Improving Goal of Care Discussions in the ICU: A Mixed Method Systematic Review

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Preface

Ethical Approval Obtained to Conduct Research

This Master's thesis is a mixed method systematic review and therefore secondary data analysis. As a result, no institutional Research Ethics approval was required.

Statement of Contributions and Co-Authorship

Multiple authors contributed to this thesis and the associated manuscript. The contributions of each author are outlined below.

1. Nathalie DiLabio, BScN RN, Master of Science in Nursing student, School of Nursing, Faculty of Health Sciences. This review was completed as part of my Master's thesis. I contributed to identifying, developing, and writing the research question, as well as the design and execution of all aspects of the systematic review. I wrote and revised all chapters within this thesis and am the primary author of the manuscript in Chapter 3.

2. Brandi Vanderspank-Wright, PhD RN CNCC(C), Associate Professor, School of Nursing, Faculty of Health Sciences, University of Ottawa and Affiliate Investigator at the Ottawa Hospital Research Institute. Dr. Vanderspank-Wright acted as my thesis supervisor. She provided ongoing support and feedback throughout the conception and completion of this review. She helped identify the research question and purpose for this secondary analysis. Additionally, she contributed to the research design, literature review, and data-analysis, and critically revised every chapter of this thesis. She is the senior author of the manuscript in Chapter 3.

3. Amanda Vandyk, Ph.D, RN Associate Professor, School of Nursing, Faculty of Health Sciences, University of Ottawa. Dr. Vandyk acted as a thesis committee member and offered substantive guidance in the methods of the review, including the research design and data analysis. She also

provided input for data analysis, and she critically revised every chapter of this thesis. She is a co-author of the manuscript in Chapter 3

4. Aimee Sarti, MD, MMED, FRCPC, is a Critical Care Physician (Staff) at the Ottawa Hospital and Clinical Investigator at the Ottawa Hospital Research Institute. She acted as a thesis committee member, offering guidance on the research context and background and substantive feedback on the research design and data analysis. She critically revised every chapter of this thesis and is a co-author of the manuscript in Chapter 3.

5. Amanda Ross-White MLIS, BA is the Health Sciences Librarian at Queen's University. Amanda contributed to the search strategy and helped find essential literature for this review. Amanda will critically revise Chapter 3 prior to final submission to the identified journal and will be a co-author at that time.

Abstract

Background: Goals of care (GOC) discussions are crucial for ensuring that patient care aligns with their beliefs, values, and ethics, particularly in the context of the intensive care unit (ICU). While existing literature offers insights into interventions designed to improve GOC discussions, there is a lack of synthesis of these studies, representing a significant gap in the research.

Aim: This review aims to identify, describe, and report on the effectiveness of interventions implemented to improve GOC discussions in the adult ICU context**.**

Methods: A mixed-methods systematic review with a narrative summary was conducted. The review was modelled on Joanna Briggs Institute methodology for this review type. Three databases (Medline, Cumulative Index to Nursing & Allied Health, and the Excerpta Medica Database) were searched. The primary outcome extracted and reported on was the effectiveness of the included interventions.

Results: 5,558 articles were initially scanned; five studies met criteria for inclusion. Two main categories of interventions were identified: those supporting healthcare professionals (n=4) and those supporting substitute decision makers (n=1). Studies aimed at supporting health care providers effectively improved individual communication skills and confidence, fostered team-based communication skills, and created a supportive environment. The single intervention supporting substitute decision makers was deemed effective by participants and there was a reported increase in the quality of communication between the care team and participants.

Conclusion: This review underscores the complex nature of GOC discussions and the need for multifaceted interventions to enhance GOC discussions in ICUs.

Keywords: Goals of Care, Communication, Interventions, Intensive Care Unit, Mixed Method Systematic Review, Effectiveness

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Tables and Figures

Chapter 1: Introduction

The concept and language of goals of care (GOC) has been used in healthcare research since the 1970s, but in reality it is language that remains vague and there is a lack of consensus regarding its operational definition (Stanek, 2017; Turnbull & Hartog, 2017). The term GOC carries different meanings depending on the healthcare context, ranging from treatment-focused to person-focused viewpoints (Gieniusz et al., 2018). Irrespective of the importance of GOC discussions and frequent use of the term, the term GOC has the potential to be 'taken-for-granted language' in the intensive care unit (ICU) leading to confusion and miscommunication between healthcare providers (HCP), patients, and their families (Klement & Marks, 2020; Secunda et al., 2020). Despite efforts to develop an operational definition, ambiguity remains; these inconsistencies create barriers in clinical practice and healthcare research (Kaldjian, 2020; Secunda et al., 2020).

This chapter is intended as a preliminary exploration of GOC as a concept according to its use in published from the introduction of the term in the 1980s to current publications. I provide the reader with valuable insights into the meaning and use of GOC discussions in the current healthcare literature and highlight barriers and facilitators to GOC discussions in the ICU that have been identified in the published literature reviewed. I also present an overview of interventional research that aims to improve GOC discussions and subsequently improve goal-concurrent care. Through reviewing current literature, I found that there has been no synthesis of interventional studies that aim to improve GOC in the adult ICU context.

Historical Context

Historically, the use of the term GOC within healthcare literature generally refers to communication with or about patients with serious illnesses that occurs in three contexts: (1)

patients with diseases typically considered to have a poor prognosis; (2) patients who have reached a phase of any disease for which cure is not possible or death is imminent; and (3) patients who receive care within a specific health setting where incurable, serious life-limiting and life-threatening illnesses are common (Secunda et al., 2020). Research interest in GOC increased in the 1980s and 1990s as healthcare shifted from biomedical to person-centred care (Secunda et al., 2020).

Definitions for GOC have varied from treatment-focused "clarifying prognosis, addressing questions about life expectancy, reassurances about continuing care, and explaining" (Gehlbach et al., 2011, p. 808) to person-focused viewpoints including "preferences regarding implementation and/or removal of life-sustaining measures, resuscitation status and values-based care priorities" (Esfahani et al., 2020, p.33). As healthcare paradigms evolved from provider-driven care to patient-centred care, there was a re-examination of the concept of GOC as a discussion involving patient care preference(s) in the context of their clinical trajectory (Stanek, 2017; Tinetti et al., 2016). Although the emphasis during GOC discussions remains largely focused on the clinical trajectory, in later studies, the focus shifts from conducting GOC discussions based on prognostication to discussions that focus on functional status and quality of life (Tinetti et al., 2016). Back et al. (2007) established that, from the perspective of the HCP, a GOC discussion is a multi-step process using a shared decision framework to inform the patient and family of the clinical context and functional prognosis of the patient while simultaneously obtaining information about the patient's values and care preferences.

In 2017, Stanek published a concept clarification that outlined GOC as "established, agreed on, desired health expectations that are appropriate, documented and communicated," these care preferences are "established and formulated through the thoughtful interaction

between the patient, family, and health care provider" (p.1308). Later, Secunda et al. (2020) conducted a systematic review that resulted in a conceptual model that determined GOC were based on four main themes: "overarching aims," "patient values and priorities," "clinical context," and "medical intervention decision" (p.1562). In Secunda et al.'s (2020) review and discourse analysis, they reported that the use of the concept of GOC has increased over time and significantly increased in the 2000s with 87% of the included texts being published from 2009 to the present. With this increased attention, researchers have aimed to clarify GOC as a concept to facilitate research aimed at improving patient-centred decision-making in the context of serious illness (Chelluri, 2015). According to Secunda et al. (2020), given the dynamic nature of serious illness, as well as patient and family understandings of prognosis, regular and structured communication with the patient and/or family members and substitute decision makers (SDM) is essential to ensure that the plan of care is congruent with patients' preferences.

Operationalizing GOC

Despite efforts at developing a clear, universally accepted, conceptual and operational definition for GOC, a standardized definition has yet to be established in the literature (Comer et al., 2020). The difficulty results from divergent views and ambiguities associated with the concept of GOC, which is further complicated by the different usages of the concept in the clinical context (Sanders et al., 2018; Secunda et al., 2020).

The varying interpretations of GOC among HCPs and researchers creates challenges in establishing a clear and universally accepted definition that can be used in any clinical context (Aleksova et al., 2016; Gehlbach et al., 2011). Some view GOC as closely related to medical intervention decisions, while others equate them with singular decisions regarding resuscitation or code status, cardiopulmonary resuscitation, decisions about life-sustaining measures (i.e., the

use of invasive airways and mechanical ventilation), admission to ICU or any combination of the these (Hui et al., 2014; Thomas et al., 2014). There is also disagreement on whether GOC is a discrete categorical option or an open-ended unbounded concept (Klement & Marks, 2020).

According to Douglas et al. (2017) GOC discussions are singular and goal-focused on either extending life or maximizing comfort. In contrast, Turnbull and Hartog (2017) describe an inclusive approach where GOC is a holistic discussion about medical care objectives that result in improved or maintained quality of life. In this approach, multiple goals may apply simultaneously, with none being more important than the other. These differences in perspective encompass not only what GOC are, but also whether GOC is a single care priority or a multidimensional goal-based approach to care focused on improving overall quality of life – further highlighting the complexity of defining and operationalizing GOC (Klement & Marks, 2020).

Ultimately, establishing a clear and widely accepted definition of GOC is essential in an effort to ensure high-quality patient care that is in alignment with patients' goals, values, and preferences. In an effort to provide a clear articulation as to how GOC has been operationalized for this thesis and subsequent systematic review, the definition of GOC developed by Secunda et al. (2020) will be used. As such, GOC are henceforth in the document understood as:

"the overarching aims of medical care for a patient that are informed by patients underlying values and priorities, established within the existing clinical context and used to guide decision about the use of or limitation on specific medical intervention" (Secunda et al., 2020, p.1559). Emphasis added.

GOC Discussions in the ICU Context

The importance of GOC discussions in the ICU is underscored by four principal themes: (1) providing a comprehensive understanding of the patient's prognosis and potential functional decline; (2) fostering patient autonomy and patient-centred care; (3) preventing unwarranted care and determining values to steer the course of treatment towards goal concurrence; and (4) offering emotional and psychological support to both the patient and their family. These themes collectively contribute to the significance of these discussions in critical care settings (Emiloju et al., 2020; Sanders et al., 2018; Secunda et al., 2020; Turnbull & Hartog, 2017).

Critical care literature extensively documents the potential for severe negative outcomes in ICU patients, including high mortality rates, morbidity, and lasting functional disabilities (Berlin, 2017; Gonçalves-Pereira et al., 2023; Society of Critical Care Medicine [SCCM], 2023 Stapleton et al., 2020). The SCCM states that "mortality rates for patients admitted to adult ICUs range from 10% to 29%, varying by age, comorbidities, and the severity of illness" (2023, p.1). Research by Desky et al. (2017) and Gonçalves-Pereira et al. (2023) indicates that up to half of ICU patients may not recover their functional capabilities to pre-admission levels, and their mortality rate over the next ten years is higher than that of peers of the same age who were never admitted to the ICU. Post-Intensive Care Syndrome (PICS) is a term that encapsulates the myriad of physical, cognitive, and psychiatric complications that ICU survivors may experience (Howard et al., 2019; SCCM, 2013). Patients often do not return to their previous state of health, and may experience persistent physical and psychological symptoms such as pain, dyspnea, depression, and anxiety (Khouli et al., 2011; Nelson et al., 2004). Younger patients who survive to discharge have reported needs such as frequently requiring assistance with daily activities due to a marked decline in quality-of-life and functional status post-ICU admission (Khouli et al.,

2011). Younger patients also exhibit a higher mortality risk compared to their age-matched peers and are prone to frequent hospital readmissions within a year of discharge (Khouli et al., 2011; Neufeld et al., 2020). For elderly patients who survive to discharge from ICU mortality rates are as high as "33% mortality rate within six months post-discharge" (Khouli et al., 2011, p.735). Given the profound impact of PICS on patients and their families, enhancing effective communication and clearly articulated GOC during an ICU admission becomes imperative (Hiser et al., 2023; Milic et al., 2015).

GOC, when established prior to life-threatening illnesses, ensure that the healthcare team's priorities align with the patient's care preferences, thus providing goal-concordant care (Apostol et al., 2015). Early GOC discussions are integral to shared decision-making, addressing care priorities, ***and*** when value-based, help in averting unnecessary suffering associated with unwanted treatment (Emiloju et al., 2020). Establishing GOC and subsequent goal-concordant care, reduces anxiety, depression, and complicated grief among family members when a patient dies (Scheunemann et al., 2019; Suen et al., 2021). For patients where curative treatments are not feasible (or desirable from patient's perspective), GOC discussions offer clarity and precise understandings of the patients' diagnoses and prognoses, minimizing inappropriate clinical interventions (Berlin, 2017; Tinetti et al., 2016). GOC enhance quality of care, especially at the end of life, while also having the potential to mitigate the psychological strain on families by providing vital psychological and emotional support (Muehlschlegel et al., 2022; Suen et al., 2021).

Effective GOC discussions in the ICU necessitates that the healthcare team actively engages in meaningful dialogue with the patient and their family or SDM, aiming to establish values and care priorities. Outcomes of such dialogue should subsequently inform treatment

decisions and guide the most suitable course of action/plan of care (Secunda et al., 2020). The ICU team is responsible for meticulously explaining the prognosis and the inherent uncertainties, aiding patients and their family members or SDMs in setting realistic and/or potentially attainable goals for the patient's care. These discussions are paramount given the high rates of morbidity and mortality in the ICU, as well as the considerable likelihood of enduring functional disabilities as a result of PICS (Hiser et al., 2023). A dynamic approach is required to adjust to the patient's changing clinical trajectory while ensuring their values and priorities remain central to decision-making (Cameron et al., 2016; Turnbull & Hartog, 2017).

Barriers to GOC Discussions

Barriers to GOC discussions as reported in available literature include: (1) the predominately curative focus of ICU care; (2) the complexities associated with substitute decision-making, and, (3) challenges related to ensuring effective communication (Baggs et al., 2007, 2012; Berlin, 2017; Bibas et al., 2019; Cooper et al., 2016; Fang et al., 2022; Sanders et al., 2018; Smith et al., 2020).

Historically the perception of the function of critical care revolves around cure and survival. The focus on cure and survival creates the potential to inadvertently delay GOC discussions until the patient's condition is perceived to be beyond hope for recovery or survival (Cooper et al., 2016; Modes et al., 2019; Orford et al., 2016; Scheunemann et al., 2019; Secunda et al., 2020; You et al. 2015; Uyeda et al., 2023). There have been efforts within the critical care community to both normalize GOC discussions and embed these discussions in a variety of critical care contexts. For example, an emphasis on the need for GOC discussions are explicit in critical care medicine core competencies, policy statements regarding the withdrawal or withholding of life-sustaining treatments as well as guidance documents addressing potentially

inappropriate treatment requests (Bosslet et al., 2015; Bandrauk et al., 2018; Buckley et al., 2009; Royal College of Physican and Surgeons of Canada, 2019). The general association that GOC discussions are synonymous only with situations of poor prognosis can create delays in communication and can result in negative outcomes for SDMs, families and patients even in care situations that do not result in a patient death (Mittal et al., 2023; You et al., 2015). Variations in perceptions of GOC discussions across different ICU sub-specialties further complicates the situation, leading to inconsistencies in patient care (Baggs et al., 2007; Cassell et al., 2003; Udelsman et al., 2019). For example, surgical ICUs tend to focus on interventions and life-sustaining measures post-procedure, often neglecting discussions about the patient's quality of life thereafter (Udelsman et al. 2019). Medical intensivists, dealing with patients admitted for acute decompensation, aim to sustain life while also attempting to incorporate the patient's values and goals into treatment plans (Baggs et al. 2007; 2012; Udelsman et al., 2019). Palliative care specialists approach GOC as an opportunity for comprehensive discussions with patients and their families, aiming to develop a person-centred care plan (Buchman et al., 2002; Wysham et al., 2016). These divergent perspectives within ICU settings pose challenges and create a potential lack of goal-concordant patient care.

Another barrier to GOC discussions is the complexity of substitute decision-making in the ICU (Cunningham et al., 2018; Fang et al., 2022). When a patient lacks decisional capacity, a SDM becomes the main contact for GOC discussions and decision-making (Garg et al., 2021). Medical decision-making is given to an SDM as determined by a hierarchy of individuals set out by the country/territory/state or province. (Canadian Hospice Palliative Care Association, 2023; Center to Advance Palliative Care [CAPC], 2023). However, SDMs often face challenges due to a lack of preparation, lack of advance care planning, and limited knowledge of the patient's care

preferences thereby hindering their ability to make goal-concordant decisions (Suen et al., 2021; Turnbull, Bosslet, et al., 2019). Active collaboration between SDMs and HCPs is essential to ensure that the chosen treatment/plan of care aligns with the patient's wishes (Muehlschlegel et al., 2022). When SDMs encounter uncertainty about the patient's care preferences they may feel overwhelmed and fearful of making the wrong decision or choosing an option that is not aligned with the patient's wishes, resulting in increased stress and anxiety (Cunningham et al., 2018; Köse et al., 2016). This uncertainty can prevent SDMs from actively participating in shared decision-making processes including GOC discussions (Anderson et al., 2009; Bibas et al., 2019).

SDMs also suffer from role incongruence – the mismatch between the SDM's preferred decision-making role and the actual decision role within the ICU context (Smith et al., 2020). There is wide variation among individuals in their desired level of involvement in decision-making, ranging from active participation to passive deference to the physician (Fang et al., 2022). When this desired role is not actualized, it negatively affects shared decision-making in the ICU. Heyland et al. (2003) reported at that time, that almost half of SDMs reported experiencing decisional conflict. Similarly, nearly 20 years later, Fang et al. (2022) reported that SDMs who experienced role incongruence were more likely to report higher levels of anxiety and depression symptoms compared to those who reported role congruence.

SDMs may also lack the necessary preparation and knowledge to make informed care decisions (Bibas et al., 2019). The ICU environment can be disorienting for SDMs; they may feel overwhelmed by the lack of familiarity and knowledge regarding the latest technology used in caring for critically ill patients (Muehlschlegel et al., 2022; Torke et al., 2016). Due to the sometimes traumatic and unexpected nature of ICU admissions, and the likelihood of increased

patient/family anxiety, depression, and decisional conflict, SDMs often report complex emotions, including grief and exhaustion, resulting in decision-making that is more difficult (Davidson et al., 2017; Downar et al., 2020; Schroeder et al., 2021; Zheng et al., 2020). In addition, SDMs also often report being unfamiliar with the patient's values, wishes, and beliefs, which are crucial in guiding GOC discussions and can impede their (SMDs') ability to advocate effectively for the patient, while also contributing to feelings of uncertainty and distress (Nelson et al., 2017; Suen et al., 2021; Turnbull, Bosslet, et al., 2019).

The role of the SDM may be further complicated by conflict with the interdisciplinary team. According to Effendy et al. (2022), most conflict between HCPs and SDMs is related to GOC discussions and medical decisions. This is due in part to the dynamic and complex nature of the SDM's role and failure to acknowledge these complexities (Back & Arnold, 2005). Therefore, HCPs should consider early and consistent communication with the patient, family and SDM throughout the ICU admission (Quinn et al., 2017; You et al., 2014). The latter includes providing information about the patient's diagnosis, prognosis, and clinical trajectory in an effort to facilitate collaboration and provide person-centred care that aligns with the patient's goals and the clinical context (i.e., pathology and prognosis) (Baggs et al., 2007; Muehlschlegel et al., 2020).

Finally, ineffective communication has also been cited as a significant barrier to high-quality GOC discussions (Bernal et al., 2023; Ethier et al., 2018; Mittal et al., 2023; Piggott et al., 2019; You et al., 2015). Ineffective communication between HCPs, patients, and family members or SDMs can result in poor outcomes for the patient and family (Bernal et al., 2023; Cooper et al., 2016; Mittal et al., 2023; Sanders et al., 2018). Given the significance of this barrier, it is necessary to understand all the contributing factors to ineffective communication

from the HCP, patient, family and SDM perspectives (Aleksova et al., 2016; Bernal et al., 2023; Cooper et al., 2016; Curtis et al., 2023; Ethier et al., 2018; Mittal et al., 2023; Piggott et al., 2019; You et al., 2014, 2015).

Barriers to GOC Discussions from HCPs Perspective

From the HCP's perspective, there are four main barriers to initiating productive GOC discussions: (1) patient and/or family emotions; (2) uncertainty about prognostic accuracy; (3) inadequate communication training for HCP; and, (4) time constraints (Milic et al., 2015; You et al., 2015). In previous studies, HCPs have reported feeling unprepared to conduct GOC discussions, in situations where family members/SDMs may have unrealistic expectations regarding possible clinical outcomes, this can lead to prolonged use of ineffective therapies (Douglas et al., 2017; Wessman et al., 2017; Yuen et al., 2013).

Patients' and families' emotions, especially anxiety and denial, inhibit robust discussions and an understanding of the clinical context, making it difficult to accept the reality of the illness/prognosis and subsequent engagement in care planning (Esfahani et al., 2020). HCPs believe that patients' emotions, particularly denial, make it difficult for patients to consider care options aligned with their priorities (Kon et al., 2016). Furthermore, HCPs report a lack of training in communication skills to appropriately navigate patient and/or family emotions during GOC discussions (Chatterjee et al., 2022; Curtis et al., 2023; Milic et al., 2015 Nagpal et al., 2021) .

Clinical challenges surrounding uncertainty and providing prognostic estimates are noted by HCPs to be a barrier to GOC discussions (Douglas et al., 2017; Selim et al., 2020). Multiple scoring systems exist that can help predict short-term mortality such as: the Acute Physiology and Chronic Health Evaluation (APACHE) scoring system, the Sequential (sepsis-related) Organ

Failure Assessment (SOFA) instrument, the Simplified Acute Physiologic Score, and the Mortality Prediction Model (Berlin, 2017; Hosseini & Ramazani, 2016; Nassar et al., 2014; Thomas et al., 2014); however, these tools are population based and are not ideal for predicting at the level of the individual. As a result, HCPs in ICU contexts have difficulty in accurately predicting outcomes. Further, relying solely on mortality estimates impedes a comprehensive understanding of a patient's overall health condition (Dunlay & Strand, 2016).

Training gaps in communication skills for HCPs hinder their ability to have effective GOC discussions (Comer et al., 2020; Donesky et al. 2020; Downar et al., 2017; Wessman et al., 2017). Regarding nurses specifically, their involvement in discussions of prognosis and GOC is often limited, despite their unique position as front-line care provider to provide support and clarification of information to patients, families and SDMs (Peereboom & Coyle, 2012; Milic et al., 2015; Strachan et al., 2018). In addition to unit culture and practices, the lack of communication training for critical care nurses specifically can impede their active engagement in discussions with patients' families and physicians (Milic et al., 2015; Peereboom & Coyle, 2012)

Time constraints are also frequently cited as a barrier by physicians who perceive GOC discussions as time-consuming and disruptive to the workflow in a busy ICU (Bernacki & Block, 2014; Pintova et al., 2020a; 2020b; Comer et al., 2020). Physicians have cited a perceived lack of time as a barrier to GOC discussions and a belief that high-quality family meetings are time-consuming, difficult to conduct in a busy ICU, and can hamper workflow, leading to rushed and low-quality discussions that may occur late in the patient's hospital stay (Sanders et al., 2018). However, a recent study by Pintova et al. (2020a) conducted within oncology, provides an alternative perspective and highlights that there was no decrease in revenue-generating units (i.e.,

billing) when oncologists conducted high-quality GOC discussions. An additional study by Pintova et al. (2020b) also addresses this concern by demonstrating that conducting high-quality GOC discussions did not significantly increase the length of the encounter between the patient and oncologist (14 minutes vs 15 minutes if a GOC discussion took place), demonstrating it did not reduce billable hours and did not affect the physician workflow.

Barriers to GOC Discussions from Patient and Family Perspectives

Family members of patients in the ICU value effective communication with HCPs, and experts in the field (i.e. professional societies) emphasize the importance of communication with families as a key component of high-quality critical care (Nelson et al., 2010; Schofield et al., 2006). However, family and SDMs often cite infrequent or late discussions as a significant barrier to quality GOC discussions (Emiloju et al., 2020; Esfahani et al., 2020). Patients and families expect their physicians to initiate GOC conversations, yet the belief that GOC discussions are synonymous with death and dying leads physicians in acute care to delay them until very late in the patient disease trajectory (Kryworuchko et al., 2016; Roze des Ordons et al., 2015). When HCPs do not address GOC before a life-threatening event or stage of illness, there is an increased risk for anxiety, depression, and incidents of complicated grief for patients' families and SDMs (Downar et al., 2020; Dunlay & Strand, 2016). Patients and families desire open and honest information that balances realistic expectations and appropriate hope (Douglas et al., 2017; Kaldjian, 2020). When GOC discussions are ineffective or avoided, there is a lack of clarity regarding diagnosis and prognosis, which leads to increased stress, anxiety, uncertainty, and fear (Chatterjee et al., 2022; Esfahani et al., 2020). Ultimately, substandard GOC discussions result in delayed decision-making (Piggott et al., 2019).

Facilitators of GOC Discussions

Given the high mortality rate and prevalence of chronic symptoms (i.e., PICS) associated with ICU admissions (Nelson et al., 2004), it is important to identify facilitators of GOC discussions that can be implemented to improve patient outcomes and reduce suffering. Facilitators frequently cited in critical care literature are the following: (1) Improving overall communication between HCPs and families/SDM; (2) Fostering a supportive environment; (3) Employing HCPs with previous experience; (4) Implementing a shared decision-making framework; and, (5) Utilizing technology to guide discussions and ensure accurate documentation of GOC discussions (Ashana et al., 2020; Effendy et al., 2022; Esfahani et al., 2020; Scott et al., 2019; Stanek, 2017).

As previously mentioned, communication is a major barrier to GOC discussions. Therefore to ensure comprehensive and timely GOC discussions the following suggestions (facilitators) have been recommended: clarifying diagnosis and prognosis (Comer et al., 2020; Dunlay & Strand, 2016; Nelson et al., 2017), using lay terms to explain treatment options (Nelson et al., 2017), addressing fears and concerns (Back et al., 2009), and engaging in discussions with SDMs regarding patients' wishes, values, and care preferences (Emiloju et al., 2020; Roze des Ordons et al., 2015)

Fostering a supportive ICU environment is essential to promoting high-quality GOC discussions (Effendy et al., 2022). A supportive ICU environment strengthens therapeutic relationships thereby facilitating GOC discussions. The latter involved creating a calm and welcoming atmosphere within the ICU for patients and families, with empathetic and competent staff, adequate resources, and physical spaces that provide privacy and comfort (Sona et al., 2020; Wessman et al., 2017). ICU leaders play an important role in ensuring a supportive

environment and prioritizing staff safety and resource availability (Wessman et al., 2017). Within healthy ICU work environments, HCPs can engage in difficult conversations that allow patients and families to express worries, fears, hopes, and dreams (Davidson et al., 2017; Frivold et al., 2018; Sona et al., 2020). The latter enables HCPs to understand patients' care preferences and provide information about the clinical context, thereby empowering patients, families and SDMs to make informed choices regarding their GOC preferences (Wessman et al. 2017). Additionally, a supportive environment contributes to reducing staff burnout and moral distress, promoting patient- and family-centred critical care (Davidson et al., 2017; Peereboom & Coyle, 2012).

Employing HCPs with previous experience fosters an ICU environment where high-quality GOC discussions are valued and prioritized (Anderson et al., 2017). Over time, HCPs in the ICU develop increased skills and comfort in engaging in GOC discussions and exploring treatment preferences (Effendy et al., 2022). Employing HCPs with previous experience ensure that they have the skills to navigate complex conversations, integrate palliative care principles, and ensure that GOC discussions align with patient-centered care (Effendy et al., 2022). Furthermore, experienced HCPs play a crucial role as mentors and trainers for new staff members, guiding them in the use of structured GOC discussion frameworks such as VitalTalk, (2023) Serious Illness Care (2023), and the VALUES framework (Curtis & White, 2008). This contributes to a supportive culture within the ICU, ensuring that GOC discussions are conducted to uphold the highest standard of care and meet the needs of patients, their families and SDMs.

Another facilitator includes using a shared decision-making framework to ensure patient- and family-centred collaboration during GOC discussions (Sanders et al., 2018, 2020). Shared decision-making is a process where the healthcare team, patient, and family identify and discuss

the patient's values and preferences and apply them to the context of their current critical illness (Fang et al., 2022; Quinn et al., 2017; Smith et al., 2020). Shared decision-making begins with an exchange of information about both clinical (i.e., diagnosis, prognosis, and treatment options) and personal (i.e., patient's values and preferences) topics (Esfahani et al., 2020). This is followed by deliberation about how to apply patients' wishes regarding their quality of life to their healthcare situation (Esfahani et al., 2020). Building a strong therapeutic relationship between HCPs and patients or families is essential for effective shared decision-making (Scott et al., 2019). In the ICU, the patient often cannot participate in shared decision making because of their care requirements (i.e., advanced airways and mechanical ventilation) and therefore cooperation and trust between HCPs and families members or SDMs is critical (Berlin, 2017). Shared-decision making facilitates GOC discussions by creating a procedure whereby the HCPs, the SDM and the family explore the patient's prognosis, available treatment options, and patient care preferences, culminating in a patient-centred plan of care.

Using technology such as the electronic health records (EHR), can play a vital role in facilitating GOC conversations and ensuring accurate documentation (Howard et al., 2021). Studies have demonstrated the benefits of designated note types and tabs in the EHR, as well as the use of SmartPhrases, which serve as insertable templates for high-quality conversations (Ahmad et al., 2023l Howard et al., 2021;Esfahani et al., 2020). Additionally, trigger lists can remind healthcare providers of the need for GOC discussions, with specific criteria triggering prompts for conversations based on changes in diagnosis, progression of disease, or transfers to higher levels of care (Garg et al., 2021; Kryworuchko et al., 2016). By integrating these tools into the healthcare system, GOC conversations can become ingrained in the unit culture and

empower nurses to advocate for these discussions, promoting patient-centred care and shared decision-making (Esfahani et al., 2020).

Proper documentation of GOC discussion EHR is also a major facilitator to the provision of goal concurrent care and important aspect of communicating the content of GOC conversations (Stanek, 2017). It should encompass a comprehensive definition of the patient's GOC, including treatment decisions, treatment plans, code status, and advanced directives (Chatterjee et al., 2022). Effective documentation allows for clear communication of patient care preferences to all HCPs involved in the patient's care throughout their admission (Comer et al., 2020). This ensures that the entire healthcare team consistently communicates and understands the patient's wishes, leading to more coordinated and patient-centered care (Orford et al., 2016; Turnbull, Chessare, et al., 2019). By documenting GOC, HCPs can refer back to these discussions and make informed decisions that align with the patient's care preferences, even if different providers are involved in the patient's care over time (Comer et al., 2020; Stanek, 2017).

High-Quality GOC Discussions

The importance of high-quality GOC discussions cannot be understated. Choosing Wisely Canada report that high-quality GOC discussions avoid life support interventions unless they are consistent with the patients' values and realistic GOC (Zimmerman et al., 2021). Organizations such as Respecting Choices (2023), Vitaltalk (2023), Serious Illness Care (2023), and Speak Up (2023) advocate that high-quality care begins with establishing patient care preference during a GOC discussion ***prior*** to an ICU admission. While there is no doubt about the importance of high-quality GOC conversations, there is no definitive, standardized definition or algorithm to conducting one (Klement & Marks, 2020). According to Comer et al. (2020), GOC discussions

are of high quality “when they begin with gaining a shared understanding of the medical condition and possible outcomes, followed by discussion of values and goals” (p. 11); there is no universally accepted framework that has been established to ensure high-quality GOC discussions.

Given the lack of a clear-cut definition or standardized metrics to evaluate high-quality GOC discussions, we will use the outcome measures of previous GOC intervention studies to guide this definition (Bernacki & Block, 2014; Peereboom & Coyle, 2012; Scheunemann et al., 2011). A review of the literature demonstrates that interventions that seek to improve GOC discussions measure success by evaluating if the GOC discussion achieved the goal of concordant care and if the GOC alleviated human suffering (Sanders et al., 2018; Turnbull & Hartog, 2017). Therefore, it is acceptable to infer that high-quality GOC discussions result in goal-concordant care and reduce suffering for patients and their families (Bernal et al., 2023; Chatterjee et al., 2022; Curtis et al., 2023; Downar et al., 2020; Frivold et al. 2018). Goal-concordant care is an outline of the patient goals and treatment preferences and limitations which is achieved by aligning care with the patient's values and respecting the patient’s treatment preference and any limitations thus reducing negative long-term effects for the patient and the family (Cooper et al., 2016; Sanders et al., 2018; Thomas et al., 2014). A high-quality GOC discussion is proactive and empathetic and follows a shared decision-making framework (Sanders et al., 2018, 2020; Turnbull & Hartog, 2017). Therefore, in this thesis, high-quality GOC discussions are deemed to be those that ensure goal-concordant care and lead to a reduction in human suffering, as evidenced by treatment decisions that are aligned with the patient's prognosis and clinical context, as well as a decreased levels of anxiety, depression, decisional conflict and regret (Deptola &Riggs, 2019; Piggott et al. 2019).

Known Interventions

In this final section, I briefly describe the evolution of interventions designed to improve communication in the ICU and frameworks commonly used to guide communication. I begin by examining the landmark SUPPORT trial by Turnbull, Chessare, et al., (2019) which underscored the need for better communication about end-of-life care, GOC, and patient care preferences. Next, I discuss various intervention studies that have enhanced overall communication in the ICU using three prominent review texts. Finally, I provide an overview of the current clinical frameworks for GOC conversations in the ICU.

The SUPPORT Trial

The SUPPORT trial, conducted in the United States during the 1990s, investigated the impact of various treatment approaches on seriously ill hospitalized patients and their families (Connors, 1995). The study revealed that physicians often failed to discuss potential outcomes and risks of life-sustaining interventions, thereby emphasizing the importance of improved communication about end-of-life care, GOC, and patient preferences (Berlin, 2017; Connors, 1995). Although not specifically focused on GOC discussions, it revealed communication gaps that subsequent studies aimed to fill by enhancing patient-provider communication and shared decision-making (Turnbull, Bosslet, et al., 2019).

Reviews of Communication Interventions

Reviews by Comer at al. (2020, Peereboom and Coyle (2012), Scheunemann et al. (2011) and Turnbull, Chessare, et al. (2019) identified many strategies to improve ICU communication. These reviews had five similar themes related to the intervention they described that resulted in improved communication: educational interventions, expert consultation, communication facilitation, technology integration, and decision-aid use (Scheunemann et al., 2011; Turnbull,

Chessare, et al., 2019). Educational interventions involved specialized programs that teach HCPs new skills or promote the adoption of new behaviours (Downar et al., 2017; Fettig et al., 2022; Roze des Ordons et al., 2015; Yuen et al., 2013). Expert consultations employed specialists to facilitate discussions and reduce conflict, leading to increased confidence in the medical team (Carson et al., 2016; Dunlay & Strand, 2016). Communication facilitators, or specially trained HCPs, prepared families for meetings with the medical team, answer questions, and maintain a continuous dialogue about the patient's condition and treatment options (Curtis et al., 2016; Torke et al., 2016). Technology integration used electronic health record platforms to remind physicians to schedule family meetings or consult expert consultants, improving the frequency, consistency, and quality of communication (Esfahani et al., 2020; Halpern, 2018). Finally, implementing decision-aids facilitated dialogue. These decision-aids used algorithms to help HCPs and SDMs collaborate to decide what treatment options were appropriate for the patient based on the patient's personal preferences and the clinical context (Muehlschlegel et al., 2022; Suen et al., 2021). Better integration of web-based decision-aids helped the SDMs make care decisions based on cognitive factors such as prognosis, treatment options and patient values (Garg et al., 2021)

Frameworks for GOC Conversations in the ICU

To complete this literature review, I described literature that specifically addresses how to frame GOC conversations. "Mastering Communication with Seriously Ill Patients: Balancing Honesty with Empathy and Hope" by Drs. Anthony Back, Robert Arnold, and James Tulsky (Back et al., 2009) is a book that presents several frameworks and conversational tools to improve HCP communication with patients, families, and SDMs in serious illness contexts. The VALUE mnemonic by Curtis and White (2008), the REMAP framework by Childers et al.

(2017) Patient Priorities Care (Tinetti et al., 2016), the Best Case/Worse cases (Kruser et al., 2019) and the SPIKES mnemonic (Baile et al., 2000) are communication tools that facilitate clinician-family communication. Another resource to guide ICU discussions is the Serious Illness Care Program by Atul Gawande and Bill Berry (2023). This system-level care delivery model ensures patients' priorities are known and honoured. Its landmark Serious Illness Conversation Guide provides a framework for HCPs to explore topics crucial to understanding and honouring what is most important to patients (Bernacki & Block, 2014; Lagrotteria et al., 2021).

Interventions to enhance clinician-patient communication have significantly evolved from the SUPPORT study (Berlin, 2017; Connors, 1995) to programs like Serious Illness Care (2023) and Vital Talk (2023). Despite a wealth of literature providing insights into interventions that improve GOC discussions, there is an absence of synthesis of these interventions, representing a significant gap in the literature.

Summary and Thesis Layout

This chapter has served to provide an overview of current literature specific to GOC discussion in the ICU. In concluding this chapter, it is evident that there is a notable gap in the literature which is the synthesis of interventional studies aimed at improving GOC discussion in the adult ICU context. As a result, I conducted a systematic review for this thesis that aimed to synthesize and report on the state of science specific to interventions reported in the literature about improved GOC discussions within the context of adult ICU. The chapters that follow include Chapter 2 which provides the theoretical and methodological underpinnings of systematic reviews and decisions regarding the review approach used for this thesis. Chapter 2 also includes the review protocol that was designed and executed. Chapter 3 is a manuscript that

has been prepared for submission to Palliative Medicine following the deposit and successful defence of this thesis. Chapter 4 concludes the thesis and represents an integrated discussion, as well as recommendations for nursing education, practice and research that stem from the review conducted.

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Chapter 2: Theoretical Considerations and Methodology

As described in Chapter 1, GOC discussions represent a complex issue within the ICU setting due to the multitude of perspectives involved, including those of the patient, family and SDMS as well as HCPs (Secunda et al., 2020; Williams, 2018). GOC discussions are necessarily highly personalized, addressing critical illness etiology and disease trajectory as well as patients' and families' values, beliefs and care preferences (Baggs et al., 2007; Williams, 2018). To enhance the quality and effectiveness of these discussions, it becomes necessary to implement interventions that acknowledge and address these dimensions (Aromataris & Munn, 2020). While an extensive body of literature offers insights into interventions that can refine GOC discussions in the ICU, to the best of my knowledge, no current systematic reviews reporting on the effectiveness of these interventions exist. As a result, this chapter layout is two-fold. First, I provide an overview of pragmatism (Scheffler, 2013), which best aligns with my personal theoretical stance and is congruent with the chosen methodology (Aromataris & Munn, 2020; Polit & Beck, 2021). To underscore the rationale behind the selected review methodology, a specific emphasis is placed on the Joanna Briggs Institute's (JBI) systematic review process due to its widely acknowledged application of pragmatism as a guiding paradigm, aligning with my theoretical orientation (Aromataris & Munn, 2020). Second, I articulate the protocol designed for this systemic review.

Theoretical Considerations

Pragmatism

The word "pragmatism" has multiple origins: from the Greek pragmatikós, meaning "practical," to pragma, meaning "act," and prā́ssein, meaning "to do." Practical and praxis are derived from the same Greek root (Merriam-Webster, n.d.a). Pragmatism is a philosophical

approach whereby beliefs determine how we act (Malachowski, 2013) and is an evolution of Kant's critique of pure reason. Kant was the first modern philosopher to theorize that individuals constitute space and time and that experience is critical to discovering truth, knowledge, and meaning (Bergman, 2012; Burke, 2013).

Pragmatism arose in the United States in the late 1800s with John Dewey as well as Charles Pierce and William James at the University of Chicago (Buchler & Pierce, 1955). These philosophers opposed Cartesian dualism. Defined as destructive dualism by John Dewey, pragmatism rejects sharp ontological and epistemological divisions (Dewey et al., 2008,). Dewey argued that when inquiry is confined to a conceptual schema, nothing is going to be discovered that is not already expected; however, if the inquiry is open and grounded by a problem, then unique, unexpected discoveries are found (Dewey 1916/2016). Pragmatism is a question of being open to experience-driven knowledge, which brings with it a deep sense of possibility (Bacon, 2012). For pragmatists, the *truth* about the natural world cannot be attained by limiting inquiry within a single worldview (Dewey, 1939/2013). Cooke (2020) suggests that limiting inquiry to one paradigm is too narrow for seeking knowledge. Pragmatism is firmly based on transactions with nature rather than observing nature (Cherryholmes, 1992). Therefore, truth is based on a shared human experience and can never be entirely correct (Kivunja & Kuyini, 2017).
Charles Pierce is considered the grandfather of pragmatism, having first articulated its central tenets with William James, who first popularized the perspective as a central figure (Cherryholmes, 1992; Cooke, 2020). John Dewey applied pragmatism toward political education and social improvement (Malachowski, 2013; Moore, 1985). Later, George Mead applied a pragmatic approach to social science topics, specifically the relationship between the self and the community (Scheffler, 2013).

Pragmatism: Ontological and Epistemological Underpinnings

Pragmatism encompasses a pluralist ontology, meaning many different, intricate realities exist. Pragmatism rejects absolutism, that truth and knowledge are based on two views of reality, "synechism" and "tychism", meaning there are both variable and repetitive, stable patterns that occur in nature (Cooke, 2020, p. 60). Pragmatism is anti-reductionist, and as a result, pragmatists maintain that multiple ontologies make up truth and knowledge (Tufanaru, 2016).

Pragmatism opposes Cartesian dualist framings of reality (Bergman, 2012). Unlike other philosophical approaches in nursing research, pragmatism's ontology is contested by its practitioners (Tufanaru, 2016). While Pierce and James held a more limited view of truth, Dewey and more recent pragmatists such as Mead hold room for various ways of understanding what is real (Scheffler, 2013). Pragmatist epistemology begins with identifying a problem using a process-based approach to knowledge (Scheffler, 2013). Problems form the basis for inquiry as the defining process for seeking truth (Tufanaru, 2016). The epistemological approach of pragmatism is circular, compared to the top-down approaches of other epistemologies, whereby beliefs inform action and reflection on action informs belief (Morgan, 2007). Knowledge is attained through abduction or selecting a hypothesis based on inference and predictions. In abduction, deductive and inductive reasoning are used, first in deriving theory based on observations and then by assessing theory through action based on ensuing consequences (Bergman, 2012; Cooke, 2020). Cooke (2020) defines pragmatism as a common-sense philosophy, with knowledge generated through real-life experience versus abstract theories. Knowledge is built and modified through the actions and interactions of people and truth is determined through the practical consequences of beliefs (Tufanaru, 2016). These beliefs are confirmed in a network of interconnected beliefs that remain consistent over time (Tufanaru,

2016). These beliefs determine how we act in the world, and beliefs may change in response to experience.

A pragmatist conceptualizes beliefs by using the pragmatic maxim to explore a belief's operational and inferential components (Kivunja & Kuyini, 2017). The "operational component explores the meaning of belief according to potential effects or outcomes," and the "inferential component explores the potential consequences of acting on beliefs" (Bacon, 2012, p. 85). The more consistent a belief, the more likely it is to yield consistent, positive results from acting on it (Morgan, 2007). Truth is sought through scientific inquiry and experimentation, even though the pragmatist acknowledges the limitations of these processes and the significant impact of social structures and power on truth-making. Morgan (2014b) outlines how Pierce and Dewey have active processes for seeking truth. Morgan stated that for Pierce, knowledge is formed by the consequences of predictions derived from a hypothesis. Dewey's framework identifies a problematic situation that informs an inquiry, resulting in actionable outcomes (Morgan, 2014b).

According to Morgan (2014b), pragmatism is a relational epistemology, meaning there is a relationship between the research and the researcher related to the "line of action" or problem that is being investigated based on real-life situations (p. 1047). The line of action should significantly influence research methods rather than ontological assumptions (Kivunja & Kuyini, 2017; Nowell, 2015). The strength of the pragmatic approach is that it is action-based rather than theory-based (Cherryholmes, 1992).

Notably and importantly connected to this thesis, pragmatic epistemology often underpins mixed methods research (MMR) studies (Creswell & Creswell, 2018; Malachowski, 2013). MMR uses multiple ways of knowing as a means of revealing truth and knowledge surrounding complex experiences; it is not just about gaining knowledge in the pursuit of desired

ends (Kivunja & Kuyini, 2017). The strength of the pragmatic approach is that is action based rather then theory-based (Cherryholmes, 1992).

Critiques of Pragmatism

Strengths

Pragmatism is a philosophical approach that promotes decentralized forms of thinking rather than hierarchal, top-down approaches whereby beliefs inform action and reflection on action informs belief (Cherryholmes, 1992). Pragmatic philosophy argues that the ontological assumption should not control the search for truth (Thayer, 1992). Instead, pragmatism shifts research focus to questions that are more directly related to actions that result in practical and valuable consequences (Cooke, 2020). A second strength of how a pragmatic epistemological approach informs rhizomatic thinking whereby knowledge is constantly in flux (Holmes & Gastaldo, 2004). Rhizomatic thinking falls within the poststructuralist onto-epistemology and encourages divergent, decentralized thinking to promote creativity (Holmes & Gastaldo, 2004). It encourages the idea of being open to the possibility of knowing what the world is. It is not limited by a single worldview or a set of assumptions (Holmes & Gastaldo, 2004).

Limitations

Critical theorists argue that pragmatists need to address the issue of power and knowledge (Nowell, 2015). By only focusing on acquiring useful knowledge, problem-solving, and action research, pragmatism ignores the fundamental question of who can decide what is proper or practical, and the subsequent motives behind decision-making (Nowell, 2015). A second limitation is that pragmatists are more interested in the ends or consequences of inquiry over the means and uses of inquiry (Nowell, 2015). Kivunja and Kuyini (2017) argue that pragmatism is a value-added axiology that uses inquiry to benefit individuals.

In summary, pragmatism promotes a relational epistemology, relativist ontology, and MMR methodology (Kelly & Cordeiro, 2020; Morgan, 2014a). It premises that while there is a verifiable reality, this is subject to interpretation, generating a multiplicity of experiences within reality. Furthermore, as a relational epistemology, the researcher is guided by relationships among humans, objects, and experiences (Creswell & Creswell, 2018).

Systematic Reviews

A Brief History of Systematic Review Methodology

The history of review methodology can be traced back to the 1800s, where narrative reviews were commonly used in the scientific and medical research (Hong & Pluye, 2018). Narrative reviews generally provide an overview of the current knowledge in a field based on the expertise of the authors. However, they were prone to bias and variability due to the lack of formal and systematic approaches in identifying, selecting, and interpreting the available evidence (Clarke & Chalmers, 2018).

The first example of this type of narrative review was conducted in 1753 by James Lind, who published a paper that aimed to provide a concise and unbiased summary of evidence on scurvy (Chalmers et al., 2002). Another early example cited by Chalmers et al. (2002) was Karl Pearson’s review synthesis where he pooled data from five studies of immunity and six studies of mortality among soldiers serving in India and South Africa to investigate vaccine effects against typhoid. This example highlights how the use of statistical techniques helped to introduce scientific rigour to the evidence synthesis (Clarke & Chalmers, 2018). In 1940, a group of researchers from Duke University in the U.S. produced the book Extra-Sensory Perception which included statistical analyses that combined the results of individual studies and stated, "The

comparison of the statistics of more than one experiment suggests a counterpart: the combination of them for an estimate of total significance" (Clarke, 2016, p.157)

Meta-Analyses

The key reason evidence synthesis built scientific credence is because Gene Glass (1976) introduced a new term for the statistical combination that improves the rigour of research synthesis: meta-analysis. Using meta-analysis, the properties of several studies could be recorded in quantitative terms and descriptive statistics could be applied to derive an overall conclusion (Glass, 1976). Smith and Glass used this meta-analysis for the first time, publishing a synthesis of 375 studies to compare the effects of different types of therapy and relate the size of the effect to the characteristics of the therapy (e.g., diagnosis of the patient, training of therapist) and the study (Chalmers et al., 2002; Clarke, 2016).

Evidenced-Based Medicine

Glass (1976) urged health practitioners to practice evidence-based medicine (EBM), utilizing a systematic protocol to assess effectiveness. This concept was further crystallized by Sackett (1997), who defined evidence-based medicine as “the conscientious, explicit, judicious use of current best evidence in making decisions about the care of individual patients”(p.3). As EBM necessitated reliable information on medical interventions, the systematic reviews field of inquiry underwent a considerable surge (Clarke & Chalmers, 2018). This influx highlighted the importance of maintaining quality, ensuring constant updates, and adhering to rigorous standards to bolster decision-making in the healthcare field (Purssell & McCrae, 2020). To guarantee such quality during review synthesis, protocols were crafted and embraced by the research community (Hong & Pluye, 2018). The two major review databases emerged spearheading these protocols

first the Cochrane Collaboration (Starr et al., 2009) and later the JBI (Aromataris & Munn, 2020; Santos et al., 2018).

Cochrane Collaboration

The Cochrane Database of Systematic Reviews (CDSR) is one of the cornerstones of EBM. This discipline prioritizes using the best available evidence in making healthcare decisions (Starr et al., 2009). The origins of CDSR can be traced back to Archie Cochrane's seminal text 'Effectiveness and Efficiency' (1972 as cited in Starr et al., 2009, p. 182), where Cochrane highlighted a noticeable gap – the lack of organized, up-to-date, and trustworthy summaries of evidence for numerous medical interventions (Farquhar & Marjoribanks, 2019). Cochrane urged health practitioners to collaborate and use research synthesis to evaluate the effectiveness and efficiency of medical treatment to improve patient outcomes (Chalmers et al., 2002). His observations and calls for systematically reviewing randomized controlled trials led to the foundation of The Cochrane Collaboration in 1993 (Farquhar & Marjoribanks, 2019; Purssell & McCrae, 2020). The organization was built around preparing, maintaining, and promoting access to systematic reviews on the effects of healthcare interventions (Starr et al., 2009).

The Collaboration’s mission is to organize healthcare knowledge to ensure its quality, accessibility, and cumulative growth (Polit & Beck, 2021). They developed methodological standards for systematic reviews that emphasized comprehensiveness in search strategies, explicit inclusion and exclusion criteria for studies, systematic coding and analysis of included studies, and the importance of minimizing bias (Chalmers, 1993). As a result, clinicians, patients, policymakers, and researchers rely on CDSR as a dependable source of evidence (Armola et al., 2009). The Cochrane Collaboration is an institution whose goal is to manage healthcare

knowledge in such a way that it is quality-assured, accessible, and cumulative (Farquhar & Marjoribanks, 2019; Starr et al., 2009).

The Cochrane Collaborative is based primarily within a positivist framework and largely concerned with understanding the effectiveness of a specific treatment. The evolution from EBM to evidence-based practice widened the scope of the research (Santos et al., 2018). As disciplines like nursing began to emphasize the broader context, understanding effectiveness alone became insufficient (Pearson et al., 2005). Reviews started to focus on different items, such as prevalence diagnostic, prognosis and etiology (Santos et al., 2018). Consequently, research included began to shift from the positivist paradigm towards other paradigms. This transition underscored the need to develop protocols for reviews that were not exclusively centered on randomized controlled trials (Jordan et al., 2015).

The Joanna Briggs Institute

The JBI is an international research organization established in 1996 (Aromataris & Munn, 2020). JBI systematic reviews are based on the model of evidence-based healthcare, which is not exclusively concerned with effectiveness but focuses on basing practice on the best available evidence (Pearson et al., 2005). Their model is adaptable to the diverse origins of problems in health care, using a diverse range of research methodologies to generate evidence appropriate to the issue (Jordan et al., 2015). JBI has a pragmatic foundation; it emphasizes the translation of effective healthcare interventions into practice (Hannes & Lockwood, 2011; Tufanaru, 2016). This practical focus is reflected in JBI's mission to improve global health outcomes by promoting the transfer of research evidence to practice (Aromataris & Munn, 2020).

JBI understood the importance of integrating quantitative, qualitative, and MMR to better understand healthcare experiences (Aromataris & Munn, 2020). This approach goes beyond just measuring effectiveness; it prioritizes aligning healthcare practices with the most reliable available evidence. Moreover, it can be tailored to address a wide array of healthcare issues from various sources, employing diverse research methods to generate relevant evidence for each specific concern (Santos et al., 2018; Stern et al., 2018). Consequently, JBI created ten distinct review protocols, grounded in pragmatic theory, which were crafted to address specific research inquiries without adhering to any specific epistemology or ontology (Aromataris & Muun, 2020; Hannes & Lockwood, 2011; Stern et al., 2018). The main goal was to develop a protocol that mirrored the unique character and details of the research question (Jordan et al., 2015). JBI also pioneered designing a framework for mixed-method reviews, an innovative review approach that provides a more rounded view of healthcare research (Hong & Pluye, 2018; Jordan et al., 2015). In addition, newer methodologies like rapid, scoping, and umbrella reviews have emerged (Petticrew & Roberts, 2006).

Mixed Methods Research

MMR involves a deliberate combination of qualitative and quantitative techniques in data collection, analysis, and interpretation (Creswell & Clark, 2018). MMR integrates or combines rigorous quantitative and qualitative research methods to draw on the strengths of each (Shorten & Smith, 2017) in an effort to best understand phenomena. Mixed methods approaches enables researchers to use a diversity of methods, combining inductive and deductive thinking that aims to maximizes the strengths of each data type and facilitate a more comprehensive understanding of health issues and potential resolutions (Yvonne- Feilzer, 2010). MMR provides a balanced and holistic approach to studying complex issues, allowing for both breadth and depth in

understanding a given research question (Creswell & Clark, 2018). This approach is particularly valuable in the field of health research, where human experiences and behaviors intersect with quantifiable health outcomes (Bressan et al., 2017). This type of research fits within the pragmatic paradigm; it aligns with proposed research questions and the methods used to address them (Morgan, 2014a). MMR provides a way to combined evidence of different types into a usable form, thus maximizing its practical utility (Aromataris & Munn, 2020).

Mixed Method Systematic Reviews

The mixed method systematic review (MMSR) is an evolving methodology, aiming to merge quantitative and qualitative data to provide a more comprehensive understanding of a topic (Lizarondo et al. 2020; Pearson et al., 2015; Polit & Beck, 2019). In this type of review, studies from various research traditions addressing the same topic are integrated to produce evidence that can guide decision-making (Lizarnodo et al., 2020). This integration seeks to enhance the applicability and relevance of research findings to evidence based practice (Pearson et al., 2005). MMSRs can validate results, identify inconsistencies in evidence, and explain or contextualize findings. JBI MMSR protocols align well with the pragmatic paradigm, valuing practical outcomes, acknowledging the importance of context, and employing pluralistic approaches to evidence (Hannes & Lockwood, 2011; Lizarondo et al. 2020). The latter makes these reviews an ideal approach for exploring interventions that improve patient outcome(s) and optimized patient care (Munn et al., 2018). On this note, it is important to highlight that JBI also articulates an approach for Review of Effectiveness. Reviews of Effectiveness are a specific type of systematic review that primarily focus on assessing the effectiveness of an intervention or therapy whereby effectiveness refers to the extent to which an intervention, when administered correctly, achieves its intended outcomes (Aromataris, 2020; Munn et al., 2018). Initially there

was consideration as to whether the JBI Review of Effectiveness would be the most appropriate review methodology to include. However, we anticipated that there would be a particularly heterogeneous group of interventions identified and that the heterogeneity would make it difficult to accurately report on effectiveness. As a result, we opted to use a MMSR approach in an effort to identify relevant intervention and report on them narratively. The following section articulates the review protocol that was ultimately designed and executed.

Improving Goals of Care Discussions in the Intensive Care Unit: A Mixed Method Systematic Review Protocol

Aim

This MMSR aims to identify, describe, and report on the effectiveness of interventions implemented to improve GOC discussions in the adult ICU context.

Methods

Design

This review was modeled on JBI MMSR methodology (Lizarondo et al., 2020). This systematic review protocol followed the JBI MMSR template, using standardized JBI language (JBI, 2014) (See Appendix A). The choice of employing a JBI MMSR for this thesis was driven by its alignment with the nature and practicality of the research question and in the anticipation of heterogeneous interventions that would not be amenable to meta-analyses.

In collaboration with my supervisor and thesis advisory committee, this systematic review protocol followed current review best practices. My thesis supervisory committee comprised experts in nursing (Brandi Vanderspank-Wright, PhD., RN., CNCC(C) [BVW], Amanda Vandyk, R.N., Ph.D. [AV]), medicine (Aimee J. Sarti, MD [AS]), critical care (BVW, AS), and systematic review methodology (BVW, AV). This review was also supported by the

expertise of Amanda Ross White (ARW), Medical Information Specialist (MIS) at Queen's University.

Ethics

No ethical approval was required for this review as it used data from previously published studies in which primary investigators obtained informed consent.

Financial Considerations

This review was completed within the MScN program at the University of Ottawa; therefore, funding for this study was supported by the financial Entrance Award from the University of Ottawa and an Ontario Graduate Scholarship. In addition, all software and expert consultations used to complete this review were provided by the University of Ottawa. Funds to support MIS consultation were provided through Dr. Vanderspank-Wright's Program of Research.

Population and Sampling Approach

Eligibility Criteria.

The inclusion and exclusion criteria were defined using PICo/PICO (Population/Phenomenon of Interest, Context, Outcomes) as outlined in JBI methodology (JBI, 2014) (See Table 1).

Table 1a

Eligibility Criteria (PICO/PICo): Protocol version

Inclusion		Exclusion
Types of Participants	Individuals with life limiting illness admitted to the ICU	Adolescents and children (<18 year of age)
Phenomena of interest	Interventions that improve GOC discussion	

Context	Studies conducted in high acuity unit and ICUs	
Outcome	Improved GOC discussion	
Types of Studies	Quantitative studies and qualitative studies of all designs. Full-text studies English and French language only Peer-Reviewed publication Restricted to 10 years	Studies not published in English or French. Full text not available. Books, theses, grey literature, conference proceedings, conference abstracts, book chapters opinion and discussion papers, unpublished studies and abstracts

The review included all study designs within the last 10 years, enabling me to review all existing published literature relating to the effectiveness of interventions that contributed to high-quality GOC discussions in adult ICUs. Articles with a pediatric and/or neonatal focus (due to additional specialized domains of clinical practice in critical care), theses and dissertations, grey literature, conference proceedings, unpublished studies, abstracts, and articles published in languages other than English or French were excluded.

Search Strategy

In collaboration with a MIS (ARW), I developed a search strategy and then pilot-tested the search using an iterative process. The search strategy was designed to identify appropriate keywords, Medical Subject Headings (MeSH) terms, and pertinent databases. The strategy was peer-reviewed by my supervisory committee and a second MIS using the PRESS Checklist (McGowan et al., 2015). Databases included were: Medline on OVID, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) on EBSCO, the Excerpta Medica database (EMBASE) were searched up to August 17, 2021. I first executed the search in Medline and then translated the search into the remaining databases with the assistance of the MIS (See Appendix B). Search results were uploaded into Covidence (2022), a cloud-based software program developed for systematic review screening and extraction (See Figure 1).

Figure 1

Preliminary Search in Medline

Database: Ovid MEDLINE(R) ALL <1946 to August 19, 2022>

Search Strategy:

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1 intensive care units/ or burn units/ or coronary care units/ or respiratory care units/ (74135)
2 (icu or "intensive care unit*" or "critical care" or "intensive treatment*").ab,ti,kw. (204120)
3 exp Intensive Care Units, Pediatric/ (26307)
4 (1 or 2) not 3 (208732)
5 exp Advance Care Planning/ (10831)
6 Resuscitation Orders/ (4144)
7 "goals of care".ab,ti,kw. (2523)
8 ("advance care directive*" or dnr or "do not resuscitate" or "advanced care plan*" or "resuscitation order*").ab,ti,kw. (5287)
9 Terminal Care/ (31117)
10 ("end of life" or EOL).ab,ti,kw. (28419)
11 or/5-10 (59632)
12 decision making/ or decision making, shared/ or "dissent and disputes"/ (109374)
13 Communication/ (96004)
14 professional-patient relations/ or nurse-patient relations/ or physician-patient relations/ (138410)
15 (discuss* or conversation* or talk or communicat*).ab,ti,kw. (2092961)
16 or/12-15 (2307438)
17 4 and 11 and 16 (2045)
18 limit 17 to (yr="2012 -Current" and (english or french)) (1212)

Identifying Relevant Literature

All screening was completed by myself and a second reviewer (BVW). A four-step process was used to identify relevant literature for the systematic review. First, duplicates were removed using Covidence® (2022). Second, titles and abstracts were screened by both reviewers to determine broad eligibility based on the inclusion and exclusion criteria developed a priori. Third, full-text articles were screened. Disputes regarding the inclusion and eligibility of full-text articles were resolved through a consensus approach between myself and the supervisory committee (BVW, AS, & AV) The final step was a hand search of the reference lists of included

articles. The studies selected during this process were then appraised for quality. A PRISMA flow diagram was used to represent this process.

Quality Appraisal of Selected Studies

The quality of each included study was assessed using the JBI Quality Appraisal Forms (JBI, 2020) (See Appendix C and D). Appropriate JBI appraisal forms were selected based on the designs of the studies that were confirmed to be included in the review. Two reviewers independently (ND, BVW) assessed the quality of each study with a (AV) facilitating consensus if disputes were evident. Quality was not considered an exclusion factor. Instead, the selected studies were included based on their relevance to the overall aim of the systematic review. A statement regarding the quality of the evidence was included in the results of the review.

Data Extraction

I developed fillable standardized data extraction forms in Microsoft Word. Two reviewers (ND, BVW) independently pilot-tested the forms (See Appendix E). Characteristics considered and extracted from the included studies were subsequently documented in these Microsoft Word tables. An independent reviewer (ND) conducted the data extraction process at two independent points. The second reviewer randomly selected two articles and performed their data extraction to ensure accuracy and thoroughness (BVW). Again, a third reviewer (AV) was consulted if there were disputes evident. Extractions included: study characteristics (e.g., authors, publication year, setting, study design, theoretical framework, and study aim; participant characteristics (e.g., sample size, gender identity and/or sex (depending on what was reported), ethnicity and/or race, health care discipline); intervention characteristics; and quantitative outcomes (including instruments used to measure outcomes).

Analysis

This MMSR examined different dimensions of the phenomena of interest and extracted quantitative and qualitative data were synthesized and integrated using the convergent segregated approach (Lizarondo et al., 2020). Quantitative and qualitative data synthesis were done separately and followed by integration using a narrative format. The research was synthesized in tables using meta-aggregation and narrative summaries. Integrating the evidence enabled me to appraise and report qualitative and quantitative evidence in a manner that was both coherent and complementary (Lizarondo et al., 2020).

The studies that met the inclusion and extraction criteria were included for the subsequent analysis. As JBI outlined, two approaches are commonly employed in systematic effectiveness reviews to analyze data: either through a meta-analysis or a narrative summary (Tufanaru, 2016). However, given the substantial variations in study methodologies, study populations, and the measurement of interventions that improve GOC discussion, conducting a meta-analysis was not feasible. Instead, I categorized the measured outcomes into clinically relevant groups, provided a list of the instruments used for each outcome, and summarized the significant findings from the studies in a narrative manner. To ensure the rigor of this narrative synthesis, I followed the Synthesis Without Meta-analysis (SWiM) checklist developed by Campbell et al. (2020). This checklist comprises nine essential items covering aspects such as data grouping, synthesis methodology, data presentation, summary of findings, and acknowledgment of limitations. The statement about the significant heterogeneity of these interventions was included in the results sections.

Summary

A systematic review, underpinned by a pragmatic theoretical framework and focusing on interventions aimed at conducting high-quality GOC discussion in the adult ICU will be instrumental in evaluating the existing literature, guiding future research, and identifying effective GOC methods for broader ICU application (Hannes & Lockwood, 2011; Jordan et al., 2015; Santos et al., 2018)

The following Chapter 3 is presented as manuscript of the MMSR that has been executed and prepared for publication in Palliative Medicine.

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Chapter 3: Improving Goals of Care Discussions in the Intensive Care Unit: A mixed method systematic review

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Abstract

Background: Goals of care (GOC) discussions are crucial for ensuring that patient care aligns with their beliefs, values, and ethics, particularly in the context of the intensive care unit (ICU). While existing literature offers insights into interventions designed to improve GOC discussions, there is a lack of synthesis among these studies, representing a significant gap in the research.

Aim: This review aims to identify, describe, and report on the effectiveness of interventions implemented to improve GOC discussions in the adult ICU context.

Methods: A mixed-methods systematic review modelled with a narrative summary was conducted. The review was modelled on Joanna Briggs Institute methodology for this review type. Three databases (Medline, Cumulative Index to Nursing & Allied Health, and the Excerpta Medica Database) were searched. The primary outcome extracted and reported on was the effectiveness of the included interventions.

Results: 5,558 articles were initially scanned, with five studies meeting the criteria for inclusion. The studies identified two main categories of interventions: those supporting healthcare professionals (n=4) and those supporting substitute decision makers (n=1). The four studies aimed at supporting health care providers effectively improved individual communication skills and confidence, fostered team-based communication skills, and created a supportive environment. The single intervention supporting substitute decision makers was deemed effective by participants and there was a reported increase in the quality of communication between the care team and participants.

Conclusion: This review underscores the complex nature of GOC discussion themes and the need for multifaceted interventions to enhance GOC discussions in ICUs. While the studies were considerably heterogeneous. It highlights the necessity of a dual focus on supporting both health

care providers and substitute decision makers to foster comprehensive, effective, and empathetic communication within GOC discussions.

Keywords: Goals of Care, Communication, Interventions, Intensive Care Unit, Mixed Method Systematic Review, Effectiveness

Introduction

The concept of Goals of Care (GOC) is both longstanding and accepted as part of the critical care lexicon. Despite its presence in healthcare literature since the 1970s, GOC lacks a universally accepted definition resulting in operational ambiguity (Sanders et al., 2018; Secunda et al., 2020; Stanek, 2017; Turnbull & Hartog, 2017). Although the language of GOC is frequently employed, its meaning is often taken for granted or assumed to be understood, leading to potential confusion (Secunda et al., 2020). For example, some equate GOC with decisions regarding medical interventions, while others relate GOC to end-of-life care or intensive treatment options (Cunningham et al., 2018; Hui et al., 2014). GOC discussions and subsequent decisions are pivotal in avoiding misunderstandings among healthcare providers (HCPs), patients, families and substitute decision makers (SDMs). Notably, ICU specific GOC discussions often relate to four overarching and interconnected themes: 1) comprehending prognosis and potential functional decline; 2) prioritizing patient autonomy; 3) preventing unnecessary care by aligning treatments with patient values; and, 4) offering emotional support to patients and families (Emiloju et al., 2020; Sanders et al., 2018). These discussions are necessary in critical care clinical contexts, where patients often face high mortality rates and the possibility of significant functional decline post-treatment and ICU discharge (Berlin, 2017; Gonçalves-Pereira et al., 2023; Society of Critical Care Medicine [SCCM], 2023 Stapleton et al., 2020).

Barriers to GOC discussions exist, including the influence of a prevailing culture of curative care in ICUs, complexities in decision-making by family members and SDMs, as well as communication challenges (Baggs et al., 2012; Fang et al., 2022; Smith et al., 2020). Conversely, creating a supportive environment, shared decision-making, and technological aids are

facilitators that enhance the quality of GOC discussions (Ashana et al., 2020; Scott et al., 2019; Stanek, 2017).

High-quality GOC discussions foster shared decision-making and goal-concordant care, aligning treatment with patient preferences and avoiding unwarranted interventions and suffering (Apostol et al., 2015). A shared understanding of the medical condition, potential outcomes, and patient values and goals characterize high-quality discussions (Deptola & Riggs, 2019; Piggott et al., 2019; Sanders et al., 2018). Organizations such as Respecting Choices (2023), Vitaltalk (2023), Serious Illness Care (2023), Advance Planning Ontario (2023) and Choosing Wisely Canada (2023) advocate that high-quality care begins with establishing patient care preference during a GOC discussion, preferably *before* an ICU admission.

Frameworks such as the VALUE mnemonic (Curtis & White, 2008), Patient Priorities Care (Tinetti et al., 2016), Best Case/Worst Case Scenarios (Kruser et al., 2019), and the SPIKES protocol (Baile et al., 2000) have been developed to guide HCPs in discussing serious illnesses with patients, families, and SDM). Curricula such as The Serious Illness Care Program (2023), initiated by Atul Gawande and Bill Berry, and VitalTalk, created by Drs. Anthony Back, Robert Arnold, and James Tulsky (VitalTalk, 2023) offer systematic approaches to ensure that ICU teams recognize and respect patients' priorities (Back et al., 2009; Bernacki & Block, 2014; Lagrotteria et al., 2021)

Interventions aimed at improving GOC discussions are necessary to ensure that treatment plans and subsequent decisions align with the patient's prognosis and clinical context, as well as their personal values and beliefs. The seminal SUPPORT trial highlighted deficiencies in end-of-life communication, underscoring the need for improved dialogue regarding GOC and patient preferences (Berlin, 2017; Connors, 1995). This trial was foundational for subsequent studies

focusing on bridging communication gaps between patients, families, SDMs and HCPs (Connors, 1995).

The main intervention strategies tested throughout the 1990s to the present, focus on educational programs for HCPs, expert consultations, communication facilitators, and technology integration (Scheunemann et al., 2019; Turnbull et al., 2019). These interventions collectively aimed to enhance the quality of GOC conversations, with technology playing a pivotal role in prompting timely discussions and decision aids to assist with aligning care with patient values (Comer et al., 2020; Garg et al., 2021; Peereboom & Coyle, 2012).

Interventions to enhance clinician-patient communication have significantly evolved from the SUPPORT study (Berlin, 2017; Connors, 1995) to programs like Serious Illness Care (2023) and Vital Talk (2023). Despite a considerable body of literature, no systematic review currently exists that describes interventions aimed at improving GOC discussions. Systematic reviews are essential in assessing the state of science, thereby informing future research. Therefore, this mixed method systematic review (MMSR) aims to identify, describe, and report on the effectiveness of interventions implemented to improve GOC discussions in the adult ICU context.

Given the ambiguity associated with GOC, for the purposes of this review, GOC refers to specific, documented, health objectives that are tailored to individual patients and are congruent with patients' core values and beliefs. These goals emerge from collaborative discussions involving patients, their families and/or SDMs, and the ICU healthcare team. We developed this definition by combining definitions from a previously published literature including a concept clarification by Stanek (2017) and a systematic review and qualitative discourse analysis by Secunda et al. (2020)

Methods

Design

Given an anticipation of heterogeneous intervention designs, this review was modelled on the Joanna Briggs Institute (JBI) Mixed Methods Review Methodology (Lizarondo et al., 2020). However, because there was also a focus on interventions, we considered the utility of the JBI Systematic Review of Effectiveness template. From the template we incorporated the following: using standardized JBI language and methods, and involved eight steps: formulating a question, inclusion, and exclusion criteria, locating the studies, selecting studies, critically appraising the quality of the studies, data extraction, analyzing and synthesizing the data, and presenting and interpreting the results (Lizarondo et al., 2020). The review protocol was developed using the Reporting Items for Systematic Reviews and Meta-Analyses (PRIMSA) 2020 statement and checklist (Page et al., 2021).

The review team had expertise in critical care nursing and medicine (ND, BVW, AS) as well as systematic review methodology (BVW, AVD, ARW).

Ethics

No ethical approval was required for this review as it used data from previously published studies in which primary investigators obtained informed consent.

Eligibility Criteria

Inclusion and exclusion criteria were defined using PICo/PICO (Population/Phenomenon of Interest, Context, Outcomes) and outlined in Table 1.

Table 1b

Eligibility Criteria (PICO/PICo): Manuscript version

Inclusion		Exclusion
Types of Participants	Individuals with life limiting illness admitted to the ICU.	Adolescents and children (<18 year of age).
Phenomena of interest	Interventions that improve GOC discussion	
Context	Studies conducted in high acuity unit and ICUs.	All other settings.
Outcome	Improved GOC discussions.	
Types of Studies	Quantitative and qualitative studies of all designs. English and French language only. Peer-Reviewed publication. Restricted to 10 years	Studies not published in English or French. Full text not available. Books, theses, grey literature, conference proceedings, conference abstracts, book chapters opinion and discussion papers, unpublished studies and abstracts.

The review included all quantitative and qualitative and mixed studies of all designs published in the last ten years. The clinical context was limited to adult critical care. Articles with a pediatric and/or neonatal focus (due to additional specialized critical care contexts), theses and dissertations, grey literature, conference proceedings, unpublished studies, abstracts, and articles published in languages other than English or French were excluded.

Search Strategy

In collaboration with a medical information specialist (MIS) (ARW), a search strategy was developed and pilot-tested. The search strategy was designed to identify appropriate keywords, Medical Subject Headings (MeSH) terms, and pertinent databases. Databases included were: Ovid MEDLINE® ALL, the Excerpta Medica database (EMBASE) and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) on EBSCO. The search

strategy included subject headings such as ‘intensive care unit’, ‘critical care’, ‘advanced care planning’, ‘terminal care’, and ‘communication’ and keywords such as ‘intensive care’, ‘critical care’, ‘goals of care’, ‘resuscitation orders’, ‘end of life’, and ‘discussion’. In collaboration with our MIS, the search was first executed in Ovid MEDLINE® ALL (See Figure 1), and then translated into the remaining databases. The search was completed between August 16th and 17th 2022. Search results were uploaded into Covidence ®, a cloud-based software program for systematic review screening and extraction. Systematic review registries, including JBI, Cochrane, and Prospero were searched to see if there were published systematic reviews or systematic review protocol records that answered a similar research question. The final step was to hand search the reference lists of included papers to ensure that relevant publications not identified during the database searches were included if located.

Figure 2

Finalized Search Strategy

Database: Ovid MEDLINE(R) ALL <1946 to August 19, 2022>

Search Strategy:

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1 intensive care units/ or burn units/ or coronary care units/ or respiratory care units/ (74135)

2 (icu or "intensive care unit*" or "critical care" or "intensive treatment*").ab,ti,kw. (204120)

3 exp Intensive Care Units, Pediatric/ (26307)

4 (1 or 2) not 3 (208732)

5 exp Advance Care Planning/ (10831)

6 Resuscitation Orders/ (4144)

7 "goals of care".ab,ti,kw. (2523)

8 ("advance care directive*" or dnr or "do not resuscitate" or "advanced care plan*" or "resuscitation order*").ab,ti,kw. (5287)

9 Terminal Care/ (31117)

10 ("end of life" or EOL).ab,ti,kw. (28419)

11 or/5-10 (59632)

12 decision making/ or decision making, shared/ or "dissent and disputes"/ (109374)

13 Communication/ (96004)

14 professional-patient relations/ or nurse-patient relations/ or physician-patient relations/ (138410)

15 (discuss* or conversation* or talk or communicat*).ab,ti,kw. (2092961)

16 or/12-15 (2307438)

17 4 and 11 and 16 (2045)

18 limit 17 to (yr="2012 -Current" and (english or french)) (1212)

****

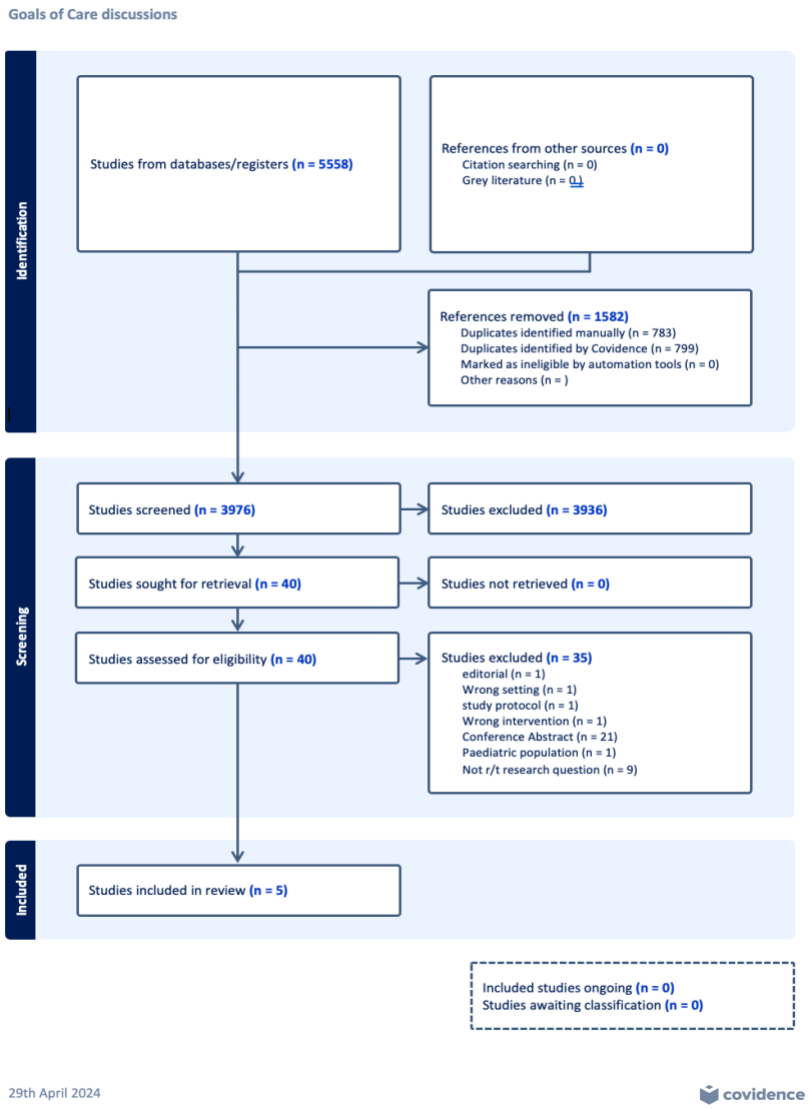
Identifying Relevant Literature

All citation screening and study selections were completed by the primary reviewer (ND) and a secondary reviewer (BVW), using a four-step process. First, duplicates were removed using Covidence® (2022). Second, titles and abstracts were screened to determine broad eligibility based on the inclusion and exclusion criteria developed a priori. Finally, full-text articles were screened

for inclusion against the set criteria. Disputes regarding the inclusion and eligibility of full-text articles were resolved through a consensus approach between the primary and secondary reviewer. A third reviewer (AV) was consulted to provide expert advice and help make final decisions when consensus was not reached during the screening process. The final step was the hand search of the reference lists of included articles. A PRISMA flow diagram was used to represent this process (Page et al., 2021) (See Figure 3).

Figure 3

PRISMA Diagram



During full-text screening, n=40 articles were identified. When an abstract met the eligibility criteria but lacked a corresponding full-text, we attempted to retrieve the full-text using RACER (Rapid Access to Collections by Electronic Requesting) (University of Ottawa Library, 2023). When this yielded a null result, we approached our MIS who had access through another institution to attempt the retrieval of the text. Only one full-text was not available at the University of Ottawa but later retrieved by ARW. When a conference abstract or presentation abstract met eligibility criteria but there was no corresponding article in the database search, we contacted the authors to verify if a corresponding research article was published or in review; this information was found using an internet with Google Scholar and ResearchGate, when not available in the abstract. If no contact information was found, correspondence was not answered, or no research study was developed, the abstract was ultimately screened out. Fifteen authors were contacted using a standardized form; no responses were received; therefore, no additional citations were included.

Quality Appraisal

Quality appraisal for included study was completed using the appropriate, design-specific, JBI Quality Appraisal Tools (Aromataris & Munn, 2020) in our review, the JBI checklist for Randomized Control Trials (13 items) and the JBI checklist for Quasi-Experimental Studies (nine items) (Aromataris & Munn, 2009) were utilized. Items were appraised as "yes" (2 points), "unclear" (1 point), or "no" (0 point) for each of items in the corresponding JBI quality checklist. For RCTs, the highest score possible was 26 points and for Quasi-Experimental studies 18 points (Aromataris & Munn, 2009). Where divergent opinions existed between reviewers, AV was brought in as a third evaluator to mediate and reach a consensus.

Data Extraction

Fillable standardized data extraction forms in Microsoft Word were developed by ND and BVW and then independently pilot-tested on one study for inter-rater reliability. The piloted forms were presented to the review team and modifications were made collaboratively to ensure the extracted data's clarity, usability, and accuracy. ND and BVW used the finalized forms for data extraction of all included studies.

Extracted data included study characteristics (e.g., authors, publication year, setting, study design, theoretical framework, and study aim), participant characteristics (e.g., sample size, age, gender identity and/or sex (depending on what was reported), ethnicity and/or race, health care discipline, year of experience). Other extracted data included intervention characteristics based on the Template for Intervention Description and Replication Checklist (TIDieR) (Hoffmann et al., 2014) and quantitative outcomes, including effectiveness at improving HCP's ability to have GOC discussions and ability to support SDM during GOC discussions. When studies reported narrative data to support their quantitative findings, data from open-ended questions and focus groups were also extracted.

Data Synthesis and Integration

Given the substantial variations in study designs, study populations, and the measurement of interventions that were evident in the included studies, conducting a meta-analysis was not feasible; as consistent with MMSRs, we chose to present the review findings as a narrative summary (Aromataris & Munn, 2020; Lizarondo et al.. 2020). To facilitate reporting, two main intervention categories were established: 1) interventions aimed at improving HCPs' ability to conduct GOC discussions; and, 2) interventions aimed at supporting SDMs during these discussions. Reported outcomes were categorized into clinically relevant categories:

interprofessional collaboration, comfort and confidence levels with GOC discussions, overall intervention effectiveness, satisfaction with the communication skills workshop, perceived effectiveness, and quality of communication. Extracted narrative data (i.e, qualitative data) were also described narratively and reported distinctly. Further, data were organized based on intervention types, target populations, setting, and how data were collected and analyzed (See Table 2a Study Characteristics). We also calculated the percentage of the five studies' characteristics based on seven characteristics: publication year, country, setting, design, sample size, status of participants and health discipline (See Table 2b Study Characteristic Distribution).

Table 2a

Study Characteristics

Author & Title	**Location**	**Setting**	**Methods**	**Data Collection Method**	**Sample size (N)**	**Data Analysis**	**Theoretical framework**	**Research question/ Aim**
Fettig et al. (2022) A Communication Skills Training Workshop to Improve ICU Team Relational Coordination about Goals of Care: A Pilot Study [1]	Midwest, USA	Burn ICU	**Pre-/Post-inter-vention**	**Demographic Data** **Questionnaires** 1) Relational Coordination Survey 2) Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration	N= 17	**Descriptive Statistics** **Inferential Statistics** 1) Paired t-test was used to compare mean score difference between the pre-intervention and six-month post, with $P < .05$ 2) Cohen's D effect size was calculated for the mean score difference between pre-	Relational Coordination	Examine the impact of a communication skills training intervention on improving relation coordination and collaboration among ICU multidisciplinary team members

						/post-intervention		
Millic et al. (2015) Communicating with Patients' Families and Physicians About Prognosis and Goals of Care [1]	San Francisco, California	Multiple ICUs	**Pre-/Post-inter-vention**	**Demographic Data** 1) **Questionnaire** 14 to 22 item survey evaluating confidence and skills acquisition with GOC discussions 2) **Narrative Comments on Questionnaire**. 3) **Focus group** (n= 11 nurses)	N= 82	**Descriptive Statistics** **Inferential Statistics** 1) <u>Logistical regression</u> was used to compare nurses' skills and confidence before, immediately after, and	NR	Examine the impact of an educational intervention on improving critical care nurses' communication skills and con-fidence to engage in GOC discussions.

				Purpose of eliciting participants' perspectives on the impact of the workshop on their practice.		three months after **Thematic Analysis**		
Suen et al. (2021) A Pilot Randomized Trial of an Interactive Web-based Tool to Support Surrogate Decision Makers in the Intensive Care Unit [2]	Pittsburgh, PA, USA.	Neuro-science ICU and Medical ICU	Random-ized Cont-rolled Trial	**Administrative data** **Questionnaires** 1) <u>Perceived Effectiveness</u> Eleven-items questionnaire using five point Likert scales 2) <u>Quality of Communicati on (QOC)</u> 19-item QOC questionnaire on a 10-point Likert scale.	N=48 patient/ SDM pairs N= 23 Interve ntion N=25 Control	**Descriptive Statistic** **Inferential statistics** *1)* <u>Perceived effectiveness</u> summarized with means and standard deviations *2)* <u>QOC</u> Two Sample T Test compared the mean ratings between the control and intervention. [3]	Ottawa Decision Support Framework	To assess perceived effectiveness of a communication intervention that pairs proactive family meetings with an interactive, web-based tool to support SDM during GOC discussion in the ICU.
Wessman et al. (2017) Improving Caregivers' Perceptions Regarding Patient Goals of	USA	Tertiary Care Center Surgical ICU	Pre/post interventi on	**Administrative Data** **Questionnaire** 1) <u>Nurses' Perception of</u>	N= 101 Health Care Provide rs	**Descriptive Statistic** **Inferential statistics** 1) Chi Square Test (x^2) 2) <u>*t*-test</u>	NR	Evaluate the impact of a multidisciplinary ICU team intervention on improving critical care providers' proficiency in

Care/End-of-Life Issues for the Multidisciplinary Critical Care Team [1]				End-of-Life Care Survey Modified to include the multidisciplinary critical care team that evaluated 5 core domains and 4 individual items		comparison of means scores between time period 4 3) One way Anova (F) comparison of mean scores between time period5		GOC/EOL communication, enhancing staff comfort, and facilitating smoother transitions for patients into comfort care.
Yuen et al. (2013) A Brief Educational Intervention To Teach Residents Shared Decision Making in the Intensive Care Unit[1]	New York City, NY, USA	Resident Retreat	Pre-/post intervention	**Administrative Data** **Questionnaire** Skill assessment survey List of 18 communication skills taught during the intervention Assessment of comfort level Comfort level ratings for seven ICU communication skills assessed. Satisfaction with Communication Workshop	N= 29 Internal Medicine Interns	**Descriptive Statistic** 1) For the skills assessment we calculated the percentage of respondents who marked each skill learned. **Inferential statistics** 1) Paired T test comparison scores for the	Shared decision making framework	Evaluate an educational intervention aimed at improving internal medicine residents skills in discussing goals of care and treatment decisions with families of critically ill patients in the ICU.

				Narrative answer to a single open-ended question, - What are the most important things you learned from the workshop		pre- and post-intervention comfort level assessment. *P Value < 0.05* **Thematic Analysis** 1) Two investigators indepen-dently reviewed and coded responses		

Legend

N/A = Not applicable
NR= Not reported

[1] Intervention aims to improve health care provider communication.
[2] Intervention focused on supporting SDMs
[3] Authors stated Chi-Square used but did not report in the results
[4] No *p*< reported for statistical significance
[5] No explanation by author why *t*-test and ANOVA reported

Table 2b

Study Characteristic Distribution

Characteristic	Category	Frequency of studies	Percentage of Studies
Publication Year	2010-2013 2014-2016 2016-2019 2019-2023	1 1 1 2	20% 20% 20% 40%
Country	United States of America	5	100%
Settings	Multiple ICU Burn ICU Surgical ICU Resident Retreat	2 1 1 1	40% 20% 20% 20%
Study Design	Randomized Control Trial Quasi-Experimental Descriptive Case Study	1 4 1	16.7 % 66.7% 16.7%
Sample Size	0-20 20-40 40-60 60-80 80-100 100-120 No sample	0 1 1 0 1 1 1	20% 20% 20% 0 20% 20% 20%
Type of Participants	HCP SDM	4 1	80% 20%
Health Discipline	Medicine Nursing Interdisciplinary Non-Health Professional	1 1 2 1	20% 20% 40% 20%

Results

Search Results

The initial search yielded 5,558 relevant citations across all three databases. A total of 778 system-identified duplicates were automatically removed, and an additional 782 were manually marked as duplicates by the reviewers. This left 3,977 citations for title and abstract screening. At this stage, ND and BVW convened to ensure consistency, in line with the review's objectives, in screening for interventions aimed at improving GOC discussions in the ICU. This step in screening resulted in the exclusion of 3,936 articles. ND and BVW then reviewed 40 full-text articles, selecting 5 for inclusion. A hand search of the reference lists within these 5 articles yielded no additional inclusions. See previously included Figure 2 for full PRISMA.

Study Characteristics

The five included studies, published between 2013 to 2022, were all conducted in the USA and reported in English. There was one RCT and four quasi-experimental studies. All studies were appropriately set in an ICU context, some study settings were specific to specialized ICUs (i.e., burn ICU), while others spanned multiple ICU settings (e.g., Suen et al., 2021) or included participants from various critical care settings in the hospital (e.g., Fettig et al., 2022). Sample sizes in the studies ranged from N =17 to 101. In Fettig et al. (2022), although N= 36 HCPs were enrolled, only n= 17 completed their post-intervention survey. After careful consideration, we chose to selectively extract findings specific to the 17-participant sample since these participants went through the entire intervention. All five studies employed quantitative methods, primarily collecting data through questionnaires, pre- and post-intervention surveys, skills assessment, and various program evaluations using Likert scales (Fettig et al., 2022; Milic et al., 2015; Suen et al., 2021; Wessman et al., 2017; Yuen et al., 2013). Two of these studies

also reported narrative findings obtained through focus groups, interviews, and open-ended questions (Milic et al., 2015; Yuen et al., 2013). Four studies were interventions aimed at HCPs (Fettig et al., 2022; Milic et al., 2015; Wessman et al., 2017; Yuen et al., 2013); one study (Suen et al., 2021) fit the category of interventions aimed at supporting SDM.

Participant Characteristics

Across all studied there was a total of N= 277 participants. Due to the heterogeneity of the studies, there was not one participant characteristic that was reported for every study. Therefore, we made the decision to present participant characteristics that were reported in 50% or more studies. This resulted in the following characteristics: healthcare discipline, age, sex/self-disclosed gender, race/ethnicity, and years of experience in the respective healthcare profession. Please see Table 3.

Four studies reported on health care discipline, the majority, n= 148 (63.89%) of participants in an intervention focusing on healthcare professionals were from the nursing profession (e.g., RN, Nurse Practitioner, Clinical Nurse Specialist), n= 69 (30.13%) were from medicine (e.g., attending, fellow, resident), and the remaining n= 12 (10.08%) were allied health professionals (Respiratory Therapist, Registered Dietician, Pharmacist, Pastoral Care). The distribution of self-identified sex/self-identified gender was reported in three studies; female/woman n=47 (50%) and male/man n=46 (48.9%), with n=1 choosing not to disclose (1.1%). Race and ethnicity were reported in two studies; within these studies, the majority of respondents identified their race as Caucasian, n=53 (81.5%), with ethnicity being diverse.

Table 3

Participant Characteristics

Socio-demographic characteristics*	Studies (N)	Sample size (N)	N	%	Other
Age (years)	3	94		n/a	Mean: 29 (1 study) Mean (SD) (1 study) Intervention 58.65 (12.62) Control 54.28 (13.15) Range 21- 61+ (1 Study)
Sex/Gender	3	94			
Female/Women			47	50%	
Male/Man			46	48.9%	
Chose Not to Disclose			1	1.1%	
Health Care Discipline	4	229			
Attending Physician			23	10%	
Fellow Physician			8	3.4%	
Resident			38	16.6%	
Registered Nurse			139	60%	
Nurse Practitioner			8	3.5%	
Respiratory Therapist			5	2.1%	
Social Worker			2	0.87%	
Registered Dietician			2	0.87%	
Clinical Pharmacist			1	0.44%	
Clinical Nurse Specialist			1	0.44%	
Chaplain/Pastoral Care			2	0.87%	
Years in Practice	2	118			
<1			21	17.7%	
1-5			41	34.7%	
6-10			6	5.1%	
11-15			0	0	
16-20			26	22%	
21-30			9	7.6%	
31-40			3	2.5%	
Did not answer			12	10.2%	
Race	2	65			
Caucasian			53	81.5%	
African American			11	17%	
Indigenous peoples			0	0	
			0	0	
			1	1.5%	

BIPOC [1]unspecified Not answered					
Ethnicity	2	65			
Not Hispanic/Latinx [sic]			62	95.4%	
Hispanic/Latinx			2	3.1%	
Not answered			1	1.5%	

Quality Appraisal

For the five studies, we used two JBI checklists: RCTs and Quasi-Experimental Studies (Aromataris & Munn, 2020) to assess their quality. For the single RCT (n=1), the final score was 18 out of 26. Limitations included the research staff delivering the intervention not being blinded to the intervention group, and while receiving standard care, the control group had family meetings concurrent with the treatment group. This design made it challenging to measure the control group with the same outcome measures (i.e., the tool's effectiveness). Additionally, the outcome assessors were not blinded to the intervention group, and the control group's outcome measures were not assessed at all. Appropriate statistical analysis was used (i.e, *t*-test); however, even though the *p* values were reported, the author did not state what *p*-value indicated if the results were statistically significant (i.e., $p < 0.05$). In the evaluation of four quasi-experimental studies, the scores ranged from 11 to 15 out of a possible 18. A frequent shortcoming in the reporting of these studies was the need for control groups as none were evident (Fettig et al., 2022; Milic et al., 2015; Wessman et al., 2017; Yuen et al., 2013). Wessman et al. (2017) were ambiguous in their reporting on whether the outcomes were measured reliably and whether appropriate statistical analysis was utilized. Yuen et al. (2013) did not include a follow-up in their study. They indicated that the confidence level for each of the seven communication skills in discussing GOC had been statistically significant at $p < 0.05$ and

Legend
[1]BIPOC; Black, Indigenous, and People of Color

that the overall composite comfort level score was significant at $p < 0.004$; however, these were not reported in their findings tables.

Table 4

Quality Appraisal

Joanna Briggs Institute (JBI) Quality Appraisal Tool	**Study (Year)**	**Total Score (No or Unclear response on JBI checklist question)**
Checklist for Randomized Controlled Trial[2]	Suen et al. (2021)	18 of 26
Checklist for quasi-experimental studies[2]	Fettig et al. (2022)	15 of 18
	Milic et al. (2015)	15 of 18
	Wessman et al. (2017)	13 of 18
	Yuen et al. (2013)	11 of 18

Intervention Characteristics

The studies included reported on five distinct GOC interventions, summarized in Table 5. The three interventions aimed at improving HCP's confidence and competence with GOC discussion ranged from four-hour workshops to twelve-hour training sessions spread across two days (Fettig et al., 2022; Milic et al., 2015; Yuen et al., 2013). The intervention by Wessman et al. (2017) focused on fostering a supportive environment for GOC discussions in the ICU and lasted two years. The single intervention targeting SDMs was linked to the length of the patient's ICU stay (Suen et al., 2021).

Interventions Aimed at HCPs

Four HCP interventions aimed to enhance discussions on GOC by focusing on three main areas: (1) fostering team-based communication and role clarity; (2) improving individual communication skills and confidence in GOC discussions; and, (3) creating a supportive

[2] Aromataris (2020)

environment for these communications. Interventions reported by Milic et al. (2015) and Yuen et al. (2013) focused on improving individual HCPs' communication skills and confidence in conducting GOC discussions. Whereas in the intervention reported by Fettig et al. (2022), the intervention focused on team skills training, highlighting the importance of relational coordination, role clarification, and interdisciplinary collaboration. Wessman et al. (2017) argued that exceptional critical care requires a multidisciplinary team approach, with coordinated efforts from all team members being crucial. They proposed an intervention to cultivate an environment conducive to developing and utilizing multidisciplinary communication practices, significantly improving GOC/end-of-life communication. This included using separate communication templates for nurses and physicians to clarify roles in conversations with families of critically ill patients.

Three of the interventions focused extensively on enhancing communication skills, incorporating didactic teachings, simulation, and reflective practices (Fettig et al., 2022; Milic et al., 2015; Yuen et al., 2013). Two of these interventions employed the VitalTalk curriculum for their educational sessions (Fettig et al., 2022; Milic et al., 2015), organizing larger group lectures followed by smaller, focused groups for simulation and role-playing exercises. Yuen et al. (2013) developed a curriculum for a resident retreat and iterated that it was not modelled on existing GOC discussion frameworks.

Wessman et al. (2017) detailed a comprehensive intervention designed to support GOC discussion and end-of-life care, which included a communication intervention for HCPs, with a didactic session and simulation. The intervention also included the creation of patient-family pamphlets, communication templates for nurses and physicians, additional education for novice nurses, and input in the physical planning of the ICU. This multidisciplinary GOC/end-of-life

Care intervention provides the tools and strategies to improve end-of-life/GOC discussions, which resulted in reduced work stress and improved end-of-life care knowledge and space allotment.

Both Wessman et al. (2017) and Fettig et al., (2022) designed studies that involved participants from various healthcare disciplines, including doctors, nurses, and allied health professionals, while Yuen et al. (2013) focused solely on physicians, and Milic et al. (2015) sampled nurses exclusively. These interventions were designed to overcome specific communication barriers, with Fettig et al. (2022) concentrating on role clarification through simulation. Milic et al. (2015) and Yuen et al. (2013) aimed to bolster communication skills, confidence, and comfort in GOC discussions. The nurse-directed intervention by Milic et al. (2015) aimed to enhance nurse-family conversations, nurse-physician interactions, and family meetings by eliciting family goals and needs, presenting the perspectives of patients' families and nurses to physicians, and developing plans to address patients' needs. Meanwhile, the physician-focused intervention by Yuen et al. (2013) emphasized discussing prognosis, care goals, life-sustaining measures, code status determination, and engaging in shared decision-making with families.

Interventions Aimed at SDMs

Suen et al. (2021) was the only article that aimed to support SDMs through an intervention that was a web-based tool featuring short videos, animations, and interactive questionnaires. This tool was developed with an expert panel, engaging SDMs and undergoing user testing with a low-fidelity prototype by six former ICU SDMs, leading to a web-based prototype. Further testing involved 14 SDMs and ICU physicians. This intervention aimed to support SDMs at the onset of ICU admission through two family meetings where GOC were

discussed. The first GOC meeting was scheduled within the first 48 hours of admission to ICU and the next was scheduled 5-9 day after admission. SDMs were not required to complete additional modules if they participated in subsequent family meetings, but they were encouraged to review the tool through the ICU admission (Suen et al., 2021)

Table 5

Intervention Characteristics

Article Citation	Type of Intervention	Target population	Description of Intervention	Learning Modalities	Duration
Fettig et al.(2022)	Communication skills	Attending Physician Fellow Physician Nurses Social Worker Chaplin	The workshop was 12 hours separate in two days based on VitalTalk curriculum 1) Large group presentation 2) Large group discussion led by course facilitator 3) Simulation in small group of 4-6 Parti pants. Each simulation was based on a clinical scenario and each participant maintain their discipline role 4) Small group debrief session after simulation.	1) Didactic session 2) Simulation 3) Debrief/Reflective Session	2 Days, 12 hours total
Milic et al. (2015)	Communication skills	Critical Care Nurses	A single day 8 hour workshop was developed at the request of critical care nurses. 1) Group discussion where learner stated the challenges of	1) Group Discussion 2) Didactic session 3) Role play discussion 4) Simulation 5) Debrief/Reflective session.	1 day , 8 hours

			communicating with family about prognosis and GOC 2) A brief didactic session about the four C's (convening, checking, caring, continuation). 3) Role play discussion describing the core communication skills base on VitalTalk curriculum 4) Simulation of 3 scenarios based on VitalTalk skill set. 5) Debrief session.		
Suen et al. (2021)	Web based Family Support Tool	Family Surrogate/ Substitute Decision Marker	1) SDM completion of Family Support Tool modules before family meetings, 2) ICU team received one-page summary sheet containing surrogates' responses to questions presented in the tool, 3) scheduled family meetings	1) E-Learn (Educational videos on the web application) 2) Integrative questionnaire 3) Virtual simulation to elicit patient value and preference, as SDM expectations	Duration of family ICU admission
Wessman et al. (2017)	Comprehensive intervention targeting HCPs The interventions included:	Intensive Care Staff	Intervention was based on a survey sent to ICU staff to gain and awareness of their current expectative,	1) Didactic session 2) Discussion templates 3) Simulation	2 years

	communication intervention for HCPs, communication templates for nurses and physicians, additional education for novice nurses, and input in the physical planning of the ICU.		understand and knowledge of GOC discussion and end of life care Intervention included 1) Creation of GOC/EOL multidisciplinary team 2) Communication tools including didactic learning and simulation 3) Educational pamphlets that informed GOC discussion 4) Standard EOL order set 5) Didactic learning regarding transition to comfort care		
Yuen et al. (2013)	Communication Skills	Internal medicine interns	The intervention consisted of a 1) PowerPoint online module 2) four-hour workshop including a didactic session, simulation and debrief	1) E-Learning 2) In-person didactic session 3) Simulation 4) Debrief/Reflective session	4 hours workshop plus E-Learning

Intervention outcomes

Multiple outcomes were measured to evaluate the effectiveness of the interventions. The results for interventions focused on improving HCPs' ability to discuss GOC outcomes included interprofessional collaboration, comfort/confidence levels with GOC discussions, overall effectiveness of the intervention and satisfaction with communication skills. Perceived efficacy and quality of communication were measured for interventions supporting SDMs during GOC discussions. These outcomes were measured using a variety of instruments (Please see Table 6a) with author-developed tools. Notably, relational coordination, interprofessional collaboration, perceived effectiveness, and quality of communication were assessed using validated instruments (Fettig et al., 2022; Wessman et al., 2017).

Three out of four studies reported that communication skills interventions greatly improve HCPs' abilities and confidence in conducting GOC discussions (Fettig et al., 2022; Milic et al., 2015; Yuen et al., 2013). Fettig et al. (2022) found that multidisciplinary communication training significantly enhances relational coordination and interprofessional collaboration by fostering shared goals, mutual respect, role clarity, and effective problem-solving communication that leads to better coordination in GOC and potentially resulting in patient care that more closely aligns with their personal goals (Fettig et al. 2022). Both Milic et al. (2015) and Yuen et al. (2013) reported that training increased self-ratings of communication skills and boosted HCPs' confidence in GOC discussions. Wessman et al. (2017) demonstrated the benefits of creating a supportive environment in the ICU for end-of-life/GOC discussions, including forming interdisciplinary teams, developing communication tools and templates, providing educational materials to families about GOC, and utilizing technology for orders and smart phrases to enhance team information sharing. Wessman et al. (2017) reported that creating

a supportive environment in the ICU significantly decreased work-related stress, end-of-life/GOC information, and space allocation. Additionally, there was an observed improvement in the alignment between family and HCPs related to GOC discussions. Wessman et al. (2017) state that these improvements suggest that fostering a supportive environment effectively enhances GOC discussions.

The single intervention aimed at supporting SDMs during GOC, the web-based tool, was perceived as effective by families (Suen et al., 2021). In Suen et al.'s (2021) study, they stated that the tool was reported as effective by the intervention group, however that they could not demonstrate statistical significance since the results they collected to evaluate the effectiveness of the tool were Likert scale data, and therefore, the results did yield a *p*-value. Additionally, the study observed improvements in the quality of communication and shared decision-making, though these were not statistically significant (See Tables 6a and 6b),

Table 6a

Instruments Used to Measure Outcomes

Outcome	Instrument Name (developer, year)	Citing articles
Interprofessional Collaboration	Relational Correlation Survey (Gilmartin et al., 2015)	Fettig et al. (2022)
	The Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration (JSAPNC) (Wetzel, 2013)	Fettig et al. (2022)
Comfort/Confidence with Goal of Care Discussions	Author developed instrument	Milic et al. (2015) Yuen et al. (2013)
Acquired Skills for GOC	Author developed instrument	Milic et al. (2015) Yuen et al. (2013)
Satisfaction with Communication Workshop	Author developed instrument	Fettig et al. (2022) Yuen et al. (2013)
Perceived Effectiveness	Modified Version Nurses' Perception of End-of-Life Care (Hansen et al., 2018).	Wessman et al. (2017)
	Author developed instrument	Suen et al. (2021)
Quality of Communication	Quality of Communication questionnaire (Engelberg et al., 2006)	Suen et al. (2021)

Table 6b

Intervention effects

Outcome	Operationalization of the outcome	1st Author (date)	Result(s)		Statistical Significance
Interprofessional Collaboration	Relational Correlation Survey	Fettig et al., 2022	Pre intervention 2.94 (SD=.33)	Post Intervention 3.19 (SD= .36)	Sig (Effect size of 0.89)
	The Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration (JSAPNC)		Pre intervention 53.8/60 (SD=2.6)	Post intervention 54.2/60 (SD=3.3)	NS
Comfort/ Confidence with Goal of Care Discussion	Multiple indicators	Milic et al., 2015	Increase confidence for all key tasks in communication about prognosis and goals of care		Sig. ($p < .001$ for all skills evaluated)
		Yuen et al., 2013	<u>Composite comfort level score</u> Preintervention 3.26/5 (SD=0.88)	<u>Composite comfort level score</u> Post intervention 3.7/5 (SD=0.95)	Sig. ($p = 0.004$).
Communication Skills for GOC discussion	Multiple indicators	Milic et al., 2015	Increase reporting in excellent in communication skills with patient, families and HCP about goal of care and prognosis		Sig ($p < .001$ for all skills evaluated)
		Yuen et al., 2013	100% of intern endorse that these two skills where gain were 1) inquire about the family's understanding of the patient's condition 2) obtain an understanding of the patient/family's perspectives, values, and goals		n/a

			65% or more residents endorsed learning all 18 communication skills during workshop.		
		Fettig et al., 2022	97% of participants rated their preparedness for goals-of-care conversations after the workshop as higher in every area surveyed compared to before the workshop.		SIG p <.0001 for all areas surveyed
Satisfaction with Communication Workshop	Multiple indicators	Fettig et al., 2022	"I would recommend this training to other ICU teams." 97% of respondents "strongly agreed" with the statement.		n/a
		Yuen et al., 2013	<u>Overall workshop evaluation</u> 4.45/5 (SD = 0.62),		n/a
Perceived Effectiveness	Modified Version Nurses' Perception of End-of-Life Care (Hansen et al., 2009)	Wessman et al., 2017	Pre intervention <u>Domains</u> (N=122) 1. knowledge and ability • Mean = 2.04 2. Work environment, • Mean = 2.29 3. Support for staff, • Mean =2.16 4. Support for patients and families	Post Intervention <u>Domains</u> (N= 101) 1. knowledge and ability • Mean =2.11 2. Work environment, • Mean = 2.26 3. Support for staff, • Mean – 2.74	1. NS p= 0.41 2. NS p= 0.81 3. NS p= 0.13 4. NS p= 0.24

			• Mean = 2.16 5. Work stress. • Mean = 2.92 <u>Individual Items</u> 6. Space (N= 121) • Mean =2.03 7. Information (N=120) • Mean 2.35 8. Ethics consultation (N= 177) • Mean= 2.76 9. Family Meetings • Mean = 2.03	4. Support for patients and families, • Mean =2.06 5. Work stress. • Mean 2.72 <u>Individual Items</u> 6. Space (N=101) • Mean =1.66 7. Information (N=99) • Mean 2.06 8. Ethics consultation (N=98) • Mean= 2.89 9. Family meetings • Mean = 2.06	5. Sig *p*=0.04 6. Sig *p*= 0.001 7. Sig *p*= 0.006 8. NS *p*=0.34 9. NS *p*= 8.2
	Multiple indicators	Suen et al., 2021	**Intervention Group** SDMs reported that the tool was Effective Mean score, 4.4/5 SD = 0.1		n/a

Quality of Communication	Quality of Communication questionnaire (Engelberg et al., 2006)	Suen et al., 2021	**Control group** Overall QOC 8.062/10 SD=2.7 Summary shared decision-making rating 8.0/10 SD=2.4	**Intervention group** Overall QOC 8.9/10 SD=1.6 *t*- Test *p*= 0.19 (NS) Summary shared decision-making rating 8.7/10 SD=1.5 *t*-Test *p*= 0.26 (NS)	NS The intervention group had an increase in the quality of communication and shared decision making three months after the intervention but this was not statistically significant

Legend:

Sig= Statistically significant

NS = Not statistically significant

Narratively Reported Findings

Two of the five studies (Milic et al., 2015; Yuen et al., 2013) collected and reported narrative data during their interventions. In both cases, the authors used these results to support their quantitative findings. In the case of Milic et al. (2015), narrative data was collected to evaluate the workshop's impact on nursing practice. This was achieved by coding the responses to written comments on the post-intervention evaluation, conducted three months after the intervention, and by transcribing the focus group responses from 11 nurses who had completed the workshop. The results revealed five themes that supported the statistically significant finding that the intervention increased communication skills and overall confidence in discussions about goals of care (GOC). Yuen et al. (2013) reinforced the quantitative data reported in their study with qualitative insights, highlighting that the interventions resulted in increased comfort in discussing GOC, and the results of learning skills associated with giving bad news, discussing goals of care and preferences for life-sustaining treatment, and determining code status preferences. Reported themes and supporting quotes are provided in Table 6c. Narrative data from Milic et al. (2015) and Yuen et al. (2013) highlight improvements in communication skills, empathy, and decision-making skills among nurses and residents related to the communication intervention.

Table 6c

Narrative Data Reported Outcomes

First Author, Year	Method(s) of Data Collection	Method of Data Analysis	Themes/Theme Descriptions Provided	Selective Supporting Quotes
Milic et al. (2015)	Written comments on evaluation (Obtained after workshop and three months post Focus Group	Thematic Approach (Braun & Clarke, 2006; Steinhauser & Barroso, 2009)	**Theme 1** "Clarification and reinforcement of nurses' role and responsibilities in discussions of prognosis and goals of care" (p. e62) **Theme 2** "As a result of practicing communication skills during role playing, nurses have a "tool kit" to actualize their role in discussions with patients' families and physicians" (p. e62) **Theme 3** "Nurses feeling empowered to voice concerns and participate in discussions about prognosis and goals of care" (p. e62) **Theme 4** "Nurses have increased empathy for and feel more connected with patients' families, physicians, and each other" (p. e62)	**Theme 1** "It is within our scope of practice to bring up the subjects of prognosis and outcomes." (p. e62) [Survey Comment] **Theme 2** "I found my weakness in myself and worked my way through it [in the role-play session]. I think that is very effective." (p. e62) [Focus Group Comment] **Theme 3** "I feel like I have more confidence in family meetings—just having the physicians hear [my input] and hearing that my input is valued makes me feel confident in sharing that." (p. e62) [Focus Group Comment] **Theme 4** "It was nice to realize was that, even if we work on the same unit, we all are vulnerable—we all have the same insecurities, the same struggles…

				Sometimes we put up fronts and don't let other people see what we struggle with. [In the workshop] we were able to let that all out. Others are struggling with the same thing." (p. e62) [Focus Group Comment]
			Theme 5 "As a result of the workshop, the culture in the medical center is changing so that nurses are centrally involved in communication" (p. e62)	**Theme 5** "Now with the workshop and workshop alumnae [working in the unit], we [nurses] know what our role is [in communication about prognosis and goals of care], and we know our tools [the communication skills]." (p. e62) [Focus Group Comment]
Yuen et al. (2013)	Open – Ended Questions in Post-Intervention Survey	Thematic Analysis (No specific approach identified) Based on lessons-learned from the workshop	**Theme 1** Importance of expressing empathy (p. 534) **Theme 2** Learn about patient's life and baseline functional status prior to hospitalization (p. 534) **Theme 3** Assess family's perspective including their understanding of the patient's condition, knowledge of patient's end of-life wishes, and their goals and expectations (p. 534) **Theme 4**	**Theme 1** "Verbalize empathy as a means of improving the discussion and putting family members at ease." (p. 534) **Theme 2** "Understand patient life what was the most important to their quality of life" (p. 534) **Theme 3** "Important things to cover in any discussion include family's understanding of the patient's condition and prior discussion of wishes." (p. 534) **Theme 4** "It can be very valuable to make an informed statement about medical prognosis." (p. 534)

			Provide prognostic information and recommendation for an approach to care based on patient/family's values and goals (p. 534) **Theme 5** Decision making is an iterative process and allow patient/family time (p. 534)	"You can say things like, 'Based on your values for your future, I think X is appropriate.'" (p. 534) **Theme 5** "No need to push to meet discussion goals, decisions can be made over several sessions." (p. 534) "Always give patients opportunity to discuss with family and take time to make decisions." (p. 534)

Discussion

This systematic review reports on the effectiveness of interventions aimed at improving GOC discussions in the adult ICU context. The search yielded five studies encompassing five distinct interventions, categorized into two groups. The first group, consisting of four interventions focused on improving HCPs' abilities in conducting GOC discussions (Fettig et al., 2022; Milic et al., 2015; Wessman et al., 2017; Yuen et al., 2013). The second group included a single intervention centred on supporting SDMs in these discussions (Suen et al., 2021). These five studies underscore the value of targeted interventions in improving HCPs ability to navigate complex GOC discussions, as well as supporting SDMs in and effort to ensure goal-concordant care.

These interventions enhanced HCPs' communication skills and confidence in managing complex GOC discussions. This aligns with the recognized importance of effective communication in healthcare, especially in the high-stakes ICU environment (Kryworuchko et al., 2016; Sanders et al., 2018). The interventions employed a variety of methods, including didactic sessions, simulations, role-playing, and reflective practices. The results demonstrated the acquisition of new skills and increased confidence, with narrative findings from Milic et al. (2015) and Yuen et al. (2013) reinforcing the effectiveness of these educational interventions in building essential communication skills and bolstering HCPs' confidence.

Furthermore, Fettig et al. (2022) reported that GOC discussions are improved when there is multidisciplinary communication training since it increases relational coordination and interdisciplinary collaboration, fostering shared knowledge and role clarification. Clear role understanding reduces boundary oversteps and promotes more effective collaboration, which is crucial in sensitive GOC discussions where multiple professional inputs are valuable (Udelsman

et al., 2019). In addition to improving individual and team communication skills the Wessman et al. (2017) intervention also focused on creating supportive ICU environments for GOC discussions. This was accomplished through a variety of modalities such as creating a GOC/end-of-life care committee, as well as communication tools for providers, patient–family pamphlets, standardized GOC order sets, and formalized didactic sessions. The result was a reduction in work-related stress and decisional conflict, fostering consistent, thoughtful GOC discussions. Of note, this particular study met the inclusion criteria given the focus on improving GOC discussions, but it also touches on aspects of end-of-life care.

The four interventions reviewed address communication as a barrier to GOC discussions by equipping HCPs with the necessary skills, interdisciplinary collaboration, and support for conducting timely and appropriate GOC discussions (Fettig et al., 2022; Milic et al., 2015; Yuen et al., 2013). The latter echoes previous systematic review findings and studies focused on the overall improvement of communication in the ICU and GOC discussions in acute care settings (Bernacki & Block, 2014; Cooper et al., 2016; Downar et al., 2017; Scheunemann et al., 2011). These interventions show that educational efforts, communication facilitation, and technology integration significantly improve GOC discussions, enabling HCPs to confidently and competently discuss patient prognosis, empathize with families, and understand patient values and family perspectives in healthcare.

Suen et al.'s (2021) web-based tool was reported as effective as a support for SDM. This web-based intervention created a supportive environment integrating technology and a shared decision-making framework, which was recognized as a crucial facilitator in GOC discussions (Suen et al., 2021). Given the inherently destabilizing nature of ICU admissions for families, this tool helps surrogates navigate the unfamiliar ICU environment by providing information on

standard terminology, explaining the purpose of family meetings, and encouraging thoughts on prognostic expectations, patient values, and care goals. These responses are then shared with the healthcare team to ensure collaborative and thorough GOC discussions and to coordinate necessary follow-ups or additional meetings for SDM support (Suen et al., 2021). These findings highlight the importance of supporting SDMs during GOC discussions (De Ruiter et al., 2006).

While the five interventions reviewed reported effectiveness in improving GOC discussions, these discussions are confounded by the often-traumatic context of ICU admissions (Ashana et al. 2021; Fettig et al., 2022; Milic et al., 2015; Suen et al., 2021;Yuen et al., 2013;Wessman et al., 2017). Organizations such as Respecting Choices (2023), VitalTalk (2023), Serious Illness Care (2023), and Advance Planning Ontario (2023) advocate for initiating GOC discussions before ICU admission to establish patient care preferences. Ideally, these discussions should be proactive and begin well before ICU admission (You et al., 2014). Yet, due to the prevailing curative culture of the hospital system, many GOC discussions commence in the ICU, underscoring the need for future research to evaluate these interventions' impact on patient and family members/SDMs outcomes on a larger scale (Curtis et al., 2023; Dzeng et al., 2023).

Limitations

The small number of included studies underscores the challenges inherent in conducting thorough research in this specialized field. The paucity of studies (N=5) can primarily be attributed to a few key factors: the conflation between GOC and end-of-life care, the limited number of studies specifically set in the ICU context, and a general lack of focus on the effectiveness of interventions in this area.

Another limitation of the review was the heterogeneity of the included studies. They varied significantly in their target populations, evaluated interventions, and objectives. This diversity precluded the use of meta-analysis and necessitated a narrative summary, which has its own limitations (Munn et al., 2014). For instance, narrative synthesis does not account for effect size, meaning the magnitude of the results was not considered (Campbell et al., 2019; Munn et al., 2014). Additionally, all studies were given equal weight regardless of their quality or relevance, and findings were presented using a narrative approach rather than quantitative analysis (Campbell et al., 2019).

The review's language limitations to French and English might have excluded relevant interventions. Further, we completed the quality appraisal using JBI checklists available at the time of extraction. JBI has since updated their RCT checklist (Baker et al., 2023). As the quality appraisal was completed before March 2023, it was decided to keep the archived version for this systematic review (Aromataris & Munn, 2020). Acknowledging these limitations is vital as they shape the current understanding of research about GOC discussions in ICUs and highlight areas where future research is needed to address these gaps.

Future research

This systematic review marks a significant step forward in enhancing GOC discussions. However, it also highlights critical areas needing further development. A primary focus could be on developing a standardized method for assessing the quality of GOC discussions, including establishing definitive outcome measures for patient well-being, satisfaction, and care quality, while also considering HCPs' experiences in conducting and participating in these discussions. Additionally, there is a need to evaluate the impact of different interventions on patient outcomes. The latter could involve comparative studies of GOC discussions led by HCPs trained

in communication skills versus those who are not. Exploring the effectiveness of interventions that support family and SDMs and their role in enhancing decision-making processes is also vital. Another critical but under-researched area is determining the optimal timing for initiating GOC discussions in ICUs. Understanding the effects of initiating these discussions early versus late is essential to improve their effectiveness and impact on patient care and outcomes.

Conclusion

This review underscores the complex nature of GOC discussion themes and the need for multifaceted interventions to enhance GOC discussions in ICUs. It highlights the necessity of a dual focus on supporting both HCPs and SDMs to foster comprehensive, effective, and empathetic communication. As we advance in this field, it is imperative to consider the broader implications of these findings. Enhancing GOC discussions is not just about improving communication skills; it's about fostering a culture of empathy, respect, and shared decision-making in some of the most challenging healthcare environments. Therefore, our review serves as a call to action for researchers, practitioners, and policymakers to prioritize and invest in interventions that can profoundly impact patient care and family experiences in ICUs.

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Chapter 4: Integrated Discussion and Conclusion

In this concluding chapter, I discuss the findings from my systematic review (heretofore referred as "the review"). This discussion focuses on understanding how these findings can be applied in nursing practice, research, and education. I also reflect on the limitations of the review and share personal insights regarding my growth as a novice researcher throughout this thesis study. Lastly, I provide an assessment of the contribution of this review to the wider discourse on communication about serious illness and GOC, as well as evaluate the current state of science, suggest directions for future research, and provide a conclusion.

Revisiting the definition of GOC

The definition of GOC introduced in Chapter 1 is based on the systematic review by Secunda et al. (2020) and the concept clarification by Stanek (2017). GOC refers to specific, documented, health objectives that are tailored to individual patients. These goals emerge from collaborative discussions involving patients, their families/SDMs, and the ICU healthcare team. They align with the patient's core values and priorities and are recorded in medical records. These GOC guide the medical decision-making process in the ICU, influencing decisions about life-sustaining treatments, transition to palliative care and end-of-life, as well as other interventions. This definition was pivotal to successfully completing this review – guiding every stage of the review; from framing the research question to abstract screening, data extraction, through to analyzing intervention outcomes.

Of the five articles that met inclusion for the review, only three provided operational definitions of GOC (Milic et al., 2015; Suen et al., 2021;Yuen et al., 2013), the others assumed GOC to be a well-defined concept, foregoing an explicit definition (Fettig et al., 2022; Wessman et al., 2017). This underscores a significant challenge in GOC research: its complexity often

leads researchers to take its definition for granted, resulting in ambiguity and confusion (Secunda et al., 2020; Stanek, 2017; Turnbull & Hartog, 2017). Articles that defined GOC, even when aligned with our definition, exhibit variations such as the purpose of the meeting. Suen et al. (2021) described the purpose of GOC meetings/discussions as providing a prognosis and then discussing options based on patient preferences. Conversely, Milic et al. (2015) and Yuen et al. (2013) defined GOC discussions as focusing on providing care consistent with the wishes of the patient and their families, explicitly omitting discussions about prognosis. This discrepancy might be attributed to the specific ICU contexts addressed in the articles. The variation in definitions across the selected articles, coupled with two articles that did not define GOC, created heterogeneity that complicated the overall assessment of the interventions' ability to improve GOC discussions (See Table 7) (Milic et al., 2015; Suen et al., 2021; Yuen et al. 2013).

Table 7

GOC Definitions

Author and Title	**Operational definition of GOC**
Millic et al. (2015) Communicating with Patients' Families and Physicians About Prognosis and Goals of Care	Providing care that is consistent with the goals and values of a patient and the patient's family
Suen et al. (2021) A Pilot Randomized Trial of an Interactive Web-based Tool to Support Surrogate Decision Makers in the Intensive Care Unit	A discussion between a physician and surrogate regarding prognosis and treatment option informed by the patient values and care preferences
Yuen et al. (2013) A Brief Educational Intervention To Teach Residents Shared Decision Making in the Intensive Care Unit	Obtain an understanding of the patient's and family's perspectives, values, and goals to ensure treatment decisions are congruent with the patient's care preferences.

Summary of Findings

This systematic review examined interventions aimed at improving GOC discussions in the adult ICU context. From the five articles reviewed, I identified two main categories of interventions during extraction: interventions supporting HCPs and interventions supporting SDMs. Four of the reported articles fall into the first category, interventions supporting HCPs (Fettig et al., 2022; Milic et al., 2015; Wessman et al., 2017; Yuen et al., 2013), while one article fits into a second category: interventions supporting SDMs (Suen et al., 2021). The four articles focus on improving HCP's GOC discussion focused on (1) improving individual communication skills and confidence, (2) fostering team-based communication skills, and (3) creating a supportive environment (Fettig et al., 2022; Milic et al., 2015; Wessman et al., 2017; Yuen et al., 2013).

One of the barriers to GOC discussions reported in the reviewed articles is that HCPs lack confidence and competence in GOC discussions (Fettig et al., 2022; Milic et al., 2015; Peereboom & Coyle, 2012; Strachan et al., 2018; Wessman et al. 2017; Yuen et al., 2013). In this review, four of the reported articles had interventions targeted at supporting HCPs in GOC discussions focused on communication skills enhancement, using a curriculum that incorporated didactic learning, simulation and role play, as well as brief sessions and reflective practice (Fettig et al., 2022; Milic et al., 2015; Yuen et al., 2013). Focusing on improving communication skills as an intervention was reported as effective in increasing HCPs' confidence and competence in GOC discussions (Fettig et al., 2022; Milic et al., 2015; Yuen et al., 2013). Wessman et al. (2017) and Fettig et al. (2022) focused on team-based communication skills and role clarity. These findings underscore how critical care involves complex multidisciplinary collaboration, necessitating an interdisciplinary approach to improving GOC discussions. Role clarity was

deemed essential for ensuring each team member operates within their scope and strengthening respect for each unique professional contribution, thereby collectively enhancing interprofessional collaboration (Fettig et al., 2022). Quantitative findings reported increased confidence and competence in GOC communication among physicians (Yuen et al., 2013) and nurses (Milic et al., 2015), as well as improved relational coordination and collaboration within teams (Fettig et al. (2022). Wessman et al. (2017) further demonstrated the importance of a supportive culture for GOC/end-of-life care in ICU to reduce HCP burnout and enhance end-of-life knowledge.

The single intervention focused on supporting SDMs, was deemed effective by the SDM participants in the intervention group citing its impact in terms of orienting them to the ICU environment, understanding the patient's medical prognosis, as well as assisting in understanding patient care preferences and communicating these to the healthcare team (Suen et al., 2021). There was also an increase in the quality of communication between the healthcare team and SDMs (Suen et al., 2021).

These findings represent a positive step towards improving GOC discussions, but significant gaps remain in demonstrating whether these interventions improve the quantity and quality of GOC discussions in the ICU context.

Considerations Specific to Nursing Practice

Regarding nursing practice, this review highlights how improving GOC discussions requires a strong emphasis on communication as a quality indicator in the ICU (Cummings et al., 2017). To improve GOC discussions, multidisciplinary collaboration must be strengthened through role clarity and relational coordination as well as a cultural shift in the ICU. To improve GOC discussions, multidisciplinary collaboration must be strengthened

through role clarity and relational coordination as well as a cultural shift in the ICU to concurrently include restorative care and palliative care (Pornrattanakavee et al., 2022; Udelsman et al., 2019).

Communication as a Quality Indicator

The primary focus for both types of interventions (HCPs and SDMs) was to improve communication. These interventions focused either on strengthening individual and team-based communication skills or improving communication by building a tool to support SDMs during GOC discussions (Fettig et al., 2022; Milic et al., 2015; Suen et al., 2021; Wessman et al., 2017; Yuen et al., 2013). At a systems level, enhancing GOC discussions in nursing practice requires organizational and regulatory recognition for communication as a quality indicator in the ICU, with established metrics that are consistently audited to ensure quality care.

Nurse-sensitive indicators in the ICU are nosocomial infections, pressure ulcers, falls, medication errors, restraint, as well as family and patient satisfaction outcomes (Afaneh et al., 2021; Montalvo, 2007). These quality indicators are deemed crucial due to their potential for negative patient outcomes (Oner et al., 2021). However, while communication is seldom recognized as a standalone quality indicator (potentially because of the challenges in measurement and associated costs), it is associated with family and patient satisfaction outcomes (Oner et al., 2021). Effective and high quality communication remains a fundamental aspect of ICU nursing practice and warrants prioritization to surmount barriers in conducting quality GOC discussions (Alexander, 2021; Bernacki & Block, 2014). As mentioned, communication is usually addressed within the context of patient and family satisfaction or other subsections of QI documents or clinical standards by scientific critical care societies and national quality organizations, for example, the National Quality Forum (Montalvo, 2007), the American Association of Critical-Care Nurses (2019), and the Canadian Nursing Critical Care Association (2017). Advocating for communication to be labelled as a quality indicator would lead to the

standardization of communication skills evaluations, with established metrics that can be assessed and improved at the professional, unit, and organizational levels, akin to other clinical practices such as patient turning or sterile technique (Downar et al., 2017; Fawole et al., 2013; Scheunemann et al., 2019).

Team-based Communication and Collaboration

Fettig et al. (2022) and Wessman et al. (2017) have highlighted that interdisciplinary collaboration and effective communication are essential for establishing GOC that support the best possible care plans for ICU patients. Although primarily reported in just two articles, these findings suggest a broader application to nursing and healthcare team practices in the ICU. Enhanced interprofessional collaboration achieved through relational coordination, team-based training, and the development of multidisciplinary guidelines and protocols, have been shown to improve patient and staff outcomes in the ICU setting (Rose, 2011; Verd-Aulí et al., 2021; Xyrichis & Rose, 2024). Interventions in the ICU that focus on establishing clear standards help ensure that each team member understands their role, thus reducing confusion and conflict (House et al., 2023). Interventions aimed at fostering team-based communication and conflict resolution strategies can improve interprofessional dialogue and collaborative practice, thereby benefiting both healthcare providers and patients and families (Curtis et al., 2012).

When comparing the findings of my review to those reported in the current literature we see that nurses, who are constants in the ICU, play a vital role in GOC discussions (Au et al., 2019; Bernal et al., 2023). However, for their contributions to be recognized and solidified amongst the healthcare team, role clarity is crucial (Adams et al., 2017). This can be achieved by incorporating interdisciplinary educational interventions, such as team-based simulations, and by utilizing clear guidelines and templates for GOC discussions (Bernal et al., 2023; Curtis et al.,

2012). These strategies are pivotal in identifying, clarifying, and supporting patients' goals of care (Bernal et al., 2023).

Supportive Culture

The article by Suen et al. (2021) aimed to support SDMs when patients are admitted to the ICU. They found that a program designed to orient SDMs to the ICU combined with early GOC discussions, was effective in improving the quality of communication. This supports the finding reported by Wessman et al. (2017) that creating a supportive environment in the ICU improves GOC communication between HCPs and patients, families and SDMs. Wessman et al. (2017) demonstrated that their planned intervention successfully reduced work stress and enhanced knowledge of GOC and end-of-life care. These findings suggest that for nursing practice, developing a culture within the ICU that supports GOC discussions is crucial. This enables HCPs to provide care that balances life-sustaining treatments with supportive care, guided by the patient's wishes, through interventions like early GOC discussions, communication tools for providers, patient–family pamphlets, and formalized educational sessions (Effendy et al., 2022; Nelson, 2006).

Early GOC discussions facilitate comprehensive conversations with patients and their families, aiming to create a person-centered care plan, ensuring symptom management and patient comfort alongside life-sustaining treatment. (Buchman et al., 2002; Hua et al., 2014; Nelson et al., 2010; Wysham et al., 2016) Implementing dedicated roles for registered or Advanced Practice Nurses as family navigators, as piloted in the study by Torke et al. (2016), would offer enhanced support and continuity for families navigating the distress, trauma and disorientation associated with critical care admission.

Considerations Specific to Nursing Research

My review of nursing research highlights interventions that have effectively enhanced HCPs' confidence and competence in discussions about GOC and supporting SDMs. However, these interventions did not conclusively demonstrate an impact on the quantity and/or quality of GOC discussions (Fettig et al., 2022; Milic et al., 2015a; Suen et al., 2021; Wessman et al., 2017; Yuen et al., 2013). It is important to understand if interventions improve the quantity and quality of GOC discussions, then these interventions can be standardized and incorporated into a framework that can be utilized throughout ICUs to improve GOC discussions. This indicates a need for nursing research to focus on evaluating whether interventions can increase both the quantity and quality of GOC discussions in ICUs.

To assess the quantity of GOC discussions, researchers could formulate questions aimed at determining if these GOC interventions lead to an increase in the documentation related to GOC discussions in patient's medical records (Orford et al., 2019; Penrod et al., 2011). Prior research in acute, end-of-life, and palliative care proved effective in increasing the quantity of GOC discussions documented in the patient chart post-intervention (Curtis et al., 2018, 2022; Lee et al., 2023; Voelandes et al., 2023). For instance, the Jumpstart Tips intervention, developed at the University of Washington, proved effective by increasing the number of documented GOC discussions in patient charts, highlighting the importance of implementing interventions in real patient scenarios to observe their impact on discussion frequency (Curtis et al., 2022).

Regarding the quality of GOC discussions, defining high-quality discussions remains challenging (Klement & Marks, 2020). Since 2006, the Quality of Communication questionnaire has been a validated tool to assess the quality of end-of-life communication (Engelberg et al., 2006). It has been used as an outcome measure for interventions aimed at improving end-of-life

care in the ICU, including those involving GOC discussions (Curtis et al., 2022). However, it would require modification and validation to target GOC discussions not solely based in the end-of-life context. Other outcome measures, such as the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) and the Impact of Event Scale-Revised (Beck et al., 2008) have proven unreliable due to the destabilizing nature of ICU admissions and the likelihood that patient/family anxiety, depression, decisional conflict, and stress will be significantly elevated (Cox et al., 2019; Curtis et al., 2022; Muehlschlegel et al., 2022; Suen et al., 2021). Curtis et al.'s (2018) randomized controlled trial on the effect of a patient and clinician communication-priming intervention, introduced a measure to evaluate if this sole intervention improved goal-concordant care, asking patients two questions based on the SUPPORT trial, "the first question defines patient preferences for either extending life or ensuring comfort […] The second question assesses patients' perceptions of their current treatment with the same choices" (Curtis et al., 2018, p. 929). These efforts support the ongoing endeavours to measure quality in acute/critical care settings and emphasize the necessity for a validated tool to assess the overall quality of GOC discussions and adapt it to specific healthcare context (Cooper et al., 2016; Kaldjian, 2020).

Beyond developing and validating a quality metric for GOC discussions, another focus to improve GOC discussions is to develop communication guidelines and protocols to outline the necessary components for high-quality GOC discussions. Guidelines proposing the ideal content of discussions on CPR and GOC in acute care, such as research by Downar and Hawryluck (2010), and curricula such as VitalTalk (2023) and the Serious Illness Communication Guide by Ariadne Labs (2023), suggest the need to test these guidelines in real patient situations to accurately assess their effectiveness in improving GOC discussion quality.

During data extraction of intervention characteristics, we did not come across any information about the timing of GOC discussions. This is an important gap in knowledge since understanding the effects of early versus late initiation of these discussions is crucial to enhancing their overall effectiveness and impact on patient care and outcomes (Comer et al., 2020; Scheunemann et al., 2011). These areas for future research are critical for significant improvements in GOC discussions, ensuring goal-concordant care, and reducing human suffering.

Considerations Specific to Nursing Education

The review underscores the importance of educational interventions to enhance HCPs skills and confidence in GOC discussions, as well as the ability to orient families and SDMs to the ICU environment, supporting them through conversations about serious illnesses (Suen et al., 2021). These findings have significant implications for nursing education and continuing professional development (Milic et al., 2015). Implementing GOC discussion skills is fundamental to critical care nursing. Early integration of this training within nursing curricula can increase novice critical care nurses' knowledge, confidence, and self-efficacy (Adams et al., 2017).

In recent years, there has been an increased focus on examining the factors contributing to nurses leaving the ICU, particularly novice nurses (Alexander et al., 2021, Baudoin et al. 2022). Although the literature acknowledges that the advanced knowledge and skill set required in ICU nursing plays a role in nurse turnover, a significant portion of attrition can be attributed to burnout and angst (Alexander et al., 2021; Baudoin et al., 2022). The latter stems, in part, from the lack of experience with discussions on GOC, as well as insufficient support in handling the outcomes of these discussions and effectively supporting both the family and the patient through

these decisions.(Andersson et al., 2023; Brewer et al., 2012; McAndrew et al., 2018; Moss et al., 2016). To better prepare novice critical care nurses, it is crucial to implement educational interventions aimed at enhancing their confidence and competence in supporting patients and family members around discussions about GOC. These interventions should be integrated into the orientation process alongside other critical care topics. Furthermore, beyond the initial orientation, establishing a robust mentorship program for novice critical care nurses is important (Alexander et al., 2021). Such programs offer continuous support, helping them develop competency in GOC discussions. This, in turn, improves their ability to deliver care that is centered on the needs and preferences of the patient and their family (Baudoin et al., 2022; Wallace et al., 2009). In the absence of continuous support for developing and maintaining adequate communication techniques, nurses' sense of competence and confidence in assessing patients' and family/SDMs understanding of GOC and advocating for these conversations is diminished (Anderson et al., 2017; Browning, 2013; Milic et al., 2015).

Additionally, continuing education opportunities should be provided to strengthen the ability for mid- and late-career nurses to identify and advocate for GOC discussions within the interdisciplinary team (Cummings et al., 2017; Shorter & Stayt, 2010). For more seasoned nurses, continuing education in communication is important and should be considered akin to other advanced critical care skills (Scheunemann et al., 2011; Strachan et al., 2018). The depth and involvement in GOC discussions could increase with experience. As nurses develop expert knowledge and skill in their roles, they could be tasked with more challenging GOC situations, including those where cultural differences, disagreements between the team and SDMs/families, or tension within the SDM/family group are evident (Adams et al., 2017). As the role of the Advanced Practice Nurse expands in the ICU, they can significantly contribute to facilitating and

improving GOC discussions including developing robust programs for GOC improvement, including formulating policies, procedures, and standards (Torke et al., 2017). Additionally, they can serve as a key point of contact for families, providing mentorship and ensuring that nursing meetings are scheduled and executed within the correct timeframe and with the appropriate level of expertise (Torke et al., 2016). Sustained practice necessitates ongoing education with scheduled training and refreshers that incorporate high-fidelity simulation labs with more complex patient scenarios (Alinier & Platt, 2014). This approach offers the opportunity to learn and practice skills in a realistic setting, potentially enhancing self-confidence and fostering a sense of mastery within the nursing group, and facilitating involvement in interdisciplinary simulations (Downar et al., 2017; Fettig et al., 2022).

Whether in practice, research, or education, the key takeaway is that GOC discussions require the same level of attention as any other aspect of nursing care in the ICU. When communication skills and GOC discussions are treated with the same importance as hemodynamic monitoring, and when communication skills are strengthened through education, best practice guidelines, and multidisciplinary quality improvement, this results in more collaborative GOC discussions, leading to improved patient and family outcomes (AACN, 2019; Alexander, 2021; Bernal et al., 2023) .

Overall State of the Science

While prior discussions have focused on the benefits of interventions to improve GOC discussions in the ICU, the scope of effective communication surrounding serious illnesses extends far beyond these critical settings. In this section, we shift our focus to broader applications that encompass patient and family-centered care and strategies for conducting GOC discussions earlier in the patient clinical trajectory. By integrating patient and family-centered

care guidelines and promoting upstream conversations, HCPs can foster a more holistic and empathetic approach to patient care. This shift emphasizes the importance of engaging with patients and families proactively to establish clear care preferences and, ultimately, make well-informed decisions regarding critical interventions. Through these efforts, we aim to reduce patient suffering, increase patient and family satisfaction, and standardize the process of GOC discussions within acute care settings.

Incorporating Family-Centered Care Guidelines to Improve GOC Discussions

Throughout this thesis, discussions on GOC have been defined as patient-centered care preferences, articulated by the patient themselves or their family to the healthcare team. It can thus be inferred that GOC is a crucial component of family-centered care in ICU. Despite this, literature often does not clearly connect the two concepts (Davidson et al., 2017). Applying the family-centered care guidelines proposed by Davidson et al. (2017) specifically within the context of GOC discussions could significantly reduce the time required to develop comprehensive guidelines. Using the recommendation of the guidelines could expedite the implementation and evaluation of certain recommendations related to family support, including the use of validated decision support tools (Muehlschlegel et al. 2022; Suen et al. 2021), and the adoption of serious illness communication strategies, such as the "VALUE" mnemonic, to enhance GOC discussions (Curtis & White, 2008).

Additionally, the family-centred care guidelines recommend practices for communicating with family members, such as conducting routine interdisciplinary family meetings, with the first meeting occurring within 72 hours of ICU admission, and incorporating communication training into the critical care HCP curriculum (Davidson et al., 2017; Downar et al.,2019; Fettig et al. 2022). While some of these recommendations have already been evaluated in GOC

interventions, predominantly in contexts outside the ICU (Curtis et al., 2016, 2022), they are also applicable within the ICU setting, as evidenced by interventions in the articles reviewed. However, as highlighted in previous chapters, research on GOC interventions often exhibits heterogeneity in terms of clinical context, target population, and the problem addressed. Perhaps it is time to leverage guidelines akin to those for family-centered care to create more consistency and standardization in GOC discussions.

Conducting GOC discussions earlier in the patient clinical trajectory.

The literature surrounding serious illness communication stresses the importance of initiating GOC discussions and advance directives upstream, which helps to frame subsequent conversations around life-sustaining interventions based on established patient values and care preferences and guide critical decisions upon ICU admission (Downar et al., 2019; Emiloju et al., 2020; Gieniusz et al., 2018; Peereboom & Coyle, 2012; You et al., 2014, 2015). With improved patient outcomes linked to earlier care decisions, researchers have conducted numerous studies to evaluate interventions aimed at improving GOC discussions with seriously ill patients before ICU admission, including in inpatient wards, emergency rooms, and notably, outpatient settings (Curtis et al., 2022; Downar & Hawryluck, 2010; Dzeng et al., 2023; Roze des Ordons et al., 2015; Sinuff et al., 2015; Strachan et al., 2018; You et al., 2014). Overcoming the barrier to high-quality outpatient GOC discussions, especially with patients suffering from conditions like oncology and heart failure, would lead to a decrease in unwanted treatments and patient suffering (Doorenbos et al., 2016; Ethier et al., 2018; Zanolli et al., 2022).

Limitations

Although this systematic review was carried out using a rigorous and transparent approach, it is important to acknowledge certain limitations. Firstly, most research on GOC

centers on end-of-life care (Berlin, 2017). The late Dr. J. Randal Curtis (2018, 2022, 2023), has significantly contributed to the body of knowledge surrounding decision-making, and the culture surrounding end-of-life care in ICUs, revealing a considerable overlap with GOC discussions. However, this overlap also underscores a major challenge in this field. Although end-of-life care decisions often involve GOC discussions, the reverse is only sometimes true, indicating a research gap in examining GOC interventions as an independent topic, separate from end-of-life care (Secunda et al., 2020; Stanek, 2017).

Secondly, the limited number of included articles is due in part to the specific ICU context and the larger context of clinical practice. Despite being specific to the ICU setting, the articles included in the review did not address how the uniqueness of ICU environment influences GOC discussions. Due to the nature of critical illness trajectories, GOC discussions might occur for the first time in the ICU under stressful conditions that are high-stakes and emotionally charged (Schroeder et al., 2021; You et al., 2015). This results in first-time GOC conversations occurring under highly stressful and, thus, suboptimal conditions reflect a significant oversight in the literature (Berlin, 2017; Cooper et al., 2016). Further to the limitation of the specific ICU context, the review was limited with the focus on only adult populations, excluding both pediatric and neonatal populations which have potentially novel interventions to be reviewed (Guttmann et al., 2021; McSherry et al., 2023). To be considered, however, is the additional specialized practice in both the pediatric and neonatal environments that may not be transferable or generalizable to the adult context.

Two articles selected for extraction after the full-text review were removed before the extraction process because their results did not answer the review's questions. First, the article by Muehlschlegel et al. (2022) did not evaluate the effectiveness of the decision aid. Even though

the article was well-structured, and the decision tool to support SDMs during GOC discussions in the neuro-ICU was deemed feasible, acceptable, and usable, and received positive feedback from SDMs, it was eliminated because it did not measure effectiveness. The second article, by Torke et al. (2017), assessed the effectiveness of a family navigator to support SDM in the ICU; however, the outcome measured the overall effectiveness of the family navigator throughout the entire ICU stay, rather than focusing on the effectiveness of the intervention in improving GOC discussions. This could have been avoided by ensuring that the results section of the article answered the review questions, rather than basing the decision to include the article solely on the outcomes presented at the beginning of the article.

Another limitation, although not specific to the design of the review, was the quality of statistical analysis used in some of the included articles. The randomized control trial by Suen et al. (2021) and the quasi-experimental study by Wessman et al. (2017). Both studies reported *p*-values but did not specify to readers what *p*-value was considered significant. In Wessman et al. (2017), it was reported that a chi-squared test was used, but the results were not presented. They also did not clarify why both the *t*-test and ANOVA were used. In another article, Yuen et al. (2013) indicate that all resident comfort level ratings improved significantly ($p > 0.05$) for all ICU communication skills assessed, and the overall comfort score was significant at $p > 0.004$. However, these findings were not included in the article's results tables. Despite the limitations in the statistical testing present within these studies, the overall quality appraisal for these two both articles ranged from low- to high-moderate. As previously stated, the reviewers did not dismiss studies based on quality due to the limited number of study results in this review. Instead, they synthesized data from all studies that met the inclusion and extraction criteria.

Another limitation was the lack of meta-analysis due to heterogeneous findings, which led me to use a narrative summary instead. Meta-analysis would have provided more robust results and improved the quality of the review, but I found it challenging to standardize complex health care issues (Imrey, 2020; Owens, 2021). This highlighted the difficulties in conducting a systematic review where the nature of the data and findings can be unpredictable, causing the methodology to shift along the way (Imrey, 2020; Owens, 2021).

Reflective Statement

Reflecting on my thesis, which represents 2.5 years of dedicated work, I am drawn back to the beginning—my admission essay. In it, I expressed a desire to pursue graduate studies specifically to learn how to transform my bedside experiences into meaningful research questions. These questions aim to enhance care and outcomes for patients, families, and clinicians alike. As a mid-career critical care nurse, my work at the bedside exposed me to numerous practice issues. Among these, the most prevalent and distressing was the conflict surrounding whether due to addressing GOC too late, conflicts over the decision to maintain current care or transition to another phase, or disputes among families. I noticed that each team member had a unique definition of GOC and opinions on how to best conduct these discussions and who should be involved. This observation led me to believe there was ample scope for relevant research in my area of practice.

Through coursework, I was able to refine my research interest in GOC discussions, developing a background, formulating research questions, and identifying the most suitable research methods to turn my interest into actionable research. I opted for a systematic review to assess the state of science regarding GOC discussions, aiming to inform future research that is both actionable and impactful. Initially, my research question was broad, encompassing a

systematic review of all barriers and facilitators of GOC discussions in the ICU. However, as a novice researcher, I realized the original scope was too ambitious for a master's program. Thus, I narrowed my focus, which led to a significant learning curve in the review process.

I learned invaluable lessons about time management, the importance of critically reviewing research, engaging in critical discourse, developing my own voice as a researcher, and understanding my own ontological and epistemological stances. The most crucial lesson was that methods form the foundation of research. Previously, I often relied on research abstracts and discussions to support my essays, neglecting the methods section. This review forced me to focus on methodology, ensuring that even if an article seemed interesting, it had to be relevant to my research question. Initially, I was disappointed by the small number of articles I extracted, but this process taught me that research must be method-driven to yield accurate results that can influence practice change.

As a novice, I underestimated the workload involved in a systematic review and the impossibility of perfection. However, adhering to methodology ensures accurate reporting of results that can drive change and future research. This research journey has not only allowed me to grow as a researcher but also as a bedside nurse, enhancing my advocacy for GOC discussions, making me more critical of current practices, and encouraging me to fearlessly question them. Despite the challenges, this rigorous discipline has strengthened my scholarship in practice.

Conclusion

As medical innovation continues to enhance life-sustaining treatment options, the complexity of medical decision-making has also increased, highlighting the importance of GOC discussions in the ICU (Chatterjee et al., 2022; Kaldjian, 2020). This review aimed to identify

interventions that improve GOC discussions in ICUs, revealing that effective communication HCP and patients, along with their families, is paramount to align medical decisions with patient values and goals. Our findings emphasize that improving GOC discussions necessitates focusing on enhancing HCPs' communication skills and supporting SDMs during these discussion (Fettig et al., 2022; Milic et al., 2015; Suen et al., 2021; Wessman et al., 2017; Yuen et al., 2013)

This review underscores the need for multifaceted interventions to bolster GOC discussions in ICUs. It calls for a dual approach that supports both HCPs and SDMs in fostering comprehensive, effective, and empathetic communication (Suen et al., 2021; Wessman et al., 2017). Advancements in this field must consider the wider implications of these findings, recognizing that enhancing GOC discussions transcends mere communication skill improvement. It involves cultivating a culture of empathy, respect, and shared decision-making in challenging healthcare environments (Baggs et al., 2007; Dzeng et al., 2023).

Furthermore, this systematic review identifies critical areas for further research. A key recommendation is the development of a standardized method for assessing GOC discussion quality, including outcomes for patient well-being, satisfaction, and care quality (Bernal et al., 2023; Curtis et al., 2022). There is also a need to evaluate the impact of early discussion happening upstream previous to ICU admission (Deptola & Riggs, 2019; Downar et al., 2019; Gieniusz et al., 2018), as well as interventions that utilize registered nurses and Advance Practice Nurses to support families and SDMs, who are making decisions in high-stakes environment (Curtis et al., 2016; Shelton et al., 2010; A. M. Torke et al., 2016).

In conclusion, our review serves as a call to action for researchers, practitioners, and policymakers to prioritize and invest in interventions that significantly enhance patient care and family experiences in ICUs. By addressing these critical areas, we can ensure that GOC

discussions are more effective, empathetic, and aligned with patient and family preferences, ultimately improving the quality of care in intensive care settings.

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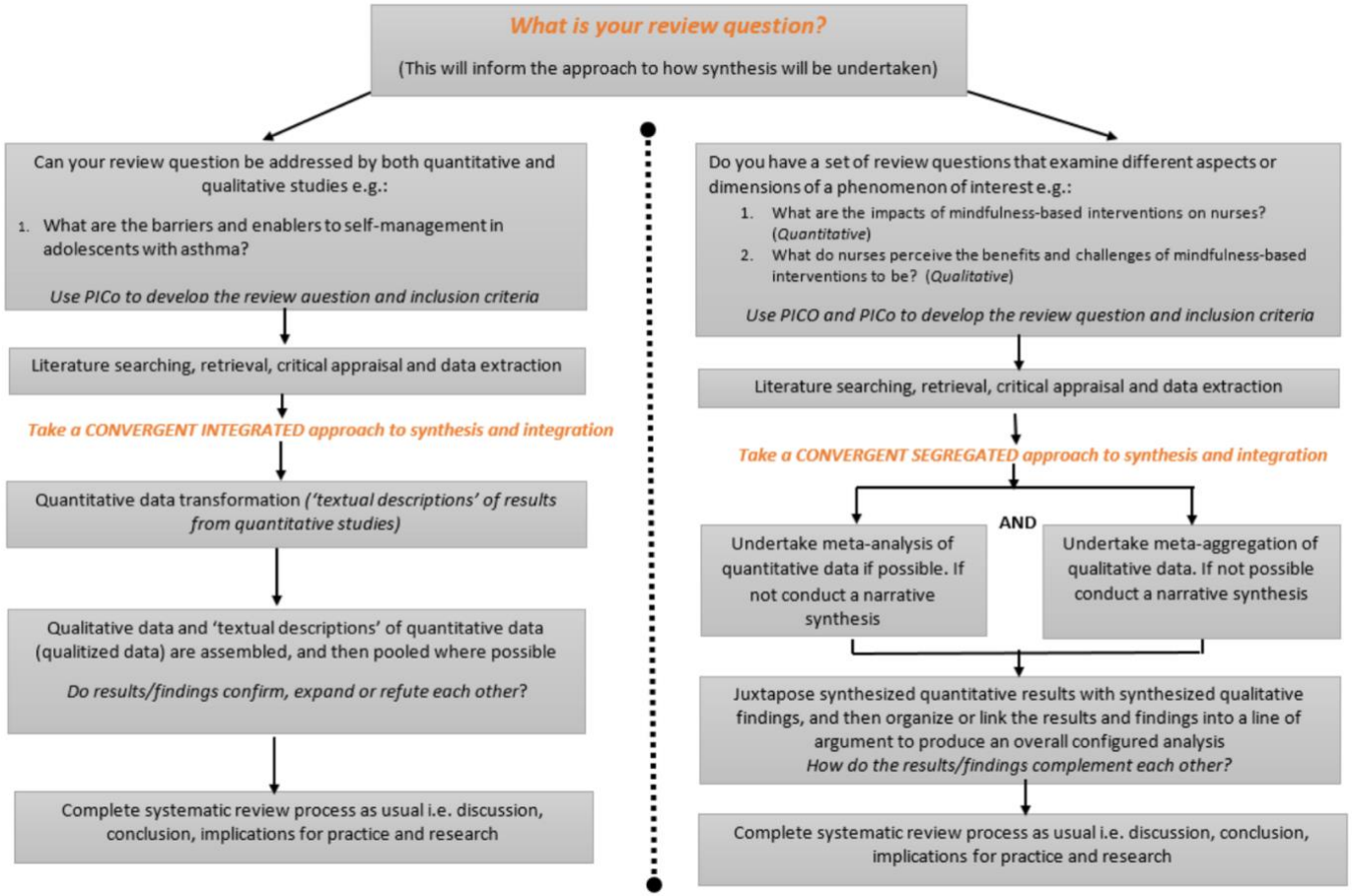
Appendix A: JBI Approach for Mixed Methods Systematic Reviews



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Appendix B: Additional Search Strategies

Search 1 : Embase

Database: Embase Classic+Embase <1947 to 2022 August 19>

Search Strategy:

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care unit/ or burn unit/ or exp coronary care unit/ or medical intensive care unit/ or neurological intensive care unit/ or stroke unit/ or exp surgical intensive care unit/ (232116)

2 (icu or "intensive care unit*" or "critical care" or "intensive treatment*").ab,ti. (331104)

3 neonatal intensive care unit/ or pediatric intensive care unit/ (28629)

4 (1 or 2) not 3 (392285)

5 "goals of care".ab,ti. (5024)

6 advance care planning/ (5055)

7 ("advance care directive*" or dnr or "do not resuscitate" or "advanced care plan*" or "resuscitation order*").ab,ti. (8283)

8 exp terminal care/ (80494)

9 ("end of life" or EOL).ab,ti. (40781)

10 or/5-9 (105954)

11 4 and 10 (8192)

12 decision making/ or exp clinical decision making/ or ethical decision making/ or family decision making/ or exp medical decision making/ or patient decision making/ or shared decision making/ (438447)

13 interpersonal communication/ or exp communication barrier/ or communication skill/ or exp verbal communication/ (570382)

14 professional-patient relationship/ or doctor patient relationship/ or nurse patient relationship/ (53744)

15 (discuss* or conversation* or talk or communicat*).ab,ti. (2886653)

16 or/12-15 (3641826)

17 11 and 16 (4423)

18 limit 17 to ((english or french) and yr="2012 -Current") (3047)

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Search 2 : CINAHL

EBSCOhost

Monday, August 22, 2022 6:09:19 PM

#	Query	Limiters/Expanders	Last Run Via	Results
S18	S12 AND S17	Limiters - Published Date: 20120101-20221231; Language: English, French Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	1,299
S17	S13 OR S14 OR S15 OR S16	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	1,064,424
S16	(AB (discuss* or conversation* or talk or communicat*)) OR (TI (discuss* or conversation* or talk or communicat*))	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	709,066
S15	(MH "Professional-Patient Relations") OR (MH "Nurse-Patient Relations") OR (MH "Physician-Patient Relations")	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	98,469
S14	(MH "Communication+")	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	314,458

S13	(MH "Decision Making") OR (MH "Decision	Expanders - Apply related words; Apply	Interface - EBSCOhost Research Databases	116,549

	Making, Clinical+") OR (MH "Decision Making, Family") OR (MH "Decision Making, Patient+") OR (MH "Decision Making, Shared") OR (MH "Dissent and Disputes+")	equivalent subjects Search modes - Boolean/Phrase	Search Screen - Advanced Search Database - CINAHL	
S12	S4 AND S11	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	4,129
S11	S5 OR S6 OR S7 OR S8 OR S9 OR S10	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	80,999
S10	(AB ("end of life" or EOL)) OR (TI ("end of life" or EOL))	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	23,461
S9	(MH "Terminal Care+")	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	71,501
S8	(AB ("advance care directive*" or dnr or "do not resuscitate" or "advanced care plan*" or "resuscitation order*")) OR (TI ("advance care directive*" or dnr or "do not resuscitate" or "advanced care plan*" or "resuscitation order*"))	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	2,623

S7	(MH "Resuscitation Orders")	Expanders - Apply related words; Apply	Interface - EBSCOhost Research Databases	3,257

		equivalent subjects Search modes - Boolean/Phrase	Search Screen - Advanced Search Database - CINAHL	
S6	(MH "Advance Care Planning")	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	4,632
S5	AB ("goals of care") OR TI ("goals of care")	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	1,688
S4	(S1 OR S2) NOT S3	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	103,717
S3	(MH "Intensive Care Units, Neonatal") OR (MH "Intensive Care Units, Pediatric")	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	21,866
S2	(AB (icu or "intensive care unit*" or "critical care" or "intensive treatment*")) OR (TI (icu or "intensive care unit*" or "critical care" or "intensive treatment*"))	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	99,596
S1	(MH "Intensive Care Units") OR (MH "Coronary Care Units") OR (MH "Post Anesthesia Care Units") OR (MH "Respiratory Care Units") OR (MH "Stroke Units") OR (MH "Burn Units")	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	48,351

Appendix C: Quality Appraisal Checklist– Randomized Control Trial

JBI CRITICAL APPRAISAL CHECKLIST FOR RANDOMIZED CONTROLLED TRIALS

Reviewer_____Date_____

Author_____ Year_____ Record Number_____

		Yes	No	Unclear	NA
1.	Was true randomization used for assignment of participants to treatment groups?	☐	☐	☐	☐
2.	Was allocation to treatment groups concealed?	☐	☐	☐	☐
3.	Were treatment groups similar at the baseline?	☐	☐	☐	☐
4.	Were participants blind to treatment assignment?	☐	☐	☐	☐
5.	Were those delivering treatment blind to treatment assignment?	☐	☐	☐	☐
6.	Were outcomes assessors blind to treatment assignment?	☐	☐	☐	☐
7.	Were treatment groups treated identically other than the intervention of interest?	☐	☐	☐	☐
8.	Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	☐	☐	☐	☐
9.	Were participants analyzed in the groups to which they were randomized?	☐	☐	☐	☐
10.	Were outcomes measured in the same way for treatment groups?	☐	☐	☐	☐
11.	Were outcomes measured in a reliable way?	☐	☐	☐	☐
12.	Was appropriate statistical analysis used?	☐	☐	☐	☐
13.	Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

Aromataris E, M. Z. (2020). Chapter 1: JBI Systematic Reviews. In *JBI Manual for Evidence Synthesis*. JBI. https://doi.org/10.46658/JBIMES-20-02

Appendix D: Quality Appraisal Checklist – Quasi Experimental

JBI CRITICAL APPRAISAL CHECKLIST FOR QUASI-EXPERIMENTAL STUDIES

Reviewer_____Date_____

Author_____Year_____ Record Number_____

	Yes	No	Unclear	Not applicable
1. Is it clear in the study what is the 'cause' and what is the 'effect' (i.e. there is no confusion about which variable comes first)?	☐	☐	☐	☐
2. Were the participants included in any comparisons similar?	☐	☐	☐	☐
3. Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest?	☐	☐	☐	☐
4. Was there a control group?	☐	☐	☐	☐
5. Were there multiple measurements of the outcome both pre and post the intervention/exposure?	☐	☐	☐	☐
6. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	☐	☐	☐	☐
7. Were the outcomes of participants included in any comparisons measured in the same way?	☐	☐	☐	☐
8. Were outcomes measured in a reliable way?	☐	☐	☐	☐
9. Was appropriate statistical analysis used?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Aromataris E, M. Z. (2020). Chapter 1: JBI Systematic Reviews. In *JBI Manual for Evidence Synthesis*. JBI. https://doi.org/10.46658/JBIMES-20-02

Appendix E :Preliminary Extration form

Preliminary extraction form for quantitative/ mixed method articles

Author Publication Year/Type	Research Question/ Aim	Methodology Design	Phenomena of interest Outcomes Measure/ Scales Used	Setting/context	Country of origin	Sample Size/Participants (Descriptive Statistics)	Data Collection /Analysis Infertial Statistics	Findings/ Outcomes	Reviewer comments

Preliminary extraction form for qualitative articles

Author Publication Year/Type	Research Question/ Aim	Methodology Design	Phenomena of interest	Setting/context	Country of origin	Sample Size/Participants	Data Analysis	Findings/ Outcomes	Reviewer comments