Original Research Article

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A cross-sectional study on the knowledge and practice of medical certification of cause of death among junior doctors in a tertiary hospital in North-East India

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ABSTRACT

Background: Medical certification of cause of death (MCCD) is the formal document in which the doctor records the time, causes and circumstances of death of an individual. Inaccuracies and incomplete MCCD will lead to biased estimation of several epidemiological parameters. Hence this study was done to determine the knowledge and practice of MCCD among junior doctors and assess the association between knowledge and some selected variables of interest.

Methods: A cross-sectional study was conducted among junior doctors constituting of interns, junior residents and post-graduates trainees of a tertiary hospital of Manipur from February to March 2020. A semi-structured, self-administered questionnaire was used. Data was entered in MS Excel and exported to SPSS version 21 where analysis was done. Descriptive statistics and Chi-square test was used for analysis and p<0.05 was taken as significant. Ethical clearance was obtained from the Institutional ethics committee.

Results: Out of the 334 total respondents females constituted 53%. Only 88(26.3%) had satisfactory knowledge, and only 14% (47) of the respondents had ever issued MCCD.No significant association was seen between knowledge score and current department of posting, current designation, gender, religion and work experience.

Conclusions: Only a quarter of the respondents (26.3%) were having satisfactory knowledge. There is a need to organize frequent workshops, seminars and induction training highlighting the importance of MCCD for the junior doctors with regular audits.

Keywords: MCCD, ICD, Knowledge, Practice

INTRODUCTION

Medical certification of cause of death (MCCD) is the formal document in which the doctor records the time, causes and circumstances of death of an individual. In India, it is carried out under Government Medical Certification scheme under the Registration of Births and Deaths Act, 1969. The MCCD consists of two parts: the first part deals with the immediate cause(which is the final injury or disease causing the death) and the

underlying cause or antecedent cause(which is defined as the diseases, injuries or any other circumstances which initiated the series of events leading to the immediate cause). The second part deals with the contributory cause (which is defined as any significant diseases contributing to the death but not directly leading to it). MCCD aids the judicial system in civil cases such as insurance claims, compensation claims etc. Another use of MCCD is for obtaining the mortality data. The causes of death are classified according to the International Statistical

Classification of Diseases (ICD). It is required for uniform coding of deaths. Currently ICD-10 is used for MCCD. Inaccuracies and incomplete MCCD will lead to biased estimation of several epidemiological parameters. Complete and reliable MCCD is a necessity for a good record system which is required for better planning and management of health programmes. Hence this study was conducted to determine the knowledge and practice of MCCD among junior doctors and to assess the association between knowledge and some selected variables of interest.

METHODS

A cross-sectional study was conducted among junior doctors constituting of interns, junior residents and post-graduates of a tertiary hospital of Manipur from February to March 2020. Those junior doctors who gave verbal informed consent were included in the study and those who could not be contacted in two visits and who were seriously ill were excluded from the study.

Sample size

The study plans to include all the junior doctors working in the institution for more than 1 month. As per records from the academic section there were a total of 383 junior doctors namely 150 interns, 136 post graduate trainees and 90 junior resident doctors. The two post graduates involve in the study were excluded and all the other junior doctors except the new batch of interns who joined for less than one month were eligible.

Sampling

A universal sampling method was adopted. We used a semi-structured, self-administered questionnaire which consists of information regarding socio-demographic profile of the respondents and knowledge and practice questions.

Operational definition: There were 22 knowledge related questions which consists of 09 open ended questions related to MCCD and the rest where close ended. For every correct response, a score of '1' was assigned and a score of '0' otherwise. Respondents scoring < 11or more than 50% of the total score (22) was considered as having satisfactory knowledge.

The questionnaires were administered to the eligible participants in their respective wards or departments after obtaining verbal informed consent. The questionnaires were self-administered and the completed Performa were collected at the same sitting within 10 minutes.

Data was entered in MS Excel and checked for completeness; data analysis was performed in SPSS version 22, IBM Company Chicago, Illinois, USA. Descriptive statistics like mean, standard deviation, median and interquartile range, percentages were used. Chi-square test was used to test for association and p<0.05 was taken as significant.

Informed verbal consent was obtained from all the participants and confidentiality was maintained by not taking identifiers and keeping the collected questionnaires under lock and key.

RESULTS

A total of 334 completed responses were obtained. The age ranges from 21 to 45 years with a mean±SD age of 26.7±2 years (Figure 1).

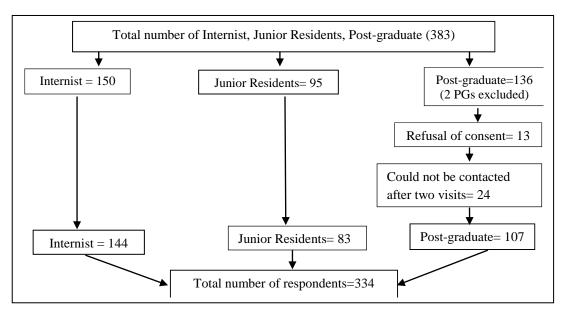


Figure 1: Flowchart showing the number of respondents.

Males constituted 47% (156) of the respondents. Majority were Hindus (155, 46%) followed by Christians (85, 25%), Sanamahism (68,20%) which is the indigenous religion of the Meiteis, a majority community of Manipur and the least was Islam (26, 8%). Majority of the respondents were interns, 198(59.2%) with a work experience of 6 months to 1 year. Around one-fifth of the respondents (64, 19.2%) had work experience of 1 to 5 years, 58 (17.5%) had work experience of less than 6 months while 14 (4.2%) had work experience of >5 years.

For the open-ended question which asked the response to the question as to the uses of MCCD, 25 (7.5%) responded for insurance claims, 37 (11.1%) responded for evidence in judiciary and 66 (19.8%) responded for public health purposes.

In response to the practice questions of whether they had issued any MCCD till date or not, out of the 334 total respondents, 14% (47) of the respondents answered that they had issued it, in which minimum number of MCCD they had issued was 1 and the maximum was 50.

Number of respondents having satisfactory knowledge i.e., those scoring more than 50% of the total score (22) was 88 (26.3%). The minimum score obtained by the respondents was 0 and the maximum score was 20.

Table 1: Current department of posting of the respondents and respective designations.

	Department of posting				
Designation	Surgery and allied N (%)	Medicine and allied N (%)	Obstetrics and Gynaecology, N (%)	Paediatrics N (%)	
	14 (70)	14 (70)	Gynaecology, N (70)	14 (70)	
Post-graduate	46 (34.6)	46 (32.2)	15 (41.7)	-	
Junior resident	41 (30.8)	32 (22.4)	4 (11.1)	6 (27.3)	
Internist	46 (34.6)	65 (45.5)	17 (47.2)	16 (72.7)	

Table 2: Responses to the knowledge questions (correct responses are given in the bracket).

	Correct respo	onse
Questions	Number	Percentage
Full form of MCCD (Medical Certification of the cause of Death)	210	62.9
Number of parts of MCCD (Two parts)	94	28.1
Immediate cause of death	86	28.7
Antecedent cause of death	96	28.7
Contributing cause of death	95	28.4
MCCD and death report register needed within how many days (14 days)	83	24.9
Separate certificate of cause of death is required for (Stillbirth)	56	16.8
Contributing cause of death included in which part of MCCD (Part II)	160	47.9
Cases in which doctors cannot issue MCCD		
Medico-legal cases	37	11.1
Brought dead	102	30.5
Cause of death unknown	25	7.5
Full form of ICD (International statistical classification of diseases)	188	56.3
Current version of ICD used for MCCD (10th version)	95	28.4
ICD coding form (Alphanumeric form)	152	45.5
Can they use abbreviation in filling up MCCD (No)	181	54.2
Can they give heart failure and respiratory failure as cause of death (No)	131	39.2
Can they charge fees for issuing MCCD (No)	240	71.9
Should they mention registration no. of the death certifying doctor (Yes)	162	48.5
Place of MCCD record maintenance in an institution (Medical Records Section)	97	29

Table 3: Association between knowledge score and some socio-demographic factors.

	Knowledge		
Characteristics	Satisfactory	Unsatisfactory	P value
	N (%)	N (%)	
Departments	•	•	•
Surgery and allied	34(25.6)	99(74.4)	
Medicine and allied	46(32.2)	97(67.8)	0.054
Obstetrics and gynaecology	6(16.7)	30(83.3)	
Paediatrics	2(9.1)	20(90.9)	
Current designation			
Internist	32(21.5)	113(78.5)	
Junior residents	26(31.3)	57(68.7)	0.206
Post-graduate	31(29.0)	76(71.0)	
Gender			
Male	39(25.0)	117(75.0)	0.601
Female	49(27.5)	129(72.5)	
Religion			
Hindu	49(31.6)	106(68.4)	
Islam	7(26.9)	19(73.1)	0.09
Christian	14(16.5)	71(83.5)	
Sanamahism	18(26.5)	50(73.5)	
Work experience			
<6 months	13 (22.4)	45(77.6)	
6 months-1 year	53(26.8)	145(73.2)	0.474
1-5 years	16(25)	48(75)	
>5 years	6 (42.1)	8(57.1)	

DISCUSSION

Death certificate has been used as an indicator and as a tool for monitoring the public health policy. It also provides useful information on geographical distribution of deaths. To obtain the correct mortality statistics, the awareness among the doctors regarding correct filling up of MCCD forms is required.

In our study we found that 26.3% of the respondents had a satisfactory knowledge while Undavalli VK et al.⁴ observed that 36% members had more than 50% of the knowledge score which was considered as satisfactory knowledge. The difference may be due to the difference in study population where in our study maximum of the study participants were interns with a work experience of less than one year while in their study they had conducted among post-graduates only. However, in both of these studies the percentage of individuals having satisfactory knowledge was less than 50% which shows the degree of importance (or insignificance) which is assigned to MCCD in the undergraduate curriculum.

Aggarwal et al.⁵ in a study obtaining secondary data from filled MCCD forms found that 86% of the MCCD forms mentioned terms describing mode of death like cardiac arrest, respiratory failure which should have been avoided. In our study 39.2% of the respondents

answered correctly that heart failure/ respiratory failure should not be written as cause of death. However this knowledge is unsatisfactory and can lead to wrong coding of the cause of death.

In the study done by Venu et al.⁶, they found that 86.7% knew the correct definition of immediate cause of death, 41.6% of them knew antecedent cause correctly and 33.4% knew about the correct definition of underlying cause. This is in contrast to our study where we found that only 25.7%, 28.7% and 28.4% knew correct definition of immediate cause, antecedent cause and underlying cause respectively. This may be because while they have conducted their study among residents of their hospital and majority were in their third year, our study was conducted among junior doctors with majority having work experience of 6 months to 1 year. Besides in their study some of the residents had received training regarding MCCD, hence the finding here underscores the importance of training on MCCD for the junior doctors.

In a study conducted by Solanki one-third doctors knew all the 3 terms viz. definition of immediate, antecedent and underlying cause of death. Compared to our study a quarter of them knew the 3 terms viz. Immediate, antecedent and contributing cause of death. The difference may be due to study population difference as the former had chosen only the department of community

medicine. However in their study too the study participants (90%) expressed the requirement of training.

Pokale et al.⁸ found significant association between department, work experience and knowledge. However in our study we found no significant association between the knowledge and any of the socio-demographic variables which may be because of the no induction training imparted at the start of the internship or no other continuing medical education done in the course of their work, everyone is giving the MCCD form with their MBBS knowledge and further studies are recommended which focuses on training and auditing of the MCCD forms which they give after they have received trainings.

Shantibala K et al.⁹ did a study in a tertiary hospital in Manipur from secondary data and found that 38.3% of the MCCD had major error in certification while Rautji et al.¹⁰ in a study in Maharastra found that 64.94% had major error in certification. Uplap et al.¹¹ also conducted a study to find out the completeness of records of MCCD and they found that 100 % of the forms were notably incomplete getting a score of 6-10 of a total score of 17. Looking at records has also revealed the incompleteness and inaccuracies in filling MCCD which is in line with our study thus calling for a sustainable training programme with regular audits of the filled MCCD in the medical records section.

Back in the 1980's William Farr, a statistical abstracter in the General Registry Office in London had established a national system of recording causes of death which is considered as the precursor of the International Classification of diseases and related conditions(ICD).¹² In that time, internet was not readily available. Now due to technological advancements giving the code of the disease under ICD-10 has become much easier as the codes can be accessed online¹³ by typing the name of the disease.

The studies' limitations are that some junior doctors were excluded as they were not available even after two visits due to duty shift and busy schedule. Moreover the study was limited to only one medical institution and was not able to cover the other institution in the state. However, the present study is first of its kind in Manipur, North-East India which addresses an important neglected issue. The major strength of the study was that the response rate was 100% and we could collect the responses on the same day after a short interval of time which prevented the respondents to look up from books or internet.

CONCLUSION

A quarter of the respondents(26.3%) were having satisfactory knowledge. Around a sixth of the respondents have issued MCCD. And we found no significant association between knowledge score and current department of posting, current designation, gender, religion and work experience. A good MCCD is a

necessity for good record maintenance of an institution. Hence the findings of this study calls for workshops, seminars and induction training for the interns and other junior doctors with regular audits so that when they start working, they are already trained to give a reliable MCCD.

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Ethical approval: The study was approved by the Institutional Ethics Committee.

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