Original article

Commitment in the completion of the medical death certification. Evaluation in Belém, Pará, Brazil in 2010 ☆

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ABSTRACT

Objective: To evaluate the completion of medical death certifications in Belém, state of Pará, Brazil in 2010.

Methods: In the present study, 800 medical certifications of non-violent death, randomly chosen, and produced in 2010 were analyzed. Regarding correct completion, all fields of the document were evaluated, except for fields I (reserved for civil registries), V (stillbirth or death under age of 1 year), and VIII (external causes/violent death). Each field was analyzed regarding the following parameters: incomplete fields, fields left blank, illegibility, and incorrect completions.

Results: Based on the data collected, very high rates of errors in completion were observed; 98.7% of the certifications had at least one mistake. The most remarkable and important mistakes were found in field VI, intended for the cause of death, with a frequency of error of 71.5%, especially due to vagueness.

Conclusion: The very high rates of poorly completed medical death certifications highlights a significant failure in the medical schools' curriculum, as well as a lack of continuing medical education programs addressing such topic of paramount importance. The results demonstrated neglect or lack of knowledge on the pathophysiology of diseases by physicians.

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Declaração de óbito, compromisso no preenchimento. Avaliação em Belém – Pará, em 2010

R E S U M O

Palavras-chave:
Declaração de óbito
Morte encefálica
Avaliação

Objetivo: Avaliar o preenchimento das declarações de óbito em Belém-PA, registradas no ano de 2010.

Métodos: Foram analisadas 800 declarações de óbito de morte não violenta, sorteadas aleatoriamente, referentes ao ano de 2010. Quanto ao correto preenchimento, foram avaliados todos os campos do documento, com exceção dos campos V (Morte fetal ou menor que um ano), I (Destinado aos cartórios) e VIII (Causas externas/ Mortes violentas). Cada campo foi analisado seguindo os seguintes parâmetros: preenchidos de maneira incompleta, campos em branco, ilegíveis e preenchimento incorreto.

Resultados: A partir dos dados coletados, foram encontrados altíssimos índices de equívocos no preenchimento das certidões; 98,7% delas apresentavam, pelo menos, um erro em seu preenchimento. Entretanto, os mais notáveis e de maior repercussão foram encontrados no campo VI, destinado ao registro da causa de morte, onde, tal erro foi encontrado em 71,5%, principalmente pela utilização de termos vagos no registro.

Conclusão: Os altíssimos índices de declarações de óbito mal preenchidas demonstram uma grande falha por parte dos currículos das escolas médicas, bem como uma carência de projetos de educação médica continuada que abordem tal temática de inestimável importância. Os resultados demonstraram negligência ou desconhecimento da própria fisiopatogenia das doenças por parte dos médicos.

Introduction

The medical death certification (MDC) is a document essential to the organization and planning of a society according to its own needs, thus establishing directed policies, especially regarding public health. The frequent errors found in the completion of MDCs demonstrate a relative neglect by physicians, resulting in loss of data that are material to the national health sector, impairing the actions of effective policies directed towards the sector.[1]

The importance of the MDC in providing information about the health of a given population was acknowledged centuries ago and, therefore, it is an essential statistical document at the basis of modern epidemiology.[2] Based on this information, statistics related to several variables of mortality are developed, which are an essential tool for generating and assessing epidemiologic, educational, and research actions and investigations. To date, this is the type of data most used in health statistics; in Brazil, these data are collected by the Mortality Information System (Sistema de Informação de Mortalidade – SIM).[3]

In addition to death certifying, this document is used to assess the actual health of the population, and to plan actions aiming at improving the sector. Therefore, these documents should be accurate and express the reality of the population's health.[4] The physician has ethical and legal responsibilities for the completion, the signature, and the information entered into all fields of the MDC.[5]

The sixth revision of the International Statistical Classification of Diseases[6] consolidated an MCOD model that began to be used in most countries after 1950;[7] it was adopted in Brazil in 1976.[8] However, Kanso et al.[9] evaluated the quality of information of underlying causes of death among elderly people, identifying a large number of ill-defined and/or unspecified causes resulting from errors, lack of knowledge, or inexperience in the completion of the MDC.

Even though the MDC was created in the 70's, it is not uncommon for the first contact of the physician with the document to be when they are required to complete it. Consequently, there are misconceptions and errors during its completion, due to probable lack of knowledge. Among the several justifications for the problem, the inattention by medical schools regarding the teaching of the correct way to complete this document, and its importance as a public health tool must be highlighted.[10]

The errors in reporting the underlying cause, the high percentage of ill-defined causes or vagueness, the mistakes in the completion of the document, and the high rate of incomplete fields limit the use of MDCs in national statistics.[11,12] In view of the foregoing, the objective of this study was to evaluate and analyze the completion of MDCs in a comprehensive, ethical, and epidemiological fashion.

Methods

This was a cross-sectional and retrospective study, and was approved by the Research Ethics Committee of the Universidade do Estado do Pará under protocol No. 111/11.

The MDCs were made available by the Health Department of the city of Belém, state of Pará, and registered with the SIM in 2010 were analyzed.

The sample consisted of 800 MDCs from non-violent causes, selected through simple random sample from a total universe of 11,430. For the random draw, the BioEstat 5.0® was used; the size of the sample and of the universe were entered, and the software determined the numbers of the medical reports to be analyzed. The size of the sample was determined by data found in a pilot project with a confidence interval of 95% (CI 95%). For the pilot project, 20 MDCs with violent causes of death were analyzed; these data were not included in the final study.

The mandatory fields required to be completed by doctors (fields in block II ["identification"] through block VII ["physician"]), were verified pursuant to criteria such as incompletion ("fields left blank"), legibility, and incorrect completion.

Essentially, the present study aimed to evaluate the completion of MDCs, assuming that information recorded in the documents was faithful to the events. For this reason, fields III, IV, and V were analyzed only regarding the presence of fields left blank or illegible. The age and time since graduation of physicians who completed MDCs were also analyzed.

Regarding block II ("identification"), a completion was considered incorrect in the presence of erroneous marking regarding type of death (fetal or non-fetal), as well as erroneous marking of occupation, such as when categories were used (such as student, housewife, unemployed) rather than actual occupations, according to the Brazilian Classification of Occupations (Classificação Brasileira de Ocupações – CBO).[10]

Block VI ("Conditions and causes of death"), more specifically the field intended for registration of causes of death, was analyzed using criteria regarding the use of vague terms (for example: cardiopulmonary arrest and multisystem organ failure), intermediate and terminal causes as underlying cause of death, as well as when a contributing cause was classified as a direct cause of death. MDCs were deemed complete when no field was left empty and they were correctly and legibly completed.

The certifications of violent deaths were excluded as they are completed by forensic pathologists, who have differentiated and specific knowledge in comparison with other physicians, and the results could be distorted if such were included.

The Chi-squared test, the equal proportions test, and the contingency coefficient C test were used to verify whether there was any difference between the number of mistakes in fetal and non-fetal and to compare physician's age and time from graduation with the number of mistakes in each field. The value 0.05 was adopted to reject the null hypothesis.

Results

Eight hundred MDCs were studied, completed by 380 different physicians. The average age of physicians was 42.88 ± 11.72 years, and the average years since graduation was 16.56 ± 10.88 years.

Among the MDCs studied, 98.7% showed at least one completion error. Of these, 524 (65.5%) were from residents of this city and the remaining 269 (33.62%) were from residents of other cities; furthermore, there were four (0.5%) MDCs with illegible handwriting in the address field, and three (0.38%) had this field blank.

The age field was blank in 33 (4.13%) MDCs, and 19 (2.37%) were marked as ignored. In the classification of the type of death, 38 (4.75%) were marked as fetal death, and 752 (94%) as non-fetal death; in nine MDCs this field was left blank, and in one both options were checked. All MDCs that provided the patients' age and also marked the option "fetal death" checked this field by mistake.

Regarding the place of death, 563 (70.37%) occurred in hospitals, 91 (11.37%) occurred at the deceased's home, 85 (10.63%) in emergency rooms, 42 (5.25%) in the streets, 17 (2.13%) in other health facilities, and two MDCs (0.25%) presented two items checked. Of the deaths that occurred in hospitals, 387 (68.73%) were in public hospitals, 175 (31.08%) in private hospitals; only one MDC had this field illegible.

Of the total MDCs studied, in 655 (81.88%), the patients received medical assistance, while 97 (12.12%) patients did not; in 42 (5.25%) MDCs, this field was left blank or ignored, and in six MDCs, two items were checked. It is noteworthy that MDCs referring to deaths that occurred in the streets and at home were those with the lowest number of patients who received medical assistance.

Fifty-four (6.75%) MDCs had the time of death field blank. Regarding the deceased's occupation, in 91 (11.38%) MDCs this field was left blank, and in 426 (53.25%) MDCs this field was incorrectly completed by describing imprecise occupations, which should be avoided.

The field "time of progression of the disease until death", i.e., the chronological evolution of the disease was left blank in 790 (98.75%) MDCs.

The number of MDCs illegible and with fields left blank is described in Table 1. The analysis of underlying causes of death demonstrated that 28.5% of the medical certifications were correct regarding the completion of the underlying cause, while 71.5% had some kind of error in this field. The most common error found was vagueness, present in 440 (55%) MDCs. The terms found to be vague are described in Table 2. The following errors were verified: illegibility, verified in 69 (8.62%) MDCs; incorrect sequential completion, in 60 (7.5%) MDCs; and fields left blank, verified in only two (0.25%) documents analyzed.

Table 1 – Number of medical certifications that are illegible and with fields left blank. Belém, PA, Brazil. 2012.

	Illegible	%	Fields left blank	%
Number	106	13.25%	772	96.5%

Source: Research protocol.

Table 2 – Main vague terms used as underlying cause of death. Belém, PA, Brazil. 2012.					
	Respiratory insufficiency	%	Cardiorespiratory arrest	%	Multiple organ failure	%
Number	154	35%	144	32.7%	142	32.3%
Source: research protocol.					

In all data analyzed, physician's age or time since graduation were not modifying factors of the profile found (p > 0.05).

Discussion

The reliability and accessibility of information on MDCs are indispensable, since this is an essential document for epidemiologic purposes, as well as for the planning of health policies.[2] However, reality evidences a relative neglect in the completion of such document, making the correct distribution of health resources throughout the country difficult.[13]

The SIM, despite representing the main source of data about mortality in Brazil, with a visible annual increase in its scope, faces obstacles in improving the quality of the its data, mainly due to the inappropriate completion of its standard document, the MCOD. However, it is important to highlight that only physicians are responsible for such losses of scientific and epidemiological data.[2]

Due to such losses, health planning adversely affected, and its resources are often misdirected, which may be evidenced by the information derived from the present study, in which over 33% of the forms studied belonged to patients who resided in regions of the state other than the capital, evidencing a lack of health services in the countryside, and that several patients need to be transferred from their cities of origin to the capital in order to receive proper medical care.

Still regarding information about location, some cities of origin could not be considered due to illegibility, "fields left blank", as well as mistakes in the identification of the cities, which was a drawback to studies that place a high degree of relevance on the demographic distribution of the most frequent diseases in the region.

Another important datum for public health is patient's age, which was not correctly described in several MDCs. This datum is of paramount importance in studies aiming at identifying a predominance of deaths within a certain age group, as well as for studies of child and neonatal mortality.[14]

When the age field was correlated with the type of death field (fetal and non-fetal), it was observed that among some of those that described the death as fetal, the age reported did not correspond to this type of death, which is defined as "the death of a product of conception before expulsion from the mother's body, regardless of the duration of the pregnancy. The death of the fetus is characterized by the absence of any sign described in the definition of a live birth after expulsion",[10] evidencing that some physicians do not know this definition. Whereas the remaining, who marked stillbirth, did not describe the age of the child.

Regarding the abovementioned data, there is divergence in the values found by Vanderlei et al.[15] with a similar research methodology. Age, city of residence, and type of death presented higher values in comparison with the present study; such difference may result from a greater awareness by physicians on the importance of the MDC.

In the present study, 96.5% of the MDC had fields "left blank", a percentage similar to that found by Stuque, Cordeiro, and Cury,[16] who found a value of 100%, while Barbuscia and Rodrigues Junior[17] found this incompletion in 51% of the MDCs. Such fact evidences the severe ignorance or neglect by physicians of the need for a correct completion of the fields of the MDC. With the exception of block I, which regards civil registry data, the completion and veracity[2] of the remaining blocks are an ethical and legal responsibility of the physician; however, a study by Niobey et al.[18] demonstrated that physicians do not feel responsible for the "less noble" sections of the MDC, leaving to administrative employees the task of completing data such as residence and age.

The time of disease evolution was the field with the highest number incompletions, 98.75%. Mendonça et al.,[2] when researching MDC completion, found that in 90% of the certifications this field was not completed, as a result of the lack of understanding by physicians of its importance.

Contrasting with the number of fields "left blank", only 13.25% of the MDCs analyzed had illegible fields, similar to the study by Stuque et al.,[16] who found illegible handwriting in 12.12% of the MDCs. Articles 11 and 87 of the code of medical ethics (2010) prohibit doctors from certifying in an illegible or secret manner. Thus, it is possible to observe, due to the low proportion of illegible characters found, that doctors demonstrated greater care when writing the MDC.

The record of the cause of death represents an essential system that provides critical information necessary to guide public health programs.[19] For this reason, physicians should follow a global standard when completing MDCs, currently represented by the International Classification of Diseases. When evaluating the MDCs, at least one error in the underlying cause of death field was observed in over 70% of the documents, similar to the results of the study by Villar and Pérez-Méndez.[20]

The most frequent mistake in the certifications is vagueness, such as "cardiorespiratory arrest" and "multi-organ failure", which are in fact symptoms or death conditions and not causes of death.[20] The use of such terms is thus irrelevant to public policy, and, for this reason, is referred to as "garbage

code".[22] Through interviews, studies demonstrated that approximately 35% of the physicians interviewed classified respiratory insufficiency as an underlying cause of death, matching the results found in the study by Mendonça et al., where said term was mentioned in approximately 20% of the MDCs analyzed.[2]

The correct way of completing this field is by declaring the underlying cause of death as the last item, establishing a sequence, from bottom to top, until the terminal or immediate cause of death. Immediately below, the doctor should declare other pre-existing morbid conditions, as well as conditions not directly related to the death, which did not enter the causal sequence.

Experience does not appear to be a factor of improvement regarding the completion of the MDC;[20] this fact was evidenced in the present study, which demonstrated that age and time after graduation did not change the profile. Most physicians acknowledge the importance of the correct completion of the document; conversely, it can be observed that they lack enough orientation to prevent errors.[21-24]

Studies conducted with physicians revealed that approximately 80% of the interviewees stated that the greatest difficulty in the correct completion is the lack of clear instructions on the document itself.[2] Therefore, the lack of continuing medical education, as well as lack of preparation by medical schools may easily explain part of these mistakes. Studies have demonstrated an increase in the correct completion from 28.9% to 91% of the certifications analyzed after an intervention consisting of a 90-minute seminar addressing the correct completion of the MDC.[20] The majority of the physicians stated that the opportunity to attend lectures related to MDC completion can cause them to modify the cause of death in several circumstances.[21]

Conclusion

The MDC, as a medical document of scientific and epidemiologic relevance, should be judiciously, attentively, and carefully completed. This study revealed neglect by doctors regarding the commitment to the correctness of the document, observed in the incorrect completion throughout almost the entire sample.

The lack of continuing medical education programs regarding the theme and the lack of preparation by medical schools partially explain these errors, demonstrating little concern regarding medical education related to vital statistics, an essential base for health planning.

Physicians need actions aimed at improving the quality of MDC completion, especially in medical schools, in order to develop commitment and responsibility regarding the importance of such document, rather then completing it as only a burial requirement.

Conflicts of interest

The authors declare no conflicts of interest.

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