

Intensive care decision-making: Identifying the challenges and generating solutions to improve inter-specialty referrals to critical care

Nicola Power^{1*}

Nicholas R Plummer^{2,3}

Jacqueline Baldwin²

Fiona R James²

Shondipon Laha²

¹ Department of Psychology, Lancaster University, UK.

² Critical Care Unit, Lancashire Teaching Hospitals NHS Foundation Trust, Preston, UK

³ Health Education East Midlands, Leicester, UK

* Corresponding Author: n.power3@lancaster.ac.uk

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Abstract

Introduction: Decision making regarding admission to UK intensive care units is challenging. Demand for beds exceeds capacity, yet the need to provide emergency cover creates pressure to build redundancy into the system. Guidelines to aid clinical decision-making are outdated, resulting in an over-reliance on professional judgement. Although clinicians are highly skilled, there is variability in ICU decision-making, especially at the inter-specialty level wherein cognitive biases contribute to disagreement.

Method: This research is the first to explore ICU admission decision-making using the Critical Decision Method interviewing technique. We interviewed ICU (n=9) and non-ICU (n=6) consultants about a challenging referral they had dealt with in the past where there was disagreement about the patient's suitability for ICU.

Results: We present: (i) a description of the referral pathway; (ii) challenges that appear to derail referrals (i.e., process issues; decision biases; inherent stressors; post-decision consequences); and (iii) potential solutions to improve this process.

Discussion: This research provides a foundation upon which interventions to improve inter-specialty decision-making can be based.

Keywords: Intensive care; decision-making; critical decision method; patient admission; inter-specialty teams

Introduction

Intensive care units (ICUs) are essential for the care of patients requiring organ support and a higher level of nursing input, but are disproportionately expensive to run due to equipment and staffing costs¹. In the UK demand typically exceeds capacity², creating a difficult set of inter-specialty (i.e. between medical and surgical specialties and intensive care services) decisions about patient referral and admission: non-ICU clinicians are responsible for referring patients whilst ICU clinicians are responsible for deciding whether to admit to the unit. Both groups are required to do this with outdated³ or overly generalised⁴ guidelines on how to make patient referral or admission decisions, and in the face of external pressures from the remainder of the hospital in improving patient flow⁵. When working in ambiguous, pressured and risky contexts, limited guidance can derail decision-making due to variations in perspectives of what constitutes the ‘right decision’⁶, based on different perspectives of risk, decision framing, past experiences, patient preference, and organisational norms⁷. Biases such as these were reflected in variation in intensive care decision-making between Australian and New Zealand intensivists, wherein Australian doctors were more likely to admit patients than their New Zealand counterparts⁸, and a Pan-European study found wide variations in decision making across the continent⁹. Such biases may be further exacerbated at the inter-specialty level.

There is little published research exploring ICU inter-specialty referral decisions in the UK. Moreover, the very nature of the NHS means that research in non-UK settings is largely incomparable, as care is funded by the state creating larger bed and fiscal pressures compared to non-UK hospitals¹⁰. The majority of ICUs in the UK are “closed”, meaning that specialist ICU clinicians (“intensivists”) are responsible for admitting, caring for, and discharging patients¹¹; this makes many ICU clinicians in the UK the ‘gatekeepers’ who decide when not to admit patients, which contrasts to privately funded healthcare systems where patients and families have a greater role in deciding whether they opt for high-cost treatment¹².

Ultimately, decision-making regarding ICU admission is inherently complex and exacerbated by a lack of guidance at both individual and inter-specialty levels. Whereas ongoing studies are assessing the processes and rules behind such decisions¹³, the purpose of this research was to explore inter-specialty decision-making via an in-depth qualitative exploration of the experience of both ICU and non-ICU consultants, with a view to identify issues and develop potential recommendations for future research and practice. It had three research questions:

1. What are the steps involved in a patient referral to ICU?
2. How might decision-making be derailed during the referral process?
3. What are the potential solutions that might overcome derailments and facilitate inter-specialty decision-making?

Methods

Participants

An experienced sample of ICU consultants (n=9, 18 years mean experience) and non-ICU consultants (n=6, from oncology emergency medicine, neurology, renal and gastroenterology), were interviewed about their experiences of patient referrals. This sample was based on opportunity sampling until the point of thematic saturation (i.e., when the same themes repeatedly occur across participants and no new information emerges). Participants were recruited from a 700-bedded tertiary referral (Neurosciences, vascular, upper gastrointestinal and head and neck surgery) hospital and Major Trauma Centre in the North West of England with a closed, mixed level 2 and level 3 critical care unit receiving both general and specialist services.

Data Collection

Participants were interviewed in a quiet private room located at their place of work. Interviews used the Critical Decision Method (CDM)¹⁴ technique to identify the core challenges, and possible solutions, to ICU referral decisions. CDM was chosen as it is designed to identify how experts problem solve and the common strategies used to cope with uncertainty during choices with few guidelines. Incident-based approaches like this have also been found to increase accuracy of recall and richness of detail compared to unstructured interviews¹⁴. Interviews involve a multi-pass, retrospective discussion of a challenging decision made by the doctor in the past. We asked participants to recall a decision that was particularly challenging and stood out in their memory (rather than one that was recent but routine) in order to gather as much detail as possible about a memorable episode. Specifically, we asked consultants who were not from ICU to discuss a referral where a patient was refused admission, and ICU consultants were asked to identify a referral that they refused or believed was inappropriate. The CDM process involved four phases: incident identification (free narrative recall of the event); timeline verification (identification of crucial decision points); cognitive probing (identifying the factors that guided or hindered cognitive processing); and hypothetical consideration (alternative options/outcomes). Interviews ranged between 41 to 70 minutes, with a mean average length of 51 minutes.

Data Analysis

Interview transcripts were thematically analysed¹⁵ with support from the computer software *NVivo*¹⁶. Thematic analysis involves a process of inductive coding (i.e., generating new themes from the data) to identify emerging themes, refinement of themes into codes and further deductive coding (i.e., coding the data using existing themes) to produce a rich and detailed description of the data to answer our research questions. Coding was performed by an independent psychologist in the research team to enhance objectivity and reduce risk of prior assumptions about the ICU context, and themes were

then discussed and refined to reach consensus with the rest of the research team, who have subject matter expertise to help contextualise findings.

Results

Results are split into three sections. First, we outline the general referral process as described by consultants from both ICU and non-ICU backgrounds. Second, we identify how decision-making might be derailed during this process. Third, we describe the potential solutions identified by participants that offer recommendations for future research and protocol design.

1. Patient referral process

Interviews were coded to identify the different stages involved during a patient referral (Figure 1: black boxes = decision points; blue balloons = information sources that inform decision-making) (see Table 1 for quotes).

Pre-referral

The pre-referral phase describes the information sources used by non-ICU consultants when considering whether to refer a patient to ICU. As expected, a core consideration when deciding whether to refer a patient to the unit is the medical assessment, which was largely oriented around considering whether the patient's condition was reversible (Q1), and whether treatment for the patient was futile or not (Q2).

A second consideration by non-ICU consultants were current ward pressures. Consultants described how they found themselves in a difficult position wherein staffing or bed occupancy levels on the ward made it challenging to treat the patient, and so ICU was a safer place to treat them, for example, when patients took up too much nursing time (Q3), or when non-ICU consultants felt available treatment on the ward was unsuitable to deliver in that setting (Q4).

A third consideration made by non-ICU consultants was using ICU explicitly as a short-term treatment option (Q5). However, there was a conflicting perspective from ICU consultants who described how patients inevitably spend a prolonged time on ICU, even if original admission was intended for a short period (Q6).

ICU Medical Assessment

When a patient referral is received by ICU, the primary considerations mirror those made by non-ICU consultants; specifically, reversibility (Q7) and futility (Q8). However, ICU consultants acknowledged there is often no clear right or wrong answer (Q9), and so the decision process must be clear and transparent to understand why decisions have been made (Q10). To alleviate uncertainty, consultants described two strategies: (i) social support strategies; and (ii) information search strategies.

Social Support Strategies

To reduce uncertainty when deliberating over patient admission, ICU consultants described how they conferred with others to help make their choice. This might be via deliberation with doctors who had referred the patient (Q11) where it was noted that pre-

existing relationships were beneficial (Q12); however, the largest social facilitator identified was reliance on the broader ICU team. Consultants described how decisions were rarely made in isolation (Q13) and described a sense of psychological safety in their team wherein they were able to critically reflect on decisions by considering the different viewpoints of the team (Q14).

Information Search Strategies

ICU consultants sought to reduce uncertainty about patient admittance by searching for information from different sources. The most efficacious method was via personal assessment of the patient on the ward (Q15), and they also identified that, where possible, it was important to get information from the patient themselves (Q16) or, if the patient was not capable of providing information, from family members or carers (Q17).

Decision outcomes

Decision outcomes were binary. If the ICU doctor judged the patient's medical status as unsuitable for admission, based on grounds of irreversibility and futility, the patient was refused. Alternatively, if a patient was deemed suitable for admission, capacity to treat on ICU was then assessed (Q18). Indeed, consultants tried not to factor bed pressures in their decision (Q19), but acknowledged that this created a threshold for acceptance based on trade-off between current and prospective patients (Q20).

2. Derailments to referral process

A second goal to this study was to identify ways decision-making might be derailed during patient referrals. Derailments refer to the points in which decision-making deviates from the pathway model and the reasons why this seemed to occur. We thematically coded derailments into four superordinate categories: (i) process issues (i.e., complications that arose during the process of referring); (ii) inherent stressors (i.e., endogenous features of the intensive care environment that challenge decision-making); (iii) decision biases (i.e., preconceptions that might influence decision-making); and (iv) post-decision issues and consequences (i.e., issues that outlast the referral incident and inform subsequent interactions) (see Figure 2 and Table 2).

Process Issues

Referral process issues originated from three sources. First, communication dilution was identified as ICU consultants described how, at times, important information was missing that then had to be sought out first hand (Q21). Second, consultants described how human factors relating to the on-call system could derail decision-making, specifically in preventing physical interaction with the patient, instead relying on information from secondary sources (Q22). Third, it was identified that hierarchical system issues derailed the process. Specifically, it was identified across specialties that referrals should be at the consultant to consultant level (Q23); however, in practice this was often not possible and so reliance on more junior medical staff was common (Q24).

Inherent Stressors

Three inherent stressors in the ICU environment made decision-making difficult. First, consultants described a lack of evidence-based information related to patient outcomes on ICU (Q25), and described conflict between perceived subjective estimates of benefit and a desire for evidence-based practice (Q26). Second, it was identified how time pressure was a core challenge as they had to make high-stakes choices rapidly and without full information (Q27). Third, consultants described the inherent emotional stressors linked to the potential negative consequences for making a wrong decision, but acknowledged that experience was important for reducing this (Q28).

Decision Biases

A number of cognitive biases were identified which could derail the decision-making process. A core bias identified by non-ICU consultants was the use of patient stereotypes used by ICU consultants when considering whether patients should be admitted to the ward (Q29). This was associated with frustration on behalf of the non-ICU consultant, who often felt that they were not being listened to when they tried to argue for the unique characteristics of the patient that deviated from stereotypes (Q30). Similar was the impact of medical practitioner stereotypes to reflect assumed decision-making styles of different specialties (Q31). This was described across specialties wherein participants described how different types of doctors approached medicine in different ways (Q32) and were biased by narrow thinking about their medical or surgical specialty rather than the bigger picture (Q33). A final bias that was discussed by ICU consultants related to stereotyped views about their own personality. Specifically, this referred to whether they were a 'hawk', deemed to use more stringent criteria for admission, or a 'dove', and more liberal in their criteria for admission (Q34). Consultants from ICU discussed this as a way of rationalising their decision process, by reflecting on their personal tendencies to admit patients or not (Q35).

Post-decision issues and consequences

Negative experiences that arise during a referral can have consequences on future events. Non-ICU consultants expressed frustration for not having a clear rationale for why patients they referred were not admitted (Q36). They described how this led to frustration at being ignored (Q37). Interestingly, they identified that, sometimes, this caused them to adapt their practice to 'game play' for admission. This might be when trying to get the same patient who had been refused admittance by using different language or presenting information in different ways or to different consultants (Q38). Indeed, this was something also identified by ICU consultants, who described how they sometimes felt that patients were being 'sold' for admission to ICU, largely by not being provided with a full picture of patient status and co-morbidities (Q39).

3. Potential Solutions to Facilitate the Referral Process

A final goal to this study was to identify how referral process issues might be reduced. A thematic analysis identified five interventions that could be put in place to facilitate decision-making. Quote are provided in Table 3.

Patient Feedback

As identified earlier, a lack of evidence-based information on patient outcomes post-ICU made decision-making challenging, and it was expressed that more information about patient outcomes in the short-, medium- and long-term might help to support decision process (Q40). Patient feedback was perceived as useful at an emotional-level by ICU consultants who felt they often tended to remember patients that die rather than those that survive (Q41). This was also acknowledged by non-ICU consultants who identified the biased exposure ICU consultants have to positive patient outcomes (Q42). Furthermore, non-ICU consultants also identified that feedback should be long-term (Q43).

Inter-specialty training and engagement

It was acknowledged across both groups of consultants that greater engagement between specialties would support the referral process. Having worked together before or being exposed to each other's place of work was seen as beneficial for teamwork by enhancing role understanding (Q44). It was identified that training might help to educate non-ICU consultants on some of the reasons for non-admission (Q45). In terms of how such training could be delivered, it was suggested that simulations could be useful (Q46), and emphasized that training must crucially involve physical interaction and discussion between specialties (Q47). However, it was acknowledged that time limitations were problematic for ideal inter-specialty engagement (Q48).

Communication Process

Related to training, consultants reflected on lessons they had learnt through experience relating to communications between specialties. Non-ICU consultants identified the importance of providing a full picture of a patient. This might include information about other medical conditions not directly linked to the referral (Q49) and unique information about the patient as a whole that might deviate from normative assumptions (Q50). Consultants described how appropriate communications were essential for facilitating a sense of trust and professional respect between teams (Q51). Non-ICU consultants also reflected on how decisions not to admit should be at the consultant level to show professional respect (Q52). It was suggested that when a patient was being refused, that face-to-face discussions were important (Q53). Indeed, a suggested benefit of good communication and respect across specialties was to reduce the pressure associated with decision-making by making it a shared process (Q54). This was further identified as being helpful if a patient was not going to be admitted to ICU, where ICU consultants can support non-ICU consultants in explaining why a patient is not going to be admitted in difficult situations (Q55). Generating professional respect also facilitated communications by allowing for a more honest discussion, rather than considering ulterior motives (Q56).

Decision Logging

Consultants suggested that one way to improve the referral process would be via decision logging, and that logging should go beyond merely listing actions and must include a clear rationale for why those decisions have been made (Q57), which can also facilitate patient handovers during shift changes (Q58). It was also suggested that this type of log should be free text rather than pro-forma (Q59). Logging was also perceived to help

make decision-making more transparent during difficult decisions, thereby reducing some of the issues linked to lacking a rationale for ‘no’ decisions (Q60).

Earlier Discussions of Death

It was acknowledged across specialties that ICU referrals would be easier to manage if there were more open discussions of advanced care planning both with patients and between doctors (Q61). This was identified as an issue for the medical profession, wherein doctors tend not to think about death due to their desire to treat and cure (Q62). It was suggested that this could be part of the standard process during admission (Q63) as it could reduce the need to make referral decisions if the patient’s wishes regarding ICU are already known (Q64). It was highlighted that this is crucial when treating patients with chronic conditions (Q65) and that more discussions of death could help people make informed decisions about this inevitability (Q66). Although it was acknowledged that discussions of death must be carefully managed in line with the emotional wellbeing of the patient (Q67), it was recognized as the responsibility of the referring doctor to address the topic to allow this conversation to happen (Q68).

Discussion

We have taken an initial step in developing a deeper understanding of the processes and challenges faced by clinicians making and receiving referrals to intensive care. Specifically, we have identified how referrals can be derailed due to: (i) process issues; (ii) inherent stressors; (iii) decision biases; and (iv) post-decision issues and consequences. Our research has also offered tentative suggestions as to how this process might be improved.

A major stumbling block identified with both ICU and non-ICU clinicians remains the lack of evidence base regarding the utility of intensive care services for patients referred in terms of functional outcomes. One study that sought to review long-term mortality for ICU patients concluded that inconsistent approaches to research (low quality, variation in case-mix, study design, case-mix adjustment differences) made it difficult to assess findings¹⁷. Without such an evidence base, we are unable to have frank discussions with referring teams, and where possible patients themselves, regarding the potential risks and benefits of admission to ICU. As a result, this continues to be a field where anecdote and experience trumps data-driven decision-making, allowing for the intrusion of cognitive biases and ‘game playing’ into the decision-making process. Such data would reduce the subjective component of these discussions, but would need to be acquired via large-scale national research and data-collection projects requiring significant backing from funders; for example, longitudinal data collection and analyses on the short-, medium- and long-term outcomes of patients discharged from ICU¹⁸.

Other solutions might be appropriate to localized trials at trust or regional level; for example, developing pro-forma to standardize decision logging during patient referrals which would become easily available evidence in the case of future hospital admissions and referrals to intensive care, and allow audit of decision-making processes; or a trial wherein all patients are asked to identify their preferences regarding resuscitation and escalation in the case of deterioration during their admission to hospital¹⁹⁻²⁰. Studies have demonstrated disparities between patients’ wishes and decisions made by treating clinicians at the time of requiring life-sustaining interventions²¹ leading to inappropriate intensive care interventions²², when ‘mandatory’ advance care planning would allow any conflict between the patient’s expectations and their likely clinical course to be discussed and recorded early in their stay. This would reduce the tendency to delay decision-making until brought-about by the discussion with intensive care services regarding their suitability for escalation, shifting the burden for such decision-making from ICU clinicians and patients’ relatives back to the patient’s primary treating team and the patient themselves²³.

Teams might also benefit from external collaboration with researchers; for example, using immersive simulated training scenarios to test interventions related to communication processes and identifying its impact on collective team performance. Such research would further support the desire for greater multi-specialty engagement as a result of these activities, which might be further strengthened via structured debriefs to understand variation in clinical views. For example, preliminary evidence from a meta-analysis suggests that structured debriefs can have benefits of improving clinician knowledge and skill acquisition²⁴. Ultimately ICU and non-ICU clinicians will have

differing cognitive biases inherent to this decision-making process; ICU consultants will often perceive an intensive care admission in terms of the detrimental impact on patients' wellbeing, whereas non-ICU consultants are biased by their involvement with intensive care patients being predominantly those who improve and are discharged back to their ward, or patients who were refused ICU, and so die in their care. By use of simulation and structured feedback one could hope to allow each side of this, at times, adversarial approach a greater insight into the cognitive and emotional processes underpinning the others' decision-making processes, and help to avoid this subjective aspect being the dominant driver in inter-specialty discussions. In particular this would avoid the game-playing highlighted above, which has the potential to not only detrimentally affect both the experience of the patient being referred, but also weaken the professional relationship between specialties as well as impact the availability of intensive care services.

It was notable that both ICU and non-ICU consultants highlighted aspects of the hospital system external to intensive care as drivers on their decision-making process, which needs buy-in from the rest of the hospital system to be improved upon. In particular patients were being escalated due to inadequate staffing of nursing on general wards, a factor directly correlated with inpatient mortality elsewhere²⁵⁻²⁶. This has the potential to worsen in the current economic and political climate of the UK's health system²⁷ and the ever-present issue of worsening bed pressures both in intensive care and in the wider hospital^{5,28}. Although both groups stated they make a conscious effort to avoid this impacting on patient care, it does place the firmest constraint on whether the intensive care resources are available for a particular patient, and on the wards preventing discharge back in to the hospital environment upon recovery from critical illness.

This final point combines with the concept of 'mission creep' within intensive care, wherein a patient admitted for one clinical reason remains in ICU for an extended period of time due to a combination of issues. ICU consultants highlighted bed pressures, perceived lack of input to their care from their referring team, and management of further pathological processes which were not apparent at the time of referral, which increase their length of stay and so further impact on ICU bed availability²⁹⁻³⁰. It would be of interest to explore the causes of mission creep further as this has clinical, psychological and economic effects on patients, relatives and ICUs.

Conclusion

This qualitative paper not only highlights the challenges associated with ICU decision-making, but offers a practical framework around which solutions to overcome challenges might be operationalized. It is recommended that this framework be used as a basis upon which to develop understanding on the challenges to ICU decision-making, and to guide future research and quality improvement projects that seek to facilitate the inter-specialty decision-making process. Specific areas of interest include the perceived lack of evidence base, consideration of how decisions are logged at local and national levels, the causes and ramifications of 'mission creep', and improving communication between teams.

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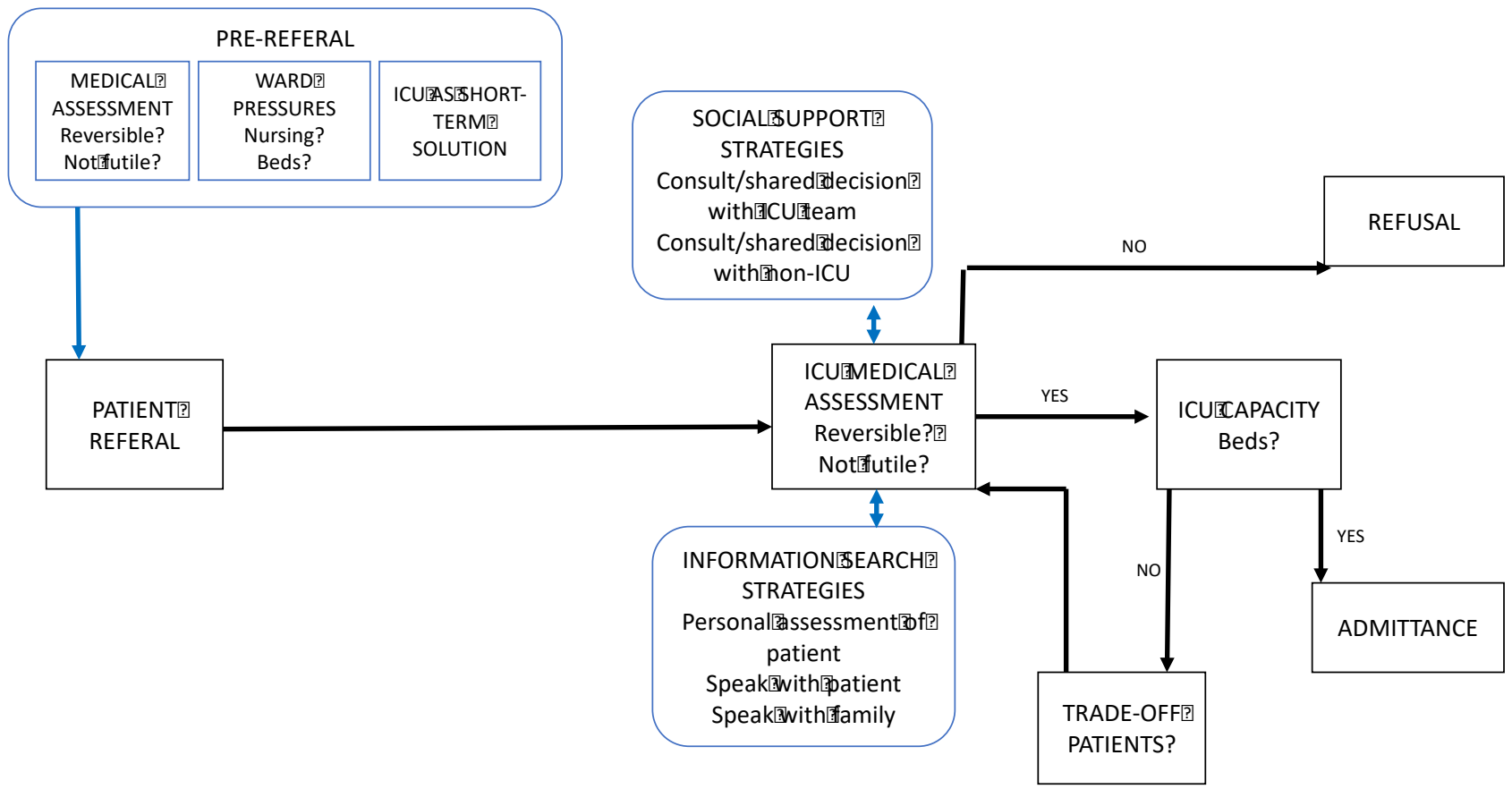


Figure 1: Patient Referral Pathway Flow Chart

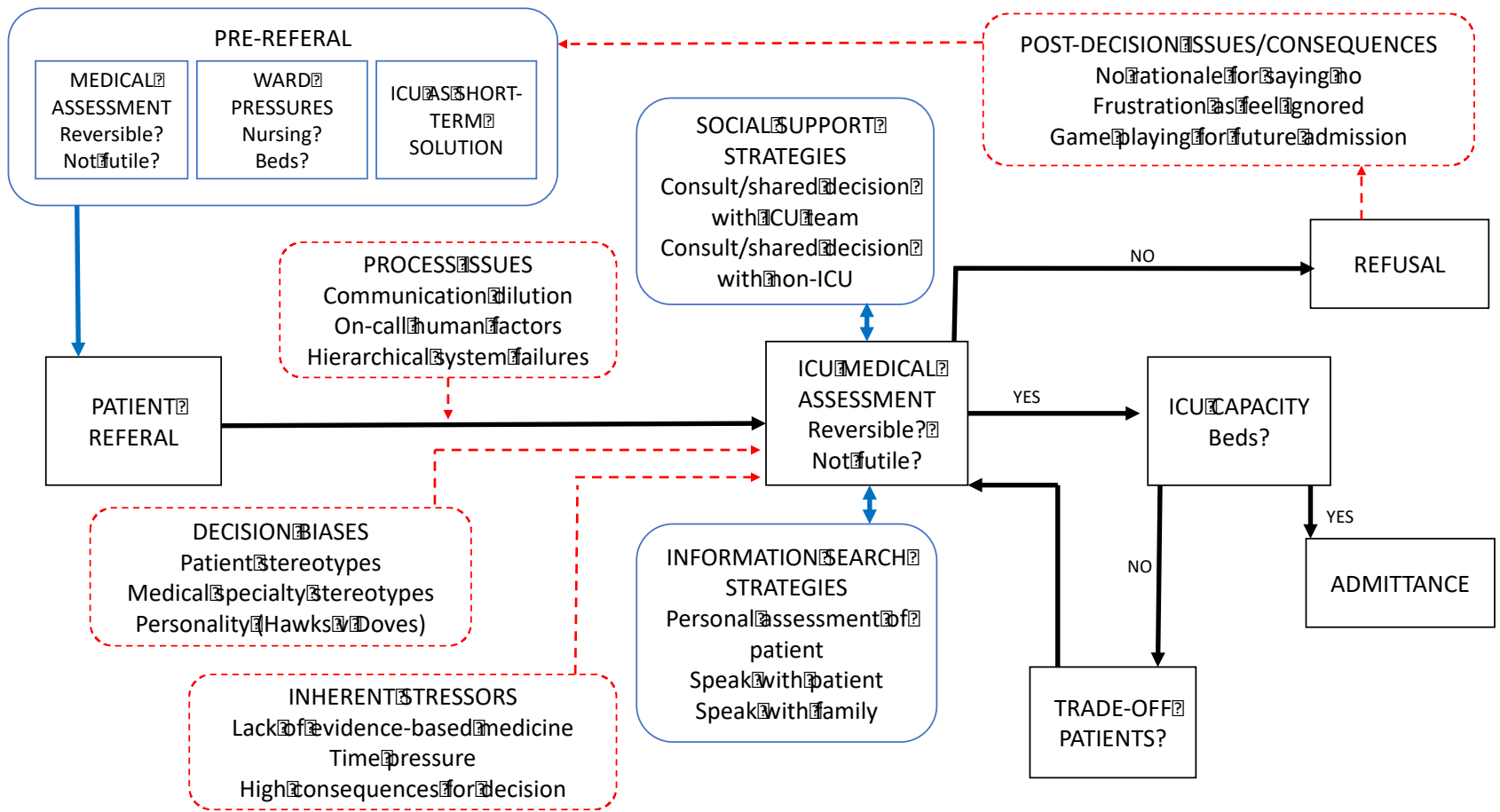


Figure 2: Points of Derailment from Patient Referral Pathway

Table 1: Quotes from the general patient referral process section:

Theme	Sub-theme	Reference	Quote
Pre-referral	Medical assessment	Q1	“if there’s something irreversible health issues and because of that their health is getting worse, then there’s no point getting them into ITU because that’s not going to help in any way”
		Q2	“if it’s not going to return their dad, grandma, son, whatever to any decent kind of existence afterwards it’s just an extra bit of suffering”
	Ward pressures	Q3	“the difficulty of trying to manage someone who’s extremely poorly on a ward base where you don’t have the nursing care to be able to deliver the care they need”
		Q4	“I think there is a mismatch in perception of what can and can’t be done on the ward, bearing in mind the intensive care unit is, you know, be definition intensively staffed and the other ward environments are not”
	ICU as short-term	Q5	“we all try and practice evidence based medicine but evidence only takes you so far and especially in critical care, there isn’t much evidence for an awful lot of the stuff we do, especially around decision-making”
		Q6	‘they did say ‘well look, she could just come for a few hours and then you send her down to the ward’ and I said ‘well that isn’t how it works ever; we know that she would have a prolonged admission to critical care before we can get her back to the medical ward just because of the status of the lack of medical beds’”
ICU Assessment	Medical assessment	Q7	“so the general guidance is what we’re admitting the patient in for has to be reversible”
		Q8	“so in terms of futility my view is basically any treatment you’re offering which doesn’t end in any benefit to this patient”
		Q9	“things are grey and you aren’t right and you aren’t wrong”
		Q10	“the decision to admit or not at the end of the day is not important in many respects. The process is important and the process is what we’re professionally judged by”
	Social support strategies	Q11	“if you can reach a consensus between you and its often a consensus, it’s not always an entire full agreement but if you can reach a consensus between you where people are accepting of the decision that’s your job done”
		Q12	“when you’ve been in an organization for years and you’re in the situation where you have relationships with clinicians from lots of different specialties you have built a level of trust”
		Q13	“it’s often when somebody comes down to refer a patient, they won’t be referring to one person, they will be referring to a room of people”
		Q14	“we get on very well in the unit as a group of consultants. We’ll bounce ideas and opinions off each other regularly

		which I think is a good thing to do, to be honest. And you get different viewpoint and you'll think about stuff outside the box that you won't necessarily have thought of because you're so task focused"
Information search strategies	Q15	"I went to see this patient first. Just sometimes you need to go and see them yourself rather than sending someone else to see them"
	Q16	"Many of our patients you can't involve but you have to involve the patients if they've got capacity"
	Q17	"talk to the family and you're trying to find out really what sort of person they are, what sort of life they live, what they would consider a good quality of life and a little bit about their cultural religious beliefs depending who they are"
Decision outcome	Q18	"let's be honest here, we do, whether we like it or not and whether we admit it or not, we will make decisions based on lack of resources"
	Q19	"we regularly have capacity issues, we regularly have no beds to admit to... I try at all costs not to let that change my decision, I try and park that as a peripheral issue"
	Q20	"I've got 28 Critical Care beds. That's not many beds really when you have a hospital full of sick people. So there is an element of, you know, having to reserve these beds for the patients that are going to gain the most benefit from it really"

Table 2: Quotes from the derailments to the referral process section:

Theme	Sub-theme	Reference	Quote
Process issues	Communication dilution	Q21	“this bit’s missing from the story; this is probably a critical bit of information can you make sure you find that bit of information when you go up there?”
	On-call issues	Q22	“I suppose ideally being able to access that from home, so if you could access just all the information about a patient but you’re very much relying on a registrar who’s probably trying to look at two or three sick patients”
	Hierarchical system failures	Q23	“I completely agree that this should not be a registrar’s decision. This should be a consultant’s decision”
		Q24	“most referrals are generally done registrar to registrar which isn’t ideal and in fact our guidelines say it should be consultant-consultant but that’s not often the case”
Inherent Stressors	Lack of evidence-based medicine	Q25	“she may not have been an ideal candidate for ICU, but we thought, because we didn’t have a diagnosis at the time... we had to make her stable for any further investigations”
		Q26	“we slightly struggle with that gut reaction and try to tap into other things to justify what appears to be an unscientific decision”
	Time pressure	Q27	“so the general guidance is what we’re admitting the patient in for has to be reversible” “it’s often difficult because it’s often a time critical decision that you’ve got to make and you haven’t got two hours to track down the husband or partner, find out about their wishes and stuff about whether to admit or not. So, it’s the time constraints that often make it difficult”
	High consequences of decision	Q28	“I think with experience comes that self-confidence to say ‘no’... experience tells you and gives you the self-confidence to say ‘Do you know what? No’ and not lose sleep over it, because you do lose sleep, a lot of sleep”
Decision biases	Patient stereotypes	Q29	“other issues include statements such as ‘neurological patients do badly’, which seems a rather sweeping statement given there is such a diverse range of conditions in neurology that potentially need intensive care unit management”
		Q30	“His rationale is that the patient will not do well because his brain had been irreversibly screwed by not having circulation for an hour... It felt like he walked in the door already knowing what he was going to do”
	Medical specialty stereotypes	Q31	“when you come from different specialties you’ve got your own I suppose specialty bias haven’t you?”
		Q32	“I think intensivists are very evidence-driven”
		Q33	“neurosurgeons are quite ‘we can do an operation and therefore we must do an operation’ and don’t think of ‘that means the patient is going to be stuck here for weeks potentially and filling up a bed and have a bad

			outcome'
	Personality	Q34	"between us there are some hawks who are just 'we're not admitting anything' and then a few doves who are 'I'll admit everything'"
		Q35	"I'm not a dove, I'm nowhere near a hawk, but I'm definitely more hawkish than some"
Post-decision issues and consequences	No rationale for saying no	Q36	"It was not clear at that time so I just had to get a bit stropky and go down to ask why it was the case"
	Frustration	Q37	"I remember having a discussion in the middle of the night with someone who was just not interested. And, in my view, that's you know, a little unreasonable. But the discussion was very much 'well no'"
	Game playing	Q38	"There's always a way of presenting stuff to improve the chances of getting the answer you want"
		Q39	"well it was kind of sold to us that. It was quite hard. When we looked at her mortality and morbidity review, her numbers didn't really suggest at that point she had a chest infection as such"

Table 3: Quotes form the Potential Solutions to Facilitate the Referral Process section:

Theme	Reference	Quote
Patient Feedback	Q40	“Showing outcomes for which patients and which patients you should admit to critical care, for example, and what their functional outcomes are at that. And not just the first month, but in six months to a year or two years. There’s very little good evidence, probably partly because it’s so hard to collect, I guess, or the case mix is so diverse”
	Q41	“it would be incredibly useful from my point of view as an Intensive Care Consultant to know what happened to all these people. I mean, it might just be good for my soul to find out that half of them go on to live long and happy lives, do you know what I mean? Because the ones... all the ones that we know and we remember are the ones that die usually: they’re the ones you put a lot of time and effort into so you have a disproportionate recollection of the deaths”
	Q42	“I think it’d be good actually for Critical Care to see some of the success stories. Because they discharge patients out of Critical Care, and they don’t see them again”
	Q43	“once they’re discharged from the critical care unit, they may still be in relatively poor shape and they can often take a long time to see what the final clinical outcome is and there isn’t really any forum for feedback to the critical care staff to say ‘You know this patient in whom you were asking whether you should withdraw treatment, you know that they returned to an independent life and they are quite happy that they are alive”
	Q44	“So they know exactly what it’s like from our end. And if they rock up, it’s just beautiful”
Inter-specialty training and engagement	Q45	“it’s a skewed thing because what they see is their patients that come out of ICU, they don’t see the patients that fell apart and the fact we had to talk to the families about this, and raised all the family’s expectations and then go ‘sorry it’s not working’ kind of thing”
	Q46	“put it through a sim centre or just a round table discussion, here’s a scenario what do you think the neurosurgeon, what do you like the A&E sister?”
	Q47	“a teaching session with a discussion, as opposed to sort of like an e-learning package. You couldn’t do it that way because it has to be sort of like a teaching session whereby they have the ability to answer or ask questions”
	Q48	“As we are so busy getting on with what we need to do, so it would be idealistic to think there could magically be some forum on which everybody shares experience, but maybe just occasionally, feedback on one or two patients here or there wouldn’t go amiss”
	Q49	“the key thing is what are the patient’s premorbid conditions, in the sense of how well they were...Is this just an ongoing process on the downhill curve?”
	Q50	“So I’ve had a patient that was – he may be 80, but he’s actually come in today because he was on his daily 30-mile bike ride”

Communication process	Q51	“that’s how you speak to them on the telephone, so they start off thinking; ‘you know what you’re talking about’ and you’re not fretting about nothing”
	Q52	“I don’t want them dealing with a very junior doctor making that decision, so it’s just common sense and that’s just respect really”
	Q53	“if a consultant refers on to somebody, go with them to see the patient so that you are actually showing that you’re making a bit of an effort to go and see them rather than just sit on the end of a phone and say ‘no’”
	Q54	“I think it should be multi-specialty. I think it should be a joint decision. I think it’s a lot of pressure to put on one person”
	Q55	“he did say ‘I don’t know how I’m going to explain this’ so I said ‘yes I’ll stay and do it with you’”
	Q56	“It’s a true discussion about appropriateness and if we say ‘oh well I really don’t think that’s appropriate’ then they’re ‘Okay fine’. But it’s a true discussion”
Decision logging	Q57	“if I’m reviewing a patient I’d try and write down my decision-making process and why I’ve done it, rather than just ‘seen patient – not for critical care’ full stop”
	Q58	“so when my colleague comes later, he understands my rationale”
	Q59	“probably rather than saying you can format it, tick box it, it’s a very personalized decision”
	Q60	“Just log things. It’s better for audit, it’s better for learning, it’s more thorough for documentation in very difficult discussions”
Earlier discussions of death	Q61	“I think we should discuss death more as a culture. It’s a taboo subject in Britain, people don’t talk about death, they don’t talk about what they want, they don’t talk about what they want at the end of life, people don’t appreciate what goes on in hospitals”
	Q62	“it’s just the doctor’s way of thinking ‘well we’ll do this, this and this and everything will be better and we’ll see you in out patients’ and no one ever seems to be prepared to accept the fact that ‘well you’ve just had your heart attack but you might not actually make it through’”
	Q63	“a lot of the discussions that we’re having could actually be avoided by just asking the patients at the beginning of their admission really”
	Q64	“they become unwell and we spend an hour agonizing over this decision that the patient, when they were competent, would have made for us very quickly”
	Q65	“advanced care planning around chronic health, we have lots of people who have chronic health problems who don’t see their health problems as life limiting”
	Q66	“unfortunately everybody dies, but then you have a little bit of choice now about how you do that, how you are going to die: you can have a nice death or you can die with me in Intensive Care on a ventilator”

Q67	“I am a bit careful because if everything is going well and, in my mind I know things are getting worse, but they feel well in themselves and suddenly to start discussing about dying may not be appropriate at that time”
Q68	“in my experience it’s once you’ve started the conversation it’s a conversation that patients want to have”
