Journal of Forensic and Legal Medicine 24 (2014) 33–36

Contents lists available at ScienceDirect

Journal of Forensic and Legal Medicine

journal homepage: www.elsevier.com/locate/jflm

Original communication

Accuracy in certification of cause of death in a tertiary care hospital – A retrospective analysis

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ARTICLE INFO

Article history:
Received 25 November 2013
Received in revised form
8 January 2014
Accepted 20 March 2014
Available online 31 March 2014

Keywords:
Medical certification of cause of death
Mode of death
Inaccurate

ABSTRACT

Every physician is duty bound to issue a "Cause of Death" certificate in the unfortunate event death of his/her patient. Incomplete and inaccurate entry in these certificates poses difficulty in obtaining reliable information pertaining to causes of mortality, leads to faulty public health surveillance, and causes hindrance in research. This study intends to evaluate the completeness and accuracy of Medical Certification of Cause of Death in our Institute and to formulate strategy to improve the quality of reporting of cause of death. During the period from January 2012 to December 2012, a total of 151 certificates of cause of death were issued by the faculty members of various departments. Maximum number of death certificates were issued for patients in the extremes of the age <10 years ($n = 42$, 27.82%) and in >60 years ($n = 46$, 30.46%). The various inadequacies observed by us are as follows: 40 (26.49%) cases had inaccurate cause of death, interval between onset and terminal event was missing in 94 (62.25%) cases, in 68 (45.03%)cases the seal with registration number of the physician was not available on the certificate, incomplete antecedent & underlying cause of death was found in 35 (23.18%) & 84 (55.63%) cases, in 66 (43.71%) cases there was use of abbreviations and the handwriting was illegible in 79(52.32%) cases.

1. Introduction

Birth and death are the two most important events in the life of an individual. A person's existence commenced with birth and ceases with demise. A person has a legal existence between the recorded timings of birth and death.[1] A death certificate, or more appropriately a certificate for the registration of the medical cause of death is a document that enables the family of the deceased to register death. It also provides a measure of the relative contributions of different diseases to mortality which is vital for public health surveillance and for facilitating a wide range of research.[2] Reliable information on deaths and their causes are vital for decision-makers as they provide information on the current health situation and allow monitoring the trends of the overall burden of diseases. Both the magnitude and distribution of disease burden are crucial to formulate policies, enable resource allocation for better addressing the health needs, and monitor the impact of health interventions on health outcomes.[3] The data on the cause of death mentioned in the death certificates serve many purposes, such as assessment of the effectiveness of public health programs, providing a feedback for future policy and its implementation, improved health planning and management, and deciding the priorities of health and medical research programmes.[4] Accuracy in certifying the cause of death is desirable at many levels—for the office of Population and Census Studies to provide reliable information to health planners, for families in understanding their inherited risks, and for individual doctors in preparing their performance review data.[5] The Medical certification of cause of death [MCCD] scheme which is (basically) a part of International Statistical Classification of Diseases [ICD] and health related problems formulated by WHO is introduced to permit systematic recording, analysis, interpretation and comparison of morbidity and mortality data collected in different countries or areas at different times.[4] Still, death certification continues to be poorly performed despite different recommendations and increased education at undergraduate and post graduate levels. There are multitude of reasons for inaccuracies in certification which include diagnostic errors,

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http://dx.doi.org/10.1016/j.jflm.2014.03.006
1752-928X/

omissions, coding errors, death before completion of medical work up, unavailability of medical records, misunderstanding of certification process, and complexity of sorting out causal sequence that led to death when multiple diseases are involved.[6] The cause of death includes any disease or injury responsible to initiate a chain of events incompatible with life resulting in death of a person.[7]

This study intends to evaluate the completeness and accuracy of Medical Certification of Cause of Death in our institution and to suggest necessary corrective measures to improve the completeness and accuracy of filling of MCCD form with the goal to improve the overall quality of Medical Certification of Cause of death.

2. Materials and methods

This retrospective study was carried out in Kalinga Institute of Medical Sciences, a tertiary care teaching institute in Bhubaneswar. The case records of patients who had expired from January 2012 to December 2012 along with the attached death certificate were retrieved from the Medial Record Department (MRD). The standard format used for medical certification of cause of death for hospital in- patient deaths confirms to the rules made by the Indian Government. Form No. 4 (Fig. 1).[4]The data regarding the demographic profile of the patients, date of admission and death, duration between the onset of disease process and the terminal event, use of abbreviations and illegible writing in the certificates, and immediate, antecedent, and contributing causes of death were collected on a proforma. The data entry and analysis was done by using statistical package SPSS version 17. The final data is summarized into percentages and analyzed by cross tabulations for various variables.

3. Result

A total of 151 case records along with the attached death certificates were evaluated for this study. Maximum numbers of certificates were issued to patients in the extremes of ages. The age group of less than 10 years constituted 42 (27.82%) cases while 46 (30.46%) cases fell in the greater than 60 years age group (Table 1). In terms of sex distribution 60.26% of those who died were males and 39.74% were females. The preliminary component of the death certificate such as full name of the deceased was mentioned correctly in all the certificates. However, in four (2.65%) certificates, the gender of the patient was missing and in eight (5.30%), the age of the deceased was not mentioned. Interval between the onset and terminal event of various conditions was mentioned in 57 (37.75%) cases.

FORM NO. 4
(See Rule 7)
MEDICAL CERTIFICATION OF CAUSE OF DEATH
(Hospital in-patients. Not to be used for still births)
To be sent to Registrar along with Form No.2 (Death Report)

Name of the Hospital ..... I hereby certify that the person whose particulars are given below died in the hospital in Ward No ..... on ..... at ..... A.M./P.M.

NAME OF DECEASED				For use of Statistical Office
Sex	Age at Death			
	If 1 year or more, age in Years	If less than 1 year, age in Months	If less than one month, age in Days	If less than one day, age in Hours
1. Male 2. Female				

CAUSE OF DEATH

I Immediate cause State the disease, injury or complication which caused death, not the mode of dying such as heart failure, asthenia, etc.	(a) ..... Due to (or as a consequences of)	Interval between on set & death approx. .....
Antecedent cause Morbid conditions, if any, giving rise to the above Cause, stating underlying conditions last	(b) ..... Due to (or as a consequences of) (c)	.....
II Other significant conditions contributing to the death but not related to the disease or conditions causing it	....	

Manner of Death How did the injury occur ?

1. Natural 2. Accident 3. Suicide 4. Homicide
5. Pending investigation

If deceased was a female, was the death associated with pregnancy ? 1. Yes 2. No
If yes, was there a delivery ? 1. Yes 2. No

Name and signature of the Medical Attendant certifying the cause of death
Date of certification .....

SEE REVERSE FOR INSTRUCTIONS
(To be detached and handed over to the relative of the deceased)

Certified that Shri/Smt./Kum. ..... S/W/D of Shri .... R/O ..... Was admitted to this hospital on ..... and expired on .....

Doctor .....
(Medical Supdt. & Name of Hospital)

Fig. 1. Standard format used for medical certification of cause of death for hospital in- patient deaths.