death. However, in some states, if the attending physician is unavailable at the time of death to pronounce death and certify the cause, then another physician on duty at the hospital or institution may pronounce the patient legally dead and authorize release of the body to the funeral director. In these cases, the attending physician will certify the cause of death later.

If completed properly, the cause of death will communicate the same essential information (5) that a case history would. For example, the following cause-of-death statement is complete:

- I. a. Septic shock
 b. Infected decubitus ulcers
 c. Complications of cerebral infarction
 d. Cerebral artery atherosclerosis
- II. Insulin-dependent diabetes mellitus

If not completed properly, information may be missing from the cause-of-death section, so anyone reading the cause of death would not know how the condition on the lowest-used line developed. For example:

- I.**
 - a. Pneumonia
 - b. Malnutrition
 - c.

II.

This example does not explain what caused the malnutrition. A wide range of circumstances could cause malnutrition, so the statement is incomplete and ambiguous.

In some cases, the physician will be contacted to verify information reported on a death certificate, provide additional information, or clarify the information provided. The original cause-of-death statement may not be wrong from a clinical standpoint, but it may not include enough information for assigning cause-of-death codes for public health purposes.

Following the guidelines in this handbook should minimize time spent answering follow-up questions about a patient's cause of death.

General Instructions for Completing Death Certificates

Death certificates are permanent legal records from which official copies are made. It is essential that the certificate be prepared accurately and in a timely fashion. Funeral directors, with the assistance of an informant (usually a family member), are responsible for completing the demographic portions of the death certificate.

Completing a death certificate involves the following guidelines:

- Use the electronic system or current paper form designated by the state.
- Complete each item, following the specific instructions for that item.
- Make the entry legible, if not certifying electronically. Use a computer printer with high resolution or print legibly using permanent black ink.
- Do not use abbreviations (except those recommended in the specific item instructions).
- Obtain all signatures; rubber stamps or other facsimile signatures are not acceptable. Authenticate electronically if the state allows it.
- Do not alter or erase information.
- Submit the original certificate or report to the registrar. Reproductions or duplicates are not acceptable.
- Refer problems not covered in these instructions to the state's office of vital statistics or local registrar.

Most states require that the death certificate be completed and submitted within a specified time period. Physicians are expected to use their medical training and knowledge of medicine, available medical history, symptoms, diagnostic tests, and autopsy results (if available) to determine the cause of death. In some states, it is possible to submit a certificate with the cause of death listed as pending or pending further study. This is especially useful when additional investigation (an autopsy, for example) is expected. However, the certifying physician should update the original information as soon as the additional information becomes available.

Medical Certification of Death

The physician's primary responsibilities in death registration are pronouncing the death and, for the attending physician, reporting the cause of death. The medical part of the certificate includes:

- Date and time pronounced dead, if applicable
- Date and time of death
- Question on whether the case was referred to the medical examiner or coroner
- Cause-of-death section, including cause of death, manner of death, tobacco use, and for females, pregnancy status items
- Injury items for cases involving injuries
- Certifier section with signatures

In most cases, a physician will both pronounce death and certify the cause of death. A different physician will pronounce death only when the attending physician is unavailable to certify the cause of death at the time of death, and if state law provides for this option. If a state postmortem examinations act or other law requires an investigation, then the medical examiner or coroner is responsible for determining and reporting the cause of death (4).

Cause of death

This section must be completed by either the attending physician, medical examiner, or coroner. The cause-of-death section follows guidelines recommended by the World Health Organization (Figure 4). An important feature is the reported underlying cause of death determined by the certifying physician and is defined as a) the disease or injury that initiated the chain of morbid events leading directly to death or b) the circumstances of the accident or violence that produced the fatal injury. In addition to the underlying cause of death, this section provides for reporting the entire sequence of events leading to death, as well as other conditions significantly contributing to death (6).

The cause-of-death section is designed to elicit the opinion of the medical certifier; as a result, it may vary among individual physicians. Regardless, a properly completed cause-of-death section provides an etiological explanation of the order, type, and association of events resulting in death. The initial condition that starts the etiological sequence should be specific and certain about why it developed. For example, "sepsis" is not specific enough because several different conditions may cause sepsis, whereas human immunodeficiency virus syndrome is specific.

In certifying the cause of death, any disease, abnormality, injury, or poisoning, if believed to have adversely affected the decedent, should be reported. If the use of alcohol or other substances, smoking history, recent pregnancy, injury, or surgery was believed to have

Figure 4. Cause-of-death section of the death certificate

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Approximate interval
between onset and death:

Immediate Cause
(final disease or condition
resulting in death)

a.

Due to (or as a consequence of):

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

contributed to death, then that condition should be reported. The conditions present at the time of death may be completely unrelated, arising independently of each other; they may be causally related to each other (one condition may lead to another, which in turn leads to a third condition); and so forth. Death may also result from the combined effects of two or more conditions.

The cause-of-death section has two parts. The first part is for reporting the sequence of events leading to death, starting with the final disease or condition resulting in death and working backwards to the underlying cause. Each condition in Part I should cause the condition above it. A specific cause of death should be reported in the last entry in Part I so no ambiguity exists about the etiology of this cause. Other significant conditions that contributed to the death, but did not lead to the underlying cause, should be reported in Part II.

Additionally, the section includes questions relating to autopsy, manner of death (for example, natural, accident, suicide, homicide, undetermined), and injury. The cause of death should include information provided by a pathologist if an autopsy or other type of postmortem examination was done. For deaths that have microscopic or toxicologic examinations pending at the time the certificate is submitted, the additional information should be reported as soon as it is available. If the physician has any questions about the procedure for doing this, they should contact the local registrar.

For statistical and research purposes, it is important that the causes of death and, particularly, the underlying cause of death be reported as specifically and precisely as possible. Careful reporting results in statistics for both underlying and multiple causes of death (all conditions mentioned on a death certificate) reflecting the best medical opinion.

Every cause-of-death statement is coded and tabulated according to the latest revision of the *International Classification of Diseases* (6). If a problem occurs with the reported cause of death (for example, when the causal sequence is reported in reverse order), *International Classification of Diseases* coding and selection rules provide a consistent way to select the most likely underlying cause. However, it is better when the certifying physician reports the causal sequence in the correct order.

Statistically, mortality research focuses on the underlying cause of death because public health interventions seek to break the sequence of causally related medical conditions as early as possible. However, all cause-of-death information reported on death certificates, including intermediate causes of death, is important and analyzed.

The following sections include detailed instructions on how to complete Parts I and II. Case histories with examples of properly completed certificates are provided to show how the cause of death should be reported. Some common problems are also discussed.

Changes to cause of death

If additional medical information or autopsy findings that would change the cause or causes of death originally reported become available, then the certifying physician should amend the original death certificate by reporting the revised cause of death to the state's vital records office or local registrar **immediately**.

Instructions for Certifying Cause of Death

The cause-of-death section has two parts. Part I is for reporting the chain of events leading directly to death, with the **immediate cause** of death (the final disease, injury, or complication directly causing death) listed on line a. and the **underlying cause** of death (the disease or injury that initiated the chain of events that led directly and inevitably to death) listed on the lowest line used. Part II is for reporting all other significant diseases, conditions, or injuries that contributed to death, but did not result in the underlying cause of death given in Part I.

The cause-of-death information should be the physician's best medical OPINION.

Report each disease, abnormality, injury, or poisoning that is believed to have adversely affected the decedent. A condition can be listed as “probable” if it has not been definitively diagnosed. The following are common issues that can arise when reporting cause of death.

If an **organ system failure** such as congestive heart failure, hepatic failure, or renal failure is listed as a cause of death, always report its etiology on the line(s) beneath it (for example, renal failure **due to** type I diabetes mellitus).

When indicating **neoplasms** as a cause of death, include the following: 1) the primary site or that the primary site is unknown, 2) any secondary sites of metastases, if applicable, and 3) whether benign or malignant.

If known, also indicate the cell type, grade, or stage, as applicable, and the part or lobe of the organ affected (for example, a well-differentiated squamous cell carcinoma of the left lung, upper lobe).

Major diseases such as stroke, dementia, and diabetes mellitus may be reported as the underlying cause of death in Part I or as a contributing cause in Part II. However, when reporting these diseases, it is important to specify the type. For **stroke** deaths, specify whether it was a hemorrhage or infarction. When reporting **dementia** as a cause of death, specify the type of dementia (for example, Alzheimer disease, vascular dementia, or Lewy body dementia). If a specific diagnosis is not definitive but is suspected or likely, qualify the diagnosis as “possible,” “probable,” or “presumed.” When indicating **diabetes** as a cause of death, specify type 1 (and whether immune-mediated or idiopathic), type 2, gestational diabetes, monogenic diabetes (and whether neonatal diabetes or maturity-onset diabetes of the young), or some other specific type of diabetes.

When reporting **infectious diseases**, conditions that arise from an infection, or any condition that gave rise to an infection, specify the particular organism involved, if known. Conditions such as **pneumonia** or **sepsis** arise from a specific infectious agent, and should be reported, if possible.

When reporting **drug-related** deaths, always specify the substance or substances involved. If multiple drugs are involved, name each drug. Do not report brand names.

Verify the spelling of each drug. If a specific drug cannot be determined, report the class of drug, if possible. Avoid broad terms like “drug,” “medicine,” “multidrug,” “polysubstance,” and “polypharmacy.” In the case of a drug overdose or poisoning, the medical examiner or coroner should be contacted.

For each **fatal injury** (stab wound of chest, for example), always report the trauma (transection of subclavian vein, for example) and impairment of function (air embolism, for example) that contributed to death.

Part I of the cause-of-death section

Do not use parenthetical statements, abbreviations, or *International Classification of Disease* codes when reporting the cause of death. Also, do not number the causes. The underlying cause of death should be entered on the **LOWEST LINE USED IN PART I**. The underlying cause of death is the disease or injury that started the sequence of events leading directly to death or the circumstances of the accident or violence that produced the fatal injury. In the case of a violent death, the form of external violence or accident happened before the injury so it should be reported on the line below, although the two events may be almost simultaneous.

Line a.: Immediate cause

In Part I, the immediate cause of death is reported on line a. This is the final disease, injury, or complication directly causing the death. An immediate cause of death must always be reported on line a. It can be the sole entry in the cause-of-death section if that condition is the only condition causing the death.

The immediate cause does not mean the mechanism of death or terminal event (for example, cardiac arrest or respiratory arrest). The mechanism of death should not be reported as the immediate cause of death because it is a statement not specifically related to the disease process, and it only attests to the condition or fact of death.

Lines b., c., and d.: Due to (or as a consequence of)

Report on line b. the disease, injury, or complication, if any, that gave rise to the immediate cause of death reported on line a. If this in turn resulted from a further condition, report that condition on line c. If this in turn resulted from a further condition, report that condition on line d. For as many conditions as are involved, write the full sequence—one condition per line—with the most recent condition at the top, and the underlying cause of death reported on the lowest line used in Part I. Using all four lines is not required. If more than four lines are needed, writing “due to” between conditions on the same line is acceptable. Do not use Part II to continue the sequence. [Figure 5](#) shows a certification example where reporting more than one condition per line is necessary.

Figure 5. Cause-of-death certification using a “due to” statement

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Approximate interval
between onset and death:

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

The words “due to (or as a consequence of),” which are printed between the lines of Part I, apply not only to sequences with an etiological or pathological basis and usually a chronological time ordering, but also to sequences in which an antecedent condition is believed to have given rise to a subsequent cause by damage to tissues or impairment of function.

If the immediate cause of death arose as a complication or an error from surgery or other medical procedure or treatment, it is important to report the condition being treated, the medical procedure performed, the complication or error, and the result of the complication or error. In some states, referring these deaths to the medical examiner or coroner is required.

Approximate interval between onset and death

Space is provided to the right of lines a., b., c., and d. for reporting the interval between the presumed onset of the condition (not the diagnosis of the condition) and the time of death. This interval should be reported for *all* conditions in Part I. These intervals usually are established by the physician based on available information. In some cases, the interval will have to be estimated. The term “approximately” may be used. General terms, such as minutes, hours, or days, are acceptable, if necessary. Do not use dashes. If the time of onset is entirely unknown, state that the interval is “Unknown.” Do not leave these items blank.

This information is useful in coding certain diseases and also provides a useful check for the accuracy of the reported sequence of conditions.

13

Part II of the cause-of-death section (other significant conditions)

All other important diseases or conditions that were present at the time of death and contributed to the death, but did not lead to the underlying cause of death listed in Part I or were not reported in the chain of events in Part I, should be reported in Part II. Separate conditions with a comma or semicolon.

Multiple conditions and sequences of conditions resulting in death are common, particularly in older adults. If the death resulted from two or more possible sequences or if two conditions seem to have added together, choose the sequence thought to have had the greatest impact on death and report it in Part I. Other conditions or conditions from the other sequence(s) should be reported in Part II. For example, in the case of a diabetic male with chronic ischemic heart disease who dies from pneumonia, his certifying physician must choose the sequence of conditions that had the greatest impact and report this sequence in Part I. One possible sequence that the certifier might report would be pneumonia due to diabetes mellitus in Part I with chronic ischemic heart disease reported in Part II. Another possibility would be pneumonia due to the chronic ischemic heart disease entered in Part I with diabetes mellitus reported in Part II. The certifier might also consider the pneumonia to be due to the ischemic heart disease that was due to the diabetes mellitus and report this entire sequence in Part I. Because these three different cause-of-death statements would be coded differently, it is important for the certifying physician to decide which statement most accurately describes the conditions causing death.

Doubt and cause of death

In cases of doubt, it is acceptable to use qualifying phrases in either Part I or Part II to reflect uncertainty about which conditions led to death. In cases where the certifier is unable to establish a cause of death based on reasonable medical certainty, they should enter “Unknown” in the cause-of-death section. However, this should be done only after all efforts have been made to determine the cause of death. An autopsy should be performed, if possible.

Other items for medical certification

The remaining items that require the physician’s certification relate to autopsy, manner of death, injury, female decedent’s pregnancy status, whether tobacco use contributed to death, and whether the case was referred to the medical examiner or coroner.

The physician should indicate whether an autopsy was performed and whether the findings were available to complete the cause of death. If additional medical information or autopsy findings are received after the physician has certified the cause of death and

they determine the cause to be different from what was originally reported on the death certificate, then the physician should amend the original certificate by submitting a supplemental report of cause of death with the state’s registrar. Information on the proper procedure to follow can be obtained from the state’s registrar.

In most cases, the manner of death will be checked “Natural.” In those cases where an accident, suicide, or homicide has occurred, the medical examiner or coroner must be notified. If the medical examiner or coroner does not accept jurisdiction, the physician should check the appropriate manner of death and describe the injury or substance(s) involved.

Completing the certifier section

Physicians can play different roles in medical certification. A *pronouncing physician* is a physician who determines that the patient is legally dead but was not in charge of the patient’s care for the illness or condition that resulted in death. The attending physician is responsible for completing the cause-of-death section (item 32). If a pronouncing physician is involved, the attending physician plays the role of a *certifying physician*. If no pronouncing physician is involved, the attending physician plays the role of both the *pronouncing and certifying physician*. The *medical examiner or coroner* investigates certain types of deaths according to state law and completes the cause and manner of death for these cases.

The following [Table](#) specifies the items to be completed by each type of medical certifier.

Medical Certification	
Medical certifier	Complete items
Pronouncing physician	24–31
Certifying physician	32–37, 45–49 (sometimes 38–44, if involving an injury)
Pronouncing and certifying physician	24, 25, 29–37, and 45–49 (sometimes 38–44, if involving an injury)
Medical examiner or coroner	24, 25, 29, 30, and 32–49

The attending physician is usually the most knowledgeable to make a judgment about the conditions that led directly to death and to state the antecedent conditions, if any, that gave rise to this cause.

Because the items completed by each type of certifier differ, separate statements that specify which information they are certifying are provided. Each person indicates this agreement by signing the completed statement and adding their degree or title and license number. Certain states may provide for electronic authentication instead of a signature on a paper document. The date of certification and mailing address of the physician should also be provided.

Examples of Cause-of-Death Certification

Case history #1

Shortly after dinner on the day before admission to the hospital, a 48-year-old male developed a cramping epigastric pain, which radiated to his back, followed by nausea and vomiting. The pain was not relieved by positional changes or antacids. The pain persisted and, 24 hours after its onset, the patient sought medical attention. He had a 10-year history of excessive alcohol consumption and a 2-year history of frequent episodes of similar epigastric pain. The patient denied diarrhea, constipation, hematemesis, and melena. The patient was admitted to the hospital with a diagnosis of an acute exacerbation of chronic pancreatitis. Radiological findings included a duodenal ileus and pancreatic calcification. Serum amylase was 4,032 units per liter. The day after admission, the patient seemed to improve. However, that evening he became disoriented, restless, and hypotensive. Despite intravenous fluids and vasopressors, the patient remained hypotensive and died. Autopsy findings revealed many areas of fibrosis in the pancreas, with the remaining areas showing multiple foci of acute inflammation and necrosis.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Approximate interval
between onset and death:

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: Duodenal ileus and pancreatic calcification are nonspecific processes, and neither should be listed as an underlying cause of death.

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Case history #2

A 68-year-old male was admitted to the hospital with progressive right lower quadrant pain of several weeks' duration. The patient had lost approximately 40 pounds and had experienced progressive weakness and malaise. On physical examination, the patient had an enlarged liver span that was 4 fingerbreadths below the right costal margin. Rectal examination was normal, and stool was negative for occult blood. Routine laboratory tests were within normal limits. A chest x-ray and barium enema were negative. His EKG showed a right bundle branch block. CT scan showed numerous masses within both lobes of the liver. A needle biopsy of the liver was diagnostic of moderately differentiated hepatocellular carcinoma, and the patient was started on chemotherapy. Three months after the diagnosis, the patient developed sharp diminution of liver function and a deep venous thrombosis of his left thigh and was admitted to the hospital. On his third day, the patient developed a pulmonary embolism and died 30 minutes later.

CAUSE OF DEATH

32. Part I. Enter the chain of events—diseases, injuries, or complications—that directly caused the death. Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition resulting in death)

Sequentially list conditions, if any, leading to the cause listed on line a. Enter the Underlying Cause (disease or injury that initiated the events resulting in death) last.

a.

Pulmonary embolism

Due to (or as a consequence of):

b.

Deep venous thrombosis in left thigh

Due to (or as a consequence of):

c.

Acute hepatic failure

Due to (or as a consequence of):

d.

Moderately differentiated hepatocellular carcinoma

Approximate interval between onset and death:

30 minutes

3 days

3 days

Over 3 months

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

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Case history #3

A 75-year-old male was admitted to the hospital complaining of severe chest pain. He had a 10-year history of arteriosclerotic heart disease with EKG findings of myocardial ischemia and several episodes of congestive heart failure controlled by digitalis preparations and diuretics. Five months before this admission, the patient was found to be anemic, with a hematocrit of 17, and to have occult blood in the stool. A barium enema revealed a large polypoid mass in the cecum diagnosed as carcinoma by biopsy.

Because of the patient’s cardiac status, he was not considered to be a surgical candidate. Instead, he was treated with a 5-week course of radiation therapy and periodic packed red cell transfusions. He completed this course 3 months before this hospital admission. On this admission, the EKG indicated an acute anterior wall myocardial infarction. He died 2 days later.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Approximate interval
between onset and death:

2 days

10 years

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

Carcinoma of cecum, congestive heart failure

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: Acute myocardial infarction, listed in Part I line a. as the immediate cause of death, is a direct consequence of arteriosclerotic heart disease, the underlying cause listed in Part I line b.

Carcinoma of cecum is listed in Part II because it caused anemia and weakened the patient, but it did not cause arteriosclerotic heart disease.

Congestive heart failure is listed in Part II because it also weakened the patient. Although it was caused by the arteriosclerotic heart disease, it was not part of the causal sequence leading to the acute myocardial infarction.

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Case history #4

A 68-year-old female was admitted to the ICU with dyspnea and moderate retrosternal pain of 5 hours’ duration, which did not respond to nitroglycerin. Patient had a history of obesity, noninsulin-dependent diabetes mellitus, hypertension, and for 8 years, episodes of nonexertional chest pain diagnosed as angina pectoris. Over the first 72 hours, she developed a significant elevation of troponin I, confirming an acute myocardial infarction. A Type II second-degree atrioventricular block developed, and a temporary pacemaker was placed. She subsequently developed dyspnea with fluid retention and cardiomegaly on chest radiograph. She improved with diuretics. On the seventh hospital day, during ambulation she suddenly developed chest pain and increased dyspnea. An acute pulmonary embolism was suspected, and intravenous heparin was started. The diagnosis of pulmonary embolism was confirmed by a ventilation–perfusion scan as well as arterial blood gas measurements. One hour later, she became unresponsive and resuscitation efforts were unsuccessful.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death. Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition resulting in death)

Sequentially list conditions, if any, leading to the cause listed on line a. Enter the **Underlying Cause** (disease or injury that initiated the events resulting in death) last.

a.

Pulmonary embolism

Due to (or as a consequence of):

b.

Acute myocardial infarction

Due to (or as a consequence of):

c.

Chronic ischemic heart disease

Due to (or as a consequence of):

d.

Approximate interval between onset and death:

1 hour

7 days

8 years

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

Noninsulin-dependent diabetes mellitus, obesity, hypertension, congestive heart failure

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: In this case, noninsulin-dependent diabetes mellitus, obesity, hypertension, and congestive heart failure would all be considered factors that contributed to the death. However, they would not be in the direct causal sequence of Part I, so they should be reported in Part II.

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Case history #5

A 78-year-old female with a temperature of 102.6° F was admitted to the hospital from a nursing home. She first became a resident of the nursing home 2 years earlier, following a cerebrovascular accident that left her with a residual left hemiparesis. Over the next year, she became increasingly dependent on others to help with her activities of daily living, eventually requiring an in-dwelling bladder catheter 6 months before the current admission. For the 3 days before admission, she was noted to have lost her appetite and to have become increasingly withdrawn.

On admission to the hospital, her leukocyte count was 19,700, she had pyuria, and gram-negative rods were seen on a gram stain of urine. Ampicillin and gentamicin were administered intravenously. On the third hospital day, admission blood cultures turned positive for *Pseudomonas aeruginosa*, which was resistant to ampicillin and gentamicin. Antibiotic therapy was changed to ticarcillin clavulanate, to which the organism was sensitive. Despite the antibiotics and intravenous fluid support, the patient’s fever persisted. On the fourth day in the hospital, she became hypotensive and died.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Approximate interval
between onset and death:

Immediate Cause
(final disease or condition
resulting in death)

a.

Pseudomonas aeruginosa sepsis

Due to (or as a consequence of):

b.

Pseudomonas aeruginosa urinary tract infection

Due to (or as a consequence of):

c.

In-dwelling bladder catheter

Due to (or as a consequence of):

d.

Left hemiparesis due to old cerebrovascular accident

Days

Days

6 months

2 years

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: This case illustrates how to use the phrase “due to” between conditions on the same line, which is equivalent to adding an additional line to Part I.

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Case history #6

A 69-year-old female with a history of progressive dementia consistent with Alzheimer dementia was admitted from a hospice care facility for fever and dyspnea. She had been bedridden due to dementia for approximately 5 years. Six months earlier, she was noted to have increasing difficulty with swallowing and handling oral secretions. At that time, a gastrostomy tube was placed for nutritional support. The transfer report indicated that for 3 days before admission, the patient’s oral secretions had become thicker and more copious, and she had been coughing incessantly. A chest radiograph obtained on admission demonstrated probable pneumonia in the lower lobes of the lungs. She was severely dyspneic, and an arterial blood gas test showed marked hypoxemia. Based on an advanced directive, mechanical ventilation was not instituted. The patient worsened over the next several hours and died.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Approximate interval
between onset and death:

Immediate Cause
(final disease or condition
resulting in death)

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: As with all deaths, certifiers of deaths for those in hospice should review the medical records of the decedent, if possible. For hospice deaths specifically, the medical certifier should also review the clinical narrative in the hospice certification because the documentation likely contains information that is relevant to the cause-of-death statement.

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Case history #7

A 34-year-old male was admitted to the hospital with severe shortness of breath. He had a 9-month history of unintentional weight loss, night sweats, and diarrhea. The patient had no history of any medical condition that would cause immunodeficiency. An ELISA test and confirmatory Western blot test for HIV were positive. T-lymphocyte tests indicated a low T helper-suppressor ratio. A lung biopsy was positive for pneumocystis carinii pneumonia (PCP), indicating a diagnosis of AIDS.

The patient’s pneumonia responded to pentamidine therapy, and the patient was discharged. The patient had two additional admissions for PCP. Seventeen months after the patient was first diagnosed as HIV positive, he developed PCP again but did not respond to therapy. He died 2 weeks later.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition
resulting in death)

a.

Pneumocystis carinii pneumonia

Due to (or as a consequence of):

b.

Acquired immunodeficiency syndrome

Due to (or as a consequence of):

c.

Human immunodeficiency virus infection

Due to (or as a consequence of):

d.

Due to (or as a consequence of):

Approximate interval
between onset and death:

2 weeks

17 months

Over 17 months

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: By definition, AIDS is due to HIV infection; even though it may seem redundant to specify HIV infection in the causal sequence, it is best to do so. HIV infection and AIDS are not synonymous, and there is a variable clinical course between the time of HIV infection and onset of AIDS.

22

Case history #8

A 75-year-old male had a 10-year history of chronic bronchitis associated with smoking two packs of cigarettes per day for more than 40 years. When seen by his physician approximately 2 years before his terminal episode, he had moderately reduced FEV₁ and FVC, with no response to bronchodilators. During his last year, he required corticosteroids to prevent wheezing and coughing at night; however, he was unable to reduce his smoking to less than one pack of cigarettes per day. When seen 3 months before his terminal episode, he had significantly reduced FEV₁ and FVC, with no response to bronchodilators. He awoke one evening complaining to his wife about coughing and worsening shortness of breath. He was taken to the emergency room where he was found to have an acute exacerbation of obstructive airway disease. He was admitted to the hospital. At the patient's request, no mechanical ventilation was employed, and he died 12 hours later in respiratory arrest.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Approximate interval
between onset and death:

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: In this case, respiratory arrest is considered a mechanism of death, and it would not be listed as the immediate cause of death.

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Case history #9

A 75-year-old female had a 15-year history of noninsulin-dependent diabetes mellitus, a 13-year history of mild hypertension treated with thiazide diuretics, and an uncomplicated myocardial infarction 6 years before the present illness. She was found disoriented in her apartment and brought to the hospital. On admission, she was noted to be unresponsive, without focal neurologic signs, severely dehydrated, and with a blood pressure of 90/60. Initial laboratory tests showed severe hyperglycemia, hyperosmolarity, azotemia, and mild ketosis without acidosis. A diagnosis of hyperosmolar nonketotic coma was made.

The patient was vigorously treated with fluids, electrolytes, insulin, and broad-spectrum antibiotics, although no source of infection was documented. Within 72 hours, the patient’s hyperosmolar hyperglycemic state was resolved. However, she remained anuric with progressive azotemia. Attempts at renal dialysis were unsuccessful, and the patient died on the eighth day in the hospital in severe renal failure.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause

(final disease or condition resulting in death)

Sequentially list conditions, if any, leading to the cause listed on line a. Enter the **Underlying Cause** (disease or injury that initiated the events resulting in death) last.

a.

Acute renal failure

Due to (or as a consequence of):

b.

Hyperosmolar nonketotic coma

Due to (or as a consequence of):

c.

Diabetes mellitus, noninsulin-dependent

Due to (or as a consequence of):

d.

Approximate interval between onset and death:

5 days

8 days

15 years

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

Hypertension, previous myocardial infarction

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: In this case, hypertension and a previous myocardial infarction would both be considered factors that contributed to the death. However, they would not be in the direct causal sequence of Part I, so they should be reported in Part II.

24

Case history #10

A 53-year-old male was admitted to the hospital after 2 days of intermittent midepigastic and left-sided chest pain. The pain radiated to his left arm and was accompanied by nausea and vomiting. He reported a history that included 2 years of occasional chest discomfort, a near-syncope episode 6 months earlier, hypertension, a 30-year history of smoking one pack of cigarettes per day, congenital blindness, and insulin-dependent diabetes mellitus. He was noted to be markedly obese and to have severe hypercholesterolemia.

At the time of admission, his enzyme studies were normal, but the EKG suggested myocardial ischemia. Two days later, he experienced an episode of severe chest pain that did not respond to nitroglycerin and was accompanied by ST-segment elevation. A cardiac catheterization demonstrated severe multivessel coronary artery stenosis. He underwent quadruple coronary artery bypass surgery. Shortly after being taken off the cardiopulmonary bypass machine, he went into cardiac arrest. A resuscitation by open cardiac massage was attempted, during which a rupture developed in his left ventricular wall, resulting in rapid exsanguination and death.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Minutes

2 days

2 years

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: In this case, insulin-dependent diabetes mellitus, cigarette smoking, hypertension, and hypercholesterolemia would all be considered factors that contributed to the death. However, they would not be in the direct causal sequence of Part I, so they should be reported in Part II. The surgery probably played a role in death, but it did not cause the coronary artery disease, so it is also listed in Part II.

25

Case history #11

A 1,480-gram male infant was born at 32 weeks gestation to a 20-year-old primiparous woman. Newborn screening found elevated levels of immunoreactive trypsinogen in the blood. The infant developed respiratory distress syndrome and required mechanical ventilation for 7 days. Despite receiving adequate calories for growth, the infant gained weight poorly and had persistent diarrhea. Steatorrhea was confirmed upon microscopic examination. Results from a sweat chloride test given on the 21st day after birth were negative, but the patient had an elevated sweat chloride concentration of 85 millimoles per liter when the test was repeated at 35 days of age. On the 37th day after birth, the infant became lethargic and was noted to be edematous. *Escherichia coli* was cultured from the infant’s cerebral spinal fluid, total serum proteins were reported to be low, and clotting studies were prolonged. The infant died at 45 days of age despite appropriate life-saving efforts. Gross autopsy confirmed the clinical impression of cystic fibrosis.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Approximate interval
between onset and death:

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Escherichia coli meningitis

Due to (or as a consequence of):

b.

Cystic fibrosis

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Due to (or as a consequence of):

7 days

45 days

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

Prematurity, malabsorption, respiratory distress syndrome, failure to thrive

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: In this case, prematurity, malabsorption, respiratory distress syndrome, and failure to thrive would all be considered factors that contributed to the death. However, they would not be in the direct causal sequence of Part I, so they should be reported in Part II.

26

Case history #12

A 30-year-old, gravida 6, para 5, with a history of gestational hypertension reported to the emergency room at 36 weeks gestation with complaints of abdominal cramping and light vaginal bleeding during the past 12 hours. At the time of first assessment, fetal heart tones were detected. The uterus was tense, irritable, and tender. The mother was hypotensive with tachycardia. A presumptive diagnosis of abruptio placenta was made, and an emergency cesarean section was performed under general anesthesia. The baby was stillborn. The mother continued to bleed from her uterus and phlebotomy sites and went into profound shock secondary to disseminated intravascular coagulation. Despite administration of blood and clotting factors, intravascular pressure could not be maintained, and the mother died on the operating table. Maternal autopsy confirmed the clinical diagnosis.

A death certificate would be completed for the mother and a fetal death report for the fetus. The cause of fetal death is reported using a different format. Refer to the *Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting* for more information.

Maternal death certificate:

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Hemorrhagic shock

Due to (or as a consequence of):

b.

Disseminated intravascular coagulopathy

Due to (or as a consequence of):

c.

Abruptio placenta

Due to (or as a consequence of):

d.

Due to (or as a consequence of):

Approximate interval
between onset and death:

Minutes

Hour

Over 13 hours

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

Gestational hypertension, 36 weeks into pregnancy

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: In this case, gestational hypertension would be considered a factor that contributed to the death. However, it would not be in the direct causal sequence of Part I, so should be reported in Part II.

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Fetal death report:

18. CAUSE/CONDITIONS CONTRIBUTING TO FETAL DEATH			
18a. Initiating Cause/Condition. Among the choices below, please select the <u>one</u> which most likely began the sequence of events resulting in the death of the fetus.		18b. Other Significant Causes or Conditions. Select or specify all other conditions contributing to death.	
Maternal Conditions/Diseases (Specify)		Maternal Conditions/Diseases (Specify)	Gestational hypertension
Complications of Placenta, Cord, or Membranes		Complications of Placenta, Cord, or Membranes	
☐ Rupture of membranes prior to onset of labor		☐ Rupture of membranes prior to onset of labor	
☒ Abruptio placenta		☐ Abruptio placenta	
☐ Placental insufficiency		☐ Placental insufficiency	
☐ Prolapsed cord		☐ Prolapsed cord	
☐ Chorioamnionitis		☐ Chorioamnionitis	
☐ Other (specify)		☐ Other (specify)	
Other Obstetrical or Pregnancy Complications (Specify)		Other Obstetrical or Pregnancy Complications (Specify)	Hemorrhagic shock, disseminated intravascular coagulopathy
Fetal Anomaly (Specify)		Fetal Anomaly (Specify)	
Fetal Injury (Specify)		Fetal Injury (Specify)	
Fetal Infection (Specify)		Fetal Infection (Specify)	
Other Fetal Conditions/Disorders (Specify)		Other Fetal Conditions/Disorders (Specify)	Severe hypoxia
☐ Unknown		☐ Unknown	

NOTE: This figure represents a fetal death report in a typical fetal death registration system based on the 2003 U.S. Standard Report of Fetal Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Case history #13

A 92-year-old male was found dead in bed. He had no significant medical history. Autopsy showed minimal coronary disease and generalized atrophic changes commonly associated with aging. No specific cause of death was identified. Toxicology was negative.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Approximate interval
between onset and death:

Immediate Cause
(final disease or condition
resulting in death)

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Notes on death certification: In some cases, no compelling cause presents itself. It is acceptable to indicate that a thorough investigation was performed but no cause could be determined.

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Case history #14

A 102-year-old female was brought to the hospital because her word combinations were not comprehensible. However, at admission, her sentences were lucid. She was placed on blood anticoagulants. She had a history of arthritis, hypertension, blocked arteries, coronary thrombosis (25 years before), stroke (10 years before), periodic TIAs (8-year period), and congestive heart failure (hospitalized 6 years before). On the fourth day in the hospital, a colonoscopy indicated internal bleeding, so the anticoagulants were discontinued. She was released from the hospital after 7 days. After discharge, language and motor skills were impaired, although functioning was better earlier in the day. Additionally, her leg coloration started changing. After a week at home, the woman was readmitted to the hospital after a spell of vomiting. Vascular imaging indicated that circulation was blocked at the groin, language did not improve, ability to eat and keep food down deteriorated, and heart rate was periodically arrhythmic with periods of third-degree heart block. After 11 weeks of hospitalization, she was sent home under hospice care and died 2 days later.

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death. Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Immediate Cause
(final disease or condition resulting in death)

Sequentially list conditions, if any, leading to the cause listed on line a. Enter the **Underlying Cause** (disease or injury that initiated the events resulting in death) last.

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Approximate interval between onset and death:

Part II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

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Common Problems in Death Certification

Cause-of-death statements can be written in several ways. Optimally, a certifier will provide a simple description of the process leading to death that is etiologically clear and will be confident that this is the correct sequence of causes. However, description of the process is sometimes difficult because the certifier is uncertain.

In this case, the certifier should think through the causes they are confident about and what possible etiologies could have resulted in these conditions. The certifier may select the causes that are suspected to have been involved and use words like “probable” or “presumed” to indicate that the description provided is not completely certain. If the initiating condition reported on the death certificate could have been caused by a pre-existing condition but the certifier cannot determine the etiology, they should state that the etiology is unknown, undetermined, or unspecified so it is clear that they did not have enough information to provide even a qualified etiology. Reporting a cause of death as unknown should be a last resort.

An **older decedent** should have a clear and distinct etiological sequence for cause of death, if possible. Terms such as “senescence,” “infirmity,” “old age,” and “advanced age” have little value for public health or medical research. Age is recorded elsewhere on the certificate. When a number of conditions resulted in death, the physician should choose the single sequence that, in their opinion, best describes the process leading to death and place any other relevant conditions in Part II. “Multiple system failure” could be included in Part II, but the systems need to be specified to ensure that the information is captured. If, after careful consideration, the physician cannot determine a sequence that ends in death, then the medical examiner or coroner should be consulted about investigating or assisting with completing the cause of death.

An **infant decedent** should have a clear and distinct etiological sequence for cause of death, if possible. “Prematurity” should not be entered without explaining the etiology of prematurity. Maternal conditions may have initiated or affected the sequence that resulted in infant death, and such maternal causes should be reported in addition to the infant causes on the infant’s death certificate (for example, hyaline membrane disease **due to** prematurity, 28 weeks **due to** placental abruption **due to** blunt trauma to mother’s abdomen).

When the cause is unknown or Sudden Infant Death Syndrome is suspected, the case should be referred to the medical examiner or coroner and a complete investigation conducted. If the infant is under age 1 year and no cause of death is determined after scene investigation, clinical history review, and a complete autopsy, then the death can be reported as Sudden Infant Death Syndrome. Refer to the *Medical Examiners’ and Coroners’ Handbook on Death Registration and Fetal Death Reporting* for more information.

Most certifiers will find themselves, at some point, in a circumstance where they are **unable to provide a simple description of the process of death**. In this situation, the

certifier should try to provide a clear sequence, qualify the causes about which they are uncertain, and be able to explain the certification chosen.

When processes such as the following are reported, additional information about the etiology should be reported. Do not report these conditions as an underlying cause of death:

- Abdominal hemorrhage
- Abscess
- Acute myocardial infarction
- Acute respiratory distress syndrome
- Adhesions
- Altered mental status
- Anemia
- Anoxia
- Anoxic encephalopathy
- Arrhythmia
- Ascites
- Aspiration
- Atrial fibrillation
- Bacteremia
- Bedridden
- Biliary obstruction
- Bowel obstruction
- Brain injury
- Brain stem herniation
- Carcinomatosis
- Cardiac arrest
- Cardiac dysrhythmia
- Cardiomyopathy
- Cardiopulmonary arrest
- Cellulitis
- Cerebellar tonsillar herniation
- Cerebral edema
- Cerebrovascular accident
- Chronic bedridden state
- Cirrhosis
- Coagulopathy
- Compression fracture
- Congestive heart failure
- Convulsions
- Decubitus ulcers
- Dehydration
- Dementia (when not otherwise specified)
- Diarrhea
- Disseminated intravascular coagulopathy
- Dysrhythmia
- End-stage liver disease
- End-stage renal disease
- Epidural hematoma
- Exsanguination
- Failure to thrive
- Fracture
- Gangrene
- Gastrointestinal hemorrhage
- Heart failure
- Hemothorax
- Hepatic failure
- Hepatitis
- Hepatorenal syndrome
- Hyperglycemia
- Hyperkalemia
- Hyponatremia
- Hypotension
- Hypovolemic shock
- Immunosuppression
- Increased intracranial pressure
- Intracranial hemorrhage
- Malnutrition
- Metabolic encephalopathy
- Multiorgan failure
- Multisystem organ failure
- Myocardial infarction
- Necrotizing soft-tissue infection
- Old age
- Open (or closed) head injury
- Pancytopenia
- Paralysis
- Perforated gallbladder
- Peritonitis
- Pleural effusions
- Pneumonia
- Pulmonary arrest
- Pulmonary edema
- Pulmonary embolism
- Pulmonary insufficiency
- Renal failure
- Respiratory arrest
- Seizures
- Sepsis
- Septic shock
- Starvation
- Subarachnoid hemorrhage
- Subdural hematoma
- Sudden death
- Thrombocytopenia
- Uncal herniation
- Urinary tract infection
- Ventricular fibrillation
- Ventricular tachycardia
- Volume depletion

If the certifier is unable to determine the etiology of a process, the process must be qualified as being of an unknown, undetermined, or unspecified etiology so it is clear that a distinct etiology was not inadvertently or carelessly omitted.

Be aware of the late effects of injuries, which should be referred to the medical examiner or coroner. A death may seem natural (see examples below), but if evidence exists that an injury, poisoning, or complications contributed to the death, it should be referred to the medical examiner or coroner.

The following conditions indicate that the case should be referred to the medical examiner or coroner regardless of the time interval between injury and death. For example, if quadriplegia was due to a late effect of a spinal cord injury, it should be reported to the medical examiner or coroner.

- Asphyxia
- Bolus
- Choking
- Drug/alcohol overdose or drug/alcohol abuse
- Epidural hematoma
- Exsanguination
- Fall
- Fracture
- Hip fracture
- Hyperthermia
- Hypothermia
- Open reduction of fracture
- Pulmonary emboli
- Seizure disorder
- Sepsis
- Subarachnoid hemorrhage
- Subdural hematoma
- Surgery
- Thermal burns/chemical burns

Additional resources

In addition to this handbook, resources include manuals, guidelines, and websites (5, 7–13). Additional copies of government-produced resources are available from state vital records and statistics offices, NCHS, and the National Vital Statistics System’s websites (<https://www.cdc.gov/nchs/nvss/index.htm> and <https://www.cdc.gov/nchs/nvss/writing-cause-of-death-statements.htm>).

Completing Other Items on the Death Certificate

NAME OF DECEDENT: For use by physician or institution

The left-hand margin of the certificate contains a line where the physician or hospital can write the name of the decedent. This allows the hospital to assist with completing the death certificate before the body is removed by the funeral director. However, because the funeral director is responsible for completing the personal information about the decedent and because the hospital frequently does not have the complete legal name of the decedent, the hospital or physician should enter the name they have for the decedent in this item. The funeral director will then enter the full legal name in item 1.

In some states, items 14–17 are completed by the medical certifier. In other states, these items are reported by the funeral director. In this case, the physician should review the responses for accuracy.

14–17. Items on where death occurred

14. PLACE OF DEATH (Check only one: see instructions)

14. PLACE OF DEATH (Check only one):	
If death occurred in a hospital: ☐ Inpatient ☐ Emergency Room/Outpatient ☐ Dead on Arrival	If death occurred somewhere other than a hospital: ☐ Hospice Facility ☐ Nursing Home/Long Term Care Facility ☐ Decedent's Home ☐ Other (Specify):

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Check the type of place where the decedent was pronounced dead.

Hospital deaths—Hospitals are licensed institutions providing patients diagnostic and therapeutic services by a medical staff. If the decedent was pronounced dead in a hospital, indicate the decedent’s status at the hospital: Inpatient, Emergency Room/Outpatient, or Dead on Arrival.

Nonhospital deaths—If the decedent was pronounced dead somewhere else, indicate whether pronouncement occurred at a Hospice Facility, Nursing Home/Long Term Care Facility, Decedent’s Home, or other location.

Hospice facility refers to a licensed institution providing hospice care (palliative and supportive care for the dying), not to hospice care that might be provided in a number of different settings, including a patient’s home.

If death was pronounced at a licensed long-term care facility, indicate “Nursing Home/ Long Term Care Facility.” A long-term care facility is not a hospital but provides patient care beyond custodial care (for example, nursing home, skilled nursing facility, long-term care facility, convalescent care facility, extended care facility, intermediate care facility, residential care facility, or congregate care facility).

If death was pronounced in the decedent’s home, indicate “Decedent’s Home.” A decedent’s home includes independent living units, including private homes, apartments, bungalows, and cottages.

If death was pronounced at a licensed ambulatory or surgical center, orphanage, prison ward, public building, birthing center, or a facility offering housing and custodial care, but not patient care (for example, board and care home, group home, custodial care facility, or foster home), indicate “Other (Specify).” Then, specify where death was legally pronounced, such as a prison ward, physician’s office, the highway where a traffic accident occurred, a vessel, orphanage, group home, or at work.

If the place of death is unknown but the body was found in a state, enter the state where the body was found as the place of death.

Note: Deaths that occur in certain institutions, such as prisons, may automatically require a referral to the medical examiner or coroner’s office.

15. FACILITY NAME (If not institution, give street and number)

Institutional deaths—If the death occurred in a hospital, enter the full name of the hospital. If death occurred on the way to or on arrival at a hospital, enter the full name of the hospital. Deaths that occur in an ambulance or emergency squad vehicle on the way to a hospital fall into this category.

If the death occurred in another type of institution, such as a nursing home, enter the name of the institution where the decedent died.

Noninstitutional deaths—If the death occurred at home, enter the house number and street name. If the death occurred at some place other than those described previously, enter the number and street name of the place or building (if at a building) where the decedent died.

If the death occurred on a moving conveyance, enter the name of the vessel (*S.S. Olive Seas* [at sea]) or the flight (Eastern Airlines Flight 296 [in flight]), and include latitude and longitude.

16. CITY OR TOWN, STATE, AND ZIP CODE

Enter the name of the city, town, village, or location; state; and ZIP code where death occurred.

17. COUNTY OF DEATH

Enter the name of the county of the institution or address given in item 15 where death occurred. If the death occurred on a moving conveyance in the United States and the body was first removed from the conveyance in this state, complete a death certificate and enter as the place of death the address where the body was first removed from the conveyance.

If the death occurred on a moving conveyance in international waters, international airspace, or in a foreign country or its airspace, and the body is first removed from the conveyance in this state, register the death in this state, but enter the actual place of death as it can be determined.

These items are used to identify the place of death to determine who has jurisdiction for deaths that legally require investigation by the medical examiner or coroner. These items are also used for research and statistics comparing hospital and nonhospital deaths. Valuable information is also provided for health planning and use of health facilities.

24–30. Items on when death occurred

Items 24, 25, and 29–31 should always be completed. If the facility uses a separate pronouncer or other person to indicate that death has taken place and another person more familiar with the case to complete the remainder of the medical portion of the death certificate, the *pronouncer* completes items 24–28. In all other cases, the *certifier* completes items 24, 25, 29–37, and 45–49; items 26–28 are left blank.

24. DATE PRONOUNCED DEAD (Mo/Day/Yr)

Enter the exact month, day, and four-digit year that the decedent was pronounced dead. Complete this item even when the information is the same as item 29, the actual or presumed date.

Enter the full name of the month—January, February, March, etc. Do not use a number or abbreviation to designate the month.

This is used to identify the date the decedent was legally pronounced dead. This information is helpful in cases where the body of a person who has been dead for some time is found, and the death is pronounced by the medical examiner or coroner.

25. TIME PRONOUNCED DEAD

Enter the exact time (hour and minute using a 24-hour clock) the decedent was pronounced dead according to local time. If daylight saving time was the official time where death occurred, it should be used to record the time of death.

A death that occurred at 2400 or 0000 midnight belongs to the start of the new day. One minute after 12 midnight is entered as 0001 of the new day.

If the exact time of death is unknown, the person who pronounces the body dead should approximate the time. “Approx” should be placed before the time.

24-hour clock	12-hour clock
0000 (medical facilities) 2400 (military facilities)	12:00 midnight
0100	1:00 a.m.
0200	2:00 a.m.
0300	3:00 a.m.
0400	4:00 a.m.
0500	5:00 a.m.
0600	6:00 a.m.
0700	7:00 a.m.
0800	8:00 a.m.
0900	9:00 a.m.
1000	10:00 a.m.
1100	11:00 a.m.
1200	12:00 noon
1300	1:00 p.m.
1400	2:00 p.m.
1500	3:00 p.m.
1600	4:00 p.m.
1700	5:00 p.m.
1800	6:00 p.m.
1900	7:00 p.m.
2000	8:00 p.m.
2100	9:00 p.m.
2200	10:00 p.m.
2300	11:00 p.m.

26–28. PRONOUNCING PHYSICIAN ONLY

Items 26–28 are to be completed only when the physician responsible for completing the medical certification of cause of death is not available at the time of death to certify the cause of death and when state law provides for a pronouncing physician. In this situation, a pronouncing physician is the person who determines that the decedent is legally dead, but they were not in charge of the patient’s care for the illness or condition that resulted in death. This physician certifies to the fact and time of death (items 24 and 25) and signs and dates the death certificate (items 26–28) so the body can be released to the funeral director when the attending physician is not available.

26. SIGNATURE OF PERSON PRONOUNCING DEATH (Only when applicable)

Obtain in ink the signature and the degree or title of the physician who pronounces death. This physician certifies the time, date, and place of death only. Rubber stamps or facsimile signatures are not permitted on paper certificates. States with electronic death certificates may have other ways to authenticate the certification.

27. LICENSE NUMBER (Only when applicable)

Enter the state license number of the physician who pronounces death.

28. DATE SIGNED (Mo/Day/Yr) (Only when applicable)

Enter the exact month, day, and year that the pronouncing physician signs the certificate. Enter the full name of the month—January, February, March, etc. Do not use a number or abbreviation to designate the month.

IF THE ATTENDING PHYSICIAN IS AVAILABLE TO CERTIFY THE FACT OF DEATH, ITEMS 26–28 SHOULD NOT BE COMPLETED. IF AVAILABLE, THE ATTENDING PHYSICIAN SHOULD COMPLETE ITEMS 24, 25, 29–37, AND 45–49 AS BOTH PRONOUNCING AND CERTIFYING PHYSICIAN.

Items 24 and 25 must be completed by the person who pronounces death—the pronouncing physician, pronouncing and certifying physician, or medical examiner or coroner.

29. ACTUAL OR PRESUMED DATE OF DEATH (Mo/Day/Yr)

Enter the exact month, day, and year that death occurred.

Enter the full name of the month—January, February, March, etc. Do not use a number or abbreviation to designate the month.

Pay particular attention to the entry of month, day, and year when the death occurs around midnight on December 31. Consider a death at midnight to have occurred at the beginning of the next day rather than the end of the previous day. For example, the date for a death that occurs at 11:59 p.m. or 2359 on December 31 should be recorded as December 31, while a death occurring the next minute 0000 (or 2400) should be recorded as January 1.

If the exact date of death is unknown, the person completing the medical certification should approximate the date. “Approx” should be placed before the date. If the date cannot be determined by approximation, the date found should be entered and identified as such.

This item is used with the hour of death to establish the exact time of death of the decedent. Epidemiologists also use date of death and the cause-of-death information for research on intervals between injuries, onset of conditions, and death.

30. ACTUAL OR PRESUMED TIME OF DEATH

Enter the exact time (hour and minute using a 24-hour clock) of death according to local time. If daylight saving time was the official time where death occurred, it should be used to record the time of death.

A death that occurred at 2400 or 0000 midnight belongs to the start of the new day. One minute after 12 midnight is entered as 0001 of the new day.

If the exact time of death is unknown, the person who certifies the death should approximate the time. “Approx” should be placed before the time.

24-hour clock	12-hour clock
0000 (medical facilities) 2400 (military facilities)	12:00 midnight
0100	1:00 a.m.
0200	2:00 a.m.
0300	3:00 a.m.
0400	4:00 a.m.
0500	5:00 a.m.
0600	6:00 a.m.
0700	7:00 a.m.
0800	8:00 a.m.
0900	9:00 a.m.
1000	10:00 a.m.
1100	11:00 a.m.
1200	12:00 noon
1300	1:00 p.m.
1400	2:00 p.m.
1500	3:00 p.m.
1600	4:00 p.m.
1700	5:00 p.m.
1800	6:00 p.m.
1900	7:00 p.m.
2000	8:00 p.m.
2100	9:00 p.m.
2200	10:00 p.m.
2300	11:00 p.m.

This item establishes the exact time of death, which is important in inheritance cases when there is a question of who died first. This is often important in the case of multiple deaths in the same family.

31–37. Items relating to cause and manner of death

31. WAS MEDICAL EXAMINER OR CORONER CONTACTED?

31. WAS MEDICAL EXAMINER OR CORONER CONTACTED?

☐ Yes ☐ No

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Select “Yes” if the medical examiner or coroner was contacted in reference to this case. Otherwise, select “No.” Do not leave this item blank.

In cases of accident, suicide, or homicide, the medical examiner or coroner must be notified.

This item records whether the medical examiner or coroner was informed when the circumstances require such action. In these cases, the physician must ensure that this is done.

33. WAS AN AUTOPSY PERFORMED?

33. WAS AN AUTOPSY PERFORMED?

☐ Yes ☐ No

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Select “Yes” if a partial or complete autopsy was performed. Otherwise, select “No.”

An autopsy is important because it provides additional insight into the condition(s) that led to death. This additional information is particularly important for determining the immediate and underlying causes when the cause is not immediately clear.

34. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH?

34. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH?

☐ Yes

☐ No

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Select “Yes” if the autopsy findings were available at the time that the cause of death was determined. Otherwise, select “No.” Leave this item blank if no autopsy was performed.

For the cases where an autopsy is done, this information indicates whether the information was available to assist with determining the cause of death. Knowing whether the autopsy results were available for determining the cause of death gives insight into the quality of the cause-of-death data.

35. DID TOBACCO USE CONTRIBUTE TO DEATH?

35. DID TOBACCO USE CONTRIBUTE TO DEATH?

☐ Yes

☐ Probably

☐ No

☐ Unknown

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Select “Yes” if, **in the physician’s opinion**, any use of tobacco or tobacco exposure contributed to death. For example, tobacco use may contribute to deaths due to emphysema or lung cancer, and it may also contribute to some heart disease and cancers of the head and neck. Tobacco use should also be reported in deaths due to fires started by smoking. Select “No” if, in the physician’s opinion, the use of tobacco did not contribute to death. Select “Probably” if the use of tobacco probably contributed to death. Select “Unknown” if it is unknown whether the use of tobacco contributed to death.

36. IF FEMALE, PREGNANCY STATUS

36. IF FEMALE:

- ☐ Not pregnant within past year
- ☐ Pregnant at time of death
- ☐ Not pregnant, but pregnant within 42 days of death
- ☐ Not pregnant, but pregnant 43 days to 1 year before death
- ☐ Unknown if pregnant within the past year

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

If the decedent was female, indicate whether she was pregnant within the year before death. If so, indicate if she was pregnant at the time of death, within 42 days of death, within 43 days to 1 year before death, or however specified in the state where death occurred. If the female was not of reproductive age, select “Not pregnant within past year.” If the decedent was male, leave the item blank.

This information is important for determining the scale of mortality in this population and will assist with maternal mortality review programs.

37. MANNER OF DEATH

37. MANNER OF DEATH

- ☐ Natural
- ☐ Accident
- ☐ Suicide
- ☐ Homicide
- ☐ Pending Investigation
- ☐ Could Not Be Determined

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Complete this item for all deaths. Select the corresponding manner of death. Deaths not due to external causes should be identified as “Natural.” Usually, these are the only types of deaths a physician will certify. The medical examiner or coroner will certify deaths due to external causes, including those due to accident, homicide, or suicide.

Select “Pending Investigation” if the manner of death cannot be determined to be accident, homicide, or suicide within the statutory time limit for submitting the death certificate. This should be changed later to one of the other terms.

Select “Could Not Be Determined” ONLY when it is impossible to determine the manner of death.

In cases of accidental death, this information is used to justify the payment of double indemnity on life insurance policies. It is also used to obtain a more accurate determination of cause of death.

All deaths due to external causes must be referred to the medical examiner or coroner. If the manner of death selected in item 37 was anything other than natural, items 38–44 must be completed. In cases where the physician must complete the cause, manner, and circumstances of death (items 32, 37, and 38–44) when the cause is accidental, refer to the *Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting*.

The National Association of Medical Examiners provides guidance on how manner of death can be determined (14). In certain cases, conflict exists between the manner of death preferred by the medical examiner and disease classification communities. As a result, it is important to specify the circumstances involved so that both communities are able to use the information.

38–44. ACCIDENT OR INJURY

Complete these items in all cases where injury or poisoning caused or contributed to the death. All deaths resulting from injury or poisoning must be reported to the medical examiner or coroner, who will usually certify the cause of death. However, sometimes the medical examiner or coroner will not accept jurisdiction, and the attending physician will have to certify an accidental death. In these cases, when the manner of death is anything other than natural, the attending physician must complete items 38–44.

38. DATE OF INJURY (Mo/Day/Yr)

Enter the exact month, day, and year that the injury occurred. Enter the full name of the month—January, February, March, etc. Do not use a number or abbreviation to designate the month.

The date of injury may not necessarily be the same as the date of death. Estimates may be provided with “Approx” placed before the date.

39. TIME OF INJURY

Enter the exact time (hour and minute using a 24-hour clock) when the injury occurred, according to local time. If daylight saving time was the official time where death occurred, it should be used to record the time of death.

If the exact time of injury is unknown, the person who certifies the death should approximate the time. “Approx” should be placed before the time.

The time of injury may differ from the time of death.

24-hour clock	12-hour clock
0000 (medical facilities) 2400 (military facilities)	12:00 midnight
0100	1:00 a.m.
0200	2:00 a.m.
0300	3:00 a.m.
0400	4:00 a.m.
0500	5:00 a.m.
0600	6:00 a.m.
0700	7:00 a.m.
0800	8:00 a.m.
0900	9:00 a.m.
1000	10:00 a.m.
1100	11:00 a.m.
1200	12:00 noon
1300	1:00 p.m.
1400	2:00 p.m.
1500	3:00 p.m.
1600	4:00 p.m.
1700	5:00 p.m.
1800	6:00 p.m.
1900	7:00 p.m.
2000	8:00 p.m.
2100	9:00 p.m.
2200	10:00 p.m.
2300	11:00 p.m.

40. PLACE OF INJURY (e.g., Decedent’s home, construction site, restaurant, wooded area)

Enter the general type of place (restaurant, vacant lot, baseball field, construction site, office building, or decedent’s home, for example) where the injury occurred. **DO NOT** enter firm or organization names (enter “factory,” **not** “Standard Manufacturing, Inc.”).

41. INJURY AT WORK?

41. INJURY AT WORK?
☐ Yes ☐ No

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Complete this item if anything other than natural disease is mentioned in Part I or Part II of the medical certification (item 32), including homicides, suicides, and accidents, or if anything other than “Natural” is selected for manner of death (item 37). This includes all motor vehicle deaths. The item must be completed for decedents aged 14 years and over and may be completed for those under age 14 years, if warranted.

Select “Yes” if the injury occurred at work. Otherwise, select “No.” An injury may occur at work regardless of whether the injury occurred in the course of the decedent’s “usual” occupation.

Examples of injury at work:

- Injury while working or in vocational training on job premises
- Injury while on break or at lunch or in parking lot on job premises
- Injury while working for pay or compensation, including at home
- Injury while working as a volunteer law enforcement official
- Injury while traveling on business, including to or from business contacts

Examples of injury not at work:

- Injury while engaged in personal recreational activity on job premises
- Injury while a visitor (not on official work business) to job premises
- Homemaker working at homemaking activities
- Student in school
- Working for self for no profit (mowing yard, repairing own roof, hobby)
- Commuting to or from work

These guidelines were developed jointly by the National Association for Public Health Statistics and Information Systems, the National Institute of Occupational Safety and Health, NCHS, and the National Center for Environmental Health and Injury Control. For questions, contact the state’s vital records or statistics office.

42. LOCATION OF INJURY

Enter the complete address where the injury took place, including ZIP code. Complete as many of the items as known.

43. DESCRIBE HOW INJURY OCCURRED

Enter, in narrative form, a brief but specific and clear description of how the injury occurred. Explain the circumstances or cause of the injury, such as “fell off ladder while painting house,” “driver of car ran off roadway,” or “passenger in car in car–truck collision.” Specify **type of gun** (handgun, hunting rifle) or **type of vehicle** (car, bulldozer, train) when relevant to the circumstances. Indicate if more than one vehicle was involved and, if so, the type of vehicle the decedent was in. For motor vehicle accidents, indicate whether the decedent was a driver, passenger, or pedestrian.

If known, indicate what activity the decedent was engaged in when the injury occurred (playing a sport, working for income, hanging out at a bar).

In cases of accidental death, items 38–43 are used to justify the payment of double indemnity on life insurance policies. They are also needed for a more accurate determination of causes of death. Information from these items forms the basis of statistical studies of occupational injuries.

44. IF TRANSPORTATION INJURY, SPECIFY

44. IF TRANSPORTATION INJURY, SPECIFY:
☐ Driver/Operator
☐ Passenger
☐ Pedestrian
☐ Other (Specify):

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Specify the role of the decedent (for example, driver, passenger) in the transportation accident. “Driver/Operator” and “Passenger” should also be designated for modes other than motor vehicles, including bicycles. “Other” applies to people using other modes of transportation, such as watercraft, aircraft, or animal, and people who are on the outside of vehicles (for example, surfers), but are not passengers or drivers.

These details will help assign deaths to categories that may be used to assess trends and effectiveness of safety programs.

45–49. CERTIFIER

45. Certifier (Check only one)

45. CERTIFIER (Check only one):

- ☐ Certifying Physician—To the best of my knowledge, death occurred due to the cause(s) and manner stated.
- ☐ Pronouncing & Certifying Physician—To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner stated.
- ☐ Medical Examiner/Coroner—On the basis of examination and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner stated.

NOTE: This figure represents a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

The certifying physician is the person who determines the cause of death (item 32). This option should be selected only in cases when the person who completed the medical certification of cause of death is not the person who pronounced death (items 24 and 25). The certifying physician is responsible for completing items 32–49.

“Pronouncing & Certifying Physician” should be selected when the same person is responsible for completing items 24–49 (when the same physician has both pronounced death and certified the cause of death). If this option is selected, items 26–28 should be left blank.

“Medical Examiner/Coroner” should be selected when an investigation is required by law or regulation. The medical examiner or coroner is then responsible for completing items 24–46.

If the attending physician is available to certify the fact of death, items 26–28 should not be completed; the attending physician should complete items 24, 25, 29–37, and 45–49 as both the pronouncing and certifying physician.

The two-physician certifier concept allows a physician to certify to only the fact and time of death so the body can be released to the funeral director. The attending physician should complete the cause-of-death section. This certification method should result in improved data on cause of death because the physician with the most knowledge about the case completes the cause-of-death section.

The physician who certifies to the cause of death in item 32 signs the certificate in permanent black ink. Rubber stamps or facsimile signatures are not permitted. The degree or title of the physician should also be indicated. States with an electronic death certificate may allow electronic authentication.

46. NAME, ADDRESS, AND ZIP CODE OF PERSON COMPLETING CAUSE OF DEATH (Item 32)

Type or print the full name and address of the person whose signature or authentication appears in item 45.

This information is used by the state's office of vital records or statistics for querying the certifier when a question about cause of death arises.

47. TITLE OF CERTIFIER

Enter the title of the person who signs or authenticates the certificate in item 45.

48. LICENSE NUMBER

Enter the state license number of the physician who signs or authenticates the certificate in item 45.

This number assists in states' quality control programs when the certifier needs to be contacted for additional information concerning the death.

49. DATE CERTIFIED (Mo/Day/Yr)

Enter the exact month, day, and year that the certifier signed the certificate.

Enter the full name of the month—January, February, March, etc. Do not use a number or an abbreviation to designate the month.

These items have legal value in attesting that the medical certification was completed and signed within the time limit required by law.

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Appendix I. U.S. Standard Certificate of Death

		U.S. STANDARD CERTIFICATE OF DEATH										
		LOCAL FILE NO.					STATE FILE NO.					
NAME OF DECEDENT For use by physician or institution	To Be Completed/ Verified By: FUNERAL DIRECTOR:	1. DECEDENT'S LEGAL NAME (Include AKA's if any) (First, Middle, Last)					2. SEX		3. SOCIAL SECURITY NUMBER			
		4a. AGE-Last Birthday (Years)		4b. UNDER 1 YEAR		4c. UNDER 1 DAY		5. DATE OF BIRTH (Mo/Day/Yr)		6. BIRTHPLACE (City and State or Foreign Country)		
		7a. RESIDENCE-STATE		7b. COUNTY			7c. CITY OR TOWN					
		7d. STREET AND NUMBER			7e. APT. NO.		7f. ZIP CODE		7g. INSIDE CITY LIMITS? ☐ Yes ☐ No			
		8. EVER IN US ARMED FORCES? ☐ Yes ☐ No		9. MARITAL STATUS AT TIME OF DEATH ☐ Married ☐ Married, but separated ☐ Widowed ☐ Divorced ☐ Never Married ☐ Unknown			10. SURVIVING SPOUSE'S NAME (If wife, give name prior to first marriage)					
		11. FATHER'S NAME (First, Middle, Last)					12. MOTHER'S NAME PRIOR TO FIRST MARRIAGE (First, Middle, Last)					
		13a. INFORMANT'S NAME		13b. RELATIONSHIP TO DECEDENT			13c. MAILING ADDRESS (Street and Number, City, State, Zip Code)					
		14. PLACE OF DEATH (Check only one: see instructions)										
		IF DEATH OCCURRED IN A HOSPITAL: ☐ Inpatient ☐ Emergency Room/Outpatient ☐ Dead on Arrival					IF DEATH OCCURRED SOMEWHERE OTHER THAN A HOSPITAL: ☐ Hospice facility ☐ Nursing home/Long term care facility ☐ Decedent's home ☐ Other (Specify):					
		15. FACILITY NAME (If not institution, give street & number)					16. CITY OR TOWN, STATE, AND ZIP CODE			17. COUNTY OF DEATH		
NAME OF DECEDENT For use by physician or institution	To Be Completed By: MEDICAL CERTIFIER	18. METHOD OF DISPOSITION: ☐ Burial ☐ Cremation ☐ Donation ☐ Entombment ☐ Removal from State ☐ Other (Specify):		19. PLACE OF DISPOSITION (Name of cemetery, crematory, other place)								
		20. LOCATION-CITY, TOWN, AND STATE			21. NAME AND COMPLETE ADDRESS OF FUNERAL FACILITY							
		22. SIGNATURE OF FUNERAL SERVICE LICENSEE OR OTHER AGENT						23. LICENSE NUMBER (Of licensee)				
		ITEMS 24-28 MUST BE COMPLETED BY PERSON WHO PRONOUNCES OR CERTIFIES DEATH					24. DATE PRONOUNCED DEAD (Mo/Day/Yr)		25. TIME PRONOUNCED DEAD			
		26. SIGNATURE OF PERSON PRONOUNCING DEATH (Only when applicable)			27. LICENSE NUMBER			28. DATE SIGNED (Mo/Day/Yr)				
		29. ACTUAL OR PRESUMED DATE OF DEATH (Mo/Day/Yr) (Spell Month)			30. ACTUAL OR PRESUMED TIME OF DEATH			31. WAS MEDICAL EXAMINER OR CORONER CONTACTED? ☐ Yes ☐ No				
		CAUSE OF DEATH (See instructions and examples)								Approximate interval: Onset to death		
		32. PART I. Enter the chain of events--diseases, injuries, or complications--that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines if necessary. IMMEDIATE CAUSE (Final disease or condition -----> resulting in death) Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST										
		PART II. Enter other significant conditions contributing to death but not resulting in the underlying cause given in PART I						33. WAS AN AUTOPSY PERFORMED? ☐ Yes ☐ No				
		34. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH? ☐ Yes ☐ No										
NAME OF DECEDENT For use by physician or institution	To Be Completed By: FUNERAL DIRECTOR	35. DID TOBACCO USE CONTRIBUTE TO DEATH? ☐ Yes ☐ Probably ☐ No ☐ Unknown		36. IF FEMALE: ☐ Not pregnant within past year ☐ Pregnant at time of death ☐ Not pregnant, but pregnant within 42 days of death ☐ Not pregnant, but pregnant 43 days to 1 year before death ☐ Unknown if pregnant within the past year			37. MANNER OF DEATH ☐ Natural ☐ Homicide ☐ Accident ☐ Pending Investigation ☐ Suicide ☐ Could not be determined					
		38. DATE OF INJURY (Mo/Day/Yr) (Spell Month)		39. TIME OF INJURY		40. PLACE OF INJURY (e.g., Decedent's home; construction site; restaurant; wooded area)			41. INJURY AT WORK? ☐ Yes ☐ No			
		42. LOCATION OF INJURY: State: _____ City or Town: _____ Street & Number: _____ Apartment No.: _____ Zip Code: _____							44. IF TRANSPORTATION INJURY, SPECIFY: ☐ Driver/Operator ☐ Passenger ☐ Pedestrian ☐ Other (Specify)			
		43. DESCRIBE HOW INJURY OCCURRED:										
		45. CERTIFIER (Check only one): ☐ Certifying physician-To the best of my knowledge, death occurred due to the cause(s) and manner stated. ☐ Pronouncing & Certifying physician-To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner stated. ☐ Medical Examiner/Coroner-On the basis of examination, and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner stated. Signature of certifier: _____										
		46. NAME, ADDRESS, AND ZIP CODE OF PERSON COMPLETING CAUSE OF DEATH (Item 32)										
		47. TITLE OF CERTIFIER		48. LICENSE NUMBER		49. DATE CERTIFIED (Mo/Day/Yr)			50. FOR REGISTRAR ONLY- DATE FILED (Mo/Day/Yr)			
		51. DECEDENT'S EDUCATION-Check the box that best describes the highest degree or level of school completed at the time of death. ☐ 8th grade or less ☐ 9th - 12th grade; no diploma ☐ High school graduate or GED completed ☐ Some college credit, but no degree ☐ Associate degree (e.g., AA, AS) ☐ Bachelor's degree (e.g., BA, AB, BS) ☐ Master's degree (e.g., MA, MS, MEd, MEd, MSW, MBA) ☐ Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)		52. DECEDENT OF HISPANIC ORIGIN? Check the box that best describes whether the decedent is Spanish/Hispanic/Latino. Check the "No" box if decedent is not Spanish/Hispanic/Latino. ☐ No, not Spanish/Hispanic/Latino ☐ Yes, Mexican, Mexican American, Chicano ☐ Yes, Puerto Rican ☐ Yes, Cuban ☐ Yes, other Spanish/Hispanic/Latino (Specify) _____			53. DECEDENT'S RACE (Check one or more races to indicate what the decedent considered himself or herself to be) ☐ White ☐ Black or African American ☐ American Indian or Alaska Native (Name of the enrolled or principal tribe) _____ ☐ Asian Indian ☐ Chinese ☐ Filipino ☐ Japanese ☐ Korean ☐ Vietnamese ☐ Other Asian (Specify) _____ ☐ Native Hawaiian ☐ Guamanian or Chamorro ☐ Samoan ☐ Other Pacific Islander (Specify) _____ ☐ Other (Specify) _____					
		54. DECEDENT'S USUAL OCCUPATION (Indicate type of work done during most of working life. DO NOT USE RETIRED).										
		55. KIND OF BUSINESS/INDUSTRY										

Electronic Death Registration System

Cause-of-death section in a typical electronic death registration system, United States

CAUSE OF DEATH

32. **Part I.** Enter the chain of events—diseases, injuries, or complications—that directly caused the death.
Do not enter terminal events such as cardiac arrest or respiratory arrest. Do not use abbreviations.

Approximate interval
between onset and death:

Immediate Cause
(final disease or condition
resulting in death)

a.

Due to (or as a consequence of):

b.

Due to (or as a consequence of):

c.

Due to (or as a consequence of):

d.

Sequentially list conditions,
if any, leading to the cause
listed on line a. Enter the
Underlying Cause (disease or
injury that initiated the events
resulting in death) last.

NOTE: This figure represents a cause-of-death section in a typical electronic death registration system based on the 2003 U.S. Standard Certificate of Death.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

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Appendix II. Vital Statistics Registration System in the United States

The registration of births, deaths, fetal deaths, and other vital events in the United States is a state and local function. The civil laws of every state provide for a continuous, permanent, and compulsory vital registration system. Each system depends largely upon the efforts of the physicians, hospital personnel, funeral directors, coroners, and medical examiners in preparing or certifying information needed to complete the original records.

Most states are divided geographically into local registration districts or units to collect vital records. A district may be a township, village, town, city, county, or other geographic area or a combination of two or more of these areas. In some states, however, the law requires that records of birth, death, or fetal death be sent directly from the reporting source (hospital, physician, or funeral director) to the state vital records or statistics office. In this system, functions normally performed by a local registration official are assumed by the staff members of the state office.

In states with a local registrar system, the local registrar collects the records of events occurring in their area and transmits them to the state vital records or statistics office. The local registrar is required to ensure that a complete certificate is submitted for each event occurring in that district. In many states, this official also has the duty of issuing burial-transit permits to authorize the disposition of dead human bodies. In many states, this official is also required to keep a file of all events occurring within their district and, if authorized by state law and subject to the restrictions on issuing copies as specified by the law, may be permitted to issue copies of these records.

The state's vital records or statistics office inspects each record for timeliness, completeness, and accuracy of information; queries for missing or inconsistent information; numbers the records; prepares indexes; processes the records; and stores the documents for permanent reference and safekeeping. Statistical information from the records is tabulated for use by state and local health departments, other governmental agencies, and various private and voluntary organizations. The data are used to evaluate health problems and to plan programs and services for the public. An important function of the state's office is to issue certified copies of the certificates to people who need them and to verify the facts of birth and death for agencies requiring legal evidence of such facts.

The Centers for Disease Control and Prevention's National Center for Health Statistics has the authority to administer the vital statistics functions at the national level (3). Electronic data files derived from individual records registered in state offices or, in a few cases, copies of the individual records themselves, are transmitted to the National Center for Health Statistics. From these data, quarterly, annual, and special statistical reports are prepared for the United States as a whole and for component parts—cities, counties, states, and regions—by various characteristics such as sex, race and ethnicity, and cause of death. These statistics are essential in the fields of social welfare, public health, and

demography. They are also used for various administrative purposes, in both business and government. The National Center for Health Statistics serves as a focal point, exercising leadership in establishing uniform practices through model laws, standard certificate forms, handbooks, and other instructional materials for the continued improvement of the vital statistics system in the United States.