



Collecting cause-of-death data: Key information for claim professionals

It is difficult to overestimate the importance of an insurance company's need to understand the facts and circumstances surrounding an insured individual's death. These facts, including the manner and cause of death, along with other data about the decedent, are critical to an insurance company's ability to measure mortality rates. Mortality rates are essential for product development, pricing, risk selection and analysis, and developing underwriting requirements.

The primary responsibility for collecting death claim data typically belongs to the claim department. Despite the importance of death claim data and the claim team's role as its chief accumulator, the claim staff often receives little, if any, training or instruction about collecting the data in a manner that ensures its utility and reliability, as well as the statistics derived from it. While claim professionals certainly understand the facts and circumstances of an insured's death role in determining the scope of a death claim investigation, they may not fully appreciate the impact of the data they collect.

The good news is, collecting crucial cause-of-death information in a complete, accurate, and consistent manner is not difficult with the proper knowledge. This article will provide claim professionals with key factors that will help facilitate in the collection of this type of data.

Why death claim data is collected

Insurance companies could obtain mortality statistics from existing sources, such as the Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), and many other federal, state, and world organizations. In fact, insurance companies do utilize data for the general population from many of these external, publicly available sources as part of their analysis and as a basis of comparison. However, each insurance company must know and understand the mortality experience specific to their own internal blocks of business to ensure their business practices and decisions are effective and

the operating results are as projected. Any unexpected result requires additional scrutiny, explanation and potentially corrective action.

CASE STUDY #1

ABC Life Insurance Company's **Biometrics Unit** determined that its mortality experience, based on data from external sources and its own data collected by its **Claim Department**, indicates the life expectancy for individuals with a previously uninsurable medical condition (e.g., a certain form of cancer), has significantly increased during the past thirty years.

With this information, ABC Life's **product development** team collaborated with its **pricing actuaries** to design and determine premiums for a new product targeted towards a specific population with this medical condition.

After the product is rolled out, the **Claim Department** reports an anecdotal observation of a high number of early duration claims due to a specific underlying cause of death for the new product. The cause of death is not related to the previously uninsurable medical condition.

ABC Life's **actuaries** receive the report, analyze the claim data, and confirm the claim team's observations for policies with a specific range of face amounts. **Underwriting** reviews the underwriting requirements for applications with the identified face amounts and recognizes a need to expand testing (e.g., fluid) for future policy applications.

Pricing **actuaries** monitor the ongoing mortality experience of these policies to determine if the expanded underwriting tests mitigate the risk or if premiums should be increased for the higher than expected losses.

*The information in this case study is fictional and any resemblance to any actual entity, individual, policy, claim or other real life events or document is purely coincidental.

Data must be reliable

Data reliability is integral to ensure the information insurance companies collect regarding their death claim experience is meaningful. Data reliability means that it is complete, accurate, and consistent. While most data related to an insured's death is straightforward and simple for an insurance company to collect (e.g., age, gender, date of death, date of birth) precisely as provided on a death

certificate or other document, collecting the manner of death and cause of death is often a bit more complex. Without reliable data, subsequent inferences drawn from it have a significant potential for error and therefore, its meaningfulness may be compromised or completely negated. Some studies indicate that even among experienced medical examiners, cause and manner of death are not determined in a consistent fashion.

STUDY RESULTS

In one recent survey in which 198 experienced and trained medical examiners determined the manner of death for 23 scenarios, there was more than 90 percent agreement for only four scenarios, 13 scenarios had between 60 and 90 percent agreement, and the remaining six scenarios had less than 60 percent agreement.¹

Understand the terminology of death claims

It is impracticable to expect claim examiners to gather reliable information without a clear-cut understanding of the terminology used to illustrate the circumstances surrounding a death. It is important to define these terms very specifically in order to ensure each individual collecting and analyzing the data has an identical understanding. This consistency and synchronization assists with avoiding variations in interpretations. The following are key terms that apply to death claims:

- **Manner of death** is the context or circumstances that surround the death. Examples include accident, suicide, homicide, and natural causes. Generally, physicians certify natural deaths, while the coroner or medical examiner make the final determination for suicide, homicide, and accidents.
- **Immediate cause of death** is the proximate, most recently developed, final diagnostic entity causing the death. This should be a specific etiology (e.g. renal failure, hypoxemia), and not a general concept that can have multiple etiologies (i.e., old age, cardiac arrest, organ system failure).
- **Underlying cause of death** is the fundamental, original, foundational diagnosis or condition from which the remainder of the etiologic sequence springs; it is the diagnosis of the longest duration in the chain of events leading directly to death. The description must be specific enough to make clear why the intermediate (if any) and immediate cause of death developed (e.g. HIV infection, coronary artery atherosclerosis, metastatic breast cancer).
- **Other significant conditions** are conditions the deceased had, that did not contribute to the immediate or underlying cause of death.

Define the operational terms

Even when examiners understand the terminology used to describe the circumstances of a death, it is imperative that examiners also understand precisely what they are expected to collect.

“If you change the rule for counting people, you come up with a new number.”

—W. Edwards Deming, *The New Economics*

While it may be ideal to collect both the immediate and underlying causes of death, most existing claim production systems were designed to collect only one such field; thus, a key executive decision is, which cause of death should be collected for mortality studies? Implicit in the aforementioned terminology, there is a material difference between an “immediate cause of death” and “underlying cause of death.” This is an important distinction, because in order to interpret what the data means, you have to understand what the data actually is.

If the claim department is collecting immediate cause of death, while users of the data believe the underlying cause of death is being collected, then it is very likely the resultant analysis and the decisions stemming from it, will be inconsistent with the actual data collected. While good data will not guarantee good decisions, bad data will virtually assure bad decisions. As the saying goes, “Garbage in, garbage out.” Our actuaries indicate that the underlying cause of death is usually the most important one for analysis for insurance purposes.

Accordingly, it is fundamentally important for the claim department to communicate with other departments and individuals who utilize death claim data to ensure everyone understands the type of data being collected. All parties must be aligned to ensure the resulting data is useful, consistent, and credible.

Death certificates

The chief source of information related to an individual’s death is the death certificate. A death certificate is an official document recording the facts of a death. It is a primary source of data for mortality statistics, as well as an official document that can be used by the family to obtain a burial permit, settle the decedent’s estate, or as proof of loss for a life insurance claim.

The death certificate provides a cornucopia of information about the decedent, including the deceased’s name, gender, date of birth, parent’s names, spouse’s name, and the informant’s name. Yet, perhaps the most indispensable information a death certificate provides is the details surrounding the circumstances and cause of death.

The manner and cause of death on death certificates are most commonly completed by the attending physician who treated the patient for the disease, injury, or illness that resulted in death. If a different physician, who is not familiar with the patient's case history, pronounced the patient as legally deceased, the attending physician will act as the certifying physician since the attending physician is usually more familiar with the decedent's medical history. A medical examiner or coroner will complete the cause-of-death section for cases that are investigated.

DID YOU KNOW?

The Centers for Disease Control and Prevention provides specific instructions for completing the cause-of-death section of a death certificate on its website (<http://www.cdc.gov/>):

"The cause-of-death section consists of two parts:

Part I is for reporting a chain of events leading directly to death, with the **immediate cause of death** (the final disease, injury, or complication directly causing death) **on Line A** and the **underlying cause of death** (the disease or injury that initiated the chain of morbid events that led directly and inevitably to death) **on the lowest used line**.

Part II is for reporting all other significant diseases, conditions, or injuries that contributed to death but **which did not** result in the underlying cause of death given in **Part I**. **The cause of death information should be YOUR best medical OPINION**. A condition can be listed as "probable" even if it has not been definitively diagnosed."²

Physicians receive little training regarding the completion of death certificates and they generally do not consider it a high priority; thus, errors are not uncommon.

The majority of errors on death certificates arise from causes of death being indicated in an incorrect or illogical order, providing multiple competing immediate or underlying causes of death, illogical relationships between the cause and manner of death, or a failure to identify the true underlying cause of death.

Determining the manner and cause of death

As indicated above, the chief source of information related to an individual's death is the death certificate. For the vast majority of death claims, an examiner with the information in this article, will be able to determine the correct manner and cause of death from the death certificate (including an incorrectly completed one).

CASE STUDY #2

Manner of death: Natural

Cause-of-death: Ventricular fibrillation, due to acute myocardial infarction, due to coronary artery thrombosis, as a consequence of atherosclerotic coronary artery disease.

Analysis: This information can be used as provided on the death certificate as it provides a clear immediate cause of death (ventricular fibrillation) and a plausible chain of causality leading to the underlying cause of death (coronary artery disease).

However, even the most experienced and knowledgeable examiners will occasionally be flummoxed. For these complex cases, the examiner has several alternatives:

- Review other available information. This may include a claim form, autopsy report, accident report, medical records, or even a beneficiary interview.
- Seek guidance from a more experienced claim professional, underwriting or even the medical director.
- As a last resort, make the best decision possible with the available information.

CASE STUDY #3

Manner of death: Natural

Cause of death: Pneumonia, due to hip fracture, due to chronic obstructive pulmonary disease, as a consequence of diabetes mellitus, and hypertension.

Analysis: The information provided on this death certificate is not logical as Pneumonia does not result from a Hip Fracture (which would be accidental). Absent an autopsy or other documents, it appears the immediate cause of death is Pneumonia with the underlying cause being COPD. The hip fracture, diabetes, and hypertension are likely other significant conditions that did not contribute to the immediate or underlying cause of death.

Devise quality checks and training to maintain reliability and accuracy

Quality assurance reviews of claims should include verification that death claim data is being properly collected. If the quality assurance reviews determine the data being collected is not consistently meeting operational terms, immediate feedback should be provided to the claims team and individuals, as necessary.

In addition, it is imperative that the claims team receive periodic refresher training. It is suggested that management utilize death certificates where the manner or cause of death was ambiguous, as illustrated in the following case studies, for training purposes.

CASE STUDY #4

Manner of Death: Natural

6 SIGNATURE OF PERSON PRONOUNCING DEATH (Only when applicable)		27 LICENSE NUMBER	28 DATE SIGNED (Mo/Day/Yr)
9 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? <input type="checkbox"/> Yes <input type="checkbox"/> No
CAUSE OF DEATH (See instructions and examples) 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.			Approximate interval: Onset to death
IMMEDIATE CAUSE (Final disease or condition resulting in death) → a SEVERE SEPSIS 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 PNEUMONIA Due to (or as a consequence of)			
c PARKINSON'S DISEASE Due to (or as a consequence of)			
			Days 1 Month 5 years

Analysis: As in Case Study #1, the death certificate provides a clear immediate cause of death (Severe Sepsis) and a plausible chain of causality leading to the under cause of death (Parkinson's disease). This examples also illustrates the utility of the information regarding the "Approximate Interval, Onset to death." This information often is useful to evaluate whether or not the sequence of events is logical as presented on the death certificate. This information is also useful when evaluating contestable claims and determining materiality.

CASE STUDY #5

Manner of Death: Natural

CAUSE OF DEATH (See instructions and examples) 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.			Approximate interval: Onset to death
IMMEDIATE CAUSE (Final disease or condition resulting in death) → a Acute Respiratory Failure 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 Morbid Obesity, DM Type 1 Due to (or as a consequence of)			
c CHF Due to (or as a consequence of)			

Analysis: The sequence of events leading to death as indicated by this death certificate appears somewhat ambiguous. While it is certainly possible the sequence is accurately presented, morbid obesity and diabetes often predate the onset of congestive heart failure. Unfortunately, the interval from onset to death is not provided and provides no clues. This case study demonstrates one of the challenges with obtaining accurate death claim data. In cases like this, the claim examiner is required to make a decision about the immediate and underlying causes of death based on the available information (i.e. claim form, beneficiary interview, underwriting documents, or quick discussion with the medical director).

Summary

Death claim data, including the manner and cause of death of an insured individual is a key data element for life insurance companies. As the primary collectors of this data, it is essential that claims professionals understand its importance and how to collect it in a reliable manner.

Having a clear understanding of the information that is needed, and knowing the potential pitfalls to collecting the data they might encounter along the way, will result in more reliable data and, ultimately, more accurate analysis and decision-making.

References

- Goodin J, Hanzlick R. Mind your manners. Part II: general results from the National Association of Medical Examiners Manner of Death Questionnaire, 1995. *Am J Forensic Med Pathol.* 1997;18:224-7.
- http://www.cdc.gov/nchs/data/dvs/blue_form.pdf



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