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A survey on the perspective of end-of-life care in surgical critically ill patients by anaesthesiology senior residents

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INTRODUCTION

Globally, there is an increasing awareness of the importance of palliative care to improve end-of-life (EOL) care in terminally ill patients. As a nation, the manner of dying appears important to us as we rank 12th in the 2015 Quality of Death index.[1] In the United States, poor quality of EOL care is associated with psychological distress among dying patients and their families, and this has been contributed by the inadequacies in the education and physician training to provide adequate care to the dying patient. Locally, palliative care has grown tremendously through the widespread development of palliative care and home hospice services. Following our previous study,[2] we wanted to perform a follow-up to evaluate the competencies of physicians who care for patients in the surgical ICU. We therefore administered a questionnaire to all senior residents in Anaesthesiology, to determine their self-rated competency levels in dealing with EOL issues.

METHODS

We adapted a questionnaire developed from Peh[3] which was used to evaluate the competency of physicians in managing 1) patient-family interactions, 2) EOL patient care issues, and 3) terminal discharge procedures. The original survey used was effective and able to distinguish the competency levels among trainees of varying levels (residents, interns and medical students), explore physician-trainee competencies and concerns surrounding EOL care.

The study was performed in Singapore over a period from January to February 2018. All senior residents in Anaesthesiology were invited to participate in the study which was disseminated to them via their hospital-department network and the monthly trainee teaching sessions. In their years of senior residency, trainees are expected to lead care in anaesthesia for out-of-hours emergency surgery, pain management and in the surgical intensive care unit. As such, all senior

residents are expected to be competent in managing the domains assessed by Peh[3] as they are relevant both in the operating room and the ICU. Currently, palliative care team referrals are made on an ad-hoc basis.

Ethics approval was waived by the local ethics committee (Singhealth CIRB Ref: 2018/2028**)**.

The survey was administered anonymously via paper to the trainees by their hospital-department network and results collected at a central location. Trainees' competencies and comfort level was assessed in the 3 domains[3] using the Likert scale 1-4 with a higher score indicating a higher level of comfort and self-rated competency in the assessed domain. A mean score was calculated for each domain. The survey also evaluated trainees' personal views on EOL issues using some common EOL scenarios. Following the scenarios, a scale of 0-2 (0=no concern, 1=some concern, 2=strong concern) was used to determine if trainees had any concerns on aspects of legal, ethical, malpractice, and personal religious and ethical issues. Lastly, they were asked what future palliative care training should focus on.

Personal demographics including age, gender, race, religion, and training specifics such as location of medical school, years since graduation and palliative care exposure were collected. Palliative exposure referred to a prior palliative care posting.

Statistical analysis was performed using IBM SPSS 17. Descriptive statistics (frequencies, mean, standard deviation) were used to analyse the distribution of measures. Experiences were categorised into agree/strongly agree vs disagree/strongly disagree; self-rated competency levels into unsatisfactory/developing vs proficient/exemplary; comfort levels into extremely uncomfortable/uncomfortable vs comfortable/extremely comfortable. For the EOL scenarios

discussed, results were analysed as per their level of concern. Missing data was excluded in the analysis.

RESULTS

34 trainees out of a cohort of 51 (67%) responded to the survey with their demographics in Table 1. Of note, all responders were Chinese, with a significantly greater number of females. Approximately three-quarters were local graduates with a mean of 8 +/- 2.2 years post-graduate, indicating that this was a group of senior trainees. Unsurprisingly, a very small proportion of people had exposure to palliative care services.

Domain I – competency level in communications (refer to Table 2a)

The mean self-rated competency score across all 9 areas was 2.71 +/- 0.62. Trainees were the least competent in dealing with inter-professional conflicts with regards to the EOL care of the patient (mean score 2.26 +/- 0.62). This was followed by the ability to discuss home hospice referral with families (2.41 +/- 0.66) and managing patient and/or family members who want treatment that they themselves felt was not indicated (2.47 +/- 0.61). The trainees were competent in their ability to express empathy to patient and/or families, break bad news, discuss do-not-resuscitate (DNR) orders, shift treatment goals, withdraw treatment and conduct family conferences to discuss EOL care goals.

Domain II – proficiency level with regards to EOL medical issues (refer to Table 2b)

A total of 19 EOL issues were assessed in this domain with a mean score of 2.43 +/- 0.63. Trainees were least proficient on how to discuss religious or spiritual issues (mean score 1.91 +/- 0.57),

assess and manage terminal delirium (1.97 +/- 0.52) and help a family understand about home care for a terminally ill patient (2.06 +/- 0.69). They were competent in the use of both oral and parenteral opioid analgesics, in assessing pain levels, managing nausea/vomiting, constipation and terminal dyspnoea. However, interestingly a proportion of them expressed difficulty with the use of adjuvant analgesics (2.35 +/- 0.65) despite the exposure of use of these medications in chronic pain rotations, which is a core component of the Anaesthesiology training programme. As per the previous domain, trainees had issues in communication: knowing how to respond to a family who does not want the patient to be informed about his condition (2.29 +/- 0.52), when it is appropriate to discuss discontinuation of non-oral feedings (2.32 +/- 0.54), when to recommend a shift in treatment goals from curative to comfort care (2.35 +/- 0.60), how to determine decision-making capacity (2.38 +/- 0.6), how to elicit a patient's goals for EOL (2.53 +/- 0.51) and how to explain to a family about goal-setting (2.53 +/- 0.51). They were unsure on how to arrange a terminal discharge in the last days of life (2.15 +/- 0.56) and assist the family on how to care for a terminally ill patient at home (2.06 +/- 0.69).

Domain III – comfort with treatment-withdrawal issues

We covered 8 different areas in this domain with a mean score of 2.74 +/- 0.52. Trainees were generally comfortable discussing aspects of treatment withdrawal with next-of-kin about areas like renal replacement therapy (2.94 +/- 0.42), vasopressors (2.88 +/- 0.54), blood transfusion (2.82 +/- 0.46), mechanical ventilation (2.79 +/- 0.48), TPN (2.71 +/- 0.58), parenteral antibiotics (2.68 +/- 0.47), tube feeding (2.59 +/- 0.56), and IV hydration (2.53 +/- 0.56) in a patient not taking oral nutrition.

Domain IV – concerns about end-of-life treatment scenarios (refer to Fig. 1)

We surveyed trainees if they felt any amount of concerns in the withdrawal of treatment involving non-oral feeding (gastrostomy/nasogastric tube), parenteral nutrition, renal replacement therapy, vasopressors, mechanical ventilation in a terminally ill patient with a do-not-resuscitate order in a number of scenarios: a) intact decision-making capacity at the request of the patient, b) with NO decision-making capacity via a medical DNR decision with the assent of the family, c) with NO decision-making capacity via a medical DNR decision WITHOUT the assent of the family, d) as a request from the surrogate decision maker as a DNR plan for a terminally ill patient with NO decision-making capacity. They were asked if they felt that this was a violation of the law, standard medical practice/malpractice, accepted ethical norms, or personal religious/ethical beliefs.

In patients with intact decision-making capacity who decide to withdraw treatment, the majority of trainees did not have any concerns that this is a violation of the law, accepted ethical norms or medical practice. However, an equal number of them (no concern vs some concern) felt that this may violate their own personal/ethical beliefs. In the other scenarios of managing DNR patients with no mental capacity, it was seen across all areas (withdrawal of parenteral/enteral nutrition, renal replacement therapy, vasopressors and mechanical ventilation) that trainees generally had no concerns if this was done with the family's assent, but when there was no buy-in from the family or surrogate decision maker, trainees felt that this may violate their personal beliefs, accepted ethical norms or standard medical practice. One particular area, the withdrawal of intravenous hydration saw a spike in numbers of trainees who felt that that constitutes a violation of ethical norms regardless of the family's assent.

Preference for future education

Most trainees felt that they would benefit the most from training in EOL communication skills such as giving bad news, discussing prognosis, treatment withdrawal and spirituality as well as topics on EOL ethics including do-not-resuscitate (DNR) orders, assisted suicide and treatment withdrawal. In contrast, a palliative care posting was least desired.

DISCUSSION

Approximately two-thirds of the Anaesthesiology senior resident cohort responded to our survey and the results suggest that while our trainees are proficient in the providence of basic EOL care, problems mainly arise from difficulty in communication and conflict management with other team members and families.

Critically ill patient with multi-organ dysfunction are admitted to the Intensive Care Unit (ICU) for organ support and reversal of their underlying problem(s). Unfortunately, despite our best efforts, mortality ranges from 20-35%.[4,5] Since 2008, the American College of Critical Care Medicine has recognized that EOL care is an important component of critical care and requires a high level of knowledge and competence from intensivists.[6] When patients face certain death or reach the point of medical futility, their management goals move from active to conservative after a shared decision-making process with the family. Patients are then monitored for signs of terminal disease such as delirium, dyspnoea and pain and managed appropriately. As dying patients lack decision making capacity, difficult conversations are held with the families to discuss about withdrawal of life support, terminal discharge and patient care at the end of life.

Unfortunately, our survey demonstrated that trainees were deficient in their ability to communicate with patients and/or their families on EOL issues. The areas lacking in competency

amongst Anaesthesiology senior residents are similar to that seen in those starting out their palliative medicine posting,[3] suggesting that these deficits are not unique to Anaesthesiology residents. This likely stems from the fact that our current training system has a strong emphasis on active management of the patient with little/no focus on EOL care. Even back in 2013, a small local survey showed that although 85% of people had participated in an EOL care decision, an overwhelming 77% also said that they had no formal training in this area.[7] In particular, many of the components on the questionnaire tested trainees on their knowledge of inpatient and community palliative care support and the logistics involved in terminal discharge. These are challenging aspects that trainees may lack understanding of and is a focal point for improvement.

Besides lacking in knowledge of EOL care, often times there is also no concordance in what is deemed basic appropriate care for the dying patient. Trainees highlighted this by expressing greatest discomfort with the appropriateness of therapies such as nasogastric feeding and intravenous hydration in dying patients. While we know that nutrition and hydration are necessary for the maintenance of life, there is a lack of evidence on the necessity of this in the critically ill and dying patient. It is further confounded by inconsistent practices by clinicians[8-10] and the differing and opposing opinions between clinicians and families.[11] If experienced healthcare providers themselves are divided on the use of hydration and nutrition, how then can we expect our trainees to know any better? Proponents of nutrition and hydration have focused their arguments based on the fact that nutrition and hydration are basic needs, eating is a social activity which is associated with psychological benefits to patients and families,[12,13] and dehydration can aggravate symptoms such as fatigue and delirium.[14] On the other hand, opponents of nutrition and hydration have found the majority of patients do not experience any benefits from artificial nutrition. Hydration can also worsen secretions and prolong the dying process.[13] As there is no

consensus or guidelines in this area, one should be mindful to individualize nutrition and fluid management as per the patient's goal of care.[15]

Amongst the 10 questions with EOL communications being the backbone, only 12-53% of trainees were confident in discussing these issues with patients and/or families. Strikingly, 8 of the 10 questions had a less than 50% confidence rating. This highlights a significant problem. While there is no local data analysing the status of medical education in EOL care, a survey done in US suggests that less than 18% of students and residents received formal EOL care education although more than 90% of them felt that clinicians had a great responsibility and ability in caring for dying patients.[16] A vicious cycle occurs where clinicians who are never taught EOL care poorly manages dying patients, these mentors with no prior exposure are unable to teach trainees and students on how to manage EOL care, resulting in trainees and students who are subsequently inept as well. The key therefore is to break this cycle by identifying cracks in the system and focusing initial efforts to seal these areas. It is heartening also to note that trainees themselves have picked up that this is an area they would like additional help (mean score 2.76 over 3).

Besides proclaiming a lack of proficiency in patient/family communications, 71% of senior residents also had difficulty managing interprofessional conflicts. The cause of this is likely twofolds: 1) there is a power distance between trainees and the consultant primary physician, particularly during out of office hours; 2) the surgical "buy –in",[17] where surgeons and patients have a complicated relationship with a commitment by both parties to care postoperatively. While improving communication skills may be an option we can act upon for our trainees' benefit, the best way forward would be for the primary intensivist to build up a good rapport with the primary physician, and convince the physician about the futility of current management before the terminal

event occurs. Unfortunately, predicting such an event may sometimes be difficult, leaving the trainee to struggle in the middle of the night.

With this information in mind, a formalized EOL care teaching curriculum could be implemented with emphasis on EOL communications. Improved communication skills have been associated with overall improved patient care in terms of pain control and psychological well-being, and also enhance patient and family satisfaction.[18,19] This can be achieved by a simple 2 day retreat over 16 hours as shown by a Duke University study.[20] In their course, three components were included: control of pain and symptom management (6 hours), communication skills (5 hours), and sessions designed to improve clinicians' ability to see things from the patients'/families' point of view and ethical issues (5 hours), and this was covered by small group discussions and role playing. When analysing only the communication skills component, they found that residents had significant improvements in the delivery of bad news, information giving and expression of empathy and eliciting patient's preferences on EOL care goals at the end of the course.

In patients with intact decision making capacity who decide to withdraw treatment, 35-45% of trainees expressed concern that this may violate personal and/or ethical beliefs and could constitute malpractice. It is unclear if they had interpreted this question to be one relating to euthanasia which is illegal in Singapore. Medicine is guided by 4 ethical principles of health care: beneficence, autonomy, non-maleficence and justice. A patient who is judged to have preserved mental capacity has the autonomy and right to make decisions for themselves which may cause harm, so long as they are able to understand and retain the information and potential outcome. It is therefore not medical malpractice. However, such a decision by the patient may weigh heavily

on the treating physician particularly if he/she deems that the treatment can potentially reverse the illness.

There were strengths and limitations in our study. We obtained a response rate of 67% for the self-rated competency questionnaire which is likely to reflect the competency level of the entire Anaesthesiology senior resident cohort, and can be used as a reference of the competency level of trainees at this level of seniority and training. However, the quality of our results is limited by the self-reported competency rating which may not reflect their true competency level. Nonetheless, this provides us with a baseline of the issues our trainees face in managing patients and families at their EOL and allows us to target future teaching at the areas of deficiency. Unfortunately, as the survey was only conducted in Anaesthesiology residents, it may not be generalizable to trainees in all other specialities.

In conclusion, this survey highlights the gap in our training system, in particular areas of communication and conflict management between inter-professionals and families, as well as terminal discharge/home hospice care. Unfortunately, this is likely a result of our current training system, which focuses largely on active management but does not prepare the trainee on how to transition to palliative care. Much can be done to help improve our current Anaesthesiology training programme with formal palliative care training due to the nature of our work. It is worthwhile to also consider incorporating formal training in specialties that manage critically ill patients such as respiratory medicine and internal medicine and relook the undergraduate curriculum.

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Table 1. Baseline demographics

	Number of people surveyed (n=34)
Age, mean (SD)	31.7 (+/- 1.9)
Male, n (%)	13 (38.2)
Race - Chinese, n (%)	34 (100)
Religion, n (%) - Free thinker - Christianity - Catholism - Buddhism	 15 (44.1) 9 (26.5) 2 (5.9) 8 (23.5)
Marital status, n (%) - Single - Married - Separated	 20 (58.8) 13 (38.2) 1 (2.9)
Housing, n (%) - Government flat - Condominium - Landed	 9 (26.5) 18 (52.9) 7 (20.6)
Location of medical school, n (%) - Singapore - Overseas > United Kingdom > Australia	 26 (76.5) 8 (23.5) 2 (5.9) 6 (17.6)
Post graduate year, n (%) - 5 - 6 - 7 - 8 - 9 - 10 - 11	 2 (5.9) 6 (17.6) 9 (26.5) 6 (17.6) 4 (11.8) 6 (17.6) 1 (2.9)
Post graduate year, mean (SD)	8 (+/-2.2)
Previous palliative exposure, n (%)	2 (5.9)

* Data presented as Mean ± standard deviation (SD) or number (proportion)

Table 2a. Trainees' competency level in the following end-of-life communications

Competency	Mean self-rated competency score (SD) (n=34)
Expressing empathy to the patient or family member	3.15 (0.56)
Giving bad news to a patient or family member	2.91 (0.57)
Discussing do not resuscitate (DNR) orders	2.85 (0.44)
Discussing a shift in treatment approach from curative to comfort care	2.79 (0.59)
Discussing treatment withdrawal (eg. Antibiotics, hydration, non-oral feeding)	2.77 (0.55)
Conducting a family conference to discuss important end-of-life decisions	2.74 (0.51)
Responding to a patient or family member who wants treatment that you believe is not indicated	2.47 (0.61)
Discussing home hospice referral	2.41 (0.66)
Dealing with conflicts between you and other health care professionals with regards to the end-of-life care of the patient	2.26 (0.62)

* Data presented as Mean ± standard deviation (SD)

Table 2b. Trainees' proficiency in managing the following end-of-life patient care issues

Patient care issues	Mean self-rated competency score (SD) (n=34)
Pain assessment	2.79 (0.54)
Use of oral opioid analgesics	2.85 (0.50)
Use of parenteral opioid analgesics	2.88 (0.54)
Use of adjuvant analgesics (antidepressants, anticonvulsants)	2.35 (0.65)
Assessment and management of terminal delirium	1.97 (0.52)
Assessment and management of terminal dyspnoea	2.56 (0.61)
Assessment and management of nausea/vomiting	2.71 (0.68)
Assessment and management of constipation	2.59 (0.66)
Knowing when to recommend a shift in treatment goals from curative to comfort care	2.35 (0.60)
Knowing how to respond to a family who does not want the patient to be informed about his or her condition	2.32 (0.53)
Knowing how to elicit a patient's goals for the end of life	2.53 (0.51)
Knowing how to explain to a family about goal setting	2.53 (0.51)
Knowing how to determine decision-making capacity	2.38 (0.60)
Knowing when it is appropriate to discuss withdrawal from mechanical ventilation	2.50 (0.51)
Knowing when it is appropriate to discuss discontinuation of IV hydration	2.38 (0.49)
Knowing when it is appropriate to discuss discontinuation of non-oral feedings	2.32 (0.54)
Knowing how to arrange a "terminal discharge" in the last days of life	2.15 (0.56)
Knowing how to help a family understand about caring for a terminally ill patient at home	2.06 (0.69)
Knowing how to discuss religious or spiritual issues with patients and families	1.91 (0.57)

* Data presented as Mean ± standard deviation (SD)

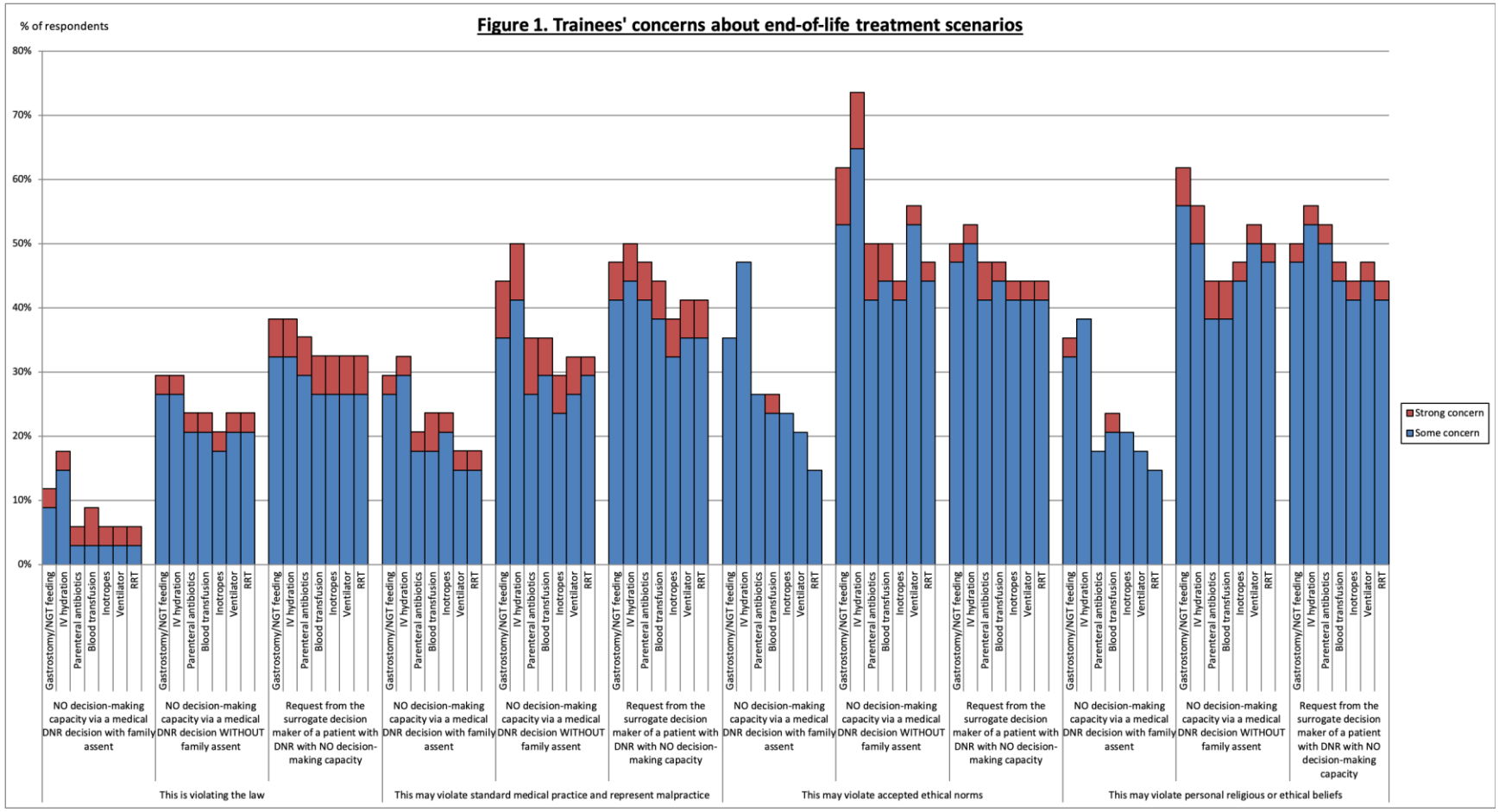
Figure 1. Trainees' concerns about end-of-life treatment scenarios
% of respondents
80%
70%
60%
50%
40%
30%
20%
10%
0%
Strong concern
Some concern
Gastrostomy/NGT feeding
IV hydration
Parenteral antibiotics
Blood transfusion
Inotropes
Ventilator
RRT
NO decision-making capacity via a medical DNR decision with family assent
NO decision-making capacity via a medical DNR decision WITHOUT family assent
Request from the surrogate decision maker of a patient with DNR with NO decision-making capacity
This is violating the law
This may violate standard medical practice and represent malpractice
This may violate accepted ethical norms
This may violate personal religious or ethical beliefs