

## PROSPECTIVE COHORT STUDY PROTOCOL TO DESCRIBE THE TRANSFER OF PATIENTS FROM INTENSIVE CARE UNITS TO HOSPITAL WARDS

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**PROSPECTIVE COHORT STUDY PROTOCOL TO DESCRIBE THE TRANSFER OF PATIENTS FROM INTENSIVE CARE UNITS TO HOSPITAL WARDS**

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ABSTRACT

**Introduction:** The transfer of patient care between the intensive care unit (ICU) and the hospital ward is associated with increased risk of medical error and adverse events. This study will describe patient transfer from ICU to hospital ward by documenting 1) patient, family, and healthcare provider experiences related to ICU transfer, 2) communication structure and content between stakeholders involved in ICU transfer, 3) adverse events that follow transfer from ICU, and 4) opportunities to improve ICU to hospital ward transfer.

**Methods:** This is a mixed methods prospective observational study of ICU to hospital ward transfer practices in ten ICUs across Canada. We will recruit 50 consenting patients at each site (n=500) who are transferred from ICU to hospital ward and distribute surveys to enrolled patients, family members, and healthcare providers (ICU and ward physicians and nurses) after patient transfer. A random sample of six consenting study participants (patients, family members, healthcare providers) from each study site (n=60) will be offered an opportunity to participate in semi-structured interviews to further describe stakeholders' experience with ICU to hospital ward transfer. We will abstract information from patient health records using standardized forms to identify clinical data, use of transfer tools, and identify adverse events that are related to the transfer.

**Ethics and Dissemination:** Research Ethics Board approval has been obtained at the coordinating study centre (UofC REB13-0021) and is being obtained from all participating institutions. Dissemination of the findings will provide a comprehensive description of transfer from ICU to hospital ward in Canada including the uptake of validated or local transfer tools, a conceptual framework of the experiences and needs of stakeholders in the ICU transfer process, a summary of adverse events experienced by patients after transfer from ICU to hospital ward and a catalogue of opportunities to guide quality improvement efforts.

STRENGTHS AND LIMITATIONS OF THIS STUDY:

Strengths:

- Data will be collected from 10 sites (7 cities, 4 provinces) across Canada.
- Data will be collected from a variety of stakeholders (patients, family members, physicians and nurses) to give a broad perspective on the transfer process.
- Data collection instruments are both qualitative and quantitative.
- Data collected will inform the development of a tool that will improve the ICU to hospital ward transfer process.

Limitations:

- Results will not be generalizable to all hospitals in Canada.

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We have read and understood the BMJ policy on declaration of interests and declare that we have no competing interests

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INTRODUCTION

The transfer between Intensive Care Unit (ICU) and hospital ward is a vulnerable period in health care delivery. Risk for adverse events may increase as a result of the vulnerability of this patient population requiring complex care [1-3], the reduction in monitoring capacity outside the ICU [4,5], the necessary participation of multiple professionals with different cultural norms and practices [5-9], frequent communication failures that are associated with medical errors [5,6,10-12], longer hospital stays [13], increased costs [14], stress [2,6,15,16], and poor quality of care [5,17].

Communication Breakdown

Communication breakdown during patient transfer is common [9,12,18-22] and leads to decisions based on inaccurate or incomplete information [19], patients who are exposed to unnecessary tests and treatments [13,18,23], medication errors [6,18,24-27], and patients/family members who are confused and disappointed by what they perceive as conflicting decision-making and lower quality of care [5,6,17]. Poor communication causes misunderstandings about care plans [28-30], patient conditions [24,31], code status [24,32,33], and test results [13,24,33,34]. Communication problems are implicated in up to 70% of adverse events or near misses in American hospitals [8].

Verbal face-to-face communication between ICU and ward providers is an effective way to improve patient safety during transfers from ICU to hospital ward [21,35]. Verbal face-to-face communication allows for the transmission of judgments about how care is perceived to be progressing [8] and creates opportunities for healthcare providers to highlight subtle yet important information [36-38], which is often not formally documented [8]. Unfortunately, verbal face-to-face communication is rare and often incomplete [5,39,40]. One reason may be that there is often no consensus about what should be communicated, who should communicate, and how communication should occur during patient transfer [6]. There are also differences between what is considered essential knowledge that requires attention at the time of transfer [6,8,9,40,41].

Patients and family members indicate that lack of information before ICU to hospital ward transfer causes them to feel anxious about the unknown, and confused and dissatisfied with their care [5,6,15]. Providing information to patients and families about the transfer improves patient safety, increases understanding of differences in clinical management between the ICU and hospital ward, and improves quality of care [6,42].

MAIN

## Multi-Professional Transfer

The multi-professional nature of ICU care implies that transfer from ICU to hospital ward requires handover of relevant information among many professionals (e.g., physicians, nurses, respiratory therapists, clinical nutritionists, physiotherapists, occupational therapists, social workers, psychologists, and pharmacists) [2,35]. These complementary areas often operate under different patient management models where the responsibilities of professionals may vary. For example, assistance to help patients mobilize, an important step of rehabilitation, may be under the responsibility of nurses in the ICU and shift to physiotherapists once a patient is transferred to the ward. In addition, there may be perceived and real imbalances between healthcare professionals roles and responsibilities that limits involvement in the transfer process [8,17,28,35], differences in scientific or professional jargon used [8,43], and variation in the content [44] and structure [45,46] of health records between ICU and hospital ward. To date most efforts to measure and improve transfer of care have focused on transfers within professions despite the multi-professional nature of care.

## Drop in Intensity of Care

ICUs are specialized units where multi-professional teams of healthcare providers collaborate to provide continuous patient care [14,17]. On average ICU nurses look after one or two patients per shift and ICU physicians are responsible for 8-10 patients at any time [4]. In contrast, hospital ward nurses will care for 4-8 patients per shift while hospital ward physicians might be responsible for as many as 65 patients at some points in the day [47]. For patients, the transfer to the hospital ward may be experienced as abandonment [48] because healthcare providers have less time and resources to focus on patients [49,50]. Additionally, family members report feeling confused and stressed over the reduced level of care after transfer from ICU [6], and an increased responsibility to provide bedside care [48]. Ward nurses report feeling stressed when receiving a patient from the ICU if they feel inadequately prepared or time constrained to care for patients who have high needs [46,51]. Reduced intensity of care after transfer from ICU is associated with increased adverse events [3,4].

## Resource Limitations

ICU patients represent the smallest hospital population yet they absorb the largest percentage of hospital expenditure [2,14]. Limited resources are an incentive for efficient discharge out of the ICU. Furthermore, bed availability for patients outside of the ICU may put pressure on discharging less sick patients. Hospitals must balance heightened efficiency with the risks posed by discharging patients too early [2,14,39]. Premature patient transfer out of ICU increases morbidity and mortality [6,10], raises health care costs [14], and reduces patient satisfaction [2].

MAIN

Evidence on patient transfer highlights the relevance of standardized handover protocols to avoid communication failure [5,52], reduce adverse events [30], reduce cost, and improve patient safety [8,20,46]. Because most ICU patients are transferred to a hospital ward, the ICU to hospital ward transfer is crucial for creating safe and seamless transfers of care for these vulnerable patients [8,15,41].

We propose a mixed-methods multi-centre observational study to document the experiences of relevant stakeholders with ICU to hospital ward transfer. We will collect information that describes stakeholders' transfer experiences, communication during transfer, and adverse events that result from the transfer. Collected data will identify opportunities to improve the transfer process and aid in the development of an ICU transfer toolkit.

OBJECTIVES

Overarching Objective

To describe patient transfer from ICU to hospital ward.

Specific Objectives:

1. Describe patient, family member and healthcare provider experiences and needs related to transfer from ICU to hospital ward
2. Describe current communication content and structure during transfer from ICU to hospital ward.
3. Describe adverse events experienced by patients after transfer from ICU to hospital ward.
4. Discover opportunities to improve transfer from ICU to hospital ward.

METHODS/DESIGN

Study Design

We propose to conduct a mixed- methods prospective observational study of transfer practices in ten ICUs located in seven cities (four different provinces) in Canada (Table 1). We will coordinate data sources (patients, family members, healthcare providers) and methods (surveys, interviews, health record review) to provide a comprehensive description of ICU transfer practices across Canada, and create a conceptual framework of stakeholder transfer needs. Data from this study will inform a future phase of the study that will develop an evidence-informed ICU transfer toolkit.

## MAIN

**Table 1: Study Sites for Data Collection**

1. St. Paul's Hospital, Vancouver, British Columbia
2. University of Alberta Hospital, Edmonton, Alberta
3. Foothills Hospital, Calgary, Alberta
4. Rockyview General Hospital, Calgary, Alberta
5. Peter Lougheed Centre, Calgary, Alberta
6. South Calgary Health Campus, Calgary, Alberta
7. Queensway Carleton Hospital, Ottawa Ontario
8. Sunnybrook Health Sciences Centre, Toronto, Ontario
9. CHU de Quebec (Hôpital de l'Enfant-Jésus), Quebec City, Quebec
10. Centre Hospitalier Universitaire de Sherbrooke , Sherbrooke, Quebec

**Study Population**

We will target a population of patients who are identified as ready to transfer from the ICU to a hospital ward located in the same hospital. We will also target a corresponding family member and healthcare providers. A family member will be defined as the most significant caregiver who visited the patient at least once in the ICU within the three days before the transfer and at least once within the three days after the transfer. Targeted healthcare providers are the clinicians most involved with enrolled patients' transfer from the ICU to hospital ward. We will identify ICU nurses who care for enrolled patients on the day of transfer and ICU physicians (attending or resident) who are involved in preparing patient summary documents immediately before the transfer. On the ward, we will identify ward nurses who conduct the first head-to-toe examination of the patient and ward physicians (attending or resident) who assume responsibility for the patients' care directly after the transfer from the ICU.

Criteria for patients enrolled in this study are 1) of age to consent or older, 2) admitted to a general (medical-surgical) ICU for at least 24 hours, 3) identified as ready to transfer to a hospital ward within the same facility 4) able to provide consent or has a surrogate willing to provide consent, and 5) patient and/or surrogate is able to speak either English or French.

Patient's will be excluded from the study if they are admitted to a sub-specialized ICU (e.g., cardiovascular ICU, neuroscience ICU) or transferred to a location other than a hospital ward within the same facility (e.g., other ICU, home, long-term care facility etc.).

MAIN

Consent

The patients’ capacity to provide informed consent will be determined by a modified Aid to Capacity to Evaluation (ACE) tool [53](Diagram 1). If the patient does not demonstrate capacity to consent we will attempt to identify a suitable surrogate to provide informed consent. Healthcare provider consent will be gathered from implied or written consent depending on the study location. Implied consent will be explained on the cover sheet of healthcare provider surveys.

Sampling

We will enroll 50 patients identified as ready for transfer from the ICU to a hospital ward at each study site (n=500). For each enrolled patient we will attempt to also collect survey data from one family member and four healthcare providers (ICU physician, ICU nurse, ward physician, ward nurse) for a maxim of 3,000 survey participants. At each study site we will conduct six telephone interviews to further explore patient transfer from ICU to hospital ward. Table 2 summarizes the anticipated sample size for this study.

Table 2: Anticipated Sample for Prospective Cohort Study				
	Per Study Site		For Entire Study	
Participant	Surveys	Telephone Interviews	Surveys	Telephone Interviews
Patients or Surrogates	50	1	500	10
Families	50	1	500	10
ICU Physicians	50	1	500	10
ICU Nurses	50	1	500	10
Ward Physicians	50	1	500	10
Ward Nurses	50	1	500	10
Total	300	6	3,000	60

## MAIN

This study will seek Research Ethics Board approval at all participating hospitals (UofC REB13-0021).

## DATA COLLECTION

### Surveys

#### Patient, Family, Surrogate and Healthcare Provider Surveys

Patients (or surrogates), family members, ICU physicians, ICU nurses, ward physicians, and ward nurses will be approached to complete surveys (paper or electronic depending on study site and participant preference) that will ask about communication, level of involvement, workload, use of transfer tools, and adverse events related to the transfer from ICU to hospital ward.

Surveys will be distributed up to three days after patient transfer from the ICU. Altogether we have developed seven survey instruments. These are:

1. Patient survey (Appendix A)
2. Family/surrogate survey (Appendix B & C)
3. ICU physician survey (Appendix D)
4. ICU nurse survey (Appendix E)
5. Ward physician survey (Appendix F)
6. Ward nurse survey (Appendix G)
7. Hospital survey (Appendix H)

Patient, surrogate, family, and healthcare provider survey instruments were developed based on data obtained from a scoping review carried out by our team [54]. Revision of data collection tools took place in four rounds that included initial editing by our team, clinical sensibility testing based on interviews with stakeholders (patients, family members, and healthcare providers), incorporation of additional feedback from our multidisciplinary national advisory committee, and final editing by our team to ensure consistency and logical flow. All tools were subsequently translated into French by a skilled translator and then checked for accuracy by a second skilled translator and healthcare professional.

#### Hospital Survey

A hospital survey will be administered to each study ICU's manager (n=10) and will collect information about the hospital (e.g., number of acute care beds) and ICU structure (e.g., type and size of ICU), policies (e.g., transfer program), and procedures (e.g., transfer criteria) related to patient transfer from ICU.

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**Interviews**

The qualitative component of this project (interviews) will be drawn from a random sample of consenting participants from each study site who agree to participate in semi-structured telephone interviews. These participants (one patient, one family member, one ward physician, one ward nurse, one ICU physician, and one ICU nurse from each study site) will provide an in-depth perspective of stakeholders' experience with transfer from ICU to hospital ward. We plan to sample six participants per study site, but if necessary will continue to sample participants until we reach data saturation. We have developed two draft interview guides (Appendix I & J). Additional domains of inquiry may be added to our interview guides based on results gathered from the stakeholder surveys.

**Patient Health Record Review**

**Case Report Form**

From patient health records, we will abstract 1) demographic information, 2) clinical data (i.e. patient characteristics, illness severity scores (SOFA[55] APACHE II [56]), 3) clinical diagnosis 4) the use of local or standardized ICU transfer tools, 5) co-morbidities, 6) procedures done in the ICU, 7) time spent in ICU and on the ward 8) ICU readmission, and 9) final transfer location. These will be collected on a Case Report Form (Appendix K).

**Textual Analysis of Health Records**

We will obtain a copy of all clinical notes recorded in each patient's health record during the final two days of their stay in the ICU, the day of transfer from the ICU, and the first seven days of their stay on the ward that accepted care from the ICU for a total of ten calendar days. Patient data that are photocopied will be de-identified and assigned a unique identifier. We will focus on clinical notes and ICU transfer tools documented during this period. We define clinical notes as health record entries that include an interpretation of clinical data or a patient management plan. We expect to identify different types of healthcare provider clinical notes from multiple professions and specialties including interdisciplinary progress notes, consultation notes, transfer notes, and admission notes. A detailed list of all local and standardized transfer tools located in patient health records will be created and used to inform a future phase of the study that will evaluate and develop an evidence-informed transfer toolkit

**Adverse Events**

Two clinical investigators will independently review each clinical note to identify adverse events using standard methods adapted from the Harvard Medical Practice Study [57]. For each adverse event identified they will independently grade the severity of any injury (on a six-point scale ranging from single day of symptoms to

## MAIN

death) and rate their confidence in the preventability of the adverse event (on a six-point scale ranging from no evidence to virtual certain evidence of preventability)[58]. A third reviewer will resolve discrepancies.

## Analytical Plan

Data analysis for this study will be descriptive using a combination of qualitative and quantitative methods to triangulate findings [59].

### Surveys

We will present global data to describe opportunities to improve ICU transfer (e.g., goals of care reconciliation). We will present detailed tabulations of responses by participant (patient vs. family member vs. healthcare provider), patient (medical vs. surgical), and hospital (university-affiliated vs. community) characteristics. The significance of observed differences will be evaluated using Chi-square tests.

### Interviews

All interviews will be audio taped, transcribed verbatim, assigned a unique identifier and imported into *NVivo 10*, a computer program for qualitative data management. Two investigators will independently read each transcript and code the raw data, line by line using a process of open, axial, and selective coding.[60,61]. The investigators will sequentially collapse the codes to form abstract and then advanced concepts until core variables emerge along with supporting categories that explain stakeholder experiences with ICU transfer [62]. Axial coding will examine the context, intervening conditions, and consequences of core variables (e.g., what contextual factors influence identification of exemplary cases of high quality care during ICU transfer [63]. Selective coding is the final stage of analysis in which a story of ICU transfers will be built. The result will be a framework describing ICU transfer, stakeholder needs and opportunities for improvement (facilitators & barriers to high quality ICU transfer). Credibility of the core variables will be determined by the frequency with which they are recorded within transcripts. Written memos will be used to provide a record of the analytic process [60,61]. All interview participants will be provided with a copy of the study report for review and comment as a form of member-checking [64].

### Patient Health Record Review

Patient characteristics (e.g., severity of illness), processes of care (e.g., ICU transfer tools) and outcomes of care (e.g., readmission to ICU) abstracted from the medical record (case report form), will be summarized using descriptive statistics (i.e., means, medians, proportions). We will present detailed tabulations by patient (medical vs. surgical), and hospital (university-affiliated vs. community) characteristics.

MAIN

To provide a description of written communication, qualitative textual analysis [65-68] will be done to describe and compare the structure of written communication within participants' medical chart before, during and after ICU transfer. Analysis will involve coding each clinical note for order, organization and legibility. Patient characteristics, including medical or surgical classification and experiences of adverse events will be given particular consideration. The coding of raw data will then be used to construct a protocol to analyze textual documentation of clinical notes written in the ICU and hospital wards across all sites, with the goal of creating a shared communication structure.

We will develop a comprehensive list of adverse events and present global data to describe the proportion of ICU transfers that are complicated by an adverse event along with binomial 95% confidence intervals.

Relevance of Findings

Transfers of patient care are highly vulnerable moments that require communication of crucial information between healthcare providers from different locations [12], and sometimes a shift of care responsibilities directly to patients and family members [69]. To be effective, seamless, and safe transfers of care must be supported by focused communication, dedicated and informed healthcare providers, and engaged patients and families [6].

Next Steps

This study will 1) provide a comprehensive description of the process of transfer from ICU to hospital ward in Canada. This will include the application of transfer tools, developing a conceptual framework of the experiences and needs of stakeholders who are involved in transfer from ICU to hospital ward, providing a summary of adverse events experienced by patients after transfer from ICU to hospital ward, and identifying opportunities for improvement. Key deliverables developed from this study will be made available in English and French.

Data collected from this study will inform the next phase of our program of work, which is to develop an evidence-informed ICU toolkit for ICU to hospital ward transfer. We will amalgamate data from this study with an analysis of existing tools used to facilitate ICU to hospital ward transfers [54,70].

Author's Contributions

TS is the principle investigator on the TVN Grant. TS conceptualized the project and developed the study proposal and design. DB served as the project manager. DB, TS and MP helped to draft the manuscript. All other authors read the project proposal, suggested revisions and participated in the funding application. They have read the resulting manuscript, sequentially suggested important revisions and approved the final manuscript.

MAIN

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**Figure Legend**

Diagram 1: ACE Capacity to Consent Screening Tool

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# Patient Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential**. Your responses will help us to improve care for critically ill patients. **This survey takes less than 10 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

**We are interested to know how prepared you felt when you were moved from the ICU to this hospital ward.**

1. Before you were moved from the ICU to this hospital ward, did anybody explain to you what was going to happen?

- ☐ Yes  
☐ No  
☐ Not sure

2. How involved did you feel in the process of **deciding** to be moved from the ICU to this hospital ward?

- ☐ Completely involved  
☐ Somewhat involved  
☐ Neither involved nor uninvolved  
☐ Somewhat uninvolved  
☐ Completely uninvolved

3. Please indicate what information was communicated to you before you were moved from the ICU to this hospital ward. Please select all that apply. (If you were not given any information, please skip to question 8.)

- ☐ A summary of events that happened while you were in the ICU  
☐ A summary of your current medical conditions  
☐ The current treatment plan  
☐ Information about who would take over your care on this hospital ward  
☐ Information about how the ICU team will follow up with you after the move  
☐ Information about what to expect regarding care on this hospital ward  
☐ Other (please specify): \_\_\_\_\_

4. How was this information communicated to you? Please select all that apply.

- ☐ Verbal conversation(s) with the doctors  
☐ Verbal conversation(s) with the nurses  
☐ Formal meeting(s) (e.g. family meeting)  
☐ Personalized care sheet (e.g. ICU stay summary)  
☐ Other (please specify): \_\_\_\_\_

5. How much of the information did you understand?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

6. Is there any other information you would have liked to receive?

- ☐ Yes (please specify): \_\_\_\_\_
- ☐ No

7. Did a member of the medical team review goals of care/resuscitation status with you **before** you left the ICU?

- ☐ Yes
- ☐ No
- ☐ Not sure

8. Did you feel that the ICU medical team addressed your questions and/or concerns about the move from the ICU to this hospital ward?

- ☐ Yes
- ☐ Somewhat
- ☐ No

9. Did you have the chance to meet your new ward care provider(s) **before** the move took place?

- ☐ Yes
- ☐ No

10. Did you feel that you developed a trusting relationship with any **ICU care provider(s)** while you were in the ICU?

- ☐ Yes
- ☐ No (Please skip to question 12.)

11. If yes, with whom? Please select all that apply.

- ☐ Doctor
- ☐ Nurse
- ☐ Respiratory therapist
- ☐ Occupational therapist
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Social worker
- ☐ Chaplain
- ☐ Other (please specify): \_\_\_\_\_

12. Did a family member accompany you when you were moved from the ICU to this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

**Next, we are interested to know about your experiences after you were moved from the ICU to this hospital ward.**

13. Were you assessed by a nurse **within the first hour** of arriving on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

14. After arriving on this hospital ward, when were you **first seen by a doctor**?

- ☐ Within the first hour
- ☐ Within 1-4 hours
- ☐ After 4 hours of arriving on this ward but on the same day
- ☐ More than 1 day after arriving on this ward
- ☐ Not sure

15. Did a member of the ICU team visit you since you arrived on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

16. Are you aware of any harmful events/errors in your care that occurred since you were moved from the ICU to this hospital ward?

- ☐ Yes
- ☐ No

17. If yes, what was the nature of the event(s) and what do you believe caused it/them?

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18. Up until now, do you feel that you have developed a trusting relationship with any care provider(s) on this **hospital ward**?

- ☐ Yes
- ☐ No (Please skip to question 21.)

19. If yes, with whom? Please select all that apply.

- ☐ Doctor
- ☐ Nurse
- ☐ Respiratory therapist
- ☐ Occupational therapist
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Social worker
- ☐ Chaplain
- ☐ Other (please specify): \_\_\_\_\_

20. Overall, how satisfied were you with the transfer process?

- ☐ Completely satisfied
- ☐ Somewhat satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Somewhat dissatisfied
- ☐ Completely dissatisfied

21. How could the process of being moved from the ICU to this hospital ward have been improved?

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**Lastly, we are interested to know some information about you.**

22. What is the highest level of education you have completed?

- ☐ Eighth grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate
- ☐ Some college/university, did not graduate
- ☐ College diploma/certificate
- ☐ Four year university degree
- ☐ More than a four year university degree

23. Which ethnicity do you most closely identify with?

- ☐ Caucasian
- ☐ Black or African Canadian
- ☐ Asian
- ☐ Aboriginal or First Nations
- ☐ East Indian
- ☐ Latin American
- ☐ Other (please specify): \_\_\_\_\_

24. What language do you speak at home most of the time?

- ☐ English
- ☐ French
- ☐ Spanish
- ☐ Vietnamese
- ☐ Hindi/Punjabi
- ☐ Mandarin/Cantonese
- ☐ Other (please specify): \_\_\_\_\_

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25. Where do you live?

☐ In the city where this hospital is located

☐ Out of town

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26. Before this hospital stay, have you been to an ICU as a patient or as a family member of a patient?

☐ Yes

☐ No

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27. Are you a health care professional?

☐ Yes

☐ No

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.



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## Family Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential**. Your responses will help us to improve care for critically ill patients. **This survey takes less than 10 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at  
[barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca)  
or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca)  
or 403-956-2113

Thank you for your help!

We are interested to know how prepared you felt when your family member was moved from the ICU to this hospital ward.

1. Before your family member was moved from the ICU to this hospital ward, did anybody explain to you what was going to happen?

- ☐ Yes
- ☐ No
- ☐ Not sure

2. How involved did you feel in the process of **deciding** to move your family member from the ICU to this hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

3. Please indicate what information was communicated to you before your family member was moved from the ICU to this hospital ward. Please select all that apply. (If you were not given any information, please skip to question 8.)

- ☐ A summary of events that happened while your family member was in the ICU
- ☐ A summary of your family member’s current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over care of your family member on this hospital ward
- ☐ Information about how the ICU team will follow up with your family member after the move
- ☐ Information about what to expect regarding care of your family member on this hospital ward
- ☐ Other (please specify): \_\_\_\_\_

4. How was this information communicated to you? Please select all that apply.

- ☐ Verbal conversation(s) with the doctors
- ☐ Verbal conversation(s) with the nurses
- ☐ Formal meeting(s) (e.g. family meeting)
- ☐ Personalized care sheet (e.g. ICU stay summary)
- ☐ Other (please specify): \_\_\_\_\_

5. How much of the information did you understand?

- ☐ All of the information  
☐ Most of the information  
☐ About half of the information  
☐ A little information  
☐ None of the information

6. Is there any other information you would have liked to receive?

- ☐ Yes (please specify): \_\_\_\_\_  
☐ No

7. Did a member of the medical team review goals of care/resuscitation status with you regarding your family member **before** he/she left the ICU?

- ☐ Yes  
☐ No  
☐ Not sure

8. Did you feel that the ICU medical team addressed your questions and/or concerns about moving your family member from the ICU to this hospital ward?

- ☐ Yes  
☐ Somewhat  
☐ No

9. Did you have the chance to meet your family member's new ward care provider(s) **before** the move took place?

- ☐ Yes  
☐ No

10. Did you feel that you developed a trusting relationship with any **ICU care provider(s)** while your family member was in the ICU?

- ☐ Yes  
☐ No (Please skip to question 12.)

11. If yes, with whom? Please select all that apply.

- ☐ Doctor
- ☐ Nurse
- ☐ Respiratory therapist
- ☐ Occupational therapist
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Social worker
- ☐ Chaplain
- ☐ Other (please specify): \_\_\_\_\_

12. Were you with your family member when he/she was moved from the ICU to this hospital ward?

- ☐ Yes
- ☐ No

**Next, we are interested to know about your experiences after your family member was moved from the ICU to this hospital ward.**

13. Was your family member assessed by a nurse **within the first hour** of him/her arriving on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

14. After arriving on this hospital ward, when was your family member **first seen by a doctor**?

- ☐ Within the first hour
- ☐ Within 1-4 hours
- ☐ After 4 hours of arriving on this ward but on the same day
- ☐ More than 1 day after arriving on this ward
- ☐ Not sure

15. Did a member of the ICU team visit your family member since he/she arrived on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

16. Are you aware of any harmful events/errors in your family member's care that occurred since he/she was moved from the ICU to this hospital ward?

☐ Yes

☐ No

17. If yes, what was the nature of the event(s) and what do you believe caused it/them?

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18. Up until now, do you feel that you have developed a trusting relationship with any care provider(s) on this **hospital ward**?

☐ Yes

☐ No (Please skip to question 21.)

19. If yes, with whom? Please select all that apply.

☐ Doctor

☐ Nurse

☐ Respiratory therapist

☐ Occupational therapist

☐ Physiotherapist

☐ Pharmacist

☐ Social worker

☐ Chaplain

☐ Other (please specify): \_\_\_\_\_

20. Overall, how satisfied were you with the transfer process?

☐ Completely satisfied

☐ Somewhat satisfied

☐ Neither satisfied nor dissatisfied

☐ Somewhat dissatisfied

☐ Completely dissatisfied

21. How could the process of moving **your family member** from the ICU to this hospital ward have been improved?

22. Please indicate with a checkmark (✓) which days you were able to visit your family member while he/she was in the ICU and then on this hospital ward. Please select all that apply.

3 days before the move	2 days before the move	1 day before the move	Day of move from the ICU to hospital ward	1 day after the move	2 days after the move	3 days after the move

Lastly, we are interested to know some information about you.

23. What is your sex?

- ☐ Male
- ☐ Female

24. What is your age (in years)? \_\_\_\_\_

25. What is the highest level of education you have completed?

- ☐ Eighth grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate
- ☐ Some college/university, did not graduate
- ☐ College diploma/certificate
- ☐ Four year university degree
- ☐ More than a four year university degree

26. Which ethnicity do you most closely identify with?

- ☐ Caucasian
- ☐ Black or African Canadian
- ☐ Asian
- ☐ Aboriginal or First Nations
- ☐ East Indian
- ☐ Latin American
- ☐ Other (please specify): \_\_\_\_\_

27. What language do you speak at home most of the time?

- ☐ English
- ☐ French
- ☐ Spanish
- ☐ Vietnamese
- ☐ Hindi/Punjabi
- ☐ Mandarin/Cantonese
- ☐ Other (please specify): \_\_\_\_\_

28. What is your relationship to your family member?

- ☐ Wife
- ☐ Husband
- ☐ Partner
- ☐ Friend
- ☐ Mother
- ☐ Father
- ☐ Sister
- ☐ Brother
- ☐ Daughter
- ☐ Son
- ☐ Other (please specify): \_\_\_\_\_

29. Do you live with your family member?

- ☐ Yes
- ☐ No

30. If no, on average how often did you see your family member prior to this hospitalization?

- ☐ Daily
- ☐ A few times a week
- ☐ Weekly
- ☐ Monthly
- ☐ Yearly
- ☐ Less than once a year

31. Where do you live?

- ☐ In the city where this hospital is located
- ☐ Out of town

32. Before this hospital stay, have you been to an ICU as a patient or as a family member of a patient?

- ☐ Yes
- ☐ No

33. Are you a health care professional?

- ☐ Yes
- ☐ No

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.



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## Surrogate Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential**. Your responses will help us to improve care for critically ill patients. **This survey takes less than 10 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at  
[barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca)  
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Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca)  
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Thank you for your help!

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1. Before your family member was moved from the ICU to this hospital ward, did anybody explain to you what was going to happen?

- ☐ Yes
- ☐ No
- ☐ Not sure

2. How involved did you feel in the process of **deciding** to move your family member from the ICU to this hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

3. Please indicate what information was communicated to you before your family member was moved from the ICU to this hospital ward. Please select all that apply. (If you were not given any information, please skip to question 8.)

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- ☐ A summary of your family member’s current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over care of your family member on this hospital ward
- ☐ Information about how the ICU team will follow up with your family member after the move
- ☐ Information about what to expect regarding care of your family member on this hospital ward
- ☐ Other (please specify): \_\_\_\_\_

4. How was this information communicated to you? Please select all that apply.

- ☐ Verbal conversation(s) with the doctors
- ☐ Verbal conversation(s) with the nurses
- ☐ Formal meeting(s) (e.g. family meeting)
- ☐ Personalized care sheet (e.g. ICU stay summary)
- ☐ Other (please specify): \_\_\_\_\_

5. How much of the information did you understand?

- ☐ All of the information  
☐ Most of the information  
☐ About half of the information  
☐ A little information  
☐ None of the information

6. Is there any other information you would have liked to receive?

- ☐ Yes (please specify): \_\_\_\_\_  
☐ No

7. Did a member of the medical team review goals of care/resuscitation status with you regarding your family member **before** he/she left the ICU?

- ☐ Yes  
☐ No  
☐ Not sure

8. Did you feel that the ICU medical team addressed your questions and/or concerns about moving your family member from the ICU to this hospital ward?

- ☐ Yes  
☐ Somewhat  
☐ No

9. Did you have the chance to meet your family member's new ward care provider(s) **before** the move took place?

- ☐ Yes  
☐ No

10. Did you feel that you developed a trusting relationship with any **ICU care provider(s)** while your family member was in the ICU?

- ☐ Yes  
☐ No (Please skip to question 12.)

11. If yes, with whom? Please select all that apply.

- ☐ Doctor
- ☐ Nurse
- ☐ Respiratory therapist
- ☐ Occupational therapist
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Social worker
- ☐ Chaplain
- ☐ Other (please specify): \_\_\_\_\_

12. Were you with your family member when he/she was moved from the ICU to this hospital ward?

- ☐ Yes
- ☐ No

**Next, we are interested to know about your experiences after your family member was moved from the ICU to this hospital ward.**

13. Was your family member assessed by a nurse **within the first hour** of him/her arriving on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

14. After arriving on this hospital ward, when was your family member **first seen by a doctor**?

- ☐ Within the first hour
- ☐ Within 1-4 hours
- ☐ After 4 hours of arriving on this ward but on the same day
- ☐ More than 1 day after arriving on this ward
- ☐ Not sure

15. Did a member of the ICU team visit your family member since he/she arrived on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

16. Are you aware of any harmful events/errors in your family member's care that occurred since he/she was moved from the ICU to this hospital ward?

☐ Yes

☐ No

17. If yes, what was the nature of the event(s) and what do you believe caused it/them?

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18. Up until now, do you feel that you have developed a trusting relationship with any care provider(s) on this **hospital ward**?

☐ Yes

☐ No (Please skip to question 21.)

19. If yes, with whom? Please select all that apply.

☐ Doctor

☐ Nurse

☐ Respiratory therapist

☐ Occupational therapist

☐ Physiotherapist

☐ Pharmacist

☐ Social worker

☐ Chaplain

☐ Other (please specify): \_\_\_\_\_

20. Overall, how satisfied were you with the transfer process?

☐ Completely satisfied

☐ Somewhat satisfied

☐ Neither satisfied nor dissatisfied

☐ Somewhat dissatisfied

☐ Completely dissatisfied

21. How could the process of moving **your family member** from the ICU to this hospital ward have been improved?

22. Please indicate with a checkmark (✓) which days you were able to visit your family member while he/she was in the ICU and then on this hospital ward? Please select all that apply.

3 days before the move	2 days before the move	1 day before the move	Day of move from the ICU to hospital ward	1 day after the move	2 days after the move	3 days after the move

Next, we are interested to know some background information about your family member.

23. What is the highest level of education your family member has completed?

- ☐ Eighth grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate
- ☐ Some college/university, did not graduate
- ☐ College diploma/certificate
- ☐ Four year university degree
- ☐ More than a four year university degree

24. Which ethnicity does your family member most closely identify with?

- ☐ Caucasian
- ☐ Black or African Canadian
- ☐ Asian
- ☐ Aboriginal or First Nations
- ☐ East Indian
- ☐ Latin American
- ☐ Other (please specify):

25. What language does your family member speak at home most of the time?

- ☐ English  
☐ French  
☐ Vietnamese  
☐ Spanish  
☐ Hindi/Punjabi  
☐ Chinese (Mandarin/Cantonese)  
☐ Other (please specify): \_\_\_\_\_

**Lastly, we are interested to know some information about you.**

26. What is your sex?

- ☐ Male  
☐ Female

27. What is your age (in years)? \_\_\_\_\_

28. What is the highest level of education you have completed?

- ☐ Eighth grade or less  
☐ Some high school, but did not graduate  
☐ High school graduate  
☐ Some college/university, did not graduate  
☐ College diploma/certificate  
☐ Four year university degree  
☐ More than a four year university degree

29. Which ethnicity do you most closely identify with?

- ☐ Caucasian  
☐ Black or African Canadian  
☐ Asian  
☐ Aboriginal or First Nations  
☐ East Indian  
☐ Latin American  
☐ Other (please specify): \_\_\_\_\_

30. What language do you speak at home most of the time?

- ☐ English
- ☐ French
- ☐ Spanish
- ☐ Vietnamese
- ☐ Hindi/Punjabi
- ☐ Mandarin/Cantonese
- ☐ Other (please specify): \_\_\_\_\_

31. What is your relationship to your family member?

- ☐ Wife
- ☐ Husband
- ☐ Partner
- ☐ Friend
- ☐ Mother
- ☐ Father
- ☐ Sister
- ☐ Brother
- ☐ Daughter
- ☐ Son
- ☐ Other (please specify): \_\_\_\_\_

32. Do you live with your family member?

- ☐ Yes (Please skip to question 35.)
- ☐ No

33. If no, on average how often did you see your family member prior to this hospitalization?

- ☐ Daily
- ☐ A few times a week
- ☐ Weekly
- ☐ Monthly
- ☐ Yearly
- ☐ Less than once a year

34. Where do you live?

- ☐ In the city where this hospital is located
- ☐ Out of town

35. Before this hospital stay, have you been to an ICU as a patient or as a family member of a patient?

☐ Yes

☐ No

36. Are you a health care professional?

☐ Yes

☐ No

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

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# ICU Physician Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential.** The survey has full ethics approval (REB13-0022) and your participation implies consent. Your responses will help us to improve care for critically ill patients. **This survey takes about one minute to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

**Please consider the transfer of your recent patient:**

1. Which of the following factors did you consider when deciding that this patient was ready for transfer to a hospital ward? Please select all that apply.

- ☐ Age
- ☐ Severity of acute illness
- ☐ Comorbidities
- ☐ Diagnosis
- ☐ Type, number and duration of time that life support technologies used
- ☐ Duration of time since life support technologies were **discontinued**
- ☐ Adverse events experienced
- ☐ Frailty status (i.e. how frail)
- ☐ Physiological reserve
- ☐ Clinical course
- ☐ Amount of respiratory support (oxygen, suctioning, non-invasive ventilation) required by this patient
- ☐ Specialization of the **receiving medical team** (to match patient diagnosis/needs)
- ☐ Specialization of the **receiving unit** (to match patient diagnosis/needs)
- ☐ Time of day/day of week
- ☐ Shortage of ICU beds
- ☐ Goals of care/resuscitation status
- ☐ Amount of nursing care required for this patient
- ☐ Level of patient consciousness
- ☐ Results from a clinical prediction tool (please specify the name of the tool): \_\_\_\_\_
- ☐ Presence of a tracheostomy
- ☐ Patient mobility
- ☐ Family/patient input
- ☐ Other (please specify): \_\_\_\_\_

2. In an ideal situation, would you have preferred to keep this patient in ICU longer before transferring him/her?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

3. Who was your **primary contact** on the ward during this patient’s transfer of care? Please select **one**.

- ☐ Receiving attending physician
- ☐ Receiving fellow/resident
- ☐ ICU outreach team/liaison
- ☐ Consulting colleague (non-ICU)
- ☐ Receiving ward nurse
- ☐ Other (please specify): \_\_\_\_\_
- ☐ I did not speak with anyone
- ☐ I did not have a primary contact

4. How did you or a member of your team communicate with your **primary contact**? Please select all that apply.

- ☐ Verbal communication over the telephone
- ☐ Face-to-face communication
- ☐ Written communication (e.g. discharge summary in paper or electronic chart)
- ☐ Electronic communication (e.g. email, text message, etc.)
- ☐ Other (please specify): \_\_\_\_\_

5. What was communicated by you or a member of your team to your **primary contact**? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ Current list of problems
- ☐ Current treatment plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural issues
- ☐ Family involvement/issues
- ☐ Other (please specify): \_\_\_\_\_

6. When did you or a member of your team communicate the above information to your **primary contact**? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on the hospital ward
- ☐ Not sure

7. How would you rate the **quality** of communication between yourself and the ward team during this patient's transfer?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Fair
- ☐ Poor

8. What information did you or a member of your team communicate to this patient and/or family before he/she was transferred to the hospital ward? Please select all that apply.

- ☐ A summary of events that happened while in ICU
- ☐ A summary of the patient's current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over the patient's care
- ☐ Information about what to expect regarding patient care on a ward
- ☐ Information regarding ICU follow-up
- ☐ Other (please specify): \_\_\_\_\_
- ☐ No information was given to the patient and/or family (please skip to question 11)

9. How did you or member of your team give the above information to this patient and/or his/her family member(s)? Please select all that apply.

- ☐ Verbal communication
- ☐ Written communication
- ☐ Other (please specify): \_\_\_\_\_

10. In your opinion, how much of the information was understood by this patient and/or family?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

11. Did you or a member of your team review goals of care/resuscitation status with this patient and/or the family before the patient was transferred to the hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

12. In your opinion, during the remainder of his/her hospital stay, what is this patient’s risk of:

- | Experiencing an adverse event:                     | Readmission to ICU:                                | Death:   |
|--|--|--|
| <input type="checkbox"/> Very high risk            | <input type="checkbox"/> Very high risk            | <input type="checkbox"/> Very high risk                                |
| <input type="checkbox"/> Somewhat high risk        | <input type="checkbox"/> Somewhat high risk        | <input type="checkbox"/> Somewhat high risk                            |
| <input type="checkbox"/> Neither high nor low risk | <input type="checkbox"/> Neither high nor low risk | <input type="checkbox"/> Neither high nor low risk                     |
| <input type="checkbox"/> Somewhat low risk         | <input type="checkbox"/> Somewhat low risk         | <input type="checkbox"/> Somewhat low risk                             |
| <input type="checkbox"/> Very low risk             | <input type="checkbox"/> Very low risk             | <input type="checkbox"/> Very low risk                                 |
|  |  | <input type="checkbox"/> N/A (this patient was transferred out to die) |

13. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to this hospital ward?

- ☐ Yes (please specify the name of the tool): \_\_\_\_\_
- ☐ No

14. Overall, how would you rate the transfer of care for this patient?

- ☐ 1 – The transfer went exceptionally well
- ☐ 2
- ☐ 3 – The transfer was average
- ☐ 4
- ☐ 5 – The transfer was unacceptable

15. Do you have any recommendations for how the transfer of care from the ICU to the hospital ward could have been improved for **this patient**?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

16. Do you have any additional comments regarding the transfer of care of this patient?

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### Demographics

17. What is your level of medical training?

- ☐ Attending (please specify number of years of independent practice): \_\_\_\_\_
- ☐ Fellow
- ☐ Resident
- ☐ Other (please specify): \_\_\_\_\_

### Follow up

18. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

- ☐ Yes
- ☐ No

If **yes**, please provide your contact information:

- ☐ Name: \_\_\_\_\_
- ☐ Phone number/email: \_\_\_\_\_

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

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## ICU Nurse Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

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If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

**Please consider the transfer of your recent patient:**

1. How involved did you feel in the process of deciding to move this patient from the ICU to a hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

2. From your perspective, what factors were considered when deciding that this patient was ready for transfer to a hospital ward? Please select all that apply.

- ☐ Age
- ☐ Severity of acute illness
- ☐ Comorbidities
- ☐ Diagnosis
- ☐ Type, number and duration of time that life support technologies used
- ☐ Duration of time since life support technologies were **discontinued**
- ☐ Adverse events experienced
- ☐ Frailty status (i.e. how frail)
- ☐ Physiological reserve
- ☐ Clinical course
- ☐ Amount of respiratory support (oxygen, suctioning, non-invasive ventilation) required by this patient
- ☐ Specialization of the **receiving medical team** (to match patient diagnosis/needs)
- ☐ Specialization of the **receiving unit** (to match patient diagnosis/needs)
- ☐ Time of day/day of week
- ☐ Shortage of ICU beds
- ☐ Goals of care/resuscitation status
- ☐ Amount of nursing care required for this patient
- ☐ Level of patient consciousness
- ☐ Results from a clinical prediction tool (please specify the name of the tool): \_\_\_\_\_
- ☐ Presence of a tracheostomy
- ☐ Patient mobility
- ☐ Family/patient input
- ☐ Other (please specify): \_\_\_\_\_

3. In an ideal situation, would you have preferred to keep this patient in the ICU longer before transferring him/her to a hospital ward?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

4. Who was your **primary contact** when handing over care of this patient? Please select **one**.

- ☐ Accepting physician/team
- ☐ Nurse assuming care of this patient
- ☐ Covering/other ward nurse
- ☐ Ward charge nurse
- ☐ ICU outreach team/liaison
- ☐ Ward respiratory therapist
- ☐ Ward physiotherapist
- ☐ Other (please specify): \_\_\_\_\_

5. How did you communicate with your **primary contact**? Please select all that apply.

- ☐ Verbal communication over the telephone
- ☐ Face-to-face communication
- ☐ Written communication (e.g. discharge summary in paper or electronic chart)
- ☐ Electronic communication (e.g. email, text message etc.)
- ☐ Other (please specify): \_\_\_\_\_

6. What did you communicate to your **primary contact** on the ward? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ List of ongoing issues/concerns
- ☐ Current treatment plan
- ☐ Care plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/patient resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural/spiritual issues
- ☐ Family involvement/issues
- ☐ Nursing support for activities of daily living (i.e. self-care)
- ☐ Hospital discharge plan

☐ Other (please specify): \_\_\_\_\_

For peer review only

7. When did you communicate the above information? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on the ward
- ☐ Not sure

8. How was your communication with your primary contact structured?

- ☐ A system-by-system discussion of this patient’s needs (i.e. head to toe assessment)
- ☐ Pertinent information was discussed in order of priority
- ☐ Unstructured narrative
- ☐ Other (please specify): \_\_\_\_\_

9. Who else did you communicate with when handing over care of this patient? Please select all that apply.

- ☐ Accepting physician/team
- ☐ Nurse assuming care of this patient
- ☐ Covering/other ward nurse
- ☐ Ward charge nurse
- ☐ ICU outreach team/liaison
- ☐ Ward respiratory therapist
- ☐ Ward physiotherapist
- ☐ Ward occupational therapist
- ☐ Ward speech therapist
- ☐ Ward pharmacist
- ☐ Other (please specify): \_\_\_\_\_

10. How would you rate the quality of communication between yourself and the ward team regarding this patient’s transfer from the ICU to the hospital ward?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Fair
- ☐ Poor

11. What information did you communicate to patient and/or family before he/she was transferred to the hospital ward? Please select all that apply.

- ☐ A summary of events that happened while in ICU
- ☐ A summary of the patient's current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over the patient's care
- ☐ Information about what to expect regarding patient care on a ward
- ☐ Information regarding ICU follow-up
- ☐ Other (please specify): \_\_\_\_\_
- ☐ I did not give any information to the patient and/or family (please skip to question 13)

12. How did you communicate the above information to this patient and/or family about the transfer process? Please select all that apply.

- ☐ Verbal communication
- ☐ Written communication
- ☐ Other (please specify): \_\_\_\_\_

13. Who accompanied this patient to the receiving ward? Please select all that apply.

- ☐ ICU nurse
- ☐ Ward nurse
- ☐ ICU outreach team/liaison
- ☐ Nursing attendant
- ☐ Porter
- ☐ Admitting physician/team
- ☐ ICU physician
- ☐ Ward physician
- ☐ Respiratory therapist
- ☐ Other (please specify): \_\_\_\_\_
- ☐ Not sure

14. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to the hospital ward?

- ☐ Yes (please specify the name of the tool): \_\_\_\_\_
- ☐ No

15. Overall, how would you rate the transfer of care for this patient?

- ☐ 1 – The transfer went exceptionally well
- ☐ 2
- ☐ 3 – The transfer was average
- ☐ 4
- ☐ 5 – The transfer was unacceptable

16. Do you have any recommendations for how the transfer of care from the ICU to the hospital ward could have been improved for **this patient**?

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17. Do you have any additional comments regarding the transfer of care of this patient?

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Demographics

18. Which of the following most accurately describes your professional designation?

- ☐ Nurse practitioner
- ☐ RN
- ☐ LPN
- ☐ Nurse clinician
- ☐ Other (please specify): \_\_\_\_\_

19. What was your relationship to this patient?

- ☐ Bedside nurse
- ☐ Bedside LPN
- ☐ Nurse practitioner
- ☐ Nurse clinician/charge nurse
- ☐ Other (please specify): \_\_\_\_\_

## Follow up

20. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

☐ Yes

☐ No

If **yes**, please provide your contact information:

☐ Name: \_\_\_\_\_

☐ Phone number/email: \_\_\_\_\_

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

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# Ward Physician Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

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Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

**Please consider the transfer of your recent patient:**

1. How did you participate in the decision making process to accept this patient from the ICU to this hospital ward? Please select all that apply.

- ☐ Accepted transfer of the patient
- ☐ Determined which ward the patient would go to
- ☐ Determined when (day or time) this patient could be transferred
- ☐ Requested additional test(s) before this patient was transferred
- ☐ Requested additional treatment(s) before this patient was transferred
- ☐ Requested additional consult(s) before this patient was transferred
- ☐ Other (please specify): \_\_\_\_\_

2. What factors influenced your decision to accept this patient for transfer? Please select all that apply.

- ☐ This patient was ready to leave the ICU
- ☐ This patient was improving
- ☐ I believe I am the best physician/team to care for this patient
- ☐ I/my team cared for this patient before he/she was admitted to the ICU
- ☐ I/my team performed an operation on this patient
- ☐ Workload to care for this patient (e.g. physician, nurse, respiratory therapist etc.) influenced the decision
- ☐ How busy I am/my team is with clinical work influenced the decision
- ☐ How busy the ICU is/was influenced the decision
- ☐ Other (please specify): \_\_\_\_\_

3. In an ideal situation, would you have preferred to keep this patient in the ICU longer before accepting him/her?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

4. Was the acceptance of this patient contingent on him/her being admitted to a specific ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

5. Did you or a member of your team assess this patient **while he/she was in the ICU?**

- ☐ Yes
- ☐ No

6. Did you or a member of your team speak with this patient and/or his/her family about the transfer **while he/she was in the ICU?**

- ☐ Yes
- ☐ No

7. Who was your **primary contact** in the ICU during this patient’s transfer of care? Please select **one**.

- ☐ ICU attending physician
- ☐ ICU fellow/resident
- ☐ ICU outreach team/liaison
- ☐ ICU bedside nurse
- ☐ Consulting colleague
- ☐ Other (please specify): \_\_\_\_\_
- ☐ I did not speak with anyone
- ☐ I did not have a primary contact

8. How did you or a member of your team communicate with your **primary contact**? Please select all that apply.

- ☐ Verbal communication over the telephone
- ☐ Face-to-face communication
- ☐ Written communication (e.g. discharge summary in paper or electronic chart)
- ☐ Electronic communication (e.g. email, text message, etc.)
- ☐ Other (please specify): \_\_\_\_\_

9. What was communicated to you about this patient? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ Current list of problems
- ☐ Current treatment plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/patient resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural issues
- ☐ Family involvement/issues
- ☐ Other (please specify): \_\_\_\_\_

10. When was the above information communicated to you? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on this ward
- ☐ Not sure

11. How much information did you receive to support proper care for this patient?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

12. If you did not receive all of the necessary information, what was missing?

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13. How would you rate the quality of communication between yourself and the ICU team regarding this patient’s transfer?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Fair
- ☐ Poor

14. Were you notified when this patient arrived on the ward?

- ☐ Yes
- ☐ No

15. After this patient arrived on this ward, when was he/she assessed by a member of your team?

- ☐ Within the first hour
- ☐ Within 1-4 hours
- ☐ After 4 hours of arriving on this ward but on the same day
- ☐ More than 1 day after arriving on this ward
- ☐ Not sure

16. How would you rate your workload at the time this patient arrived on this hospital ward?

- ☐ Very high
- ☐ Somewhat high
- ☐ Neither high nor low
- ☐ Somewhat low
- ☐ Very low

17. Did you or a member of your team review goals of care/resuscitation status with this patient and/or the family before the patient was transferred to this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

18. In your opinion, during the remainder of this patient's hospital stay, what is his/her risk of:

Experiencing an adverse event:

- ☐ Very high risk
- ☐ Somewhat high risk
- ☐ Neither high nor low risk
- ☐ Somewhat low risk
- ☐ Very low risk

Readmission to ICU:

- ☐ Very high risk
- ☐ Somewhat high risk
- ☐ Neither high nor low risk
- ☐ Somewhat low risk
- ☐ Very low risk

Death:

- ☐ Very high risk
- ☐ Somewhat high risk
- ☐ Neither high nor low risk
- ☐ Somewhat low risk
- ☐ Very low risk
- ☐ N/A (this patient was transferred out to die)

19. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to this hospital ward?

- ☐ Yes (please specify the name of the tool): \_\_\_\_\_
- ☐ No

20. Overall, how would you rate the transfer of care for this patient?

- ☐ 1 – The transfer went exceptionally well
- ☐ 2
- ☐ 3 – The transfer was average
- ☐ 4
- ☐ 5 – The transfer was unacceptable

21. Do you have any recommendations for how the transfer of care from the ICU to this hospital ward could have been improved for **this patient**?

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22. Do you have any additional comments regarding the transfer of care of **this patient**?

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Demographics

23. What is your level of medical training?

☐ Attending (please specify number of years of independent practice): \_\_\_\_\_

☐ Fellow

☐ Resident

☐ Other (please specify): \_\_\_\_\_

Follow up

24. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

☐ Yes

☐ No

If **yes**, please provide your contact information:

☐ Name: \_\_\_\_\_

☐ Phone number/email: \_\_\_\_\_

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.



## Ward Nurse Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

**Your participation is voluntary and all the information you provide will be kept confidential.** The survey has full ethics approval (REB13-0022) and your participation implies consent. Your responses will help us to improve care for critically ill patients. **This survey takes about 2 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

Please consider the transfer of your recent patient:

1. How involved did you feel in the process of deciding to accept this patient to this hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

2. From your perspective, what factors were considered when deciding that this patient was ready for transfer to a hospital ward? Please select all that apply.

- ☐ Age
- ☐ Severity of acute illness
- ☐ Comorbidities
- ☐ Diagnosis
- ☐ Type, number and duration of time that life support technologies used
- ☐ Duration of time since life support technologies were discontinued
- ☐ Adverse events experienced
- ☐ Frailty status (i.e. how frail)
- ☐ Physiological reserve
- ☐ Clinical course
- ☐ Amount of respiratory support (oxygen, suctioning, non-invasive ventilation) required by this patient
- ☐ Specialization of the receiving medical team (to match patient diagnosis/needs)
- ☐ Specialization of the receiving unit (to match patient diagnosis/needs)
- ☐ Time of day/day of week
- ☐ Shortage of ICU beds
- ☐ Goals of care/resuscitation status
- ☐ Amount of nursing care required for this patient
- ☐ Level of patient consciousness
- ☐ Results from a clinical prediction tool (please specify the name of the tool): \_\_\_\_\_
- ☐ Presence of a tracheostomy
- ☐ Patient mobility
- ☐ Family/patient input
- ☐ Other (please specify): \_\_\_\_\_
- ☐ Not Sure

3. In an ideal situation, would you have preferred to keep this patient in the ICU longer before accepting him/her?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

4. Who was your **primary contact** during this patient's transfer of care? Please select **one**.

- ☐ ICU bedside nurse
- ☐ Covering/other ICU nurse
- ☐ ICU charge nurse
- ☐ Respiratory therapist
- ☐ Physiotherapist
- ☐ ICU outreach team
- ☐ Admitting physician/medical team
- ☐ Other (please specify): \_\_\_\_\_

5. How did you communicate with your **primary contact**? Please select all that apply.

- ☐ Verbal communication over the telephone
- ☐ Face-to-face communication
- ☐ Written communication (e.g. discharge summary in paper or electronic chart)
- ☐ Electronic communication (e.g. email, text message etc.)
- ☐ Other (please specify): \_\_\_\_\_

6. What information did you receive from your **primary contact**? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ List of ongoing issues/concerns
- ☐ Current treatment plan
- ☐ Care plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/patient resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural/spiritual issues
- ☐ Family involvement/issues
- ☐ Nursing support for activities of daily living (i.e. self-care)
- ☐ Hospital discharge plan
- ☐ Other (please specify): \_\_\_\_\_

7. When was the above information communicated to you? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on this ward
- ☐ Not sure

8. How was your communication with your **primary contact** structured?

- ☐ A system-by-system discussion of this patient’s needs (i.e. head to toe assessment)
- ☐ Pertinent information was discussed in order of priority
- ☐ Unstructured narrative
- ☐ Other (please specify): \_\_\_\_\_

9. How much information did you receive to support proper care of this patient?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

10. If you did not receive all of the necessary information, what was missing?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. Who else did you communicate with when accepting care of this patient?

- ☐ ICU bedside nurse
- ☐ Covering/other ICU nurse
- ☐ ICU charge nurse
- ☐ Respiratory therapist
- ☐ Physiotherapist
- ☐ ICU outreach team
- ☐ Admitting physician/medical team
- ☐ Occupational therapist
- ☐ Speech therapist
- ☐ Pharmacist
- ☐ Other (please specify): \_\_\_\_\_

12. How would you rate the quality of communication between yourself and the ICU team regarding **this patient's** transfer from the ICU to the hospital ward?

- ☐ Excellent  
☐ Good  
☐ Average  
☐ Fair  
☐ Poor

13. Who accompanied this patient to the ward? Please select all that apply.

- ☐ ICU nurse  
☐ Ward nurse  
☐ ICU outreach team/liaison  
☐ Nursing attendant  
☐ Porter  
☐ Admitting physician/team  
☐ ICU physician  
☐ Ward physician  
☐ Respiratory therapist  
☐ Other (please specify): \_\_\_\_\_  
☐ Not sure

14. Were you notified when this patient arrived on this ward?

- ☐ Yes  
☐ No  
☐ Not sure

15. Including this patient, what was your nurse-to-patient ratio when this patient arrived on the ward?

- ☐ 1:1  
☐ 1:2  
☐ 1:3  
☐ 1:4  
☐ 1:5  
☐ 1:6  
☐ 1:7  
☐ 1:8  
☐ Other (please specify): \_\_\_\_\_

16. How would you rate your workload at the time this patient arrived on this hospital ward?

- ☐ Very high
- ☐ Somewhat high
- ☐ Neither high nor low
- ☐ Somewhat low
- ☐ Very low

17. Were you able to fully examine this patient within the first hour that he/she arrived on this hospital ward?

- ☐ Yes
- ☐ No (please explain why): \_\_\_\_\_

18. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to this hospital ward?

- ☐ Yes (please specify the name of the tool): \_\_\_\_\_
- ☐ No

19. Overall, how would you rate the transfer of care for this patient?

- ☐ 1 – The transfer went exceptionally well
- ☐ 2
- ☐ 3 – The transfer was average
- ☐ 4
- ☐ 5 – The transfer was unacceptable

20. Do you have any recommendations for how the transfer of care from the ICU to the hospital ward could have been improved for **this patient**?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

21. Do you have any additional comments regarding the transfer of care of **this patient**?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

22. How often have **you** accepted care of a patient transferred from the ICU?

- ☐ Once  
☐ 2-5 times  
☐ 6-10 times  
☐ More than 10 times

### Demographics

23. Which of the following most accurately describes your professional designation?

- ☐ Nurse practitioner  
☐ RN  
☐ LPN  
☐ (Clinical) Nurse Educator  
☐ Other (please specify): \_\_\_\_\_

24. What is your relationship to this patient?

- ☐ Bedside nurse (RN)  
☐ Bedside nurse (RPN)  
☐ Nurse practitioner  
☐ Nurse clinician/charge nurse  
☐ Other (please specify): \_\_\_\_\_

### Follow up

25. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

- ☐ Yes  
☐ No

If **yes**, please provide your contact information:

- ☐ Name: \_\_\_\_\_  
☐ Phone number/email: \_\_\_\_\_

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

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### Hospital Survey

(Please fill in one survey for each ICU where you will collect data)

1. Please enter the name of the hospital:

2. What type of hospital is this?

Tertiary Care Hospital

Community Hospital

Other

If other, please specify:

3. How many acute care beds are in this hospital?

Beds

4. In 2013, how many patients were admitted to this hospital (excluding patients discharged from ER and outpatient visits)?

Patients

5. Are there any high dependency/step down (i.e. intermediate care) units in this hospital?

Yes

No

Not sure

6. Does this hospital regularly host residents (i.e. teaching units)?

Yes

No

7. How would you classify the study ICU in this hospital? Please select all that apply.

Medical

Surgical

Trauma

Neurological

Burn

Other

If other, please specify:

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Page 1

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8. Does the study ICU use an open or closed model of care? ☐ Open: physicians direct care of individual patients with the assistance of ICU staff
- ☐ Closed: patient care is primarily directed by ICU physicians
- ☐ Mixed: patient care is jointly directed by ICU and non-ICU physicians
- ☐ Other

If other, please specify:

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9. How many critical care beds are in the study ICU?  Beds

10. How many of the above beds are available for patient care?  Beds

11. In 2013, how many patients were admitted to this study ICU?  Patients

12. Please indicate how the following documents are recorded in this study ICU's health record system (please select all that apply):

	Paper Based	Electronic	Both
a) Laboratory values:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Physician orders:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Physician notes (admission, progress, consultation, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Nursing notes:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Allied health professional notes (respiratory therapists, physiotherapists, dieticians, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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13. Please indicate how the following documents are recorded in the **WARD** health record system used in this hospital (please select all that apply):

	Paper Based	Electronic	Both
a) Laboratory values:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Physician orders:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Physician notes (admission, progress, consultation, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Nursing notes:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Allied health professional notes (respiratory therapists, physiotherapists, dieticians, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Does your hospital use the same electronic record system in both the study ICU and ward?

☐ Yes

☐ No - but the ICU and ward providers can access both systems

☐ No - ICU providers access the ICU system, ward providers access the ward system

☐ Not applicable - neither the ICU nor ward use an electronic record system

☐ Other

If other, please specify:

15. Which of the following tools and/or procedures does this hospital employ during patient discharge from ICU to a hospital ward? Please select all that apply.

- |  |   |
|--|---|
| <input type="checkbox"/> Education program to train providers on how to discharge patients   | <input type="checkbox"/> Standard procedure to minimize delays once patient is ready for discharge  |
| <input type="checkbox"/> Guideline or policy to standardize patient discharge  | <input type="checkbox"/> Standard procedure to reconcile patient goals of care (i.e. confirm goals of care at time of discharge)                        |
| <input type="checkbox"/> Triage protocol to identify patients with the greatest need for ICU care  | <input type="checkbox"/> Standard procedure to reconcile medications  |
| <input type="checkbox"/> A risk stratification tool to identify patients ready for discharge   | <input type="checkbox"/> Standard procedure to provide the receiving team with a summary of the patient's medical problems, care received and care plan |
| <input type="checkbox"/> Standard procedure to identify receiving team and discharge location  | <input type="checkbox"/> Standard procedure for handing off responsibility of care from ICU to the hospital ward  |
| <input type="checkbox"/> Standard procedure to determine the best day of week and time of day for discharge  | <input type="checkbox"/> Standard procedure for follow-up of patients following discharge   |
| <input type="checkbox"/> Standard procedure to activate patient and family support systems   | <input type="checkbox"/> Standard procedure for checking that all necessary steps are completed (i.e. checklist)  |
| <input type="checkbox"/> Standard procedure to inform patients and families of discharge planning  |   |
| <input type="checkbox"/> Standard procedure to introduce patients and families to receiving teams  |   |
| <input type="checkbox"/> A tool to measure patient, family, and/or provider anxiety related to discharge   |   |
| <input type="checkbox"/> Standard procedure to inform patients and families about care received, care planned, discharge process and discharge locations |   |

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16. Please indicate which measures this study ICU routinely collects regarding quality assurance activities for patient transfer from ICU? Please select all that apply.

- ☐ Measure adverse events related to discharge
- ☐ Measure Medical Emergency Team (MET) activation to 'rescue patients' after discharge
- ☐ Measure readmission of patients to the ICU
- ☐ Measure patient mortality after discharge from ICU
- ☐ Measure patient, family, and/or provider satisfaction with ICU discharge
- ☐ Other
- ☐ None

If other, please specify:

17. What type of critical care transition programs are offered by this hospital? Please select all that apply.

- ☐ Outreach team/MET team/other team
- ☐ Follow up by Nurse Liaison
- ☐ Follow up by Physicians
- ☐ Follow up by Nurses
- ☐ Follow up by Respiratory Therapists
- ☐ Follow up by Pharmacists
- ☐ Follow up by Social Workers
- ☐ Other
- ☐ None

If other, please specify:

18. Please indicate all those responsible for planning patient discharge from the study ICU to the hospital ward (including providers licensed for independent practice and trainees):

☐  
☐  
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ICU Physician  
 Ward Physician  
 ICU Nurse  
 Ward Nurse  
 Critical Care Transition Team  
 ICU Respiratory Therapist  
 Ward Respiratory Therapist  
 ICU Physiotherapist

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Ward Physiotherapist  
 ICU Occupational Therapist  
 Ward Occupational Therapist  
 ICU Speech Therapist  
 Ward Speech Therapist  
 ICU Pharmacist  
 Ward Pharmacist  
 Other

If other, please specify:

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19. Please indicate what communication tools are used to support families and patients during the ICU discharge process. Please select all those that are used.

☐  
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Brochures  
 Videos  
 Websites  
 Support groups  
 Other  
 None

If other, please specify:

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20. How is patient information commonly transferred from the study ICU to the hospital ward? Please select all that apply.

☐  
☐  
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☐

Face-to-face handover between providers  
 Telephone handover between providers  
 Written handover between providers  
 Electronic handover between providers  
 Other

If other, please specify:

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**Thank you for completing this survey!**

Patient / Family Interview Guide (Descriptive Phase)

INTRODUCTIONS and OVERVIEW

- Interviewer introduces him/herself (name, position, affiliations, professionals roles and responsibilities, and interests.)
- Participant introduces him/herself (name, where from).
- Explain the purpose of the project and thank them for participating.
  - Transitions of patient care between healthcare providers is identified as an important process of patient care
  - Today I would like to discuss your [your family member’s] recent experience with transfer from the intensive care unit to the hospital ward.
- I will ask you to reflect on your [your family member’s] recent transfer from the intensive care unit to hospital ward. I am interested to know about what worked well and what did not work well with regards to the transfer. You may not want to reveal the exact nature of the admission to the intensive care unit and that is OK. Primarily I am interested in identifying patient and family member experiences with the transfer experience. I am hoping that you will be able to explain what is important and meaningful regarding patient transfer from your experience.
- From these interviews we will to document a list of criteria that you and other people who participate in these interviews feel should be components of a standard practice for transferring patients from the intensive care unit to a hospital ward. From this list of criteria we plan to develop a tool to help make sure the needs of patients are met during transfer. This tool may become a standard that is used across Canada.
- During our interview today I will ask you to suggest criteria that you believe should always be available or included when a patient is transferred from the intensive care unit to a hospital ward.
- For each topic that we discuss, I will summarize the key criteria that you talk about to confirm that I understand correctly.
- This interview will take approximately 45 minutes. I hope that you will allow me to record our conversation today. Recording the interview allows me to be more attentive to our conversation and it also allows me to create a written record of the exact conversation, which I can return to in order to be certain that I have understood the conversation correctly. When we are finished this interview I will assign a participant ID to the transcript and all of your identifying information will be removed. Your responses will be kept confidential. I will give you some time to read the consent form and I am happy to answer any questions you may have about it or the study. Once you are comfortable, please sign the form and we can begin. Your participation is voluntary and you can remove yourself from the study at any time.

(Participant reviews and signs consent form)

- Before we begin, do you have any questions?

## CLINICAL CONTEXT/PERCEPTIONS

1. Please think back to your experience [the experience of your family member] when you [he/she] was transferred from the intensive care unit to the hospital. Please tell me about the experience.

Prompts:

- a. What happened before the transfer (in the ICU)?
- b. What happened during the transfer?
- c. What happened after the transfer (on the ward)?
- d. What made it a good experience?
- e. What made it a bad experience?
- f. How did this experience [transfer from ICU to hospital ward] compare to other hospital experiences you [your family member] has had
  - a. Why?
  - b. How?
- g. Did you have any concerns during the transfer experience?
  - a. How were they addressed?
- h. How did the care you [your family member] received while you [your family member] were in the intensive care unit differ from the care you [your family member] received on the hospital ward?

(Recap discussion)

## DECISION MAKING

2. Please think about the moment when you learned that you [your family member] were/was going to be transferred from the ICU to the hospital ward.

Prompts:

- a. Were you involved in the decision making process?
- b. How did you learn about the transfer?
- c. How did you feel about the transfer?
- d. Did you feel that you [your family member] was ready for the transfer?

(Recap discussion)

## COMMUNICATION / PATIENT-PROVIDER RELATIONSHIP

3. Please think about the information you were given from the medical team about the transfer from the intensive care unit to the hospital ward.

Prompts:

- a. Please tell us about the information you were provided with.
  - a. What information was provided to you while you [your family member] was in the ICU?
  - b. What information was provided to you while you [your family member] was on the ward
  - c. How was information provided to you?
    - i. In the ICU

- ii. On the ward
  - d. Was the way information was provided to you useful?
    - i. In the ICU
    - ii. On the ward
- b. Did you get the information you needed?
  - a. In the ICU?
  - b. On the ward?
  - c. What other information did you need?

(Recap discussion)

**AFTER TRANSFER TO THE WARD**

- 4. Please think about what it was like when you [your family member] first arrived on the ward.

Prompts:

- a. Did you [your family member] get an orientation to the ward?
  - i. Was it useful to you?
  - ii. What else did you need to know about the ward?
  - iii. What happened when you [your family member] got to the ward?
- b. Did you develop a relationship with care providers on the ward?
  - i. How were these relationship?
  - ii. How did these relationships compare to relationships you developed while you were in the ICU?
- c. Was there any harmful event or error that occurred in your [your family member's care] after you [he/she] arrived on the ward?
  - i. What was the nature of this event?

(Recap discussion)

**QUESTIONS / CONCLUSION**

To wrap up here are the major things that we discussed today.

(Recap all of the discussions)

- 5. Of all of the things we talked about today please identify for me what you would consider the three most important things that could improve patient transfer from ICU to hospital ward.

Prompts

- a. Why did you choose these three things?
- Ask if there are any questions about the research project, this interview, or what happens next
- Thanks the participant again for participating.

## Provider Interview Guide (Descriptive Phase)

### INTRODUCTIONS and OVERVIEW

- Interviewer introduces him/herself (name, position, affiliations, professional roles and responsibilities, and interests.)
- Participant introduces him/herself (name, where from).
- Thank you, [NAME] for making the time in your busy schedule to meet with me today. I appreciate your participation in an interview to learn about your experience with the transfer of patients from the Intensive Care Unit to a hospital ward.
- This interview will take approximately 30 minutes. I hope you will permit me to record our conversation today. Recording the interview allows me to be more attentive to our conversation and it also allows me to create a written record of the exact conversation, which I can return to in order to be certain that I have understood the conversation correctly. When we are finished this interview I will assign a participant ID to your transcript and all of your identifying information will be removed. Your responses will be kept confidential. I will give you some time to read the consent form and I am happy to answer any questions you may have about it or the study. Once you are comfortable, please sign the form and we can begin. Your participation is voluntary and you can remove yourself from the study at any time.

(Participant reviews and signs consent form)

- Before we begin, do you have any questions?

### CLINICAL EXPERIENCE WITH PATIENT DISCHARGE

1. Can you describe to me a recent experience you had when a patient was transferred from the intensive care unit to a hospital ward?

Prompts:

- a. What happened during the transfer?
  - i. In your opinion, was this a typical transfer from the intensive care unit to hospital ward?
  - ii. How were you involved in the decision that the patient was ready for transfer from intensive care unit to hospital ward?
  - iii. In your opinion, was this patient ready to be transferred from the intensive care unit to the hospital ward?
- b. Can you tell me what a typical transfer from the intensive care unit to hospital ward is like?
- c. From your experience, what works with the current process of transferring patients from the intensive care unit to a hospital ward?
- d. From your experience, what does not work?

**COMMUNICATION BETWEEN PROVIDERS**

2. I would like to ask you about communication during the transfer process. Can you describe to me what you as a [PHYSICIAN / NURSE] needs to communicate in order to transfer [ACCEPT] patient care from the intensive care unit to a hospital ward?

Prompts:

- a. What information do you think is pertinent to follow the patient from the intensive care unit to the hospital ward?
  - i. What is the best way to convey this information?
- b. How do you as a [PHYSICIAN/ NURSE] transfer [RECEIVE] information about patient care to [FROM] the other provider?
  - i. Who do you normally communicate with?
  - ii. How is communication normally done?
  - iii. Is there normally face-to-face communication
    - i. Why? Why not? What constrains face-to-face communication
    - ii. Is face-to-face communication effective?
  - iv. Is information exchanged electronically?
    - i. How so?
    - ii. Is it effective?
  - v. Is information exchanged through paper patient records?
    - i. Is it effective?
  - vi. How could communication be better?
- c. Does your [INTENSIVE CARE UNIT / WARD] use guidelines, protocols or checklists to assist with transferring patients from the intensive care unit to a hospital ward?
  - i. Please describe these tools.
  - ii. Are these tools electronic or paper?
  - iii. Are these tools effective?
    - i. Why?
    - ii. Why not?

**COMMUNICATION WITH PATIENTS / FAMILIES**

3. Please think back to your recent experience when you were involved with the transfer of a patient from the intensive care unit to hospital ward. How was the family involved with the transfer process?

Prompts:

- a. What was communicated to the patient and/or family regarding the transfer?
  - i. Who provided this communication?
  - ii. How was it provided?
  - iii. Were you involved in this communication
- b. What could make communication with patients and families better with regards to transfers from intensive care unit to hospital ward?

## SYSTEM FACTORS AS FACILITATORS AND BARRIERS

4. From your experience, what are important system-level factors that influence patient transfer from intensive care unit to hospital ward?

### Prompts:

- a. What are barriers to good transfers between the intensive care unit and hospital ward?
- b. What could be done to make transfers from the intensive care unit to hospital ward better at your hospital?
- c. What could be done to make transfers better from the intensive care unit to hospital wards within the system (region/province) that your hospital works in?

## DEVELOPMENT OF A TOOL

5. Of all of the things we talked about today please identify for me what you would consider the three most important things that could improve patient transfer from ICU to hospital ward.

### Prompts

- a. Why did you choose these three things?
- b. How would you rate these in order of importance?
- c. Why are these important?

## QUESTIONS / CONSLUSIONS

- These are all the questions I have for you. Do you have any questions for me about the research project or interview?
- Is there anything you would like to add in light of what we have been talking about?
- Is there anything you thought I would ask but did not, or anything else that you think is important for us to consider?
- Thank you for your input and participation in this interview. We appreciate that you took the time to talk to us.

Case Report Form

Unique patient ID number: \_\_\_\_\_

Demographics

a) Age:

years old

b) Sex:

Male

Female

c) Height:

cm

d) Weight at ICU admission:

kg

Pre Intensive Care Unit (ICU) Information

a) Hospital admit date (current hospitalization):

Y Y

M M

D D

b) What was the category of hospital admitting diagnosis for this patient:

Respiratory

Cardiovascular

Gastrointestinal

Neurological (including eyes)

Trauma

Poisoning

Genito-urinary

Endocrine, Metabolic, Thermoregulation and Poisoning

Haematological/Immunological

Musculoskeletal

Dermatological

Psychiatric

Version 2 - October 28, 2014

1

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<p>c) What was the specific diagnosis?</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>d) Location before ICU admission:</p>	<p><input type="checkbox"/> Emergency Department (ED)</p> <p><input type="checkbox"/> High dependency unit/step down (intermediate care) unit</p> <p><input type="checkbox"/> OR/Recovery</p> <p><input type="checkbox"/> Ward</p> <p><input type="checkbox"/> Other hospital (any location in another hospital)</p> <p><input type="checkbox"/> Other ICU (within this hospital)</p> <p><input type="checkbox"/> Other</p> <p>If other, please specify:</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>e) Did this patient receive surgery (during this hospital admission) prior to ICU admission?</p>	<p><input type="checkbox"/> No surgery</p> <p><input type="checkbox"/> Elective surgery</p> <p><input type="checkbox"/> Emergency surgery</p>
<p>f) Was this patient admitted to the ICU after resuscitation from cardiopulmonary arrest (ie. code)?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
<p>g) Was this patient admitted to the ICU after Medical Emergency Team (MET) activation?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
<p>h) Was this patient previously admitted to an ICU during this current hospital stay?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
<p>i) If yes, what was the discharge date from the previous ICU admission?</p>	<p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>Y Y M M D D</p>

Current ICU Admission	
a) ICU admit date:	<div><div><div></div><div></div></div><div>Y Y</div></div> <div><div><div></div><div></div></div><div>M M</div></div> <div><div><div></div><div></div></div><div>D D</div></div>
b) What was the category of hospital admitting diagnosis for this patient:	<div><div><input type="checkbox"/> Respiratory</div><div><input type="checkbox"/> Cardiovascular</div><div><input type="checkbox"/> Gastrointestinal</div><div><input type="checkbox"/> Neurological (including eyes)</div><div><input type="checkbox"/> Trauma</div><div><input type="checkbox"/> Poisoning</div><div><input type="checkbox"/> Genito-urinary</div><div><input type="checkbox"/> Endocrine, Metabolic, Thermoregulation and Poisoning</div><div><input type="checkbox"/> Haematological/Immunological</div><div><input type="checkbox"/> Musculoskeletal</div><div><input type="checkbox"/> Dermatological</div><div><input type="checkbox"/> Psychiatric</div></div>
c) What was the specific diagnosis?	<div><div></div><div></div><div></div><div></div></div>
d) Was this a scheduled or unscheduled admission to the ICU?	<div><div><input type="checkbox"/> Scheduled (ie. planned admission, post surgery or procedure)</div><div><input type="checkbox"/> Unscheduled (ie. not planned in advance)</div></div>
e) SOFA score at ICU admission:	<div><div></div></div>
f) Glasgow Coma Scale (GCS) at ICU admission:	<div><div></div></div>
g) APACHE II score at ICU admission:	<div><div></div></div>

**Comorbidities**

a) Pre-existing comorbidities (ie. prior to hospitalization):

- ☐ Alcohol abuse
- ☐ Anemia
- ☐ Cerebrovascular disease
- ☐ Chronic pulmonary disease
- ☐ Coagulopathy
- ☐ Congestive heart failure
- ☐ Connective tissue disease
- ☐ Dementia
- ☐ Depression
- ☐ Diabetes (without end-organ damage)
- ☐ Diabetes (with end-organ damage)
- ☐ Drug abuse
- ☐ Fluid/electrolyte disorder
- ☐ Hemiplegia
- ☐ HIV/AIDS
- ☐ Hypertension
- ☐ Liver disease (mild; without portal hypertension, includes chronic hepatitis)
- ☐ Leukemia
- ☐ Lymphoma
- ☐ Metastatic solid tumor
- ☐ Myocardial infarction
- ☐ Obesity
- ☐ Peptic ulcer disease (no bleed)
- ☐ Peripheral vascular disease
- ☐ Renal Disease (moderate to severe)
- ☐ Thrombophilia
- ☐ Tumor (without metastasis (exclude if diagnosis made >5 years ago))
- ☐ Other(s)

Please list all other major comorbidities:

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Advanced Respiratory Support During ICU Stay		
a) During this patient's ICU stay was the patient mechanically ventilated? Please select all that apply. (If no, please move onto next section - 'Advanced Cardiac Support During ICU Stay')	<div><input type="checkbox"/> Invasive mechanical ventilation</div> <div><input type="checkbox"/> Non-invasive mechanical ventilation</div> <div><input type="checkbox"/> No mechanical ventilation</div>	
b) If this patient was mechanically ventilated (invasive or non-invasive), what was the first date and time of mechanical ventilation?	<div><div><div></div><div></div></div>Y<div><div></div><div></div></div>Y<div><div></div><div></div></div>M<div><div></div><div></div></div>M<div><div></div><div></div></div>D<div><div></div><div></div></div>D</div> <div>Time (H:M) _____ AM or PM</div>	
c) Please provide the date and time of final liberation from mechanical ventilation:	<div><div><div></div><div></div></div>Y<div><div></div><div></div></div>Y<div><div></div><div></div></div>M<div><div></div><div></div></div>M<div><div></div><div></div></div>D<div><div></div><div></div></div>D</div> <div>Time (H:M) _____ AM or PM</div>	
d) What is the total number of calendar days (or portion of calendar days) that the patient received mechanical ventilation?	<div><div></div>Days</div>	
e) In the ICU, did the patient need to be re-intubated?	<div><div><input type="checkbox"/> Yes</div><div><input type="checkbox"/> No</div></div>	
f) Did the patient receive a tracheostomy while he/she was in the ICU?	<div><div><input type="checkbox"/> Yes</div><div><input type="checkbox"/> No</div></div>	
Advanced Cardiac Support During ICU Stay		
a) While this patient was in ICU, were vasopressors or inotropes used? (If no, please move onto next section - 'Advanced Kidney Support During ICU Stay')	<div><div><input type="checkbox"/> Yes</div><div><input type="checkbox"/> No</div></div>	

b) What was the first date and time that vasopressors or inotropes were administered for this patient:	<div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> Y Y</div> <div><input type="text"/> <input type="text"/> M M</div> <div><input type="text"/> <input type="text"/> D D</div> </div> <div style="margin-top: 10px;">           Time (H:M) _____ AM or PM         </div>
c) What was the last date and time that vasopressors or inotropes were administered for this patient:	<div style="display: flex; justify-content: space-around;"> <div><input type="text"/> <input type="text"/> Y Y</div> <div><input type="text"/> <input type="text"/> M M</div> <div><input type="text"/> <input type="text"/> D D</div> </div> <div style="margin-top: 10px;">           Time (H:M) _____ AM or PM         </div>
d) What is the total number of calendar days (or portion of calendar days) that vasopressors or inotropes were administered for this patient?	<input style="width: 50px;" type="text"/> days
e) Please indicate the type of vasopressors or inotropes administered to this patient:	<div style="display: flex; flex-direction: column;"> <div><input type="checkbox"/> Norepinephrine</div> <div><input type="checkbox"/> Epinephrine</div> <div><input type="checkbox"/> Vasopressin</div> <div><input type="checkbox"/> Phenylephrine</div> <div><input type="checkbox"/> Dopamine</div> <div><input type="checkbox"/> Dobutamine</div> <div><input type="checkbox"/> Milrinone</div> </div>
<b>Advanced Kidney Support During ICU Stay</b>	
a) While this patient was in ICU, did he/she have Acute Renal Failure (ARF)?	<div style="display: flex; align-items: center;"> <input style="width: 20px; height: 20px;" type="checkbox"/> Yes  <input style="width: 20px; height: 20px;" type="checkbox"/> No         </div>
b) Did the patient receive any form of renal replacement therapy while in ICU? (If no, please move onto next section - 'Delirium')	<div style="display: flex; align-items: center;"> <input style="width: 20px; height: 20px;" type="checkbox"/> Yes  <input style="width: 20px; height: 20px;" type="checkbox"/> No         </div>
c) Was the patient a pre-existing dialysis patient?	<div style="display: flex; align-items: center;"> <input style="width: 20px; height: 20px;" type="checkbox"/> Yes  <input style="width: 20px; height: 20px;" type="checkbox"/> No         </div>

d) Type of dialysis received (please select all that apply):	<input type="checkbox"/> Intermittent Hemodialysis <input type="checkbox"/> Peritoneal Dialysis <input type="checkbox"/> Continuous Renal Replacement Therapy												
e) On which date was dialysis first received in the ICU?	<table border="0"><tr><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr><tr><td>Y</td><td>Y</td><td>M</td><td>M</td><td>D</td><td>D</td></tr></table>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Y	Y	M	M	D	D
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>								
Y	Y	M	M	D	D								
f) Was the patient still being prescribed dialysis after he/she left the ICU?	<input type="checkbox"/> Yes <input type="checkbox"/> No												
<b>Delirium</b>													
a) Was this patient diagnosed with delirium during his/her ICU stay?	<input type="checkbox"/> Yes <input type="checkbox"/> No												
<b>Code Status</b>													
a) On the day of transfer from ICU to the hospital ward, what was the Level of Care (Code Status) for this patient?	<input type="checkbox"/> Resuscitation - patient eligible to receive resuscitation in the event of cardiac arrest <input type="checkbox"/> ICU Care - patient eligible to be readmitted to ICU and receive ICU level care but not resuscitation in the event of cardiac arrest <input type="checkbox"/> Medical Care - patient eligible to receive medical/surgical care, but not admission to ICU <input type="checkbox"/> Comfort Care - patient eligible to receive care focused on comfort and dignity at the end of life <input type="checkbox"/> Not recorded												
b) Is there documentation in this patients chart that the Level of Care (Code Status) for this patient was reviewed with the patient/family while the patient was in the ICU?	<input type="checkbox"/> Yes <input type="checkbox"/> No												

c) If yes, what was the date when the Level of Care (Code Status) was documented to have been reviewed with the patient/family while the patient was in the ICU?

Y Y M M D D

Time (H:M) \_\_\_\_\_ AM or PM

### Family Meetings

a) Is there documentation in this patients chart that a family consultation (ie. family meeting) occurred while the patient was in the ICU?

☐ Yes  
☐ No

b) If yes, what was the date and time of the last documented family consult while the patient was in the ICU?

Y Y M M D D

Time (H:M) \_\_\_\_\_ AM or PM

### Transfer from ICU to Hospital Ward

a) Date and time patient was put up for transfer from ICU to hospital ward (ie. transfer of care request by the ICU team to a hospital ward team):

Y Y M M D D

Time (H:M) \_\_\_\_\_ AM or PM

b) Date and time of actual ICU discharge to hospital ward (ie. when patient left ICU):

Y Y M M D D

\_\_\_\_\_ AM or PM

c) Date and time transfer orders were written:

Y Y M M D D

Time (H:M) \_\_\_\_\_ AM or PM

d) What was the date and time that the ICU discharge summary or transfer note was recorded in the patient's chart (paper or electronic)?

Y Y

M M

D D

Time (H:M) \_\_\_\_\_ AM or PM

e) At 9AM on the day this patient was transferred from ICU to the hospital ward, how many beds were occupied in this ICU?

Beds

f) SOFA score at time of transfer from ICU to hospital ward

\_\_\_\_\_

g) APACHE II score at time of transfer from ICU to hospital ward:

\_\_\_\_\_

h) Is the ward (bed) this patient was transferred to a high dependency or step-down (intermediate care) ward (bed)?

Yes

No

i) Are there any tools in the chart that relate to the transfer of this patient from ICU to the hospital ward? (examples below)

Yes

No

j) If yes, which of the following tools are in the chart that were used to transfer this patient from ICU to the hospital ward?

Checklist

Discharge/Transfer Summary

Medication Reconciliation Tool

Patient and/or family information brochure/sheet

Risk Stratification Tool (calculates risk of re-admission or death post transfer)

Other

If other tools were used, please specify:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Outcomes	
a) Patient status at time of hospital discharge:	<input type="checkbox"/> Alive <input type="checkbox"/> Dead
b) Location of patient following hospital discharge (if alive):	<input type="checkbox"/> Home <input type="checkbox"/> Assisted Living <input type="checkbox"/> Long Term Care Home (LTCH) <input type="checkbox"/> Rehab <input type="checkbox"/> Other  If other, please specify: _____ _____ _____
c) Did the patient have a MET activation after ICU discharge?	<input type="checkbox"/> Yes <input type="checkbox"/> No
d) If yes, what was the date of the first MET activation?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Y Y M M D D
e) Did the patient have cardiac arrest (code) after ICU discharge?	<input type="checkbox"/> Yes <input type="checkbox"/> No
f) If yes, what was the date of the first cardiac arrest?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Y Y M M D D
g) Was the patient readmitted to the ICU after ICU discharge?	<input type="checkbox"/> Yes <input type="checkbox"/> No
h) If yes, please provide the date of readmission (first readmission if more than one) to the ICU during the same hospital stay:	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Y Y M M D D
i) Please provide the date of hospital discharge:	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Y Y M M D D

APACHE SCORE AT ICU ADMISSION																							
Physiologic Variable	Actual Score	High Abnormal Range						Normal				Low Abnormal Range				Acute Physiologic Score (APS)							
		+4	+3	+2	+1	0	+1	+2	+3	+4	Score	Score											
Temperature (Rectal/Core) Oral: add 0.5°C Axilla: add 1.0°C		≥ 41	39-40.9		38.5-38.9	36-38.4	34-35.9	32-33.9	30-31.9	≤ 29.9													
Mean Arterial Pressure (mmHg)		≥ 160	130-159	110-129		70-109		50-69		≤ 49													
Heart Rate		≥ 180	140-179	110-139		70-109		55-69	40-54	≤ 39													
Respiratory Rate (Ventilated or non-ventilated)		≥ 50	35-49		25-34	12-24	10-11	6-9		≤ 5													
Oxygenation a) $FI_{O_2} \geq .5$ , record AaDO <sub>2</sub> b) $FI_{O_2} < .5$ , record only PaO <sub>2</sub>		≥ 500	350-499	200-349		< 200	AaDO <sub>2</sub> : $[FI_{O_2} \times 713] - [PaCO_2 / 0.8] - PaO_2$																
Arterial pH		≥ 7.7	7.6-7.69		7.5-7.59	7.33-7.49		61-70	55-60	< 55													
Serum Sodium (mmol/L)		≥ 180	160-179	155-159	150-154	130-149		120-129	111-119	< 110													
Serum Potassium (mmol/L)		≥ 7	6-6.9		5.5-5.9	3.5-5.4	3-3.4	2.5-2.9		< 2.5													
Serum Creatinine (μmol/L)	*	≥ 309	177-308	132-176		53-131		< 53		*													
*DOUBLE SCORE FOR ARF																							
Hematocrit (%)		≥ 60		50-59.9	46-49.9	30-45.9		20-29.9		< 20													
WBC		≥ 40		20-39.9	15-19.9	3-14.9		1-2.9		< 1													
GCS (Score = 15 minus actual GCS )		Enter Actual GCS here																					
*HCO <sub>3</sub> (Venous mMol/L) (*Only if no ABG)		≥ 52	41-51.9		32-40.9	22-31.9		18-21.9	15-17.9	< 15													
AGE POINTS (circle)																							
AGE	POINTS																						
< 45	0																						
45-54	2																						
55-64	3																						
65-74	5																						
> 74	6																						
TOTAL ACUTE																							
PHYSIOLOGIC SCORE (APS)																							
AGE POINTS																							
TOTAL APACHE SCORE																							

# Sequential Organ Failure Assessment (SOFA) Score Worksheet at ICU Admission

Unique Patient ID Number: \_\_\_\_\_

ORGAN SYSTEM	Actual Score	0	1	2	3	4	SOFA SCORE
<b>Respiratory:</b> PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) with Respiratory Support	—	> 400	301 - 400	201 - 300	101 - 200	≤ 100	
<b>Respiratory:</b> PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) without Respiratory Support		> 400	301 - 400	≤ 300			
<b>Coagulation:</b> Platelets (x 10 <sup>9</sup> /mm <sup>3</sup> )		> 150	101 - 150	51 - 100	21 - 50	≤ 20	
<b>Liver:</b> Bilirubin (mmol/L)		> 20	20 - 32	33 - 101	102 - 204	> 204	
<b>Cardiovascular:</b> Hypotension		No hypotension	MAP < 70 mmHg	dopamine ≤ 5.0 or any dose dobutamine or any dose milrinone	dopamine > 5.0 or epinephrine ≤ 0.1 or norepinephrine ≤ 0.1 or any dose vasopressin or any dose phenylephrine	dopamine > 15.0 or epinephrine > 0.1 or norepinephrine > 0.1	
<b>Renal:</b> Creatinine (mmol/L) OR urine output	—	< 110	110 - 170	171 - 299	300 - 440 < 500 ml/day	> 440 < 200 ml/day	
<b>Neurologic:</b> Glasgow Coma Scale		15	13 - 14	10 - 12	6 - 9	< 6	
TOTAL SOFA SCORE =							

APACHE SCORE AT ICU TRANSFER TO HOSPITAL WARD

Acute Physiologic Score (APS)													
Physiologic Variable	Actual Score	High Abnormal Range				Normal		Low Abnormal Range				APS Score	
		+4	+3	+2	+1	0	+1	+2	+3	+4			
Temperature (Rectal/Core) Oral: add 0.5°C Axilla: add 1.0°C		≥ 41	39-40.9		38.5-38.9	36-38.4	34-35.9	32-33.9	30-31.9	≤ 29.9			
Mean Arterial Pressure (mmHg)		≥ 160	130-159	110-129		70-109		50-69		≤ 49			
Heart Rate		≥ 180	140-179	110-139		70-109		55-69	40-54	≤ 39			
Respiratory Rate (Ventilated or non-ventilated)		≥ 50	35-49		25-34	12-24	10-11	6-9		≤ 5			
Oxygenation		≥ 500	350-499	200-349		< 200	AaDO <sub>2</sub> : [FiO <sub>2</sub> x 713]-[PaCO <sub>2</sub> /0.8]-PaO <sub>2</sub>						
a) FiO <sub>2</sub> ≥ .5, record AaDO <sub>2</sub> b) FiO <sub>2</sub> < .5, record only PaO <sub>2</sub>						> 70	61-70		55-60	< 55			
Arterial pH		≥ 7.7	7.6-7.69		7.5-7.59	7.33-7.49		7.25-7.32	7.15-7.24	< 7.15			
Serum Sodium (mmol/L)		≥ 180	160-179	155-159	150-154	130-149		120-129	111-119	< 110			
Serum Potassium (mmol/L)		≥ 7	6-6.9		5.5-5.9	3.5-5.4	3-3.4	2.5-2.9		< 2.5			
Serum Creatinine (µmol/L)	*	≥ 309	177-308	132-176		53-131		< 53			*		
*DOUBLE SCORE FOR ARF													
Hematocrit (%)		≥ 60		50-59.9	46-49.9	30-45.9		20-29.9		< 20			
WBC		≥ 40		20-39.9	15-19.9	3-14.9		1-2.9		< 1			
GCS (Score = 15 minus actual GCS )		Enter Actual GCS here _____											
*HCO <sub>3</sub> (Venous mMol/L) (*Only if no ABG)		≥ 52	41-51.9		32-40.9	22-31.9		18-21.9	15-17.9	< 15			
TOTAL ACUTE													
PHYSIOLOGIC SCORE (APS)													
AGE POINTS													
TOTAL APACHE SCORE													

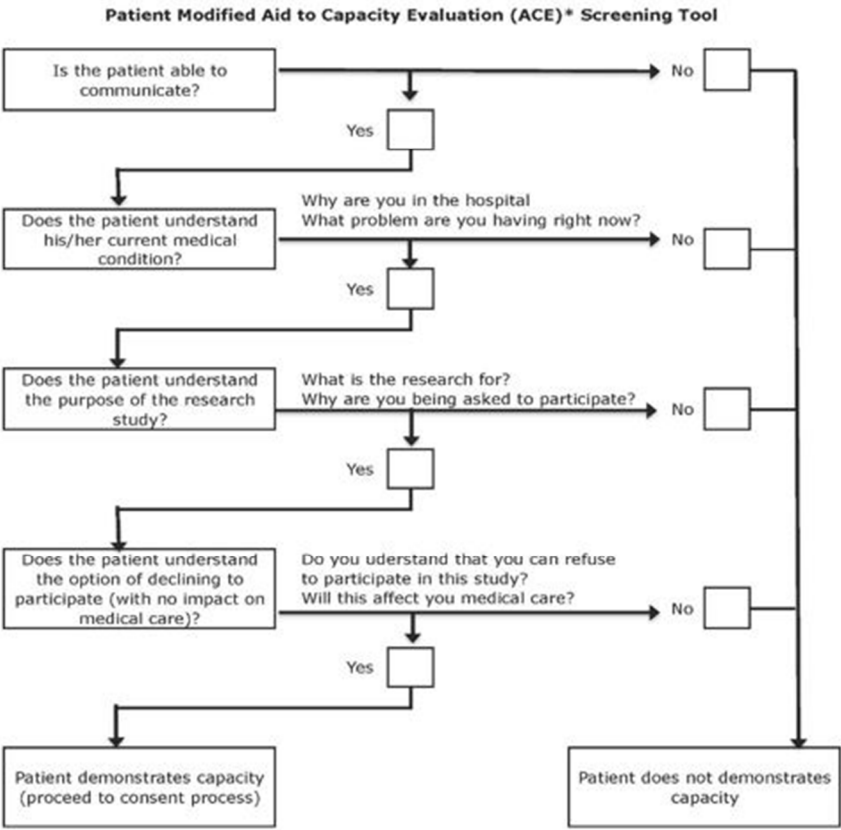
AGE POINTS (circle)	
AGE	POINTS
< 45	0
45-54	2
55-64	3
65-74	5
> 74	6

# Sequential Organ Failure Assessment (SOFA) Score Worksheet at ICU Transfer to Hospital Ward

Unique Patient ID Number: \_\_\_\_\_

ORGAN SYSTEM	Actual Score	0	1	2	3	4	SOFA SCORE
<b>Respiratory:</b> PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) with Respiratory Support		> 400	301 - 400	201 - 300	101 - 200	≤ 100	
<b>Respiratory:</b> PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) without Respiratory Support		> 400	301 - 400	≤ 300			
<b>Coagulation:</b> Platelets (x 10 <sup>3</sup> /mm <sup>3</sup> )		> 150	101 - 150	51 - 100	21 - 50	≤ 20	
<b>Liver:</b> Bilirubin (mmol/L)		> 20	20 - 32	33 - 101	102 - 204	> 204	
<b>Cardiovascular:</b> Hypotension		No hypotension	MAP < 70 mmHg	dopamine ≤ 5.0 or any dose dobutamine or any dose milrinone	dopamine > 5.0 or epinephrine ≤ 0.1 or norepinephrine ≤ 0.1 or any dose vasopressin or any dose phenylephrine	dopamine > 15.0 or epinephrine > 0.1 or norepinephrine > 0.1	
<b>Renal:</b> Creatinine (mmol/L) OR urine output		< 110	110 - 170	171 - 299	300 - 440 < 500 ml/day	> 440 < 200 ml/day	
<b>Neurologic:</b> Glasgow Coma Scale		15	13 - 14	10 - 12	6 - 9	< 6	
<b>TOTAL SOFA SCORE =</b>							

Diagram 1: ACE Capacity to Consent Screening Tool



ACE Capacity to Consent Screening Tool  
151x154mm (96 x 96 DPI)

## PROSPECTIVE COHORT STUDY PROTOCOL TO DESCRIBE THE TRANSFER OF PATIENTS FROM INTENSIVE CARE UNITS TO HOSPITAL WARDS

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**PROSPECTIVE COHORT STUDY PROTOCOL TO DESCRIBE THE TRANSFER OF PATIENTS FROM INTENSIVE CARE UNITS TO HOSPITAL WARDS**

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**ABSTRACT**

**Introduction:** The transfer of patient care between the intensive care unit (ICU) and the hospital ward is associated with increased risk of medical error and adverse events. This study will describe patient transfer from ICU to hospital ward by documenting 1) patient, family, and provider experiences related to ICU transfer, 2) communication between stakeholders involved in ICU transfer, 3) adverse events that follow ICU transfer, and 4) opportunities to improve ICU to hospital ward transfer.

**Methods:** This is a mixed methods prospective observational study of ICU to hospital ward transfer practices in ten ICUs across Canada. We will recruit 50 patients at each site (n=500) who are transferred from ICU to hospital ward and distribute surveys to enrolled patients, family members, and healthcare providers (ICU and ward physicians and nurses) after patient transfer. A random sample of six consenting study participants (patients, family members, healthcare providers) from each study site (n=60) will be offered an opportunity to participate in interviews to further describe stakeholders' experience with ICU to hospital ward transfer. We will abstract information from patient health records to identify clinical data, use of transfer tools, and identify adverse events that are related to the transfer.

**Ethics and Dissemination:** Research Ethics Board approval has been obtained at the coordinating study centre (UofC REB13-0021) and five study sites (UofA Pro00050646; UBC-PHC H14-01667; Sunnybrook 336-2014; QCH 14-07; Sherbrooke 14-172) and submitted for a final study site. Dissemination of the findings will provide a comprehensive description of transfer from ICU to hospital ward in Canada including the uptake of validated or local transfer tools, a conceptual framework of the experiences and needs of stakeholders in the ICU transfer process, a summary of adverse events experienced by patients after transfer from ICU to hospital ward and opportunities to guide quality improvement efforts.

**STRENGTHS AND LIMITATIONS OF THIS STUDY:**

**Strengths:**

- Data will be collected from 10 sites (7 cities, 4 provinces) across Canada.
- Data will be collected from a variety of stakeholders (patients, family members, physicians and nurses) to give a broad perspective on the transfer process.
- Data collection instruments are both qualitative and quantitative.
- Data collected will inform the development of a tool that will improve the ICU to hospital ward transfer process.

**Limitations:**

## MAIN

- Results will not be generalizable to all hospitals in Canada.

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We have read and understood the BMJ policy on declaration of interests and declare that we have no competing interests

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1 INTRODUCTION

2  
3 The transfer between Intensive Care Unit (ICU) and hospital ward is a vulnerable  
4 period in health care delivery. Risk for adverse events may increase as a result of the  
5 vulnerability of this patient population requiring complex care [1-3], the reduction  
6 in monitoring capacity outside the ICU [4,5], the necessary participation of multiple  
7 professionals with different cultural norms and practices [5-9], frequent  
8 communication failures that are associated with medical errors [5,6,10-12], longer  
9 hospital stays [13], increased costs [14], stress [2,6,15,16], and poor quality of care  
10 [5,17].

11  
12  
13 Communication Breakdown

14  
15 Communication breakdown during patient transfer is common [9,12,18-22] and  
16 leads to decisions based on inaccurate or incomplete information [19], patients who  
17 are exposed to unnecessary tests and treatments [13,18,23], medication errors  
18 [6,18,24-27], and patients/family members who are confused and disappointed by  
19 what they perceive as conflicting decision-making and lower quality of care [5,6,17].  
20 Poor communication causes misunderstandings about care plans [28-30], patient  
21 conditions [24,31], code status [24,32,33], and test results [13,24,33,34].  
22 Communication problems are implicated in up to 70% of adverse events or near  
23 misses in American hospitals [8].

24  
25 Verbal face-to-face communication between ICU and ward providers is an effective  
26 way to improve patient safety during transfers from ICU to hospital ward [21,35].  
27 Verbal face-to-face communication allows for the transmission of judgments about  
28 how care is perceived to be progressing [8] and creates opportunities for healthcare  
29 providers to highlight subtle yet important information [36-38], which is often not  
30 formally documented [8]. Unfortunately, verbal face-to-face communication is rare  
31 and often incomplete [5,39,40]. One reason may be that there is often no consensus  
32 about what should be communicated, who should communicate, and how  
33 communication should occur during patient transfer [6]. There are also differences  
34 between what is considered essential knowledge that requires attention at the time  
35 of transfer [6,8,9,40,41].

36  
37 Patients and family members indicate that lack of information before ICU to hospital  
38 ward transfer causes them to feel anxious about the unknown, and confused and  
39 dissatisfied with their care [5,6,15]. Providing information to patients and families  
40 about the transfer improves patient safety, increases understanding of differences in  
41 clinical management between the ICU and hospital ward, and improves quality of  
42 care [6,42].

## MAIN

**Multi-Professional Transfer**

The multi-professional nature of ICU care implies that transfer from ICU to hospital ward requires handover of relevant information among many professionals (e.g., physicians, nurses, respiratory therapists, clinical nutritionists, physiotherapists, occupational therapists, social workers, psychologists, and pharmacists) [2,35]. These complementary areas often operate under different patient management models where the responsibilities of professionals may vary. For example, assistance to help patients mobilize, an important step of rehabilitation, may be under the responsibility of nurses in the ICU and shift to physiotherapists once a patient is transferred to the ward. In addition, there may be perceived and real imbalances between healthcare professionals roles and responsibilities that limits involvement in the transfer process [8,17,28,35], differences in scientific or professional jargon used [8,43], and variation in the content [44] and structure [45,46] of health records between ICU and hospital ward. To date most efforts to measure and improve transfer of care have focused on transfers within professions despite the multi-professional nature of care.

**Drop in Intensity of Care**

ICUs are specialized units where multi-professional teams of healthcare providers collaborate to provide continuous patient care [14,17]. On average ICU nurses look after one or two patients per shift and ICU physicians are responsible for 8-10 patients at any time [4]. In contrast, hospital ward nurses will care for 4-8 patients per shift while hospital ward physicians might be responsible for as many as 65 patients at some points in the day [47]. For patients, the transfer to the hospital ward may be experienced as abandonment [48] because healthcare providers have less time and resources to focus on patients [49,50]. Additionally, family members report feeling confused and stressed over the reduced level of care after transfer from ICU [6], and an increased responsibility to provide bedside care [48]. Ward nurses report feeling stressed when receiving a patient from the ICU if they feel inadequately prepared or time constrained to care for patients who have high needs [46,51]. Reduced intensity of care after transfer from ICU is associated with increased adverse events [3,4]

**Resource Limitations**

ICU patients represent the smallest hospital population yet they absorb the largest percentage of hospital expenditure [2,14]. Limited resources are an incentive for efficient discharge out of the ICU. Furthermore, bed availability for patients outside of the ICU may put pressure on discharging less sick patients. Hospitals must balance heightened efficiency with the risks posed by discharging patients too early [2,14,39]. Premature patient transfer out of ICU increases morbidity and mortality [6,10], raises health care costs [14], and reduces patient satisfaction [2].

MAIN

Evidence on patient transfer highlights the relevance of standardized handover protocols to avoid communication failure [5,52], reduce adverse events [30], reduce cost, and improve patient safety [8,20,46]. Because most ICU patients are transferred to a hospital ward, the ICU to hospital ward transfer is crucial for creating safe and seamless transfers of care for these vulnerable patients [8,15,41].

We propose a mixed-methods multi-centre observational study to document the experiences of relevant stakeholders with ICU to hospital ward transfer. We will collect information that describes stakeholders' transfer experiences, communication during transfer, and adverse events that result from the transfer. Collected data will identify opportunities to improve the transfer process and aid in the development of an ICU transfer toolkit.

OBJECTIVES

Overarching Objective

To describe patient transfer from ICU to hospital ward.

Specific Objectives:

1. Describe patient, family member and healthcare provider experiences and needs related to transfer from ICU to hospital ward
2. Describe current communication content and structure during transfer from ICU to hospital ward.
3. Describe adverse events experienced by patients after transfer from ICU to hospital ward.
4. Discover opportunities to improve transfer from ICU to hospital ward.

METHODS/DESIGN

Study Design

We propose to conduct a mixed- methods prospective observational study of transfer practices in ten ICUs located in seven cities (four different provinces) in Canada (Table 1). We will coordinate data sources (patients, family members, healthcare providers) and methods (surveys, interviews, health record review) to provide a comprehensive description of ICU transfer practices across Canada, and create a conceptual framework of stakeholder transfer needs. Data from this study will inform a future phase of the study that will develop an evidence-informed ICU transfer toolkit.

## MAIN

**Table 1: Study Sites for Data Collection**

1. St. Paul's Hospital, Vancouver, British Columbia
2. University of Alberta Hospital, Edmonton, Alberta
3. Foothills Hospital, Calgary, Alberta
4. Rockyview General Hospital, Calgary, Alberta
5. Peter Lougheed Centre, Calgary, Alberta
6. South Calgary Health Campus, Calgary, Alberta
7. Queensway Carleton Hospital, Ottawa Ontario
8. Sunnybrook Health Sciences Centre, Toronto, Ontario
9. CHU de Quebec (Hôpital de l'Enfant-Jésus), Quebec City, Quebec
10. Centre Hospitalier Universitaire de Sherbrooke , Sherbrooke, Quebec

**Study Population**

We will target a population of patients who are identified as ready to transfer from the ICU to a hospital ward located in the same hospital. We will also target a corresponding family member and healthcare providers. A family member will be defined as the most significant caregiver who visited the patient at least once in the ICU within the three days before the transfer and at least once within the three days after the transfer. Targeted healthcare providers are the clinicians most involved with enrolled patients' transfer from the ICU to hospital ward. We will identify ICU nurses who care for enrolled patients on the day of transfer and ICU physicians (attending or resident) who are involved in preparing patient summary documents immediately before the transfer. On the ward, we will identify ward nurses who conduct the first head-to-toe examination of the patient and ward physicians (attending or resident) who assume responsibility for the patients' care directly after the transfer from the ICU.

Criteria for patients enrolled in this study are 1) of age to consent or older, 2) admitted to a general (medical-surgical) ICU for at least 24 hours, 3) identified as ready to transfer to a hospital ward within the same facility 4) able to provide consent or has a surrogate willing to provide consent, and 5) patient and/or surrogate is able to speak either English or French.

Patients will be excluded from the study if they are admitted to a sub-specialized ICU (e.g., cardiovascular ICU, neuroscience ICU) or transferred to a location other than a hospital ward within the same facility (e.g., other ICU, home, long-term care facility etc.).

MAIN

Consent

The patients’ capacity to provide informed consent will be determined by a modified Aid to Capacity to Evaluation (ACE) tool [53](Diagram 1). If the patient does not demonstrate capacity to consent we will attempt to identify a suitable surrogate to provide informed consent. Healthcare provider consent will be gathered from implied or written consent depending on the study location. Implied consent will be explained on the cover sheet of healthcare provider surveys.

Sampling

We will enroll 50 consecutive patients identified as ready for transfer from the ICU to a hospital ward at each study site that satisfy the inclusion criteria and consent to participate (n=500). For each enrolled patient we will attempt to also collect survey data from one family member and four healthcare providers (ICU physician, ICU nurse, ward physician, ward nurse) for a maxim of 3,000 survey participants. At each study site we will conduct six telephone interviews to further explore patient transfer from ICU to hospital ward. Table 2 summarizes the anticipated sample size for this study.

Table 2: Anticipated Sample for Prospective Cohort Study				
	Per Study Site		For Entire Study	
Participant	Surveys	Telephone Interviews	Surveys	Telephone Interviews
Patients or Surrogates	50	1	500	10
Families	50	1	500	10
ICU Physicians	50	1	500	10
ICU Nurses	50	1	500	10
Ward Physicians	50	1	500	10
Ward Nurses	50	1	500	10
Total	300	6	3,000	60

## MAIN

This study will seek Research Ethics Board approval at all participating hospitals (UofC REB13-0021).

**DATA COLLECTION****Surveys****Patient, Family, Surrogate and Healthcare Provider Surveys**

Patients (or surrogates), family members, ICU physicians, ICU nurses, ward physicians, and ward nurses will be approached to complete surveys (paper or electronic depending on study site and participant preference) that will ask about communication, level of involvement, workload, use of transfer tools, and adverse events related to the transfer from ICU to hospital ward. A research coordinator will identify relevant participants through direct communication with the patient, surrogate, bedside nurses and unit clerks.

Surveys will be distributed up to three days after patient transfer from the ICU. Altogether we have developed seven survey instruments. These are:

1. Patient survey (Appendix A)
2. Family/surrogate survey (Appendix B & C)
3. ICU physician survey (Appendix D)
4. ICU nurse survey (Appendix E)
5. Ward physician survey (Appendix F)
6. Ward nurse survey (Appendix G)
7. Hospital survey (Appendix H)

Patient, surrogate, family, and healthcare provider survey instruments were developed based on data obtained from a scoping review carried out by our team [54]. Revision of data collection tools took place in four rounds that included initial editing by our team, clinical sensibility testing based on interviews with stakeholders (patients, family members, and healthcare providers), incorporation of additional feedback from our multidisciplinary national advisory committee, and final editing by our team to ensure consistency and logical flow. All tools were subsequently translated into French by a skilled translator and then checked for accuracy by a second skilled translator and healthcare professional.

**Hospital Survey**

A hospital survey will be administered to each study ICU's manager (n=10) and will collect information about the hospital (e.g., number of acute care beds) and ICU structure (e.g., type and size of ICU), policies (e.g., transfer program), and procedures (e.g., transfer criteria) related to patient transfer from ICU.

MAIN

**Interviews**

The qualitative component of this project (interviews) will be drawn from a random sample (using a random number generator) of consenting participants from each study site who agree to participate in semi-structured telephone interviews. These participants (one patient, one family member, one ward physician, one ward nurse, one ICU physician, and one ICU nurse from each study site) will provide an in-depth perspective of stakeholders’ experience with transfer from ICU to hospital ward. We plan to sample six participants per study site, but if necessary will continue to sample participants until we reach data saturation. We have developed two draft interview guides (Appendix I & J). Additional domains of inquiry may be added to our interview guides based on results gathered from the stakeholder surveys.

**Patient Health Record Review**

**Case Report Form**

From patient health records, we will abstract 1) demographic information, 2) clinical data (i.e. patient characteristics, illness severity scores (SOFA[55] APACHE II [56]), 3) clinical diagnosis 4) the use of local or standardized ICU transfer tools, 5) co-morbidities, 6) procedures done in the ICU, 7) time spent in ICU and on the ward 8) ICU readmission, and 9) final transfer location. These will be collected on a Case Report Form (Appendix K).

**Textual Analysis of Health Records**

We will obtain a copy of all clinical notes recorded in each patient’s health record during the final two days of their stay in the ICU, the day of transfer from the ICU, and the first seven days of their stay on the ward that accepted care from the ICU for a total of ten calendar days. Patient data that are photocopied will be de-identified and assigned a unique identifier. We will focus on clinical notes and ICU transfer tools documented during this period. We define clinical notes as health record entries that include an interpretation of clinical data or a patient management plan. We expect to identify different types of healthcare provider clinical notes from multiple professions and specialties including interdisciplinary progress notes, consultation notes, transfer notes, and admission notes. A detailed list of all local and standardized transfer tools located in patient health records will be created and used to inform a future phase of the study that will evaluate and develop an evidence-informed transfer toolkit

**Adverse Events**

Two clinical investigators, practicing physicians with expertise in acute care hospital-based medicine, will independently review each clinical note to identify adverse events using standard methods adapted from the Harvard Medical Practice Study [57]. For each adverse event identified they will independently grade the

## MAIN

severity of any injury (on a six-point scale ranging from single day of symptoms to death) and rate their confidence in the preventability of the adverse event (on a six-point scale ranging from no evidence to virtual certain evidence of preventability)[58]. A third reviewer will resolve discrepancies.

**Analytical Plan**

Data analysis for this study will be descriptive using a combination of qualitative and quantitative methods to triangulate findings [59].

**Surveys**

We will present global data to describe opportunities to improve ICU transfer (e.g., goals of care reconciliation). We will present detailed tabulations of responses by participant (patient vs. family member vs. healthcare provider), patient (medical vs. surgical), and hospital (university-affiliated vs. community) characteristics. The significance of observed differences will be evaluated using Chi-square tests.

**Interviews**

All interviews will be audio taped, transcribed verbatim, assigned a unique identifier and imported into *NVivo 10*, a computer program for qualitative data management. Two investigators will independently read each transcript and code the raw data, line by line using a process of open, axial, and selective coding.[60,61]. The investigators will sequentially collapse the codes to form abstract and then advanced concepts until core variables emerge along with supporting categories that explain stakeholder experiences with ICU transfer [62]. Axial coding will examine the context, intervening conditions, and consequences of core variables (e.g., what contextual factors influence identification of exemplary cases of high quality care during ICU transfer [63]. Selective coding is the final stage of analysis in which a story of ICU transfers will be built. The result will be a framework describing ICU transfer, stakeholder needs and opportunities for improvement (facilitators & barriers to high quality ICU transfer). Credibility of the core variables will be determined by the frequency with which they are recorded within transcripts. Written memos will be used to provide a record of the analytic process [60,61]. All interview participants will be provided with a copy of the study report for review and comment as a form of member-checking [64].

**Patient Health Record Review**

Patient characteristics (e.g., severity of illness), processes of care (e.g., ICU transfer tools) and outcomes of care (e.g., readmission to ICU) abstracted from the medical record (case report form), will be summarized using descriptive statistics (i.e., means, medians, proportions). We will present detailed tabulations by patient (medical vs. surgical), and hospital (university-affiliated vs. community) characteristics.

MAIN

To provide a description of written communication, qualitative textual analysis [65-68] will be done to describe and compare the structure of written communication within participants' medical chart before, during and after ICU transfer. Analysis will involve coding each clinical note for order, organization and legibility. Patient characteristics, including medical or surgical classification and experiences of adverse events will be given particular consideration. The coding of raw data will then be used to construct a protocol to analyze textual documentation of clinical notes written in the ICU and hospital wards across all sites, with the goal of creating a shared communication structure.

We will develop a comprehensive list of adverse events and present global data to describe the proportion of ICU transfers that are complicated by an adverse event along with binomial 95% confidence intervals.

Relevance of Findings

Transfers of patient care are highly vulnerable moments that require communication of crucial information between healthcare providers from different locations [12], and sometimes a shift of care responsibilities directly to patients and family members [69]. To be effective, seamless, and safe transfers of care must be supported by focused communication, dedicated and informed healthcare providers, and engaged patients and families [6].

Next Steps

This study will 1) provide a comprehensive description of the process of transfer from ICU to hospital ward in Canada. This will include the application of transfer tools, developing a conceptual framework of the experiences and needs of stakeholders who are involved in transfer from ICU to hospital ward, providing a summary of adverse events experienced by patients after transfer from ICU to hospital ward, and identifying opportunities for improvement. Key deliverables developed from this study will be made available in English and French.

Data collected from this study will inform the next phase of our program of work, which is to develop an evidence-informed ICU toolkit for ICU to hospital ward transfer. We will amalgamate data from this study with an analysis of existing tools used to facilitate ICU to hospital ward transfers [54,70].

Author's Contributions

All authors contributed to the conception (HTS) or design (DB, SB, PD, AF, RF, FL, AT, MP, HTS) of the work; AND drafting (DB, HTS) or revising (DB, SB, PD, AF, RF, FL, AT, MP, HTS) the work for important intellectual content; AND provide final approval of the manuscript and agree to be accountable for the accuracy and integrity of the work.

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**Figure Legend**

Diagram 1: ACE Capacity to Consent Screening Tool

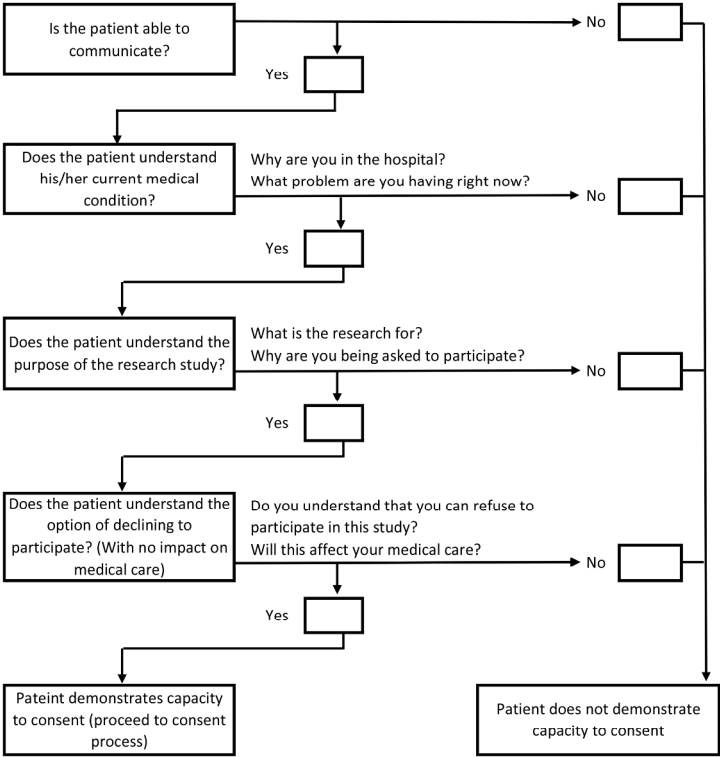
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For peer review only

Patient Modified Aid to Capacity Evaluation (ACE)\* Screening Tool



215x279mm (300 x 300 DPI)



UNIVERSITY OF CALGARY  
CUMMING SCHOOL OF MEDICINE



## Patient Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential**. Your responses will help us to improve care for critically ill patients. **This survey takes less than 10 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at  
[barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca)  
or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca)  
or 403-956-2113

Thank you for your help!

**We are interested to know how prepared you felt when you were moved from the ICU to this hospital ward.**

1. Before you were moved from the ICU to this hospital ward, did anybody explain to you what was going to happen?

- ☐ Yes
- ☐ No
- ☐ Not sure

2. How involved did you feel in the process of **deciding** to be moved from the ICU to this hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

3. Please indicate what information was communicated to you before you were moved from the ICU to this hospital ward. Please select all that apply. (If you were not given any information, please skip to question 8.)

- ☐ A summary of events that happened while you were in the ICU
- ☐ A summary of you current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over your care on this hospital ward
- ☐ Information about how the ICU team will follow up with you after the move
- ☐ Information about what to expect regarding care on this hospital ward
- ☐ Other (please specify): \_\_\_\_\_

4. How was this information communicated to you? Please select all that apply.

- ☐ Verbal conversation(s) with the doctors
- ☐ Verbal conversation(s) with the nurses
- ☐ Formal meeting(s) (e.g. family meeting)
- ☐ Personalized care sheet (e.g. ICU stay summary)
- ☐ Other (please specify): \_\_\_\_\_

5. How much of the information did you understand?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

6. Is there any other information you would have liked to receive?

- ☐ Yes (please specify): \_\_\_\_\_
- ☐ No

7. Did a member of the medical team review goals of care/resuscitation status with you **before** you left the ICU?

- ☐ Yes
- ☐ No
- ☐ Not sure

8. Did you feel that the ICU medical team addressed your questions and/or concerns about the move from the ICU to this hospital ward?

- ☐ Yes
- ☐ Somewhat
- ☐ No

9. Did you have the chance to meet your new ward care provider(s) **before** the move took place?

- ☐ Yes
- ☐ No

10. Did you feel that you developed a trusting relationship with any **ICU care provider(s)** while you were in the ICU?

- ☐ Yes
- ☐ No (Please skip to question 12.)

11. If yes, with whom? Please select all that apply.

- ☐ Doctor
- ☐ Nurse
- ☐ Respiratory therapist
- ☐ Occupational therapist
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Social worker
- ☐ Chaplain
- ☐ Other (please specify): \_\_\_\_\_

12. Did a family member accompany you when you were moved from the ICU to this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

Next, we are interested to know about your experiences after you were moved from the ICU to this hospital ward.

13. Were you assessed by a nurse **within the first hour** of arriving on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

14. After arriving on this hospital ward, when were you **first seen by a doctor**?

- ☐ Within the first hour
- ☐ Within 1-4 hours
- ☐ After 4 hours of arriving on this ward but on the same day
- ☐ More than 1 day after arriving on this ward
- ☐ Not sure

15. Did a member of the ICU team visit you since you arrived on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

16. Are you aware of any harmful events/errors in your care that occurred since you were moved from the ICU to this hospital ward?

☐ Yes

☐ No

17. If yes, what was the nature of the event(s) and what do you believe caused it/them?

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18. Up until now, do you feel that you have developed a trusting relationship with any care provider(s) on this **hospital ward**?

☐ Yes

☐ No (Please skip to question 21.)

19. If yes, with whom? Please select all that apply.

☐ Doctor

☐ Nurse

☐ Respiratory therapist

☐ Occupational therapist

☐ Physiotherapist

☐ Pharmacist

☐ Social worker

☐ Chaplain

☐ Other (please specify): \_\_\_\_\_

20. Overall, how satisfied were you with the transfer process?

☐ Completely satisfied

☐ Somewhat satisfied

☐ Neither satisfied nor dissatisfied

☐ Somewhat dissatisfied

☐ Completely dissatisfied

21. How could the process of being moved from the ICU to this hospital ward have been improved?

Lastly, we are interested to know some information about you.

22. What is the highest level of education you have completed?

- ☐ Eighth grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate
- ☐ Some college/university, did not graduate
- ☐ College diploma/certificate
- ☐ Four year university degree
- ☐ More than a four year university degree

23. Which ethnicity do you most closely identify with?

- ☐ Caucasian
- ☐ Black or African Canadian
- ☐ Asian
- ☐ Aboriginal or First Nations
- ☐ East Indian
- ☐ Latin American
- ☐ Other (please specify):

24. What language do you speak at home most of the time?

- ☐ English
- ☐ French
- ☐ Spanish
- ☐ Vietnamese
- ☐ Hindi/Punjabi
- ☐ Mandarin/Cantonese
- ☐ Other (please specify):

25. Where do you live?

- ☐ In the city where this hospital is located  
☐ Out of town

26. Before this hospital stay, have you been to an ICU as a patient or as a family member of a patient?

- ☐ Yes  
☐ No

27. Are you a health care professional?

- ☐ Yes  
☐ No

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

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## Surrogate Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential**. Your responses will help us to improve care for critically ill patients. **This survey takes less than 10 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

**We are interested to know how prepared you felt when your family member was moved from the ICU to this hospital ward.**

1. Before your family member was moved from the ICU to this hospital ward, did anybody explain to you what was going to happen?

- ☐ Yes  
☐ No  
☐ Not sure

2. How involved did you feel in the process of **deciding** to move your family member from the ICU to this hospital ward?

- ☐ Completely involved  
☐ Somewhat involved  
☐ Neither involved nor uninvolved  
☐ Somewhat uninvolved  
☐ Completely uninvolved

3. Please indicate what information was communicated to you before your family member was moved from the ICU to this hospital ward. Please select all that apply. (If you were not given any information, please skip to question 8.)

- ☐ A summary of events that happened while your family member was in the ICU  
☐ A summary of your family member's current medical conditions  
☐ The current treatment plan  
☐ Information about who would take over care of your family member on this hospital ward  
☐ Information about how the ICU team will follow up with your family member after the move  
☐ Information about what to expect regarding care of your family member on this hospital ward  
☐ Other (please specify): \_\_\_\_\_

4. How was this information communicated to you? Please select all that apply.

- ☐ Verbal conversation(s) with the doctors  
☐ Verbal conversation(s) with the nurses  
☐ Formal meeting(s) (e.g. family meeting)  
☐ Personalized care sheet (e.g. ICU stay summary)  
☐ Other (please specify): \_\_\_\_\_

5. How much of the information did you understand?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

6. Is there any other information you would have liked to receive?

- ☐ Yes (please specify): \_\_\_\_\_
- ☐ No

7. Did a member of the medical team review goals of care/resuscitation status with you regarding your family member **before** he/she left the ICU?

- ☐ Yes
- ☐ No
- ☐ Not sure

8. Did you feel that the ICU medical team addressed your questions and/or concerns about moving your family member from the ICU to this hospital ward?

- ☐ Yes
- ☐ Somewhat
- ☐ No

9. Did you have the chance to meet your family member's new ward care provider(s) **before** the move took place?

- ☐ Yes
- ☐ No

10. Did you feel that you developed a trusting relationship with any **ICU care provider(s)** while your family member was in the ICU?

- ☐ Yes
- ☐ No (Please skip to question 12.)

11. If yes, with whom? Please select all that apply.

- ☐ Doctor  
☐ Nurse  
☐ Respiratory therapist  
☐ Occupational therapist  
☐ Physiotherapist  
☐ Pharmacist  
☐ Social worker  
☐ Chaplain  
☐ Other (please specify): \_\_\_\_\_

12. Were you with your family member when he/she was moved from the ICU to this hospital ward?

- ☐ Yes  
☐ No

**Next, we are interested to know about your experiences after your family member was moved from the ICU to this hospital ward.**

13. Was your family member assessed by a nurse **within the first hour** of him/her arriving on this hospital ward?

- ☐ Yes  
☐ No  
☐ Not sure

14. After arriving on this hospital ward, when was your family member **first seen by a doctor**?

- ☐ Within the first hour  
☐ Within 1-4 hours  
☐ After 4 hours of arriving on this ward but on the same day  
☐ More than 1 day after arriving on this ward  
☐ Not sure

15. Did a member of the ICU team visit your family member since he/she arrived on this hospital ward?

- ☐ Yes  
☐ No  
☐ Not sure

16. Are you aware of any harmful events/errors in your family member’s care that occurred since he/she was moved from the ICU to this hospital ward?

- ☐ Yes
- ☐ No

17. If yes, what was the nature of the event(s) and what do you believe caused it/them?

18. Up until now, do you feel that you have developed a trusting relationship with any care provider(s) on this **hospital ward**?

- ☐ Yes
- ☐ No (Please skip to question 21.)

19. If yes, with whom? Please select all that apply.

- ☐ Doctor
- ☐ Nurse
- ☐ Respiratory therapist
- ☐ Occupational therapist
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Social worker
- ☐ Chaplain
- ☐ Other (please specify):

20. Overall, how satisfied were you with the transfer process?

- ☐ Completely satisfied
- ☐ Somewhat satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Somewhat dissatisfied
- ☐ Completely dissatisfied

21. How could the process of moving **your family member** from the ICU to this hospital ward have been improved?

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22. Please indicate with a checkmark (✓) which days you were able to visit your family member while he/she was in the ICU and then on this hospital ward? Please select all that apply.

3 days before the move	2 days before the move	1 day before the move	Day of move from the ICU to hospital ward	1 day after the move	2 days after the move	3 days after the move

**Next, we are interested to know some background information about your family member.**

23. What is the highest level of education your family member has completed?

- ☐ Eighth grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate
- ☐ Some college/university, did not graduate
- ☐ College diploma/certificate
- ☐ Four year university degree
- ☐ More than a four year university degree

24. Which ethnicity does your family member most closely identify with?

- ☐ Caucasian
- ☐ Black or African Canadian
- ☐ Asian
- ☐ Aboriginal or First Nations
- ☐ East Indian
- ☐ Latin American
- ☐ Other (please specify): \_\_\_\_\_

25. What language does your family member speak at home most of the time?

- ☐ English
- ☐ French
- ☐ Vietnamese
- ☐ Spanish
- ☐ Hindi/Punjabi
- ☐ Chinese (Mandarin/Cantonese)
- ☐ Other (please specify): \_\_\_\_\_

Lastly, we are interested to know some information about you.

26. What is your sex?

- ☐ Male
- ☐ Female

27. What is your age (in years)? \_\_\_\_\_

28. What is the highest level of education you have completed?

- ☐ Eighth grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate
- ☐ Some college/university, did not graduate
- ☐ College diploma/certificate
- ☐ Four year university degree
- ☐ More than a four year university degree

29. Which ethnicity do you most closely identify with?

- ☐ Caucasian
- ☐ Black or African Canadian
- ☐ Asian
- ☐ Aboriginal or First Nations
- ☐ East Indian
- ☐ Latin American
- ☐ Other (please specify): \_\_\_\_\_

30. What language do you speak at home most of the time?

- ☐ English  
☐ French  
☐ Spanish  
☐ Vietnamese  
☐ Hindi/Punjabi  
☐ Mandarin/Cantonese  
☐ Other (please specify): \_\_\_\_\_

31. What is your relationship to your family member?

- ☐ Wife  
☐ Husband  
☐ Partner  
☐ Friend  
☐ Mother  
☐ Father  
☐ Sister  
☐ Brother  
☐ Daughter  
☐ Son  
☐ Other (please specify): \_\_\_\_\_

32. Do you live with your family member?

- ☐ Yes (Please skip to question 35.)  
☐ No

33. If no, on average how often did you see your family member prior to this hospitalization?

- ☐ Daily  
☐ A few times a week  
☐ Weekly  
☐ Monthly  
☐ Yearly  
☐ Less than once a year

34. Where do you live?

- ☐ In the city where this hospital is located  
☐ Out of town

35. Before this hospital stay, have you been to an ICU as a patient or as a family member of a patient?

- ☐ Yes
- ☐ No

36. Are you a health care professional?

- ☐ Yes
- ☐ No

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

For peer review only



## Family Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

**Your participation is voluntary and all the information you provide will be kept confidential.** Your responses will help us to improve care for critically ill patients. **This survey takes less than 10 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

We are interested to know how prepared you felt when your family member was moved from the ICU to this hospital ward.

1. Before your family member was moved from the ICU to this hospital ward, did anybody explain to you what was going to happen?

- ☐ Yes
- ☐ No
- ☐ Not sure

2. How involved did you feel in the process of **deciding** to move your family member from the ICU to this hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

3. Please indicate what information was communicated to you before your family member was moved from the ICU to this hospital ward. Please select all that apply. (If you were not given any information, please skip to question 8.)

- ☐ A summary of events that happened while your family member was in the ICU
- ☐ A summary of your family member’s current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over care of your family member on this hospital ward
- ☐ Information about how the ICU team will follow up with your family member after the move
- ☐ Information about what to expect regarding care of your family member on this hospital ward
- ☐ Other (please specify): \_\_\_\_\_

4. How was this information communicated to you? Please select all that apply.

- ☐ Verbal conversation(s) with the doctors
- ☐ Verbal conversation(s) with the nurses
- ☐ Formal meeting(s) (e.g. family meeting)
- ☐ Personalized care sheet (e.g. ICU stay summary)
- ☐ Other (please specify): \_\_\_\_\_

5. How much of the information did you understand?

- ☐ All of the information  
☐ Most of the information  
☐ About half of the information  
☐ A little information  
☐ None of the information

6. Is there any other information you would have liked to receive?

- ☐ Yes (please specify): \_\_\_\_\_  
☐ No

7. Did a member of the medical team review goals of care/resuscitation status with you regarding your family member **before** he/she left the ICU?

- ☐ Yes  
☐ No  
☐ Not sure

8. Did you feel that the ICU medical team addressed your questions and/or concerns about moving your family member from the ICU to this hospital ward?

- ☐ Yes  
☐ Somewhat  
☐ No

9. Did you have the chance to meet your family member's new ward care provider(s) **before** the move took place?

- ☐ Yes  
☐ No

10. Did you feel that you developed a trusting relationship with any **ICU care provider(s)** while your family member was in the ICU?

- ☐ Yes  
☐ No (Please skip to question 12.)

11. If yes, with whom? Please select all that apply.

- ☐ Doctor
- ☐ Nurse
- ☐ Respiratory therapist
- ☐ Occupational therapist
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Social worker
- ☐ Chaplain
- ☐ Other (please specify): \_\_\_\_\_

12. Were you with your family member when he/she was moved from the ICU to this hospital ward?

- ☐ Yes
- ☐ No

**Next, we are interested to know about your experiences after your family member was moved from the ICU to this hospital ward.**

13. Was your family member assessed by a nurse **within the first hour** of him/her arriving on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

14. After arriving on this hospital ward, when was your family member **first seen by a doctor**?

- ☐ Within the first hour
- ☐ Within 1-4 hours
- ☐ After 4 hours of arriving on this ward but on the same day
- ☐ More than 1 day after arriving on this ward
- ☐ Not sure

15. Did a member of the ICU team visit your family member since he/she arrived on this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

16. Are you aware of any harmful events/errors in your family member's care that occurred since he/she was moved from the ICU to this hospital ward?

☐ Yes

☐ No

17. If yes, what was the nature of the event(s) and what do you believe caused it/them?

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18. Up until now, do you feel that you have developed a trusting relationship with any care provider(s) on this **hospital ward**?

☐ Yes

☐ No (Please skip to question 21.)

19. If yes, with whom? Please select all that apply.

☐ Doctor

☐ Nurse

☐ Respiratory therapist

☐ Occupational therapist

☐ Physiotherapist

☐ Pharmacist

☐ Social worker

☐ Chaplain

☐ Other (please specify): \_\_\_\_\_

20. Overall, how satisfied were you with the transfer process?

☐ Completely satisfied

☐ Somewhat satisfied

☐ Neither satisfied nor dissatisfied

☐ Somewhat dissatisfied

☐ Completely dissatisfied

21. How could the process of moving **your family member** from the ICU to this hospital ward have been improved?

22. Please indicate with a checkmark (✓) which days you were able to visit your family member while he/she was in the ICU and then on this hospital ward. Please select all that apply.

3 days before the move	2 days before the move	1 day before the move	Day of move from the ICU to hospital ward	1 day after the move	2 days after the move	3 days after the move

Lastly, we are interested to know some information about you.

23. What is your sex?

- ☐ Male
- ☐ Female

24. What is your age (in years)? \_\_\_\_\_

25. What is the highest level of education you have completed?

- ☐ Eighth grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate
- ☐ Some college/university, did not graduate
- ☐ College diploma/certificate
- ☐ Four year university degree
- ☐ More than a four year university degree

26. Which ethnicity do you most closely identify with?

- ☐ Caucasian
- ☐ Black or African Canadian
- ☐ Asian
- ☐ Aboriginal or First Nations
- ☐ East Indian
- ☐ Latin American
- ☐ Other (please specify): \_\_\_\_\_

27. What language do you speak at home most of the time?

- ☐ English
- ☐ French
- ☐ Spanish
- ☐ Vietnamese
- ☐ Hindi/Punjabi
- ☐ Mandarin/Cantonese
- ☐ Other (please specify): \_\_\_\_\_

28. What is your relationship to your family member?

- ☐ Wife
- ☐ Husband
- ☐ Partner
- ☐ Friend
- ☐ Mother
- ☐ Father
- ☐ Sister
- ☐ Brother
- ☐ Daughter
- ☐ Son
- ☐ Other (please specify): \_\_\_\_\_

29. Do you live with your family member?

- ☐ Yes
- ☐ No

30. If no, on average how often did you see your family member prior to this hospitalization?

- ☐ Daily
- ☐ A few times a week
- ☐ Weekly
- ☐ Monthly
- ☐ Yearly
- ☐ Less than once a year

31. Where do you live?

- ☐ In the city where this hospital is located
- ☐ Out of town

32. Before this hospital stay, have you been to an ICU as a patient or as a family member of a patient?

- ☐ Yes
- ☐ No

33. Are you a health care professional?

- ☐ Yes
- ☐ No

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.



## ICU Physician Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential.** The survey has full ethics approval (REB13-0022) and your participation implies consent. Your responses will help us to improve care for critically ill patients. **This survey takes about one minute to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

Please consider the transfer of your recent patient:

1. Which of the following factors did you consider when deciding that this patient was ready for transfer to a hospital ward? Please select all that apply.

- ☐ Age
- ☐ Severity of acute illness
- ☐ Comorbidities
- ☐ Diagnosis
- ☐ Type, number and duration of time that life support technologies used
- ☐ Duration of time since life support technologies were discontinued
- ☐ Adverse events experienced
- ☐ Frailty status (i.e. how frail)
- ☐ Physiological reserve
- ☐ Clinical course
- ☐ Amount of respiratory support (oxygen, suctioning, non-invasive ventilation) required by this patient
- ☐ Specialization of the receiving medical team (to match patient diagnosis/needs)
- ☐ Specialization of the receiving unit (to match patient diagnosis/needs)
- ☐ Time of day/day of week
- ☐ Shortage of ICU beds
- ☐ Goals of care/resuscitation status
- ☐ Amount of nursing care required for this patient
- ☐ Level of patient consciousness
- ☐ Results from a clinical prediction tool (please specify the name of the tool): \_\_\_\_\_
- ☐ Presence of a tracheostomy
- ☐ Patient mobility
- ☐ Family/patient input
- ☐ Other (please specify): \_\_\_\_\_

2. In an ideal situation, would you have preferred to keep this patient in ICU longer before transferring him/her?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

3. Who was your **primary contact** on the ward during this patient's transfer of care? Please select **one**.

- ☐ Receiving attending physician
- ☐ Receiving fellow/resident
- ☐ ICU outreach team/liaison
- ☐ Consulting colleague (non-ICU)
- ☐ Receiving ward nurse
- ☐ Other (please specify): \_\_\_\_\_
- ☐ I did not speak with anyone
- ☐ I did not have a primary contact

4. How did you or a member of your team communicate with your **primary contact**? Please select all that apply.

- ☐ Verbal communication over the telephone
- ☐ Face-to-face communication
- ☐ Written communication (e.g. discharge summary in paper or electronic chart)
- ☐ Electronic communication (e.g. email, text message, etc.)
- ☐ Other (please specify): \_\_\_\_\_

5. What was communicated by you or a member of your team to your **primary contact**? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ Current list of problems
- ☐ Current treatment plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural issues
- ☐ Family involvement/issues
- ☐ Other (please specify): \_\_\_\_\_

6. When did you or a member of your team communicate the above information to your **primary contact**? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on the hospital ward
- ☐ Not sure

7. How would you rate the **quality** of communication between yourself and the ward team during this patient's transfer?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Fair
- ☐ Poor

8. What information did you or a member of your team communicate to this patient and/or family before he/she was transferred to the hospital ward? Please select all that apply.

- ☐ A summary of events that happened while in ICU
- ☐ A summary of the patient's current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over the patient's care
- ☐ Information about what to expect regarding patient care on a ward
- ☐ Information regarding ICU follow-up
- ☐ Other (please specify): \_\_\_\_\_
- ☐ No information was given to the patient and/or family (please skip to question 11)

9. How did you or member of your team give the above information to this patient and/or his/her family member(s)? Please select all that apply.

- ☐ Verbal communication
- ☐ Written communication
- ☐ Other (please specify): \_\_\_\_\_

10. In your opinion, how much of the information was understood by this patient and/or family?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

11. Did you or a member of your team review goals of care/resuscitation status with this patient and/or the family before the patient was transferred to the hospital ward?

- ☐ Yes  
☐ No  
☐ Not sure

12. In your opinion, during the remainder of his/her hospital stay, what is this patient's risk of:

Experiencing an adverse event:

- ☐ Very high risk  
☐ Somewhat high risk  
☐ Neither high nor low risk  
☐ Somewhat low risk  
☐ Very low risk

Readmission to ICU:

- ☐ Very high risk  
☐ Somewhat high risk  
☐ Neither high nor low risk  
☐ Somewhat low risk  
☐ Very low risk

Death:

- ☐ Very high risk  
☐ Somewhat high risk  
☐ Neither high nor low risk  
☐ Somewhat low risk  
☐ Very low risk  
☐ N/A (this patient was transferred out to die)

13. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to this hospital ward?

- ☐ Yes (please specify the name of the tool): \_\_\_\_\_  
☐ No

14. Overall, how would you rate the transfer of care for this patient?

- ☐ 1 – The transfer went exceptionally well  
☐ 2  
☐ 3 – The transfer was average  
☐ 4  
☐ 5 – The transfer was unacceptable

15. Do you have any recommendations for how the transfer of care from the ICU to the hospital ward could have been improved for **this patient**?

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16. Do you have any additional comments regarding the transfer of care of this patient?

Demographics

17. What is your level of medical training?

- ☐ Attending (please specify number of years of independent practice):
- ☐ Fellow
- ☐ Resident
- ☐ Other (please specify):

Follow up

18. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

- ☐ Yes
- ☐ No

If yes, please provide your contact information:

- ☐ Name:
- ☐ Phone number/email:

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.



## ICU Nurse Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential**. The survey has full ethics approval (REB13-0022) and your participation implies consent. Your responses will help us to improve care for critically ill patients. **This survey takes about 2 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

Please consider the transfer of your recent patient:

1. How involved did you feel in the process of deciding to move this patient from the ICU to a hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

2. From your perspective, what factors were considered when deciding that this patient was ready for transfer to a hospital ward? Please select all that apply.

- ☐ Age
- ☐ Severity of acute illness
- ☐ Comorbidities
- ☐ Diagnosis
- ☐ Type, number and duration of time that life support technologies used
- ☐ Duration of time since life support technologies were discontinued
- ☐ Adverse events experienced
- ☐ Frailty status (i.e. how frail)
- ☐ Physiological reserve
- ☐ Clinical course
- ☐ Amount of respiratory support (oxygen, suctioning, non-invasive ventilation) required by this patient
- ☐ Specialization of the receiving medical team (to match patient diagnosis/needs)
- ☐ Specialization of the receiving unit (to match patient diagnosis/needs)
- ☐ Time of day/day of week
- ☐ Shortage of ICU beds
- ☐ Goals of care/resuscitation status
- ☐ Amount of nursing care required for this patient
- ☐ Level of patient consciousness
- ☐ Results from a clinical prediction tool (please specify the name of the tool): \_\_\_\_\_
- ☐ Presence of a tracheostomy
- ☐ Patient mobility
- ☐ Family/patient input
- ☐ Other (please specify): \_\_\_\_\_

3. In an ideal situation, would you have preferred to keep this patient in the ICU longer before transferring him/her to a hospital ward?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

4. Who was your **primary contact** when handing over care of this patient? Please select **one**.

- ☐ Accepting physician/team
- ☐ Nurse assuming care of this patient
- ☐ Covering/other ward nurse
- ☐ Ward charge nurse
- ☐ ICU outreach team/liaison
- ☐ Ward respiratory therapist
- ☐ Ward physiotherapist
- ☐ Other (please specify): \_\_\_\_\_

5. How did you communicate with your **primary contact**? Please select all that apply.

- ☐ Verbal communication over the telephone
- ☐ Face-to-face communication
- ☐ Written communication (e.g. discharge summary in paper or electronic chart)
- ☐ Electronic communication (e.g. email, text message etc.)
- ☐ Other (please specify): \_\_\_\_\_

6. What did you communicate to your **primary contact** on the ward? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ List of ongoing issues/concerns
- ☐ Current treatment plan
- ☐ Care plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/patient resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural/spiritual issues
- ☐ Family involvement/issues
- ☐ Nursing support for activities of daily living (i.e. self-care)
- ☐ Hospital discharge plan

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☐ Other (please specify): \_\_\_\_\_

For peer review only

7. When did you communicate the above information? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on the ward
- ☐ Not sure

8. How was your communication with your primary contact structured?

- ☐ A system-by-system discussion of this patient's needs (i.e. head to toe assessment)
- ☐ Pertinent information was discussed in order of priority
- ☐ Unstructured narrative
- ☐ Other (please specify): \_\_\_\_\_

9. Who else did you communicate with when handing over care of this patient? Please select all that apply.

- ☐ Accepting physician/team
- ☐ Nurse assuming care of this patient
- ☐ Covering/other ward nurse
- ☐ Ward charge nurse
- ☐ ICU outreach team/liaison
- ☐ Ward respiratory therapist
- ☐ Ward physiotherapist
- ☐ Ward occupational therapist
- ☐ Ward speech therapist
- ☐ Ward pharmacist
- ☐ Other (please specify): \_\_\_\_\_

10. How would you rate the quality of communication between yourself and the ward team regarding this patient's transfer from the ICU to the hospital ward?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Fair
- ☐ Poor

11. What information did you communicate to patient and/or family before he/she was transferred to the hospital ward? Please select all that apply.

- ☐ A summary of events that happened while in ICU
- ☐ A summary of the patient's current medical conditions
- ☐ The current treatment plan
- ☐ Information about who would take over the patient's care
- ☐ Information about what to expect regarding patient care on a ward
- ☐ Information regarding ICU follow-up
- ☐ Other (please specify): \_\_\_\_\_
- ☐ I did not give any information to the patient and/or family (please skip to question 13)

12. How did you communicate the above information to this patient and/or family about the transfer process? Please select all that apply.

- ☐ Verbal communication
- ☐ Written communication
- ☐ Other (please specify): \_\_\_\_\_

13. Who accompanied this patient to the receiving ward? Please select all that apply.

- ☐ ICU nurse
- ☐ Ward nurse
- ☐ ICU outreach team/liaison
- ☐ Nursing attendant
- ☐ Porter
- ☐ Admitting physician/team
- ☐ ICU physician
- ☐ Ward physician
- ☐ Respiratory therapist
- ☐ Other (please specify): \_\_\_\_\_
- ☐ Not sure

14. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to the hospital ward?

- ☐ Yes (please specify the name of the tool): \_\_\_\_\_
- ☐ No

15. Overall, how would you rate the transfer of care for this patient?

- ☐ 1 – The transfer went exceptionally well
- ☐ 2
- ☐ 3 – The transfer was average
- ☐ 4
- ☐ 5 – The transfer was unacceptable

16. Do you have any recommendations for how the transfer of care from the ICU to the hospital ward could have been improved for **this patient**?

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17. Do you have any additional comments regarding the transfer of care of this patient?

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### Demographics

18. Which of the following most accurately describes your professional designation?

- ☐ Nurse practitioner
- ☐ RN
- ☐ LPN
- ☐ Nurse clinician
- ☐ Other (please specify): \_\_\_\_\_

19. What was your relationship to this patient?

- ☐ Bedside nurse
- ☐ Bedside LPN
- ☐ Nurse practitioner
- ☐ Nurse clinician/charge nurse
- ☐ Other (please specify): \_\_\_\_\_

Follow up

20. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

- ☐ Yes
- ☐ No

If **yes**, please provide your contact information:

☐ Name: \_\_\_\_\_  
☐ Phone number/email: \_\_\_\_\_

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.



## Ward Physician Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential.** The survey has full ethics approval (REB13-0022) and your participation implies consent. Your responses will help us to improve care for critically ill patients. **This survey takes about 2 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

Please consider the transfer of your recent patient:

1. How did you participate in the decision making process to accept this patient from the ICU to this hospital ward? Please select all that apply.

- ☐ Accepted transfer of the patient
- ☐ Determined which ward the patient would go to
- ☐ Determined when (day or time) this patient could be transferred
- ☐ Requested additional test(s) before this patient was transferred
- ☐ Requested additional treatment(s) before this patient was transferred
- ☐ Requested additional consult(s) before this patient was transferred
- ☐ Other (please specify): \_\_\_\_\_

2. What factors influenced your decision to accept this patient for transfer? Please select all that apply.

- ☐ This patient was ready to leave the ICU
- ☐ This patient was improving
- ☐ I believe I am the best physician/team to care for this patient
- ☐ I/my team cared for this patient before he/she was admitted to the ICU
- ☐ I/my team performed an operation on this patient
- ☐ Workload to care for this patient (e.g. physician, nurse, respiratory therapist etc.) influenced the decision
- ☐ How busy I am/my team is with clinical work influenced the decision
- ☐ How busy the ICU is/was influenced the decision
- ☐ Other (please specify): \_\_\_\_\_

3. In an ideal situation, would you have preferred to keep this patient in the ICU longer before accepting him/her?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

4. Was the acceptance of this patient contingent on him/her being admitted to a specific ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

5. Did you or a member of your team assess this patient **while he/she was in the ICU?**

☐ Yes

☐ No

6. Did you or a member of your team speak with this patient and/or his/her family about the transfer **while he/she was in the ICU?**

☐ Yes

☐ No

7. Who was your **primary contact** in the ICU during this patient's transfer of care? Please select **one**.

☐ ICU attending physician

☐ ICU fellow/resident

☐ ICU outreach team/liaison

☐ ICU bedside nurse

☐ Consulting colleague

☐ Other (please specify): \_\_\_\_\_

☐ I did not speak with anyone

☐ I did not have a primary contact

8. How did you or a member of your team communicate with your **primary contact**? Please select all that apply.

☐ Verbal communication over the telephone

☐ Face-to-face communication

☐ Written communication (e.g. discharge summary in paper or electronic chart)

☐ Electronic communication (e.g. email, text message, etc.)

☐ Other (please specify): \_\_\_\_\_

9. What was communicated to you about this patient? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ Current list of problems
- ☐ Current treatment plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/patient resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural issues
- ☐ Family involvement/issues
- ☐ Other (please specify): \_\_\_\_\_

10. When was the above information communicated to you? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on this ward
- ☐ Not sure

11. How much information did you receive to support proper care for this patient?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

12. If you did not receive all of the necessary information, what was missing?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. How would you rate the quality of communication between yourself and the ICU team regarding this patient's transfer?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Fair
- ☐ Poor

14. Were you notified when this patient arrived on the ward?

- ☐ Yes
- ☐ No

15. After this patient arrived on this ward, when was he/she assessed by a member of your team?

- ☐ Within the first hour
- ☐ Within 1-4 hours
- ☐ After 4 hours of arriving on this ward but on the same day
- ☐ More than 1 day after arriving on this ward
- ☐ Not sure

16. How would you rate your workload at the time this patient arrived on this hospital ward?

- ☐ Very high
- ☐ Somewhat high
- ☐ Neither high nor low
- ☐ Somewhat low
- ☐ Very low

17. Did you or a member of your team review goals of care/resuscitation status with this patient and/or the family before the patient was transferred to this hospital ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

18. In your opinion, during the remainder of this patient’s hospital stay, what is his/her risk of:

Experiencing an adverse event:	Readmission to ICU:	Death:
<input type="checkbox"/> Very high risk	<input type="checkbox"/> Very high risk	<input type="checkbox"/> Very high risk
<input type="checkbox"/> Somewhat high risk	<input type="checkbox"/> Somewhat high risk	<input type="checkbox"/> Somewhat high risk
<input type="checkbox"/> Neither high nor low risk	<input type="checkbox"/> Neither high nor low risk	<input type="checkbox"/> Neither high nor low risk
<input type="checkbox"/> Somewhat low risk	<input type="checkbox"/> Somewhat low risk	<input type="checkbox"/> Somewhat low risk
<input type="checkbox"/> Very low risk	<input type="checkbox"/> Very low risk	<input type="checkbox"/> Very low risk
		<input type="checkbox"/> N/A (this patient was transferred out to die)

19. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to this hospital ward?

☐ Yes (please specify the name of the tool): \_\_\_\_\_

☐ No

20. Overall, how would you rate the transfer of care for this patient?

☐ 1 – The transfer went exceptionally well

☐ 2

☐ 3 – The transfer was average

☐ 4

☐ 5 – The transfer was unacceptable

21. Do you have any recommendations for how the transfer of care from the ICU to this hospital ward could have been improved for **this patient**?

\_\_\_\_\_

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22. Do you have any additional comments regarding the transfer of care of **this patient**?

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\_\_\_\_\_

## Demographics

23. What is your level of medical training?

- ☐ Attending (please specify number of years of independent practice): \_\_\_\_\_
- ☐ Fellow
- ☐ Resident
- ☐ Other (please specify): \_\_\_\_\_

## Follow up

24. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

- ☐ Yes
- ☐ No

If **yes**, please provide your contact information:

- ☐ Name: \_\_\_\_\_
- ☐ Phone number/email: \_\_\_\_\_

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

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## Ward Nurse Survey

We are conducting a national study to improve the quality of care patients receive as they move from the Intensive Care Unit (ICU) to a hospital ward. To do this we need to hear about your experiences – good and bad.

Your **participation is voluntary and all the information you provide will be kept confidential**. The survey has full ethics approval (REB13-0022) and your participation implies consent. Your responses will help us to improve care for critically ill patients. **This survey takes about 2 minutes to complete.**

If there are any questions or concerns, please do not hesitate to contact our team:

Barbara Artiuch (Research Assistant) at [barbara.artiuch@albertahealthservices.ca](mailto:barbara.artiuch@albertahealthservices.ca)

Denise Buchner (Senior Research Associate) at [dlbuchne@ucalgary.ca](mailto:dlbuchne@ucalgary.ca) or 403-210-6977

Dr. Tom Stelfox (Study Lead) at [tom.stelfox@albertahealthservices.ca](mailto:tom.stelfox@albertahealthservices.ca) or 403-956-2113

Thank you for your help!

Place patient label here

**Please consider the transfer of your recent patient:**

1. How involved did you feel in the process of deciding to accept this patient to this hospital ward?

- ☐ Completely involved
- ☐ Somewhat involved
- ☐ Neither involved nor uninvolved
- ☐ Somewhat uninvolved
- ☐ Completely uninvolved

2. From your perspective, what factors were considered when deciding that this patient was ready for transfer to a hospital ward? Please select all that apply.

- ☐ Age
- ☐ Severity of acute illness
- ☐ Comorbidities
- ☐ Diagnosis
- ☐ Type, number and duration of time that life support technologies used
- ☐ Duration of time since life support technologies were **discontinued**
- ☐ Adverse events experienced
- ☐ Frailty status (i.e. how frail)
- ☐ Physiological reserve
- ☐ Clinical course
- ☐ Amount of respiratory support (oxygen, suctioning, non-invasive ventilation) required by this patient
- ☐ Specialization of the **receiving medical team** (to match patient diagnosis/needs)
- ☐ Specialization of the **receiving unit** (to match patient diagnosis/needs)
- ☐ Time of day/day of week
- ☐ Shortage of ICU beds
- ☐ Goals of care/resuscitation status
- ☐ Amount of nursing care required for this patient
- ☐ Level of patient consciousness
- ☐ Results from a clinical prediction tool (please specify the name of the tool): \_\_\_\_\_
- ☐ Presence of a tracheostomy
- ☐ Patient mobility
- ☐ Family/patient input
- ☐ Other (please specify): \_\_\_\_\_
- ☐ Not Sure

3. In an ideal situation, would you have preferred to keep this patient in the ICU longer before accepting him/her?

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

4. Who was your **primary contact** during this patient’s transfer of care? Please select **one**.

- ☐ ICU bedside nurse
- ☐ Covering/other ICU nurse
- ☐ ICU charge nurse
- ☐ Respiratory therapist
- ☐ Physiotherapist
- ☐ ICU outreach team
- ☐ Admitting physician/medical team
- ☐ Other (please specify): \_\_\_\_\_

5. How did you communicate with your **primary contact**? Please select all that apply.

- ☐ Verbal communication over the telephone
- ☐ Face-to-face communication
- ☐ Written communication (e.g. discharge summary in paper or electronic chart)
- ☐ Electronic communication (e.g. email, text message etc.)
- ☐ Other (please specify): \_\_\_\_\_

6. What information did you receive from your **primary contact**? Please select all that apply.

- ☐ Diagnosis
- ☐ Treatments received in the ICU
- ☐ List of ongoing issues/concerns
- ☐ Current treatment plan
- ☐ Care plan
- ☐ Past medical history/important comorbid conditions
- ☐ Goals of care/patient resuscitation status
- ☐ Current medications
- ☐ Medication reconciliation with chronic therapies
- ☐ Allergies
- ☐ Patient mobility
- ☐ Plans for follow up by the ICU team
- ☐ Relevant social/cultural/spiritual issues
- ☐ Family involvement/issues
- ☐ Nursing support for activities of daily living (i.e. self-care)
- ☐ Hospital discharge plan
- ☐ Other (please specify): \_\_\_\_\_

7. When was the above information communicated to you? Please select all that apply.

- ☐ When it was decided that this patient was ready for transfer
- ☐ After this patient was accepted for transfer but before he/she left the ICU
- ☐ At the time this patient left the ICU
- ☐ After this patient arrived on this ward
- ☐ Not sure

8. How was your communication with your **primary contact** structured?

- ☐ A system-by-system discussion of this patient's needs (i.e. head to toe assessment)
- ☐ Pertinent information was discussed in order of priority
- ☐ Unstructured narrative
- ☐ Other (please specify): \_\_\_\_\_

9. How much information did you receive to support proper care of this patient?

- ☐ All of the information
- ☐ Most of the information
- ☐ About half of the information
- ☐ A little information
- ☐ None of the information

10. If you did not receive all of the necessary information, what was missing?

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11. Who else did you communicate with when accepting care of this patient?

- ☐ ICU bedside nurse
- ☐ Covering/other ICU nurse
- ☐ ICU charge nurse
- ☐ Respiratory therapist
- ☐ Physiotherapist
- ☐ ICU outreach team
- ☐ Admitting physician/medical team
- ☐ Occupational therapist
- ☐ Speech therapist
- ☐ Pharmacist
- ☐ Other (please specify): \_\_\_\_\_

12. How would you rate the quality of communication between yourself and the ICU team regarding **this patient's** transfer from the ICU to the hospital ward?

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Fair
- ☐ Poor

13. Who accompanied this patient to the ward? Please select all that apply.

- ☐ ICU nurse
- ☐ Ward nurse
- ☐ ICU outreach team/liaison
- ☐ Nursing attendant
- ☐ Porter
- ☐ Admitting physician/team
- ☐ ICU physician
- ☐ Ward physician
- ☐ Respiratory therapist
- ☐ Other (please specify): \_\_\_\_\_
- ☐ Not sure

14. Were you notified when this patient arrived on this ward?

- ☐ Yes
- ☐ No
- ☐ Not sure

15. Including this patient, what was your nurse-to-patient ratio when this patient arrived on the ward?

- ☐ 1:1
- ☐ 1:2
- ☐ 1:3
- ☐ 1:4
- ☐ 1:5
- ☐ 1:6
- ☐ 1:7
- ☐ 1:8
- ☐ Other (please specify): \_\_\_\_\_

16. How would you rate your workload at the time this patient arrived on this hospital ward?

- ☐ Very high  
☐ Somewhat high  
☐ Neither high nor low  
☐ Somewhat low  
☐ Very low

17. Were you able to fully examine this patient within the first hour that he/she arrived on this hospital ward?

- ☐ Yes  
☐ No (please explain why): \_\_\_\_\_

18. Did you or a member of your team use a tool (e.g. checklist or protocol) to facilitate the transfer of this patient from the ICU to this hospital ward?

- ☐ Yes (please specify the name of the tool): \_\_\_\_\_  
☐ No

19. Overall, how would you rate the transfer of care for this patient?

- ☐ 1 – The transfer went exceptionally well  
☐ 2  
☐ 3 – The transfer was average  
☐ 4  
☐ 5 – The transfer was unacceptable

20. Do you have any recommendations for how the transfer of care from the ICU to the hospital ward could have been improved for **this patient**?

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21. Do you have any additional comments regarding the transfer of care of **this patient**?

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22. How often have **you** accepted care of a patient transferred from the ICU?

- ☐ Once
- ☐ 2-5 times
- ☐ 6-10 times
- ☐ More than 10 times

Demographics

23. Which of the following most accurately describes your professional designation?

- ☐ Nurse practitioner
- ☐ RN
- ☐ LPN
- ☐ (Clinical) Nurse Educator
- ☐ Other (please specify): \_\_\_\_\_

24. What is your relationship to this patient?

- ☐ Bedside nurse (RN)
- ☐ Bedside nurse (RPN)
- ☐ Nurse practitioner
- ☐ Nurse clinician/charge nurse
- ☐ Other (please specify): \_\_\_\_\_

Follow up

25. In the future we will conduct a small number of interviews and/or focus group discussions to supplement our survey data. May we contact you for an interview or focus group in the future?

- ☐ Yes
- ☐ No

If **yes**, please provide your contact information:

- ☐ Name: \_\_\_\_\_
- ☐ Phone number/email: \_\_\_\_\_

**Thank you for completing the survey!** Your participation is invaluable in helping us to explore the needs of patients and families during transition out of the ICU and will help us to improve this process for other critically ill patients and their families in the future.

# Hospital Survey

(Please fill in one survey for each ICU where you will collect data)

1. Please enter the name of the hospital:


2. What type of hospital is this?

☐  
☐  
☐

Tertiary Care Hospital

Community Hospital

Other

If other, please specify:


3. How many acute care beds are in this hospital?

Beds

4. In 2013, how many patients were admitted to this hospital (excluding patients discharged from ER and outpatient visits)?

Patients

5. Are there any high dependency/step down (i.e. intermediate care) units in this hospital?

☐  
☐  
☐

Yes

No

Not sure

6. Does this hospital regularly host residents (i.e. teaching units)?

☐  
☐

Yes

No

7. How would you classify the study ICU in this hospital? Please select all that apply.

☐  
☐  
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Medical

Surgical

Trauma

Neurological

Burn

Other

If other, please specify:

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8. Does the study ICU use an open or closed model of care?

☐ Open: physicians direct care of individual patients with the assistance of ICU staff

☐ Closed: patient care is primarily directed by ICU physicians

☐ Mixed: patient care is jointly directed by ICU and non-ICU physicians

☐ Other

If other, please specify:

9. How many critical care beds are in the study ICU?

Beds

10. How many of the above beds are available for patient care?

Beds

11. In 2013, how many patients were admitted to this study ICU?

Patients

12. Please indicate how the following documents are recorded in this study ICU's health record system (please select all that apply):

	Paper Based	Electronic	Both
a) Laboratory values:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Physician orders:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Physician notes (admission, progress, consultation, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Nursing notes:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Allied health professional notes (respiratory therapists, physiotherapists, dieticians, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Please indicate how the following documents are recorded in the **WARD** health record system used in this hospital (please select all that apply):

	Paper Based	Electronic	Both
a) Laboratory values:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Physician orders:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Physician notes (admission, progress, consultation, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Nursing notes:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Allied health professional notes (respiratory therapists, physiotherapists, dieticians, etc.):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Does your hospital use the same electronic record system in both the study ICU and ward?

- ☐ Yes  
☐ No - but the ICU and ward providers can access both systems  
☐ No - ICU providers access the ICU system, ward providers access the ward system  
☐ Not applicable - neither the ICU nor ward use an electronic record system  
☐ Other

If other, please specify:

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15. Which of the following tools and/or procedures does this hospital employ during patient discharge from ICU to a hospital ward? Please select all that apply.

- |  |   |
|--|---|
| <input type="checkbox"/> Education program to train providers on how to discharge patients   | <input type="checkbox"/> Standard procedure to minimize delays once patient is ready for discharge  |
| <input type="checkbox"/> Guideline or policy to standardize patient discharge  | <input type="checkbox"/> Standard procedure to reconcile patient goals of care (i.e. confirm goals of care at time of discharge)                        |
| <input type="checkbox"/> Triage protocol to identify patients with the greatest need for ICU care  | <input type="checkbox"/> Standard procedure to reconcile medications  |
| <input type="checkbox"/> A risk stratification tool to identify patients ready for discharge   | <input type="checkbox"/> Standard procedure to provide the receiving team with a summary of the patient's medical problems, care received and care plan |
| <input type="checkbox"/> Standard procedure to identify receiving team and discharge location  | <input type="checkbox"/> Standard procedure for handing off responsibility of care from ICU to the hospital ward  |
| <input type="checkbox"/> Standard procedure to determine the best day of week and time of day for discharge  | <input type="checkbox"/> Standard procedure for follow-up of patients following discharge   |
| <input type="checkbox"/> Standard procedure to activate patient and family support systems   | <input type="checkbox"/> Standard procedure for checking that all necessary steps are completed (i.e. checklist)  |
| <input type="checkbox"/> Standard procedure to inform patients and families of discharge planning  |   |
| <input type="checkbox"/> Standard procedure to introduce patients and families to receiving teams  |   |
| <input type="checkbox"/> A tool to measure patient, family, and/or provider anxiety related to discharge   |   |
| <input type="checkbox"/> Standard procedure to inform patients and families about care received, care planned, discharge process and discharge locations |   |

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16. Please indicate which measures this study ICU routinely collects regarding quality assurance activities for patient transfer from ICU? Please select all that apply.

- ☐ Measure adverse events related to discharge
- ☐ Measure Medical Emergency Team (MET) activation to 'rescue patients' after discharge
- ☐ Measure readmission of patients to the ICU
- ☐ Measure patient mortality after discharge from ICU
- ☐ Measure patient, family, and/or provider satisfaction with ICU discharge
- ☐ Other
- ☐ None

If other, please specify:

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17. What type of critical care transition programs are offered by this hospital? Please select all that apply.

- ☐ Outreach team/MET team/other team
- ☐ Follow up by Nurse Liaison
- ☐ Follow up by Physicians
- ☐ Follow up by Nurses
- ☐ Follow up by Respiratory Therapists
- ☐ Follow up by Pharmacists
- ☐ Follow up by Social Workers
- ☐ Other
- ☐ None

If other, please specify:

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18. Please indicate all those responsible for planning patient discharge from the study ICU to the hospital ward (including providers licensed for independent practice and trainees):

<input type="checkbox"/>	ICU Physician	<input type="checkbox"/>	Ward Physiotherapist
<input type="checkbox"/>	Ward Physician	<input type="checkbox"/>	ICU Occupational Therapist
<input type="checkbox"/>	ICU Nurse	<input type="checkbox"/>	Ward Occupational Therapist
<input type="checkbox"/>	Ward Nurse	<input type="checkbox"/>	ICU Speech Therapist
<input type="checkbox"/>	Critical Care Transition Team	<input type="checkbox"/>	Ward Speech Therapist
<input type="checkbox"/>	ICU Respiratory Therapist	<input type="checkbox"/>	ICU Pharmacist
<input type="checkbox"/>	Ward Respiratory Therapist	<input type="checkbox"/>	Ward Pharmacist
<input type="checkbox"/>	ICU Physiotherapist	<input type="checkbox"/>	Other

If other, please specify: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

19. Please indicate what communication tools are used to support families and patients during the ICU discharge process. Please select all those that are used.

<input type="checkbox"/>	Brochures
<input type="checkbox"/>	Videos
<input type="checkbox"/>	Websites
<input type="checkbox"/>	Support groups
<input type="checkbox"/>	Other
<input type="checkbox"/>	None

If other, please specify: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20. How is patient information commonly transferred from the study ICU to the hospital ward? Please select all that apply.

<input type="checkbox"/>	Face-to-face handover between providers
<input type="checkbox"/>	Telephone handover between providers
<input type="checkbox"/>	Written handover between providers
<input type="checkbox"/>	Electronic handover between providers
<input type="checkbox"/>	Other

If other, please specify: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thank you for completing this survey!

## Patient / Family Interview Guide (Descriptive Phase)

### INTRODUCTIONS and OVERVIEW

- Interviewer introduces him/herself (name, position, affiliations, professional roles and responsibilities, and interests.)
- Participant introduces him/herself (name, where from).
- Explain the purpose of the project and thank them for participating.
  - Transitions of patient care between healthcare providers is identified as an important process of patient care
  - Today I would like to discuss your [your family member's] recent experience with transfer from the intensive care unit to the hospital ward.
- I will ask you to reflect on your [your family member's] recent transfer from the intensive care unit to hospital ward. I am interested to know about what worked well and what did not work well with regards to the transfer. You may not want to reveal the exact nature of the admission to the intensive care unit and that is OK. Primarily I am interested in identifying patient and family member experiences with the transfer experience. I am hoping that you will be able to explain what is important and meaningful regarding patient transfer from your experience.
- From these interviews we will document a list of criteria that you and other people who participate in these interviews feel should be components of a standard practice for transferring patients from the intensive care unit to a hospital ward. From this list of criteria we plan to develop a tool to help make sure the needs of patients are met during transfer. This tool may become a standard that is used across Canada.
- During our interview today I will ask you to suggest criteria that you believe should always be available or included when a patient is transferred from the intensive care unit to a hospital ward.
- For each topic that we discuss, I will summarize the key criteria that you talk about to confirm that I understand correctly.
- This interview will take approximately 45 minutes. I hope that you will allow me to record our conversation today. Recording the interview allows me to be more attentive to our conversation and it also allows me to create a written record of the exact conversation, which I can return to in order to be certain that I have understood the conversation correctly. When we are finished this interview I will assign a participant ID to the transcript and all of your identifying information will be removed. Your responses will be kept confidential. I will give you some time to read the consent form and I am happy to answer any questions you may have about it or the study. Once you are comfortable, please sign the form and we can begin. Your participation is voluntary and you can remove yourself from the study at any time.

(Participant reviews and signs consent form)

- Before we begin, do you have any questions?

**CLINICAL CONTEXT/PERCEPTIONS**

1. Please think back to your experience [the experience of your family member] when you [he/she] was transferred from the intensive care unit to the hospital. Please tell me about the experience.

Prompts:

- a. What happened before the transfer (in the ICU)?
- b. What happened during the transfer?
- c. What happened after the transfer (on the ward)?
- d. What made it a good experience?
- e. What made it a bad experience?
- f. How did this experience [transfer from ICU to hospital ward] compare to other hospital experiences you [your family member] has had
  - a. Why?
  - b. How?
- g. Did you have any concerns during the transfer experience?
  - a. How were they addressed?
- h. How did the care you [your family member] received while you [your family member] were in the intensive care unit differ from the care you [your family member] received on the hospital ward?

(Recap discussion)

**DECISION MAKING**

2. Please think about the moment when you learned that you [your family member] were/was going to be transferred from the ICU to the hospital ward.

Prompts:

- a. Were you involved in the decision making process?
- b. How did you learn about the transfer?
- c. How did you feel about the transfer?
- d. Did you feel that you [your family member] was ready for the transfer?

(Recap discussion)

**COMMUNICATION / PATIENT-PROVIDER RELATIONSHIP**

3. Please think about the information you were given from the medical team about the transfer from the intensive care unit to the hospital ward.

Prompts:

- a. Please tell us about the information you were provided with.
  - a. What information was provided to you while you [your family member] was in the ICU?
  - b. What information was provided to you while you [your family member] was on the ward
  - c. How was information provided to you?
    - i. In the ICU

- ii. On the ward
  - d. Was the way information was provided to you useful?
    - i. In the ICU
    - ii. On the ward
- b. Did you get the information you needed?
  - a. In the ICU?
  - b. On the ward?
  - c. What other information did you need?

(Recap discussion)

#### AFTER TRANSFER TO THE WARD

4. Please think about what it was like when you [your family member] first arrived on the ward.

Prompts:

- a. Did you [your family member] get an orientation to the ward?
  - i. Was it useful to you?
  - ii. What else did you need to know about the ward?
  - iii. What happened when you [your family member] got to the ward?
- b. Did you develop a relationship with care providers on the ward?
  - i. How were these relationship?
  - ii. How did these relationships compare to relationships you developed while you were in the ICU?
- c. Was there any harmful event or error that occurred in your [your family member's care] after you [he/she] arrived on the ward?
  - i. What was the nature of this event?

(Recap discussion)

#### QUESTIONS / CONCLUSION

To wrap up here are the major things that we discussed today.

(Recap all of the discussions)

5. Of all of the things we talked about today please identify for me what you would consider the three most important things that could improve patient transfer from ICU to hospital ward.

Prompts

- a. Why did you choose these three things?
- Ask if there are any questions about the research project, this interview, or what happens next
  - Thanks the participant again for participating.

**Provider Interview Guide (Descriptive Phase)**

**INTRODUCTIONS and OVERVIEW**

- Interviewer introduces him/herself (name, position, affiliations, professionals roles and responsibilities, and interests.)
- Participant introduces him/herself (name, where from).
- Thank you, [NAME] for making the time in your busy schedule to meet with me today. I appreciate your participation in an interview to learn about your experience with the transfer of patients from the Intensive Care Unit to a hospital ward.
- This interview will take approximately 30 minutes. I hope you will permit me to record our conversation today. Recording the interview allows me to be more attentive to our conversation and it also allows me to create a written record of the exact conversation, which I can return to in order to be certain that I have understood the conversation correctly. When we are finished this interview I will assign a participant ID to your transcript and all of your identifying information will be removed. Your responses will be kept confidential. I will give you some time to read the consent form and I am happy to answer any questions you may have about it or the study. Once you are comfortable, please sign the form and we can begin. Your participation is voluntary and you can remove yourself from the study at any time.

(Participant reviews and signs consent form)

- Before we begin, do you have any questions?

**CLINICAL EXPERIENCE WITH PATIENT DISCHARGE**

1. Can you describe to me a recent experience you had when a patient was transferred from the intensive care unit to a hospital ward?

Prompts:

- a. What happened during the transfer?
  - i. In your opinion, was this a typical transfer from the intensive care unit to hospital ward?
  - ii. How were you involved in the decision that the patient was ready for transfer from intensive care unit to hospital ward?
  - iii. In your opinion, was this patient ready to be transferred from the intensive care unit to the hospital ward?
- b. Can you tell me what a typical transfer from the intensive care unit to hospital ward is like?
- c. From your experience, what works with the current process of transferring patients from the intensive care unit to a hospital ward?
- d. From your experience, what does not work?

## COMMUNICATION BETWEEN PROVIDERS

2. I would like to ask you about communication during the transfer process. Can you describe to me what you as a [PHYSICIAN / NURSE] needs to communicate in order to transfer [ACCEPT] patient care from the intensive care unit to a hospital ward?

Prompts:

- a. What information do you think is pertinent to follow the patient from the intensive care unit to the hospital ward?
  - i. What is the best way to convey this information?
- b. How do you as a [PHYSICIAN/ NURSE] transfer [RECEIVE] information about patient care to [FROM] the other provider?
  - i. Who do you normally communicate with?
  - ii. How is communication normally done?
  - iii. Is there normally face-to-face communication
    - i. Why? Why not? What constrains face-to-face communication
    - ii. Is face-to-face communication effective?
  - iv. Is information exchanged electronically?
    - i. How so?
    - ii. Is it effective?
  - v. Is information exchanged through paper patient records?
    - i. Is it effective?
  - vi. How could communication be better?
- c. Does your [INTENSIVE CARE UNIT / WARD] use guidelines, protocols or checklists to assist with transferring patients from the intensive care unit to a hospital ward?
  - i. Please describe these tools.
  - ii. Are these tools electronic or paper?
  - iii. Are these tools effective?
    - i. Why?
    - ii. Why not?

## COMMUNICATION WITH PATIENTS / FAMILIES

3. Please think back to your recent experience when you were involved with the transfer of a patient from the intensive care unit to hospital ward. How was the family involved with the transfer process?

Prompts:

- a. What was communicated to the patient and/or family regarding the transfer?
  - i. Who provided this communication?
  - ii. How was it provided?
  - iii. Were you involved in this communication
- b. What could make communication with patients and families better with regards to transfers from intensive care unit to hospital ward?

**SYSTEM FACTORS AS FACILITATORS AND BARRIERS**

4. From your experience, what are important system-level factors that influence patient transfer from intensive care unit to hospital ward?

Prompts:

- a. What are barriers to good transfers between the intensive care unit and hospital ward?
- b. What could be done to make transfers from the intensive care unit to hospital ward better at your hospital?
- c. What could be done to make transfers better from the intensive care unit to hospital wards within the system (region/province) that your hospital works in?

**DEVELOPMENT OF A TOOL**

5. Of all of the things we talked about today please identify for me what you would consider the three most important things that could improve patient transfer from ICU to hospital ward.

Prompts

- a. Why did you choose these three things?
- b. How would you rate these in order of importance?
- c. Why are these important?

**QUESTIONS / CONSLUSIONS**

- These are all the questions I have for you. Do you have any questions for me about the research project or interview?
- Is there anything you would like to add in light of what we have been talking about?
- Is there anything you thought I would ask but did not, or anything else that you think is important for us to consider?
- Thank you for your input and participation in this interview. We appreciate that you took the time to talk to us.

<h2>Case Report Form</h2>	
Unique patient ID number:	<input style="width: 90%;" type="text"/>
<b>Demographics</b>	
a) Age:	<input style="width: 50px;" type="text"/> years old
b) Sex:	<input type="checkbox"/> Male <input type="checkbox"/> Female
c) Height:	<input style="width: 50px;" type="text"/> cm
d) Weight at ICU admission:	<input style="width: 50px;" type="text"/> kg
<b>Pre Intensive Care Unit (ICU) Information</b>	
a) Hospital admit date (current hospitalization):	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> Y Y      M M      D D
b) What was the category of hospital admitting diagnosis for this patient:	<div style="display: flex; flex-direction: column; gap: 5px;"> <div><input type="checkbox"/> Respiratory</div> <div><input type="checkbox"/> Cardiovascular</div> <div><input type="checkbox"/> Gastrointestinal</div> <div><input type="checkbox"/> Neurological (including eyes)</div> <div><input type="checkbox"/> Trauma</div> <div><input type="checkbox"/> Poisoning</div> <div><input type="checkbox"/> Genito-urinary</div> <div><input type="checkbox"/> Endocrine, Metabolic, Thermoregulation and Poisoning</div> <div><input type="checkbox"/> Haematological/Immunological</div> <div><input type="checkbox"/> Musculoskeletal</div> <div><input type="checkbox"/> Dermatological</div> <div><input type="checkbox"/> Psychiatric</div> </div>

c) What was the specific diagnosis?		<div></div> <div></div> <div></div> <div></div>
d) Location before ICU admission:	<div><input type="checkbox"/> Emergency Department (ED)</div> <div><input type="checkbox"/> High dependency unit/step down (intermediate care) unit</div> <div><input type="checkbox"/> OR/Recovery</div> <div><input type="checkbox"/> Ward</div> <div><input type="checkbox"/> Other hospital (any location in another hospital)</div> <div><input type="checkbox"/> Other ICU (within this hospital)</div> <div><input type="checkbox"/> Other</div>	
If other, please specify:		<div></div> <div></div> <div></div>
e) Did this patient receive surgery (during this hospital admission) prior to ICU admission?	<div><input type="checkbox"/> No surgery</div> <div><input type="checkbox"/> Elective surgery</div> <div><input type="checkbox"/> Emergency surgery</div>	
f) Was this patient admitted to the ICU after resuscitation from cardiopulmonary arrest (ie. code)?	<div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>	
g) Was this patient admitted to the ICU after Medical Emergency Team (MET) activation?	<div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>	
h) Was this patient previously admitted to an ICU during this current hospital stay?	<div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>	
i) If yes, what was the discharge date from the previous ICU admission?	<div><div><div></div><div></div></div><div>Y Y</div></div> <div><div><div></div><div></div></div><div>M M</div></div> <div><div><div></div><div></div></div><div>D D</div></div>	

Current ICU Admission	
a) ICU admit date:	<div> <div><input type="text"/></div> <div><input type="text"/></div> <div>Y Y</div> </div> <div> <div><input type="text"/></div> <div><input type="text"/></div> <div>M M</div> </div> <div> <div><input type="text"/></div> <div><input type="text"/></div> <div>D D</div> </div>
b) What was the category of hospital admitting diagnosis for this patient:	<div> <input type="checkbox"/> Respiratory           <input type="checkbox"/> Cardiovascular           <input type="checkbox"/> Gastrointestinal           <input type="checkbox"/> Neurological (including eyes)           <input type="checkbox"/> Trauma           <input type="checkbox"/> Poisoning           <input type="checkbox"/> Genito-urinary           <input type="checkbox"/> Endocrine, Metabolic, Thermoregulation and Poisoning           <input type="checkbox"/> Haematological/Immunological           <input type="checkbox"/> Musculoskeletal           <input type="checkbox"/> Dermatological           <input type="checkbox"/> Psychiatric         </div>
c) What was the specific diagnosis?	<div> <div></div> <div></div> <div></div> <div></div> </div>
d) Was this a scheduled or unscheduled admission to the ICU?	<div> <input type="checkbox"/> Scheduled (ie. planned admission, post surgery or procedure)           <input type="checkbox"/> Unscheduled (ie. not planned in advance)         </div>
e) SOFA score at ICU admission:	<div> <div></div> </div>
f) Glasgow Coma Scale (GCS) at ICU admission:	<div> <div></div> </div>
g) APACHE II score at ICU admission:	<div> <div></div> </div>

Comorbidities

a) Pre-existing comorbidities(ie. prior to hospitalization):

☐ Alcohol abuse

☐ Anemia

☐ Cerebrovascular disease

☐ Chronic pulmonary disease

☐ Coagulopathy

☐ Congestive heart failure

☐ Connective tissue disease

☐ Dementia

☐ Depression

☐ Diabetes (without end-organ damage)

☐ Diabetes (with end-organ damage)

☐ Drug abuse

☐ Fluid/electrolyte disorder

☐ Hemiplegia

☐ HIV/AIDS

☐ Hypertension

☐ Liver disease (mild; without portal hypertension, includes chronic hepatitis)

☐ Leukemia

☐ Lymphoma

☐ Metastatic solid tumor

☐ Myocardial infarction

☐ Obesity

☐ Peptic ulcer disease (no bleed)

☐ Peripheral vascular disease

☐ Renal Disease (moderate to severe)

☐ Thrombophilia

☐ Tumor (without metastasis (exclude if diagnosis made >5 years ago))

☐ Other(s)

Please list all other major comorbidities:

Version 2 - October 28, 2014

4

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**Advanced Respiratory Support During ICU Stay**

a) During this patient's ICU stay was the patient mechanically ventilated? Please select all that apply. (If no, please move onto next section - 'Advanced Cardiac Support During ICU Stay')

- ☐ Invasive mechanical ventilation  
☐ Non-invasive mechanical ventilation  
☐ No mechanical ventilation

b) If this patient was mechanically ventilated (invasive or non-invasive), what was the first date and time of mechanical ventilation?

Y Y M M D D

Time (H:M) \_\_\_\_\_ AM or PM

c) Please provide the date and time of final liberation from mechanical ventilation:

Y Y M M D D

Time (H:M) \_\_\_\_\_ AM or PM

d) What is the total number of calendar days (or portion of calendar days) that the patient received mechanical ventilation?

Days

e) In the ICU, did the patient need to be re-intubated?

☐ Yes  
☐ No

f) Did the patient receive a tracheostomy while he/she was in the ICU?

☐ Yes  
☐ No

**Advanced Cardiac Support During ICU Stay**

a) While this patient was in ICU, were vasopressors or inotropes used? (If no, please move onto next section - 'Advanced Kidney Support During ICU Stay')

☐ Yes  
☐ No

b) What was the first date and time that vasopressors or inotropes were administered for this patient:

Time (H:M) \_\_\_\_\_ AM or PM

c) What was the last date and time that vasopressors or inotropes were administered for this patient:

Time (H:M) \_\_\_\_\_ AM or PM

d) What is the total number of calendar days (or portion of calendar days) that vasopressors or inotropes were administered for this patient?

\_\_\_\_\_ days

e) Please indicate the type of vasopressors or inotropes administered to this patient:

☐

Norepinephrine

☐

Epinephrine

☐

Vasopressin

☐

Phenylephrine

☐

Dopamine

☐

Dobutamine

☐

Milrinone

Advanced Kidney Support During ICU Stay

a) While this patient was in ICU, did he/she have Acute Renal Failure (ARF)?

☐

Yes

☐

No

b) Did the patient receive any form of renal replacement therapy while in ICU? (If no, please move onto next section - 'Delirium')

☐

Yes

☐

No

c) Was the patient a pre-existing dialysis patient?

☐

Yes

☐

No

d) Type of dialysis received (please select all that apply):	<input type="checkbox"/> Intermittent Hemodialysis <input type="checkbox"/> Peritoneal Dialysis <input type="checkbox"/> Continuous Renal Replacement Therapy												
e) On which date was dialysis first received in the ICU?	<table border="0"> <tr> <td><input type="text"/></td><td><input type="text"/></td> <td><input type="text"/></td><td><input type="text"/></td> <td><input type="text"/></td><td><input type="text"/></td> </tr> <tr> <td>Y</td><td>Y</td> <td>M</td><td>M</td> <td>D</td><td>D</td> </tr> </table>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Y	Y	M	M	D	D
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>								
Y	Y	M	M	D	D								
f) Was the patient still being prescribed dialysis after he/she left the ICU?	<input type="checkbox"/> Yes <input type="checkbox"/> No												
<b>Delirium</b>													
a) Was this patient diagnosed with delirium during his/her ICU stay?	<input type="checkbox"/> Yes <input type="checkbox"/> No												
<b>Code Status</b>													
a) On the day of transfer from ICU to the hospital ward, what was the Level of Care (Code Status) for this patient?	<input type="checkbox"/> Resuscitation - patient eligible to receive resuscitation in the event of cardiac arrest <input type="checkbox"/> ICU Care - patient eligible to be readmitted to ICU and receive ICU level care but not resuscitation in the event of cardiac arrest <input type="checkbox"/> Medical Care - patient eligible to receive medical/surgical care, but not admission to ICU <input type="checkbox"/> Comfort Care - patient eligible to receive care focused on comfort and dignity at the end of life <input type="checkbox"/> Not recorded												
b) Is there documentation in this patients chart that the Level of Care (Code Status) for this patient was reviewed with the patient/family while the patient was in the ICU?	<input type="checkbox"/> Yes <input type="checkbox"/> No												



<p>d) What was the date and time that the ICU discharge summary or transfer note was recorded in the patient's chart (paper or electronic)?</p>	<div> <input type="text"/> <input type="text"/> Y Y         </div> <div> <input type="text"/> <input type="text"/> M M         </div> <div> <input type="text"/> <input type="text"/> D D         </div> <div>           Time (H:M) _____ AM or PM         </div>
<p>e) At 9AM on the day this patient was transferred from ICU to the hospital ward, how many beds were occupied in this ICU?</p>	<div> <input type="text"/> Beds         </div>
<p>f) SOFA score at time of transfer from ICU to hospital ward</p>	<input type="text"/>
<p>g) APACHE II score at time of transfer from ICU to hospital ward:</p>	<input type="text"/>
<p>h) Is the ward (bed) this patient was transferred to a high dependency or step-down (intermediate care) ward (bed)?</p>	<div> <input type="checkbox"/> Yes         </div> <div> <input type="checkbox"/> No         </div>
<p>i) Are there any tools in the chart that relate to the transfer of this patient from ICU to the hospital ward? (examples below)</p>	<div> <input type="checkbox"/> Yes         </div> <div> <input type="checkbox"/> No         </div>
<p>j) If yes, which of the following tools are in the chart that were used to transfer this patient from ICU to the hospital ward?</p>	<div> <input type="checkbox"/> Checklist         </div> <div> <input type="checkbox"/> Discharge/Transfer Summary         </div> <div> <input type="checkbox"/> Medication Reconciliation Tool         </div> <div> <input type="checkbox"/> Patient and/or family information brochure/sheet         </div> <div> <input type="checkbox"/> Risk Stratification Tool (calculates risk of re-admission or death post transfer)         </div> <div> <input type="checkbox"/> Other         </div>
<p>If other tools were used, please specify:</p>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Outcomes		
a) Patient status at time of hospital discharge:	<div><input type="checkbox"/> Alive</div> <div><input type="checkbox"/> Dead</div>	
b) Location of patient following hospital discharge (if alive):	<div><input type="checkbox"/> Home</div> <div><input type="checkbox"/> Assisted Living</div> <div><input type="checkbox"/> Long Term Care Home (LTCH)</div> <div><input type="checkbox"/> Rehab</div> <div><input type="checkbox"/> Other</div>	
If other, please specify:	<div></div> <div></div> <div></div>	
c) Did the patient have a MET activation after ICU discharge?	<div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>	
d) If yes, what was the date of the first MET activation?	<div><div><div></div><div></div></div><div>Y Y</div></div> <div><div><div></div><div></div></div><div>M M</div></div> <div><div><div></div><div></div></div><div>D D</div></div>	
e) Did the patient have cardiac arrest (code) after ICU discharge?	<div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>	
f) If yes, what was the date of the first cardiac arrest?	<div><div><div></div><div></div></div><div>Y Y</div></div> <div><div><div></div><div></div></div><div>M M</div></div> <div><div><div></div><div></div></div><div>D D</div></div>	
g) Was the patient readmitted to the ICU after ICU discharge?	<div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>	
h) If yes, please provide the date of readmission (first readmission if more than one) to the ICU during the same hospital stay:	<div><div><div></div><div></div></div><div>Y Y</div></div> <div><div><div></div><div></div></div><div>M M</div></div> <div><div><div></div><div></div></div><div>D D</div></div>	
i) Please provide the date of hospital discharge:	<div><div><div></div><div></div></div><div>Y Y</div></div> <div><div><div></div><div></div></div><div>M M</div></div> <div><div><div></div><div></div></div><div>D D</div></div>	

## APACHE SCORE AT ICU ADMISSION

Physiologic Variable	Actual Score	High Abnormal Range							Normal				Low Abnormal Range				Acute Physiologic Score (APS)						
		+4	+3	+2	+1	0	+1	+2	+3	+4	Score												
Temperature (Rectal/Core) Oral: add 0.5°C Axilla: add 1.0°C		≥ 41	39-40.9		38.5-38.9	36-38.4	34-35.9	32-33.9	30-31.9	≤ 29.9													
Mean Arterial Pressure (mmHg)		≥ 160	130-159	110-129		70-109		50-69		≤ 49													
Heart Rate		≥ 180	140-179	110-139		70-109		55-69	40-54	≤ 39													
Respiratory Rate (Ventilated or non-ventilated)		≥ 50	35-49		25-34	12-24	10-11	6-9		≤ 5													
Oxygenation a) $FI_{O_2} \geq .5$ , record AaDO <sub>2</sub> b) $FI_{O_2} < .5$ , record only PaO <sub>2</sub>		≥ 500	350-499	200-349		< 200	AaDO <sub>2</sub> : $[FI_{O_2} \times 713] - [PaCO_2 / 0.8] - PaO_2$																
Arterial pH		≥ 7.7	7.6-7.69		7.5-7.59	7.33-7.49		61-70	55-60	< 55													
Serum Sodium (mmol/L)		≥ 180	160-179	155-159	150-154	130-149		120-129	111-119	< 110													
Serum Potassium (mmol/L)		≥ 7	6-6.9		5.5-5.9	3.5-5.4	3-3.4	2.5-2.9		< 2.5													
Serum Creatinine (μmol/L)	*	≥ 309	177-308	132-176		53-131		< 53		*													
*DOUBLE SCORE FOR ARF																							
Hematocrit (%)		≥ 60		50-59.9	46-49.9	30-45.9		20-29.9		< 20													
WBC		≥ 40		20-39.9	15-19.9	3-14.9		1-2.9		< 1													
GCS (Score = 15 minus actual GCS )		Enter Actual GCS here																					
*HCO <sub>3</sub> (Venous mmol/L) (*Only if no ABG)		≥ 52	41-51.9		32-40.9	22-31.9		18-21.9	15-17.9	< 15													
AGE POINTS (circle)		<table border="1"> <tr> <td>AGE</td> <td>POINTS</td> </tr> <tr> <td>&lt; 45</td> <td>0</td> </tr> <tr> <td>45-54</td> <td>2</td> </tr> <tr> <td>55-64</td> <td>3</td> </tr> <tr> <td>65-74</td> <td>5</td> </tr> <tr> <td>&gt; 74</td> <td>6</td> </tr> </table>										AGE	POINTS	< 45	0	45-54	2	55-64	3	65-74	5	> 74	6
AGE	POINTS																						
< 45	0																						
45-54	2																						
55-64	3																						
65-74	5																						
> 74	6																						
TOTAL ACUTE																							
PHYSIOLOGIC SCORE (APS)																							
AGE POINTS																							
TOTAL APACHE SCORE																							

Sequential Organ Failure Assessment (SOFA) Score Worksheet at ICU Admission						
Unique Patient ID Number: _____						
ORGAN SYSTEM	Actual Score	0	1	2	3	4
SOFA SCORE						
Respiratory: PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) with Respiratory Support	—	> 400	301 - 400	201 - 300	101 - 200	≤ 100
Respiratory: PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) without Respiratory Support		> 400	301 - 400	≤ 300		
Coagulation: Platelets (x 10 <sup>9</sup> /mm <sup>3</sup> )		> 150	101 - 150	51 - 100	21 - 50	≤ 20
Liver: Bilirubin (mmol/L)		> 20	20 - 32	33 - 101	102 - 204	> 204
Cardiovascular: Hypotension		No hypotension	MAP < 70 mmHg	dopamine ≤ 5.0 or any dose	dopamine > 5.0 or epinephrine ≤ 0.1 or norepinephrine ≤ 0.1 or any dose vasopressin or any dose	dopamine > 15.0 or epinephrine > 0.1 or norepinephrine > 0.1
				dobutamine or any dose milrinone	phenylephrine	
				(doses are expressed in mcg/kg/min)		
Renal: Creatinine (mmol/L) OR urine output	—	< 110	110 - 170	171 - 299	300 - 440 < 500 ml/day	> 440 < 200 ml/day
Neurologic: Glasgow Coma Scale		15	13 - 14	10 - 12	6 - 9	< 6
TOTAL SOFA SCORE =						

## APACHE SCORE AT ICU TRANSFER TO HOSPITAL WARD

Acute Physiologic Score (APS)														
Physiologic Variable	Actual Score	High Abnormal Range					Normal			Low Abnormal Range				APS Score
		+4	+3	+2	+1	0	+1	+2	+3	+4				
Temperature (Rectal/Core) Oral: add 0.5°C Axilla: add 1.0°C		≥ 41	39-40.9		38.5-38.9	36-38.4	34-35.9	32-33.9	30-31.9	≤ 29.9				
Mean Arterial Pressure (mmHg)		≥ 160	130-159	110-129		70-109		50-69		≤ 49				
Heart Rate		≥ 180	140-179	110-139		70-109		55-69	40-54	≤ 39				
Respiratory Rate (Ventilated or non-ventilated)		≥ 50	35-49		25-34	12-24	10-11	6-9		≤ 5				
Oxygenation a) $\text{FiO}_2 \geq .5$ , record AaDO <sub>2</sub> b) $\text{FiO}_2 < .5$ , record only PaO <sub>2</sub>		≥ 500	350-499	200-349		< 200	AaDO <sub>2</sub> : $[\text{FiO}_2 \times 713] - [\text{PaCO}_2 / 0.8] - \text{PaO}_2$							
Arterial pH		≥ 7.7	7.6-7.69		7.5-7.59	7.33-7.49		7.25-7.32	7.15-7.24	< 7.15				
Serum Sodium (mmol/L)		≥ 180	160-179	155-159	150-154	130-149		120-129	111-119	< 110				
Serum Potassium (mmol/L)		≥ 7	6-6.9		5.5-5.9	3.5-5.4	3-3.4	2.5-2.9		< 2.5				
Serum Creatinine (μmol/L)	*	≥ 309	177-308	132-176		53-131		< 53		*				
*DOUBLE SCORE FOR ARF														
Hematocrit (%)		≥ 60		50-59.9	46-49.9	30-45.9		20-29.9		< 20				
WBC		≥ 40		20-39.9	15-19.9	3-14.9		1-2.9		< 1				
GCS (Score = 15 minus actual GCS)		Enter Actual GCS here												
*HCO <sub>3</sub> (Venous mmol/L) (*Only if no ABG)		≥ 52	41-51.9		32-40.9	22-31.9		18-21.9	15-17.9	< 15				
AGE POINTS (circle)											TOTAL ACUTE			
AGE	POINTS											PHYSIOLOGIC SCORE (APS)		
< 45	0											AGE POINTS		
45-54	2											TOTAL APACHE SCORE		
55-64	3													
65-74	5													
> 74	6													

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Sequential Organ Failure Assessment (SOFA) Score Worksheet at ICU Transfer to Hospital Ward						
Unique Patient ID Number: _____						
ORGAN SYSTEM	Actual Score	0	1	2	3	4
SOFA SCORE						
Respiratory: PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) with Respiratory Support		> 400	301 - 400	201 - 300	101 - 200	≤ 100
Respiratory: PaO <sub>2</sub> /FIO <sub>2</sub> (mmHg) without Respiratory Support		> 400	301 - 400	≤ 300		
Coagulation: Platelets (x 10 <sup>3</sup> /mm <sup>3</sup> )		> 150	101 - 150	51 - 100	21 - 50	≤ 20
Liver: Bilirubin (mmol/L)		> 20	20 - 32	33 - 101	102 - 204	> 204
Cardiovascular: Hypotension		No hypotension	MAP < 70 mmHg	dopamine ≤ 5.0 or any dose	dopamine > 5.0 or epinephrine ≤ 0.1 or norepinephrine ≤ 0.1 or any dose	dopamine > 15.0 or epinephrine > 0.1 or norepinephrine > 0.1
				dobutamine or any dose milrinone	vasopressin or any dose phenylephrine	
(doses are expressed in mcg/kg/min)						
Renal: Creatinine (mmol/L) OR urine output		< 110	110 - 170	171 - 299	300 - 440 < 500 ml/day	> 440 < 200 ml/day
Neurologic: Glasgow Coma Scale		15	13 - 14	10 - 12	6 - 9	< 6
TOTAL SOFA SCORE =						