

Readmission to intensive care: A qualitative analysis of nurses' perceptions and experiences

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ABSTRACT

OBJECTIVE: The purpose of this study was to identify and describe the experiences and perceptions of nurses regarding the factors that contribute to the readmission of patients to intensive care.

METHODS: Twenty-one nurses participated in the study. Unstructured interviews were conducted to ascertain participants' perceptions and experiences. Interview transcripts were analyzed using a constant comparison method to identify major conceptual categories.

RESULTS: Five main themes were identified that contributed to the readmission of patients to intensive care: premature discharge from intensive care, delayed medical care at the ward level, heavy nursing workloads, lack of adequately qualified staff, and clinically "challenging" patients who demanded a different skill set from the nurses.

CONCLUSION: Discharging patients early from the intensive care unit when they are clinically unstable creates issues around workload and significantly challenges ward staff. It also increases the likelihood of patients being readmitted to the intensive care unit. Hospital managers need to look at ways of increasing the knowledge and skills of ward staff or identify more appropriate environments for managing these acutely ill patients.

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Unplanned readmissions to the intensive care unit (ICU) impose a significant burden on patients and the healthcare system. Readmissions are costly and place considerable pressure on a system with finite resources. It is not surprising that research indicates that patients readmitted to ICU within the same hospital stay

experience poorer outcomes than those not readmitted. What is notable is that these patients' overall mortality rates are up to 6 times higher,^{1,2} they have lengths of stay twice as long as non-readmitted patients, and they are 11 times more likely to die in hospital.³ To date, only one study⁴ has examined ICU readmissions using

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a qualitative perspective. This study was conducted 17 years ago collecting mainly quantitative data. Clinicians were interviewed, but it was unclear how many and whether data saturation was attained. Identifying the factors contributing to ICU readmissions could improve health outcomes and facilitate the optimal use of limited health resources.

BACKGROUND

A search of CINAHL, Medline, Embase, and Psychinfo databases identified 42 published studies that have examined readmissions to ICU. Search terms used were *intensive/critical care*, *readmission*, and *recidivism*. Readmission is defined in these studies as “a second admission to ICU during the same hospitalization.” There has been heightened interest in ICU readmissions in the last 7 years, with 23 of these studies being published since 2003. This recent interest probably reflects the increased demand for ICU beds and the resulting pressure on clinicians to use ICU resources more efficiently.

All but 1 of the 42 studies used a quantitative approach. The readmission rate in these studies ranged from .1% to 19.4%.^{5,6} Eleven studies conducted a retrospective analysis of data routinely recorded on patients admitted to ICU, the largest analyzing a dataset of 4684 admissions; this did not include analysis of medical records. The main findings were that readmissions were more common among patients who responded poorly to treatment (eg, a patient remaining septic despite receiving antibiotics). Readmission risk was increased when patients were transferred to the ICU from another hospital or general medicine ward. A delay in readmission was also found to affect prognosis.⁶ Although the issue is controversial, Russell⁴ speculates that improved care on wards (rather than admission to a high-dependency unit [HDU]) after initial ICU discharge may reduce readmission rates and improve outcomes.

Nineteen of the readmission studies conducted between 1999 and 2009 were prospective observational studies. The largest sample size was 136,161 patients.⁷ Readmission rates in these studies ranged from 1.3% to 19.4%.^{8,9} These studies found that respiratory complications were the main reason for readmission. Residual organ dysfunction at discharge increased the chance of a readmission, and comorbidities were a risk factor for ICU readmission 3 or more days after discharge. It was suggested that quality of care in the ICU and on the wards is likely to be associated with readmission.

Twelve studies conducted a retrospective analysis of the medical records of patients discharged from the ICU. The largest sample was 25,717 patients,¹⁰ and readmission rates ranged from .89% to 12%.^{11,12} The main findings were that respiratory and cardiac deterioration were the main reasons for readmission, inadequate respiratory care on the wards contributed

to patients' deterioration, and ICU readmission was associated with substantial resource consumption.

The only study that included a qualitative approach described the opinions of patients and their family members regarding their experience of an ICU readmission.⁴ This Australian study was situated in a metropolitan, tertiary referral hospital with a 14-bed ICU. The study was conducted for 6 months, and during this time there were 639 ICU admissions. A total of 298 patients consented to participate; of these, 18 underwent an in-depth interview, 68 underwent a structured interview, and 212 completed a self-reported questionnaire. Staff were also interviewed, but the number who participated was not mentioned in the article.

The readmission rate in this study was 10.5%; 46 patients were admitted to the ICU twice, 7 patients were admitted 3 times, 1 patient was admitted 4 times, and 1 patient was admitted 5 times. Of the first admissions to ICU, 35% were postoperative, 27% were cardiac related, and 14% were respiratory related. Of the second admissions, 38% were respiratory related, 25% were cardiac related, and 22% were postoperative. During the in-depth interviews, 2 key themes emerged: a lack of resources on general wards and a lack of communication between ICU and the ward staff.⁴ Data from the questionnaires and other interviews also identified progression of the patient's illness, postoperative care requirements, and inadequate care on the wards after ICU discharge (eg, not aspirating a nasogastric tube).

Quantitative studies have used a variety of methods to develop the understanding of ICU readmissions. Some of these studies analyzed datasets of more than 100,000 patients.⁷ The disease processes commonly associated with these readmissions have been described in these studies, although the factors resulting in the development of these acute illnesses have not. A combination of qualitative and quantitative data provides a more complete picture by noting trends and generalizations, as well as in-depth knowledge of participants' perspectives.¹³ The purpose of this qualitative, descriptive study therefore was to provide a deeper understanding of factors contributing to the readmission of patients to the ICU from the nurses' perspective. The aim was to ascertain nurses' perceptions and experiences of the factors that contribute to the readmission of patients to the ICU.

SETTING

The study was conducted in a 500-bed tertiary referral hospital in New South Wales, Australia, that serves a population of 250,000 and admits 50,000 patients per year. The hospital's clinical specialties include critical care, surgery, and cancer care. The 12-bed general ICU is managed by medical staff with specialist intensive care training. Admission and discharge of patients are

dependent on approval by an ICU consultant or senior registrar.

Once it is determined that a patient in ICU can be discharged, the hospital's bed manager is contacted to arrange a bed on the appropriate ward. If a bed is available immediately, the patient will be discharged to the ward. If not, the patient remains in the ICU until a vacant bed is found on one of the wards. The hospital also uses an ICU liaison nurse whose role is to help ensure continuity of care after patients are discharged from the ICU. This role was created in response to the increasing acuity of patients being discharged from the ICU to general wards and the desire to provide these patients with access to some of the resources of the ICU without having to send the patient back to the ICU.

The study hospital did not employ respiratory therapists. Medical officers order the patients' treatment (eg, oxygen therapy), which is then implemented by the nursing staff. Once a patient has been discharged from the ICU, the ICU staff (medical and nursing) are no longer involved in the patient's care. Instead, ward staff provide the nursing care while the primary admitting medical team (eg, cardiology) provide the ongoing medical care. If the primary medical team thinks a patient should be admitted (or readmitted) to the ICU, they contact the ICU medical staff for a consultation.

Care on the wards is also influenced by other variables, such as skill mix and nurse:patient ratios. In this study, the nurses would have a case load of 4 to 6 patients, irrespective of acuity. Furthermore, patients are admitted to the hospital on the basis of diagnosis and not nursing acuity. For example, patients requiring care of a neurologist are admitted to the neurology ward; this could result in several highly dependent patients with stroke being admitted to that ward in the same timeframe, without any change in numbers or skill mix of the nurses.

In terms of nursing care, specialist or postgraduate qualifications were not required for the nurses to work in the ICU, which meant that some of the nurses had only 1 or 2 years of postgraduate experience. Similarly, postgraduate qualifications were not required to work on the specialist wards of the hospital. Participant demographics resembled the general nursing population who cared for patients during or after their ICU admission in the study hospital. This point is useful to consider in terms of transferability of the findings. Polit and Beck¹⁴ discuss the degree to which one can transfer across samples depends on the similarities and the people to whom the findings might be applied.

MATERIALS AND METHODS

Participant Recruitment

To gain a complete picture of the readmission phenomenon, participants were recruited from 3 practice

domains: the ICU, hospital wards, and nurses in education and managerial positions. Information sessions about the study were conducted in the ICU and on the hospital wards. During these sessions, nurses were invited to participate in the study if they had been involved in the care process of a patient who had been readmitted to the ICU. Some participants volunteered because of the "snow balling" effect of nurses either speaking with each other about the study or recommending another nurse to participate.

Consent

The study was approved by university and health service ethics committees. The ethical principles highlighted in the Declaration of Helsinki¹⁵ were followed in the study. During the information sessions, potential participants were informed that participation was voluntary and that their decision to participate (or refuse to) would not affect their employment in any way. Participants were also informed that the interviewer was not a hospital employee and that all information provided would be de-identified and anonymity maintained. They were also informed of the researcher's intention to publish the results of the study but that neither their name nor the hospital's name would appear in any publication. This was done to help establish trust with the participants and encourage them to respond freely and honestly. All participants gave written informed consent before their interview.

Data Gathering

Data were gathered by unstructured one-to-one interviews. To encourage participants to speak freely, each interview was conducted in a private office in the hospital and lasted approximately 40 minutes. To ensure anonymity, confidentiality, and privacy,¹⁶ participants' names were not used during each interview and participants were allocated a code name for the study (eg, "nurse 2b"). All participants consented to their interview being audiotaped. Interview transcripts and tapes were kept in a locked filing cabinet in a locked office, as required by the ethics committee. If any sensitive issues arose during an interview, the participant was encouraged to discuss it with his/her unit manager or educator.

At the start of the interviews, participants were told that the interviewer would ask about their experiences of caring for patients who had been readmitted to the ICU and use further questions to explore their responses in detail. This was done to gain a thorough understanding of contributing factors from the participant's perspective. It also provided the participant with an understanding of the interviewer's role during the interview. Each interview commenced with the same statement ("tell me your experiences of caring for patients who have been readmitted to ICU"). This consistent approach to data collection helped ensure

trustworthiness.¹⁷ Participants were asked to provide a detailed and honest account in response to the interviewer's questions. They were informed that they did not have to provide any information that they felt uncomfortable providing or that was particularly sensitive. The interview tapes were professionally transcribed.

Field notes were made during and immediately after each interview. These were used to help the interviewer synthesize and understand the data that had just been collected and to make memos about significant concepts that were mentioned and worthy of exploration in future interviews. This also helped establish a decision trail. Memos have been described as a way of capturing and preserving conceptual analysis, promoting ongoing inquiry and stimulating the researcher's theoretic creativity.¹⁸

Data Analysis

Participants from the 3 practice domains were recruited and interviewed until data saturation occurred. Consistent with constant, comparative analysis, data were analyzed before the next participant was interviewed. Saturation was reached when no new themes were identified during analysis. Data saturation was achieved within similar numbers for each of the groups of nurses; from the perspective of the ICU nurses, ward nurses, and educators and managers, this occurred after 8, 6, and 7 nurses had been interviewed, respectively (Table 1). Participants had between 2 and 20 years of postgraduate experience. Nineteen of the nurses were female, and 2 of the nurses were male. All volunteered and gave informed consent to participate in the study.

Constant, comparative analysis¹⁹ was used to identify conceptual categories (Figure 1). The first stage involved "open coding." During this initial coding process, data were broken down into discrete parts, closely examined, and compared for similarities and differences. Each line of the transcribed interviews was read, and a label was applied to each theme or process that related to ICU readmissions. The second stage of coding involved "axial coding." The purpose of this stage of coding was to reassemble data that were broken down during open coding.¹⁹ Data codes that emerged during the open coding process were compared to identify themes. Data were managed using the qualitative software program N-Vivo.²⁰

Findings

Themes emerging from the data related to the patient, staff, or working conditions. The 5 key themes were premature discharge, challenging patients, lack of skilled staff, heavy workloads, and delayed care.

Table 1 – Participant demographics

Role	Years of experience in role		
	<2	2-5	>5
ICU nurse (n = 8)	2	5	1
Wards nurse (n = 6)	0	4	2
Other (n = 7)			
After hours' clinical support nurse (n = 1)		1	
Nurse educators (n = 2)		2	
Ward manager (n = 1)		1	
Manager of the surgical/critical care division (n = 1)			1
Manager of the quality care division (n = 1)	1		
ICU liaison nurse (n = 1)		1	

ICU, intensive care unit.

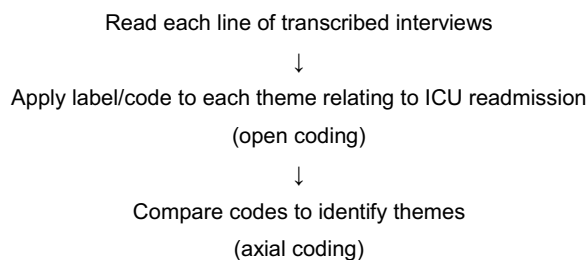


Figure 1 – Constant, comparative analysis. ICU, intensive care unit.

Premature Discharge

The premature discharge of patients from the ICU was a factor cited by participants. Premature discharge was defined as a patient being discharged from the ICU to a general ward before he/she was ready to be discharged. The most common reason cited for this was a shortage of ICU beds. Participants reported that this mainly occurred because a patient on the hospital wards was more critically ill than a patient in the ICU, such as a patient having a cardiac arrest on one of the wards. When asked why patients were being discharged prematurely from the ICU, an experienced ward nurse stated:

"They've got a certain amount of ICU beds, HDU beds, and they have a certain amount of staff, and if you've got someone sicker that needs a bed, they need to get someone out of the unit, and this has been the situation previously. But in the past sometimes you know you got told 'well we've got to get someone out of ICU because there's a ventilated patient in A&E,' and so you know and they sort of move along and I guess probably the staff down there would assist the patient and say 'OK you know

um this patient could be ready for the ward and send them out.” (quote from participant 3a)

A senior nurse manager in charge of the hospital's surgical and critical care division suggested that patients are often sent out of ICU prematurely because of necessity. She cited the demand for ICU beds, elective postoperative admissions, or patient transfers from other hospitals as the common reasons.

Participants also defined premature discharge from the ICU as patients being discharged and sent to a ward on the same day they are extubated. A ward nurse (participant 3a) stated:

“On this ward it's the fact that they're sent out too soon, and they are not ready for the care that we offer on the ward. Nothing to do with the level of care that we can offer, it is adequate, but you know not for that patient, not for that kind of patient you know that's sort of been sent out too soon, they are still quite ill and so of course they tend to deteriorate and go back.”

Many participants thought that if patients had remained in ICU a bit longer, any deterioration would have been detected earlier because of the higher nurse-to-patient ratios. They believed this would have prevented ICU readmissions. One ICU nurse provided a reason for this:

“So they will shift that patient out maybe only a couple of hours early, but those couple of hours might have made the difference between one more treatment of continuous positive airway pressure, something that they won't receive on the ward, and if the source of their sepsis is in their chest, that extra hour of expansion might be the kick to help them along.” (quote from participant 2a)

Clinically Challenging Patients

Participants indicated that compared with previous years, caring for general ward patients was more challenging because they were sicker and therefore required a higher level of care. When asked, an experienced ward nurse provided the following example of this type of patient:

“... needing hourly obs (observations) or they've got antibiotic after antibiotic after antibiotic. They've got to be sponged in bed, they may be needing nasogastric stuff or percutaneous endoscopic gastrostomy feeds and things like that. Lots of drains, they may have 2 underwater sealed drains, 2 sump drains, a redivac, 3 antibiotics as well.” (quote from participant 8c)

The premature discharge of patients from the ICU meant that patients who were still needing ICU level

care were being admitted to general wards. Participants thought this put these patients at risk of ICU readmission because they perceived the wards were not resourced to provide the care patients needed. Participants described these patients as being clinically unstable, such as having fluctuating blood pressure. Because of this instability, patients required more monitoring by nursing staff, which was not normally possible in a general ward staffing allocation or part of these nurses' skill base. Participants also indicated that some patients on general wards were too sick to be there because of the severity of their condition and the high level and intensity of their care needs.

Another reason why nurses described their patients as challenging is that the healthier (ie, less sick or dependent) patients were being cared for elsewhere. Participants reported that surgical patients who might have previously required a 5- or 7-day hospital admission were now day-surgery or short-stay cases. A nurse educator said that in the past, these patients tended to “offset” the more challenging ones, making the workload more manageable for ward staff. However, this type of patient was now admitted to other areas of the hospital. This meant that ward nurses were not able to spend as much time with more dependent patients, such as those who had been recently discharged from the ICU. These patients were therefore not able to receive the care they needed, often resulting in a readmission to the ICU. A senior ward nurse reported that some of the patients who come to the ward from the ICU still required one-on-one nursing, which the wards were not resourced to provide. The nurse (participant 7e) in charge of the hospital's clinical practice unit provided an example:

“...you've got a patient who has had, you know Whipple's (pancreaticoduodenectomy) or something, and they're receiving total parenteral nutrition with titrated insulin infusion. They've got 4 sump drains in. They're on massive fluid replacement. They're on fourth hourly antibiotics. The dressings, some of them will come back with open abdomens with the mesh, so it takes a few of you to do the dressing, you're replacing the sump fluid every hour let alone a colostomy bag, a nasogastric tube, aspirates, the whole thing. They are incredibly sick, high acuity surgical patients.”

She reported that when she started working on the ward many years earlier, the nurses would care for 6 or more patients, but they were not as busy with that workload as staff currently were with fewer patients. This was due to patients being more dependent than patients in previous years. This was reinforced by another ward nurse (participant 9a) who stated:

“Wards are equipped to nurse ward patients, not ICU patients. If patients deteriorate, it may not be due to inadequate care but rather inappropriate admission to a unit that is not designed to care for

that type of patient, just as ICU is not designed for long-term care.”

The nurse in charge of the hospital’s clinical practice improvement unit said that many ward patients today were the high-dependency patients of 6 months ago. By this she meant that the types of patients who were dependent enough to require admission to a HDU 6 months ago now met the criteria for admission to a general ward:

“You see some patients walk through the door, and they really don’t look like they’d last more than a couple of weeks. They’re that sick that you don’t know how they could possibly operate on them.” (quote from participant 7e)

Ward staff therefore obviously struggled to provide the care needed because they may not have the skills to care for patients who are so clinically unstable, and even if they did, there probably would not be enough staff to do so.

Lack of Skilled Staff

Several participants thought that many nurses, particularly those on general wards, did not have the knowledge or skills required to care for acutely ill patients. This was a particular problem among new graduate nurses, with one senior ward nurse (participant 7b) saying, “we’ve got new graduates that...really don’t have a clue.” Another ward nurse (participant 8d) made a similar comment:

“There is a lack of senior nurses; having one on a shift may not be enough if the other staff are junior, inexperienced or enrolled nurses, particularly as senior staff will have their own patient load; less experienced staff may not be able to detect subtle patient changes.”

In contrast, a nurse educator said that some new graduates can determine that a patient’s condition is deteriorating and might contact a doctor, but these nurses did not know what care the patient might need and therefore could not determine if the care prescribed was appropriate. For example, a ward nurse educator highlighted the problem posed by employing new graduate nurses:

“There’s certainly some new grads out there that I wouldn’t be happy with them looking after a patient straight out of ICU or HDU, but um, the ones that we have at the moment I have real bad problems with.” (quote from participant 7c)

One participant (8b) had worked on a general ward for 1 year and ICU for 2 years. He commented on what he knew now with what he knew when he was a new graduate on the wards: “There are a lot of things

I wouldn’t have picked up on.” Conversely, another nurse educator said that new graduates often called a doctor as soon as they had identified a change in a patient’s condition. However, these nurses often failed to collect the relevant information the doctor needed to treat the patient.

Participants reported that many experienced ward nurses were also not able to recognize that a patient had deteriorated or was acutely ill. This meant that many patients did not receive appropriate care until they had deteriorated significantly, by which time an ICU readmission was inevitable. One of the hospital’s ICU liaison nurses thought that many ICU readmissions and subsequent deaths could have been prevented with more thorough patient assessment than those she had witnessed. She had encountered patients who had their deterioration on a ward clearly documented, but no action was instigated. She thought this was primarily due to a lack of recognition of the change in the patient’s condition by ward staff:

“...early intervention, I think, is of vital importance, and with that is being able to identify your signs and symptoms, and all that comes back to knowledge and unless the nurses go and do postgraduate qualifications. I think it’s, it’s just like a bad cycle, and I think people don’t realize how much they don’t know until they actually go and do a course.” (quote from participant 8e)

The lack of skilled staff was said to have contributed to ICU readmissions in other ways. A ward nurse educator suggested that if nurses see a particular medical device only 1 or 2 times per year, it is difficult for them to maintain their competence in caring for a patient with such a device. An example was changing the inner cannula of tracheostomy tubes, which one ward nurse (participant 9a) said at times did not get done because staff “...just don’t know, so they don’t touch it.” This situation would also occur if nurses had to care for patients outside their area of specialization. A nurse educator on the wards for example stated that “if the orthopedic ward gets something out of their specialty, they seem to have problems.” This lack of skills or knowledge meant that patient care was often delayed or inadequate, also resulting in an ICU readmission.

Heavy Workloads

Having to care for patients who were sicker than others significantly affected ward nurses’ workloads and thus the time they had to provide care. An experienced ward nurse highlighted this problem:

“...I had 6 to 7 patients when I started on this ward, 6 to 7 years ago, and I didn’t find that was extremely hard or frustrating, but now I can have 4 patients and be run off my feet. (quote from participant 8c)

An ICU nurse who had worked on the wards of the hospital made the following comment:

“...that ward is atrocious, and I’ve been deployed there and it’s awful because they have patients with 5 pigtail drains who are bed bound with you know 2 nasogastric tubes, and you know are just in a terrible condition. They have been there for 3 months. It’s really heavy nursing, and I can understand how it’s difficult.” (quote from participant 8f)

The nurse in charge of the hospital’s clinical practice improvement unit described the nurses on one ward as highly skilled surgical nurses, but despite this said that workloads were always a problem. The workload of senior staff on the general wards was further increased if they were the staff member in charge of the shift and had to supervise nurses who were new or inexperienced, while also having their own patient load.

Although ward nurses were supposed to only be allocated 3 or 4 patients to care for in a shift, typically they cared for a lot more because of staff shortages. If 1 or more of these patients were acutely unwell or just been discharged from ICU, some patients were neglected or received what one ward nurse referred to as minimal care. Even having less than 4 patients was problematic if 1 of these patients was acutely unwell or had just been discharged from ICU. An experienced ward nurse (participant 7b) provided the following example:

“We did everything up here that you could possibly do, electrocardiograms, but...you know you’ve got 1 nurse to 6 patients, and looking after this patient was, it would have been too much to keep up regular monitoring...you know to see if she was going to become tachycardic, and then later on she went back to the operating room and had 1.5 liters evacuated from her gallbladder bed.”

Some ICU nurses thought that once patients were admitted to a general ward, they did not receive the same nursing care they had received in the ICU. The main reason for this was the nurse/patient ratios, which was often because of a lack of staff. When a ward was understaffed, each nurse was forced to care for more patients than usual. One ward nurse highlighted this problem:

“...if you’ve got enough staff on, I feel adequately safe to look after the patients that are quite sick. If there’s not enough staff on, then you’re really not spending enough time with them.” (quote from participant 8c)

An ICU nurse expressed similar concerns about sending patients with a lot of airway secretions to the wards, fearing they would not receive the frequent airway suctioning required. Another ICU nurse (participant 8j) who had recently worked on a general

ward suggested the reason this type of patient is readmitted to ICU is “...because they haven’t been cared for properly respiratory wise.” She said that this was because ward nurses are not able to provide frequent suctioning of the upper airways because of their heavy workloads. These workloads often resulted in essential patient care being delayed or even omitted. A nurse educator employed as a resource for ward staff stated that nurses on the wards

“... don’t have the time to spend with the patients to ensure they do their physio and that...sometimes on days...they’re hard pushed to get through the basic stuff they need to do to get through a shift.” (quote from participant 7c)

Delayed Care

The delay in providing care to acutely ill patients on general wards was commonly cited by participants as a major factor contributing to ICU readmissions. This delay could occur for a number of different reasons. In a teaching hospital, each medical team usually consists of junior and senior members. As the junior member of this team, the intern is generally the first medical officer to review or treat patients. Ward nurses described the knowledge and skills of many interns as lacking or being inadequate, for example, a nurse described an intern who mistook hypervolemia for a pulmonary embolus.

Participants reported that because of their inexperience, interns were often unsure about the care patients needed and frequently had to refer to their senior medical colleagues for guidance or advice. However, participants reported that these senior clinicians were also often unsure of the appropriate care needed and would often ask for advice from other medical teams, such as ICU. All of this would take time, during which patients would continue to deteriorate.

Participants also described a reluctance by other staff to seek help where needed. When describing some of the delays in patient care, the nurse manager (participant 7d) for surgical and critical care said the following:

“...oftentimes, the nurses in the HDU especially were too intimidated to approach the medical staff in ICU and they had to go through the primary medical team.”

Unlike some hospitals, the ICU staff in the study hospital did not provide care for patients also in the HDU. The primary medical team caring for the patient would intervene initially. Again this meant that medical teams with no ICU experience would manage patients when they first deteriorated, and most of the patients in HDU were quite sick to begin with. Unfortunately, the ICU in this study did not have the

resources to assess HDU or ward patients on a regular basis.

Some participants reported that many nurses lacked assertiveness and the ability to clearly articulate how sick patients actually are. This resulted in some nursing staff being ignored by medical staff or not being taken seriously, and the patient therefore not receiving the appropriate care. The nurse (participant 7e) in charge of the hospital's clinical practice improvement unit, for example, described the following incident:

"I had a patient who was clinically deteriorating. He had been unwell for a few days postoperatively. I think getting a bit septic, getting a bit confused, hypoxic, and the nursing staff had written an incident form saying 'I have this patient who is deteriorating, they are really sick, and I rang the registrar and the registrar ordered some Serenace, and this was completely inappropriate.' So I thought 'well I think it was possibly inappropriate as well.' So I went to the registrar and I said, 'I was just wondering why with this pattern of clinical deterioration you would order Serenace over the phone?' He said 'I didn't know the patient was sick.' 'The nurse said to me this man is really going off,' and he said 'and I thought going off' because he had been confused, that he was going off and getting agro so I ordered some Serenace."

Similarly, another ward nurse (participant 8d) reported that doctors want to hear "something concrete" and that they do not tend to recognize or appreciate nurses' gut instincts. These communication issues between medical and nursing staff delayed patients' care, which resulted in ICU readmissions.

DISCUSSION

This study used unstructured interviews to ascertain a small cohort of nurses' perceptions and experiences of the readmission of patients to ICU. Five key themes emerged from the data: premature discharge from intensive care, delayed medical care at the ward level, heavy nursing workloads, lack of adequately qualified staff, and clinically "challenging" patients who demanded a different skill set from the nurses.

The nurses in this study highlighted that premature discharge was frequent in patients readmitted to the ICU. Premature discharge was defined by participants as a patient being discharged from ICU to a general ward before he or she was ready to be discharged (or on the same day he or she was extubated). This has been recognized as a risk factor for ICU readmission.^{11,12,21}

The ICU nurses in this study perceived that ward nurses did not possess the acute care knowledge

or skills for high acuity patients with associated complex technologies (eg, continuous positive airway pressure). This is consistent with the hypotheses of others^{6,22,23} that suboptimal or inadequate care is responsible for many patients' deterioration. Suboptimal care has been defined as a lack of knowledge regarding the significance of clinical findings relating to dysfunction of airway, breathing, and circulation.^{22,23} The nurses identified that because some patients were discharged prematurely from ICU in the current study, they needed a level of care that would not normally be provided in a general ward environment but rather in an ICU or HDU. This included, for example, patients needing their vital signs measured more than 4 times per hour, which was the general norm for ward-based patients. They also required frequent tracheal suctioning, again an uncommon occurrence on the ward.

The nurses in the current study thought that many patients' deterioration (eg, decreasing blood pressure) may have been detected and treated earlier, thus avoiding ICU readmission (as speculated above). In addition, it was perceived that appropriate patient care was further delayed because medical staff also did not have the necessary acute care skills. This is consistent with the findings of previous research²⁴ examining junior doctors' ability to manage unstable patients.

The current study suggests that medical and nursing staff working on general hospital wards need to possess advanced knowledge and skills (eg, caring for a patient with a tracheostomy). A number of other studies^{25–27} have highlighted the frequent prolonged periods of instability experienced by patients before their admission to intensive care. Similar periods of instability have also been found^{28–30} in patients before cardiac arrest, with clinicians often documenting but not acting on the physiologic deterioration. If patients are going to be discharged early from the ICU, it is essential that they continue to get the care they need (eg, frequent airway suctioning, repositioning, mobilizing), and that their condition continues to be closely monitored (eg, visualized regularly and vital signs measured frequently, eg, once or twice per hour). Discharging acutely ill patients from the ICU to general wards may adversely affect their outcome, and the findings of this study suggest one possible outcome is readmission to the ICU.

The presence of acutely ill patients on general wards significantly increased staff workloads, reducing the time nurses have to spend with their patients. This is consistent with the suggestion of Goldhill³¹ that increased medical and nursing workloads leads to reduced continuity of care, which results in suboptimal care. Admitting an acutely ill patient from the ICU to a ward environment almost guarantees that essential care will be omitted because patients will have complex and competing needs. Goldhill et al³² found that 25% of patients admitted to the ICU die soon after discharge to a ward and that many of these patients experience adverse incidents. It would seem that

placing acutely ill patients who are at risk of deterioration on general wards will result in poor outcomes for at least some of them.

Russell⁴ found that decreased resources on general wards contributed to ICU readmissions. Other research has also demonstrated the impact of resource availability on care delivery.^{33,34} Findings of the current study suggest that appropriate resources (eg, adequately skilled staff) to provide the care needed by patients on general wards are still lacking on a day-to-day basis. Ward staff struggled to provide the care needed, because they did not have the knowledge, skills, time, or resources required. However, this does not mean that staff are incompetent but rather that they were placed in a situation above their level of expertise and capacity. Several of the nurses in the current study reported that medical staff also struggled when patients were much sicker than those they usually encountered. This is consistent with the findings of another study³⁵ in which 9% of nurses commented on poor response from medical staff when patients were referred with signs of being unwell. Future research therefore needs to examine the systemic or organizational factors that influence the care patients receive after discharge from ICU.

Many studies have examined the discharge process from the ICU to the wards. A Swiss survey³⁶ of 55 ICUs identified significant heterogeneity in ICU discharge practices. Written discharge guidelines, for example, were not widely used, and there was a lack of agreement in clinical decision-making about the discharge process. Furthermore, a recent study³⁷ in Sweden found that nurses struggled with the gap in care between the ICU and the wards during the transition period. The ward nurses interviewed wanted access to the necessary resources for patient care, questioned their own competence, and sought assurance of the patients' ability to be transferred from the ICU. Differences in the level of care were seen in the nurses' competence and focus. The ICU nurses interviewed tended to be "medically focused" (eg, saving the patients' lives), whereas the ward nurses focused on the patients' strengths and less on monitoring. The nurses sought improved collaboration between the ICU and the wards and desired routines that facilitated patient focused care. Nurses in Haggstrom et al's study³⁷ felt overwhelmed when they were receiving a patient from the ICU because of the extra workload involved, similar to the experiences of nurses in the current study.

Several other studies have found that ICU patients often could not be discharged to a ward because of the ward staff's lack of knowledge and skills.^{38–40} Poor communication between the ICU and the wards has also been identified as a variable contributing to the efficacy of the ICU discharge process.^{41,42} Research also found that the ICU discharge process was conducted poorly because of the urgent need to vacate the bed for an urgent ICU admission.^{43–45}

LIMITATIONS

This study has one main limitation. The findings reflect the experiences of nurses at one publicly funded, tertiary referral hospital in Australia. The results of the study must be interpreted within this context. Nurses in other hospitals (eg, private hospitals) or those without an ICU liaison nurse or critical care outreach team might have different experiences. Similarly, the nurses' experiences in this study reflect the public health care system in Australia. Nurses in countries with health care systems different than the system in Australia may not have the same experiences.

IMPLICATIONS FOR CLINICAL PRACTICE AND FURTHER RESEARCH

In this study, nurses described 5 main factors that the participants perceived as contributing to the readmission of patients to the ICU. Previously published research has not actively sought the perceptions of clinicians caring for readmitted patients in this specialist area. The findings highlight key factors that clinicians and managers can examine and modify to improve the care and thus the outcomes of patients at risk of ICU readmission. These factors relate to the way direct patient care is provided and the way care is managed at the organizational level.

Future research needs to examine how these system factors contribute to other adverse outcomes in patients discharged from the ICU. The issues in ward care might be ameliorated by nurses with different levels of expertise undertaking to deliver team-based care, rather than as "individuals" with their own case-load. Research has demonstrated that team-based nursing is effective in improving patients' outcomes in acute care settings.⁴⁶ The impact of team nursing on ICU patients' outcomes is an area for further research. Other researchers⁴⁷ speculated that the current deficiencies in ward care may be due to the absence of senior and experienced clinical decision-making at the bedside and that at present, only the symptoms, not the causes, of suboptimal ward care are being treated.

The Intensive Care Society⁴⁸ stated that the ability to recognize and treat critically ill patients is central in preventing and recognizing admissions and readmissions to ICU. However, research^{49,50} and the findings in this study suggest that ward staff are poor at recognizing these patients and that at least half of all adverse events involving patients are avoidable with correct standards of care.⁵¹ In addition to previous research, the findings of this study provide clinicians and hospital managers with a starting point by identifying the key issues related to ICU readmission. The next step would be for a larger-scale study to be carried

out on the basis of these outcomes to develop strategies to reduce the risk or occurrence of ICU readmissions.

CONCLUSIONS

Discharging patients from the ICU to the wards requires planning and consideration of ward-based knowledge and skills, especially because some of these patients are clinically unstable and require frequent monitoring. This creates issues around workload and significantly challenges ward staff. Although ward staff might possess knowledge and skills relevant to their own specialty, it is unreasonable to expect them to be competent in critical care (although they should have sound assessment skills). Hospital managers need to look at ways of increasing the knowledge and skills of ward staff and identifying more appropriate environments for managing these acutely ill patients. Further investigation of the effect of skill-mix or different models of care provision on patients' outcomes is warranted.

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