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Patient Important Gastrointestinal Bleeding in the ICU:

A Mixed-Methods Study of Patient and Family Perspectives

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Abstract

Background: Clinically important upper gastrointestinal bleeding is conventionally defined as bleeding accompanied by hemodynamic changes, requiring red blood cell transfusions or other invasive interventions. However, it is unclear if this clinical definition reflects patient values and preferences.

Objective: To elicit views from patients and families regarding features, tests and treatments for gastrointestinal bleeding that are important to them.

Design: Sequential mixed-methods qualitative-dominant multi-center study with an instrument-building aim.

Methods: We developed orientation tools and educational materials in partnership with patients and family members, including a slide deck and executive summary. We will invite ICU survivors and family members of former ICU patients to participate. Following a virtual interactive presentation, participants will share their perspectives in an interview or focus group. Qualitative data will be analyzed using inductive qualitative content analysis, wherein codes will be derived directly from the data rather than using preconceived categories. Concurrent data collection and analysis will occur. Quantitative data will include self-reported demographic characteristics.

Results: Study results will inform future research, clinical practice, education and health policy. Findings will be relevant for those seeking meaningful engagement of patients and families in clinical investigations, and will promote patient-centered care.

Ethics & Dissemination: This study has ethics approval at McMaster University and the University of Calgary. Findings will be disseminated via manuscript and through incorporation as a secondary trial outcome.

Conclusion: This study will synthesize the values and perspectives of patients and family members to create a novel trial outcome for a randomized trial of stress ulcer prophylaxis.

Article Summary

Strengths & Limitations of This Study

- The protocol describes a rigorous process for building a measure which is responsive to patient preferences
- The protocol was developed in partnership with patient and family partners
- Proposed participants are those with personal or caregiving experience of the Adult ICU. Their perspectives may differ from those with experience of gastrointestinal bleeding.
- Patient partners may differ in demographic and experiential traits from the general ICU population.

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Introduction

Patient and family engagement occurs through an active partnership forged among patients, families, clinicians and researchers to improve both health and care. (1) Through their lived experience, patients and families provide a unique perspective on various aspects of research, including investigational priorities. (2) Their engagement can lead to better outcomes and improved satisfaction for patients and families, and cost savings for the healthcare system. (3) For patients in the intensive care unit (ICU) who are usually unable to participate in their own care due to the severity of their illness, partnering with ICU survivors and family members is garnering increased attention. (4-6)

Ethically and scientifically compelling, patient involvement in critical care research can help ensure that the study outcomes are relevant and meaningful to future patients. In service of this tenet, there is a need to create a measure of upper gastrointestinal bleeding that is important to patients and their families. In critically ill patients, minor bleeding is extremely common, but major bleeding is rare, as documented using an ICU-specific bleeding instrument capturing bleeding from any body site. (7) Bleeding from the upper gastrointestinal tract is a well-known complication of critical illness. Early investigations in the ICU setting examining the epidemiology, risk factors and consequences of upper gastrointestinal bleeding often use an outcome of 'clinically important bleeding' which was developed from the practitioner's perspective. The criteria were based on aberrant physiology and associated required interventions, (8, 9) modified to distinctly incorporate vasopressors. (10, 11) Clinically important gastrointestinal bleeding is defined as overt bleeding *in the absence of other causes* with one of the following features: 1) spontaneous decrease in systolic (SBP) or diastolic (DBP) blood pressure of >20 mmHg within 24 hours of upper GI bleeding, 2) an orthostatic increase in HR >20 beats/minute and a decrease in SBP of >10 mmHg, 3) initiation of vasopressors or increase in their infusion rate of ≥20%, 4) a decrease in hemoglobin of >2 g/dl (20 g/l) in 24 hours, or 5) transfusion of >2 units of red blood cells within 24 hours of bleeding. While this definition has been used in several large studies, it does not take into account the views of patients and/or their families.

Other definitions and classifications of bleeding from any site are available, such as those of the World Health Organization (12) and International Society of Hemostasis and Thrombosis (13) and the HEME tool that was specifically developed to classify bleeding in critically ill patients. (7) However, none of these definitions or tools are focused on bleeding from the gastrointestinal tract, and none have been developed with patient and family input. Incorporating patient and family perspectives is crucial to ensure that bleeding research not only acknowledges, but intentionally incorporates patient preferences and experiences – whether they are aware of, or personally experienced or observed this type of bleeding.

Aligned with the International Association of Public Participation principles, (14) we will collaborate with ICU survivors and family members in research with the dual purpose of learning from their experiences and integrating their perspectives on which aspects of gastrointestinal bleeding during critical illness are most important to them. We understand 'patient important bleeding events' to be those that would, in the absence of any other benefits, lead patients to consider receiving an intervention to treat the bleed, or are associated with appreciable harm, distress, burden, or personal cost. (13, 15) Some aspects of bleeding that concern clinicians may not concern patients in the ICU who are generally unaware of adverse events due to their impaired consciousness. For example, receipt of inotropes or vasopressors may not be as meaningful to ICU patients as to clinicians, as critically ill patients are typically unaware that the infusion represents a form of advanced life support. By contrast, transfusions may be more concerning to patients than clinicians, especially if they are not fully informed of contemporary blood product safety. (16)

In critical care medicine, there is a dearth of research directly informed by legitimate public engagement, representing untapped potential. (6) This Patient Important Bleeding Study will engage patients and families to create a definition of what matters most to them regarding tests and treatments used for upper gastrointestinal bleeding. (17) Results will directly inform the definition of patient important bleeding which is a secondary outcome in an ongoing international trial comparing stress ulcer prophylaxis with pantoprazole versus placebo - the Re-EValuating the Inhibition of Stress Erosions (REVISE) Trial - the primary outcome of which is clinically important upper gastrointestinal bleeding. (18)

Objective, Question and Hypothesis

The overall objective of this study is to elicit the views of patients and families regarding features, tests and treatment for gastrointestinal bleeding that are important to them. The research question is 'What are the most concerning tests and treatments to patients and families in the event of an upper gastrointestinal bleed?' Our hypothesis is that patients and families will be concerned about some bleeding tests and treatments (e.g., invasive procedures), while they will be comfortable with others (e.g., vasopressor infusion into a pre-existing intravenous access), even if this represents increased treatment intensity. We also hypothesize that regardless of their views regarding particular tests or treatments, they will be concerned if bleeding results in a longer hospital stay or if a patient dies with or from bleeding.

Design

This is a sequential mixed-methods, qualitative-dominant, multi-center study with an instrument-building aim. (19, 20) In this protocol manuscript, we describe the collection and analysis of qualitative data used to build an instrument, operationalized as a multicomponent definition of patient important bleeding. This instrument will be used to collect quantitative data for an outcome in patients enrolled in an international RCT of stress ulcer prophylaxis. Pilot work began in 2021 and trial completion is anticipated in 2023.

Participants

Adult patients ≥18 years of age who were admitted to ICU ≥72 hours and family members of adult ICU patients in ICU for ≥72 hours (unlinked), regardless of bleeding experience, ICU survival, health literacy or professional health care training. Eligible patient participants must have been discharged from hospital after their episode of critical illness. Individuals will be excluded if they have prohibitive communication challenges (e.g., serious psychological or psychiatric illness that prevents the individual from consenting to participate in research or providing their perspective, insufficient ability to read and speak English or other languages for which a research staff or family interpreter exists). To avoid confounding by previous participation in related research, we will exclude patients enrolled in REVISE and family members of patients enrolled in REVISE.

Sampling Strategies

Multiple perspectives will be sought by sampling ICU survivors and family members of critically ill patients with diverse demographics and life experiences across several jurisdictions. We will use *criterion sampling* to identify possible participants who satisfy our inclusion and exclusion criteria. We will use *convenience sampling* based on contacts of our investigative clinical team. We will use *chain referral (snowball) sampling* to identify other possible participants working as hospital-based or research-associated patient or family partners. The initial sample will use a maximum variation approach so that analysis of preliminary data may identify relevant experiential or demographic traits which should be explored with further criterion sampling.

To invite participants, we will engage pre-existing patient and family partners involved in the Patient and Community Engagement Research (PaCER) group, seeking contact using existing mailing lists and social media groups, including those of the Alberta SPOR (Strategy for Patient-Oriented Research) Support Unit. We will use similar strategies to invite potential participants associated with the Canadian Critical Care Trials Group (CCCTG) Patient and Family Partnership Committee. (21) In Kingston, London, Toronto, Ottawa and Hamilton, our team of clinical investigators will email potential participants drawn from existing patient and family partners who are affiliated with their healthcare organizations or studies. The invitational emails will contain information about the study and ask potential participants to contact the investigators if interested.

We created an infographic to depict the study methods to share with potential participants, particularly those who are already research partners in other studies [Figure 1]

Sample Size

The sample size projection is based on our estimate that approximately 40-50 individual participants will be needed to reach data saturation. This method of assessing sufficiency of qualitative data requires periodic assessment by multiple individuals who reach consensus through discussion on whether existing data adequately answers the research question and allows the researchers to offer a consistent explanation for all relevant perspectives. (22) The final sample size will be confirmed as data collection

progresses, but the theory of information power indicates we will likely need a large sample due to the heterogeneity of experiences, relatively little direct experience with the phenomenon of interest, and the lack of an underpinning explanatory theory to explain what aspects of gastrointestinal bleeding are likely to be meaningful to patients. (23) Data saturation will be assessed periodically by 5 investigators through a review of transcripts and coding reports, and audit trail examination. Feasibility of enrolment will be met when at least 15 patients and at least 15 family members are recruited, with representation from several regions, strong representation from each decision-maker (patient, family), and at least 80% participation for invited individuals.

Preparatory Work

In preparation for this study, in Calgary, we developed the orientation and education tools, refined with input from a patient partner, family partner, bedside ICU nurse, and 3 research staff not involved in the project. In Hamilton, informal in-person discussions with 8 ICU patients who experienced gastrointestinal bleeding helped to plan the scope of questions for the interview and focus group guide. A mock interview with a patient partner and a 5-person mock focus group in Calgary informed the content tone and pacing of the questions, as well as the degree of detail and terminology.

Orientation and Education Tools

Informed input from patients and families requires a basic understanding of the various presentations of upper gastrointestinal bleeding, possible physiologic changes, diagnostic tests, and therapeutic interventions. In partnership with patients and family members, we developed a slide deck containing approximately 20 images of upper gastrointestinal bleeding, tests and treatments as a companion to the verbal presentation that will orient participants preceding each interview or focus group. Each test and treatment are described in terms of how commonly it is used, its purpose, and possible discomforts or side-effects. We also created a 2-page written summary describing upper gastrointestinal bleeding, tests and treatments in text directed at grade 8 reading level. Thus, we will use written visual and oral approaches to depict and discuss the phenomena tailored to a lay audience, prior to the interviews and focus groups.

Pilot Testing of Education and Orientation Tools

Before finalizing the written summary and slide deck, we obtained unstructured feedback until no new feasible ideas for improvement were obtained. From a pre-existing group of patient and family partners affiliated with the PaCER group, suggestions from 2 patients and 2 family members were captured with typed notes, coded, and anonymized at source. [Appendix Text 1].

Interview and Focus Group Guide Development

Employing both interviews and focus groups allows triangulation of data collection methods. (24) We developed a 4-page interview and focus group guide using open-ended questions to elicit patient and family views of what matters most about this complication of critical illness. We started with in-person and e-discussions amongst the investigative team. We partnered with one former ICU patient associated with the PaCER group and one family advisor associated with the CCCTG Patient and Family Partnership Committee.

Pilot Testing of Interview and Focus Group Guides

We elicited feedback on the clarity, comprehensiveness and redundancy of the questions and prompts in the draft interview and focus group guides, modifying them per suggestions. This was achieved by a pilot interview with 1 former ICU patient and a pilot focus group of 5 family members in Calgary and Hamilton (6 persons in total). Quantitative descriptors of pilot participants were anonymized and entered in an Excel® v.16.6 database [Microsoft Corporation, Redmond, Washington]. Feedback from the pilot interview and focus group was captured with typed notes, anonymized at source for future use, but was neither audiotaped nor transcribed. [Appendix Text 2, Appendix Text 3].

Interviewer Training

Two experienced qualitative interviewers in Hamilton and Calgary received training to harmonize their interviewing approach. We ensured calibration by having them use a common guide, both attending interviews and focus groups in the pilot phase, and discussing data collection at team meetings.

Main Study
Qualitative Data Collection: Individual Interviews and Focus Groups

We will conduct individual interviews (45-60 minutes in duration) and focus groups (90-120 minutes in duration) with former patients or family members associated with healthcare institutions in Hamilton, Kingston, London, Ottawa, Toronto or Calgary. Focus groups will be comprised of 2-5 patients or family members.

One of two interviewers and one observer will be present at each interview or focus group, along with the participant(s) and the investigator who will give the presentation. Following introductions, the interviewer will affirm consent and refer to the pre-circulated 2-page document summarizing tests and treatments. An orienting interactive slide presentation will follow, encouraging questions or clarifications on the content, after which the presenter will leave the videoconference. Although discussion about costs to the healthcare system may arise, we will clarify that our focus is not the cost of tests or treatments, or the economic consequences of bleeding.

The interview will be audio-recorded and transcribed verbatim. The observer will take field notes during and after each interview or focus group. These notes will record non-verbal communication (e.g., nodding in agreement with a verbal comment of another participant), reflect on process issues, and offer summaries of key ideas shared during the data collection session. At the end of each interview or focus group, we will ask participants to reflect on their research experience, which will also be incorporated into typed field notes, coded, and anonymized at source.

Quantitative Data Collection
We will obtain quantitative data describing participants including age, sex, race, city of residence, and any professional healthcare role. About the patient, we will collect the hospital name, reason for the patient's ICU admission, and (if known to participant) whether the patient had experienced gastrointestinal bleeding in the ICU. We recognize that participants may not know if gastrointestinal bleeding developed in the ICU. Given that experiencing or witnessing a bleed may inform participant perspectives on bleeding, documenting a bleeding event is only relevant *if the participant was aware of the bleeding*. For this reason, we will not objectively verify whether the patient developed bleeding. For family members, we will document their relationship to the patient (e.g., child, partner, sibling, friend), and corresponding information as above.

Analyses
Qualitative Analyses
De-identified transcripts will be imported into NVivo® [QSR International, Melbourne, Australia] for data management and analysis. We will conduct a qualitative descriptive analysis, aiming to create a descriptive summary of study findings, organized and presented in the language of the participants with minimal theoretical interpretation. (25) Data will be analyzed using qualitative content analysis, whereby codes are derived directly from the data rather than using preconceived categories. (26) As data collection proceeds, new information and insights will be incorporated into data collection and analysis, making the processes reflexive and interactive.

Five investigators will participate in the initial (open) coding, reading data to form a comprehensive list of codes. Specifically, we will use open coding, group discussion and reconciliation, to identify categories reflecting patient-important considerations (e.g*., familiarity, safety, effectiveness, invasiveness, etc.*) on which we will center additional data collection and coding (focused coding). These considerations will be derived inductively from participant comments on bleeding characteristics, tests, and treatments that matter most to them. For example, the *familiarity* of a test, or the *effectiveness* of the treatment might be identified as key patient-important considerations.

The next round of coding will involve deductively matching each consideration to participants' expressions about each test or treatment. This focused framework coding will generate data about how each test or treatment is understood in relation to the general patient-important considerations. For example, at this

stage we will be able to describe how participants perceive the *safety* of endoscopy as a test, and how they perceive the *invasiveness* of angio-embolization as treatment.

In the next round of coding, investigators will work to further categorize each test or treatment according to each consideration. For example, to what degree are participants concerned about the *effectiveness* of acid suppression? In this stage, we will also describe how consistently participants comment on each test or treatment in light of these considerations and assess the degree to which participants have convergent or divergent views.

Preliminary results will be shared with the broader group of interdisciplinary collaborators for further discussion (investigator triangulation). Results will also be shared with 2-4 patients and family participants via videoconference meeting to inquire about whether the findings resonate with their perspectives, exploring the credibility of the findings (member checking). (27)

Quantitative Analyses
Data describing patient and family member characteristics will be analyzed using descriptive statistics, measures of central tendency and dispersion, and proportions.

Ethics
This study has Research Ethics Board (REB) approval at McMaster University (HiREB #9492), and the University of Calgary Conjoint Health Research Ethics Board (REB20-0120).

Potential adverse effects of patient engagement in research from patients' perspectives identified in a recent systematic review related to frustrations with training, transportation, or tokenism - or a false impression of inclusiveness, thereby devaluing patients' input. (28) Advice from our patient partner and family partner who are investigators on this study will ensure that we collaborate sensitively, avoid inauthentic engagement, ensure respectful communication, and offer appropriate compensation for their time.

How will the Results be Used?
The findings from this study will have several implications. From the *research* perspective, results will be used to refine a novel secondary outcome of the ongoing REVISE trial, ensuring that the evidence produced by the trial will be patient and family-centered. The design could serve as a template for clinical research methodologists interested in meaningful citizen engagement in research. This new outcome will be useful for investigators recognizing the importance of incorporating patient and family perspectives when designing studies on the incidence, risk factors, consequences, prevention, and management of gastrointestinal bleeding in the ICU.

Bleeding rates in the literature may be more conditional on different bleeding definitions and assessment methods than on actual bleeding. (29) Unclear and variable gastrointestinal bleeding definitions across studies over decades make inferences challenging when summarizing studies about gastrointestinal bleeding rates, risk factors, and consequences. This study will inform the interpretation of future RCTs, systematic reviews, network meta-analyses (30) and practice guidelines with an emphasis on the values of patients and families.

From the *practice* perspective, the results of this study will inform clinicians about how to better support patients and families to explain the characteristics of diagnostic and treatment options when gastrointestinal bleeding occurs in the ICU. From the *educational* perspective, our data will help clinical teachers understand how bleeding is perceived by patients and families, aiding conversations and counselling regarding tests and treatments for bleeding which are of greatest concern to them. From the *health system* perspective, the results of this study will further the goal of person-centered healthcare which honours patient and family values and perspectives as key evidence.

Discussion

Patient Partnership

As a mixed-methods study, whereby qualitative data are dominant and patient and family partnership is paramount, we have already engaged several ICU survivors and family members in completed pilot work. They have helped to develop the educational tools, improve the data collection instruments, and refine the interview guide. We will orient participants to the problem of upper gastrointestinal bleeding by a pre-circulated text summary and standardized slide deck that was co-created by patient and family partners. To ensure that participants have an understanding of the ICU context, we will use criterion sampling to recruit participants who have lived experience with critical illness but avoid an exclusive focus on participants with self-reported high health literacy. An experienced patient partner and family partner are study coinvestigators.

Strengths

Additional study strengths include the methods which accord with increasingly recommended or required patient involvement in the design, conduct, and dissemination of health research. (3, 31, 32) The qualitative methods allow us to organize, clarify and summarize non-numerical data to build a definition of patient important bleeding. Future findings will be grounded in the views of members of the public with lived critical care experience, rather than specialized practitioners. To maximize the generalizability of responses, this multicenter study will include participants reflecting hospital catchment areas in at least 3 Canadian provinces.

Limitations

Limitations of this study include no numerical measures of bleeding attributes or preference rankings, as we are eliciting views and values from patients and families using an open-ended, qualitative approach. The goal is not to exclusively characterize morbidity and mortality features of the bleed that are concerning (e.g., short-term risk of death, or long-term disability); indeed we assume that bleeding which leads to death or disability is very important to patients. Our main focus is on tests and treatments used to locate and limit the bleeding in order to add additional granularity to what patients find important about bleeding beyond the obvious consequences of dying with or from bleeding. Context is crucial here; out-patients and ward patients with acute or chronic illnesses may have different concerns than ICU patients (e.g., they may be understandably more alarmed about minor bleeds compared to ICU survivors and their families). Thus, our results will not apply to bleeding from sites other than the gastrointestinal system, or to community-dwelling citizens or hospitalized patients who are not critically ill.

Knowledge Translation

Integrated knowledge translation is reflected in several patients and family members being integral to the pilot work. Furthermore, a CCCTG Patient and Family Partnership Committee family member and an experienced patient partner are coinvestigators who helped to design this study. *End-of-study knowledge translation* will include incorporating results to refine our placeholder definition of patient important bleeding - presently overt bleeding resulting in invasive tests or treatments.

We will share findings at investigator and CCCTG meetings. Peer-review presentations at international conferences in critical care, gastroenterology and hematology will coincide with or precede open-access peer-review publications. We will translate findings into different languages for diverse audiences in traditional and social media. Our patient and family coinvestigators will help to create an infographic of our findings and clinician-facing educational materials to teach about procedural explanations for gastrointestinal bleeding.

Future Research Implications

While the patient important gastrointestinal bleeding definition derived from this study will serve as the quantitative instrument for this secondary outcome in the REVISE Trial, results will also have implications for sample size calculations in future trials on this topic. (33) Patients' and clinicians' views may differ when considering trade-offs related to bleeding. When the current study and the REVISE Trial are complete, it would be worthwhile to explore patient and family perceptions about the balance of risks and benefits of pantoprazole prophylaxis in terms of bleeding, pneumonia, *Clostridioides difficile* and mortality. One study of physicians who treat atrial fibrillation and patients with, or at risk of, developing atrial fibrillation, explored the maximal increased risk of bleeding that respondents would tolerate with warfarin versus aspirin to achieve a reduction in stroke over 2 years. (34) The variability in patient and physician

values regarding trade-off between bleeds and strokes likely reflects differential aversion to anticoagulation-associated bleeding and stroke risks. Another study of diverse healthcare providers showed substantial variation in whether and when to restart oral anticoagulation after gastrointestinal bleeding. (35)

Conclusions
This mixed-methods study will elicit the values of patients and families to help create a novel empirically-based definition of patient important gastrointestinal bleeding, thereby informing the development of a new secondary outcome in the REVISE trial. Results will complement the standard measure of clinically important gastrointestinal bleeding, ensuring that future trial results are meaningful through the public lens. Findings will be relevant for those seeking to engage patients and families in health research and promote patient-centered care.

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Protocol: Available to interested readers by contacting Dr. Cook (debcook@mcmaster.ca)

Computer code: Not relevant, no computer code will be used to generate the results.

Author contribution: All authors contributed towards the ORIGINAL research idea and provided input into the design of the study. DJC, ST, MS, KK, MGV designed the protocol, drafted and revised the manuscript.

Conflict of Interest: The following individuals are investigators for the randomized trial REVISE: : DJC, JCD, GG, WAH, KEAB, JCM, JGM, SF, AD, JAM, BR, IB, TM, DJN, SWE. We have no other conflicts of interest to declare.

Data: Not available.

Data Statement: Readers are welcome to contact the research team for further information. In brief, when participants consented to participating in the study, they did not consent to access to transcripts or data beyond what is reported within this report.

Figure 1: Protocol Infographic
Appendix Text 1: Summary Text
Appendix Text 2: Interview Guide
Appendix Text 3: Focus Group Guide

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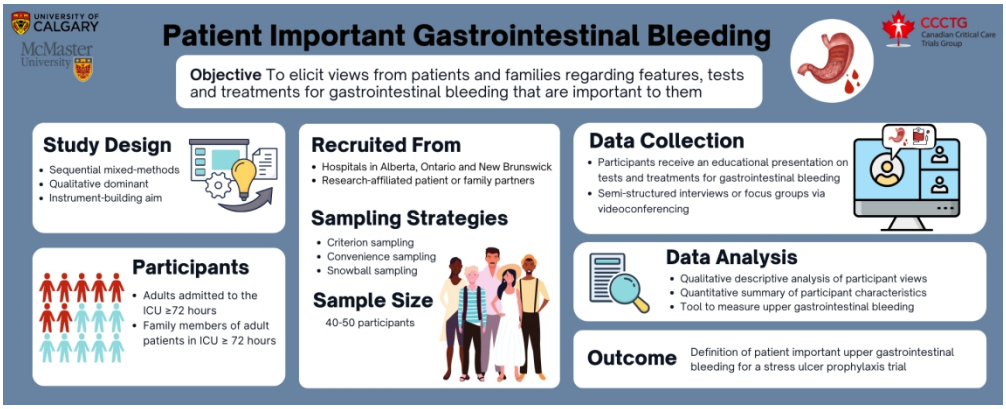

An outline of the methods

1336x534mm (38 x 38 DPI)

Patient Important Gastrointestinal Bleeding in the Intensive Care Unit

The **gastrointestinal (GI) tract** is divided into the upper and lower GI tract. The upper GI tract includes the mouth, esophagus (food pipe), stomach, and duodenum (first part of the small intestine). The lower GI tract includes the rest of the small intestine, bowel (large intestine), and rectum. We will mainly focus on the **stomach**.

The inside of the stomach is very acidic because of the gastric juices it makes. The acid helps the stomach stay sterile between meals and protects it from bacteria, viruses and other organisms that we eat every day. Sometimes, the acidity of the stomach can become too high. Too much acidity can damage the stomach lining and cause **ulcers.** Ulcers can lead to bleeding in the stomach. Medications called **antacids** can make the stomach less acidic.

ICU patients are likely to develop stomach ulcers, which can cause bleeding. There are many reasons why they are likely to develop stomach ulcers. For example, if ICU patients are on a breathing machine for at least 48 hours or have low blood pressure, the stomach lining becomes weak, and the stomach can become more acidic than usual. Acidity that is too high in the stomach can lead to stomach ulcers. Antacid medication, such as pantoprazole is given to ICU patients to prevent ulcers. However, antacid medication can change a patient's natural defense against infections and can have side effects.

We are currently conducting a research study called, **"Re-Evaluating the Inhibition of Stress Erosions: The REVISE Trial."** The REVISE study will look at the benefits and risks of pantoprazole in ICU patients who are on a breathing machine for at least 48 hours. We will look at whether pantoprazole can reduce the number of patients with GI bleeding and reduce the number of patients who die from GI bleeds (potential benefits of pantoprazole). We will also record the side effects of the medication (eg. lung infections, infectious diarrhea) (potential risks of pantroprazole). We will compare the patients that receive pantoprazole with those that do not receive pantroprazole and look at the benefits and harm of giving the medication. We want to answer the question, should doctors and nurses continue giving pantoprazole to ICU patients on a breathing machine?

Doctors and nurses know what characteristics of a patient's GI bleed are important to them. If there are changes to the patient's heart rate, blood pressure, or abnormal blood results - these are important signs that the doctors and nurses look for and are called **clinically important bleeding**. However, we are missing something very crucial. We don't understand what is important to the patients in the ICU and their families. This is referred to as **patient important bleeding**.

Now that you know more about GI bleeding we want to teach you about the different ways to find and treat a GI bleed.

Ethics ID: REB20-0120
Study Title: Patient Important Gastrointestinal Bleeding in the Intensive Care Unit (ICU)
PI: Dr. Kirsten Fiest
Version number/date: Version 1.4/May 19, 2020

TREATMENTS:

A GI bleed can be treated with the following:

Therapy	Purpose	How Often it is Necessary	Possible Adverse Effects or Discomforts
Antacid Drugs	To help heal the ulcers	**ALMOST ALWAYS.** Every day for 2-3 months to treat every bleed	**SOMETIMES.** Pneumonia (lung infection) **VERY RARELY.** Infectious diarrhea
Drugs to Increase Blood Pressure	To increase blood pressure when it is dangerously low	**SOMETIMES.** Every time blood pressure is dangerously low	**COMMONLY.** Very fast heart rate
Blood Transfusion	To replace lost blood	**SOMETIMES.** It depends on the amount of bleeding	**VERY RARELY.** Congestive heart failure (fluid buildup in the lungs because the heart has trouble pumping extra fluid) **VERY RARELY.** Lung inflammation
Surgery	To surgically remove the bleeding tissue	**VERY RARELY.** Only in the most serious bleeds	**VERY RARELY.** Risks of general anaesthetic, surgical complications

FINDING (AND TREATING) A GI BLEED:

To find where a GI bleed is coming from, the following tests can be done. These tests can lead to the treatment of the bleed:

Procedure	Purpose	How Often it is Necessary	Possible Adverse Effects or Discomforts
Diagnostic Endoscopy	To locate the source of the bleeding	**COMMONLY.** For bleeding that is severe	**COMMONLY.** Low blood pressure and drowsiness related to the sedation
Therapeutic Endoscopy	To try to physically stop the bleeding	**COMMONLY.** Whenever a serious cause of bleeding is found	**VERY RARELY.** Making the bleeding worse or accidentally making a hole in the stomach
Angiography	To find the site of bleeding more accurately	**RARELY.** For serious bleeding	**VERY RARELY.** Dye used to find the site of bleeding may cause damage to the kidneys
Angiography & Embolization (to create a blood clot)	To stop bleeding by creating a blood clot in the blood vessel	**RARELY.** For serious bleeding	**VERY RARELY.** Dye used to find the site of bleeding may cause damage to the kidneys, or the stomach lining may die from lack of blood supply caused by the clot

Now that you understand what a GI bleed is and how to find and treat it, we want to know what characteristics of a GI bleed are important to you!

Patient Important Bleeding Online Interview Guide

Introduction:

Ask everyone present to briefly introduce themselves.

Thank you for taking the time to participate in an interview that we are conducting as part of the REVISE study.

Before we begin the interview, I am going to review a few things:

Logistics:

- Today's interview will take approximately 1 hour
- If you need to take a break to use the bathroom or take a call, please let me know and we can pause the interview – please remember to use the mute function
- Please ensure that you are in a quiet space with minimal distractions so that I can hear you clearly.
- As was described in the consent form, we will be audio recording today's discussion, and all information shared today will be anonymized—that is, you will not be identified in association with anything you say.
- You can choose to have your video on or off during the discussion. Having your video turned on is preferable as it will help facilitate discussion and allow for a more natural flow of discussion. However, if you are not comfortable, you may turn off this function. We will not be recording any video.

About the Interview

- I would like to remind you that your participation in this study is voluntary and you can end your participation in the interview at any time.
- YOU ARE THE EXPERT! There are no right or wrong answers to the questions we have for you. We are interested in learning about your experiences and your perspectives.

Consent

- As I mentioned over email, we do not need to collect your signed consent for this interview. Before we start the interview I do want to check if you had a chance to read the consent form I sent you? (If no, review consent form). If yes – do you have any questions before we begin?

HiREB: 9492
Study Title: Patient Important Gastrointestinal Bleeding in the ICU
PI: Dr. Deborah Cook
Version number/date: Version 2/January 25, 2021

Patient Important Bleeding Online Interview Guide

Introduction to Study:

We'd like to share some slides on-screen with you to introduce you to the REVISE Study and provide you with some background information on why we are conducting this study to prevent gastrointestinal bleeding.

[share screen – presentation]

[After presenting GI bleed information (and before the information on tests and treatments), stop the presentation at a slide with a picture of a ventilated ICU patient.]

[Ask people to unmute and click "show small active speaker" in top right-hand corner]

Ask the following questions:

1. What do you think of, and what do you feel when you hear the term "GI bleed"?

2. I'd like to ask you to think of this scenario: You or your family member is critically ill in the ICU on a machine which is helping them to breathe called a ventilator. One day, the doctor says that an upper GI bleed has just started a few hours ago. Some blood is seen in the tube placed in the stomach, but it is not clear exactly where the bleeding is coming from, and so far, no particular treatment is needed.

3. What are your concerns about the GI bleed?

Probes: the amount of bleeding; location of the bleeding; seeing the bleeding; short-term impacts and long-term impacts of the bleeding; reason for the bleeding; how the patient experiences the bleeding (e.g., discomfort, pain); how serious is the bleeding (in the context of the primary reason for admission).

Thank you for discussing your feelings and concerns about GI bleeds. We are going to return to the presentation to learn about the different tests and treatments that are used to find and stop GI bleed.

[return to presentation]

Do you have any questions about the information in the presentation?

- Before we begin the interview questions, I just wanted to describe the context for this research study. As you may know: In the ICU patients are often sedated and not able to take part in discussions about their medical tests and treatment options. This is why we are doing this study - it is important to hear from patients and family members about what things are important when considering different tests and treatments for upper GI bleeding.

HiREB: 9492
Study Title: Patient Important Gastrointestinal Bleeding in the ICU
PI: Dr. Deborah Cook
Version number/date: Version 2/January 25, 2021

Patient Important Bleeding Online Interview Guide

As we move into the interview questions, I am going to begin recording the audio component of our discussion.

[start the recording function on Zoom]

[Moderator to share the slide with the spectrum of tests and treatments on the screen]

I am going to share my screen again and put up the slide showing the different tests and treatments that might be used for upper GI bleeding.

[share screen with online handout]

Some of these are more invasive than others. It is possible that a blood transfusion may be required or new drugs might be started to increase low blood pressure that develops due to bleeding. In addition, procedures to find out where the bleeding is coming from may be necessary, which might also involve treating the bleed. There are potential risks and benefits to each of these, which we reviewed earlier.

4. Has anyone had personal experience with a GI bleed?" If yes, please describe your experience.
5. Do you have experience with any of these tests or treatments for a GI bleed or for another medical condition? If yes, please describe your experience.
6. The clinical team works with patients and families to make a management plan. Thinking about the scenario whereby you or your family member is on a breathing machine in the ICU and has developed a GI bleed:
    1. Which of the tests and treatments are you most comfortable with? Why?
    2. Which of the tests and treatments concern you the most? Why?

Probes: We're interested to know what tests and treatments are most preferred and which are least preferred (how and why they made the decision). For example, if participants list drugs first, ask about drugs and ask if all drugs are viewed the same way and then ask explicitly about the different drugs (i.e. antacids and medications to increase blood pressure). Perceptions of level of invasiveness of the test or treatment, level of discomfort for the patient, effectiveness of the test to locate the bleeding, effectiveness of the treatment to stop the bleeding, balancing possible discomfort or risk (e.g., infection) and possible benefit, drug interactions, location where test or treatment is done (i.e., in another part of the hospital vs. just done in their room), if any chronic health conditions or personal experience influence views on the test or treatment, short-term effects, long-term effects, perception of recovery time, if the test or treatment includes the patient being sedated again or put under anesthetic?

7. Thinking about the scenario where your family member is critically ill, on a breathing machine in the ICU and has developed a GI bleed. Is there anything the care team could do that would make you more comfortable with these tests and treatments?

HiREB: 9492
Study Title: Patient Important Gastrointestinal Bleeding in the ICU
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Patient Important Bleeding Online Interview Guide

Probes: Would the clinical condition of the patient change the information they would want to receive or extent to which they are involved (e.g., if GI bleed is not primary concern or the size of the GI bleed), trust in doctor, relationship with doctor, understanding the different options (doctor took the time to explain them and answer questions), hearing the same things about the options from everyone on the medical team, knowing the treatment is commonly used, treatment is a familiar experience (i.e. IV medications), level of emotion experiencing when making the decision, gut feeling/perceptions, not feeling pressured to make a decision, knowing the numbers about the success of the intervention (i.e. % of patients whose response to this treatment is successful).

8. What do you want to avoid with these tests and treatments?
9. If you found out if any of these tests or treatments were considered life support (i.e., needed to keep the patient alive or save the patient's life), would that change your concerns? Would it change your comfort level? If so, how?

Wrap Up Discussion

10. Does anyone have any final thoughts they would like to share with us? (*Is there a "take home" message they would like the research team to capture?)*

Conclusion:

Thank you everyone for your comments. Once again, your participation today is helping us advance the care of patients in the ICU. I can't stress it enough, that we cannot do this research without you! These are all of the questions I have for you.

Do you have any questions for us? (*e.g., length/format of focus group, what worked well/didn't work well for the virtual format*)

As a thank you for your input and your participation in this focus group, we would also like to give you a gift card. This will be emailed to you. We appreciate that you took the time to talk to us!

11. I just have a few demographic questions to ask you now

[complete PIB Interview Tracking Requirements Document]

Patient Important Bleeding Online Focus Group Guide

Introduction:

Hi everyone and welcome to our session. Thank you for taking the time to join us and take part in this interview/focus group that we are conducting as part of the REVISE Study.

My name is XXXX – I will be the moderator for today's focus group [explain what a moderator does]

Assisting me today is XXXX – [explain what a notetaker does]

We are both researchers that work in the Department of Critical Care Medicine with Dr. Kirsten Fiest and Dr. Deborah Cook who are leading this work.

Thanking Participants:

You have been invited to participate in today's discussion because you have been in the ICU as a patient, or are related to someone who was in the ICU.

Your participation in this study is invaluable! By taking part in this focus group, you are helping us advance the care of patients in the ICU. The results from today's focus group will be written into a report and published. Your thoughts about bleeding will also be incorporated into a large study about bleeding prevention. We couldn't do this research without you! You are the experts and we look forward to learning from you.

Logistics:

Before we get into our discussion, lets cover a few things:

- TIME: Today's focus group will take about 90 minutes. This includes a presentation on gastrointestinal bleeding and a short break.
- BREAK: If you need to use the bathroom or take a call, please try and wait until the break to do so. However, if you need to, feel free to step out of the room and remember to mute yourself.
- QUIET SPACE: We also ask that everyone please find a quiet space to participate in today's discussion to minimize distractions so that everyone can hear you clearly. During our discussion, let's stay unmuted. If there is too much background noise, I'll ask people to mute themselves.
- DE-IDENTFIED INFORMATION: As you saw in the invitation, we will be audio recording today's discussion, and all information shared today will be anonymized—that is, nobody will be identified in association with what they said.
- VIDEO: You can choose to have your video on or off during the discussion. Having your video turned on is preferable as it will help facilitate a more natural flow to the discussion. However, if you are not comfortable, you may turn off this function. We will not be recording any video. Let's all make sure we're in gallery view by choosing "Gallery View" in the top right-hand corner.
- VOLUNTARY: Finally, a reminder that your participation in this study is voluntary and you can remove yourself from the study or the focus group at any time. However due to the nature of focus groups, we cannot withdraw what you have already said in the discussion if you choose to remove yourself in the middle of the discussion.

Consent:

Patient Important Bleeding Online Focus Group Guide

- Our team sent you the consent form for participation in this study previously. Has everyone had the chance to review the consent form?

[obtain verbal confirmation from everyone].

[If any participant did not review the consent form, read the oral consent script]

- Does anybody have any questions about the consent process?

If yes, answer question(s) or review consent script; If no, continue below.

- Does everyone agree to be audio recorded for research purposes?

If no, wait for participant to withdraw/leave; If yes, begin recording.

- I will now go around and ask everyone to verbally consent to participate in this study. Do you consent?

Ground Rules (Adapt for Individual Interview or Focus Group):

- Everything that is shared in today's discussion is confidential.
- We ask that only one person speak at a time; you may be tempted to jump in when someone is talking but please wait until they have finished.
- We want today's discussion to be informal, so there's no need to wait for us to call on you to respond. You do not have to speak in any particular order. In fact, we encourage you to respond directly to the comments that other people make.
- There are no right or wrong answers, only differing viewpoints. You do not have to agree with the views of other people in this group.

Does anyone have any questions before we begin? OK, great, let's start.

Introductions (Adapt for Individual Interview or Focus Group):

Let's start with introductions. Can everyone please introduce themselves and share your name, where you are joining us from and what your favorite hobby is?

[Ask people to mute after introductions]

Introduction to Study:

We'd like to introduce you to the REVISE Study and provide you background information on why we are conducting this study to prevent gastrointestinal bleeding, by presenting a few slides.

[share screen – presentation]

[After presenting GI bleed information (and before the information on tests and treatments), stop the presentation at a slide with a picture of a ventilated ICU patient.]

[Ask people to unmute and click "show small active speaker" in top right-hand corner]

Patient Important Bleeding Online Focus Group Guide

Ask the following questions:

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3. What are your concerns about the GI bleed?

Probes: the amount of bleeding; location of the bleeding; seeing the bleeding; short-term impacts and long-term impacts of the bleeding; reason for the bleeding; how the patient experiences the bleeding (e.g., discomfort, pain); how serious is the bleeding (in the context of the primary reason for admission).

Thank you for discussing your feelings and concerns about GI bleeds. We are going to return to the presentation to learn about the different tests and treatments that are used to find and stop GI bleed.

[return to presentation]

Do you have any questions on the information that was just presented to you?

We will now give you 5 minutes to reflect on what was just discussed. We sent you a handout earlier that summarizes all of the ways to find and stop a GI bleed in the ICU. Please take a moment to go over the handout and imagine that you or a loved one has a GI bleed in the ICU. Using a pen and paper jot down your initial thoughts on the handout:

[Moderator to share the slide with the spectrum of tests and treatments on the screen]

I’d like to ask everyone to stay unmuted and click “Gallery View” in the top right-hand corner so that we can all see and hear each other.

4. Has anyone had personal experience with a GI bleed?” If yes, please describe your experience.
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Patient Important Bleeding Online Focus Group Guide

effectiveness of the treatment to stop the bleeding, balancing possible discomfort or risk (e.g., infection) and possible benefit, drug interactions, location where test or treatment is done (i.e., in another part of the hospital vs. just done in their room), if any chronic health conditions or personal experience influence views on the test or treatment, short-term effects, long-term effects, perception of recovery time, if the test or treatment includes the patient being sedated again or put under anesthetic?

[10-minute break]

[Reference to handout and tests/treatments]

7. Thinking about the scenario where your family member is critically ill, on a breathing machine in the ICU and has developed a GI bleed. Is there anything the care team could do that would make you more comfortable with these tests and treatments?

Probes: Would the clinical condition of the patient change the information they would want to receive or extent to which they are involved (e.g., if GI bleed is not primary concern or the size of the GI bleed), trust in doctor, relationship with doctor, understanding the different options (doctor took the time to explain them and answer questions), hearing the same things about the options from everyone on the medical team, knowing the treatment is commonly used, treatment is a familiar experience (i.e. IV medications), level of emotion experiencing when making the decision, gut feeling/perceptions, not feeling pressured to make a decision, knowing the numbers about the success of the intervention (i.e. % of patients whose response to this treatment is successful).

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9. If you found out if any of these tests or treatments were considered life support (i.e., needed to keep the patient alive or save the patient's life), would that change your concerns? Would it change your comfort level? If so, how?

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Conclusion:

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As a thank you for your input and your participation in this focus group, we would also like to give you a gift card. This will be emailed to you. We appreciate that you took the time to talk to us!

BMJ Open

What counts as Patient-Important Upper Gastrointestinal Bleeding in the ICU?:

A Mixed-Methods Study Protocol of Patient and Family Perspectives

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Heading:	
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What counts as Patient-Important Upper Gastrointestinal Bleeding in the ICU?:

A Mixed-Methods Study Protocol of Patient and Family Perspectives

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Key Words: Critical care, gastrointestinal bleeding, patient engagement, patient-oriented research, protocol

Abstract

Introduction: Clinically important upper gastrointestinal bleeding is conventionally defined as bleeding accompanied by hemodynamic changes, requiring red blood cell transfusions or other invasive interventions. However, it is unclear if this clinical definition reflects patient values and preferences. This protocol describes a study to elicit views from patients and families regarding features, tests, and treatments for upper gastrointestinal bleeding that are important to them.

Methods and analysis: This is a sequential mixed-methods qualitative-dominant multi-center study with an instrument-building aim. We developed orientation tools and educational materials in partnership with patients and family members, including a slide deck and executive summary. We will invite ICU survivors and family members of former ICU patients to participate. Following a virtual interactive presentation, participants will share their perspectives in an interview or focus group. Qualitative data will be analyzed using inductive qualitative content analysis, wherein codes will be derived directly from the data rather than using preconceived categories. Concurrent data collection and analysis will occur. Quantitative data will include self-reported demographic characteristics. This study will synthesize the values and perspectives of patients and family members to create a new trial outcome for a randomized trial of stress ulcer prophylaxis. This study is planned for May 2022 – August 2023. The pilot work was completed in Spring 2021.

Ethics & Dissemination: This study has ethics approval from McMaster University and the University of Calgary. Findings will be disseminated via manuscript and through incorporation as a secondary trial outcome on stress ulcer prophylaxis.

Registration: Clinicaltrials.gov #NCT05506150

Article Summary

Strengths & Limitations of This Study

- The protocol describes a rigorous process for building a measure which is responsive to patient preferences
- The protocol was developed in partnership with patient and family members
- Proposed participants are those with personal or caregiving experience of the adult ICU.
- Patient partners may differ in demographic and experiential traits from the general ICU population.

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Introduction

Patient and family engagement occurs through an active partnership forged among patients, families, clinicians and researchers to improve both health and care. (1) Through their lived experience, patients and families provide a unique perspective on various aspects of research, including investigational priorities. (2) Their engagement can lead to better outcomes and improved satisfaction for patients and families, and cost savings for the healthcare system. (3) For patients in the intensive care unit (ICU) who are usually unable to participate in their own care due to the severity of their illness, partnering with ICU survivors and family members is garnering increased attention. (4, 5, 6)

Ethically and scientifically compelling, patient involvement in critical care research can build on a proliferation of strategies for meaningful involvement of patient partners in health research to help ensure that the study outcomes are relevant and meaningful to future patients.(6, 7, 8, 9, 10) In service of this tenet, there is a need to create a measure of upper gastrointestinal bleeding that is important to patients and their families. In critically ill patients, minor bleeding is extremely common, but major bleeding is rare, as documented using an ICU-specific bleeding instrument capturing bleeding from any body site. (11) Bleeding from the upper gastrointestinal tract is a well-known complication of critical illness. Early investigations in the ICU setting examining the epidemiology, risk factors and consequences of upper gastrointestinal bleeding often use an outcome of 'clinically important bleeding' which was developed from the practitioner's perspective. The criteria were based on aberrant physiology and associated required interventions, (12, 13) modified to distinctly incorporate vasopressors. (14, 15) Clinically important upper gastrointestinal bleeding is defined as overt bleeding *in the absence of other causes* with one of the following features: 1) spontaneous decrease in systolic (SBP) or diastolic (DBP) blood pressure of >20 mmHg within 24 hours of upper GI bleeding, 2) an orthostatic increase in HR >20 beats/minute and a decrease in SBP of >10 mmHg, 3) initiation of vasopressors or increase in their infusion rate of ≥20%, 4) a decrease in hemoglobin of >2 g/dl (20 g/l) in 24 hours, or 5) transfusion of >2 units of red blood cells within 24 hours of bleeding. While this definition has been used in several large studies, it does not take into account the views of patients and/or their families.

Other definitions and classifications of bleeding from any site are available, such as those of the World Health Organization (16) and International Society of Hemostasis and Thrombosis (17) and the HEME tool that was specifically developed to classify bleeding in critically ill patients. (11) However, none of these definitions or tools are focused on bleeding from the gastrointestinal tract, and none have been developed with patient and family input. Incorporating patient and family perspectives is crucial to ensure that bleeding research not only acknowledges, but intentionally incorporates patient preferences and experiences – whether they are aware of, or personally experienced or observed this type of bleeding.

Aligned with the International Association of Public Participation principles, (18) we will collaborate with ICU survivors and family members in research with the dual purpose of learning from their experiences and integrating their perspectives on which aspects of upper gastrointestinal bleeding during critical illness are most important to them. We understand 'patient important bleeding events' to be those that would, in the absence of any other benefits, lead patients to consider receiving an intervention to treat the bleed, or are associated with appreciable harm, distress, burden, or personal cost. (17, 19) However, some aspects of bleeding that concern clinicians may not concern patients in the ICU who are generally unaware of adverse events due to their impaired consciousness. For example, receipt of inotropes or vasopressors may not be as meaningful to ICU patients as to clinicians, as critically ill patients are typically unaware that the infusion represents a form of advanced life support. By contrast, transfusions may be more concerning to patients than clinicians, especially if they are not fully informed of contemporary blood product safety. (20)

In critical care medicine, there is a dearth of research directly informed by legitimate public engagement, representing untapped potential. (6) This Patient Important Bleeding Study will engage patients and families to create a definition of what matters most to them regarding tests and treatments used for upper gastrointestinal bleeding. (21) Results will directly inform the definition of patient-important bleeding which is a secondary outcome in an ongoing international trial comparing stress ulcer prophylaxis with pantoprazole versus placebo - the Re-EValuating the Inhibition of Stress Erosions (REVISE) Trial - the primary outcome of which is clinically important upper gastrointestinal bleeding. (22)

Objective, Question and Hypothesis

The overall objective of this study is to elicit the views of patients and families regarding features, tests and treatment for upper gastrointestinal bleeding that are important to them. The research question is 'What are the most concerning tests and treatments to patients and families in the event of an upper gastrointestinal bleed that occurs in the ICU?' Our hypothesis is that patients and families will be concerned about some bleeding tests and treatments (e.g., invasive procedures), while they will be comfortable with others (e.g., vasopressor infusion into a pre-existing intravenous access), even if this represents increased treatment intensity. We also hypothesize that regardless of their views regarding particular tests or treatments, they will be concerned if bleeding results in a longer hospital stay or if a patient dies with or from bleeding.

Design

This is a sequential mixed-methods, qualitative-dominant, multi-center study with an instrument-building aim. (23, 24) In this protocol manuscript, we describe the collection and analysis of qualitative data used to build an instrument, operationalized as a multicomponent definition of patient-important bleeding. This instrument will be used to collect quantitative data for an outcome in patients enrolled in an international RCT of stress ulcer prophylaxis (Re-EValuating the Inhibition of Stress Erosions (REVISE) Trial). Pilot work began in 2021 and trial completion is anticipated in August 2023.

Participants

Adult patients ≥18 years of age who were admitted to ICU ≥72 hours and family members of adult ICU patients in ICU for ≥72 hours (unlinked), regardless of bleeding experience, ICU survival, health literacy or professional health care training. Eligible patient participants must have been discharged from hospital after their episode of critical illness. Individuals will be excluded if they have prohibitive communication challenges (e.g., serious psychological or psychiatric illness that prevents the individual from consenting to participate in research or providing their perspective, insufficient ability to read and speak English or other languages for which a research staff or family interpreter exists). All experiential data will be self-reported, consistent with best practices in qualitative research. To avoid confounding by previous participation in related research, we will exclude patients enrolled in REVISE and family members of patients enrolled in REVISE.

We are purposeful in our decision not to make personal experience with upper gastrointestinal bleeding an inclusion criterion; most patients and families who encounter this type of bleeding do so for the first time and will make judgments about the importance of that outcome from that perspective. By recruiting participants who have not experienced or witnessed bleeding, but who imagine themselves in this situation, we will identify a participant population most similar to patients and families who will encounter this clinical scenario. However, personal experience with gastrointestinal bleeding from a patient's perspective, and bearing witness to gastrointestinal bleeding from a family perspective is not an exclusion criterion, to reflect a range of perspectives for this study.

Sampling Strategies

Multiple perspectives will be sought by sampling ICU survivors and family members of critically ill patients with diverse demographics and life experiences across several jurisdictions. Qualitative research uses non-probabilistic sampling approaches to obtain information-rich and relevant perspectives that respond to the research question.(25, 26) We will use *criterion sampling* to identify possible participants who satisfy our inclusion and exclusion criteria. We will use *convenience sampling* based on contacts of our investigative clinical team. We will use *chain referral (snowball) sampling* to identify other possible participants working as hospital-based or research-associated patient or family partners. The initial sample will use a maximum variation approach so that analysis of preliminary data may identify relevant experiential or demographic traits which should be explored with further criterion sampling.

To invite participants, we will engage pre-existing patient and family partners involved in the Patient and Community Engagement Research (PaCER) group, seeking contact using existing mailing lists and social media groups, including those of the Alberta SPOR (Strategy for Patient-Oriented Research) Support Unit. We will use similar strategies to invite potential participants associated with the Canadian Critical

Care Trials Group (CCCTG) Patient and Family Partnership Committee. (27) In Kingston, London, Toronto, Ottawa and Hamilton, our team of clinical investigators will email potential participants drawn from existing patient and family partners who are affiliated with their healthcare organizations or studies. The invitational emails will contain information about the study and ask potential participants to contact the investigators if interested.

We created an infographic to depict the study methods to share with potential participants, particularly those who are already research partners in other studies [Figure 1].

Sample Size

The sample size projection is based on our estimate that approximately 40-50 individual participants will be needed to reach data saturation. This method of assessing sufficiency of qualitative data requires periodic assessment by multiple individuals who reach consensus through discussion on whether existing data adequately answers the research question and allows the researchers to offer a consistent explanation for all relevant perspectives. (28) The final sample size will be confirmed as data collection progresses, but the theory of information power indicates we will likely need a large sample due to the heterogeneity of experiences, relatively little direct experience with the phenomenon of interest, and the lack of an underpinning explanatory theory to explain what aspects of upper gastrointestinal bleeding are likely to be meaningful to patients and families. (29) Data saturation will be assessed periodically by 5 investigators through a review of transcripts and coding reports, and audit trail examination; a description of this process will be included in the final manuscript. Feasibility of enrolment will be met when at least 15 patients and at least 15 family members are recruited, with representation from several regions, strong representation from each decision-maker (patient, family), and at least 80% participation for invited individuals.

Preparatory Work

In preparation for this study, in Calgary, we developed the orientation and education tools, refined with input from a patient partner, family partner, bedside ICU nurse, and 3 research staff not involved in the project. In Hamilton, informal in-person discussions with 8 ICU patients who experienced gastrointestinal bleeding helped to plan the scope of questions for the interview and focus group guide. A mock interview with a patient partner and a 5-person mock focus group in Calgary informed the content, order and pacing of the questions, as well as the degree of detail and terminology.

Orientation and Education Tools

Informed input from patients and families requires a basic understanding of the various presentations of upper gastrointestinal bleeding, possible physiologic changes, diagnostic tests, and therapeutic interventions. In partnership with patients and family members, we developed a slide deck containing approximately 20 images of upper gastrointestinal bleeding, tests and treatments as a companion to the verbal presentation that will orient participants preceding each interview or focus group. Each test and treatment are described in terms of how commonly it is used, its purpose, and possible discomforts or side-effects. We also created a 2-page written summary describing upper gastrointestinal bleeding, tests and treatments in text directed at grade 8 reading level. Thus, we will use written visual and oral approaches to depict and discuss the phenomena tailored to a lay audience, prior to the interviews and focus groups.

Pilot Testing of Education and Orientation Tools

Before finalizing the written summary and slide deck, we obtained unstructured feedback until no new feasible ideas for improvement were obtained. From a pre-existing group of patient and family partners affiliated with the PaCER group, suggestions from 2 patients and 2 family members were captured with typed notes, coded, and anonymized at source. [Appendix Text 1].

Interview and Focus Group Guide Development

Employing both interviews and focus groups allows triangulation of data collection methods,(30) we developed a 4-page interview and focus group guide using open-ended questions to elicit patient and family views of what matters most about this complication of critical illness. We started with in-person and e-discussions amongst the investigative team. We partnered with one former ICU patient associated with

the PaCER group and one family advisor associated with the CCCTG Patient and Family Partnership Committee. While the guide focuses on asking questions about how participants evaluate particular tests and treatments, it also includes open-ended questions about what aspects or consequences of upper gastrointestinal bleeding matter most to participants. We anticipate that participants may raise concerns about bleeding-associated morbidity and mortality here (e.g., death is likely to be identified as a patient-important outcome if it occurred due to bleeding).

Pilot Testing of Interview and Focus Group Guides

We elicited feedback on the clarity, comprehensiveness, and redundancy of the questions and prompts in the draft interview and focus group guides, modifying them per suggestions. This was achieved by a pilot interview with 1 former ICU patient and a pilot focus group of 5 family members in Calgary and Hamilton (6 persons in total). Quantitative descriptors of pilot participants were anonymized and entered in an Excel® v.16.6 database [Microsoft Corporation, Redmond, Washington]. Feedback from the pilot interview and focus group was captured with typed notes, anonymized at source for future use, but was neither audiotaped nor transcribed. [Appendix Text 2].

Interviewer Training

Two experienced qualitative interviewers in Hamilton and Calgary received training to harmonize their interviewing approach. We ensured calibration by having them use a common guide, both attending interviews and focus groups in the pilot phase, and discussing data collection at team meetings.

Main Study

Qualitative Data Collection: Individual Interviews and Focus Groups

We will conduct individual interviews (45-60 minutes in duration) and focus groups (90-120 minutes in duration) with former patients or family members associated with healthcare institutions in Hamilton, Kingston, London, Ottawa, Toronto or Calgary. Focus groups will be comprised of 2-5 patients or family members. All participants will receive a $25 gift card to thank them for their time.

One of two interviewers and one field note taker not involved in the REVSE trial will be present at each interview or focus group, along with the participant(s) and the investigator who will give the presentation. Following introductions, the interviewer will affirm consent and refer to the pre-circulated 2-page document summarizing tests and treatments. An orienting interactive slide presentation will follow, encouraging questions or clarifications on the content, after which the presenter will leave the videoconference. Although discussion about costs to the healthcare system may arise, we will clarify that our focus is not the cost of tests or treatments, or the economic consequences of bleeding.

The interview will be audio-recorded and transcribed verbatim. The field note taker will record observations during and after each interview or focus group. These notes will record non-verbal communication (e.g., nodding in agreement with a verbal comment of another participant), reflect on process issues, and offer summaries of key ideas shared during the data collection session. At the end of each interview or focus group, we will ask participants to reflect on their research experience, which will also be incorporated into typed field notes, coded, and anonymized at source.

Quantitative Data Collection

We will obtain quantitative data describing participants including age, sex, race, city of residence, and any professional healthcare role. About the patient, we will collect the hospital name, reason for the patient's ICU admission, and (if known to participant) whether the patient had experienced gastrointestinal bleeding in the ICU. We recognize that participants may not know if upper gastrointestinal bleeding developed in the ICU. Given that experiencing or witnessing a bleed may inform participant perspectives on bleeding, documenting a bleeding event is only relevant *if the participant was aware of the bleeding*. For this reason, we will not objectively verify whether the patient developed bleeding. For family members, we will document their relationship to the patient (e.g., child, partner, sibling, friend), and corresponding information as above.

Analyses

Qualitative Analyses

De-identified transcripts will be imported into NVivo® [QSR International, Melbourne, Australia] for data management and analysis. We will conduct a qualitative descriptive analysis, aiming to create a descriptive summary of study findings, organized and presented in the language of the participants with minimal theoretical interpretation. (31) Data will be analyzed using qualitative content analysis, whereby codes are derived directly from the data rather than using preconceived categories. (32) As data collection proceeds, new information and insights will be incorporated into data collection and analysis, making the processes reflexive and interactive.

Five investigators will participate in the initial (open) coding, reading data to form a comprehensive list of codes. Specifically, we will use open coding, group discussion and reconciliation, to identify categories reflecting patient-important considerations (e.g*., familiarity, safety, effectiveness, invasiveness, etc.*) on which we will center additional data collection and coding (focused coding). These considerations will be derived inductively from participant comments on bleeding characteristics, tests, and treatments that matter most to them. For example, the *familiarity* of a test, or the *effectiveness* of the treatment might be identified as key patient-important considerations.

The next round of coding will involve deductively matching each consideration to participants' expressions about each test or treatment. This focused framework coding will generate data about how each test or treatment is understood in relation to the general patient-important considerations. For example, at this stage we will be able to describe how participants perceive the *safety* of endoscopy as a test, and how they perceive the *invasiveness* of angio-embolization as treatment.

In the next round of coding, investigators will work to further categorize each test or treatment according to each consideration. For example, to what degree are participants concerned about the *effectiveness* of acid suppression? In this stage, we will also describe how consistently participants comment on each test or treatment in light of these considerations and assess the degree to which participants have convergent or divergent views.

Preliminary results will be shared with the broader group of interdisciplinary collaborators for further discussion (investigator triangulation). Results will also be shared with 2-4 patients and family participants via videoconference meeting to inquire about whether the findings resonate with their perspectives, exploring the credibility of the findings (member checking). (33)

Quantitative Analyses

Data describing patient and family member characteristics, as described in the Quantitative Data Collection section, will be analyzed using descriptive statistics, measures of central tendency and dispersion, and proportions.

Data Integration

The current study is designed with an instrument-building aim. Qualitative data will be translated into a measure for use as a secondary outcome of the ongoing REVISE trial. The planned translation of qualitative data into a secondary trial outcome will involve the creation of a binary variable for "patient-important bleeding". The qualitative data analysis will inform a list of tests, treatments, or clinical outcomes which if experienced, constitute patient-important bleeding. If REVISE trial participants have had bleeding which led to the use of one of those tests or treatments, they will be deemed to have experienced patient-important gastrointestinal bleeding. In the absence of bleeding or absence of bleeding leading to test or treatment of concern to patients or family members, REVISE trial participants will be classified as not to have experienced patient-important gastrointestinal bleeding. If REVISE trial participants have had bleeding which directly resulted in death, and participants state that death this is deemed to be a patient-important outcome, they will be deemed to have experienced patient-important gastrointestinal bleeding.

How will the Results be Used?

The findings from this study will have several implications. From the *research* perspective, results will be used to refine a novel secondary outcome of the ongoing REVISE trial, ensuring that the evidence produced by the trial will be patient and family-centered. The design could serve as a template for clinical

research methodologists interested in meaningful citizen engagement in research. This new outcome will be useful for investigators recognizing the importance of incorporating patient and family perspectives when designing studies on the incidence, risk factors, consequences, prevention, and management of upper gastrointestinal bleeding in the ICU.

Bleeding rates in the literature may be more conditional on different bleeding definitions and assessment methods than on actual bleeding. (34) Unclear and variable gastrointestinal bleeding definitions across studies over decades make inferences challenging when summarizing studies about gastrointestinal bleeding rates, risk factors, and consequences. This study will inform the interpretation of future randomized trials, systematic reviews, network meta-analyses (35) and practice guidelines with an emphasis on the values of patients and families.

From the *practice* perspective, the results of this study will inform clinicians about how to better support patients and families to explain the characteristics of diagnostic and treatment options when upper gastrointestinal bleeding occurs in the ICU. From the *educational* perspective, our data will help clinical teachers understand how bleeding is perceived by patients and families, aiding conversations and counselling regarding tests and treatments for bleeding which are of greatest concern to them. From the *health system* perspective, the results of this study will further the goal of person-centered healthcare which honours patient and family values and perspectives as key evidence.

Patient and Public Involvement

As a mixed-methods study, whereby qualitative data are dominant and patient and family partnership is paramount, we have already engaged several ICU survivors and family members in completed pilot work. They have helped to develop the educational tools, improve the data collection instruments, and refine the interview guide. We will orient participants to the problem of upper gastrointestinal bleeding by a pre-circulated text summary and standardized slide deck that was co-created by patient and family partners. To ensure that participants have an understanding of the ICU context, we will use criterion sampling to recruit participants who have lived experience with critical illness but avoid an exclusive focus on participants with self-reported high health literacy. An experienced patient partner and family partner are study coinvestigators. Results will be shared with participants in two ways. First, all participants will receive an optional invitation to attend a “member-checking” session, where results will be shared and feedback solicited. This input may be used to further refine results. Final results will be disseminated to all participants via an infographic with accompanying 1 page study brief.

Discussion

Strengths

Additional study strengths include the methods which accord with increasingly recommended or required patient involvement in the design, conduct, and dissemination of health research. (3, 36, 37) The qualitative methods allow us to organize, clarify and summarize non-numerical data to build a definition of patient-important bleeding. Future findings will be grounded in the views of members of the public with lived critical care experience, rather than specialized practitioners. To maximize the generalizability of responses, this multicenter study will include participants reflecting hospital catchment areas in at least 3 Canadian provinces. A constructivist approach to qualitative inquiry permits patient and family member participants to share information about what truly matters to them, even when those perspectives might conflict with definitions of clinically-important bleeding developed by clinicians and researchers.(38) Multiple analysts contributing different interprofessional and interdisciplinary perspectives contribute to the usefulness and trustworthiness of this research.(39)

Limitations

Limitations of this study include no numerical measures of bleeding attributes or preference rankings, as we are eliciting views and values from patients and families using an open-ended, qualitative approach. The goal is not to exclusively characterize morbidity and mortality features of the bleed that are concerning (e.g., short-term risk of death, or long-term disability); indeed we assume that bleeding which leads to death or disability is very important to patients. Our main focus is on tests and treatments used to

locate and limit the bleeding in order to add additional granularity to what patients find important about bleeding beyond the obvious consequences of dying with or from bleeding. Context is crucial here; out-patients and ward patients with acute or chronic illnesses may have different concerns than ICU patients (e.g., they may be understandably more alarmed about minor bleeds compared to ICU survivors and their families). Thus, our results will not apply to bleeding from sites other than the gastrointestinal system, or to community-dwelling citizens or hospitalized patients who are not critically ill.

Future Research Implications

While the patient-important gastrointestinal bleeding definition derived from this study will serve as the quantitative instrument for this secondary outcome in the REVISE Trial, results will also have implications for sample size calculations in future trials on this topic. (40) Patients' and clinicians' views may differ when considering trade-offs related to bleeding. When the current study and the REVISE Trial are complete, it would be worthwhile to explore patient and family perceptions about the balance of risks and benefits of pantoprazole prophylaxis in terms of bleeding, pneumonia, *Clostridioides difficile* and mortality. One study of physicians who treat atrial fibrillation and patients with, or at risk of, developing atrial fibrillation, explored the maximal increased risk of bleeding that respondents would tolerate with warfarin versus aspirin to achieve a reduction in stroke over 2 years. (41) The variability in patient and physician values regarding trade-off between bleeds and strokes likely reflects differential aversion to anticoagulation-associated bleeding and stroke risks. Another study of diverse healthcare providers showed substantial variation in whether and when to restart oral anticoagulation after gastrointestinal bleeding. (42)

Ethics & Dissemination

This study has Research Ethics Board (REB) approval at McMaster University (HiREB #9492), and the University of Calgary Conjoint Health Research Ethics Board (REB20-0120).

Potential adverse effects of patient engagement in research from patients' perspectives identified in a recent systematic review related to frustrations with training, transportation, or tokenism - or a false impression of inclusiveness, thereby devaluing patients' input. (9) Advice from our patient partner and family partner who are investigators on this study will ensure that we collaborate sensitively, avoid inauthentic engagement, ensure respectful communication, and offer compensation for their time.

Findings will be disseminated using an integrated knowledge translation framework. The integrated approach to knowledge translation is reflected in several patients and family members being integral to the pilot work. Furthermore, a CCCTG Patient and Family Partnership Committee family member and an experienced patient partner are coinvestigators who helped to design this study. *End-of-study knowledge translation* will include incorporating results to refine our placeholder definition of patient-important bleeding - presently overt bleeding resulting in invasive tests or treatments.

We will share findings at investigator and CCCTG meetings. Peer-review presentations at international conferences in critical care, gastroenterology and hematology will coincide with or precede open-access peer-review publications. We will translate findings into different languages for diverse audiences in traditional and social media. Our patient and family coinvestigators will help to create an infographic of our findings and clinician-facing educational materials to teach about procedural explanations for gastrointestinal bleeding.

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Protocol: Available to interested readers by contacting Dr. Cook (debcook@mcmaster.ca)

Computer code: Not relevant, no computer code will be used to generate the results.

Author contribution: All authors (DJC, MS, KK, KF, JCD, SD, GG, ST, WAH, KEAB, JCM, JGM, AG, SF, AD, JAM, BR, IB, TM, DJN, SWE, MV, MGV) contributed towards the original research idea and provided input into the design of the study. DJC, ST, MS, KK, MGV designed the protocol, drafted and revised the manuscript. SD and AG are patient partners.

Conflict of Interest: The following individuals are investigators for the randomized trial REVISE: DJC, JCD, GG, WAH, KEAB, JCM, JGM, SF, AD, JAM, BR, IB, TM, DJN, SWE. We have no other conflicts of interest to declare.

Data: Not available.

Data Statement: Readers are welcome to contact the research team for further information. In brief, when participants consented to participating in the study, they did not consent to access to transcripts or data beyond what is reported within this report.

Figure 1: Protocol Infographic
Appendix Text 1: Summary Text
Appendix Text 2: Interview and Focus Group Guide

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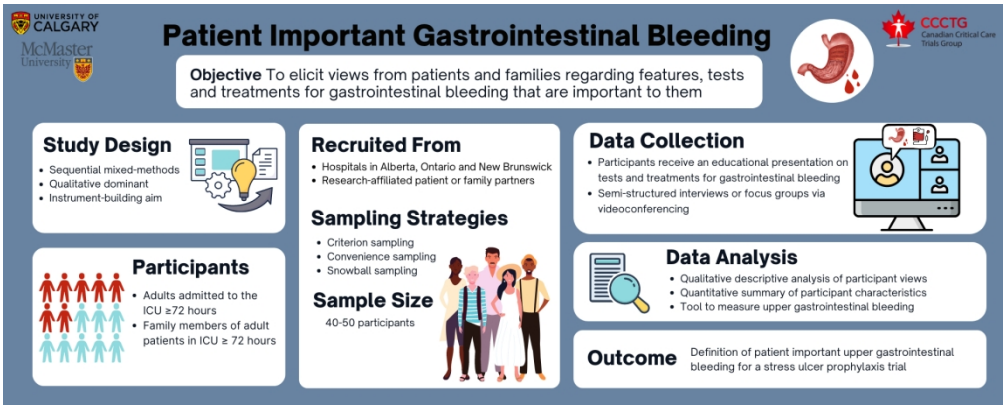

Infographic used to depict the study methods for sharing with potential participants, particularly those who are already research partners in other studies

1336x534mm (38 x 38 DPI)

Patient Important Gastrointestinal Bleeding in the Intensive Care Unit

The **gastrointestinal (GI) tract** is divided into the upper and lower GI tract. The upper GI tract includes the mouth, esophagus (food pipe), stomach, and duodenum (first part of the small intestine). The lower GI tract includes the rest of the small intestine, bowel (large intestine), and rectum. We will mainly focus on the **stomach**.

The inside of the stomach is very acidic because of the gastric juices it makes. The acid helps the stomach stay sterile between meals and protects it from bacteria, viruses and other organisms that we eat every day. Sometimes, the acidity of the stomach can become too high. Too much acidity can damage the stomach lining and cause **ulcers.** Ulcers can lead to bleeding in the stomach. Medications called **antacids** can make the stomach less acidic.

ICU patients are likely to develop stomach ulcers, which can cause bleeding. There are many reasons why they are likely to develop stomach ulcers. For example, if ICU patients are on a breathing machine for at least 48 hours or have low blood pressure, the stomach lining becomes weak, and the stomach can become more acidic than usual. Acidity that is too high in the stomach can lead to stomach ulcers. Antacid medication, such as pantoprazole is given to ICU patients to prevent ulcers. However, antacid medication can change a patient's natural defense against infections and can have side effects.

We are currently conducting a research study called, **"Re-Evaluating the Inhibition of Stress Erosions: The REVISE Trial."** The REVISE study will look at the benefits and risks of pantoprazole in ICU patients who are on a breathing machine for at least 48 hours. We will look at whether pantoprazole can reduce the number of patients with GI bleeding and reduce the number of patients who die from GI bleeds (potential benefits of pantoprazole). We will also record the side effects of the medication (eg. lung infections, infectious diarrhea) (potential risks of pantroprazole). We will compare the patients that receive pantoprazole with those that do not receive pantroprazole and look at the benefits and harm of giving the medication. We want to answer the question, should doctors and nurses continue giving pantoprazole to ICU patients on a breathing machine?

Doctors and nurses know what characteristics of a patient's GI bleed are important to them. If there are changes to the patient's heart rate, blood pressure, or abnormal blood results - these are important signs that the doctors and nurses look for and are called **clinically important bleeding**. However, we are missing something very crucial. We don't understand what is important to the patients in the ICU and their families. This is referred to as **patient important bleeding**.

Now that you know more about GI bleeding we want to teach you about the different ways to find and treat a GI bleed.

Ethics ID: REB20-0120
Study Title: Patient Important Gastrointestinal Bleeding in the Intensive Care Unit (ICU)
PI: Dr. Kirsten Fiest
Version number/date: Version 1.4/May 19, 2020

TREATMENTS:

A GI bleed can be treated with the following:

Therapy	Purpose	How Often it is Necessary	Possible Adverse Effects or Discomforts
Antacid Drugs	To help heal the ulcers	**ALMOST ALWAYS.** Every day for 2-3 months to treat every bleed	**SOMETIMES.** Pneumonia (lung infection) **VERY RARELY.** Infectious diarrhea
Drugs to Increase Blood Pressure	To increase blood pressure when it is dangerously low	**SOMETIMES.** Every time blood pressure is dangerously low	**COMMONLY.** Very fast heart rate
Blood Transfusion	To replace lost blood	**SOMETIMES.** It depends on the amount of bleeding	**VERY RARELY.** Congestive heart failure (fluid buildup in the lungs because the heart has trouble pumping extra fluid) **VERY RARELY.** Lung inflammation
Surgery	To surgically remove the bleeding tissue	**VERY RARELY.** Only in the most serious bleeds	**VERY RARELY.** Risks of general anaesthetic, surgical complications

FINDING (AND TREATING) A GI BLEED:

To find where a GI bleed is coming from, the following tests can be done. These tests can lead to the treatment of the bleed:

Procedure	Purpose	How Often it is Necessary	Possible Adverse Effects or Discomforts
Diagnostic Endoscopy	To locate the source of the bleeding	**COMMONLY.** For bleeding that is severe	**COMMONLY.** Low blood pressure and drowsiness related to the sedation
Therapeutic Endoscopy	To try to physically stop the bleeding	**COMMONLY.** Whenever a serious cause of bleeding is found	**VERY RARELY.** Making the bleeding worse or accidentally making a hole in the stomach
Angiography	To find the site of bleeding more accurately	**RARELY.** For serious bleeding	**VERY RARELY.** Dye used to find the site of bleeding may cause damage to the kidneys
Angiography & Embolization (to create a blood clot)	To stop bleeding by creating a blood clot in the blood vessel	**RARELY.** For serious bleeding	**VERY RARELY.** Dye used to find the site of bleeding may cause damage to the kidneys, or the stomach lining may die from lack of blood supply caused by the clot

Now that you understand what a GI bleed is and how to find and treat it, we want to know what characteristics of a GI bleed are important to you!

Ethics ID: REB20-0120
Study Title: Patient Important Gastrointestinal Bleeding in the Intensive Care Unit (ICU)
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Patient Important Bleeding Online Interview Guide

Introduction:

Ask everyone present to briefly introduce themselves.

Thank you for taking the time to participate in an interview that we are conducting as part of the REVISE study.

Before we begin the interview, I am going to review a few things:

Logistics:

- Today's interview will take approximately 1 hour
- If you need to take a break to use the bathroom or take a call, please let me know and we can pause the interview – please remember to use the mute function
- Please ensure that you are in a quiet space with minimal distractions so that I can hear you clearly.
- As was described in the consent form, we will be audio recording today's discussion, and all information shared today will be anonymized—that is, you will not be identified in association with anything you say.
- You can choose to have your video on or off during the discussion. Having your video turned on is preferable as it will help facilitate discussion and allow for a more natural flow of discussion. However, if you are not comfortable, you may turn off this function. We will not be recording any video.

About the Interview

- I would like to remind you that your participation in this study is voluntary and you can end your participation in the interview at any time.
- YOU ARE THE EXPERT! There are no right or wrong answers to the questions we have for you. We are interested in learning about your experiences and your perspectives.

Consent

- As I mentioned over email, we do not need to collect your signed consent for this interview. Before we start the interview I do want to check if you had a chance to read the consent form I sent you? (If no, review consent form). If yes – do you have any questions before we begin?

HiREB: 9492
Study Title: Patient Important Gastrointestinal Bleeding in the ICU
PI: Dr. Deborah Cook
Version number/date: Version 2/January 25, 2021

Patient Important Bleeding Online Interview Guide

Introduction to Study:

We'd like to share some slides on-screen with you to introduce you to the REVISE Study and provide you with some background information on why we are conducting this study to prevent gastrointestinal bleeding.

[share screen – presentation]

[After presenting GI bleed information (and before the information on tests and treatments), stop the presentation at a slide with a picture of a ventilated ICU patient.]

[Ask people to unmute and click "show small active speaker" in top right-hand corner]

Ask the following questions:

1. What do you think of, and what do you feel when you hear the term "GI bleed"?

2. I'd like to ask you to think of this scenario: You or your family member is critically ill in the ICU on a machine which is helping them to breathe called a ventilator. One day, the doctor says that an upper GI bleed has just started a few hours ago. Some blood is seen in the tube placed in the stomach, but it is not clear exactly where the bleeding is coming from, and so far, no particular treatment is needed.

3. What are your concerns about the GI bleed?

Probes: the amount of bleeding; location of the bleeding; seeing the bleeding; short-term impacts and long-term impacts of the bleeding; reason for the bleeding; how the patient experiences the bleeding (e.g., discomfort, pain); how serious is the bleeding (in the context of the primary reason for admission).

Thank you for discussing your feelings and concerns about GI bleeds. We are going to return to the presentation to learn about the different tests and treatments that are used to find and stop GI bleed.

[return to presentation]

Do you have any questions about the information in the presentation?

- Before we begin the interview questions, I just wanted to describe the context for this research study. As you may know: In the ICU patients are often sedated and not able to take part in discussions about their medical tests and treatment options. This is why we are doing this study - it is important to hear from patients and family members about what things are important when considering different tests and treatments for upper GI bleeding.

Patient Important Bleeding Online Interview Guide

As we move into the interview questions, I am going to begin recording the audio component of our discussion.

[start the recording function on Zoom]

[Moderator to share the slide with the spectrum of tests and treatments on the screen]

I am going to share my screen again and put up the slide showing the different tests and treatments that might be used for upper GI bleeding.

[share screen with online handout]

Some of these are more invasive than others. It is possible that a blood transfusion may be required or new drugs might be started to increase low blood pressure that develops due to bleeding. In addition, procedures to find out where the bleeding is coming from may be necessary, which might also involve treating the bleed. There are potential risks and benefits to each of these, which we reviewed earlier.

4. Has anyone had personal experience with a GI bleed?" If yes, please describe your experience.
5. Do you have experience with any of these tests or treatments for a GI bleed or for another medical condition? If yes, please describe your experience.
6. The clinical team works with patients and families to make a management plan. Thinking about the scenario whereby you or your family member is on a breathing machine in the ICU and has developed a GI bleed:
    1. Which of the tests and treatments are you most comfortable with? Why?
    2. Which of the tests and treatments concern you the most? Why?

Probes: We're interested to know what tests and treatments are most preferred and which are least preferred (how and why they made the decision). For example, if participants list drugs first, ask about drugs and ask if all drugs are viewed the same way and then ask explicitly about the different drugs (i.e. antacids and medications to increase blood pressure). Perceptions of level of invasiveness of the test or treatment, level of discomfort for the patient, effectiveness of the test to locate the bleeding, effectiveness of the treatment to stop the bleeding, balancing possible discomfort or risk (e.g., infection) and possible benefit, drug interactions, location where test or treatment is done (i.e., in another part of the hospital vs. just done in their room), if any chronic health conditions or personal experience influence views on the test or treatment, short-term effects, long-term effects, perception of recovery time, if the test or treatment includes the patient being sedated again or put under anesthetic?

7. Thinking about the scenario where your family member is critically ill, on a breathing machine in the ICU and has developed a GI bleed. Is there anything the care team could do that would make you more comfortable with these tests and treatments?

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Patient Important Bleeding Online Interview Guide

Probes: Would the clinical condition of the patient change the information they would want to receive or extent to which they are involved (e.g., if GI bleed is not primary concern or the size of the GI bleed), trust in doctor, relationship with doctor, understanding the different options (doctor took the time to explain them and answer questions), hearing the same things about the options from everyone on the medical team, knowing the treatment is commonly used, treatment is a familiar experience (i.e. IV medications), level of emotion experiencing when making the decision, gut feeling/perceptions, not feeling pressured to make a decision, knowing the numbers about the success of the intervention (i.e. % of patients whose response to this treatment is successful).

8. What do you want to avoid with these tests and treatments?
9. If you found out if any of these tests or treatments were considered life support (i.e., needed to keep the patient alive or save the patient's life), would that change your concerns? Would it change your comfort level? If so, how?

Wrap Up Discussion

10. Does anyone have any final thoughts they would like to share with us? (*Is there a "take home" message they would like the research team to capture?)*

Conclusion:

Thank you everyone for your comments. Once again, your participation today is helping us advance the care of patients in the ICU. I can't stress it enough, that we cannot do this research without you! These are all of the questions I have for you.

Do you have any questions for us? (*e.g., length/format of focus group, what worked well/didn't work well for the virtual format*)

As a thank you for your input and your participation in this focus group, we would also like to give you a gift card. This will be emailed to you. We appreciate that you took the time to talk to us!

11. I just have a few demographic questions to ask you now

[complete PIB Interview Tracking Requirements Document]

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