**ORIGINAL ARTICLE**

# A cross-sectional study of knowledge and attitudes of medical professionals towards end-of-life decisions in teaching hospitals of Kandy District (Sri Lanka)

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## ABSTRACT

**Objectives:** The aim of this study was to evaluate the knowledge and attitudes about Do Not Resuscitate orders, Advance Directives and Withdrawal or Withholding of life-sustaining therapy among medical professionals.

**Study Design:** Descriptive, cross-sectional study

**Setting:** The study was conducted in three teaching hospitals, General Hospital Kandy, Teaching Hospital Peradeniya and Teaching Hospital Gampola of Kandy District (Sri Lanka).

**Methodology:** 232 medical professionals were randomly selected. Data were collected using a pre-tested self-administered questionnaire. The knowledge and attitude was assessed with regard to 'Advance Directives', DNR orders and 'withdrawal/ withholding life sustaining care', by scenario based questions and several close-ended questions. Data were analyzed with SPSS v17.0 and Pearson Chi Square was calculated.

**Results:** The age range of the study population (n=232) was 26-56 years and majority of the participants were male (64.2%). Most of the medical professionals were Buddhists (88.4%). Out of the subjects, 66.8% ($p<0.001$) had heard the term 'DNR', while 26.3% knew the correct meaning and 68.1% ($p<0.001$) thought it to be ethical to practice it in Sri Lanka. The number of medical professionals feeling that patient, doctor or the family should have the right to decide on end-of-life decisions was 62.9% ($p=0.005$), 62.9% ($p=0.005$) and 46.6% ($p=0.46$) respectively. 20.7% had heard about 'Advance Directives' but only 12.1% knew the correct meaning; 62.5% had heard about 'withdrawal/withholding of life sustaining therapy' ($p=0.006$) and 65.9% opined that it should be implemented in Sri Lanka ($p<0.001$).

**Conclusion:** The knowledge about end-of-life decisions among medical professionals working in three major teaching hospitals of Kandy district is inadequate. The majority of the medical doctors have positive attitude towards end-of-life decisions implementation in Sri Lanka.

**Key words:** End of life decisions; DNR; Advance Directives; Withdrawal of care; Internet

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## INTRODUCTION

Mutual consultation by physicians and patients has become an ideal way of medical decision making. In the present era patients must be informed about and understand the nature of their illness, proposed treatment, likely outcomes and alternatives.[1] Novel clinical practice of critical care medicine employs many end-of-life decisions e.g. 'Advanced Directives', 'Do-

Not-Resuscitate orders' and 'withdrawal/withholding of life sustaining therapy') which raise many ethical dilemmas. These medical decisions are based upon four principles, e.g. beneficence, non maleficence, autonomy and justice.[2] Translating these principles into clinical practice in intensive care is not altogether easy. Principle of autonomy, may override beneficence when a decision is required to provide or withdraw life support.[2]

Advance Directive (AD) is a document which indicates decisions the patient would like to make if and when he is unable to participate in end-of-life decisions, as a living will or naming a health care surrogate.[3]

Do Not Resuscitate order (DNR) is legal order written to respect the wishes of a patient to not undergo cardiopulmonary resuscitation or advanced cardiac life support in an event of cardiac or respiratory arrest.[4] However, DNR order does not affect provision of emergency medical care and treatment for pain. The DNR request is usually made by the patient when he/she is in a sound mind.[2] The document must also be signed by the attending physician and two other witnesses.[4]

Withdrawal/withholding life sustaining therapy (WLT) refers to cessation of treatment which has the potential to postpone patient's death, *viz.* cardio-pulmonary resuscitation, institution of artificial ventilation, infusion of blood and blood products, insertion of pacemakers, specialized treatments (e.g. chemotherapy or dialysis), antibiotics and artificial nutrition and hydration.[5] The goal of this is to remove unwanted treatments rather than to hasten death.[6]

The treating physician plays a pivotal role in completion of patient-made DNR orders, and his expert opinion on decision making regarding WLT. Thus a physician's knowledge about these documents and ethical issues is of prime importance. It has been suggested in many international studies done among doctors, that their awareness is inadequate.[7-9]

As these documents are not legally authorized in Sri Lanka, the awareness about these controversial issues among Sri Lankan medical professionals is questionable. Thus the aim of this study was to assess the knowledge and attitude about end-of-life decisions among Sri Lankan medical professionals as it has not been studied earlier.

## METHODOLOGY

After obtaining clearance from Ethical Committee of Faculty of Medicine, Peradeniya, this descriptive, cross sectional study was carried out among medical professionals, working at three teaching hospital of Kandy district, e.g. General Hospital Kandy, Teaching Hospital Peradeniya and Teaching Hospital Gampola. The study area was selected on the basis of being teaching hospitals with multi-disciplinary teams.

*Sample size calculation:* a pilot study involving 30 doctors of Teaching Hospital, Peradeniya, was performed to improve the validity of the questionnaire. During the planning stage of the study power calculation was performed considering the power ($\beta$) and significance ($\alpha$) at 95% levels. The pilot study indicated that about 20% of doctors knew about DNR, AD and WLT. Thus according to these criteria and the World Health Organization publication on sample size determination,[10] the calculated maximum sample size was 246. Due to practical implications and time limitations, only 232 subjects were recruited to the study. However, this number was adequate to maintain the power of 94.8% level. The 232 medical professionals were randomly selected as every third doctor entered the hospital doctor's cafeteria from 8am to 4pm over a period of one month. Every doctor was subjected to the study only once.

All the medical practitioners registered with Sri Lankan Medical Council (possessing at least MBBS diploma with work experience of at least one year irrespective of their experience of sub-specialties) currently working in the selected institutions were included, while unwilling medical professionals, dental surgeons and pre-interns medical graduates serving in these institutions were excluded from the study.

Data were collected by using the pretested self-administered questionnaire after verbal consent had been obtained. The questionnaire covered following areas: Demographic data, knowledge and attitudes towards AD, DNR orders and WLT by means of a case scenario followed by several direct closed ended questions. The given case scenario was: *"A 59 years old male, who had an active life, was diagnosed to have a terminal cancer. Now his condition is rapidly deteriorating, doctors have explained him all possible treatment options with their respective success and failure rates. They made him well aware of his situation. The patient underwent a palliative surgery, and is currently being ventilated in the ICU on a long-term. A multi-disciplinary team examined him and expressed that he has a higher chance of having a poor quality life".*

The questions included direct questions inquiring the meanings of the terms and applicability of them in Sri Lanka. In questions regarding the meaning of the terms the answers consisting of all the keywords of the standard definitions were counted as correct.

The first question based on the case scenario assessed the

attitude towards practice of patient's autonomy over decision making authority. Followed by questions to evaluate the attitude on who should have the authority to decide. Subsequent questions inquired about the possession of such decision making power in Sri Lanka. Statistical analysis was performed using SPSS version 17.0, in terms of means and percentages for respective categories.

## RESULTS

Demographic data of the study population are given in Table I. Most of the subjects were male (64.2%) and majority of the study population consisted of Buddhists (88.4%). Sri Lankan population is made up of 70% Buddhists, 15 % Hindus, 8% Muslims and 7% Christians, according to the 2001 census statistics. Keeping up with this our study sample also consisted of mostly Buddhists. The mean age of the cohort was 35.6 years. There were 17 ICU medical officers and 27 medical postgraduates who had ICU training as a part of postgraduate training (Table 1).

**Table 1: Demographic data of the study population**

| Characteristic | | Data |
|---|---|---|
| Gender [n (%)] | Male | 149 (64.2) |
| | Female | 83 (35.8) |
| Religion [n (%)] | Budhists | 205 (88.4) |
| | Hindus | 9 (3.9) |
| | Christians | 5 (2.2) |
| | Muslims | 13 (5.6) |
| Age (Yrs) | Range | 26 – 56 |
| | Mean | 35.59 |

A significant proportion had heard of the terms DNR and WLT (66.8%, $p<0.001$ and 62.5%, $p=0.006$ respectively), while a significant number ($p<0.001$) was unaware about AD, which is unsatisfactory. A substantial percentage of the cohort lacks the absolute understanding about the terms (Table 2). The work experience and internet has been the major contributors for the knowledge.

The response rate was 100% and all of them attempted to the questions based on the case scenario, and the responses are shown in Table 3. Results depicted that once a patient is terminally ill and he is assured of medical futility a significant majority (i.e. 62.9%, $p=0.005$) think that this particular patient should have legal rights to forgo life sustaining treatment, where 46.6% ($p=0.46$) and 62.9% ($p=0.005$) agreed that the family and the doctor should also possess such power respectively (Table 3).

Statistics reveal that significant proportion of participants agreed to implement DNR orders ($p<0.001$) and withdrawal of care ($p<0.001$) in Sri Lanka and most of them reasoned out the limited resources as the justification. 11 of the whole cohort thought that the practice of DNR is a sin and it should not be practiced (Table 4).

## DISCUSSION

AD, DNR orders and WLT are issues widely practiced in the western world, but these are not legally advocated by legislation in SAARC nations including Sri Lanka. Despite the fact that these have not been legalised or legally practiced in our hospitals, every doctor is expected to have an updated knowledge about these issues which have gained more and more attention. 'Is the current knowledge adequate?' and 'what are perceptions of the doctors?' are the questions which need to be answered.

In our study, the finding that only one fifth of the cohort knew the term 'AD' and out of them only 28 were able to correctly define the term revealed a gross inadequacy

**Table 2: Knowledge and understanding of DNR, Advanced Directives and withdrawal of care in an terminally ill patient**

| Ethical principle | Heard about the term | | | Knew the correct meaning | |
|---|---|---|---|---|---|
| | Yes N (%) | No N (%) | Source of Knowledge N (% of total sample) | Yes N (%) | No N (%) |
| DNR | 155(66.8) | 77(33.2) | Lecture- 26 (11.2)<br>Internet- 24 (10.3)<br>Work Experience- 44(18.9)<br>Colleagues-6 (2.6)<br>Media- 2 (0.9) | 61(26.3) | 171(73.7) |
| | *p<0.001 | | | *p<0.001 | |
| Advance directives | 48(20.7) | 184(79.3) | Lecture- 10 (4.3)<br>Internet- 15 (6.5)<br>Work Experience- 11(4.7) | 28(12.1) | 204(87.9) |
| | *p<0.001 | | | *p<0.001 | |
| Withdrawal of care | 145(62.5) | 87(37.5) | Not tested | | |
| | *p=0.006 | | | | |

* p value was determined using Pearson Chi Squared equation.

**Table 3: Responses to close ended questions with regard to the case scenario**

| Question | Response [N (%)] | | | *p value |
|---|---|---|---|---|
| | Yes | No | Don't know | |
| Patient **should have the power** to decide to avoid treatment and life support | 146 (62.9) | 86 (37.1) | 0 | **p=0.005 |
| patient **has the power** to decide to avoid treatment and life support | 58 (25.0) | 128 (55.2) | 46 (19.8) | **p<0.001 |
| Family **should have the power** to decide to avoid treatment and life support | 108 (46.6) | 124 (53.4) | 0 | p=0.46 |
| Family **has the power** to decide to avoid treatment and life support | 40 (17.3) | 140 (60.3) | 52 (22.4) | **p<0.001 |
| Doctor **should have the power** to decide to avoid treatment and life support | 146 (62.9) | 86 (37.1) | 0 | p=0.005 |
| Doctor **has the power** to decide to avoid treatment and life support | 92 (39.6) | 96 (41.4) | 44 (19.0) | **p=0.84 |

* p value was determined using Pearson Chi Squared equation. ** p values calculated only between responses "Yes" and "No"

**Table 4: Attitudes on implementation of DNR orders and withdrawal of care. Data given as N (%)**

| Question | Yes | No | Not responded | Reason to agree N=108 | Reason to disagree N=14 |
|---|---|---|---|---|---|
| **Whether DNR is appropriate to be implemented in Sri Lanka** | 158(68.1) | 40(17.2) | 34(14.7) | Limited resources 68(29.3)<br>To reduce patient suffering 12(5.2)<br>Patient's autonomy 17(4.7)<br>After recovery poor quality of life 17(7.32) | Sin or Unethical 11(4.7)<br>Chance of Misuse 3 (1.3) |
| | *p<0.001 | | | | |
| **Whether Withdrawal/ Withholding of care is appropriate to be implemented in Sri Lanka** | 153(65.9) | 53(22.9) | 26(11.2) | Limited resources 93(40.1)<br>To reduce patient suffering 12(5.2)<br>Patient's autonomy 4(1.7)<br>After recovery poor quality of life 6(2.6) | Sin or Unethical 9(3.9)<br>Chance of Misuse 5(2.2) |
| | *p<0.001 | | | | |

* p value was determined using Pearson Chi Squared equation.

of the knowledge on the subject in a significant majority ($p < 0.001$). The novelty of the subjects and absence of the practice in our country may account for the finding. In contrast, a significant number had heard about 'DNR' orders and 'WLT' [66.8% ($p < 0.001$) and 62.5% ($p = 0.006$) respectively]. This finding may be because they encounter terminally ill patients in their day-to-day practice, although they do not exercise these documents. Owing perhaps to some lapses in the medical education on ethics, only a minority of the participants defined the term 'DNR orders' correctly. Informative undergraduate and postgraduate lectures, internet study material and implementation of more Continuing Medical Education (CME) programmes amongst clinicians might improve the basic knowledge and understanding about this subject.

The moral duty to respect autonomy is now an established part of good clinical practice.[11] Majority of the subjects' agreement to empower the patient with right on his end-of-life decisions can be explained as an aspiration of the medical community towards practice of autonomy of Sri Lankan patients. The enlightenment by medical education on ethical subjects would also have influenced this finding. This is an upcoming trend in many affluent nations as well.[2] Not many studies have been done with this regard but a study done by Miller in 1985 showed that many doctors prefer patients' participation in such decision making events.[1]

Regarding provision of legal power to the family on behalf of the patient, to decide about WLT, 53.4% of the doctors disagreed, which is statistically insignificant ($p = 0.46$). Yet it may be attributed to perceptions of the clinicians since the family members lack proper understanding due to emotional involvement and sympathy or might enable them to misuse such authority. Another explanation would be that in Buddhism, the first of the five precepts admonishes the destruction of life as a sin and also killing of a person intentionally or unintentionally is considered to be one of the five heinous crimes; thus as the majority of the participants were Buddhists (88.4%), this thought might have influenced the above finding. There are no published studies testing medical practitioners' views in this regard. A doctor would like to bestow the right to decide upon end-of-life decisions to the patient's family rather than do it all by himself, because of strong family bonds and the immeasurable trust placed upon next of kin and the cultural background. This may be the reason why 46.6% of doctors chose to entrust the decision making authority to the family of the patient.

A significant majority (62.9%) ($p = 0.005$) of the subjects held the idea that a doctor should have the authority to decide about WLT. This is in line with findings of an earlier study done by Rivera in 2010 on a group of doctors who were undergoing training, where a

majority thought that the physician should have a right to give a DNR order in the absence of an order from a comatosed patient.[8] The better understanding about the disease process, patient's history and the outcome of treatment, are the positive points for a doctor to think that he would be in a better position to decide on behalf of his patient than the patient himself or the family. But in our cohort, again the religious beliefs may have made 37.1% to disagree with the statement.

The wrong perception that 'Sri Lankans (a doctor, the patient or family) are provided with legal provision to act as surrogates' in end-of-life decision making, may be due to lack of knowledge on basic legislation. Lack of review of medical ethics or practical expertise on these issues may be some of the contributory factors.

Authorisation of DNR orders and WLT in our country was agreed by 75% ($p < 0.001$) on the basis of resource scarcity and the assumption that hastening the death would terminate the needless patient suffering. The doctors' liberal percept about the practice of his patients' autonomy is a healthy outlook from a medical point of view. Out of 14 whom claimed it as inappropriate, 11 thought it to be a sin which is again expected with the South Asian cultural and religious beliefs. Only 3 of the doctors thought that the documents could be misused by the doctors for organ harvesting or misuse by next-of-kin for other means. Probably because of the dilemma between the knowledge and religious views, 34 were inconclusive of its implementation.

The most important factors in the end-of-life decisions are the likelihood of cure and the chances of long-term disease free survival; yet the cultural background, religious preaching, federal legislation and the scope of medical education should also be taken into account prior to introduction into the legal system in Sri Lanka.

**Suggestions:** More lectures on medical ethics should be included in undergraduate curriculum and Continuing Medical Education programs should be organized for graduates and postgraduates. The need to respect the patient's wishes and autonomy should be emphasized.

## CONCLUSION

The knowledge about end-of-life decisions among medical professionals working in three major teaching hospitals of Kandy district is inadequate. The majority of the medical doctors have positive attitudes towards end-of-life decisions on their implementation in Sri Lanka.

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