



Contents lists available at ScienceDirect

Journal of Critical Care

journal homepage: www.jccjournal.org

The views of health care professionals about selective decontamination of the digestive tract: An international, theoretically informed interview study ☆,☆☆



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ARTICLE INFO

Keywords:

Antibiotic prophylaxis
Theoretical domains framework
Intensive care unit
Qualitative research

ABSTRACT

Purpose: Selective decontamination of the digestive tract (SDD) as a prophylactic intervention improves hospital-acquired infection and survival rates. Uptake of SDD is low and remains controversial. This study applied the theoretical domains framework to assess intensive care unit clinicians' views about SDD in regions with limited or no adoption of SDD.

Materials and methods: Participants were health professionals with "decisional authority" for the adoption of SDD. Semistructured interviews were conducted as the first round of a Delphi study. Views about SDD adoption, delivery, and further SDD research were explored. Directed content analysis of interview data identified subthemes, which informed item development for subsequent Delphi rounds. Linguistic features of interview data were also explored.

Results: One hundred forty-one participants provided interview data. Fifty-six subthemes were identified; 46 were common across regions. Beliefs about consequences were the most widely elaborated theme. Linguistic features of how participants discussed SDD included caution expressed when discussing the risks and benefits and words such as "worry," "anxiety," and "fear" when discussing potential antibiotic resistance associated with SDD.

Conclusions: We identified salient beliefs, barriers, and facilitators to SDD adoption and delivery. What participants said about SDD and the way in which they said it demonstrated the degree of clinical caution, uncertainty, and concern that SDD evokes.

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☆ Authors' contributions: EMD conducted the UK interviews and analysis, contributed to the international analysis, and led on the writing of the manuscript. BHC conceived of the study, participated in its design and coordination, contributed to the interpretation of the data, and participated in drafting the manuscript. MEP conducted the UK interviews and analysis, contributed to the international analysis, and participated in drafting the manuscript. APM conducted the Australian/New Zealand interviews and analysis and participated in revising the manuscript. ECW and LET conducted the Canadian interviews and analysis and participated in revising the manuscript. DB conducted the UK analysis and participated in revising the manuscript. RSN and FW conducted the Canadian analysis and participated in revising the manuscript. LR, MKC, GB, and IMS conceived of the study, participated in its design and coordination, contributed to the interpretation of the data, and participated in reviewing the manuscript. JJF conceived of the study, led its design and coordination, contributed to the analysis and interpretation of the data, and participated in drafting and reviewing of the manuscript. All authors approved the final manuscript.

☆☆ The SuDDICU collaboration is a collaboration of the Canadian Critical Care trials group and the Australia and New Zealand Intensive Care Society Clinical Trials Group and is supported by the both organizations.

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<http://dx.doi.org/10.1016/j.jccr.2014.03.013>

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1. Background

Selective decontamination of the digestive tract (SDD) is an intervention used in intensive care units (ICUs). Evidence from randomized controlled trials (RCTs) suggests that it has significant potential to reduce hospital-acquired infections (HAIs). Selective decontamination of the digestive tract involves the prophylactic application of topical nonabsorbable antibiotics to the oropharynx and stomach with a short course of intravenous antibiotics. Despite much interest over many years and a large evidence base (36 randomized controlled studies) suggesting efficacy in reducing rates of HAIs and increasing survival [1–9], SDD has not been widely adopted into intensive care practice worldwide. Selective decontamination of the digestive tract continues to be a controversial subject and seems to receive limited support from clinicians [10,11]. The multinational Selective Decontamination of the Digestive tract in critically ill patients in Intensive Care Units (SuDDICU) mixed-methods research program [12] aimed to establish reasons for the low adoption rate, barriers, and facilitators to adoption of SDD and directions for further research.

Few published studies have examined health care professionals' views about SDD and those that do not have to use a theoretical framework [11,13]. This lack of a theoretical framework means that findings cannot be used to build a cumulative evidence base or to inform an appropriate direction for future research. This study aims to address this limitation by using a theoretical framework developed for investigating the determinants of health care professional behavior, the theoretical domains framework (TDF) [14]. The TDF, which integrates behavioral theories, was developed through a consensus process with health psychologists and health services researchers to systematically assess the behavior change processes inherent to implementation of evidence-based practice. The TDF proposes that the determinants of health care professionals' behavior cluster into 12 "domains" (such as "social influences," "beliefs about consequences," and "social/professional role and identity"). The content of each of the domains is described in Table 1.

The controversial nature of SDD and the uncertainty about its evidence base [1–9,15,16] suggests that clinicians both within and between different clinical specialities and professional groups may hold opposing views. This study therefore applied Delphi methodology to systematically assess agreement/disagreement with SDD within ICU health care professionals. The Delphi method is a structured iterative process, which gauges views from a panel of experts (or key stakeholders) and involves multiple, sequential "rounds" [17]. Originally developed as a method to achieve consensus [18], it can also be used as a way to assess levels of agreement/disagreement [19]. The Delphi study investigated views of ICU health care professionals working in 3 regions with limited or no adoption of SDD (the United Kingdom, Canada, and Australia/New Zealand). We investigated views about SDD adoption and whether further SDD research is needed, ethical, acceptable, and feasible. The Delphi study commenced with a qualitative round to identify the range of views. The findings from this first round were then used to develop 2 quantitative questionnaire rounds to assess stability of health care professionals' views and the level of consensus within and between ICU health care professional groups [20]. This article describes the findings from the first Delphi round, the semistructured interviews, and reports on (i) "what" ICU health care professionals said about SDD and (ii) "how" they spoke about SDD.

The TDF was designed for investigating behaviors of individual health care professionals when either the target actions are recommended by a clinical guideline or when the evidence base in favor of a certain action is clear. To our knowledge, this is the first study to use the TDF to investigate an intervention that (a) would be adopted and delivered at the unit level in a hospital context (rather than by individuals) and (b) where there is uncertainty about the evidence base.

We aimed to identify the range of beliefs, interpretation, and views about the current evidence base relating to the use of SDD in key stakeholder groups and answer the following research questions: (1) What are the views of key stakeholders of the internal/external validity and adequacy of the existing evidence base for SDD, and how willing are they to participate in further research? (2) What are the views of key stakeholders about the likely positive and negative consequences of implementing SDD in ICUs? (3) What are the views of key stakeholders about the likely barriers to implementing SDD in ICUs?

2. Methods

This study was part of the multinational SuDDICU mixed-methods research program. Full study design and methods are published elsewhere [12]. In brief, the SuDDICU collaboration is an international investigator-initiated independent research collaboration that has assessed the evidence base and outcomes for the use of SDD and the risks, benefits, and barriers to its use.

2.1. Participants and sampling

The sample consisted of key stakeholders most likely to have "decisional authority" for the adoption/delivery of SDD within ICUs from 3 geographic regions (United Kingdom, Canada, and Australia/New Zealand). We recruited health care professionals from 4 groups: (i) intensive care physicians (hereafter referred to as "intensivists"), (ii) intensive care pharmacists (hereafter referred to as "pharmacists"), (iii) clinical microbiologists/infectious disease (ID) physicians with intensive care responsibility (hereafter referred to as "microbiology/ID physicians"), and (iv) intensive care leads (including medical leads, nurse managers, and senior ICU nurses).

Purposive sampling was used to achieve sample diversity according to predetermined factors (geographic location, ICU size, and academic affiliation). In line with recommended Delphi sample sizes [21], we aimed to retain 10 participants per stakeholder group within each region by the end of the Delphi rounds (ie, 120 participants in total). Using purposively sampling and allowing for attrition, we overrecruited (more than 10 per group), so that we ultimately sampled approximately 13 participants per group, in each of the 4 groups for each geographic zone. No participant who was approached and agreed to participate was declined participation.

2.2. Materials

A semistructured interview topic guide was designed through an iterative process by the international research team. The topic guide was designed to elicit beliefs within all domains of the TDF alongside questions about willingness to participate in and the need for further SDD research. The topic guide was piloted in each region with one representative from each of the 4 stakeholder groups who was not part of the sample to assess face validity, clarity, and time for completion. Minor edits were made to the topic guide after piloting to clarify wording. The topic guide is presented in Additional File 1. To ensure a shared understanding of SDD, participants were first asked to give their definition of SDD and then requested, for the remainder of the interview, to consider SDD as "the application of antibiotics in 3 ways: orally, to the mouth and throat; gastric application to the stomach; and a short course of intravenous antibiotics." This definition is based on the most commonly applied SDD regimen in clinical studies and practice as well as the largest trial to date on the subject [16].

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