Original Article

Death Certificate Completion Skills Of Hospital Physicians In A Developing Country

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Abstract

Objective: The purpose of this research is to identify problems that arise while producing death certificates in the tertiary care hospital setting and to propose ways to fix them in order to avoid any medicolegal complications later.

Methods: This retrospective observational study aimed to sample and audit the mortality status & quality of death certification in the medical intensive-care unit (ICU) of a tertiary care, thirdlargest hospital in Karachi, the Abbasi Shaheed hospital, for the period January 2018 to December 2018. Using a predetermined standard form, we gathered information from death certificates including demographics, administration, comorbidities, and causes of death. Their medical records were used to confirm the accuracy of this data. The death certificates were graded on a scale from zero to five, with a zero being assigned if no mistakes were found to a five if the wrong cause of death was listed or listed in the wrong order.

Results: Over the course of the study's 12-month duration, 283 death certificates were examined. Of the total 283, 140 were women and 143 were men. About a quarter of all certificates of death include no inaccuracy of any kind. Grade III errors (co-morbidities list was not stated) made up 64% of all the errors found in the audited certificates, while Grade IV errors (18%) stood second. At least one mistake was found in 138 certificates. Sixty-nine of the death certificates include at least two mistakes.

Conclusion: Death certificates prepared at a tertiary care hospital were found to include an extremely high mistake rate. Such mistakes could lead to medicolegal complications. Appropriate intervention(s) are urgently required to address this critical problem.

Keywords: Death certificate, errors, grading, missing information, medicolegal

Introduction

The Death Certificate (DC) is an official document that confirms the passing of a person. Both the attending physician and the deceased's heirs will find this medical-legal document useful for making insurance claims or staking claims on an estate [1]. It is also important medico-legally in cases of a suspicion of foul play & therefore unnatural deaths. In such cases, it is imperative that the bodies be sent for further scrutiny & autopsy.

In addition, DCs are crucial to the quality of mortality data, which are used extensively by health decision-makers and planners across the globe. In addition to being an essential part of the public health toolkit, DC is an integral part of data gathering for epidemiological investigations.

WHO estimates that of the 56 million fatalities that occur each year around the globe, 2/3 are not recorded. More than half of fatalities worldwide take place outside of healthcare facilities [2], and this is especially true in underdeveloped nations. Since fatalities outside of hospitals are seldom certified [3, 4], most medically certified deaths occur in hospitals. There is a medical section of the death certificate that the doctor is primarily responsible for filling up [5]. These death certification rules are readily accessible but are seldom followed in many countries. As a result, the DC is one of the least correctly filled-out forms. Several investigations revealed a significant prevalence of mistakes on death certificates. About 47% of the mistakes in DCs were due to missing, incomplete, or erroneous information, according to research by Hanzlick and Randy MD done in Atlanta [6]. Researcher Raje MG looked at both medical and non-medical mistakes in his research conducted in India. The research concluded that 99% of DCs were written improperly and 21% were written partially [7]. Haque et al. [8] discovered that 99 percent of DCs were incorrect in their Pakistani investigation. Omissions, poor handwriting, and abbreviations were among the more common types of mistakes; incorrect Immediate cause of death (ICOD) and Underlying cause of death (UCOD). listings were among the more serious types. There has been a lot of research done to try to figure out what elements influence DC statement correctness. There was no statistically significant improvement in DC mistake rates between cases with autopsies and those without, and between DCs signed by coroner and home personnel, as shown in research conducted in London [9]. Similar research in Australia found no statistically significant difference in major mistake rates between urban and rural regions or between academic medical centers and other facilities [10]. Furthermore, another research found that doctors' years in practice were not linked to more accurate death certification [11]. This study aims to identify challenges associated with creating death certificates in the tertiary care hospital and to provide solutions for addressing those challenges.

Methodology

After the ethical approval from the institutional review board, this retrospective observational study aimed to sample and audit the mortality status & quality of death certification of 283 death certificates in the medical intensive-care unit (ICU) of tertiary care, the third-largest hospital of Karachi, the Abbasi Shaheed hospital, for the period March, 2018 to December, 2018. When a death occurs, the cause of death is recorded by using a death certificate that follows WHO standards. From the death certificates, we obtained the following records:

(i) The demographics of the dead, including their ages, sexes, marital statuses, home addresses, birth dates, and deaths.

(ii) Any relevant administrative information, such as the patient's admission date, the location and time of death, the name and signature of the person filling out the death certificate, and whether an autopsy was done. The certifier's identity and signature were checked as well.

(iii) Clinical records detailing the etiology of mortality and associated morbidities.

Abstracted data from individual death certificates was compiled using a sanctioned standard form. Information was checked for accuracy by reviewing pertinent data from medical records. Two trained reviewers performed the first examination, and in the event of disagreement, a third investigator provided a separate opinion before a final consensus was achieved. To evaluate the precision and completeness of individual death certificates, we utilized a previously established error grading system (Table 1). It was decided to use a grading scale from 0 (the least severe) to 5 (the most severe) to indicate the degree of errors. If no mistakes could be found, a score of zero was given. Incomplete or erroneous patient details constituted an error grade IA, and a failure to validate (by medical records) that the signatory had visited the patient previous to death was an error degree 1B. Comorbid disorders were either partially or entirely left out of the medical records, which constituted errors of severity levels 2 and 3. Incorrectly identifying the immediate cause of death (the last sickness or condition that ultimately led to death) or omitting the mechanism(s) of death were also examples of Grade IV mistakes (or mode of dying). Grade V mistakes included missing or erroneous information about the underlying cause(s) of death (i.e., the sickness or injury that launched the chain of morbid events leading to

death). It was speculated that grade IV and grade V mistakes on a death certificate would drastically alter the original meaning. Table 1: An error-scoring system for death certificates

Grade 0	No errors
Grade IA	incomplete/inaccurate demographics
Grade IB	Whether the signatory attended the patient could not be confirmed
Grade II	Co-morbidities list incomplete
Grade III	Co-morbidities not listed
Grade IV	Inappropriate immediate cause of death or only a mechanism(s) of death
Grade V	Underlying cause(s) of death was incorrectly attributed

The discrepancies found in the death certificates were ranked from least to most severe across six categories (Grade 0 to Grade V). The results of this grading analysis were reported numerically and graphically. The frequencies and percentages of occurrences of categorical variables were determined. Both the chi-square and the t-test were used to compare the proportions and the means, respectively. Data were analyzed statistically using SPSS (version 26). In this case, a p-value of ≤ 0.05 was used to denote statistical significance.

Results

A total of 283 death certificates were audited in the 9-month period of this research. Out of 283 deaths, 140 were females and 143 were males. 28% of the death certificates have grade 0 errors in them (Table 2). The most common type of error in the audited certificates was Grade III (Co-morbidities list was not mentioned) 64%, followed by Grade IV (missing cause of death) 18%. About 138 certificates had at least 1 error (Table 3). 69 death certificates have 2 or more than 2 errors. The maximum error (64%) was a grade III error, followed by a grade 0 (28%). Grade II and Grade V were the least common type of error (3% and 4% respectively).

Table 2: Analysis of 283 death certificates for mistakes by severity level

Errors	**Number**	**Percent of cases**
Grade 0	80	28%
Grade IA	33	12%
Grade II	11	3%
Grade III	181	64%
Grade IV	50	18%
Grade V	14	4%

Table 3: Errors in the distribution of death certificates, ranked by frequency

Number of errors	**Number of death certificate**
One Error	138

Two Error	48
Three Error	17
Four Error	1
Total	204

Discussion

A person's health status may be gauged and public health initiatives can be tracked using information from their death certificate. Because of these, we can characterize general population trends. In addition, not having accurate information on mortality rates makes it harder to organize health-related activities, which in turn may lead to inaccurate evaluations of research and subpar healthcare judgments. Secondly, it is of importance to the immediate family of the deceased for legal purposes also, such as the resolution of inheritance issues & execution of wills, etc.

The process of dying is often misunderstood by doctors [12]. A death's etiology is unique and separate from the death itself. SAH, COPD, and MI are just a few instances when this is the case. On the other hand, the mechanism of death should include details on any comorbid illnesses, disorders, or injuries that contributed to the physiologic derangement or biochemical disturbance that ultimately led to death. Many types of arrhythmias, cardiac failure, renal failure, hypovolemic shock, and septic shock are all examples. One possible explanation for this misunderstanding is that medical treatment often focuses on addressing symptoms rather than underlying causes [12]. Since they lack etiologic specificity, mechanisms or modes of death should not be included on death certificates [12-16]. However, in routine clinical practice, determining the precise reason for death is not always possible. 18 percent of the instances in our tertiary care hospital had the incorrect death cause or mode of death listed. When drafting the causeof-death statement, Hanzlick suggested some guidelines for what to include and what to leave out [15]. There is still room for improvement, according to a recent study of WHO's online training tool for coders and certifiers [17]. This is especially true in terms of reporting the proper and full sequences from underlying causes through intervening causes to the proximate cause of death. Past reports from across the world have shown similar results. A sample of death certificates prepared at a tertiary care teaching hospital in Canada revealed that 31.9% of them had similar mistakes, as reported by Jordan and Bass [18] in 1993. Some 45% of death certificates were found to have inaccuracies by El-Nour et al. [19], whereas only 7% were found to have problems by a nationwide survey in Taiwan [20]. A full medical history would allow for a thorough examination of the death certificate and confirmation of its veracity. The ideal certifier would be the deceased's treating physician, as he or she would have the most up-to-date information on the decedent's health [21] and would be able to arrange that information in the most logical way for the death certificate. When determining the underlying cause of death, antecedent cause(s), and direct cause of death, most clinicians fail to consult the related diagnoses in the medical record. Lu et al. [20] found that on most death certificates, the certifying physician simply duplicated the diagnoses listed on the patient's admission or discharge into the cause of death section. There will be numerous illnesses mentioned without causal links if the certifying physician just duplicates the admission or discharge diagnoses to the cause-of-death section on the death certificate. The problems of making mistakes are not exclusive to emerging nations. More than half of all primary care physicians in the United Kingdom and the United States indicated they were not adequately taught on how to certify a death [22,23]; many said they had their first experience with a death certificate while managing a death event [24]. The failure to correctly identify the underlying, direct, and antecedent cause(s) of mortality [15] is a major contributor to these errors made by medical professionals. The duration of the underlying sickness that ultimately results in mortality is another potential factor contributing to these blunders. In contrast to sudden or undetected death, the cause of death listed on a death certificate is more likely to be correct if the individual died after a protracted, well-characterized illness. Because of this gap in knowledge, the cause of mortality is sometimes mischaracterized, leading to inaccurate illness statistics [24]. The criteria and interpretations of error vary from research to study, making it impossible to make a direct comparison between our

work and others. However, all this research, including our own, agrees that important mistakes include incorrectly identifying the cause or method of death, as well as failing to identify a plausible underlying cause of death. In the present tertiary care hospital research found that 69 certificates included many mistakes that, taken together, radically altered the meaning of the death certificate and might have serious consequences for public health. We often trust demographic data to be reliable and free of major inaccuracies. However, the present tertiary care hospital research indicated that 12% of death certificates included mistakes linked with erroneous or missing demographic information. [25] One study did find that there were inaccuracies in registering the place of residence on death certificates. Also, we discovered nearly half of all death certificates (49%) lacked evidence that the certifier had even visited the patient.

There are significant caveats to our research. As a first point, it uses a backward-looking approach to its layout. Second, an autopsy is often denied due to religious, cultural, or traditional taboos in Pakistan and other impoverished nations. Consequently, it is not always possible to reliably determine the cause of death based simply on a study of medical data, even when using several reviewers [26]. Lastly, this practice evaluation was conducted at a single institution and may not be applicable to other settings.

Conclusion

In conclusion, we discovered major flaws in the local procedures for certifying deaths. Death certification being an integral part of medicolegal proceedings, any flaw can undermine the judicial process. There is an urgent need for effective measures to boost the proficiency with which doctors fill out death certificates. Incorporating a pedagogical intervention into their learning would greatly enhance their performance. A workshop where participants may ask questions and get answers is more helpful than reading through a manual.

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