



## Original communication

## B-learning training in the certification of causes of death



Montserrat Alonso-Sardón <sup>a</sup>, Helena Iglesias-de-Sena <sup>a</sup>, María Sáez-Lorenzo <sup>a</sup>,  
Antonio Javier Chamorro Fernández <sup>b</sup>, Juan Salvat-Puig <sup>c</sup>, José Antonio Mirón-Canelo <sup>a,\*</sup>

<sup>a</sup> Department of Preventive Medicine and Public Health of the Faculty of Medicine, University of Salamanca, Spain

<sup>b</sup> Internal Medicine, University Hospital of Salamanca, Spain

<sup>c</sup> Department of Legal Medicine of the Faculty of Medicine, University of Salamanca, Spain

## ARTICLE INFO

## Article history:

Received 10 April 2014

Received in revised form

26 June 2014

Accepted 6 October 2014

Available online 15 October 2014

## Keywords:

Medical certificate of death

B-learning training intervention

Before and after intervention design

Mortality statistics

International standards of certification (WHO)

## ABSTRACT

**Introduction:** An adequate certification of causes of death is essential for Public Health. The objective of this work is to improve the professional competence of medicine students and family doctors with regard to the certification of causes of death according to the international regulations of the WHO.

**Methods:** Intervention-formation, before and after design, addressed to students of Medicine in their last year (6th year), and Family Doctors and Interns. The blended learning or *b-learning* program consisted in an on-site seminar-workshop, plus basic information/documentation stored in an on-line platform, together with the preparation of Certificates of Causes of Death based on Clinical Histories of real cases.

**Results:** 308 students participated in the program. We observed an individual improvement in the professional competence in all certifications of death, which was significant in 3 out of 5 cases (it was not significant in a medical-legal case of violent death and the case of a pluripathological chronic patient). The *intermediate causes* improved in all cases. Most formal aspects of the certification improved with significant changes. In the group of 62 Family Doctors and interns who took part in the program there were improvements in the *basic* or *underlying causes* in 4 of the 5 cases and improvements in the formal quality of the assessment, although less significantly than in students, because they started with better basal indexes in their certificates in the *Before* stage of the study.

**Conclusions:** Blended learning training has shown to be effective in improving the professional competence, both in students of the Degree of Medicine and in practicing Family Doctors and Interns.

© 2014 Elsevier Ltd and Faculty of Forensic and Legal Medicine. All rights reserved.

## 1. Introduction

Mortality statistics are still an essential index to establish health priorities based on the lethal effect of diseases. From the point of view of Public Health, mortality statistics make it possible to take decisions on Health Planning and to draw international comparisons on mortality levels and rates. All this is only possible if the proper documents are completed according to the rules established by the World Health Organization (WHO).<sup>1</sup>

There has recently been a change in the certification of causes of death in Spain, where the Statistical Report of Death (SRD) and the Death Certificate (DC) have been combined into a single document to register causes of death in this country, thanks to an agreement between the Spanish National Institute of Statistics (NIS) and the

Spanish Organization of Professional Medical Associations (OPMA), with the approval of the Spanish Ministries of Health and Justice.<sup>2</sup>

This new certification model was first used in Spain on the 1st of January 2009; but after one year in use, a common error was detected in the section on the *logical sequence* between the *underlying cause* and the *immediate causes*. That is, in the section of the *preceding causes*. Practitioners who filled in the certificate considered that this section should include the clinical record, instead of detailing the pathological or morbid processes that are the consequence of the *basic, initial* or *underlying cause*. For this reason, the name of this section was changed to *intermediate causes*, and the Medical Associations were asked to carry out informative and/or formative activities as part of their Continuing Training programs.

Our study can be classified within this professional context.<sup>3</sup> Formation in the Faculties of Medicine related to death certificates is an activity that has been carried out for years,<sup>4</sup> and which is reaffirmed based on the formative priorities created by a panel of experts with the Delphi method.<sup>5</sup> In this process there are two participating areas of knowledge and professional competence: the

\* Corresponding author. Department of Preventive Medicine and Public Health, Faculty of Medicine, Avda. de Alfonso X El Sabio, s/n, 37007 Salamanca, Spain. Tel.: +34 923 294540, +34 655571738 (mobile).

E-mail address: [miroxx@usal.es](mailto:miroxx@usal.es) (J.A. Mirón-Canelo).

Area of Preventive Medicine and Public Health, due to their interest and concern on the reliability, validity and use of the health indexes of the Health Information System<sup>6</sup>; and the Area of Legal Medicine, due to the medical-legal aspects associated to death as a social and health-related event.

Mortality rate statistics are still highly important due to the creation of new research indexes, such as *amenable mortality revisited*, which was proposed by the European Union to assess the attention of health systems.<sup>7</sup> Also, the constant improvement in the quality of mortality rates still has a great legal significance.<sup>8</sup>

On-site medical training has proven effective, and its implementation is justified in the syllabus of the Degree in Medicine; but also in the Continuing Professional Development programs of medical practitioners,<sup>9–11</sup> which include Information and Communications Technology (ICT).

The objective of this blended learning formative intervention was to improve professional competence in the certification of causes of death by students of Medicine, practicing Family Doctors and Interns in the Spanish National Health System.

## 2. Methods

To achieve these objectives we carried out a *quasi-experimental* intervention study with a *before and after* design without a control group.<sup>12</sup> We are aware that the presence of a control group improves the scientific rigor of the study, but it was not used because the classic formative intervention has proven to be effective, and it would therefore be unethical to deprive a group of students of Medicine and/or doctors of this model. The intervention consisted in an informative activity on the epidemiological and medical and legal importance of death certificates, and a formative activity to get 308 students from the last year of Medicine (the 6th year in Spain) and 62 practicing Family Doctors and Interns to improve their professional competence with regard to the certification of causes of death, so that they are able to issue quality certifications which are reliable and valid according to the International Standards of Certification of the WHO.<sup>1,13</sup>

First of all, the certificates from 12 cases were filled out. The selection of these cases was on clinical records according to the frequency of appearance and taking into account the medical-legal errors that were observed and that had been analyzed *before* the beginning of the training activity, that is, without an intervention (*Before*). Afterwards, there was a formative intervention that included a five-hour on-site seminar-workshop with two parts, one of them on the theoretical bases and medical and legal aspects of certification. Subsequently, a practical part was carried out, in which the certificates of 12 cases on death causes based on a short Clinical History that were presented via *PowerPoint* were filled out. From these cases, 5 were randomly selected for their study and research.

The workshop was taught by two lecturers from the Faculty of Medicine of the University of Salamanca, an epidemiologist and a forensic scientist, both of them with professional and teaching experience on this subject. Also, the on-line platform *Studium* was available for the student to revise and develop the knowledge and fundamentals presented in the seminar.

Finally, after four weeks of virtual training with the cases, a date was set in which the groups who had taken part in the intervention filled out the certificates of 5 cases that were randomly selected from the initial 12 cases (*After*). A survey also recorded the satisfaction with the workshop and the teaching-learning process with the introduction of ICTs.

In order to collect and process the information, we established a series of *Major Quality Indexes* related to the causes of death (either *underlying*, *intermediate* or *immediate*), and *Minor Quality Indexes*

related to formal aspects based on previous experiences,<sup>14</sup> on the certification standards of the WHO<sup>1</sup> and on the articles by other authors.<sup>9,15</sup>

The software program *SPSS version 21* was used in the analysis of data, which was carried out by two researchers different to those who dealt with the formative intervention. That is, researchers were *blinded* while processing and obtaining the results.

The statistical analysis included a descriptive study of the distribution of absolute and relative frequencies (proportion) (*univariate analysis*), with the calculation of their respective 95% *confidence interval (CI) for a proportion*; afterwards, we carried out an association study (*bivariate analysis*), with *Pearson's chi-squared test* to assess the strength of the association between qualitative variables. The assumed *level of statistical significance* (error) was 5% (*significance level*  $p < 0.05$ ).

## 3. Results

The intervention was carried out with a total of 308 students in their sixth year of Medicine in the past two academic years, 2011–12 and 2012–13. The observations on the 5 death certificates that were proposed by the students are presented in [Table 1](#). As can be seen, the intervention significantly improves the assessment of the *underlying cause* in 3 out of the 5 cases. The *underlying and intermediate causes* improve in all 5 cases, and the *immediate cause* shows good reliability both *before* and *after* the intervention. That is to say, the *Major Quality Indexes* related to the certification of causes of death improve. [Table 2](#) shows the *Minor Quality Indexes or formal quality criteria* associated to the certification based on international norms. The intervention reduces the use of inappropriate and imprecise terms and also the confusion between mechanisms and causes of death. The decreased use of abbreviations also improves significantly, as does the use of capital letters in most proposed cases, which improves the legibility and understandability of the certificates.

With regard to the continuing training intervention in 62 Family Doctors and Interns who voluntarily decided to participate, they also filled in 5 certifications on the same cases as the students. Their results can be seen in [Tables 3 and 4](#). Major Quality Indexes (causes) improved significantly in the group of Doctors in 4 cases, including the fourth case, which referred to a violent death with possible medical-legal repercussions. [Table 4](#) presents the *minor or formal quality indexes*. The table shows that most indexes improve, that is, the use of abbreviations decreases and the use of capital letters rises. The introduction of several causes of death is only reduced significantly in case 4.

## 4. Discussion

The formative intervention was carried out to raise awareness and improve the professional competence regarding the new system of assessment of causes of death in death certificates in Spain in which, as a consequence of the new changes, practitioners only fill in one document instead of two documents (death certificate and statistical report of death) and, above all, to further improve the quality of mortality statistics. The innovative aspect of this formative experience is the fact that it uses new technologies to make learning and training easier with a blended learning model.

Good results were obtained in most of the cases through the *major and minor indexes* that were used. The most positive aspect was the series of significant and favorable changes, both individually and in the group as a whole, of students of Medicine in their last year and Family Doctors and Interns. In this last group, improvements were observed even in the most difficult cases (cases 4 and 5, violent or natural death and a chronic pluripathological patient),

Download English Version:

<https://daneshyari.com/en/article/101783>

Download Persian Version:

<https://daneshyari.com/article/101783>

[Daneshyari.com](https://daneshyari.com)