

Attitude, Educational Needs, and Challenges Faced by Physicians in Managing End-of-Life Care for Critically Ill COVID-19 Patients in Critical Care Settings During the COVID-19 Pandemic

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ABSTRACT

INTRODUCTION: End-of-life (EOL) decision-making is particularly sensitive and complex, especially during the COVID-19 pandemic. This study aimed to assess the attitudes, educational needs, and challenges faced by doctors working in critical care settings in providing EOL care for critically ill COVID-19 patients during the pandemic. **MATERIALS AND METHODS:** A structured questionnaire comprising four sections was utilized to assess the attitudes of critical care unit doctors at the Hospital Universiti Sains Malaysia and Hospital Selayang, Malaysia. The questionnaire captured responses related to the attitudes, educational needs, and challenges of the physicians in the management of critically ill COVID-19 patients. **RESULTS:** The respondents generally agreed that EOL care is an essential clinical competency during the pandemic, with a mean score of 3.44 ± 0.87 . There was strong recognition of diverse educational needs related to EOL care, encompassing both clinical and ethical aspects, with average mean scores exceeding 3 across relevant items. The physicians also identified several significant barriers to delivering effective EOL care, including the absence of standardized protocols or dedicated services ($p=0.001$), insufficient training ($p=0.006$), and time constraints ($p=0.007$). **CONCLUSION:** Overall, doctors in critical care settings demonstrated a positive attitude toward the role of EOL care for critically ill COVID-19 patients during the pandemic. A clearer understanding of their attitudes, challenges, and educational needs can help inform strategies to enhance the development and integration of EOL care in critical care settings moving forward.

Keywords

COVID-19, pandemic, critical care, End-of-Life care, educational needs

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INTRODUCTION

The COVID-19 pandemic exposed how interconnected and delicate our support systems and economies are on a global scale. There were more than 7 million COVID-19 deaths reported to WHO as of April 2024.¹ The critical illness associated with COVID-19 has underscored the vital importance of end-of-life (EOL) care within the context of the pandemic. As the severity

of the COVID-19 disease became apparent, it brought into focus the need for comprehensive and compassionate care for those facing life-threatening situations. This has prompted a heightened awareness of the significance of providing support, comfort, and dignity to individuals nearing the end of their lives due to COVID-19, emphasizing the crucial role of EOL care

in managing the impact of the pandemic on human health and well-being.

The critical nature of the COVID-19 crisis has led healthcare professionals to initiate early and intentional conversations concerning values, objectives, and treatment preferences, particularly for patients facing severe illnesses who are susceptible to clinical decline. These exchanges were further constrained by social isolation due to strict visitation policies and the need to communicate remotely.²

In the critical care setting, particularly in the intensive care unit (ICU), decision-making is complex and highly stressful. Decisions on EOL pose sensitive and challenging issues, particularly when considering cultural, legal, religious, and social factors, especially amidst a pandemic.^{3,4,16} EOL care falls within the spectrum of palliative care and is applied towards the end of the disease trajectory. According to the United States National Quality Forum, EOL care applies when a chronic illness of patients is no longer curable and life-prolonging therapies are no longer appropriate indicated or desired.⁵ To put it in simpler terms, EOL care is palliative care that is delivered when death is imminent.⁶ The concept of EOL care originated in Western countries, and an established ethico-legal framework exists in many developed Western nations.^{4,7} However, there is limited data available on EOL in other regions of the world, including Asia, the Middle East, South America, and Africa.^{8,9} The recent pandemic makes the findings of this research more relevant.

The objective of this study was to evaluate the attitudes, educational needs, and problems faced by critical care setting doctors in providing end-of-life care management for critically ill Covid-19 patients during the COVID-19 pandemic. Certainly, this study has the potential to offer valuable insights for formulating recommendations to improve preparedness for similar future pandemics. It can provide useful information for organizations and authorities in developing guidelines and protocols for providing EOL care to critically ill

patients, particularly during pandemics. Additionally, it may contribute to enhancing education for both undergraduate and postgraduate doctors, empowering them with the skills and confidence needed to deliver effective EOL care.

MATERIALS AND METHODS

This study was a multicentre, cross-sectional questionnaire study. We collected data at the critical area in Hospital USM, Kelantan, Malaysia and Hospital Selayang (HS), Selangor, from April 2023 to August 2023 through the distribution of questionnaires to doctors who are currently working in a critical care setting which met the inclusion criteria. The inclusion criteria were doctors who have had experience in taking care of critically ill COVID-19 patients (Category 4 and 5) in a critical care setting. COVID-19 Category 4 patients are those who were symptomatic with pneumonia and requiring supplemental oxygen, while Category 5 patients are those critically ill with or without other organ failures.¹⁰ The exclusion criteria included house officers, doctors on extended leave (maternity, study, and unpaid leave), as well as those deployed doctors from departments other than Anaesthesiology and ICU who offered their service taking care of COVID-19 patients in the critical care setting during the pandemic.

The questionnaire used in this study was adapted from previously validated questionnaires^{11,12,13}. Permission for the use and adaptation of the questionnaire was duly obtained from the respective authors. The adapted questionnaire underwent expert review by a panel consisting of one intensivist, one anaesthesiologist, and one palliative care physician. The panel assessed each item for clarity, relevance, and cultural appropriateness within the Malaysian ICU setting, including replacement of “emergency department” with “ICU” and the addition of scenarios involving COVID-19 care. Face validity and content validity were assessed through expert consensus, while a pilot test involving 10 ICU doctors (excluded from the final sample) was conducted

to evaluate clarity, comprehensibility, and internal consistency. Minor adjustments in wordings were made based on pilot feedback to improve item clarity.

The required sample size was calculated using both single-proportion and single-mean formulae based on previous studies.¹² For assessing attitudes and challenges in EOL care, the expected proportion was set at 50% to maximize sample size, with a 95% confidence level and 10% precision, resulting in a minimum of 96 participants. For variables assessed using mean scores, the sample size for 90% power ($\alpha=0.05$, two-sided) was estimated at 113 participants. Allowing for a 20% non-response rate, the target recruitment was 145 participants.

The questionnaire consisted of two sections. Section 1 comprised the demographic characteristics of doctors in ICU, while Section 2 contains 15 questions to assess the attitudes and problems in providing EOL care during the COVID-19 pandemic and 11 questions on the items indicating for further educational needs. A 5-point Likert scale was used for each question for Section 2, which included the options strongly disagree, disagree, neutral, agree, strongly agree.

The validated questionnaire together with participation information sheet and consent were uploaded into Google Forms and distributed to the participants through the head of department in Hospital USM and HS via the WhatsApp Messenger application (app). Participants were provided with information on the intention of the study, research procedures, confidentiality guarantee, and their right to withdraw at any time. All the data selected and sent by the participants were recorded in Google Forms via an online platform. The Statistical Package for Social Science (SPSS) version 26.0 for Windows was used for the analysis of the data in this study. Mean, standard deviations (*SD*), frequency (*n*) and percentages (%) were used to classify data. Spearman's rank correlation coefficients were used to calculate each obstacle to evaluate problems and limitations in EOL care faced by

doctors. It was considered statistically significant if $p<0.05$.

RESULTS

A total of 145 participants were included in the final analysis, with a male-to-female ratio of 1:1.5. The demographic characteristics of the respondents are presented in Table I. The majority were Muslim (51%), followed by Buddhist (31.7%), Christian (11%), and Hindu (6.2%). Most had 6-10 years of working experience, while nearly half were Master Trainees (49.7%) and one-third Medical Officers (33.8%); specialists and consultants comprised 12.4% and 4.1%, respectively. More participants were from public hospitals (58.6%) than university hospitals (41.4%). EOL care was mainly on-the-job (60%), with fewer having short courses (22.8%), no training (12.4%), or specialist training (4.8%) (Figure 1). Most respondents reported only general knowledge of EOL care (90.3%) (Figure 2), and almost all had experience caring for terminal patients (93.8%) (Figure 3). Confidence in providing such care was modest (mean score 2.17 ± 1.08), and opinions were divided on the adequacy of support, with 60% feeling insufficiently supported.

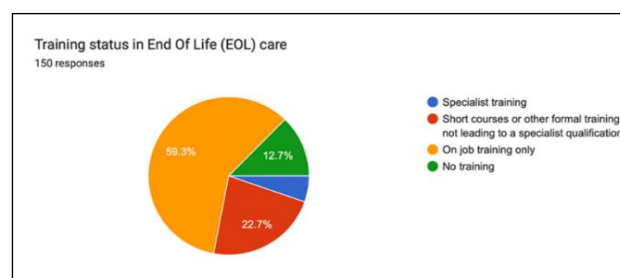


Figure 1: Training status in End of Life (EOL) care

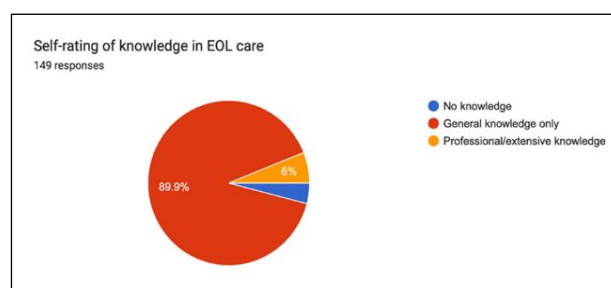


Figure 2: Self-rating knowledge in EOL

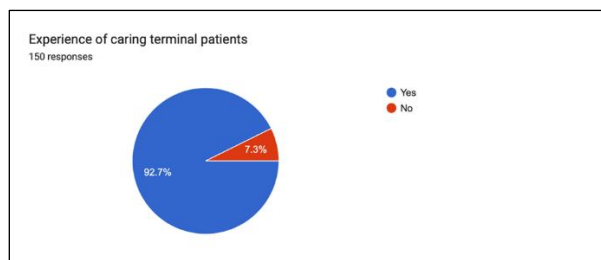


Figure 3: Experience in caring terminal patients

Table I: Demographic characteristics of the respondents (n=145)

Variable	Value
Gender	
Female	88 (60.7%)
Male	57 (39.3%)
Religion	
Islamic	74 (51.0%)
Buddhism	46 (31.7%)
Hinduism	9 (6.2%)
Christian	16 (11.0%)
Years of clinical experience (years)	
≤ 2	7 (4.8%)
3-5	36 (24.8%)
6-10	75 (51.7%)
≥ 10	27 (18.6%)
Position	
Master Trainee	72 (49.7%)
Medical Officer	49 (33.8%)
Specialist	18 (12.4%)
Consultant	6 (4.1%)
Which hospital do you work?	
KKM hospital	85 (58.6%)
University hospital	60 (41.4%)
Training status in End of Life (EOL) care	
No training	18 (12.4%)
On job training only	87 (60.0%)
Short courses or other formal training not leading to a specialist qualification	33 (22.8%)
Specialist training	7 (4.8%)
Self-rating of knowledge in EOL care	
No knowledge	1.01 (0.31)
General knowledge only	6 (4.1%)
Professional/extensive knowledge	131 (90.3%)
Experience of caring terminal patients	8 (5.5%)
Confidence in caring terminal patients	136 (93.8%)
Not at all	2.17 (1.08)
Undecided	7 (4.8%)
Somewhat	43 (29.7%)
Most of the time	22 (15.2%)
All the time	64 (44.1%)
Did you feel that you had enough support in caring for terminally ill patients?	9 (6.2%)
No	0.92 (0.94)
Don't know	69 (47.6%)
Yes	18 (12.4%)
	58 (40.0%)

Note: Data is presented as mean (standard deviation) or frequency (percentage).

According to Table II, respondents largely agreed that EOL care is an important competence for ICU doctors during the COVID-19 pandemic [mean 3.44 ± 0.87] and rejected the notions that it is not their responsibility [1.20 ± 1.10], that it should have lower priority in a busy ICU [1.08 ± 0.96], or that ICU doctors are solely trained to save lives [1.31 ± 1.12]. However, they expressed neutrality regarding the clarity of their role in EOL care during the pandemic [2.59 ± 0.89].

Table II. Attitude in providing EOL care

No	Statements	Value
1	EOL care is an important competence for an ICU doctor in COVID-19 pandemic	3.44 (0.87)
	Strongly Disagree	5 (3.45%)
	Disagree	1 (0.69%)
	Neutral	4 (2.76%)
	Agree	50 (34.48%)
	Strongly Agree	85 (58.62%)
2	I have a clear idea of the role of EOL care in COVID-19 pandemic	2.59 (0.89)
	Strongly Disagree	3 (2.07%)
	Disagree	9 (6.21%)
	Neutral	55 (37.93%)
	Agree	56 (38.62%)
	Strongly Agree	22 (15.17%)
3	ICU doctors are trained to save lives and not to manage death	1.20 (1.10)
	Strongly Disagree	42 (28.97%)
	Disagree	61 (42.07%)
	Neutral	18 (12.41%)
	Agree	19 (13.10%)
	Strongly Agree	5 (3.45%)
4	My workplace does not have protocols or services addressing EOL issues	2.17 (1.11)
	Strongly Disagree	11 (7.59%)
	Disagree	28 (19.31%)
	Neutral	49 (33.79%)
	Agree	39 (26.90%)
	Strongly Agree	18 (12.41%)
5	I feel comfortable providing EOL care in ICU during the pandemic	2.28 (0.98)
	Strongly Disagree	8 (5.52%)
	Disagree	16 (11.03%)
	Neutral	62 (42.76%)
	Agree	45 (31.03%)
	Strongly Agree	14 (9.66%)
6	EOL care should not be the responsibility of the ICU doctors	1.31 (1.12)
	Strongly Disagree	38 (26.21%)
	Disagree	54 (37.24%)
	Neutral	29 (20.00%)
	Agree	18 (12.41%)
	Strongly Agree	6 (4.14%)
7	EOL care should have a lower priority in the busy ICU especially during the pandemic	1.08 (0.96)
	Strongly Disagree	41 (28.28%)
	Disagree	68 (46.90%)
	Neutral	22 (15.17%)
	Agree	11 (7.59%)
	Strongly Agree	3 (2.07%)
8	There is lack of access to EOL care specialist /teams in ICU	2.30 (1.09)
	Strongly Disagree	8 (5.52%)
	Disagree	29 (20.00%)
	Neutral	37 (25.52%)
	Agree	54 (37.24%)
	Strongly Agree	17 (11.72%)
9	Having no access to communication with palliative care physician affects my ability to provide EOL care in ICU during COVID-19 pandemic	2.14 (1.08)
	Strongly Disagree	9 (6.21%)
	Disagree	37 (25.52%)
	Neutral	35 (24.14%)
	Agree	53 (36.55%)
	Strongly Agree	11 (7.59%)
10	I have difficulty discussing EOL issues with patients and/or their families	1.89 (1.06)
	Strongly Disagree	13 (8.97%)
	Disagree	43 (29.66%)
	Neutral	44 (30.34%)
	Agree	37 (25.52%)
	Strongly Agree	8 (5.52%)
11	I cannot identify patients who may need palliative and EOL care in the ICU	1.39 (0.86)
	Strongly Disagree	18 (12.41%)
	Disagree	69 (47.59%)
	Neutral	42 (28.97%)
	Agree	15 (10.34%)
	Strongly Agree	1 (0.69%)

<i>Cont.</i>		
12	My lack of training in EOL care affects my ability to provide this service	2.19 (1.03)
	Strongly Disagree	9 (6.21%)
	Disagree	28 (19.31%)
	Neutral	44 (30.34%)
	Agree	54 (37.24%)
	Strongly Agree	10 (6.90%)
13	Fear of lawsuits leads me away from offering EOL care to potential candidates in the COVID-19 pandemic	1.92 (0.99)
	Strongly Disagree	9 (6.21%)
	Disagree	42 (28.97%)
	Neutral	54 (37.24%)
	Agree	32 (22.07%)
	Strongly Agree	8 (5.52%)
14	I do not have sufficient time during my shift to provide EOL care in ICU during the COVID-19 pandemic	2.24 (1.13)
	Strongly Disagree	7 (4.83%)
	Disagree	38 (26.21%)
	Neutral	32 (22.07%)
	Agree	49 (33.79%)
	Strongly Agree	19 (13.10%)
15	ICU is not the best place for EOL discussions	1.20 (1.08)
	Strongly Disagree	45 (31.03%)
	Disagree	50 (34.48%)
	Neutral	30 (20.69%)
	Agree	16 (11.03%)
	Strongly Agree	4 (2.76%)

Note: Data is presented as mean (standard deviation) or frequency (percentage). Likert scale: 0: strongly disagree, 1: disagree, 2: neutral, 3: agree, 4: strongly agree.

Correlation analysis demonstrated that all obstacle items showed poor to moderate correlations with negative attitudes toward EOL care in the ICU (Table III). Among these, the most significant perceived obstacle was the lack of access to communication with palliative care physicians, which respondents felt strongly limited their ability to provide adequate EOL care during the COVID-19 pandemic. In contrast, the lack of access to specialized EOL care teams within the ICU was rated as the least significant obstacle.

Table III. Obstacles (statements 4, 8, 9, 11 to 14) correlated with overall impression (statement 15)

No	Statement	r	P value
4	My workplace does not have protocols or services addressing EOL issues	0.270	0.001*
8	There is lack of access to EOL care specialist /teams in ICU	0.160	0.052
9	Having no access to communication with palliative care physician affects my ability to provide EOL care in ICU during COVID-19 pandemic	0.339	0.000*
11	I cannot identify patients who may need palliative and EOL care in the ICU	0.273	0.001*
12	My lack of training in EOL care affects my ability to provide this service	0.227	0.006*
13	Fear of lawsuits leads me away from offering EOL care to potential candidates in the COVID-19 pandemic	0.203	0.014*
14	I do not have sufficient time during my shift to provide EOL care in ICU during Covid-19 pandemic	0.222	0.007*

Note: Spearman correlation; a P value less than 0.05 indicates statistical significance.

Physicians and clinicians recognized multiple educational needs in EOL care, particularly in both clinical and ethical aspects (Table IV), with mean scores

above 3, indicating agreement on the importance of training. The highest priority was ethics-related education, including DNR orders, advance directives, and decision-making capacity, while the lowest priority was training on feeding management in EOL care.

Table IV. Educational need pertaining to EOL care in critical care setting

Education Needs	Data
Pain assessment and management	3.03 (0.97)
Strongly Disagree	6 (4.14%)
Disagree	5 (3.45%)
Neutral	15 (10.34%)
Agree	71 (48.97%)
Strongly Agree	48 (33.10%)
Management of terminal delirium	3.14 (0.92)
Strongly Disagree	7 (4.83%)
Disagree	1 (0.69%)
Neutral	7 (4.83%)
Agree	80 (55.17%)
Strongly Agree	50 (34.48%)
Management of dyspnoea	3.10 (0.95)
Strongly Disagree	6 (4.14%)
Disagree	4 (2.76%)
Neutral	11 (7.59%)
Agree	73 (50.34%)
Strongly Agree	51 (35.17%)
Management of death rattle	3.10 (0.93)
Strongly Disagree	6 (4.14%)
Disagree	2 (1.38%)
Neutral	14 (9.66%)
Agree	73 (50.34%)
Strongly Agree	50 (34.48%)
Management of feeding in EOL care	3.01 (0.91)
Strongly Disagree	6 (4.14%)
Disagree	2 (1.38%)
Neutral	17 (11.72%)
Agree	80 (55.17%)
Strongly Agree	40 (27.59%)
Management of psycho-social aspect of EOL	3.11 (0.88)
Strongly Disagree	6 (4.14%)
Disagree	0 (0.00%)
Neutral	13 (8.97%)
Agree	79 (54.48%)
Strongly Agree	47 (32.41%)
Management of spirituality and cultural aspects in EOL	3.10 (0.88)
Strongly Disagree	6 (4.14%)
Disagree	0 (0.00%)
Neutral	13 (8.97%)
Agree	81 (55.86%)
Strongly Agree	45 (31.03%)
Grief and bereavement support	3.23 (0.90)
Strongly Disagree	6 (4.14%)
Disagree	2 (1.38%)
Neutral	4 (2.76%)
Agree	74 (51.03%)
Strongly Agree	59 (40.69%)
Communication skills - breaking bad news, talking with family, discussing prognosis, discussing various treatment options	3.23 (0.96)
Strongly Disagree	7 (4.83%)
Disagree	2 (1.38%)
Neutral	5 (3.45%)
Agree	67 (46.21%)
Strongly Agree	64 (44.14%)
EOL care ethics: DNR orders, advanced directives, decision-making capacity	3.26 (0.94)
Strongly Disagree	7 (4.83%)
Disagree	2 (1.38%)
Neutral	2 (1.38%)
Agree	70 (48.28%)

<i>Cont.</i>	
Strongly Agree	64 (44.14%)
Last office and ritual arrangement	3.02±1.01
Strongly Disagree	8 (5.52%)
Disagree	4 (2.76%)
Neutral	12 (8.28%)
Agree	74 (51.03%)
Strongly Agree	47 (32.41%)

Note: Data is presented as mean (standard deviation) or frequency (percentage). Likert scale: 0: strongly disagree, 1: disagree, 2: neutral, 3: agree, 4: strongly agree.

DISCUSSION

End-of-life (EOL) decision-making in the intensive care unit (ICU) is inherently complex, requiring the integration of medical, ethical, cultural, and emotional considerations.^{14,15} The COVID-19 pandemic further amplified these challenges by presenting unprecedented uncertainty, resource limitations, and heightened patient vulnerability. Our study highlights important insights into perspectives of physicians on EOL care during this period, underscoring both strengths and areas requiring further development.

The generally positive attitude toward EOL care among ICU physicians reflects an increasing recognition that critical care encompasses not only life-sustaining interventions but also the provision of compassionate and dignified care at the end of life. This aligns with global trends emphasizing palliative integration into ICU practice, particularly during health crises where mortality risk is elevated. Nevertheless, the uncertainty observed regarding the precise role of EOL care during the pandemic suggests a persisting gap in institutional clarity and structured guidance. It is important to note that the reported uncertainty regarding the precise role of EOL care reflects both institutional ambiguity and individual confidence among doctors. Decisions and declarations related to EOL care are not the sole responsibility of the treating physician; rather, they require input from multiple stakeholders. A multidisciplinary approach, involving collaboration with nurses, allied health professionals, and family members of patients, is essential, as their perspectives contribute significantly to holistic and patient-centred EOL. Recognizing and addressing these layers of uncertainty can enhance the quality and consistency of EOL decision-making in critical care settings

Clearer policies, protocols, and role delineation may therefore be necessary to support healthcare professionals in navigating these ethically sensitive situations. The reported barriers that particularly limited access to palliative care specialists, lack of standardized training, and institutional time constraints are consistent with challenges documented internationally. These systemic gaps likely contribute to variability in practice and may compromise the consistency of EOL care delivery. Targeted interventions such as formal training programs, development of institutional protocols, and expansion of multidisciplinary collaboration could mitigate these issues and improve both clinician confidence and patient outcomes.

An encouraging finding from this study is the relative comfort of ICU physicians in discussing EOL issues with patients and families. This may reflect accumulated experience during the pandemic, where communication regarding prognosis and goals of care became an essential part of daily practice. However, the fact that comfort levels remained only moderate highlights the importance of further strengthening communication skills training, with particular emphasis on culturally sensitive and ethically challenging discussions such as do-not-resuscitate (DNR) orders and advance care planning. Importantly, the identified educational needs, especially in relation to ethical and legal dimensions, underscore that improving knowledge and confidence in EOL decision-making remains a priority. Investment in structured educational programs tailored to ICU clinicians could not only enhance professional competence but also reduce variability in practice, support ethical decision-making, and ultimately improve the quality of care for critically ill patients and their family members.

In summary, this study reinforces the need for greater institutional support, specialized training, and integration of palliative care expertise within ICU practice. Addressing these gaps is essential to strengthen the capacity of doctors working in ICU to deliver

holistic, patient-centred EOL care, both during pandemics and beyond.

LIMITATIONS

This study contributes valuable insights into perspectives of physicians on end-of-life (EOL) care during the COVID-19 pandemic. However, several limitations should be acknowledged. Firstly, the study was conducted only in Malaysia, which may limit the generalizability of findings to regions with different cultural, legal, or healthcare contexts. Secondly, data were collected through self-reported questionnaires, which may be subject to recall bias or social desirability bias. Further, the cross-sectional design captures physician perspectives at one point in time, without accounting for potential changes in attitudes or practices as the pandemic evolved. Finally, the study focused on physicians in ICU and anaesthesiology settings; perspectives from nurses, allied health professionals, or family members of patients were not included, which may limit the holistic understanding of care delivery in EOL.

CONCLUSION

To the best of our knowledge, this is the first study in Malaysia to research the attitudes of doctors in critical care settings toward EOL care management for critically ill COVID-19 patients. The findings identified several challenges in implementing EOL care during the pandemic. Addressing these issues requires a comprehensive strategy, including stronger institutional support, enhanced educational initiatives, and better integration of palliative care services within the ICU. Such efforts are essential to improve the delivery of holistic, high-quality EOL care that upholds patient dignity and comfort while supporting clinicians in their vital roles.

INSTITUTIONAL REVIEW BOARD (ETHICAL COMMITTEE)

The study was conducted after receiving approval from the Ethics Committee of Universiti Sains Malaysia (USM/JEPeM/22120818), and the Medical Research

and Ethics Committee of the Ministry of Health Malaysia NMRR ID-22-02917-S3L (IIR).

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