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Exploring inpatient unit nurses' experience with emergency department crowding, access and flow, and associated patient outcomes

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Abstract

Background: Emergency department (ED) crowding and hospital access and flow (AF) are complex and long-standing issues that negatively impact healthcare delivery. Strategies to alleviate ED crowding are supported by research exploring ED staff perspectives. However, a paucity of research exists addressing the perceptions of inpatient unit nurses (IUNs) and other key stakeholders. This study aims to understand these issues through the perspectives of IUNs.

Methods: This was a qualitative content analysis study. Semi-structured virtual interviews were completed with eleven IUNs from two hospital sites. A 17-question interview tool facilitated the collection of data. Interviews were transcribed and coded into main themes. The COREQ checklist was followed.

Findings: Three main themes were identified from the analysis: 1) IUNs viewed understaffing as a contributor to ED crowding; 2) IUNs believe patients are suffering negative outcomes as a result of ED crowding and AF issues; 3) IUNs believe ED crowding, AF and site congestion are major issues that need to be addressed by making improvements to the healthcare system.

Conclusion: This study is the initial step to understanding different experiences, perceptions, and knowledge on ED crowding and AF processes. Further research exploring diverse viewpoints on this topic is necessary given the interconnected organizational structure of healthcare today and how key stakeholders, outside of the emergency department, strongly influence inflow and outflow issues.

Keywords: ED crowding, access and flow, patient outcomes, inpatient unit nursing

Background

A serious issue in healthcare is emergency department (ED) crowding – that is, the inability of the ED to provide high-quality patient care due to high demand for services (Affleck et al., 2013). Jones and colleagues (2022) reported that patients who waited longer than five hours for an inpatient bed were associated with an increased mortality rate (2022). Other studies found that ED crowding is related to longer length of stays (LOS) and increased costs for admitted patients (Laam et al., 2021; Sun et al., 2013). For example, Sun and colleagues

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(2013) reported that patients admitted on high ED congestion days had 0.8% longer LOS and 1% more associated costs than those admitted on low ED congestion days.

There are various drivers for ED crowding, including inflow and outflow issues, and these are commonly addressed by implementing access and flow (AF) processes. AF processes are designed to improve quality patient care by having the right patient in the right bed at the right time (Middleton et al., 2014). One such example is the 10-hour rule, a hospital systems metric that measures the percentage of admitted patients that transfer from ED to an inpatient bed within 10 hours of ED triage. The goal of this process is to improve patient outcomes by decongesting ED and reducing ED LOS for admitted patients (Fraser Health Authority, 2019). Similar key performance indicators are commonly used by other healthcare organizations to improve patient outcomes (Canadian Institute of Health Information, 2020).

Relevant to the current study, some key stakeholders, including inpatient unit nurses (IUNs), are often situated outside of the ED. IUNs play an important role in mitigating AF issues, specifically ED outflow (i.e., the rate at which admitted patients are sent to inpatient units). Thus, the inpatient unit experience must be investigated to obtain a complete analysis of this important healthcare issue. To date, there is limited understanding of how IUNs perceive ED crowding, AF processes, and associated patient outcomes. This study fills the literature gap by engaging IUNs and exploring their experiences, perceptions, and knowledge of ED crowding in the following areas:

a) AF terminology and definitions (e.g., site congestion);
b) ED crowding and its effects on patient outcomes (e.g., length of stay, increased mortality, and increased cost);
c) AF processes, such as patient handover from ED, and workable themes and concepts that could address IUNs' knowledge, experience and perception gaps (if any) and improve AF practices; and
d) Drivers of emergency crowding and AF.

Methods

Qualitative methodology of semi-structured interviews was employed to answer the research question: What are the experiences, perceptions and knowledge of IUN with ED crowding, AF processes and associated patient outcomes? The Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guidelines were followed (Tong et al., 2007; see Appendix A).

Participants

Participants were registered nurses (RNs) from two acute hospital sites in the Fraser Health Region. The first site is a community hospital with an ED that sees more than 50,000 patients yearly and includes 39 treatment spaces, and 168 inpatient beds. The second site is a tertiary hospital with 652 inpatient beds and the busiest single-site ED in Canada. These two sites were selected to ensure inclusive perspectives from smaller and larger acute sites within the same Health Authority.

The inclusion criteria for participants were as follows: 1) must be an RN in a permanent staffing position, including casual, part-time or full-time; 2) must have completed regional and unit orientation with Fraser Health Authority; and 3) must have experience receiving admitted patients from ED and patient handover.

Sampling and recruitment process

Purposive sampling strategy was used to obtain participants. Participants were approached via email and face-to-face unit huddles on various inpatient units in both hospitals. There was no specific relationship established prior to the study; however, some participants knew the researchers through the organization. There were 11 participants in the study and no participants dropped out.

Interview tool

There were 17 interview questions in total. Questions 1 through 5 were developed by our research team, including an RN, emergency physician, patient partner, and research assistant, who have various clinical, educational and research backgrounds relevant to the study. Questions 6 through 11 were replicated from Van de Ruit and Willis's (2020) interview tool, which was developed using a clinical team of experts (see Appendix B). This was decided after an extensive search for a previously validated tool. In some interviews, clarification and elaboration questions were employed to obtain richer data.

Data collection and analysis

Interviews were conducted virtually between October 2021 and February 2022 by S.P. and L.R., female health researchers with extensive nursing backgrounds in clinical and educational settings. S.P. holds a Bachelor of Science in Nursing and Master's in Nursing (2022) and has more than 12 years' experience as an RN, Site Leader and Clinical Nursing Instructor. L.R. holds a Master of Nursing in Leadership and has 14 years' experience in healthcare as an RN, Site Leader, Clinical Operations Manager and Clinical Nursing Instructor. Both researchers have interest in improving AF and ED crowding.

Interviews lasted an average of 45 minutes and data were collected at L.R.'s workplace in a confidential office, with no one else present. No repeat interviews were conducted. Each interview was audio-recorded, fully transcribed, and numbered to maintain participant confidentiality. The interviews were virtual using audio-only and recorded with a digital voice recorder. No additional field notes were taken during or after the interviews. Interviews were then transcribed using Temi, an online transcription service (Temi, 2022). To ensure accuracy, each transcription was verified manually by I.Z. Each transcription was listened to and corrected for any misspellings or misinterpretations to accurately capture the interviews. Once that was completed, the transcripts were analyzed to identify, examine, and report themes that emerged from the data.

Data analysis was done by I.Z. To begin the process, each interview was listened to and read to determine the overall subject matter. The data was then imported into NVivo qualitative data analysis software; QSR International Pty Ltd. Version 12, 2018, a data management software that allows researchers to code and categorize large amounts of data. Broad categories structured by each interview question were used to create the basis of a coding frame.

An inductive content analysis was then undertaken by I.Z. to identify subcategories within these categories based on patterns identified from the data. Inductive content analysis is a qualitative method of content analysis that allows researchers to identify themes and develop theory by analyzing and sorting raw data into categories through repeated examinations and comparison (Moules et al., 2017). A second round of coding was completed where codes were refined and combined where appropriate. During this process, the coded content was verified by opening each code and reviewing its content to ensure each code accurately reflected the coded data. Following refinement, codes were compared for commonalities by a process of axial coding. Using selective coding, these relationships were developed further into three overall themes derived from the data: staffing crisis, negative patient outcomes, and improvements (see Appendix C). Participants did not provide feedback on the findings and transcripts were not provided to participants. Data collection was ended by I.Z. and L.R. after 11 interviews, as we reached data saturation.

Ethics and other permissions

This study was reviewed and approved by the University of British Columbia Behavioural Research Ethics Board (H21-00939), as well as the Fraser Health Research Ethics Board, Simon Fraser University and Douglas College.

Findings

Participant Demographics

There were 11 participants in this study, both relatively new and experienced RNs (mean number of years of experience = 13.8 years; range = 31.3 years). Standard deviation (SD) = 9.1, Median = 13.8, and Interquartile range (IQR) = 10.3 (see Table 1). All participants had worked as an IUN and two had also worked in the ED.

Table 1

Participant Demographics

Participant	Years of Nursing Work Experiences	Sex (M/F)
002	3	M
0046	16.5	F
0047	19	F
0048	10	F
0049	22	F
0050	5	F
0051	1.5	F
0052	12	F
0053	33	F
0054	14	F
0055	16	F

Through data collection and analysis, three key themes were identified. First, nurses believe that hospitals are consistently understaffed, resulting in ED crowding, AF issues, and congestion, as well as poorly supported, stressed, and overwhelmed nurses. Second, nurses believe that patients are being put in unsafe circumstances and suffering negative outcomes as a result of ED crowding, AF issues, and site congestion. Third, nurses believe that ED crowding, AF, and site congestion are major issues that need to be addressed by making improvements in the hospital and community setting.

Theme 1: Hospitals are severely and consistently understaffed, which has resulted in ED crowding, AF issues, and congestion, as well as poorly supported, immensely stressed, and overwhelmed nurses.

On a typical day, participants reported being understaffed. Most IUNs stated they often worry about there being enough staff when they get on and how they will be able to care for all their patients while being understaffed.

> *"You have less housekeeping, you have less everything. Um, you have less unit clerks on, you don't have pharmacy, there's no meds. You have to go to the night cupboard to get the meds because there's nothing available."* – Participant 0054

On a good workday, IUNs identified, 11 to 14 times throughout the interviews, having a manageable caseload and, thus, not compromising patient safety, and having adequate staffing. Similarly, descriptions of a bad workday included having trouble executing daily duties, working in a congested site, inadequate staffing, and feeling overwhelmed.

> *"Sending us five admissions, boom, boom, boom, and expecting us to be able to just take them and cope with it without giving us a breather. Sometimes they'll send an admission and then they'll be back on the phone 10 minutes later, are you ready for the next?"* – Participant 0054

Inaccurate or inadequate report and receiving delayed report after the patient has arrived came up 16 times during the interviews. IUNs also posited that busy ED nurses create handover reports without spending enough time with the patients, resulting in inaccurate reports.

> *"I find sometimes I'm talking to emerg (sic) is somehow always someone who is covering for a nurse, so they often don't know the patient very well or they've just received the patient themselves." – Participant 0050*

Participants felt patient handover could be improved by ensuring that reports are properly filled out with relevant information and by improving verbal communication to allow inpatient units to better prepare for patients. Additionally, IUNs discussed the need to increase access to and use of communication technology like *Vocera* (Stryker, n.d.) and trackers.

Theme 2: IUNs believe that patients are being put in unsafe circumstances and suffering negative physical and mental outcomes as result of ED Crowding, AF issues, and site congestion.

IUNs identified that ED crowding and site congestion led to delayed and inadequate patient care and believed that these negative experiences cause patients to leave ED or avoid coming in all together. Most IUNs explicitly said that ED crowding is a problem at their site.

"They get admitted, but they spent two or three days… before they get transferred to a medical unit and… where for example, they can get like specialized care in like the neuro unit… so they are being delayed access to their care." – Participant 0051

In addition to delayed care, IUNs reported increased LOS, negative patient experience, and compromised patient safety and privacy as outcomes of site congestion.

"It's just a real frustration when my nurses were trying to give our best care to the patients and I can't get them out of a hallway and then it's in conflict with everything else that we're taught." – Participant 0050

In regards to negative physical health outcomes, participants related infections, injuries, increase in acuity, delirium, and death to ED crowding.

"They're afraid to come in to emerg because they're going to wait for hours and hours… and then it turns out… they've got an infection…" – Participant 0048

When asked about the understanding of the financial cost associated with ED crowding, IUNs reported increased hospital costs, costs of physical and mental health, and time costs related to increased length of stay and staff time with patients.

"I'm thinking about the cost in terms of mortality and morbidity of patients, there would be increased mortality and morbidity with… overcrowding." – Participant 0053

Theme 3: IUNs believe that ED crowding, AF, and site congestion are major issues and there are many improvements that must happen in the hospital setting to address ED crowding, AF issues, and negative patient outcomes.

Participants reported there are several improvements that can address ED crowding, AF, and associated patient outcomes such as changes in nursing practice, creating more healthcare resources, adequate staffing, educating the public, and staff communication cultivating team building. More specifically, IUNs identified the need to increase healthcare resources including community services and doctors' clinics, creating an ED overflow, and more resource availability on weekends.

"It's a huge problem at the community and they need to have more home health services in there… a lot of elderly folks, they don't even need to come to the hospital." – Participant 0055

"If there was some media stuff about, you know, using the ED only if it's necessary… to the community… for the people who can solve their problems themselves by giving them the tools to be able to do it." – Participant 0053

Another important finding was that nurses believe focusing on cultivating teamwork, and educating nurses about other wards to understand each other could improve AF.

"Maybe just getting them to come down for one shift, for a little while, just to have a perspective of it, maybe that would help." – Participant 0051

Discussion

Statement of principle findings

Findings from this study demonstrate that IUNs have an accurate understanding of ED crowding, site congestion and related AF issues and processes. Participants described workday and duties related to AF and patient handover as admissions and discharges, coordinating patient movement, and executing patient care duties. In addition, IUNs identified the correlation between ED crowding and negative patient outcomes. Most participants reported how continuous staffing issues make it challenging to provide quality patient care. IUNs also identified the need to improve communication and relationships between ED and inpatient unit staff. Other studies focusing on experiences of ED staff have also reported factors that contribute to ED crowding, such as insufficient staffing, limited bed availability, and organizational barriers (Anneveld et al., 2013; Strada et al., 2019; Van De Ruit & Wallis, 2020).

Interpretation within the context of the wider literature

Previous studies examining ED crowding, AF, and the associated outcomes have primarily focused on perspectives of ED staff (Anneveld et al., 2013; Strada et al., 2019; Van De Ruit & Willis, 2020). Capturing the inpatient unit experience is important if we are to change the way we think about hospital flow (Rutherford et al., 2017). Improvements in healthcare delivery show better patient outcomes, such as decreased mortality and LOS, along with a decrease in the patient and family burdens associated with them (Jones et al., 2022; Laam et al., 2021). This study generated new knowledge and allows for a re-contextualization of the issues and current solutions being used to mitigate the negative outcomes associated with ED crowding and hospital AF. Given that similar experiences were shared by all participants, this study can be applicable to all Fraser Health sites and other hospitals experiencing these widely acknowledged issues.

Strengths and limitations

This study has several strengths. The adaptability and versatility of the study design allowed researchers to capture ample data at a convenient time and environment for participants. In addition, researchers conducting the interviews held subjective experience as RNs, allowing them to use experience and instinct in extracting pertinent data from interviewees. The predominant strength of this study is the generation of new knowledge in that it is the first study to focus on IUN's experiences as they relate to ED crowding. This study also has some limitations including a small sample size of participants and hospitals, and the potential for self-selection bias.

Implications for Policy, Practice and Future Research

Both ED nursing staff and IUNs have a significant impact on the expedient transfer of patients within the hospital; the perceptions, experiences, and work cultures of these individual, yet interconnected, teams exert a strong influence on the efficiency of organizational functioning. Inpatient AF policies, such as the procedures around admitting from the ED, can be reviewed and revised to address inpatient unit concerns. Other areas of policy that may be informed are quality assurance, as timely transition to inpatient units is known to facilitate improved patient outcomes, as well as the appropriate and timely redeployment of resources within the organization to facilitate AF. These types of resources can range from physical equipment, such as hospital beds, to specialized healthcare staff on shift in the hospital. In addition, organizational performance could show improvement with the introduction of IUN education focusing on the detriments of ED crowding and associated inflow and outflow issues.

It is evident that further research with additional stakeholders is required to understand how ED crowding and hospital flow is experienced by staff who receive, care for, and ultimately make decisions about discharging patients who are admitted from the ED. As participants indicated, patients accessing emergency do not always utilize community resources appropriately: therefore, cultivating an understanding of the perspectives of various stakeholders, including community members, could have a profound impact on the system-level flow of patients through a hospital site.

Patient Partner (M.V.) Perspective

When I first found out about this study, it reminded me of my negative experience in the ED when my mother was having a heart attack. I distinctly remember being in a chaotic environment in the ED with people moving in and out and a long lineup of patients. Nurses looked spent and overworked and it did not feel like a place of healing. Fortunately, my mother recovered and was discharged. Her stay seemed rushed for a mild heart attack. Unfortunately, she had a massive heart attack two weeks later and was brought to the same hospital, but turned away due to no beds. My mother was taken to a hospital more than 45 minutes away, where she passed away that same night. I often wonder if my mother had gotten a bed right away, to receive treatment, would she have survived? Our study highlights the impact of staffing on AF and patient care and the need for more home healthcare services at the community level. I feel honoured to be a part of this study and the associated knowledge dissemination.

Conclusion

IUNs identify understaffing as a key issue exacerbating ED crowding, and correlate these issues with suboptimal care provision and negative patient outcomes. IUNs also note that strategies could be implemented at both hospital and community setting levels to improve ED crowding, hospital access and flow, and site congestion. It is imperative to incorporate IUNs' perspectives on ED crowding, AF processes, and patient outcomes in order to move forward with new strategies to tackle this long-standing issue.

Implications for Emergency Nursing Practice

1. There is an urgent need for organizations to cultivate teamwork and create a better understanding of experiences between inpatient unit nurses and emergency nurses.
2. Staffing shortages in both inpatient units and emergency have a significant impact on access and flow, emergency crowding, and patient outcomes and, thus, it is imperative for organizations to continue to strategize to address these serious issues.
3. Nurses are well informed of emergency crowding and acknowledge serious improvements need to happen in the healthcare system to improve access and flow.

About the authors

Laurie Rosenzweig, MN, BScN, has more than 14 years of healthcare experience both as a formerly practising nurse in a variety of clinical roles and most recently administration. She was a Clinical Operations Manager for Fraser Health Authority from 2017 to 2022 and has clinical experience in emergency medicine, and surgery. She has a passion for quality improvement, improving hospital access and flow and including patient and family voices in process improvement.

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Conflict of Interests

None. "We hereby declare that we, the authorship team, have no conflicts of interest to declare related to this manuscript".

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Contributions of the authorship team & CRedIT author statement

L.R. conceived the idea of the research project and secured research funding. L.R. and S.P. contributed to the design of the study. I.Z. provided theming expertise, and conducted the coding and theming for this study. C.M. and M.V. contributed to interpretation of data. All authors contributed to the writing and critical revision of the manuscript.

Data Sharing Statement

The data underlying this article cannot be shared publicly due to the privacy of individuals that participated in the study. The data will be shared on reasonable request to the corresponding author.

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Appendix A

Supplementary Table of COREQ for Exploring Inpatient Unit Nurses' Experiences With ED Crowding, Access and Flow and Associated Patient Outcomes: A Qualitative Study

Domain 1: Research team and reflexivity	
Personal Characteristics	
1. Interviewer/facilitator: Which author/s conducted the interview or focus group?	S.P. and L.P.
2. Credentials: What were the researcher's credentials? e.g., PhD, MD	S.P. –Registered Nurse, Bachelor of Science in Nursing, Master in Nursing (Candidate) L.P. – Bachelor of Science in Nursing, Master in Nursing
3. Occupation: What was their occupation at the time of the study?	S.P. – Registered Nurse, Site Leader, Clinical Nursing Instructor L.P – Clinical Operations Manager for Internal Medicine, Cardiology, Infectious Disease and Diagnostic Cardiology
4. Gender: Was the researcher male or female?	Both females.
5. Experience and training: What experience or training did the researcher have?	Extensive background in bedside and clinical nursing and access and flow processes through various roles, L.P. has 4 years of working as an Emergency RN and holds a certificate in emergency nursing. S.P. has teaching experience for nursing students. S.P. and L.P. consulted with various research experts for the design of questions.
Relationship with participants	
6. Relationship established: Was a relationship established prior to study commencement?	No specific relationship established prior to the study.
7. Participant knowledge of the Interviewer: What did the participants know about the researcher? e.g., personal goals, reasons for doing the research	The purpose of the research was shared with participants via email in recruitment and also verbally at the start of the interview.
8. Interviewer characteristics What characteristics were reported about the interviewer/facilitator? e.g., Bias, assumptions, reasons and interests in the research topic	Personal characteristics were described above in the background of both S.P. and L.P. Both interviewers have interest in access and flow and emergency crowding.
Domain 2: Study design	
Theoretical framework	
9. Methodological orientation and theory: What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Thematic analysis
Participant selection	
10. Sampling: How were participants selected? e.g., purposive, convenience, consecutive, snowball	Purposive
11. Method of approach: How were participants approached? e.g., face-to-face, telephone, mail, email	Recruited via emails and in-person huddles.
12. Sample size: How many participants were in the study?	11
13. Non-participation How many people refused to participate or dropped out? Reasons?	None
Setting	
14. Setting of data collection: Where was the data collected? e.g., home, clinic, workplace	Workplace in a confidential private office.
15. Presence of non-participants: Was anyone else present besides the participants and researchers?	No

16. Description of sample: What are the important characteristics of the sample? e.g., demographic data, date	There were eleven participants in this study, both relatively new and experienced nurses (Mean number of years of experience = 12.9 years; SD = X years; Range = 1.7 – 33 years). All participants had worked as an IUN and two had also worked in ED.
Data collection	
17. Interview guide: Were questions, prompts, guides provided by the authors? Was it pilot tested?	Interview guide was used and additional questions were sometimes asked for clarification, it was based on a tool previously used by Van De Ruit et al 2020.
18. Repeat interviews: Were repeat interviews carried out? If yes, how many?	No repeat interviews were done.
19. Audio/visual recording: Did the research use audio or visual recording to collect the data?	Audio.
20. Field notes: Were field notes made during and/or after the interview or focus group?	No field notes.
21. Duration: What was the duration of the interviews or focus group?	45 minutes on average.
22. Data saturation: Was data saturation discussed?	With I.Z. Research Assistant and L.P., it was felt after 11 interviews data saturation was met
23. Transcripts returned: Were transcripts returned to participants for comment and/or correction?	No.
Domain 3: Analysis and findings	
Data analysis	
24. Number of data coders: How many data coders coded the data?	1
25. Description of the coding tree: Did authors provide a description of the coding tree?	I.Z. used a coding/theming method per detailed data analysis section.
26. Derivation of themes: Were themes identified in advance or derived from the data?	From data.
27. Software: What software, if applicable, was used to manage the data?	NVivo 12
28. Participant checking: Did participants provide feedback on the findings?	no
Reporting	
29. Quotations presented: Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g., participant number	Yes many quotes are identified throughout the paper and a table in the appendix.
30. Data and findings consistent: Was there consistency between the data presented and the findings?	Yes. Please see table in appendix of paper.
31. Clarity of major themes: Were major themes clearly presented in the findings?	3 major themes were identified. Through data collection and analysis, three key themes were identified. First, nurses believe that hospitals are consistently understaffed, resulting in ED crowding, AF issues, and congestion as well as poorly supported, stressed, and overwhelmed nurses. Second, nurses believe that patients are being put in unsafe circumstances and suffering negative outcomes as results of ED crowding, AF issues, and site congestion. Third, nurses believe that ED crowding, AF, and site congestion are major issues and that they need to be addressed by making improvements in the hospital and community setting.
32. Clarity of minor themes: Is there a description of diverse cases or discussion of minor themes?	Education gaps and a few other minor themes discussed in findings section.

Appendix B

Interview Tool

Knowledge

- To explore the level of inpatient unit staff knowledge of ED crowding and associated patient outcomes including length of stay, increased mortality, and increased cost.
- To explore the level of inpatient unit staff knowledge of common access and flow terminology and definitions, such as the "10 hour rule."

1. How do you define the following terms/concepts?
   a) Emergency Department Crowding
   b) 10-Hour Rule
   c) Site Congestion
   d) Access and Flow
   e) Length of Stay
   f) Discharge Planning
2. What did you learn about these terms/concepts from your education program or Fraser Health orientation?
3. What is your understanding of patient outcomes related to Emergency Department Crowding?
4. What is your understanding of patient outcomes related to Site congestion?
5. What is your understanding of the cost associated with Emergency Department Crowding?

Experience/Perception (Based on Van de Ruit & Wallis, 2020).

- To explore the perceptions of inpatient unit staff of what defines emergency crowding and access and flow.
- To examine the experience of inpatient unit staff of practicing access and flow processes such as patient handover from ED.

1. Can you give us an example of a typical workday for you?
2. How would you describe a good working day? (Probe for any discussion about work roles, workflow, management of crowding, communication within the team.)
3. How long have you worked here? (Probe for any further discussion of career trajectory, work satisfaction, or dissatisfaction.)
4. What happens on a bad day (Probe for any discussion about problems linked to work roles, workflow, management of crowding, communication within the team, patient care.)
5. How would you describe your work duties and roles related to access and flow? (Probe further if there is mention about teamwork, communication, decision making.)
6. How do you handle patient handover from Emergency? (Probe for discussion of good or bad handoffs.)
7. Do you think patient handover could be improved; if so, how so?
8. What obstacles or challenges do you see in your unit to prevent your team from improving patient handover and patient outcomes?
9. Is crowding a problem for your ED? (Encourage the person to explain in detail, ideally providing examples of crowding and how the team addressed the problem.)
10. What needs to change in relation to crowding in your ED, if anything at all? What obstacles do you foresee in accomplishing these changes?
11. Are there any other issues or concerns you have about improving patient access and flow and crowding or other aspects of your work?

Overall Themes

Theme 1: Hospitals are severely and consistently understaffed, which has resulted ED crowding, access and flow issues, congestion as well as poorly supported, immensely stressed, and overwhelmed nurses.	
Meaning	**Evidence**
Hospitals are understaffed in terms of nurses, doctors, staff, clerks, pharmacists.	*"You have less housekeeping, you have less everything. Um, you have less unit clerks on, you don't have pharmacy, there's no meds. You have to go the night cover to get the meds because there's nothing available." – Participant 0054*
	"Um, staffing is always gonna be a problem." – Participant 0048
	"On a bad day, um, on a bad day, you don't have staff. Uh, the hospital is busy everywhere, so you can't get housekeeping to come and clean the room you need to clean so that emergency can send their patient on a bad day. Um, you are short staffed, you have two brand new grads who can hardly cope with four patients, let alone in admission." – Participant 0054
On a typical day nurses report being understaffed. They often worry about if there will be enough staff when they get on and how they will be able to care for all their patients being understaffed. They face staffing issues constantly, which they try to remedy by calling people and redeploying nurses. This practice can create staffing issues in other wards.	*"If people don't show up, like what happened yesterday, then I have to investigate it, many multiple calls to staffing back, forth, um, calls to site leader, if I'm very, um, short and to see if they have anyone that they can, uh, redeploy. I also get calls from site leaders to redeploy, to other units. And I have to balance that, um, with the patients that I have on my unit, can I afford to send a staff member down yesterday to nephrology was down for nurses. I sent someone to them that made us short. We barely had, we were under, um, baseline, but T seven was worse" – Participant 0053*
	"A lot of times, um, they don't care that we're short staffed. They don't, I mean, they don't care. They don't want to hear that we're short staffed and we're having trouble taking the patients. They don't wanna hear that. We're trying to move beds. They don't want to hear that we're waiting for housekeeping. They want the patients moved to our wards. Um, so it's very chaotic. It's difficult because you're trying to take care of your patients. You have a lot of people coming and going, especially in particular on evening shift. Um, you have less support staff, so these will come up and a lot of times they're not stable." – Participant 0054
Understaffing overwhelms, stresses nurse as they are unable to manage their case load and lack team members who can support them.	*"And sometimes it's just very overwhelming even for well, well trained season staff. Um, and you have to just keep going." – Participant 0054*
	"So in a healthcare, um, point of view, it seems like, uh, when I go to emerge, something like filled with people, we call it patients different needs to different problems and something like, uh, pretty chaotic for me." – Participant 0052
	"There comes so much of frustration and the buildup of stress is awful." – Participant 0055
Being understaffed means that patients stay in the ED longer because there are not enough staff to care for them in a timely manner. Additionally, being understaffed means that wards cannot accept patients, ultimately leaving them in ED longer and contributing to congestion, crowding, stops in access and flow.	*"So with emergency department crowding, um, you have nurses that are run off their feet and not fall not able to complete orders or enter orders or do <affirmative> whatever investigation or treatment has been ordered is delayed. And any delay leads to delay of healing and longer, longer admissions, longer, longer healing time." – Participant 0048*
	"And so, um, anytime that there's a delay in, um, so just thinking about diagnostics, thinking about medical imaging, there's delays in medical imaging that increases the length of stay." - Participant 0053

Theme 2: Nurses believe that patients are being put in unsafe circumstances and suffering negative physical and mental outcomes as result of ED crowding, access and flow issues, site congestion.

Meaning	Evidence
Due to the desire to deal with ED crowding, decongest the site and move patients through the hospital, patients are put in hallways or doubled up in rooms. Nurses raise concerns about this practice as it often places the patient in unsafe positions, such as being open to personal item theft, lack of emergency equipment in the area, danger of injury due to hallway movement. Additionally, the privacy and confidentiality of both the patient themselves and other patients is compromised as they are near nursing stations, visitors, and others.	*"… it's not safe for the, for, for the patients being in the hallway because we don't have a, we don't have, we're not a, the emergency equipment there. We, they, it it's a risk for even moving the things in the hallway. If you have to do a bed move, you have to, ports has to bring there. There's not enough space, um, plugging in the I, these people like things get stole from the hallways. Like people I've seen people, glasses get stole stolen, cell phone gets stolen. So that's sort of the, uh, bad situation." – Participant 0049*
	"But it's just a real frustration when my nurses were trying to give our best care to the patients and I can't get them out of a hallway. And then, and then it's in conflict with everything else that we're taught about patient safety, confidentiality, and dignity and privacy when you're in the hospital. So when I have people in my hallway having to use a bed pad or sitting across from a nursing station, listening to every single detail of other people's care, I just, it, you know, it blows my mind like that this is acceptable and I don't know what else can be done, but I just don't think the hallways are appropriate and we need to find a solution somehow." – Participant 0050
Additionally, crowding, access and flow issues, site congestion put strain on nurses who are spread too thin amongst many patients. They are not able to execute all their duties relating to the patient nor be adequately present for the patient, which puts patients in an unsafe position if they code or injure themselves.	*"In a time efficient fashion and feeling like at some point during another, during your day you're compromising patient safety. Um, simply because there's only one of you and five people that all have something they need." – Participant 0051*
	"It's not the whole team is just the nurse that's involved and myself. And, um, so having of a hugely unexpected thing like that, um, pulls away from being, being able to care, um, properly for the rest of the patients, being able to do it in the time that you have on, on your shift. So when that happens, you probably end up, um, cutting corners, um, some else, and, um, and things can happen" - Participant 0053
Crowding, access and flow issues, and site congestion all result in patients being delayed care and having longer stays, which lead to (1) poor mental health (patients feeling frustrated, stressed, undervalued, unsatisfied, and neglected during their stay); and (2) physical health issues, such as getting physically worse while waiting/having delay in their care, infections, injuries, increase in acuity, delirium (most older patients), and ultimately death.	*"Um, more, just a, it's just more, I think, a sense of how the patients are feeling within the healthcare system, if what they feel valued, or I guess it's not necessarily the right word, but, um, having a lot of hallway beds up on the unit, um, and the patients like satisfaction and their stay and their, um, like their dignity is being compromised, their confidentiality and the confidentiality of other patients are being compromised. So it just kind of puts a negative spin on their, their stay and their experience and just, I think, added stress to their stay. Um, so it's probably just overall not a good satisfaction that way." – Participant 0050*
	"I think we can only, maybe just dealing with whatever comes in and emergency and the rest of the peoples that are waiting, waiting for hours to get checked in and that the patient's outcome it is, uh, it, it does affect the patient outcome because it could be any, any serious things can be missed when, when we are dealing with the congestion, because, uh, uh, it is very important to manage the, uh, uh, uh, the flow." – Participant 0049
Crowding, access and flow issues also can contribute to delaying care, missing diagnosis, treatment, or medication. Delaying care and missing things extends patient suffer, and increases the likelihood they will get worse during their wait for proper care	*"I know that any delay in care, for whatever reason, whether it's people don't even come to emerge because they're afraid to come to emerge because they're afraid they're gonna wait for hours and hours or whether it's people are sitting in emerge waiting to be seen by a physician. And then it turns out that a whole weight they've got an infection, a raging abdominal infection, whether it's, uh, pelvic inflammatory or whether it's, um, an appendix like anything that delays, assessment delays, initiation of treatment. And so, I mean, infection's the easiest to one that any delay leads to sepsis, right?" – Participant 0048*
	"Um, so delirium, um, patients who are elderly and are stuck in the emergency department rather than being transferred onto an inpatient unit, have a, I'm thinking greater chance of, um, um, delirium. Um, and I'm just thinking, I mean, it's overall hospital, um, things as well, like, um, uh, UTI, um, and, Hmm. Um, I'm just thinking also, I mean, this can happen in inpatient unit as well, hospital acquired pneumonia. Um, so those are the three major ones I'm thinking are the UTIs hospital acquired pneumonia and delirium." – Participant 0053

Theme 3: Nurses believe that ED crowding, access and flow, and site congestion are major issues and that there are many improvements that must happen in the hospital setting to address ED crowding, access and flow issues, and negative patient outcomes.

Meaning	Evidence
They offer solutions and suggestions throughout their interviews. These include the following: • Educating nurses about other wards to cultivate understanding/patience/compassion. • Focus on cultivating teamwork and support of each other to be able to tackle crowding, access and flow issues better as there are more nurses pitching in on any given patient/issue. • Having better communication between staff/units during handoffs. This can be done by changing how handover papers are filled out, more verbal communication, having access be prompter and more detailed. Additionally, nurses should have increased access and use of communicative technology. This will help give timely care, reducing negative patient outcomes.	*""I think also just kind of like, I maybe even just, you know, I, I guess like maybe even just having med search nurses kind of go to emerge for a shift or two just float down there, just so you can kind of gain a perspective of why, why we, don't, why we do like this much when, when, and then they take over and, and they have to do like the MRA swabs and the PSQ and the 48-6 and the da, da, da, like they're so much to do. And they get, I feel there's kind of a animosity a little bit because you know, they feel like we're leaving so much work for them, but then, and I feel like that too, until I start working and emerge and I'm like, okay, it's just, we literally don't have time. So, uh, maybe challenging the, or like, you know, challenging the like yeah. Maybe just getting them to come down there for a, for a little while, like one or two shifts just to have a perspective of it. I don't know. Maybe that would help." – Participant 0051*
	""I think on med units, just having, um, more of a culture of like, you know, if you pick up the phone and the person's not there, don't deter it, just take the report for the person. So encouraging your colleagues to kind of help each other out that way." – Participant 0051
	""Um, maybe an electronic version would be helpful. I know in ER, we have like those handover slips, um, where you fill things out, but again, we don't always fill them out." – Participant 0051
	"… I think would be really, really is, uh, having the med staff, having Voceras because I find that like exceptionally efficient in emerge, cuz you just call a nurse and you're like, you know, you don't, you don't have to know their name. You don't have to know anything about them. You just call them by the, the bed number and then, and even if in a room they can pick up. So it just makes the nurse way more accessible." – Participant 0051
	"I don't have access to tracker like EH – have access to itracker- it's diff. Sometimes pt won't show up on meditech when admits are pending but we know they're coming up. Can't find in system have to wait for paperwork to be processed. Helpful if we had access to full ERTracker" – Participant 002
	"I just thought of that now, whether you, whether you can, um, access some of these services, um, before you actually present to an emergency department, can you solve the problem you're self? So how, what, what are like what's out there in the community? Like I know that, I know that, um, there was some media stuff about, you know, using the emergency department only if it's necessary, but like education campaigns, maybe, you know, to the community, have you, have you tried this, have you done tell health, have you, um, you know, access the, um, you know, the outpatient, um, center. So for the people who can solve their problems themselves is giving them the tools to be able to do it. And then of course, if it can, if it's unavoidable, then obviously you have to go, um, into emergency." – Participant 0053
Having adequate nurse staffing as well as staffing throughout the hospital. A focus needs to be made on nursing recruitment. With more nurses and staff, patients can move smoothly and quickly through the hospital, their issues can be solved faster, and negative patient outcomes may be spared.	*"… they also need to look at education recruiting, um, and, um, spots for nurses, um, looking at physicians and making sure we have enough community physicians." – Participant 0053*

Creating more healthcare resources in and out of hospital to provide more care options to patients, while decongesting the ED and hospital in general.	*"It's a huge problem at the community and they need to have more home health services in their, in their resources so that patients can be dealt at a lot of elderly folks. They don't even need to come to the hospital." – Participant 0055* *"… the BC nurses line, like, I just think that what I've heard, because I haven't used it myself is that, you know, they can't, they don't give medical advice. So if there's anything complex or even if it's not even complex, they, they just suggest you go to an emergency department. And that's not a great idea. Mm-hmm, first of all, for the emergency department. So, um, I don't even know if you would have, and, um, enough resources to set up a line, like if people could problem solve their own problems for themselves. Um, but you're talking to a nurse who can't give medical advice and, you know, you have legal implications if you have doctors giving advice, you know, over the phone." – Participant 0053* *"I just thought of that now, whether you, whether you can, um, access some of these services, um, before you actually present to an emergency department, can you solve the problem yourself? So how, what, what are like what's out there in the community? Like I know that, I know that, um, there was some media stuff about, you know, using the emergency department only if it's necessary, but like education campaigns, maybe, you know, to the community, have you, have you tried this, have you done tell health, have you, um, you know, access the, um, you know, the outpatient, um, center. So for the people who can solve their problems themselves is giving them the tools to be able to do it. And then of course, if it can, if it's unavoidable, then obviously you have to go, um, into emergency." – Participant 0053*
Changing nursing practices in terms of having more experienced nurses or the primary nurse take reports, having staggered shifts to ensure alert nurses and proper care, expanding nurses' powers to facilitate offloading, and putting a greater focus on Nurse/PT ratio to provide adequate patient care and plan next steps better in terms of transfers.	*"Junior staff taking report is not always great. Better if senior nurse/PCC takes report" – Participant 002* *"I remember thinking, um, uh, emergencies should have, well, I guess they have multiple physicians working, but they should also have nurse practitioners cuz we are so good at assessing things. And, and so those that go on to become nurse practitioners while they may not be able to order all things that the physicians can order, at least they can help to assess and treat or assess and suggest what to treat and uh, offloading that and having, um, <affirmative> not just the time." – Participant 0046* *"I feel like the nurse down there should say what their ratio is and say, um, say something like, if you think that safest, but just so you know, my ratio right now is one to 17. What's your ratio? Mm-hmm <affirmative>. And if your ratio is less than one to 17, then, or more than one to 17, then of course I would be happy to keep this patient here" – Participant 0048*