

Original Article

Decision-making around admission to intensive care in the UK pre-COVID-19: a multicentre ethnographic study

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Summary

Predicting who will benefit from admission to an intensive care unit is not straightforward and admission processes vary. Our aim was to understand how decisions to admit or not are made. We observed 55 decision-making events in six NHS hospitals. We interviewed 30 referring and 43 intensive care doctors about these events. We describe the nature and context of the decision-making and analysed how doctors make intensive care admission decisions. Such decisions are complex with intrinsic uncertainty, often urgent and made with incomplete information. While doctors aspire to make patient-centred decisions, key challenges include: being overworked with lack of time; limited support from senior staff; and a lack of adequate staffing in other parts of the hospital that may be compromising patient safety. To reduce decision complexity, heuristic rules based on experience are often used to help think through the problem; for example, the patient's functional status or clinical gestalt. The intensive care doctors actively managed relationships with referring doctors; acted as the hospital generalist for acutely ill patients; and brought calm to crisis situations. However, they frequently failed to elicit values and preferences from patients or family members. They were rarely explicit in balancing burdens and benefits of intensive care for patients, so consistency and equity cannot be judged. The use of a framework for intensive care admission decisions that reminds doctors to seek patient or family views and encourages explicit balancing of burdens and benefits could improve decision-making. However, a supportive, adequately resourced context is also needed.

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How decisions are made regarding whether to admit patients to the intensive care unit (ICU) has come under intense scrutiny during the COVID-19 pandemic because of concern regarding potential lack of resources. However, these decisions have always been challenging. Treatment in an ICU allows patients access to potentially life-sustaining therapy, yet many patients do not survive. Approximately

20% of patients admitted to ICU before the COVID-19 pandemic did not survive to leave hospital [1]. Following critical illness, patients are often left with complex physical and psychological conditions that prolong recovery and negatively impact on quality of life [2, 3]. Not all patients benefit from intensive care treatments and these treatments can be distressing [4]. Predicting who will benefit is not

straightforward [5] and evidence indicated considerable variation surrounding the decision to admit or not to ICU before the COVID-19 pandemic [6,7].

The inherent complexity of medical decisions inevitably causes uncertainty about outcome [8]. The decision whether or not to admit to ICU can be particularly complex with serious consequences for the patient; therefore, should involve the patient where possible [9]. Where there is uncertainty, doctors need a flexible approach to patient management, changing treatment decisions depending on patient progress [10]. The inherent uncertainty is exacerbated by: doctors lacking complete information about the patient; or their own lack of expertise [11]. In the face of so much uncertainty and the serious nature of these decisions, it is not surprising qualitative studies have found that misunderstandings and tensions arise between the medical teams requesting ICU admission and ICU doctors [12–15]. The practicalities of managing very ill patients outside of ICU add further uncertainty. For example, are there sufficient staff to provide the level of monitoring needed for these patients? A qualitative study from the Netherlands [16] reported patient safety was a cause of distress for the ward-based team, although less distress was experienced if the ICU doctor took more care to try to solve the problem of how to manage the patient. The safety of critically ill patients on wards was a concern raised in a UK single hospital ethnographic study [17]. This study also suggested that using admission criteria is not the right approach to reducing variation in practice, as decisions involve a "complex weighing of evidence, benefit and risk for and against admission" for each patient [17]. It suggested ICU doctors are currently practicing "*judicious flexibility*" to meet the needs of critically ill patients, whether through admission to ICU or providing advice and support for ward treatment [17].

We undertook a multicentre ethnographic study in the UK to further understand decisions to admit or not to ICU. Data from this study have been used to: describe the process around decision-making [18]; to design a discrete choice experiment [19]; to develop and test a decision support framework [20]; and to undertake an ethical analysis (manuscript submitted). This paper reports the various ways ICU doctors make the decision to admit or not to the ICU and considers how they can be best supported to maximise decision quality.

Methods

This multicentre ethnographic study took place between June 2015 and May 2016. Six UK NHS hospitals were

sampled for diversity of type of hospital and ICU unit size. All ICU doctors were informed about the study by the local project lead in each hospital, by email and in team meetings. All participants gave written consent.

We adopted a focused ethnographic approach [21], including observation of decision events (whether or not to admit an unplanned adult referral to ICU), and semi-structured interviews with ICU and referring doctors. Each local project lead and ICU team organised a 3-week timetable of observation sessions, including out-of-hours periods. During an observation period (8–16 h), the researcher (MS) accompanied the ICU doctor dealing with referrals. Observation of decision events started when a referral was received and continued through assessment, decision-making and immediate subsequent events, including interactions with patients, family members and staff [18]. The researcher (MS) was a post-doctoral qualitative researcher with ethics training and past ICU nursing experience and observed on average one to three decisions each session; 12 out of the 28 observation sessions were out of hours. As soon as possible, after a decision event, MS interviewed the referring and ICU doctors individually within the hospital. Recruitment and sampling were designed to minimise burden on the clinical team and include diversity in ICU doctors; times of day and week; and gain sufficient data to achieve data saturation for our analysis questions. To reduce the burden on participating clinicians did not review transcripts or provide feedback on the findings.

Field-notes were taken during observations including: place; roles of people observed; what was happening around them; atmosphere (e.g. anxious, calm); interaction between people including content, tone and body language; and actions taken by those observed, while alert to other relevant issues. At interview, doctors were asked to describe their decision-making during the observed decision event. MS prompted with questions based on observation notes such as "*I saw you smile when the other doctor yelled at you; what were you thinking?*" Doctors were then asked how the decision-making process could be improved, for the observed decision event and more generally (see published observation template and interview schedules [18]). Interviews were audio-recorded, transcribed verbatim and anonymised.

Analysis questions were developed to guide data interpretation [18]. For this paper, our analysis questions were: what is the nature of the decision to admit to or not to ICU; how do doctors behave when making the decision to admit or not to ICU; and how do they make the decision to admit or not to ICU?

To involve the whole research team in the analysis, we used the framework method [22] facilitated by NVivo 11 software [23]. In brief, after data familiarisation and discussion with the research team including lay co-applicants, MS gave a code to sections of text that shared meaning, which was a short descriptive condensation [22]. These were discussed by the team, then MS grouped the codes into content areas following the ICU admission decision pathway (making and receiving referral; gathering information and views; decision-making); and sub-content areas (e.g. ICU registrar sent as scout; searching for information with varying trustworthiness; managing process around the suffering patient in unpredictable context). Data in each content area were critically reviewed in relation to the analysis questions, during analysis meetings [18]. MS and FG further checked the resulting analysis against the coded data.

The patient and public involvement advisory group comprising six members, some of whom had either been patients themselves or had experience of a relative being on an ICU, met every six months throughout the project to advise on the conduct and findings. Three members contributed to data analysis: attending data analysis meetings; reading selected interview transcripts; contributing to refinement of interview schedules; and development of the analysis.

Results are reported supported by illustrative examples, adhering to consolidated criteria for reporting qualitative research (COREQ) checklist guidelines [24]. Quotations from interviews or quotations noted verbatim in field-notes are in italics and labelled with the role of the person speaking. Square brackets indicate the interpretation made by the researcher at the time of observation. Numbers after quotations indicate index event:hospital.

Results

In total, 55 decision events were observed on wards or in emergency departments over 28 days, of which six were weekend days (Table 1). Of the 55 decisions, 18 referrals were received between 17:00 and 09:00, Monday to Friday and nine were received at weekends. The decisions involved 46 patients (27 women; mean (SD) age 61 (21) years).

All 42 ICU doctors who were observed were interviewed. Local leads kept refusal to participate confidential; therefore, there are no data regarding those who declined to participate. Thirty-one referring doctors were interviewed about referrals related to observed decision events (see Table 2), and the medical conditions leading to referral of the patients are summarised in Table 3.

Table 1 Referral source of observed decision events at different sized hospitals. Values are number

Hospital ICU size ^a	Hospital department/unit			
	Emergency department	Medical unit ^b	Surgical unit ^c	Total
Small (n = 2)	11	8	5	24
Medium (n = 2)	4	7	5	16
Large (n = 2)	5	5	5	15
Total	20	20	15	55

^aICU bed numbers: small, up to 20; medium, 21–40; large, > 40.

^bClinical decision unit; diabetic ward; general medicine/diabetes/infection; liver unit; medical – assessment/short stay ward; medical geriatrics; respiratory unit; nephrology unit; stroke unit; acute care bay; cardiac care unit; high dependency unit; respiratory high care unit.

^cGeneral surgery; kidney unit; neurosurgery theatre; orthopaedic; orthopaedic trauma; rheumatology ward; surgical ward; surgical level up.

The nature of the decision to admit or not to ICU

Intensive care doctors experienced the decision to admit or not to ICU as a high-stakes decision with consequences for life, death and the process of dying. It is often characterised by complexity and uncertainty and in response ICU doctors often take time to review the situation before making a decision. In the emergency situation, uncertainty and complexity is compounded by the need to make a decision while simultaneously providing emergency treatment.

This doctor is concerned with the speed of a patient's journey towards death and the implications for the patient and those close to him of the timing of his death, when making the high-stakes decision about ICU admission.

ICU consultant: This man ...has a family, he had a job, maybe he has dependents ...he has a terminal illness and where is he in his journey towards the grave? The only question is the relative speed... Is this a new diagnosis of cancer and he hasn't had time to adjust and tell people and make plans? 3:5

The uncertainty inherent in medical decisions about acutely ill patients means that it is difficult for the ICU doctor to predict the outcome of ICU treatment, as illustrated by the following story from our data:

ICU consultant: When I was a junior registrar ...the doctor seeing the patient with me said, "This person is not for intensive care" thinking that they were going to pass away. About 4 weeks later, the junior doctor

Table 2 Roles and experience of professionals interviewed. Values are number or mean (SD)

Specialty	Consultant	Registrar	Junior doctor	Total n = 73
Intensive care ^a	23	19	2	44
Medical specialties ^b	7	8	2	17
Surgical specialties ^c	1	3	0	4
Acute/Emergency Medicine ^d	1	5	2	8
Years' experience in current specialty	10.0[6.4]	4[3.9]	1.5[1.1]	
Years' experience since graduation	23[6.9]	10[4.9]	4.3[3.6]	

^aAnaesthesia/intensive care; intensive care; anaesthesia; acute medicine and intensive care.

^bGeneral medicine; emergency medicine; clinical oncology; nephrology; respiratory medicine; endocrinology; cardiology; infectious diseases; geriatrics; haematology; high dependency medicine; rheumatology; gastroenterology; hepatology; neurology; medicine.

^cOrthopaedics; colorectal surgery; general surgery; neurosurgery; urological surgery; renal surgery.

^dAcute medicine; emergency medicine.

Table 3 Primary referral reason for observed decision events and admission decision outcome. Values are number

Acute medical condition reported initially	Patients	Admissions
Respiratory failure	17	7
Cardiac arrest	5	1
Low blood pressure	5	2
Trauma	3	1
Bleeding	3	2
Pre/postoperative problems	3	1
Pancreatitis	3	0
Renal failure	2	1
Intoxication	2	1
Seizures	2	1
Home ventilator, overnight admission	1	1

treating (the patient) (told me) "Oh remember that patient we saw a month ago? They've just been discharged home, absolutely fine." 4:1

In the face of this high-stakes, complex decision, ICU doctors described taking time to collate patient information and consider it before making their decision:

ICU consultant: I have the luxury of time when I go and see a patient...unless it's an emergency, I spend 40 minutes looking through notes, talking with the nurses (and)...the patient 3:5

However, in emergency situations, the decision-making can be more difficult:

ICU registrar: It's very difficult to intubate a patient and ventilate and be thinking about the background at the same time. 3:3

How doctors behave in relation to decisions to admit or not to ICU

The ICU and referring doctors in our study aspired to high-quality decision-making that included giving and receiving support between colleagues; good communication and sharing of information between referring and ICU teams; and a good understanding of what ICU can and cannot achieve by all those involved [18]. They aimed to accept each patient's values regarding quality of life even when they have poor functional status:

ICU registrar: I had a patient...who said, "If I can walk...to the end of the bed I would think I have a good quality of life". And another who'd say, "If I can't go swimming every day I don't think there's any reason (to live) 1:1

Overall, referring clinicians at all sites felt supported by their ICU colleagues. The ICU doctors gave timely responses to referrals and explained the decision they made (see Table 4). However, some referring doctors also expressed dissatisfaction with their interaction with the ICU team suggesting that some ICU doctors had perhaps prejudged the situation:

Oncology consultant: I thought the ICU registrar was a bit dismissive...they'd already made a decision that (the patient) was a cancer patient and...(not) appropriate for critical care, before they came and assessed her. 2:6

Referring teams appreciated the ICU doctors being approachable and non-judgmental towards them and a good communicator:

Nephrology consultant: He's receptive to discussion and the concerns of referring clinician. He doesn't

Table 4 Data extracts from observation and interviews with ICU doctors and referring doctors

Referring doctors have a mostly positive experience of ICU doctor response to referrals	Medical consultant: <i>We usually get pretty prompt responses from the ICU team in terms of actually coming down and having a discussion and seeing the patient in terms of making a decision.</i> 3:2 Medical registrar: <i>It was excellent, professional, they came very quickly, they communicated their findings, their thoughts, the plan, this is what will happen next and they prescribed fluids...very responsive, very fast and I agreed with their decisions.</i> 6:3 Oncologist consultant: <i>He was very helpful, came and looked at the patient and then phoned me back to tell me the decision that he'd made and why.</i> 2:6
Difficulty faced by ICU doctors due to lack of information about the patient when making ICU admission decisions	ICU registrar: <i>I treated the moribund patient at 3 o'clock in the morning with minimal information. Then you discover later they've got lung cancer. You know it's a waste of time.</i> 2:3 ICU consultant: <i>Making the decision not to admit somebody to ICU at 11 o'clock at night, when you've never seen the patient before is hard</i> 7:6 ICU registrar: <i>It was not clear who knows the patient best to give me a full hand over. At the hand over I was not happy. I said this is not what I've been told, when the other said "...I've been told that one more seizure and she's going to ICU"... which is a very twisted version of the story...the best piece of information I received was from the nurse looking after the patient.</i> 7:3
Some ICU doctors support ward based junior doctors when their consultant is unavailable	ICU registrar: <i>You're quite often being told that I shouldn't be being called by junior team members but it's very difficult. If someone calls you for help and they can't get in contact with their consultant, you can't say 'No I'm not coming until a consultant contacts me', because that's probably too late...it's the patient who would suffer.</i> 2:5
Tensions arise between doctors in emergency situations	00.50 AM. At least three doctors discuss whether to stop CPR or not. The ICU registrar is silent, pumps the Ambu bag and stares in the air. [Looks resigned]. 01.10 AM, Clinical night manager: <i>Now we have an alive patient, are we intubating him?</i> Junior doctor [bursts]: Yes The ICU registrar asks for tubes Medical registrar [to the ICU registrar]: <i>Are we taking him to ICU, are we?</i> [Sounds irritated]... <i>I am sorry sir, are you tubing him, does that mean you are taking him to ICU?</i> The ICU registrar says something quiet about wait and see. Field notes 2:1
ICU doctors consider overall look of patient as important as physiological parameters	ICU registrar: <i>I'd already formulated some thoughts in my head as to how she might look based on the numbers he [referring doctor] gave me. Actually, she looked better than I thought she would.</i> 2:2 ICU consultant: <i>The patient can look a lot worse clinically than the numbers would suggest so...it's better to physically go and see the patient for yourself</i> 1:2
ICU doctors value information from a referring team who knows the patient	ICU consultant: <i>Her [the patient's] consultant oncologist that's been caring for her phoned me.</i> 2:6 Oncology consultant: <i>She [the patient] has been known to us for about three years with cancer. She's been having chemotherapy and has been deteriorating slowly but...going to work, two or three weeks ago and is keen to have treatment</i> 2:6
Number of ICU beds available influences management of patients who are borderline in need of ICU	ICU consultant: <i>The number of beds and nurses that we've got on the unit...sets the tone for how you will view the next patient. (Today's patient) was borderline really so I felt that we should observe her on the ward first but when she deteriorated that tipped the balance, we took her...if we'd got more patients, more sicker patients I would have kept her on the ward a bit longer and tried a few other things.</i> 2:3
Referring and ICU teams worry about safety of very sick patients on wards.	Nephrology consultant: <i>The reason for contacting ICU was to provide appropriate oversight...during the night...cover over night is not great...one or two agency nurses.</i> 7:6 ICU registrar: <i>There is not a huge number of staff, especially overnight, and we were coming to the end of the day. Although it would be nice to say he'd be constantly encouraged to keep his oxygen on and constantly monitored overnight...on a busy ward overnight, with minimal nursing staff, picking up any deterioration would be difficult.</i> 2:5
Patients can be too unwell to give a considered view on treatment options	In the emergency department: The patient looks grey, having difficulty talking, out of breath, panic in their eyes, takes the oxygen mask off repeatedly, seems to be in agony...the junior ICU registrar asks the patient rapid questions about functional status, to which he says yes giving the impression he is in good health...the ICU registrar asks the wife and daughter outside the resuscitation room about the patient's functional status and they give an a more pessimistic picture compared to the patient's. Field notes, 5:5 In the emergency department: Patient seems uncomfortable, twisting in the bed. The CPAP machine is loud. Several staff around the bed doing procedures, such as blood sampling. The senior ICU registrar asks in a loud voice: <i>"Have you thought about what would happen if you get worse?"</i> [No audible answer] <i>"Do you want dialysis?"</i> The patient says "yes"..."Would you want to be put to sleep on a breathing machine?" Patient rotates her hands as it trying to say she doesn't know. Field notes 4:2

(continued)

Table 4 (continued)

Doctors explicitly weigh up benefits and risks of ICU admission	Referring geriatric registrar: <i>He was only 50 years old, but he had a life limiting condition...his malignancy and weighing up which one of those is more important is very tricky.</i> 4:5 Referring surgical consultant: <i>I think if she (patient) deteriorates she would need to go to ICU. But it's a balance because you could argue that most patients would do better in an intensive care setting, they get monitored more closely...but weigh it up against increasing the risk of infections...Equally you have to manage resources, you can't put on ICU those who could be managed elsewhere.</i> 5:4 Field note: The ICU consultant tells (researcher) that against is her age of 94, that she lives in a nursing home, that she is probably not mobile and has a poor quality of life. He says what is pro-admission is that her heart is beating. 8:3 ICU registrar: <i>The two factors in favour of admission; a young age and a diagnosis of sepsis; and there was a third factor, she wasn't completely certain she was in favour of being admitted to ICU, but she didn't reject the idea. But then the factors against ICU admission. The overwhelming factor for me was her poor performance status...we know that people who function less have poor outcomes, that's recognised in big trial data and the fact that she could only walk 10 meters and that she was largely housebound</i> 4:2
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accept every worry, but he has a very receptive approach. 7:6

All ICU doctors talked about the importance of having as much information about the patient as possible. However, they were often faced with making decisions in the face of inadequate, incomplete or inconsistent information (see Table 4). A lack of clear communication and information from the referring team made it difficult for the ICU doctor to know how to prioritise their time:

ICU registrar: I wasn't certain why that referral was made... they should give a clear reason for calling...so I can make up my mind how quickly I should attend the call because it's taking my time from sorting out other patients. 6:3

Some ICU doctors considered it part of their role to support ward-based junior doctors especially when their consultant was unavailable (see Table 4). Referring doctors described how, in busy wards and emergency departments, where a patient was very unwell and they were struggling, ICU doctors brought a sense of calm and reassurance to situations. This enabled everyone to work more effectively:

Medical registrar: It's a lot easier to do things in a calm environment and I think part of that comes from the intensivists themselves...they're able to take charge of a situation with ease...even the most stressful situations. 2:2

Tensions arising in the emergency situation

In two instances we observed tensions surfacing between doctors. They were both where decisions needed to be made very quickly. One was about whether or not to stop

cardiopulmonary resuscitation (see Table 4). Another tense situation developed in one of the emergency departments with doctors uncertain about what treatment was best:

Different treatments are suggested by different emergency doctors. One Emergency doctor [talks loud and seems to try to persuade the other doctors]: Get CPAP, Morphine will help her. Other doctors seem not to agree about giving morphine. Another emergency doctor: 'I think we should intubate her, I think CPAP will not help. Field notes, 4:3

In both examples, the decision made would then influence whether the patient went to ICU or not. In both, there were multiple doctors involved, a lack of agreement on treatment and no clear leadership. In the latter above (4:3) this seemed to delay treatment for the patient. When interviewed after the event, the ICU doctor described how they felt pressurised to intubate even though they were uncertain as to whether this was best for the patient:

ICU registrar: The emergency department team were pressing us to intubate her, it wasn't something I wanted to do on my own... It's very easy for someone to say, 'Intubate, intubate'...they seem to think intubation is the solution to everything and from experience it's not 4:3

How the decision to admit or not to ICU is made

During the decision events, we observed that the ICU doctors appeared to use some form of heuristic, or rule based on experience, that helps with thinking through the problem and reduces the complexity of the decision-making.

All observed ICU doctors used functional status, usually how far the patient could walk, as a key driver in their decision-making:

ICU consultant [to ICU registrar]: What does he do for himself? How far can he walk? ICU registrar: Around the house. Field notes, 6:1

One referring doctor referred to this as the ICU doctor's trademark.

Throughout our observations, we consistently found ICU doctors placed particular value on their overall impression (clinical gestalt) [25] of the patient when they saw them:

ICU registrar: I suspect he will be on a ventilator by the end of day, he looks very tired. Field notes, 5:5

This was considered at least as important as physiological parameters as sometimes patients looked better than the number suggests and other times, they look worse (see Table 4).

Intensive care unit consultants developed their individual approach to decisions to admit to ICU. Some described themselves or others as hawkish, admitting fewer patients than colleagues and tending to say no quickly. This registrar recognised this tendency in a consultant they worked with:

ICU registrar: I think the particular consultant I was on with will say no very quickly. 3:6

In the following example, the registrar had learnt to decode when their consultant was likely to refuse ICU admission to a patient. The researcher observed an ICU consultant overhearing a telephone referral to their ICU registrar. When the registrar was leaving to see the patient, the consultant commented: "I am not feeling the love". The researcher asked the registrar about this:

Field notes: As we walked towards the emergency department I asked the ICU registrar what she thinks the consultant meant by 'love'. The registrar replied: "Quite cynical...we know the ones we want to admit, this is someone that we don't want to admit". 6:1

In contrast, we observed ICU doctors who saw themselves as tending to admit more patients than colleagues and who had a low threshold for assessing patients where the ward team was struggling, spending time even for patients where ICU was not an option:

ICU consultant: I was fairly clear that I didn't think the patient would benefit from coming to intensive

care...the patient in this case had end-life care needs that didn't seem to be being addressed so I went down to the ward. 3:5

The following account illustrates different thresholds for admission applied to one patient in one night:

ICU consultant: I accepted a patient for admission and at 5 o'clock I handed over this patient who was awaiting a scan...he [colleague] reviewed the patient and said admission was not needed...my junior registrar had to go and see the patient overnight...then admitted the patient... I think different people have different thresholds for admitting a patient. 1:5

Intensive care doctors countered any tendency to oversimplify their decision-making by, where possible, using multiple sources of information about a patient. They particularly valued information from a referring team who knew the patient (see Table 4).

Referring doctors countered any tendency to oversimplify the decision-making by putting the other side of the story to the ICU doctor. This referring doctor was aware that the ICU doctor might be put off considering the patient because of their age but saw it as their job to ensure the ICU doctor got the full story of the patient, emphasising their fitness:

Referring doctor: So if you had your 80-year-old and you think oh they're not going to take somebody whose 80 but they're fighting fit apart from X then you ring up and you say, "I've got this person they're..." and then you discuss it and that's how you have to work with them. Hospital 6.

Our data indicate that referring and ICU doctors use various strategies to work within available resources and reduce the potential for negative impact on patient care. Mostly, ICU doctors had more time for patient assessment than referring doctors. This was seen positively by doctors who felt they did not have time for carefully considered decision-making:

Emergency medicine registrar: Resus (resuscitation) was an exceptionally busy area...their (ICU doctors) help with this, particularly to have more time to go through with the patient and their relative...allowed more...considered decision-making for this patient. 3:1

Some ICU doctors recognised that the number of ICU beds available influenced how they managed patients who

were borderline in need of ICU (see Table 4). Intensive care doctors talked about creating bed availability through discharging patients from ICU and using other beds with high staff-patient ratios when needed.

We frequently observed and heard about how the referring and ICU teams considered whether or not the patient was safe given resources on the ward, particularly at night when there were few staff (see Table 4).

Intensive care unit doctors were considered the hospital generalists for acutely ill patients. They were commonly called for reasons other than to request admission to ICU; for example, when the ward team was struggling to take blood gases or for advice if the ward team wanted reassurance that they were doing the right thing:

Surgical registrar: I asked the opinion from the ICU guy, the main issue was the breathing. I wanted to make sure...he didn't need any more invasive treatment. 3:4

Most of the ICU doctors we observed actively managed their relationships with other hospital staff. For example, although frustrated by a struggling junior doctor who was not clear why they had called the ICU team or who did not have the relevant information about the patient to hand, most ICU doctors recognised the junior doctors were overloaded with work:

ICU registrar: Sometimes they are supplying history that's just not all the history. It's not because they're hiding facts, it's because they don't have the time. 7:3

Many ICU consultants mentored junior doctors who felt abandoned by their consultants, particularly at night:

Junior referring doctor: Very helpful. ... he's good at explaining why...he's also good at providing advice which is very helpful for us. 4:1

In all the hospitals, we observed close collaboration between the ICU registrars and ICU consultants, although less so at night.

The involvement of patient and/or family in the decision-making process was talked about by the doctors as a key aspect of the ideal decision-making process [18]. Some patients were able to engage but others were too ill to talk to the ICU doctor:

Senior ICU registrar: The patient was still fairly lucid...I felt that she had capacity at that point in time and was able to make a decision. Sometimes I wonder whether patients have capacity because they are in extremis. 2:3

If the ICU doctor tried to discuss ICU admission with patients, the exchange was usually very brief and in most cases it was not clear to the observer that the patient was able to engage meaningfully as they were so unwell (see Table 4). We observed four instances where the doctor specifically sought to see the family to gain more information. In other instances, the ICU doctor talked to family members who were with the patient.

Family members were not always able to provide relevant information because they lacked knowledge or awareness:

ICU registrar: The patient was confused so the family have had to fill in. I got the distinct impression that they had been left in the dark about prognosis.

Daughter: I still think there's quite a lot of grey areas with regards to the cancer...but I think that's partly down to mum not telling us the whole truth 3:1

As this patient explains, his family did not want to talk about his wishes regarding death:

Patient: I have said...if I was really ill, a burden, haven't got anything going for me, I would rather not (go to ICU)...but my son says don't talk so silly...he doesn't like talking about things like that 4:3

There were many examples of where the ICU doctor explained the decision to the family after the decision to admit or not to ICU had been made.

When talking about how they ideally make the decision to admit to ICU, some doctors talked about balancing factors for and against ICU admission [18]. However, there were only 4 out of the 55 decision events observed in which doctors explicitly balanced factors for and against ICU admission (see Table 4).

Discussion

During the COVID-19 pandemic, there has been intense scrutiny of the process of decision-making regarding admission of patients to ICU. Concern over potential lack of sufficient ICU resources has resulted in a plethora of guidelines [26–28] on how to make these decisions, including anticipating a need for triaging [29]. Most UK guidelines have emphasised that except in extreme resource scarcity, ICU clinicians should follow established good practice, focusing on the needs of the individual patient and their ability to benefit from relevant treatments. It is timely, therefore, that this study explores how these decisions are made in the non-pandemic environment.

Our study showed that although ICU doctors working in the UK National Health Service (NHS) express commitment to providing patient-centred care [18], two key aspects of such care are often not present in the decision-making process: engagement with family members when patients are too ill to discuss their treatment; and an explicit weighing up of burdens and benefits of ICU for individual patients. All ICU doctors use heuristics to simplify what is a complex decision. Intensive care doctors manage many challenges related to the actual decision-making regarding admission to ICU: taking care of crisis situations; patient safety; clinical relationships; and bed availability. At times, this leads to conflicts with referring doctors and inconsistent care.

The NHS is committed to providing patient-centred care [30]. There is a risk that without engagement with patients or family members, decisions whether to admit or not to ICU will not be patient-centred [31], with the doctor basing the decision on their assumptions about what the patient values. Without an explicit weighing up of burdens and benefits, decisions lack transparency. Without transparency, it is difficult to judge equity and consistency between decisions, as it is unclear how the doctor reached the decision. There are situations where there is a lack of time for doctors to think about balancing benefits and burdens. However, if considering and recording them becomes routine, then it becomes embedded in clinical experience and so should not require much additional effort or time [32]. We agree with the previously reported UK single-centre study that admission criteria use or similar guidance is not appropriate [17]. However, we suggest that the provision of a structured framework for both referral and admission decisions related to the process of decision-making including engagement with family members and balancing benefits and risks, would help to ensure these key elements of the process are routinised even in time-pressured situations [18, 33]. The results of this study informed the development of such a framework, which has been evaluated [20]. The benefit of a structured framework has become apparent during the COVID-19 pandemic, with the UK guidance specifically recommending this [28].

The ability to make quality decisions requires an enabling context. Leadership and organisational environments are key to fostering a climate that promotes ethical decision-making [34]. Our study adds to the understanding of the challenges faced by ICU doctors in the process of making ICU admission decisions and confirms the challenges identified in the studies discussed earlier [12–17]. Although planning and processes can ameliorate these challenges, there also needs to be adequate clinical resource. Hospitals should recognise that the safety of

critically ill patients is at risk when adequately trained and experienced staffing is limited on wards and ICU. The tensions this creates for staff can lead to conflict, low morale and burnout [35]. As extreme pressures on ICU resources abate, we hope this message is not lost, at a cost to clinicians and the patients they treat.

Our study is the largest ethnographic study of ICU decision-making published to date, involving both district general and teaching hospitals of different sizes and levels of activity. We did not include decision-making about planned ICU admissions. We interviewed all ICU doctors about the observed decision events together with most of the referring doctors. Data were collected by a skilled qualitative researcher, with experience of working on ICU and knowledge that enabled her to probe into clinical issues. We involved the patient perspective and the disciplinary areas of sociology, clinical ethics and medicine in our analysis. The lack of ICU doctor engagement with family members and the lack of explicit weighing up of burdens and benefits were consistent across all six participating hospitals. However, during observation, the researcher only heard what the doctors chose to say out loud; hence, it is possible that more doctors may have weighed up the benefits and risks of ICU than were observed doing so during observation. Our interview data indicate that ICU doctors intended to engage with family members before making the decision, but our observations demonstrate this rarely happened. We have reported counts for these behaviours that were rarely observed.

This study was designed to understand the process of decision-making and not whether decisions to admit were appropriate or not in relation to prevailing clinical standards. Therefore, outcomes such as ICU bed occupancy, patient clinical condition or mortality in the declined group were outside the scope of this study, but could be considered in future research.

In conclusion, our research suggests scope for improving the transparency, consistency and equity of decision-making around ICU admission. This is even more important when resources are scarce during a pandemic. This study has shown that many of the processes and skills on which high quality decision-making is based are not consistently present, even in the pre-pandemic environment. It is even more pressing that the training, experience and environment necessary for excellent, patient-centred decisions are now nurtured by organisations and individuals. A structured framework for how to make ICU referral and admission decisions, which includes engagement with the family where appropriate and weighing up of benefits and burdens for the patient, has the potential to improve the

quality of these decisions and would complement clinical predictive tools.

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