DEATH REPORTING

The Documentation Process and Related Public Health Issues

Introduction

Death reporting is an important aspect of public health, providing key information used to inform public health policies. Accurate reporting of the cause of death, along with underlying factors contributing to death, is an integral part of our public health infrastructure. Data from death certificates provide important information that may underscore health disparities, help to prioritize government funding, and improve public health responses to infectious disease outbreaks like the COVID-19 pandemic.[1] This explainer reviews the process for documenting death, including the role of cause-of-death certifiers, the importance of the death certificate, the role of state and federal agencies in collecting and maintaining death data, and the importance of death reporting in the public health response to the COVID-19 pandemic and the nation's ongoing opioid crisis.

Process for Documenting Death

WHO IS RESPONSIBLE FOR REPORTING AND DOCUMENTING DEATHS?

When a person dies, the cause of death is determined by a cause-of-death certifier, which may be a physician, a medical examiner, or a coroner.[2] The certifier reports the cause of death on the death certificate, which is an official document issued by the government to capture the cause, location, and time of death, as well as other key personal information about a person who has died.

In determining the cause of death, certifiers must use their best medical judgement based on the available information. If there are circumstances in which a definitive cause of death cannot

be determined, certifiers may include terms like “probable” or “presumed” in the cause-of-death statement on the death certificate.[3]

Physicians typically certify deaths due to natural causes. The location of the expired individual is captured on the death certificate and may include a hospital, a long-term care facility, or a personal residence. Physicians certifying death rely upon a person’s medical history, medical records, laboratory tests, autopsy reports, and other sources of information to certify the cause of death.[4] If the physician who has pronounced death does not have access to the patient’s medical history, the physician can ask the deceased individual’s regular physician to complete the cause of death section and sign the death certificate.

Medical examiners and coroners typically certify deaths that are attributed to injuries or poisonings, occur under suspicious circumstances, or occur suddenly and/or are unattended. These types of deaths may require further investigation by law enforcement and the medical examiner or coroner.[5]

In Arkansas, death investigation occurs at the county level, with a county coroner overseeing the process.[6] Arkansas coroners are elected by county residents to a four-year term. To become a candidate for county coroner, an individual must be an Arkansas resident; reside in the county to be represented; be at least 18 years old; be registered to vote; have never been convicted of embezzlement of public money, bribery, forgery, or any other infamous crime; and not be appointed to or elected to any other civil office.[7] Arkansas coroners are not required to have any medical knowledge or official certification to run for election.

Once elected, coroners are not required under state law to receive training or certification. However, deputy coroners, who are hired to work alongside county coroners, are required to receive national or state certification.[8] Coroners do not perform autopsies, which are the responsibility of the State Medical Examiner. However, coroners may refer a case to the state medical examiner for an autopsy. Firefighters, police officers, and other eligible public safety officers who died in the line of duty are required under state law to be referred to the state medical examiner, who may perform an autopsy. While other types of deaths are not specified in statute, investigation by the coroner or other law enforcement authorities may yield findings that warrant referral for an autopsy.

The Arkansas state medical examiner and associate medical examiners are required to be physicians who have been licensed or who are eligible to practice medicine in Arkansas. Medical examiners in Arkansas are also required to have postgraduate training in human pathology and at least one year of experience in medical-legal practice.[9] The state medical examiner's office is housed within the Arkansas State Crime Laboratory, a division of the state Department of Public Safety. County coroners, the Arkansas State Police, and other judicial and law enforcement officers refer cases to the state medical examiner. These are typically cases of sudden and unexpected deaths due to trauma and natural disease, which may include suicides, industrial or motor vehicle accidents, or any cases where homicide is suspected.[10]

THE DEATH CERTIFICATE AND DOCUMENTATION PROCESS

States must comply with the U.S. Standard Certificate of Death, which is issued by the Centers for Disease and Control and Prevention's (CDC) National Center for Healthcare Statistics (NCHS).[i] States register all death certificates and send the death certificates to the NCHS, which uses the data to create official death statistics.[11] Death certificates include a number of important data elements, including demographic and other personal information, but the most critical component reported is the cause of death. The CDC and state departments of health publish guidance for completing the death certificate.[12]

The cause-of-death portion of the death certificate includes two key sections: Part I and Part II. Part I is the sequence of conditions or events leading directly to death and includes four lines, (a), (b), (c), and (d), on which the cause-of-death certifier reports the sequence of medical conditions leading to the person's death.[13]

The first component of the Part I, line (a), represents the immediate cause of death, which is the disease or condition that directly preceded death.[14] As defined by the Arkansas Department of Health (ADH), the immediate cause of death is "the final disease or condition that resulted directly in death," and "chronologically, it is the last medical condition to occur." The second component of Part I, lines (b) and (c), includes the intermediate cause(s) of death, defined as "the conditions that link the immediate cause of death to the underlying cause."[15] Intermediate causes should be reported in a logical sequence by time and etiology.[16] The last component of

[i] A copy of the U.S. Standard Certificate of Death is available on the Centers for Disease Control and Prevention website for reference.

Part I, line (d), is the underlying cause of death, defined as "the disease or injury that started the sequence of medical events that led to the immediate cause of death," or the "circumstances of the accident or violence that produced the fatal injury."[17,18] Additionally, the approximate time interval between onset of the condition and death should be reported for each condition reported in Part I of the death certificate.[19] This is intended to identify how long the deceased had the condition.

Part II of the death certificate includes other significant conditions such as disease or injuries that contributed to death but did not resulting in the underlying cause of death as noted in Part I of the death certificate.[20] An example of the chronological order of reporting and a valid sequence for Part I and Part II of the death certificate is included in Figure 1 below.

FIGURE 1: EXAMPLE OF VALID SEQUENCE FOR REPORTING CAUSE OF DEATH IN PART I AND 2 OF DEATH CERTIFICATE (FROM ADH REPORTING GUIDANCE):

VALID SEQUENCE:

I	(a)	Acute myocardial infarction due to	(interval) 2 hours
	(b)	Ischemic heart disease due to	several months
	(c)	Atherosclerotic coronary heart disease	over 20 years
II	(Contributing causes) Diabetes and Alzheimer's dementia		

In this example, the sequence (myocardial infarction due to ischemic heart disease; ischemic heart disease due to atherosclerotic coronary disease) is medically possible. The intervals are also possible: "two hours" is less than "several months"; "several months" is less than 20 years.

Manner of death is also reported on the death certificate. In this section, certifiers use their best judgment to determine whether the death was from natural causes or, if reported from injury, whether it was the result of an accident, homicide, or suicide.

Additionally, coroners and the state medical examiner can note that the manner of death "could not be determined" if, following an investigation, it remains unknown whether the injury resulted from accident, homicide, or suicide or, in some cases, if it cannot be determined whether the death was related to natural causes or an injury. If "pending investigation" is selected, this acts as a temporary statement from the coroner or state medical examiner until the investigation is completed and the manner of death can be determined.[21]

DEATH REPORTING DURING THE COVID-19 PANDEMIC

Since the first case of COVID-19 was reported in the U.S. in February 2020, the CDC has provided COVID-19-specific guidance to states and localities on how to report deaths attributed to the virus.[22] As is the case with chronic conditions and infectious disease outbreaks, accurately capturing information on the death certificate when COVID-19 is determined to be a cause of death is necessary to mount an appropriate public health response and conduct ongoing mortality surveillance efforts. Because studies have linked worse COVID-19 outcomes to those with chronic conditions such as obesity and diabetes, accurately capturing other conditions contributing to death in COVID-19 patients is critical in protecting high-risk populations.[23]

On Aug. 26, 2020, the CDC published provisional COVID-19 death counts based on death certificate data, noting that COVID-19 was the only cause of death in 6% of deaths involving the coronavirus. This information was wrongfully interpreted by some to mean that only 6% of COVID-19 deaths actually resulted from COVID-19, when COVID-19 was in actuality a contributing factor — at a minimum — in all deaths included in the report. Public health officials, including Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, sought to clarify, stating that the "point that the CDC was trying to make was that a certain percentage of [deaths] had nothing else but COVID."[24] It is not usual for death certificates to include multiple conditions contributing to death, since very few natural deaths are attributed to a singular condition. For example, people who are diabetic may ultimately succumb to kidney failure, but their diabetes was likely a contributing factor in their kidney disease progression.

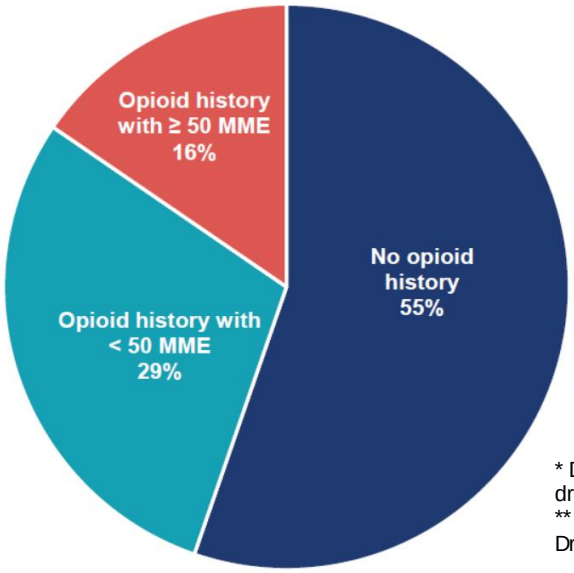
DEATH REPORTING AND THE OPIOID CRISIS

Issues in death reporting have also been raised in the context of the national opioid crisis, including a lack of standardized reporting of drug overdose deaths. A 2018 study by the University of Pittsburgh found that many states were likely underreporting overdose deaths because coroners and medical examiners were not specifying the drug contributing to the cause of death on death certificates. In Arkansas, the researchers estimated that approximately 25% of drug overdoses were coded as "unspecified."[25]

Additional state-specific analyses of death certificates have been conducted based on the expired people's history of opioid use. A 2019 Arkansas Center for Health Improvement analysis of death certificates in 11 counties found that 45% of deaths not caused by cancer, trauma, or a known drug-related cause were among people who had a history of opioid use in the previous 12 months (Figure 2). Sixteen percent of these deaths were among people who had received a prescription of 50 morphine milligram equivalents (MME) or more per day.

The CDC has sought to improve data on drug overdose deaths, including improving the interoperability of state electronic death registration systems.[26] Opportunities to standardize cause-of-death reporting are also being pursued at the state and federal levels to improve the quality of drug overdose data.[27]

FIGURE 2: PERCENTAGE OF DEATHS FROM EXAMINED CAUSES* BY OPIOID USE HISTORY FOR AGES 12–50 (N=123) IN SELECT COUNTIES,** 2017



* Does not include causes of death by cancer, trauma, or know n drug-related cause.
** Arkansas, Ashley, Bradley, Chicot, Columbia, Dallas, Desha, Drew , Jefferson, Phillips, and Union counties.

OTHER USES OF DEATH CERTIFCATES

Aside from their critical role in public health, death certificates serve as important legal documents required to manage the affairs of the deceased. A death certificate is used to notify state and federal agencies of a person's death, which is necessary to ensure that payments and benefits are no longer provided or that benefits (such as pensions) are able to be claimed by the deceased's spouse.

A death certificate is also needed to resolve the deceased's estate, including closing financial accounts and settling any outstanding debts. Additionally, death certificates are required for beneficiaries wanting to file a life insurance claim.

CONCLUSION

The process for reporting deaths is a critical aspect of our public health infrastructure, providing important data to direct policies and interventions. While states are required to comply with a standardized death certificate form, differences among states with respect to cause-of-death certifiers' credentials and training may impact the quality of death certificate data. Reporting the cause of death necessitates careful evaluation of an individual's medical history and other relevant information to ensure that all contributing conditions are reflected. As the country continues to navigate the unique challenges posed by the COVID-19 pandemic, death data will continue to inform public health experts on the mortality of the virus along and provide a better understanding of the role of comorbidities in those who succumb to COVID-19.

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