



Knowledge, Attitudes, and Practices Toward Do-Not-Resuscitate Orders Among Physicians at Sheikh Khalifa Medical City, Abu Dhabi

Abdelrahman Al Naqbi^{1*}, Khuloud Alzubaidi², Eiman Awad Alameri³, Shamma Almarzooqi⁴, Kawthar Salem Al Ameri⁵

¹Family Medicine Department, Tawam Hospital, Al Ain, United Arab Emirates

²Family Medicine Specialist, Burjeel Holding Company, United Arab Emirates

³Family Medicine Specialist, SEHA Clinic, United Arab Emirates

⁴Family Medicine Specialist, Al Rahba Hospital, United Arab Emirates,

⁵Family Medicine Consultant, Director of Screening Program and Surveillance Department, Abu Dhabi Public Health Center, United Arab Emirates

*Corresponding Author

ARTICLE INFO

Keywords:

Cardiopulmonary resuscitation, Do-Not-Resuscitate (DNR), Allowing Natural Death (AND), Knowledge, Attitudes, and Practices (KAP), End-of-Life Care

Received: Oct, 22, 2025

Accepted: Nov, 29, 2025

Published: Dec, 25, 2025

ABSTRACT

Do-Not-Resuscitate (DNR) or Allowing Natural Death (AND) orders are utilized in various situations around the world, and they are now considered standard medical practice. There are many misconceptions about what a DNR order is and how it works. This study aims to assess DNR knowledge, attitude, and practice of doctors working in Sheikh Khalifa Medical City, Abu Dhabi. A cross-sectional, questionnaire-based study including physicians, residents, and interns practicing at Shaikh Khalifa Medical City (SKMC) was conducted using stratified random sampling. A self-administered, previously used, later modified, and content validated questionnaire containing questions about knowledge, attitude, and practices were employed. The statistical analysis was performed using SPSS version 21. The study analyzed data from 237 participants, revealing that 51.89% of physicians possess good knowledge about DNR. A majority are aware of the UAE DNR law and hospital policies, with more than half knowing specifics such as how many physicians are required to complete a DNR order and the validity period of the order during hospital admission. Despite this good knowledge, 59.9% of physicians held a neutral attitude toward DNR, 21.5% had a positive attitude, and 18.6% reported a negative attitude. Only about one-quarter of the physicians had practiced DNR, either inside or outside the medical city, and many expressed discomfort discussing DNR with patients or their families. Despite good knowledge of DNR among physicians, they find it difficult to discuss and practice. The study provides important baseline information that can increase awareness and inform future education and policy initiatives.

1. INTRODUCTION

Provision of the best healthcare with high quality to all patients is the main standard in all aspects of healthcare delivery, including preventative, curative, and palliative treatment.

Cardiopulmonary resuscitation (CPR) is a vital, life-saving skill for healthcare professionals (HCPs) working in emergency departments (EDs) and other healthcare settings. Although CPR's clinical result depends on some circumstances, including the patient's starting condition and the duration of cardiac arrest, delivering high-quality CPR improves patient outcomes. [1]

CPR was done on every patient with cardiopulmonary arrest prior to the introduction of Do-Not-Resuscitate (DNR) in the 1970s, irrespective of their clinical state or prognosis. This had inexorably led to undesirable outcomes, such as the lengthening of terminally sick patients' lives and enhanced family stress in the manner of anxiety and economic strain. [2]

Kouwenhoven was the first to invent CPR, also known as closed-chest cardiac massage, in 1960. [3] All hospitalized patients suffering from cardiac arrest were already required to receive CPR. [4] Later, due to low survival rates and poor neurological outcomes, the use of CPR for all patients was questioned, [5] and the concept of do-not-resuscitate (DNR) for terminally ill patients became part of medical practice; however, it was always one of the most difficult decisions for physicians to make. [6]

It was noticed that Do-Not-Resuscitate (DNR) or Allowing Natural Death (AND) orders are being used under certain circumstances worldwide, and nowadays, it is considered part of medical practice. DNR or AND are all abbreviations referring to an advanced medical decision made by the medical team not to attempt cardiopulmonary resuscitation (CPR) on a patient suffering from respiratory and cardiac arrest. Do-not-resuscitate orders do not include therapeutic instructions. [7] DNR decisions have effectively avoided unnecessary and intrusive intervention toward the end of life. The assessment of ethical capabilities plays a critical role in identifying and analyzing the elements that impact DNR decision-making to reach a DNR order conclusion. [8]

Many misunderstandings exist about what a DNR order means and the law surrounding its use. The concept of DNR or AND is newly introduced in United Arab Emirates (UAE); that carefully adheres to the Federal Law released in 2016 No. article 11, which states that "natural death may be allowed by not performing cardiopulmonary resuscitation if the patient is dying under identified conditions." [9]

Clear transparency is crucial when the medical team discusses with the patient and/or a family relative and careers involved in the patient care regarding DNR as it can be highly emotional and may cause severe mental distress to all parties.

It is worth mentioning that there are no studies locally yet, as per we know. However, there was a study done in Saudi Arabia among physicians concluding that the main barriers to initiating and discussing DNR were patient culture and lack of understanding. However, Islam as a religion was not a barrier in addressing DNR. [10] Furthermore, this study reported that only 62% of their participants were aware of applying the concept of futile treatment in addressing DNR and 78.5% of the participants were not mindful about the presence of the ethics committee in their institute. [10]

In many countries, the DNR decision-making process varies. This variation may be attributable to differing beliefs, acceptability, appreciation, ethics, and legality that can be seen among societies, cultures, races, and religions. [11, 12]

Since no previous study was done in UAE addressing DNR, this study aims to assess DNR's knowledge, attitude, and practice in Sheikh Khalifa Medical City physicians. After conducting the research, a better understanding will be highlighted, hoping it will assist in coming up with specific training programs and policies (order) to nourish healthcare providers' knowledge, have a positive attitude, and aid in better practice for our population in the near future.

2. METHODOLOGY

2.1. Study Design and setting

This is a cross-sectional, questionnaire-based study performed in Shaikh Khalifa Medical City (SKMC), Abu Dhabi, from September 2019 to August 2021. SKMC is Abu Dhabi's largest teaching medical centre and the UAE's premier tertiary hospital.

2.2. Study Population

All physicians, residents, and interns practising in SKMC were included in this study. Pediatricians, radiology residents, dentists, physicians on clinical attachments, medical students, physicians working only on administrative posts etc., were excluded.

2.3. Sampling

Physicians under certain specialities were selected using stratified random sampling. Rao soft

(www.raosoft.com) was used to find out the

Table 1: Demographic Characteristics and medical training of the study participants.	
Demographic Characteristics	Number (%)
Gender	
Male	103 (43.5)
Female	134 (56.5)
Age Group	
21-30	100 (42.2)
31-40	56 (23.6)
41-50	45 (19.0)
51 and above	36 (15.2)
Profession Status	
Consultant	67 (28.3)
Senior specialist	21 (8.90)
Specialist	61 (25.7)
Resident	68 (28.7)
Intern	20 (8.40)

required sample. Considering the number of physicians was 510 with a 95% confidence interval and a 5% margin of error, the calculated sample size was 210. An additional 25% (n=27) was added to cover inconsistencies and discrepancies. So the sample size of 237 was found sufficient for the current study.

2.4. Questionnaire and Data collection

A self-administered, previously used questionnaire [10] that was modified was content validated after the pilot study. The questionnaire included 4 sections: physician's socio-demographics, knowledge, attitude, and practice of DNR among SKMC physicians. The knowledge part consists of 7 questions with a total score of 24. A score of zero to seven represented poor knowledge. A score of 8 to 16 meant fair knowledge, and a Score greater than 16 considered Good Knowledge. The total number of questions in the physician's attitude section was seven. Scores zero to two represented poor, three to five considered fair and six to seven denoted good attitude towards DNR. The practice section had 6 questions; 3 were close-ended questions with answers, Yes and No, and 3 had the options with 1 mark for the correct score. A score of zero to one meant poor practice, and two to three meant good practice.

After completing a pilot study, physicians were contacted for data collection by the secretary of

each medical department. An information document describing the research and its goals was also included, followed by a consent form. Filled questionnaires were returned to the researchers to ensure confidentiality. Due to COVID-19 restrictions and multiple lockdowns, the data were collected intermittently between September 2019 to August 2021.

2.5. Statistical Analysis

SPSS version 21 was used for statistical analysis. Sociodemographic data were reported as frequencies and percentages.

2.6. Ethical approval

Ethical clearance was granted by Sheikh Khalifa Medical City's Institutional Review Board/ Research Ethics Committee (**REC-1.02.220 [RS-631]**). Confidentiality was maintained through the coding system, and all the entered data were saved in password-protected files.

3. RESULTS

In this study, a total of 237 physicians from Shaikh Khalifa Medical City participated, with females representing 134 (56.5%) and males 103 (43.5%). The majority of participants were aged 21-30 years (n=100, 42.2%), followed by 31-40 years (n=56, 23.6%), 41-50 years (n=45, 19.0%), and 51 years or above (n=36, 15.2%). Regarding professional status, residents (n=68, 28.7%) and consultants (n=67, 28.3%) constituted the largest groups, followed by specialists (n=61, 25.7%), senior specialists (n=21, 8.9%), and interns (n=20, 8.4%).

We evaluated those 123 (51.89%) physicians possess good knowledge about DNR. Out of 237 participants, 147 (62. %) have an awareness of the DNR law, and 152 (64.1%) know that there is NO CODE policy in SKMC; however, 63 (26.6%) were not sure about the policy. Moreover, 138 (58.2%) of the participants reported that three physicians were required to complete a DNR order. The majority of participants, i.e. 178 (75.1%) stated that the validity of the DNR order lasts for the duration of hospital admission. **Table 2**

We also evaluated the knowledge on the basis of scores. One physician had poor knowledge (n=1, 0.4%), Fair knowledge was observed in 47.7% (n=113) of the physicians, and 51.9% (n=123) of the physicians had good knowledge.

Table 2: Knowledge Regarding DNR

Item No	Item:	Number	(%)
1	Are you aware of UAE law toward DNR?		
	Yes	147	(62.0)
	No	90	(38.0)
2	Do you have DNR (NO CODE) policy in your hospital?		
	Yes	152	(64.1)
	No	22	(9.3)
	Not sure	63	(26.6)
3	How many physicians are needed to complete DNR order?		
	One physician	9	(3.8)
	Two Physicians	82	(34.6)
	Three Physicians	138	(58.2)
	Four or more Physicians	8	(3.4)
4	Who should witness the DNR order form filling?		
	A physician	209	(88.2)
	A registered nurse	130	(54.9)
	Family member	89	(37.6)
	Patient guardian/substitute decision maker	149	(62.9)
5	The validity of DNR order lasts for?		
	For the duration of hospital admission	178	(75.1)
	For the duration of emergency visit	49	(20.7)
	For one month period	32	(13.5)
	For three months period	21	(8.9)
	For six months period	34	(14.3)
6	DNR patients can be provided with the following treatments?		
	ICU admission	88	(37.1)
	Intubation	45	(19.0)
	Airway suctioning	184	(77.6)
	Administration of supplemental oxygen	197	(83.1)
	Cardiac defibrillation	24	(10.1)
	Undergo CPR	29	(12.2)
	Intravenous/subcutaneous access for fluids and medication	171	(72.2)
	Initiation of invasive mechanical ventilation	34	(14.3)
	Analgesics	203	(85.7)
7	Who is eligible for DNR?		
	A patient suffering from an incurable disease	202	(85.2)
	All standard medical treatments have been exhausted	171	(72.2)
	Further treatment is proven to be beneficial	207	(87.3)
	The most responsible treating physician advises against CPR	73	(30.8)
	CPR can be withheld if the patient or legal guardian explicitly asks for it even if it even if resuscitation is deemed medically futile	58	(24.5)

Our results demonstrated that the attitude of 59.9 % is neutral towards DNR, 21.5% has Positive, and 18.6 % of the physician's attitude is negative.

Figure 1 A significant majority of physicians think that DNR is a crucial practice (258.557, $P < 0.001$), and its absence negatively affects practice.

(154.354, $P < 0.001$). Half of the participants believe that the DNR order does not conflict with religious beliefs. A significantly higher number of participants believed that special DNR training for physicians is required. (172.127, $P < 0.001$). **Table 3**

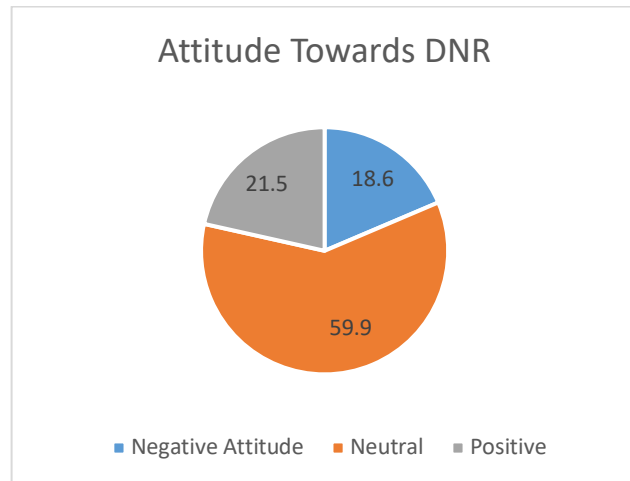


Figure 1: Attitude of the participants towards DNR.

Data analysis revealed that only 25.7 % (n=61) of the study participants had performed DNR outside SKMC, and 32.9% (n=78) performed DNR in SKMC. Out of the 78 physicians who have performed DNR in SKMC, 70.51% (n=55) did it four times at most, and 19.23 % (n=15) performed more than eight times. A large number of physicians spend more than 20 minutes discussing DNR status. It is also found that 59.5% (n=141) of the physicians do not feel comfortable while discussing DNR with the patients/family. **Table 4**

Table 3: Attitude towards DNR

Item No	Item	Agree Number (%)	Neutral Number (%)	Disagree Number (%)
1.	In my opinion DNR is a crucial practice in any hospital	195 (82.4)	32 (13.5)	10 (4.2)
2.	In my opinion absence of hospital DNR policy affect the physician practice negatively	166 (70.0)	56 (23.6)	15 (6.3)
3.	In my opinion DNR order does not conflict with my religious beliefs	118 (49.8)	86 (36.3)	33 (13.9)
4.	In my opinion family consent of DNR is not must	62 (26.2)	75 (31.6)	100 (42.2)
5.	In my opinion patient's survival rate does not affects physician's decision on DNR	51 (21.5)	62 (26.2)	124 (52.3)
6.	In my opinion, DNR practice does not require special training for physicians.	26 (11.0)	37 (15.6)	174 (73.4)
7.	In my opinion my culture has ideas that are incompatible with the issuance and execution of DNR order.	67 (28.3)	80 (33.8)	90 (38.0)

Table 4: Practice of DNR

Item No	Item:	Number	(%)
1	Have you ever practiced DNR outside of SKMC?		
	Yes	61	(25.7)

	No	176	(74.3)
2	Have you ever practiced DNR in SKMC?		
	Yes	78	(32.9)
	No	159	(67.1)
3	How many times did you practice DNR in SKMC?		
	1-4 times	55	(70.51)
	5-8 times	8	(10.25)
	More than 8 times	15	(19.23)
4	How do you open discussion of DNR with patient/family?		
	Understanding of patient illness	153	(64.6)
	Concept of DNR	59	(24.9)
	Witnessed family relative or friend	9	(3.8)
	Express feelings	5	(2.1)
	UAE federal law	11	(4.6)
5	On average, how long do you spend discussing DNR status?		
	(<10 minutes)	7	(3.0)
	(10-20 minutes)	67	(28.3)
	(>20 minutes)	163	(68.8)
6	How do you communicate about the DNR decision with other health care providers involved in patient care?		
	Medical Electronic record, Family meeting, multidisciplinary team	26	(11.0)
	Multidisciplinary team meeting, family meeting, medical electronic record	169	(71.3)
	Family meeting, medical electronic record, multidisciplinary team meeting	28	(11.8)
	Announcing no code in hospital	12	(5.1)
	Medical electronic record and orally informing involved physicians	2	(0.8)
7	How comfortable are you discussing DNR with the patient/family?		
	Very comfortable	26	(11.0)
	Comfortable	70	(29.5)
	Not comfortable	141	(59.5)

4. DISCUSSION

This study has revealed the knowledge, attitude, and practice of physicians working in UAE towards the Do-Not-Resuscitate order. The majority of the Physicians working in the UAE possess good knowledge of DNR. They are aware of the LAW, hospital policy, and other requirements. Despite the excellent understanding, a large number of the physicians have a neutral attitude, and 18.6% reported a negative attitude. Furthermore, DNR is practiced by a quarter of the participants.

This pattern of results is consistent with the previous study performed in the Kingdom of Saudia Arabia reported that physicians have sufficient knowledge regarding DNR. [10] In contrast to the findings of the current study a

previous study performed in Saudia Arabia reported that only 26.3% of the doctors were familiar with the DNR term.[7]

Although the majority of physicians prefer a physician-directed DNR order, they believe that every patient should have advance directives; nevertheless, just a minority of the participating physicians have advance directives. Previous studies show that, other than knowledge and awareness, various other factors also influence the implication of DNR. Religious affiliation of the physician, social factors, condition of the patient, law, environmental factors. [13, 14]

Islam considers life to be sacred and acknowledges that death is an unavoidable element of life. Muslims believe that death is only possible with

God's permission. As a result, treatments are not required if they only prolong the end stage of a fatal illness. Withdrawing life-sustaining medications in such cases may appear to be allowing death to occur naturally. [15, 16]

DNR knowledge, mindfulness, self-efficacy, dispositional resilience, and religious views were all found to be significant positive predictors of physicians' attitudes about the DNR in this study. Moreover, a prior study emphasized the importance of ongoing and consistent training to increase awareness among doctors. [17]

The current study is in line with the findings of the previous studies stated that the majority of physicians are not comfortable discussing DNR with the patient/family. [18, 19] According to a study, the most crucial element influencing the DNR choice is difficulties in determining the patient's prognosis. The patient's condition, prognosis, life quality, expense of intensive care facilities for end-stage patients, a sense of burden to others, and the family's wish to care for the patient or not all play a significant role in the DNR decision. [20]

The concerns of harming the patient include denying the patient a painless death, inflicting pain and suffering as a result of the resuscitation effort, and the potential that a successful resuscitation will just extend the process of dying. As a result, it appears inappropriate to perform CPR on a terminally ill patient who is guaranteed to die if resuscitation is attempted. Furthermore, according to the Islamic Medical Association of North America, this protects dignity when death is near. [21]

The implementation of a medical ethics curriculum enhanced medical providers' and trainees' baseline knowledge, attitudes, and self-reported competencies in clinical medical ethics.

There are a few limitations to this study. The generalization of our results is limited because our study sample was confined to one medical centre. Physicians from different specialities in the current study may have hampered the true findings of practices. Moreover, prospective observational studies of clinical practice, judgment, decision-making, and result will be required to create consensus perspectives on end-of-life care, with the ultimate goal of optimizing care delivery, family counselling, and resource usage near the end of life.

5. CONCLUSION

Despite the good Knowledge of DNR, physicians find it difficult to discuss and practice. The current research can increase awareness of DNR and related issues. Our study will be seen as the start of a new era of DNR-related studies, focusing on patients, their families, and healthcare providers who deal with DNR regularly.

REFERENCES

- [1] P. A. Steen and J. Kramer-Johansen, "Improving cardiopulmonary resuscitation quality to ensure survival," *Current Opinion in Critical Care*, vol. 14, no. 3, pp. 299-304, 2008.
- [2] S. Carveth, "Standards for cardiopulmonary resuscitation and emergency cardiac care," *JAMA*, vol. 227, no. 7, pp. 796-797, 1974.
- [3] W. B. Kouwenhoven, J. R. Jude, and G. G. Knickerbocker, "Closed-chest cardiac massage," *JAMA*, vol. 173, no. 10, pp. 1064-1067, 1960.
- [4] N. S. Wenger, M. L. Pearson, K. A. Desmond, E. R. Harrison, L. V. Rubenstein, W. H. Rogers, et al., "Epidemiology of do-not-resuscitate orders: Disparity by age, diagnosis, gender, race, and functional impairment," *Archives of Internal Medicine*, vol. 155, no. 19, pp. 2056-2062, 1995.
- [5] S. E. Bedell, T. L. Delbanco, E. F. Cook, and F. H. Epstein, "Survival after cardiopulmonary resuscitation in the hospital," *New England Journal of Medicine*, vol. 309, no. 10, pp. 569-576, 1983.
- [6] M. Madadin, G. M. Alsaffar, S. M. AlEsa, A. Khan, D. A. Badghaish, S. M. Algarni, et al., "Clinicians' attitudes towards do-not-resuscitate directives in a teaching hospital in Saudi Arabia," *Cureus*, vol. 11, no. 12, 2019.
- [7] J. R. Al Ahmadi, S. N. Aljehani, L. M. Bahakeem, B. A. Hijan, S. A. Mayet, and Y. A. Badahdah, "Knowledge and attitude toward do-not-resuscitate among patients and their relatives visiting outpatient clinics at King Abdulaziz University Hospital, Jeddah, Saudi Arabia," *Saudi Medical Journal*, vol. 41, no. 1, pp. 53, 2020.
- [8] A. Plomer, *The law and ethics of medical research: International bioethics and human rights*, Routledge-Cavendish, 2013.
- [9] DH Authority, "Available from: <https://www.dha.gov.ae/en/HealthRegulation/pages/federallaws.aspx>," 2021.
- [10] A. Gouda, N. Alrasheed, A. Ali, A. Allaf, N. Almudaiheem, Y. Ali, et al., "Knowledge and attitude of ER and intensive care unit physicians

- toward do-not-resuscitate in a tertiary care center in Saudi Arabia: A survey study," *Indian Journal of Critical Care Medicine: Peer-Reviewed, Official Publication of Indian Society of Critical Care Medicine*, vol. 22, no. 4, pp. 214, 2018.
- [12] M. Pettersson, M. Hedström, and A. T. Höglund, "The ethics of DNR-decisions in oncology and hematology care: A qualitative study," *BMC Medical Ethics*, vol. 21, no. 1, pp. 1-9, 2020.
- [13] M. C. Colquhoun, A. J. Handley, and T. R. Evans, *ABC of resuscitation*, London: Blackwell Publishing Ltd., 2004.
- [14] C. L. Sprung, P. Maia, H.-H. Bulow, B. Ricou, A. Armaganidis, M. Baras, et al., "The importance of religious affiliation and culture on end-of-life decisions in European intensive care units," *Intensive Care Medicine*, vol. 33, no. 10, pp. 1732-1739, 2007.
- [15] I. Alrimawi, A. R. Saifan, R. Abdelkader, and A. M. Batiha, "Palestinian community perceptions of do-not-resuscitation order for terminally ill patients: A qualitative study," *Journal of Clinical Nursing*, vol. 27, no. 13-14, pp. 2719-2728, 2018.
- [16] C. de Penthony O'Kelly, C. Urch, and E. A. Brown, "The impact of culture and religion on truth telling at the end of life," *Nephrology Dialysis Transplantation*, vol. 26, no. 12, pp. 3838-3842, 2011.
- [17] H. C. Pasha and M. A. Albar, "Do not resuscitate, brain death, and organ transplantation: Islamic perspective," *Avicenna Journal of Medicine*, vol. 7, no. 02, pp. 35-45, 2017.
- [18] A. Abbas, S. I. Bukhari, and F. Ahmad, "Knowledge of first aid and basic life support amongst medical students: A comparison between trained and untrained students," *JPM The Journal of the Pakistan Medical Association*, vol. 61, no. 6, pp. 613-616, 2011.
- [19] S. Lee, "A study on the perception and attitude of 'do not resuscitate' in adults," *Journal of the Korea Convergence Society*, vol. 10, no. 6, pp. 393-399, 2019.
- [20] S. Adhikari and S. Rijal, "Attitude of doctors working in a tertiary hospital towards do-not-resuscitate decisions," *Journal of General Practice and Emergency Medicine of Nepal*, vol. 6, no. 8, pp. 13-16, 2019.
- [21] H.-M. Hildén, P. Louhiala, and J. Palo, "End of life decisions: Attitudes of Finnish physicians," *Journal of Medical Ethics*, vol. 30, no. 4, pp. 362-365, 2004.
- [22] O. H. Kasule, "DNR: An Islamic formulation," *Journal of the Islamic Medical Association of North America*, vol. 42, no. 1, 2010..