

Delivering interprofessional care in intensive care settings:

Results from a scoping review of ethnographic studies

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Abstract

Background. The sustained national and international clinical and policy interest on quality and safety activities initiated by the release of ‘To Err is Human’ has resulted in some high profile successes and much disappointment. Despite the energy and good intentions poured into developing new protocols and redesigning technical systems, successes are few and far between, leading some to argue that we need to pay more attention to the context of care.

Methods. In this scoping review we examine the insights provided by qualitative studies of interprofessional care delivery in ICU settings. A total of 532 article abstracts were reviewed. 24 met our inclusion criteria.

Results. Articles focused on the nurse/physician relationship, patient safety, families and end-of-life care, and learning and cognition. They show the complexities and nuances of interprofessional life in the ICU but also that we have much to learn about team processes.

Conclusion. The fundamental insight that interprofessional interactions in the ICU do not happen in a historical, social and technological vacuum must be brought to bear on future research in the ICU if the agenda of patient safety and quality of care is to move forward.

Introduction

The sustained national and international clinical and policy interest on quality and safety activities¹ initiated by the release of ‘To Err is Human’² has resulted in some high profile successes^{3,4} and much disappointment. Both clinicians in the field and the social scientists seeking to help them have begun to call for more attention to interprofessional care and the context in which quality and safety interventions are implemented.⁵

Interprofessional care is a collaborative, team-based approach to providing optimal patient care, and has been celebrated as one way to transform health care and its context.⁶

In contrast, the general tendency to focus on technical and technological fixes has been described as a distraction, diverting attention from how safer care is really achieved.⁷

Understanding the social factors that help build a safety culture by changing the norms, values, and routine interactions of clinical teams has been identified as the next frontier in creating sustainable, scalable quality and safety improvements.⁸

At the heart of safe cultures are effective interactions among interprofessional teams, as well as effective interactions with patients and families. For example, interprofessional care and family involvement have been identified as critical elements in the provision of high-quality palliative care.^{9,10} The need for effective team-based care to reduce duplication of effort, restrict clinical error, improve safety and enhance the quality of patient care is now widely acknowledged.¹¹⁻¹⁴ A deep understanding of the interprofessional relationships that shape care delivery in intensive care units (ICUs) is fundamental to improving them.^{15,16}

Several authors have encouraged greater use of qualitative research methods in

confronting health care challenges generally,¹⁷⁻²¹ and critical care quality and safety projects more specifically.^{22,23} Through a systematic collection of detailed observations and interviews, ethnography is the study of social interactions, behaviors, and perceptions that occur within teams, organizations, and communities.¹⁸ Of the range of qualitative research methods available, ethnography is recognized as the most appropriate to understand how phenomena like team dynamics, information technology, and family involvement impact and transform the goals and practices of quality improvement.

In this scoping review, we present the main insights of recent ethnographic research. We evaluate its nature, strengths and weaknesses and suggest new avenues for the study of team dynamics and patient care in the ICU.

Methods

This scoping review was undertaken to identify and examine the empirical ethnographic literature related to delivering care in adult ICU settings. A scoping review examines the extent, range and nature of research in a specific area to identify its key concepts and main sources of evidence.²⁴ To conduct our review we queried three major databases (PubMed, CINAHL and Scopus), for ethnographic studies conducted in adult intensive care units and with a focus on “teams.” Teams were defined broadly to include health care providers and family members. A total of 532 article abstracts were reviewed, 193 of which spoke directly to team dynamics in ICUs. Extra articles were collected out of the reference lists of these 193 articles. Of the set of articles thus identified, 24 met our inclusion criteria: (1) the study had to have been conducted in an industrialized country and published in English, (2) had to have included observational fieldwork as part of its

data collection, and (3) had to report on interprofessional interactions (between two or more professional groups). One auto-ethnographic piece²⁵ was excluded, for a final sample size of 23. Articles were coded by the first author for year of publication, country of origin, number of sites covered, whether or not data were analyzed across sites, duration of fieldwork, topic, and focus. The first and last authors met regularly to discuss the evolution of the coding scheme and the choice of topics, which clustered around four topics: the nurse/physician relationship, patient safety, end-of-life care and families, and learning, decision-making and cognition. The *topics* covered by each article were noted, and served as the organizing principle for the narrative review below. Articles covering more than one topic are reviewed under each topic. The *focus* of the article is a one-sentence overview of the article, distilling its main contribution.

Results

As shown in Table 1, selected studies reported on fieldwork conducted in 5 countries: Australia (6 studies), Canada (3), Sweden (1), the UK (7) and the United States of America (6). The same researcher or team of researchers published several articles from the same study.²⁶⁻³⁶ Eight studies collected data across several ICUs, but only two – authored by the same research team – used these differences in site as a factor in their data analysis.^{29,30} Two studies did not report the duration of their fieldwork; others' reporting ranged from very precise (number of hours) to extremely vague (years).

The articles covered four main topics: the nurse/physician relationship (10), patient safety (3), end-of-life care and families (6), and learning, decision-making and cognition (6). Four articles covered two different topics (see Table 1). Table 2 provides a

summary of insights from the included studies.

Table 1: Overview of reviewed articles

First Author	Year	Country	Sites	Comparative	Duration	Topic(s)*	Focus
Baggs	2007	USA	4	Yes	7 m (5d/wk)	3	Unit culture and EOL DM
Baggs	2012	USA	4	Yes	7 m (5d/wk)	3	EOL care and ambiguity around who is the attending physician
Carmel	2006	UK	3	No	285 hrs	3	Mismatch between professional discourse and ICU practice
Carroll	2008	Australia	1	-	193 hrs	4	How video can improve ward round practices
Coombs	2003	UK	3	No	>200 hrs	1	Changing professional roles, power and conflict
Coombs	2004	UK	3	No	200 hrs	1	Medical dominance as barrier to IP DM
Crocker	2009	UK	1	-	250 hrs	4	Perceptions of MV by critical care nurses
Fackler	2009	USA	2	No	70 hrs	4	Cognitive activities involved in critical care
Hancock	2006	UK	1	-	18 m	4	Decision-making and weaning from MV
Happ	2007	USA	1	-	21 m (4 or 5d/wk)	3	Family presence and weaning from MV
Hawryluck	2002	Canada	2	No	144 hrs	1	Team composition, conflict and collaboration
Hunter	2008	Australia	1	-	12 m	1, 4	Different types of learning
Malhotra	2007	USA	1	-	NS	2	Models of workflow in the ICU
Manias	2000	Australia	1	-	3 yrs	1	The roles of policies and protocol in the ICU
Manias	2001	Australia	1	-	3 yrs	1	Knowledge in the nurse/physician relationship
Manias	2001	Australia	1	-	3 yrs	1	Nurse/physician interactions in ward rounds
Philpin	2006	UK	1	-	12 m	1, 2	Information transmission in patient handover
Philpin	2007	UK	1	-	12 m	2	Ambiguity management rituals in the ICU
Quinn	2012	USA	4	No	>700 hrs / ICU	3	Informal roles of family members in EOL decision making
Scott	2008a	Canada	1	-	7 m (6-8 hrs/wk)	2	Uncertainty and research utilization behavior
Scott	2008b	Canada	1	-	7 m (6-8 hrs/wk)	1, 4	Culture and research utilization
Sorensen	2007	Australia	1	-	2 yrs	1, 3	Obstacles to EOL advocacy
Wikstrom	2002	Sweden	1	-	NS	1	Collaboration and sense making through routine patient care

Legend: DM = Decision Making; EOL = End of Life; MV = Mechanical Ventilation; IP = Interprofessional; NS = Not Specified.

*Topics: 1 = Nurse/Physician Relationship; 2 = Patient Safety; 3 = End of Life Care and Families; 4 = Learning and Cognition

Table 2: Insights derived from reviewed ethnographic studies

<p>Method</p> <p>Only 5 studies from the USA No international, comparative studies Comparative design, but no comparative analysis (<i>i.e.</i> data aggregated across sites) Duration of study often vague or not specified Absence of reflexivity about researcher's position in the ICU</p>
<p>Nurse/physician relationship</p> <p>Different standards and sources of evidence can cause conflict ICU culture sometimes devalues nursing, resulting in resistance from nurses and potential harm to patients Routine care becomes, through repetition, almost effortless and frictionless Misunderstanding of other professionals' expertise can cause conflict Patient advocacy by nurses may be limited by a hostile culture Medical training imperatives can threaten nursing quality of care</p>
<p>Patient Safety</p> <p>7 key moments are critical zones for medical errors Poor communication and recording of patient information threatens patient safety Miscommunication or misperception of patient safety goals can lead to staff resistance and boycott Adding procedures without regard to time management may lead to more adverse events Assignment of the same task to several staff may lead to over-reliance on teammates and threaten safety Uncertainty may lead to the rejection of evidence-based protocols Unclear teamwork responsibilities and roles may heighten uncertainty in care provision</p>
<p>End-of-Life Care</p> <p>Culture influences the way end-of-life care is managed Several organizational and cultural factors limit patient advocacy at end of life Within-family conflict and conflict between professionals and family limit quality of care Complexity of care and lack of clarity around medical roles leaves families and sometimes staff uncertain who is responsible for care</p>
<p>Learning, Decision-making and Cognition</p> <p>Different learning models across professions may lead to conflict Workflow can be analyzed in terms of its cognitive task in order to maximize patient safety Several team-related factors limit physicians' ability to accomplish cognitive tasks Hierarchies, handling of ethical issues and errors, the value accorded to research, routine and innovation all impact use of research in solving clinical problems</p>

The Nurse/Physician Relationship

The nurse/physician relationship was featured in 11 of our 23 articles. Manias and Street published three articles from an ethnography in Melbourne, Australia.²⁶⁻²⁸ Their first paper shows the different value placed by physicians and nurses upon policies and protocols in the ICU.²⁶ Nurses turned to these documents more

systematically and used them to police themselves, decide upon care strategies and to justify their resistance to a course of action suggested by a physician. In their second paper, the authors describe six different ways knowledge shapes decision-making in the nurse/physician relationship, showing, among other things, a devaluation of nursing, physicians' dependence on nurses' knowledge, nurses' strategies for sharing information and obtaining their desired outcome.²⁸ Their third paper focuses on nurse/physician relationships during the ward round.²⁷ Nurses' contributions were rare and often marginalized, their knowledge sometimes devalued, yet some nurses found ways to alter the patterns of interaction in medical rounds to participate in care and treatment discussions.

Hawryluck et al. (2002) describe collaboration in the ICU along three dimensions: the composition, expansion and contraction of teams; the degree of collaboration and conflict; and the different catalysts of collaboration.³⁷ They show how physicians often take the role of team leader; how conflict arises between different teams of experts; and how residents and staff often respond aggressively to nurses.

Another study indicates how routine is at the core of intensive care delivery, arguing that interprofessional teamwork makes possible what would be impossible to achieve otherwise.³⁸ The authors note how most routine procedures have been rehearsed to a point where they are internalized and require no pause, scrutiny or even communication, such that it all looks almost effortless and hides the embodied expertise.

For Coombs (2003) and Coombs and Ersser (2004), medical dominance is a serious hindrance to teamwork in the ICU.^{31,32} Despite several examples of highly-functioning interprofessional encounters, Coombs found that nurses' contributions were devalued during clinical decision making.³¹ A later article³² argues that an outdated conception of nursing expertise limits nurses' ability to participate in patient care. The different types of knowledge embodied by nurses and physicians, their divergent roles and authority sometimes led to interprofessional misunderstanding or conflict.

In her study of information transmission in the ICU, Philpin (2006) discusses several ways in which nurses protect themselves from the authority and dictates of medicine and engage in a wide range of resistance

behavior.³³ For example, nurses made extensive notes in patients' charts, documenting the care they provided in an effort to preempt what they saw as potential attacks from physicians. They also developed "private spaces" outside the view of physicians to carry on forbidden or frowned-upon practices, for example by taking notes on paper towels rather than on the chart to organize their day or record thoughts. Similarly, another study found that hierarchical interprofessional relationships in which physicians and hospital managers dictate care plans to nurses tended to prevent nurses from researching best care practices and implementing evidence-based medicine.³⁶

Another study suggests nurses often experience distress around end-of-life care and can't advocate for their patients in the ICU because of a culture that tolerates incivility towards nurses and patients, excludes nurses from discussions and decisions about patients, and does not inform patients of changes in their condition.³⁹

Finally, Hunter et al. (2008) note nurses' loathing of "change of term" when junior physicians begin their rotation through the neonatal ICU.⁴⁰ Not all of these new physicians have similar levels of skill, few of them trust nurses' expertise, and none of them are seen as properly initiated into the unit's culture. Nurses often see themselves as entirely responsible for patient care while these junior doctors hone their skills and learn the ropes on the ICU.

In all these studies, care teams are either intraprofessional (e.g. nursing), or incidental and mostly adversarial. Interprofessional contact is riven with conflict except in two cases where the importance of teamwork is acknowledged and seen as productive.^{37,38} Overall, however, these papers show little evidence of interprofessional teamwork generally, or elements such as engagement, collaboration, communication and team building specifically.

Patient Safety

Four articles directly address issues related to patient safety. Malhotra and colleagues (2007) used ethnography to develop a model of workflow in the ICU in order to identify 7 key moments – critical zones –

wherein clinical errors are more likely,⁴¹ and identified interprofessional communication and recording of medical information as key elements in patient safety.

Philpin's research in the UK is also concerned with patient safety. In a 2006 paper, she discusses the minutia of notes taking for patient handover and stresses nurses' resistance: how they sometimes co-opt certain notes-taking codes and protocols when they feel that they do not actually lead to increased patient safety.³³ A later paper discusses nursing practices of risk management.³⁴ Nurses believe that protocols inviting safety checks by several members of the intraprofessional team may actually increase the likelihood of error as they increase reliance on others' good practice. Philpin also notes how practices intended to protect patients may introduce new risks by diverting attention from more directly beneficial care.

Foci among studies where patient safety is a major concern are risk management, the identification of high-risk moments and hurdles to patient safety. Few examples or thick descriptions of interprofessional practices that improve quality of care are reported in the literature.

Families and End-of-Life Care

The literature on end-of-life care (EOLC) and on families in the ICU were closely intertwined, with the exception of one study which focused on the presence of families as patients were weaned from mechanical ventilation. In this study, family members were observed not just touching and talking to patients, but providing interpretive and protective surveillance for them.⁴² The study suggested that patients whose families were involved in care had significantly better weaning outcomes.

Five other studies focus on families and EOLC. One suggests that ICU nurses transferred their "imperative to care" from unconscious patients to family members.⁴³ Another study used comparative data from 4 adult ICUs to discuss the impact of unit culture on end-of-life decision making.²⁹ The authors found important cultural differences across units in terms of formal and informal rules, meanings and uses of technology, physician relationships and roles, how rounds are conducted, and timing of end-of-life care discussions with families. They argue that assessing an individual unit's culture is key to developing guidelines

and interventions to improve the quality of end-of-life care.

Quinn and colleagues (2012) carefully dissect the different informal roles played by the family in end-of-life decision making.⁴⁴ Conflicts within families, and between more and less medically trained members of families were highlighted as particularly problematic for quality of care. Previous studies had identified several factors limiting nurses' abilities to advocate for their patients during ELOC: financial imperatives, conflict between nurses and physicians, the scientific supremacy of medicine over nursing, as well as the limited autonomy and authority of nursing in the ICU.³⁹

Contrasting this account of family complexity, Baggs et al. (2012) highlight the influences of institutional complexities such as understanding who and what an attending physician is, and how such professionals are related to the care of a loved one.³⁰ Overall, studies about families and EOLC stress the importance of culture for quality of care, as well as two main sources of complexity in the ICU: family complexity and institutional complexity.

Decision-making, Learning, and Cognition

Six studies investigate cognition, decision-making and learning in the ICU. Hancock and Easen (2006) used ethnography to build a model of nurses' decision making with regards to the extubation of patients after cardiac surgery. The state of the patient, presence of medical staff, grade of the nurse and whether the senior nurses used their own judgment determined whether nurses chose to ask medical staff, make their own decision, decide using plan parameters or ask permission prior to extubation.⁴⁵

Similarly, Hunter et al. (2008) identify different learning moments: informal, incidental (mostly unconscious or tacit), interpersonal and interactive. They suggest that the learning models of nurses and physicians are "conceptually different," with important implications for teamwork.⁴⁰

Scott and Pollock (2008) suggest that different elements of an ICU's culture influence how scientific research is used in clinical practice. The extent and quality of the unit's hierarchical structure; how ethical issues are resolved and errors addressed; whether reading and researching are considered "work;" whether

procedures are routinized or subject to scrutiny; whether innovation is valued; and whether the ICU favors experiential knowledge or scientific research were all seen to be relevant cultural factors³⁶

One study reports on a video-reflexive ethnography that helped staff develop a greater awareness of ward round practices, drawing their attention to hierarchies, communication patterns, and problems, eventually leading to change.⁴⁶

Fackler and colleagues (2009) identify the different cognitive tasks undertaken by staff in ICUs: pattern recognition, uncertainty management, strategic vs. tactical thinking; team coordination and maintenance of common ground; and creation and transfer of meaning through stories.⁴⁷ They argue that units would be better managed if workflow were analyzed in light of these tasks. Several factors related to team interactions are noted as problematic: coordination, communication, fragmentation, team instability and increasing number of handovers, and work with external collaborators.

Crocker and Timmons (2009) show how contextual clues were used to interpret a piece of technology: the mechanical ventilator. How ventilators were placed and used, who was responsible for them, and how ill the patient was all impacted the way nurses framed weaning and the machine's function.⁴⁸

Four of the studies on cognition, decision-making and learning in the ICU foreground the negative impact of hierarchical relationships. Others tackle the contextual elements that transform cognitive processes. Informatics and new information and communication technologies are notably absent from this literature.

Discussion

To date, research about team dynamics in ICUs has tended to reduce complex professional and interprofessional behaviors into Likert scores linked to *perceptions* of behavior and local culture.⁴⁹ Based on this work, we have seen an expansion of intervention studies which aim to design, implement and evaluate either an interprofessional checklist or clinical guideline/protocol, or some other collaborative activity (e.g. hand-off, team huddle) usually linked to a specific clinical issue.^{4,50} A key limitation from these outcome-based,

often retrospective, quantitative studies is that we know very little about the *processes* whereby interventions work or fail, and very little about the way culture or context shape practices, constraining or facilitating interprofessional collaboration.

The ethnographic studies included in this paper show the *texture* of interprofessional life in the ICU: its complexities and nuances which helps us to reconsider the nature of, and assumptions behind, the development and implementation of quality and safety interventions. If we see interventions (e.g. protocols and guidelines) as unproblematic and easy to implement rather than as technologies embedded in a social context, we can miss the importance of culture, with great detriment to our understanding of why QI interventions succeed or fail.^{51,52} As noted by Bosk et al. (2009), better patient care requires a three-pronged approach, the need to: (1) clarify what needs to be done, (2) measure and provide feedback on implemented practices, and (3) build performance expectations within work processes by tackling culture.⁷ As the articles reviewed here have shown, we haven't yet fully understood, theorized and acted on the different factors that maintain the tensions between nurses and physicians, with serious implication for patient safety.

As indicated above and noted elsewhere in the literature, there is continued confusion relating to how one actually defines a 'care team.'⁴⁹ The literature covered in this review is limited to nurse/physician interactions, while patients and families are seldom considered part of the team. Similarly, there is conceptual confusion if not total obliviousness to the key components of teamwork that are present and matter in critical care. Reeves et al. (2010) outline four different types of factors that define team dynamics and shape outcomes in interprofessional practice: relational, processual, organizational, and contextual.⁴⁹ Table 3 builds upon their typology and offers definitions and examples of these factors at play in the ICU. Although presented separately, these factors coalesce to structure team interactions in predictable ways. As it is one of the roles of the ethnographer to identify patterns of interactions and set them into their proper context,⁵³ this typology could be used to systematically investigate teamwork in the ICU.

Table 3: Factors influencing interprofessional teamwork

Type	Definition	Examples	In the ICU
Relational	Factors that directly impact relationships	Professional power, socialization and stereotypes, team composition and roles	Belief that nursing is ‘housekeeping’ diminishes respect for nurses and taints relationship between nurses and physicians
Processual	Factors such as space and time that affect how work is carried out	Time constraints, routines and rituals, information technology, complexity	An unusually heavy case load adds stress to teamwork
Organizational	Factors that affect the local environment in which teams operate	Organizational support, funding constraints	Restructuring of the hospital cuts funding to unit
Contextual	Factors that relate to the broad social, political and economic landscape where the team operates	Gender dynamics, financial crisis, broad movements in health care	Evidence-based medicine changes accountability processes

Source: Adapted from Reeves et al. 2011.

Another finding of our review is the current paucity of research on the use of new technologies in the ICU. Kuziemsky and Reeves⁵⁴ argue that informatics could be integrated more fully into healthcare delivery, beyond “tools” for individual practitioner use such as computers, tablets and phones. The sometimes asynchronous and distributed nature of work in the ICU could benefit from tools that facilitate information transfer and communication within teams,⁵⁵ and ethnography has untapped potential to shed light on these processes.⁵²

Our review has several limitations. It was limited to research published in English and to the peer-reviewed literature. Finally, given the constraints of our medium, we had to focus on ethnographies conducted in adult ICUs, and have thus likely missed important findings from either other types of qualitative research or from studies of neonatal ICUs, several of which are widely known.⁵⁶⁻⁵⁸

Concluding Comments

The successes and failures of patient safety and quality improvement interventions in the ICU suggest that an approach to interprofessional collaboration in the provision of care needs to include an assessment of context.^{5,7,8} The ethnographic research reviewed here shows that we have much to learn about the team processes that facilitate or constrain work in the ICU. But ethnographic research can do much more to improve quality of care than what it has done so far.^{17,19,22,23} Future research will need to be conceptually rigorous in its definition and investigation of teams and teamwork, as well as in its exploration of the different factors that structure and shape team dynamics and interprofessional practice. The rising import of informatics and new technologies for the assessment, conduct and improvement of work processes in the ICU should also be a key area of study for ethnographers.⁵²

The fundamental insight that interprofessional interactions in the ICU do not happen in a historical, social and technological vacuum must be brought to bear on future research in the ICU if the agenda of patient safety and quality of care is to move forward. Comparative studies that fully use their potential to theorize the relationship between relational, processual, organizational and contextual factors with quality of care provision will be key to maximizing ethnography's potential to transform critical care delivery and thus patient safety.

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