Title: In safe hands: patients' experiences of intrahospital transport during intensive care

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conception and design of the study (2) revising it critically for important intellectual content, and (3) final approval of the version to be submitted.

ABSTRACT

Objectives: Intrahospital transports are associated with complications and adverse events in intensive care patients. Yet, little is known about how patients' perceive IHTs. Thus, this study aimed to explore patients' experiences of the intrahospital transport process.

Research Design: An exploratory qualitative study comprising interviews with twelve patients. Data were analyzed using thematic analysis.

Setting: Two intensive care units in a university hospital setting.

Main Outcome: An understanding of patients' experiences of the intrahospital transport process.

Findings: The main finding was patients' description of "being in safe hands" during the transport. Patients' experience of transports as feasible and safe was reflected in the first main theme, "feeling prepared and safeguarded". The second theme, "being on the move", described patients' perceptions of the transport; although they were aware of movement, the transport was viewed as a minor event during their stay. The third theme, "entrusting myself to others", revealed how patients handed over control and decision making to the staff, confident that they would look after their best interest.

Conclusions: Patients perceived intrahospital transports as an acceptable and safe process. Findings suggest that patients' experience could be improved by being provided with accurate and timely information and preparedness for transport-related events.

KEY WORDS

Intensive care unit; Patient experience; Patient participation; Patient safety; Patient transfers; Qualitative Research

1 **IMPLICATIONS FOR CLINICAL PRACTICE**

- 2 • The findings support that intrahospital transports should be performed by staff from the
3 intensive care unit since patients felt safe knowing that staff would look after their
4 interests.
- 5 • Although several patients had little memories of their transport, improving the transport
6 environment may positively influence patients' comfort and convenience because they
7 often described how they perceived the surroundings as they passed by.
- 8 • Being prepared and informed during the transport can improve patients' experience in
9 helping them to orient themselves and may also lessen their worries and concerns about
10 the upcoming examination or intervention.
- 11 • Guidelines should include recommendations for patient involvement in order to ensure
12 that they feel comfortable, prepared, and safe throughout the intrahospital transport
13 process.

14 **INTRODUCTION**

15 Intensive care units (ICUs) are designed to care for critically ill patients in need of constant
16 surveillance, attention, and access to specialized care (Vincent and Creteur, 2015). However,
17 during an intrahospital transport (IHT), the patient has to leave the ICU to be transported
18 through corridors and elevators, sometimes to distant areas of the hospital. Thus, IHT is a
19 potentially hazardous process (Bergman et al., 2017). The incidence of complications and
20 adverse events during IHTs for ICU patients may reach 80%, but this rate varies across studies
21 (Jia et al., 2016; Kue et al., 2011; Papson et al., 2007; Parmentier-Decrucq et al., 2013). During
22 IHTs, patients are at risk of experiencing respiratory, circulatory, and neurological alterations
23 (Jia et al., 2016; Martin et al., 2017; Parmentier-Decrucq et al., 2013). IHTs are also associated
24 with longer ICU and hospital length of stay, and complications such as increased risk of
25 ventilator-associated pneumonia (Bercault et al., 2005; Schwebel et al., 2013; Voigt et al.,

2009). Yet, despite IHT safety risks having a clear impact on patients, there are no studies exclusively focusing on the ICU patients' experience of IHTs.

According to the World Health Organization, learning from patients' experiences is one of the core priorities in achieving safer health care (World Health Organization, 2009). To improve IHT safety, guidelines, checklists, and safety interventions has been developed and evaluated (Brunsveld-Reinders et al., 2015; Choi et al., 2012; Jiang et al., 2016; Quenot et al., 2012). But without a foundational understanding of patients' experiences, these interventions might not take the patient's perspective and priorities into consideration. Today, patients are no longer denoted as passive recipients of health care, and their experiences, needs, and preferences can be used to improve the quality of care (Liabo et al., 2018). Moreover, patient participation has been acknowledged as a key component when redesigning health care processes to improve quality of care and prevent errors (Longtin et al., 2010). Patients' experiences and insights of IHT are therefore vital to informing future patient safety activities. Thus, the aim of this study was to explore ICU patients' experiences of the IHT process.

METHODS

This study is a part of an ethnographic study aiming to investigate the IHT process in order to inform a system redesign that optimizes quality and safety, with data also consisting of participant observations (x), and semi-structured interviews with critical care nurses and physicians (x). Ethnography allows the researcher to understand practices, routines, and behaviors in their natural setting. The benefits of ethnographic study designs in quality and safety research includes it's potential to investigate areas where issues are multifaceted, involving human performances as well as organizational and cultural dynamics (Dixon-Woods; Hammersley and Atkinson, 2007). In the present study, semi-structured interviews with patients in intensive care who had experienced an IHT were undertaken. The study was approved by the

Swedish Ethical Review Authority and an extension was subsequently granted to collect additional data (Dnr 1030-15).

Setting and sample

This study was conducted at two ICUs in a university hospital in Sweden. The ICUs were specialized in general and trauma care (18 beds) and neurological care (8 beds). During 2016 and 2017, the ICUs had 4.768 admissions and performed 2.931 IHTs (Swedish Intensive Care Registry, 2019). IHTs were primarily undertaken by critical care nurses and assistant nurses and sometimes also by a physician. In the included ICUs, patients were transferred in their own beds and monitored with a portable device. If the patient's medical condition required, a portable ventilator, infusions pumps, and other equipment was attached to the bed. The ICU staff performing the IHT carried a standard set of acute care medication and equipment. At the included hospital, the patients needed to be transported through public hospital corridors and in designated ICU elevators to reach the destination (e.g., operation theatre or radiology department).

Convenience sampling was used (Polit and Beck, 2016). Eligible patients admitted to the ICU were identified by ICU team leaders, bedside nurses, or staff in the post ICU unit. Inclusion criteria were that the patient: 1) had been conscious during IHT and was aware of being transported; 2) was able to verbally communicate and; 3) was able to give their written informed consent. Interested patients received written and verbal information about the study design and purpose by the recruiting researcher (x). This included information about patient confidentiality and the possibility to withdraw at any time from the study. In addition, the researcher asked patients if they understood the information and if they had any questions, and answered questions they had about the study and its purpose. Patients were then invited to participate in the study, and those who agreed signed a consent form. A total of 23 patients were invited. Of

these, 11 declined to participate. The most common reason given for non-participation was that the patient did not remember the IHT or was too tired to be interviewed.

Data collection

Data were collected at two time points. The first data collection period occurred concurrently to the fieldwork observations (February to May 2016). Yet, patients eligible and willing to participate were fewer than expected. After ethical and institutional approval, a second period of data collection was conducted (February to April, 2017). Patients were interviewed using a semi-structured interview guide with open-ended questions focusing on their experiences of the IHT, followed by probing questions of their experience of safety. Example of questions were: 1) *During your time in the ICU, you experienced a transport to another facility within the hospital to undergo an exam or intervention. Could you please describe that transport?* 2) *How did you experience the transport (prompt sights, sounds, smells)?* Interviews were conducted by the first author (x) after each patient was discharged from the ICU, either face-to-face on the ward (n=10), at a location outside the hospital (n=1), or by phone (n=1). The interviews were conducted between 1 day and 4.5 month after discharge from the ICU. However, the majority of interviews were performed within 8 days after discharge (n=10). The location of the interview was chosen by patients. All interviews were conducted to ensure patient confidentiality. Interviews were audio-taped and reflective notes were taken to help contextualize data. The interviews lasted between 7 and 18 minutes and were transcribed verbatim by the first author (x). They were shorter than expected despite using a variety of prompts. Preliminary data analysis of data collected during the first time point did not supported data saturation. But, analysis of the additional interviews conducted during the second period did in that no new insights emerged, and the data collection were therefore ended.

Data analysis

Data were analyzed using a thematic analysis approach (Braun and Clarke, 2006). Thematic analysis is a qualitative analytical method for identifying and analyzing patterns (themes) within data (Braun and Clarke, 2006). First, the data were read repeatedly together with reflective notes by the first, second, and last author (x, x, and x). This first step of analysis was performed concurrently to data collection in order to become immersed in the depth and breadth of the content, to identify possible patterns, and to inform decision in regards of data saturation. Second, the data were coded and organized into meaningful groups. Third, codes were sorted into potential subthemes, analyzed, and combined into themes. The third author (x) was involved in interrogations of preliminary subthemes and themes, contributing to their refinement. Fourth, subthemes and themes were reviewed and revised for internal homogeneity and external heterogeneity. Thereafter, themes and supporting subthemes were refined and defined to identify their essence, scope and content. Finally, the findings were summarized and extracts (i.e., quotations) selected to provide evidence of theme credibility. NVivo version 11 (QSR International Pty Ltd., Melbourne, Australia) was used for data management.

Rigor

This study was reported adhering to the consolidated criteria for reporting qualitative research (COREQ) guidelines (Tong et al., 2007). Data analysis was primarily performed by the first author (x), with all the coauthors (x, x, x, and x) contributing to refining credibility by reviewing and revising subthemes and themes and finalizing the findings (Krefting, 1991). The research team consisted of four experienced researchers with knowledge in the methods used. The first author was a female PhD candidate with experience as a critical care nurse. There was no relationship with the patients prior to or after data collection. A reflexive approach was applied, including constant reflection about the researcher's previous experience and perceptions in relation to the process.

FINDINGS

A total of 12 patients were interviewed (Table 1). A total of six patients were admitted to the ICU specialized in neurological care (50%), four were admitted to the ICU specialized in general and trauma care (33%), and two were treated in both units (17%). Almost two third of the patients had the ICU diagnosis of nontraumatic subarachnoid hemorrhage at discharge (n=8, 68%). Based on interview findings, the following three themes were identified: *feeling prepared and safeguarded*, *being on the move*, and *entrusting myself to others*. These were supported by seven subthemes. Table 2 provides an overview of identified subthemes and themes. Themes and subthemes were interconnected, which was reflected in the central theme: *in safe hands*.

In safe hands

Patients viewed IHTs as a necessary and unavoidable process during their stay in the ICU as they were in need of treatments or examinations that required them to be transferred to another part of the hospital. Overall, patients expressed that they were satisfied with their experienced IHTs. Furthermore, they relied on the ICU staff to take care of them and protect them if needed. To trust and entrust oneself to others, but still feel safe and secure, was understood as being in safe hands. In addition, patients handed over the control and decision-making to staff during the IHT. But, they were also vulnerable as they were dependent on others to look out for their best interests.

Feeling prepared and safeguarded

The theme *feeling prepared and safeguarded* identifies key components that enabled patients to experience IHTs as both feasible and safe. For patients to be prepared required staff awareness and understanding of how the IHT was perceived and experienced by each patient. Moreover, patients felt safeguarded by the ICU staff because they protected their needs and preferences, if necessary. In the two subthemes *informed and included* and *secure and protected*, aspects that contributed to the patients' IHT experience are further described.

1 In the first subtheme, *informed and included*, patients described how the accompanying
2 staff talked to them and explained what was happening during the IHT. This included preparing
3 patients for transport-related events such as upcoming bumps and turns on the way, and
4 informing patients about what they could expect during the awaiting examination.

5 “I never felt uncomfortable, I didn’t. When you are told beforehand what will happen, you
6 prepare yourself (P1).”

7 When informed, patients felt accepting of procedures that caused discomfort or
8 inconvenience (e.g., a headache caused by movement or strong lights). Patients described how
9 being provided with information made them feel calm, which reduced feelings of anxiety and
10 stress. Being informed and included also contributed to patients’ expressing trust and
11 confidence in the ICU staff.

12 “When someone informs and explains to you, then I will accept anything. But when they
13 don’t, it does not feel good (P5)”

14 In the second subtheme, *secure and protected*, patients described feeling safe during
15 transfers. This was owing to their awareness that the staff was highly qualified (i.e., educated,
16 skilled, and trained), that the transfers were well equipped (e.g., safe beds, required emergency
17 equipment), and that they, as patients, were treated at “the best place” (i.e., the university
18 hospital).

19 “They pulled up those bedrails, which make you feel that you are lying within a little box.
20 So you can’t fall out. You can’t...and that’s very comforting, I think. No, I never felt unsafe,
21 not at any moment (P10).”

22 Moreover, staffs’ kindness, calmness, and willingness to share information made patients
23 feel that they were well taken care of. Patients expressed feeling there was a “friendly

atmosphere”, which further enabled them to trust the staff. Additionally, patients described that the ICU staff stood by their side and protected them if needed.

“They [the staff from the ICU] were with me and stood, so to speak, by my side. They helped me so that everything turned out the way I wanted it during the exam (P5)”.

“Everybody kindly told me where we were heading and took care of me, which felt very comforting and safe [...]. So I really felt that I didn’t need to reflect at all, I was in safe hands (P4).”

Being on the move

The theme *being on the move* reflects patients’ perceptions of IHTs and is understood as expressing that although being aware of the moment, patients’ shifting consciousness made impressions and memories of the transfer faint. Hence, surroundings and other stimuli were just “passing by”. The theme was based on the following subthemes: *fragmented memories*, *surroundings passing by*, and *missing the comforting ICU environment*.

The subtheme *fragmented memories* identified how patients often had little memory of their transport, as well as of their stay in the ICU. Some described how they were moving in and out of consciousness. Thus, patients were not always aware of being moved.

“You wake up somewhere, and you don’t even know why you are there; you don’t know anything. That is stressful (P8).”

Some patients expressed that they were distressed about not remembering, both during and after their ICU stay. Also, this state of moving in and out of consciousness, could make it difficult for them to understand the information given, and thus the reason why they needed a specific examination or intervention.

“Nothing. I don’t remember anything [what people said during the IHT]. And that’s actually quite scary (P7).

1 The second subtheme, *surroundings passing by*, reflects on how remembrance of the transport
2 was embodied through sights, noises, physical feelings, and smells. Patients primarily described
3 how they observed different ceilings during the transport and they seldom perceived other
4 people besides the transporting staff. They felt the cold when passing an open door or pressure
5 when going up in the elevator. They heard bits and pieces of conversations and noises from
6 machines and smelled things such as food or coffee when passing by.

7 “You hear people talking when passing by... and the smell of food somewhere. People do
8 talk in the corridors, and you are passing many rooms. So you can hear fragments of what they
9 are saying, but it all goes so fast; you are just passing by (P6).”

10 The final subtheme, *missing the comforting ICU environment*, revealed how the ICU was,
11 to some extent, comforting and provided a sense of security. For example, the staff was familiar
12 to the patient. As a result, leaving the unit could make patients feel vulnerable and exposed.

13 “When they transported me from the ICU to the other... Then, I became a little bit scared;
14 ‘But, don’t leave me here’. I wanted to stay with them in the ICU (P12).”

15 In fact, their worries and concerns regarding being transported were often related to the
16 patient's disease or condition. For example, some patients described concerns about receiving
17 the results from an examination. Suggestion for improvements made by participating patients
18 were often with respect to providing more convenient and comfortable transfers.

19 “Yes, for sure I had [thoughts about the exam]. I wanted to know how everything was...
20 and what I needed to do afterward, when they took me to the radiology department (P6).”

21 “Even if they [the transporting personnel] take it very carefully, you still sometimes
22 perceive it like being on a roller coaster (P9).”

23 *Entrusting myself to others*

1 The theme entrusting myself to others revealed how patients handed over the control and
2 decision-making regarding IHTs to the ICU staff. Patients described how they paid little
3 attention to what was going on in their surroundings, for example, whether they needed to be
4 transported. Overall, participants expressed that reaching the destination quickly was
5 paramount, more so than the actual journey. Being a patient incapable of making informed
6 decisions left them no choice other than to trust that their interests were being taken care of. But
7 patients were also confident that the staff would look after their interests and do what was best
8 for them. The two subthemes, *just going along* and *accepting the process* describe patient's
9 approaches toward IHTs during their stay in the ICU.

10 In the first subtheme, *just going along*, patients expressed that the transport was a process
11 that they did not concern themselves with. Patients often described how they just “went along”.
12 Whereas they might have been informed, they were not part of the decisions and actions
13 associated with the transport.

14 “They could have moved me to Noppikoski [the middle of nowhere] and I had to just go
15 along. Because you are so gone... but, they do inform you all the time [...]. So I didn't need to
16 feel that I was forgotten or alone (P10).”

17 “I just want it to be over quickly so that you reach your destination (P2).”

18 Moreover, patients described how they focused more on themselves than what was going
19 on around them. They also highlighted that it was difficult, as a patient, to actually know what
20 was best at that moment.

21 “One is just so full of oneself that one does not think about what other people say, really. I
22 was in so much pain then, a headache. So that was the worst (P2).”

23 “I didn't focus on that [the transport] so much. They moved me from one place to another,
24 and people told me: ‘Now you will undergo this exam, and then you have to be at that place’,

1 and so on... It is difficult to think about the transfer as a specific thing. It is just a way to move
2 from point A to B because someone has decided that I need to go from A to B (P8).”

3 In the second subtheme, *accepting the process*, some patients referred to the hospital as
4 being a large and complex institution, whereas other expressed gratitude that they had been
5 referred to a highly specialized care facility. As a result, they were accepting of many of the
6 environmental challenges that existed.

7 “This is a really big hospital and radiology is over there, the orthopedic clinic is at another
8 place, and so on. Then, actually, there is no other solution than to be transported in your bed. It
9 would be impossible to have everything in one place. That doesn’t work.” (P6)

10 Furthermore, some patients expressed that once in the hospital or the ICU, they were no
11 longer decision-makers. However, some patients also described that they did not feel the need to
12 be informed about everything that was occurring, or to be able to make IHT-related decisions.

13 “If I would ask: ‘Why do you need to transport me here or there?’ I’m sure that they would
14 have provided me with an answer. But, I never felt that it was relevant for me to know that,
15 really. I supposed that they will transport me to a place where I need to be and that is the end of
16 my responsibility (P8).

17 **DISCUSSION**

18 This study explored ICU patients’ experiences of the IHT process. Our main findings show
19 that patients trusted and had confidence that staff would perform the IHTs in a safe manner.
20 Importantly, patients expressed that they handed over decision-making and control to the ICU
21 staff, and that they felt safe and secure. Research on patients’ perceptions of the IHT process is
22 limited. One review and meta-synthesis, including studies of both ICU and non-ICU patients’
23 experiences of intra- and interhospital transitions, showed that patients experienced various
24 transfers as critical events, which caused mixed feelings including distress and anxiety
25 (Uhrenfeldt et al., 2013). The discrepancies between the present and previous findings might be

1 explained by the fact that transitions also denote a change in, for example, the patients' health
2 status or in the patient population studied. In our study, we focused exclusively on ICU patients'
3 experiences of IHT, thus providing an in-depth of understanding regarding this particular
4 scenario.

5 Patients' experience of IHTs as safe are in contrast to previous research describing IHTs as
6 potentially dangerous processes (Fanara et al., 2010). Further, ICU staff have described IHT as
7 an unsafe and demanding task (Bergman et al., 2019; Ringdal et al., 2016). Findings from the
8 present study might be explained by a false perceived sense of security (i.e., patients are
9 unaware of existing safety hazards). Another possible explanation might be that patient's
10 entrusted themselves to the ICU staff, feeling confident that they would protect them if needed.
11 Similar to our findings, a study exploring trauma patients experiences of helicopter transfers
12 showed that the patients trusted the caregivers and handed themselves over to their care
13 (Sandström et al., 2017). However, findings from a study exploring the patient's situation
14 during interhospital transfers between ICUs suggests that patients were at risk of objectification
15 since healthcare professionals needed to prioritize patient safety during a challenging care
16 situation (i.e. maintain intensive care during the transport) (Karlsson et al., 2019). The potential
17 conflicting interest in maintaining patients safety and be attentive towards the patients' needs
18 and preferences was not present in our study. Rather, our findings suggest that interpersonal
19 relations and professional competence among ICU staff contributed to patients' experience of
20 being safe during the IHT. Nursing care has previously been identified as one of the factors
21 described most frequently in influencing patients feeling of being safe in the intensive care unit
22 (Wassenaar et al., 2014). Hence, healthcare practioners role in supporting the patient during
23 high risk procedures such as IHTs should be further investigated.

24 Our study findings showed that preparing patients for events that might occur during an IHT
25 contributed to their feeling safe and enhanced trust in the staff. The concept of preparedness,
26 described as taking actions in advance to create a favorable situation, has previously been

acknowledged in surgical settings (Carlsson et al., 2016). Patient preparedness is an ongoing process of realizing, adapting to, and anticipating upcoming events. Preparedness includes knowledge-seeking activities, whereby health care professionals can support and involve patients in their own care (Carlsson et al., 2016; Holm et al., 2015). The findings from our study implicate that preparedness could be a useful concept in increasing patient comfort and perception of safety during IHTs. If future studies can confirm our findings, preparedness could become an important feature of future safety solutions.

Our findings also suggest that ICU patients neither requested more involvement nor actively participated in to the IHT process. These findings are in contrast to other research reporting that patients wished to have an active role as partners in decision-making processes (Ringdal et al., 2017; Tobiano et al., 2016, 2015). However our study setting of ICU differs from these other studies. Findings from the present study might be explained by that patients in the ICU who require IHT are often physically unwell and might therefore be unlikely to play an active role in decision-making. Notably, our findings imply that once admitted to the ICU, in the context of IHTs, it might be challenging for a patient to be an active partner and make informed decisions. However, a scoping review identified a considerable research gap toward patient and family involvement in the ICU, including a need to identify the scope, extent, and nature of patient involvement (Olding et al., 2016). Importantly, current guidelines in critical care advocate effective analgesia and minimal sedation, together with patient-centered approaches to care (Pandharipande et al., 2010; Vincent and Creteur, 2015). Hence, future studies should explore patients' participation in ICU settings, as well as approaches to patient-centered care.

Today, there is increasing awareness about how patients can be engaged in informing safety and quality improvements (Liabo et al., 2018). For example, patient-reported experience measures (PREMs) have been acknowledged as indicators of health care quality (Millenson and Macri, 2012). PREMs can provide information about patient-centeredness, to reflect on patients'

interpersonal experience of care. Further, PREMs can be used as common measures for public reporting, thereby providing benchmark values that might further contribute to quality improvement initiatives (Beattie et al., 2015). Therefore, the findings of this study could further inform the development of IHT-specific PREMs for ICU patients.

The following limitations should be acknowledged. First, this study used convenience sampling; therefore, the included patients might be atypical to the population studied (Tong et al., 2007). This pragmatic choice of sampling method was based on the anticipated difficulties in recruiting patients who were able to share their experiences of IHT. Future studies using other sampling techniques might yield additional understanding about patients' experiences of IHTs. Second, patients were recruited during two time points. This was because fewer patients than expected were eligible to participate and it took time to receive approval to extend the data collection. Yet, due to lack of previous research on patients' experiences of IHTs, there were no available data on the amount of patients that could be eligible for inclusion prior to data collection. Third, we did not have any data on analgesia and/or sedatives received by patients prior to and during the IHT which may have interfered their memories. However, we included those patients that ICU staff considered had been conscious and aware during their IHT. Forth, data were collected at one university hospital and might therefore be influenced by contextual and cultural factors. But, our findings may inform others aiming to improve quality and safety during IHTs. Finally, despite our recruitment strategy, patients often had difficulty recalling their IHT which may be why interviews were shorter than anticipated. Nevertheless, our findings can inform clinicians and policymakers aiming to provide safe and patient-centered care during IHTs.

CONCLUSION

Patients in this study felt safe and secure during the IHT process, entrusting themselves and decision-making to the ICU staff. In contrast to previous research in which IHTs are described

1 as hazardous, our findings imply that patients experience the IHT as safe. In our study, patients’
2 experiences were mainly influenced by interpersonal relations with ICU staff at the study site.
3 Therefore, the current study findings need to be confirmed in future studies. We suggest that
4 patients’ experiences during IHT could be improved by being provided with accurate and timely
5 information as well as preparedness for transport-related events.

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TABLES

Table 1. Characteristics of participants

Patient	Gender	Age	ICU length of stay (days)	Number of documented IHTs
P1	F	79	1	1
P2	F	71	1	1
P3	M	56	4	2
P4	F	58	9	1
P5	F	61	2	1
P6	F	63	2	2
P7	F	66	5	1
P8	M	41	1	1
P9	F	56	3	1
P10	F	60	6	missing
P11	F	47	7	4
P12	F	58	6	2

Table 2. Subthemes and themes regarding patients' experiences of intrahospital transport

Subthemes	Themes
Informed and included	Feeling prepared and safeguarded
Secure and protected	
Fragmented memories	Being on the move
Surroundings passing by	
Missing the comforting ICU environment	
Just going along	Entrusting myself to others
Accepting the process	