# Palliative Care Provision on the Intensive Care Unit: A Service Evaluation of Identification of Need, Method of Delivery, and Quality of Care

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# ABSTRACT

#### BACKGROUND

Fifteen to twenty percent of critical care patients die during their hospital admission. This service evaluation assesses quality of palliative care in Intensive Care Units (ICUs) compared to national standards.

### METHODS

Retrospective review of records for all patients who died in four ICUs (irrespective of treatment limitation), between 1 June and July 31 2019. Descriptive statistics reported for patient characteristics, length of stay, admission route, identification triggers, and palliative care delivery.

#### RESULTS

Forty-five patients died, 2 records were untraced, thus N=43. The dying process was recognised in 88%(n=38). Among those where dying was recognised (N=35), 97%(34) had documented family discussion before death, 9%(3) were offered religious/spiritual support, 11%(4) had review of hydration/nutrition, 6%(2) had documented preferred place of death. Prescription of symptom control medications was complete in 71%(25) opioids, 34%(12) haloperidol, 54%(19) midazolam, 43%(15) hyoscine. Combining five triggers - length of stay >10 days prior to ICU admission 7%(3), multi-organ failure  $\geq$ 3 systems 33%(14), stage IV malignancy 5%(2), post-cardiac arrest 23%(10), and intracerebral haemorrhage requiring mechanical ventilation 12%(5) - identified 60%(26) of patients. Referral to the palliative care team was seen in 14%(5) and 8%(3) had specialist palliative care team review.

# CONCLUSIONS

Recognition of dying was high but occurred close to death. Family discussions were frequent, but religious/spiritual needs, hydration/nutrition and anticipatory medications were less often considered. The ICUs delivered their own palliative care in conjunction with specialist palliative care input. Combining five triggers could increase identification of palliative care needs, but a larger study is needed.

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### BACKGROUND

Although survival in critical care has improved, 15-20% of critical care patients will die during their hospital admission.[1] The Faculty of Intensive Care Medicine (FICM) recommends that critical care professionals should have skills and training in palliative and end of life care.[2] FICM makes recommendations for end of life care,[2] and mirrors National Institute for Health and Care Excellence (NICE) guidance[3] and NICE quality standards.[4,5]

Two models are used to illustrate how palliative care can be integrated into critical care.[6] The "consultative model" promotes involvement of specialist palliative care teams, especially for patients at high risk of a poor outcome[6], while the "integrative model" aims to support intensive care teams to incorporate palliative care into their daily practice.[6] These two models denote each end of a spectrum, rather than being mutually exclusive.

Identification of patients who would benefit from specialist palliative input is challenging.[7] Pre-existing prognostic scoring systems within ICUs perform well when looking at large populations but have limited use in predicting individual outcomes.[8] One strategy for identification is screening patients using "triggers" for palliative care input. Studies describe such triggers, but few report how they identified them[9] and there are no established identification guidelines. A US cohort study in medical ICUs reports that five triggers combined correctly identified 85.4% of 75,923 patients requiring palliative care consultation[7]. These triggers were: "(i) ICU admission after hospital stay  $\geq$ 10 days, (ii) multisystem organ failure > three systems, (iii) stage IV malignancy, (iv) status post-cardiac arrest, and (v) intracerebral haemorrhage requiring mechanical ventilation."[7] The applicability of these for surgical ICUs is yet to be demonstrated.[10] These published triggers provide a starting place, but their application needs to be individualised, and reflect stakeholder attitudes and resources.[9]

This service evaluation aims to assess quality of palliative and end of life care on all four of our ICUs in a university teaching hospital (combined medical, surgical, and trauma units) when compared to national (NICE) quality standards.[4,5] It aims to assess characteristics of patients who die on our ICUs, whether a integrative or consultative approach to palliative care is adopted, and which triggers may be appropriate or helpful, in order to inform guidance and improve end of life care.

# METHODS

DESIGN: Retrospective service evaluation, using paper and electronic records review for all patients who died (irrespective of treatment limitation) in the four ICUs, between 1 June 2019 and 31 July 2019.

DATA COLLECTION: Study data collection included:

- Patient demographics; age, sex, reason for admission, co-morbidities, functional status (as documented on admission document), cause of death (as recorded on medical certificate), origin of admission (i.e. ward, A&E, transfer from another hospital), length of stay in hospital before ICU and whilst on ICU, sequential organ failure assessment (SOFA) score [11], and level of care provided (Levels of care as described by the NHS [12] Appendix 1).
- Quality of care: Do-not-attempt-resuscitation (DNACPR) decision, recognition
  of dying, family discussion, preferred place of death (PPD), spiritual needs,
  hydration and nutrition needs, and prescription/administration of symptom
  control medications were assessed, in line with NICE quality standards and
  local guidance.[4,5] It was identified whether opioids and benzodiazepines
  were used for symptom control or sedation. Referral and a documented
  review by a specialist palliative care team was recorded.

ANALYSIS: Descriptive statistics (number, %, mean, SD, median, and range) were reported for patient characteristics, length of stay, admission route, identification triggers, and palliative care delivery.

# RESULTS

Forty-five patients died, two patients' notes could not be found, thus N=43. The dying process was recognised in 88%(38) cases (i.e the judgment that the patient was dying was documented in the notes). Time from documentation of recognition to death was mean 1.6 days (SD 1.2) and median 1 day (range 1 to 7). A DNACPR decision was recorded in 81%(35) cases.

Prior to admission, 40%(17) were independent with activities of daily living, 51%(22) partially dependent, and 9%(4) totally dependent. Sources of admission varied with 34%(15) admitted from another ward in the same hospital, 28% (12) from operating theatres, 26%(11) from the emergency department and 12%(5) from other hospitals. Length of ICU stay ranged from 1 to 83 days (median 3 days; mean 7.2 days; SD 13.1). Per NHS coding practice [13] length of stay <1 day is recorded as one day. Levels of organ support varied with the majority receiving Level 3 care (81%; 35), followed by 16%(7) receiving level 2 care and 2%(1) level 1 care. Renal replacement therapy was provided in 26%(11) of cases. Table 1 shows adherence to NICE standards, triggers used, and predicted mortality using the Sequential Organ Failure Assessment (SOFA) tool.[4,5,7,11]

Table 1: i) Adherence to NICE Quality Standards, ii) triggers used to identify palliative care needs and iii) predicted mortality

\* This N refers to those patients who were recognised as dying (38), and excluded those who went for organ donation (3), thus N=35.

	5 (7/					
i) Evidence documented in notes		NICE Quality Standard(s)				No. cases
		QS13: End of life care for adults				that adhered (%)
Eamily discuss	ion hoforo dooth	(OS12) Statement 2: Deeple approaching the end of				N - 55
Family discussion before death		life and their families and carers are communicated				34 (97)
		with, and offered information, in an accessible and				
		sensitive way in response to their needs and				
		preferences				
Religious/spiritual support offered		(QS13) Statement 6: People approaching the end of				2 (0)
		appropriate to their needs and preferences				5 (9)
Hydration/nutrition review		(QS144) Statement 4: Adults in the last days of life				
		have their hydration status assessed daily and have				4 (11)
		a discussion about the risks and benefits of hydration				
Broforrod place of death		(0\$13) Statement 2: Adults in the last days of life				
Preferred place of death		and the people important to them. are given			2 (6)	
		opportunities to discuss, develop and review an				
		individualised care plan.				
Prescription of symptom control		QS144) Statement 3: Adults in the last days of life symptom control are prescribed anticipatory medic				who are likely to need
						ines with individualised
		Indicat	ions for use, dos	sage and rout	te of administration	
Medication class No. cases with med presribed (%) N =		a S5* Cases with medicat part of sedative inf		edication as	Cases with medication dose and route	
				ve infusion adhering to local		symptom management
Onioid	25 (71)		7 (28)		4 (16)	
Haloperidol	12 (34)		0		5 (42)	
Midazolam	19 (54)		6 (32)		7 (37)	
Hyoscine	15 (43)		0	0		8 (53)
ii) T	rigger met	No	. cases (%)	Total nun	nber of triggers	No. cases (%)
			N = 43	= 43 met per case		N = 43
Length of stay >10days prior to ICU		3 (7)		0		15 (35)
admission		4.4.(22)				00 (00)
IVIUITI-Organ Tallure		14 (33)		1		26 (60)
Stage IV Malignancy		2 (5)		2		1 (2)
		2 (0)		2		1 (2)
Post Cardiac Arrest		10 (23)		3		1 (2)
		-				
Intracerebral haemorrhage		5 (12)		4 or 5		0
requiring mec	nanical ventilation					N = 42
III) Predicted mortality using SOFA score				NO. Cases (%) N = 43		
<u> </u>				10 (30) 10 (23)		
				10 (23)		
>95.2%				13 (30)		

Referral to specialist palliative care was noted in 14%(5) and 8%(3) had specialist palliative care team review. Palliative care needs; symptoms (breathlessness, agitation, pain, nausea, respiratory secretions) or family distress/information needs

were documented in 30%(13). Only 1 patient with a documented symptom (pain) did not have the appropriate medication administered for that symptom.

## DISCUSSION

Comparing to NICE guidance and quality statements[4,5] most ICU patients were recognised to be dying, however the short median time between recognition and death (1 day) suggests recognition is often late and could limit opportunities for high standard end of life care. Although most were recognised to be dying, not all had DNACPR decisions in advance of further deterioration: this could lead to futile resuscitation attempts. In ICU, where treatment withdrawal decisions are often communicated between the team, a documented DNACPR decision is sometimes seen unnecessary, however, should the patient be discharged from ICU for end-of-life care, this could become a problem.

Family discussions were almost always conducted when futility was recognised. Assessing the quality or content of family conversations was beyond the scope of this work, but family conversations have implications for PPD; if for instance the family want ICU treatment to continue despite deterioration, ICU is inevitably the place of death. However, the limited feasibility of transfer of critically ill patients may be a factor. If a patient is so unwell that they cannot communicate their wishes, these aspects of care can become harder to address.

Documentation - and presumably therefore consideration - of religious/spiritual needs, hydration/nutrition, and PPD was much less frequent. Prescription of anticipatory medications varied, with medications characteristically used for pain and agitation prescribed more often than medicines for nausea/vomiting or respiratory secretions. NICE guidance advises on classes of medications but does not suggest doses. Medications, doses and routes of administration were assessed against NICE and local guidance and showed widespread divergence from these guidelines. Assessment of the reasoning for, and appropriateness of the use of these, was hindered by the lack of documentation of symptoms. Within ICU, opioids and benzodiazepines are often used for managing pain and agitation, reflecting experience and familiarity from use for sedation for ventilation.

With a small proportion of patients referred to the specialist palliative team, and fewer receiving a review, this evaluation suggests that both an integrative model (ICU staff providing palliative care) and a consultative mode (referral to specialist palliative care) are being used. With 30% having documented palliative care needs, but 14% being referred, it could either be that the ICU team feel competent at managing symptoms, or that some are unaware of the specialist support available. Anticipatory medications were administered in cases where no symptoms were documented, suggesting symptoms were recognised and treated but under-documented.

Among this cohort of people who died, admission and previous functional status did not follow any clear pattern. Only 30% had a predicted mortality using SOFA score of >95%. It is not clear therefore if the scoring systems previously reported [11] can usefully predict need for palliative assessment in this UK cohort. If the five previously proposed triggers reported in US literature [7] are used together, 60% of our cohort would have been identified as benefiting from review of palliative care needs, but a larger cohort study is needed before robust conclusions can be drawn. The ICUs evaluated are mixed surgical, medical, and trauma; this could contribute to the variance in patient characteristics.

## CONCLUSION

In our cohort, recognition of dying on ICU was high, but occurred close to death. The standard of end-of-life care was good in terms of family discussion, but religious/spiritual needs, review of hydration/nutrition, and prescription of anticipatory medications were less often considered. The ICUs delivered their own palliative care in conjunction with specialist palliative care input. Combining five triggers (length of stay >10days prior to ICU admission, multi-organ failure ≥3 systems, stage IV malignancy, post-cardiac arrest, and intracerebral haemorrhage requiring mechanical ventilation) may increase recognition and assessment of palliative care needs, but a larger study is needed.

### RECOMMENDATIONS

- Earlier recognition of dying on ICUs by use of triggers could increase the number of patients given high standard palliative care and time available to provide such care.
- Working with key stakeholders to discuss suitable triggers for each patient group may increase identification, but further research is needed.
- Establishing which model of end-of-life care is appropriate with local resources, the triggers can either compliment an integrative model, or facilitate a consultative model to improve end of life care on the ICU.

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