



## Perspectives of Physicians and Nurses Regarding End-of-Life Care at King Abdullah Medical City in Makkah: A Cross-Sectional Study

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### Abstract

End of life care decision is challenging. We assessed the perspectives of physicians and nurses in a tertiary care hospital by testing 19 statements. A total of 112 physicians and 188 nurses completed the survey. Both physicians and nurses agreed to 15 statements, disagreed to 2, and regarding statements 4 and 7, nurses were having a different opinion than physicians. In particular, nurses were more likely to agree while physicians disagree. According to our results, one reason for transferring sick patients to ICU is the fear of legal implications. Physicians and nurses both agreed that patients and families were encouraged to make timely and appropriate decisions about DNR and their religious beliefs greatly influence their views regarding EOLC decisions. Furthermore, physicians do talk about health care directives with patients and family members regularly. Nurses agreed that the patients with DNR status should always be treated in the intensive care unit if indicated.

On the other hand, physicians do not want to treat DNR patients in ICU ( $P = 0.003$ ). Similarly, nurses agreed that we routinely placed a religious assessment of the patients in patient charts and nurses/physicians know about it while physicians do not agree with that ( $P = 0.000$ ). It is a single-center study, hence the generalization of its results is limited. We did not calculate the actual practices of providing EOLC in our hospital. The possible confounding factors, such as age, gender, and ethnicity, have not been addressed in our survey.

**Keywords:** Do not Resuscitate; Dying Patients; End of Life; Perspective of Physicians and Nurses

## Background and Rationale

Decisions regarding providing end-of-life care (EOLC), including the withholding and withdrawing of life support, is a significant challenge that faces patients, their relatives, and intensive care physicians [1,2]. The complex interaction between the ethical, social, cultural, moral, and religious values besides the patients' prognosis, overall performance, and quality of life before hospital admission plays a major role in these hard decisions [3,4].

The ability of an intensive care physician to provide competent end-of-life care (EOLC) is an important skill to reach the optimal EOLC, which requires a perspective provided by multiple members of the medical team [5]. Of course, leadership, deliberation, and explicit collaboration are all needed for the optimal implantation of EOLC [6-9].

Worldwide, the demand for critical care services is increasing, which is, according to researchers, attributed to the increase of the population age, longer survival of previously thought incurable diseases, and the mandatory post-operative intensive care admission [10]. Also, health organizations and hospital administrations are pressuring physicians to act more cost-effectively.

We have found that physicians and nurses have different views regarding EOLC, even though both are heading toward the same goal. Most physicians postpone discussing DNR until the patient is showing a poor prognosis or when his condition worsens, while nurses approach this issue early when we admit the patient, which is attributed to the fact that physicians are probably more optimistic regarding the prognosis than nurses [11].

Saudi Arabia is a country that abides by very strict religious and cultural values. Thus, many Saudi hospitals have adopted a DNR policy that follows the religious point of view regarding (fatwa) DNR, which was established in 1988 and it showed that we do not require family opinion for EOLC decision, it mainly depends upon three knowledgeable and trustworthy physicians involved in patient care [12,13].

Unfortunately, we lack adequate researches regarding end-of-life care in the Middle East, and international researches are usually not applicable because of the beforehand mentioned different cultural and religious background [14]. In general, we found that in Saudi Arabia, the concern of physicians was more about religion

and litigation than the cost of care [15].

## Aim and Objectives

- **Primary:** To measure the perception of physicians and nurses regarding EOLC at King Abdullah Medical City (KAMC) in the holy capital.
- **Secondary:** To compare the views of consultants, specialists, and resident physicians regarding EOLC and whether DNR policies are being applied in KAMC. To compare the views of physicians with nurses regarding EOLC.

## Methodology

### Study design

A cross-sectional observational study.

### Study population

#### Inclusion criteria

Physicians (Consultants, specialists, and residents) and nurses working at the clinical and critical care departments at KAMC during June 2016.

#### Exclusion criteria

Physicians and nurses who don't agree to take part.

### Study procedure

- The survey used is a modified preexisting survey on EOLC in ICU adapted from Emir Festic., *et al.* research in 2012 with additional statements.
- A list of physicians and nurses who met the inclusion criteria was obtained from the department of human resources/staff affairs.
- We delivered a self-administered questionnaire randomly to the targeted sample size at their departments. They filled the questionnaire with the following information:
  - Demographic information: Specialty, Position of the participants, Years of experience.
  - Views regarding specific statements (19 statements and 4 yes/no questions) on the perspective, attitude, and practice of DNR policies at KAMC. The participants recorded their views on a Likert-scale form, containing all statements (Attachment I).

**Outcome assessment**

Primary outcome: the mean of the average mean score of Likert scale of different statements.

**Data collection and management**

Our study was a single-center cross-sectional study from June 1<sup>st</sup> to June 30<sup>th</sup>, 2016. After getting KAMC IRB approval, we started our data collection on hard copies. Data was collected from the physicians and nurses after they filled the questionnaire, not showing any nominative information. We entered the data into the SPSS system. The names of the participants were kept anonymous. Two persons from the research team handled data entry and data. A KAMC statistician analyzed the data to get the results. We will publish the results in local and international journals.

**Sample size determination**

We calculated the Sample size for a descriptive study of a continuous variable using the following equation:

$$\text{Sample size} = N = 4Z\alpha 2S^2/W^2 = 61.$$

Considering CI=95%, W=2 and S=1.

Compare the mean of continuous measurement in two samples, using a z-statistic to approximate the t-statistic, the sample size was calculated as follows:

The standard normal deviate for  $\alpha = Z_\alpha = 1.960$ .

The standard normal deviate for  $\beta = Z_\beta = 0.842$ .

$$A = (1/q_1 + 1/q_0) = 6.250.$$

$$B = (Z_\alpha + Z_\beta)^2 = 7.849.$$

$$\text{Standardized Effect Size} = (E/S) = 0.500.$$

$$\text{Total group size} = N = AB/(E/S)^2 = 196.22.$$

Considering q1=0.2 and S=1.

N<sub>1</sub>: 39 (ICU).

N<sub>0</sub>: 157 (Non ICU).

Total: 196.

**Statistical analysis plan**

We analyzed the obtained data on SPSS V22.8. Numeric data were presented as mean± SD, or as median and range according to the type of distribution of each variable. For categorical variables,

percentages were used. Comparison between groups was made by Wilcoxon Rank Sum test or Mann-Whitney U test according to data distribution. A Chi-squared test was used for categorical values.

A regression model was constructed with the mean of questions as the dependent variable. The model was linear or ordinal according to the distribution of the outcome variable and the fulfillment of the outcome assumption. Different demographic factors were entered individually into the model, and significant ones (P<0.1) were entered into a multifactorial model. Ordinal regression was performed on Stata V.13.

**Ethical part and confidentiality**

Ethical approval was sought from KAMC Institutional Review Board (IRB). The subjects were included in the study after taking verbal consent.

**Results**

**Response rate**

Response Rate		
Physicians	128/143	89.51%
Nurses	188/250	75.2%
Total	316/393	80.40%

**Table 1**

Demographics of physicians	#	%
Reported positions	110	98.21%
Consultant	21	18.75%
Specialist	69	61.60%
Residents	20	17.86%
Not reported	2	1.79%
Total	112	100%
Total reported specialty	112	100%
Critical care	19	16.96%
Oncology	5	4.47%
Non-critical care non oncology	88	78.57%
Not reported	0	0%
Total	112	100%

**Table 2**

Demographics of nurses	#	%
The reported positions	181	96.27%
Critical	64	34.04%
Oncology	38	20.21%
Non-critical	79	42.02%
Not reported	7	3.73%
Total	188	100%
The reported level of education	175	93.08%
Diploma	12	6.38%
Bachelor	158	84.05%
Master	5	2.66%
Not reported	13	6.91%
Total	188	100%

Table 3

Statement	Responses				
	Strongly disagree	Dis-agree	Neu-tral	Agree	Strong-ly agree
Fear of legal implications often results in transferring dying patients to ICU					
Physicians	9	15	29	54	19
Consultants	1	4	6	13	5
Specialists	7	9	15	33	13
Residents	1	2	8	8	1
P-value	0.510				
Nurse	3	16	63	71	19
Critical	1	2	18	30	9
Oncology	2	6	13	10	5
Non-critical Non-Oncology	0	8	32	31	5
P-value	0.028				
5 years or less	0	5	28	18	6
6-15 years	3	11	35	54	12
More than 15 years	0	1	1	0	0
P-value	0.130				
Total (Physicians and Nurses)	12	31	92	125	38

P-value	0.774				
Patients and families are encouraged to make timely and appropriate decisions about DNR orders					
Physicians	10	15	27	56	20
Consultants	2	4	9	9	6
Specialists	6	8	9	43	12
Residents	2	3	9	4	2
P-value	0.060				
Nurse	5	12	22	96	44
Critical	3	7	7	32	13
Oncology	1	1	3	21	12
Non-critical Non-Oncology	0	0	13	40	25
P-value	0.183				
5 years or less	1	2	6	34	16
6-15 years	4	10	18	61	25
More than 15 years	0	0	0	1	1
P-value	0.147				
Total (Physicians and Nurses)	15	27	49	152	64
P-value	0.001				
Physicians talk about health care directives with patient and family members					
Physicians	2	4	18	73	28
Consultants	0	0	4	17	6
Specialists	2	2	9	45	20
Residents	0	2	5	11	2
P-value	0.105				
Nurse	5	2	29	88	54
Critical	3	1	10	33	15
Oncology	2	1	6	15	14
Non-critical Non-Oncology	0	0	13	40	25
P-value	0.432				

5 years or less	1	1	14	24	19
6-15 years	4	1	16	63	33
More 15 years	0	0	0	2	0
P-value	0.926				
Total (Physicians and Nurses)	7	6	47	161	82
P-value	0.355				
The patient with DNR should always be treated in intensive care if indicated					
Physicians	21	44	24	34	5
Consultants	3	13	3	7	4
Specialists	17	24	15	21	1
Residents	1	7	6	6	0
P-value	0.374				
Nurse	11	49	53	50	14
Critical	1	21	12	26	2
Oncology	7	12	13	4	1
Non-critical Non-Oncology	3	16	28	20	11
P-value	0.001				
5 years or less	4	8	21	18	6
6-15 years	6	40	31	33	8
More than 15 years	0	1	0	1	0
P-value	0.234				
Total (Physicians and Nurses)	32	93	77	84	19
P-value	0.003				
My religious beliefs greatly influence my view of DNR					
Physicians	7	16	36	43	23
Consultants	1	8	6	6	8
Specialists	5	5	21	31	15
Residents	1	3	9	6	0
P-value	0.088				
Nurse	5	18	57	72	25
Critical	0	8	20	27	6
Oncology	3	3	10	16	5

Non-critical Non-Oncology	2	7	27	29	14
P-value	0.862				
5 years or less	3	4	17	25	9
6-15 years	2	15	37	47	16
More 15 years	0	0	1	1	0
P-value	0.840				
Total (Physicians and Nurses)	12	34	93	115	48
P-value	0.706				
My cultural background makes it difficult for me to deal with the DNR issue					
Physicians	14	45	24	34	9
Consultants	3	13	7	3	3
Specialists	9	27	11	25	6
Residents	2	5	6	6	0
P-value	0.591				
Nurse	12	53	60	36	16
Critical	1	20	22	13	6
Oncology	3	12	13	7	2
Non-critical Non-Oncology	8	21	25	16	8
P-value	0.616				
5 years or less	4	10	23	12	9
6-15 years	10	43	33	24	7
More 15 years	0	0	1	1	0
P-value	0.035				
Total (Physicians and Nurses)	26	98	84	70	25
P-value	0.455				
A religious assessment of the patient is routinely placed in patients charts and nurses/physicians know about it					
Physicians	20	31	29	35	11
Consultants	5	8	5	7	5

Specialists	13	19	14	25	5
Residents	2	4	10	3	1
P-value	0.938				
Nurse	5	31	45	78	19
Critical	2	15	7	30	7
Oncology	1	6	10	19	2
Non-critical Non-Oncology	2	10	28	29	10
P-value	0.965				
5 years or less	0	6	19	25	9
6-15 years	5	23	24	54	11
More than 15 years	0	0	1	1	0
P-value	0.438				
Total (Physicians and Nurses)	25	62	74	113	30
P-value	0.000				
Bereavement and follow-up services are offered to family members of patients who died in the hospital					
Physicians	12	20	35	50	8
Consultants	4	7	5	10	4
Specialists	8	11	20	33	3
Residents	0	2	10	7	1
P-value	0.914				
Nurse	3	15	57	89	14
Critical	2	5	11	36	6
Oncology	1	4	13	17	3
Non-critical Non-Oncology	0	6	33	36	5
P-value	0.176				
5 years or less	0	4	23	28	5
6-15 years	3	12	33	60	8
More than 15 years	0	0	1	0	1
P-value	0.828				
Total (Physicians and Nurses)	15	35	92	139	22

P-value	0.005				
Services of a social worker are offered to dying patients and family members					
Physicians	3	16	23	66	19
Consultants	0	4	5	15	6
Specialists	3	9	9	44	12
Residents	0	3	9	7	1
P-value	0.070				
Nurse	5	11	34	93	37
Critical	2	9	9	34	8
Oncology	1	0	5	20	12
Non-critical Non-Oncology	2	2	20	39	17
P-value	0.031				
5 years or less	2	2	17	30	9
6-15 years	3	9	18	60	28
More than 15 years	0	0	0	1	1
P-value	0.187				
Total (Physicians and Nurses)	8	27	57	159	56
P-value	0.122				
Effective and timely pain management/ comfort care is provided to patients who are dying					
Physicians	2	3	10	59	52
Consultants	0	2	2	11	15
Specialists	1	0	4	38	33
Residents	1	1	4	10	4
P-value	0.024				
Nurse	4	8	19	91	58
Critical	4	2	1	37	18
Oncology	0	1	1	21	15
Non-critical Non-Oncology	0	5	17	33	25
P-value	0.133				

5 years or less	1	3	10	30	16
6-15 years	3	5	9	60	41
More than 15 years	0	0	0	1	1
P-value	0.277				
Total (Physicians and Nurses)	6	11	29	150	110
P-value	0.062				
I can safely raise questions and concerns about end-of-life care policies and practices					
Physicians	0	9	34	63	20
Consultants	0	1	7	14	8
Specialists	0	3	24	37	12
Residents	0	5	3	12	0
P-value	0.074				
Nurse	2	11	42	100	23
Critical	0	2	8	43	8
Oncology	1	5	7	20	5
Non-critical Non-Oncology	1	4	27	37	10
P-value	0.054				
5 years or less	0	3	18	32	7
6-15 years	2	6	26	66	16
More than 15 years	0	0	0	2	0
P-value	0.716				
Total (Physicians and Nurses)	2	20	76	163	43
P-value	0.939				
Caring for dying patients and their families is a rewarding experience					
Physicians	2	11	27	65	22
Consultants	0	2	9	15	3
Specialists	2	6	12	39	19
Residents	0	3	6	11	0

P-value	0.038				
Nurse	2	4	39	87	46
Critical	2	3	8	35	14
Oncology	0	0	13	17	7
Non-critical Non-Oncology	0	1	18	35	25
P-value	0.277				
5 years or less	0	1	13	25	19
6-15 years	2	2	27	61	26
More than 15 years	0	0	0	2	0
P-value	0.506				
Total (Physicians and Nurses)	4	15	66	152	68
P-value	0.046				
The hospital provides professional education to physicians to improve end-of-life clinical practices					
Physicians	15	31	30	40	10
Consultants	5	9	7	7	2
Specialists	9	15	14	30	8
Residents	1	7	9	3	0
P-value	0.076				
Nurse	5	16	51	80	26
Critical	2	6	13	33	8
Oncology	1	3	12	19	3
Non-critical Non-Oncology	2	7	26	28	15
P-value	0.768				
5 years or less	1	3	23	26	6
6-15 years	4	13	26	54	20
More than 15 years	0	0	0	2	0
P-value	0.540				
Total (Physicians and Nurses)	20	47	81	120	36
P-value	0.000				

There is a clear policy regarding DNR implementation at your hospital					
Physicians	13	23	22	51	18
Consultants	3	5	8	11	3
Specialists	8	10	10	34	15
Residents	2	8	4	6	0
P-value	0.015				
Nurse	3	4	34	77	61
Critical	2	1	8	31	20
Oncology	1	0	11	12	14
Non-critical Non-Oncology	0	3	15	34	27
P-value	0.919				
5 years or less	1	2	15	27	14
6-15 years	2	2	19	48	47
More than 15 years	0	0	0	1	1
P-value	0.060				
Total (Physicians and Nurses)	16	27	56	128	79
P-value	0.000				
I believe the patients should be involved in the decision regarding their DNR status					
Physicians	6	29	21	50	21
Consultants	2	4	6	14	4
Specialists	3	19	10	33	13
Residents	1	6	5	4	4
P-value	0.667				
Nurse	11	14	40	59	55
Critical	7	8	8	23	16
Oncology	3	2	14	9	10
Non-critical Non-Oncology	1	4	18	27	29
P-value	0.068				
5 years or less	4	3	12	21	19

6-15 years	8	11	28	39	32
More than 15 years	0	0	1	0	1
P-value	0.587				
Total (Physicians and Nurses)	17	43	61	109	76
P-value	0.011				
I believe DNR policies should include the patient as a decision-maker					
Physicians	12	34	21	39	20
Consultants	2	6	6	9	6
Specialists	7	24	7	28	11
Residents	3	4	8	2	3
P-value	0.416				
Nurse	10	19	42	56	50
Critical	6	7	8	23	16
Oncology	3	5	9	11	9
Non-critical Non-Oncology	1	7	25	22	25
P-value	0.561				
5 years or less	3	6	15	18	17
6-15 years	8	13	27	38	30
More than 15 years	0	0	1	0	1
P-value	0.859				
Total (Physicians and Nurses)	22	53	63	95	70
P-value	0.001				
I believe the patients have the right to reject their DNR					
Physicians	10	31	21	40	26
Consultants	2	4	5	11	8
Specialists	6	23	13	22	14
Residents	2	4	3	7	4
P-value	0.252				
Nurse	6	16	27	69	60
Critical	3	6	5	29	18



Oncology	2	3	9	11	13
Non-critical Non-Oncology	1	7	13	29	29
P-value	0.711				
5 years or less	2	5	14	21	18
6-15 years	5	10	13	48	40
More than 15 years	0	0	1	0	1
P-value	0.605				
Total (Physicians and Nurses)	16	47	48	109	86
P-value	0.000				
I believe DNR decision can result in negligence of patient's care					
Physicians	22	37	27	33	8
Consultants	5	7	9	7	2
Specialists	15	26	13	18	5
Residents	2	4	5	8	1
P-value	0.261				
Nurse	26	67	36	38	13
Critical	9	28	4	15	6
Oncology	7	12	15	3	1
Non-critical Non-Oncology	10	27	17	20	6
P-value	0.349				
5 years or less	7	22	16	12	3
6-15 years	20	43	18	27	10
More than 15 years	0	1	1	0	0
P-value	0.967				
Total (Physicians and Nurses)	48	104	63	71	21
P-value	0.626				
I feel comfortable discussing DNR decision with the patient and/or the family					
Physicians	9	29	26	53	11

Consultants	2	4	8	13	3
Specialists	5	19	15	33	6
Residents	2	6	3	7	2
P-value	0.641				
Nurse	12	45	61	44	17
Critical	1	15	18	20	7
Oncology	3	9	17	5	4
Non-critical Non-Oncology	8	21	26	19	6
P-value	0.136				
5 years or less	2	23	19	12	3
6-15 years	10	20	41	32	15
More than 15 years	0	1	1	0	0
P-value	0.065				
Total (Physicians and Nurses)	21	74	87	97	28
P-value	0.145				

Table 4

Discussion and Conclusion

The primary aim of our study was to assess the perspectives of physicians and nurses regarding EOLC while focusing on how these perspectives were influenced by the level of education and workplace. Although there is an agreement between physicians and nurses in most of the areas we assessed, some important disagreement still exists. We further noted that differences exist between nurses based on their assigned department and level of experience.

We assessed the perspective of physicians and nurses in King Abdullah Medical City (KAMC) hospital by testing 19 statements. Both physicians and nurses agreed to 15 statements, disagreed to 2 statements, and regarding statements 4 and 7, the nurses were having different opinions than physicians. In particular, the nurses were more likely to agree while the physicians disagree.

Nurses agreed that the patients with DNR status should always be treated in the intensive care unit if indicated. On the other hand, physicians do not want to treat DNR patients in ICU (P = 0.003). Similarly, nurses agreed that a religious assessment of the patients is routinely placed in their charts and nurses/physicians know about it while physicians did not agree to that (P = 0.000). How-

ever, a significant difference of opinion exists among the nurses based on their duration of clinical experience and primary working departments.

Physicians and nurses both disagreed that their cultural background makes it difficult for them to deal with the DNR issue. However, their opinion is insignificant ( $P = 0.45$ ). Both nurses and physicians did not believe the DNR decision could result in negligence of patient care. This result also is not statistically important ( $P = 0.626$ ).

Physicians and nurses of KAMC responded positively to most of the areas of assessment (15/19 statements). According to our results, one of the reasons for transferring sick patients to ICU is the fear of legal implications. Physicians and nurses both agreed that patients and families are encouraged to make timely decisions about DNR orders. Furthermore, physicians do talk about health care directives with patients and family members regularly.

No doubt religious affiliation greatly impacts the decision-making power of certain communities. As we did our study in a deeply religious society, so both physicians and nurses agreed that religious beliefs greatly influence their views about DNR. They further agreed that bereavement and follow-up services are offered to family members of patients who died in the hospital. Social workers regularly communicate with dying patients and family members in our hospital.

To know the effect of participant's position and experience on EOLC perception, our survey suggested 3 major areas of discrepancy. As compared to specialists and residents, consultants significantly agreed that effective and timely pain management is being provided to dying patients ( $P = 0.024$ ). Furthermore, consultants and specialists responded positively that there is a clear policy regarding DNR implementation in our hospital while the resident doctors disagreed ( $P = 0.015$ ). We further noted that consultants, specialists, and residents all agreed that caring for dying patients and their families was a rewarding experience for them ( $P = 0.038$ ).

There are certain limitations of our study. First, it is from a single-center, tertiary care hospital in the western region of Saudi Arabia, hence the generalization of its results is limited. Additionally, we did not calculate the actual practices of providing EOLC in our hospital. The possible confounding factors such as age, gender,

and ethnicity have not been addressed in our cross-sectional study. Besides the above-mentioned limitations, there is a chance of having recall bias about close-ended statements as well.

## Publication

The main credit in publication will go to the principal investigator and co-investigators. Those who will contribute less substantially to data collection and analysis will have an acknowledgment in the manuscript.

## Author Contributions

Wrote the manuscript, searched the literature, and designed the article for submission.

## Conflicts of Interest

Authors declare the absence of any conflicts of interests and their financial interest that might be construed to influence the results or interpretation of their manuscript.

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