Crossing boundaries: Establishing a framework for researching quality and safety in care transitions

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ABSTRACT

Background: Despite the breadth and diversity of research and policies on care transitions, research studies often report similar components that affect the quality and safety of care, including communication across professional groups and care settings, transfer of information, coordination of resources or training of healthcare personnel. In this article, we aim to deepen our understanding of care transitions by proposing a heuristic research framework that takes into account the components and factors influencing the quality and safety of care transitions in diverse settings.

Methodology: Using a pragmatic qualitative narrative meta-synthesis of empirically grounded research studies (N = 13) involving 31 researchers from seven countries (Australia, Canada, Denmark, Germany, the Netherlands, Norway and the UK), we conducted a thematic analysis to identify the components analysed in the included studies. We then used these components to create a framework for researching care transitions.

Results: Our narrative synthesis found that the quality and safety of care transitions are influenced by a range of patient-centred, communicative, collaborative, cultural, competency-based, accountability-based and spatial components. These components are encompassed within a broader set of dimensions that require careful consideration: (1) the conceptualising of the care transition notion, (2) the methodology for researching care transitions, (3) the role of patients and carers in care transitions, (4) the complexity surrounding care transitions, (5) the boundaries intertwined in care transitions and (6) care transition improvement interventions. These six dimensions constitute an analytical framework for planning and conducting research on care transitions in diverse settings.

Conclusion: The proposed six-dimensional framework for researching quality and safety in care transitions offers a roadmap for future practice and policy interventions and provides a starting point for planning and designing future research.

1. Introduction

1.1. Background

Care systems have historically been configured around discrete areas of specialised practice as a result of the persistence of professional and organisational boundaries (Waring et al., 2015). These boundaries include those between different care professionals (e.g. doctors, nurses and social workers), between care settings (e.g. primary, acute and social care), and even between economic sectors (e.g. public, private and voluntary sectors). In other words, patient care is typically provided within a multitude of transitions across care settings. For instance,

patient care may involve initial diagnosis in a primary or acute care setting, acute provision of care in a hospital setting and provision of follow-up care and rehabilitation in a community setting. A closer look at the typical care pathway shows that care is organised in a manner involving even more transitions, handovers and passage points as caring responsibilities are transferred between clinicians, teams and wards. Notwithstanding the subtle technical differences between these various forms of transition, research increasingly recognises that such transitions can easily complicate care processes, creating bottlenecks or pinch points that often occur in the form of communication and coordination problems, resulting in fragmented and unsafe care (Aase et al., 2017a). This phenomenon has led to calls for more patient-centred and

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integrated ways of working, wherein services are organised around and *with* the patient rather than through professional silos or in distinct organisational settings.

With regard to the study of patient safety, it is noteworthy that until recently, most international policies and research were equally concerned with identifying and ameliorating risks *within* care settings, such as in an operating theatre or emergency room. Despite the growing recognition of the importance of handovers and transitions *within* care organisations (Arora and Johnson, 2006; Catchpole et al., 2007; Cohen and Hilligoss, 2010; McFetridge et al., 2007), especially in terms of the need for improved inter-professional communication (Manser and Foster, 2011), there has been comparatively less attention given to the transitions that occur *between* organisations.

Although the underlying intent of human factors and systems thinking is to locate the safety of human behaviour in its inner and outer contexts, there has been a tendency to apply this thinking in relatively bounded ways, focusing on what might be termed the clinical microsystem (Mohr et al., 2004). There is usually some recognition of wider system factors, such as resource management or culture, but the focus has been on making improvements at the level of the individual or team or to departmental performance, often in the form of non-clinical skills, such as communication and decision making (Vincent, 2010). When these ideas are expanded to the realm of inter-team or inter-departmental working, such as care transitions, emphasis is usually on improved communication and decision making, for instance, regarding care transition procedures. In other words, the primary locus often remains on the individual and group within a given setting, not on the setting and its influence on the individual and group. A better understanding of the sources of (and threats to) quality and safety across care transitions is thus needed. Given the relatively limited amount of literature on care transitions *between* healthcare organisations and care settings, this paper aims to support future research and theory on care transitions by analysing exemplar studies and proposing a novel heuristic framework.

1.2. The problem of care transitions between healthcare organisations

The literature has established that transitions between hospitals and community care settings pose a significant challenge in terms of quality and safety (e.g., Coleman et al., 2004; Greenwald et al., 2007; Kripalani et al., 2007). In the hospital discharge literature, for example, Forster et al. (2003) conducted a major telephone survey involving 400 patients. They found that nearly 20% reported some form of adverse event following discharge from the hospital to the community; 6% of these adverse events were preventable, and 6% were ameliorable. Studies have highlighted a number of common threats to the quality and safety of hospital discharge associated with the management of medicines; provision of appropriate health and social care; incomplete tests and scans; fitting and use of home adaptation; and risks of falls, infections or sores (Glasby, 2003; Laugaland et al., 2012, 2014; Tierney et al., 1993; Waring et al., 2016). The underlying sources of these threats range from the factors related to patient conditions or co-morbidities to the quality of assessment of patient needs, availability of specialist resources in the community and other organisational and cultural factors (Storm et al., 2014; Laugaland, 2015; Waring et al., 2016).

Care transitions other than hospital discharge (e.g., at the point of admission to a hospital) are seldom reported in the literature. In contrast, there has been extensive literature on handover or hand-off (e.g., ambulance to emergency department [ED], ED to surgical or internal medicine ward and post-operative handovers), and the number of studies continue to grow. However, these studies are often limited to communication issues and to the use of checklists and protocols as improvement tools (Manser, 2013; Manser and Foster, 2011).

Independent of the type of care transition in question, the current quality and safety challenges could have comprehensive consequences for a patient. Such consequences include increased mortality, morbidity and adverse events; treatment delays; a need for additional health services and tests; preventable readmissions to hospital; emotional and physical pain; or dissatisfaction with care coordination (Russell et al., 2013).

Evidence shows that a range of strategies are needed to ensure the quality and safety of care transitions. In the literature, both large- and small-scale interventions have been assessed at different levels and in different target groups, including people within a specific geographical area, those with a particular disease or disability and people with specific care needs (World Health Organization, 2016). Despite some positive results, the literature on care transitions has identified several flaws in the evidence base, such as possible selective reporting; heterogeneity in intervention types, patient populations enrolled and outcomes measured; limited descriptions of implementation processes; and failure to report important contextual aspects that may have influenced the success or failure of the care transition strategy being studied (Rennke et al., 2013).

Knowledge in the field of care transitions is characterised by fragmentation and standardisation. By fragmentation, we mean that knowledge is dispersed over different disciplines, research communities, theoretical concepts and scientific journals, with little opportunities for collaboration. By standardisation, we mean that knowledge is concerned with a limited number of areas or measures to address care transitions (e.g., communication tools, handover protocols and professional roles).

As such, in studying care transitions, there is a need for a more holistic approach that recognises the role of individuals and teams in their local environmental context, the influence of wider system dynamics and the persistence of social and cultural factors that condition and transpose these system dynamics. Apart from focusing on proximal factors influencing care transitions – such as actions, conditions or triggers seen as primary or immediate elements – research must also focus on distal factors, including the underlying or system-level issues that are commonly mentioned when participants explain the outcome of a care transition. These are the persistent or cross-cutting issues that impact the quality and safety of care transitions by exerting a contextual influence on care transition planning and timing, referral processes, resource constraints or organisational demands (Laugaland et al., 2014; Waring et al., 2016).

Thus, there is a need for a heuristic model or an analytical framework to investigate the contextual, organisational and sociocultural aspects of care transitions. In this paper, we aim to address this need by proposing a framework based on empirical findings gathered from seven countries and analysed to establish a distinct conceptual foundation and a roadmap for researching care transitions. This position paper aims to determine how the quality and safety of care transitions across care settings are understood and how improvement efforts reflect particular assumptions about the nature of these transitions. By examining this growing field of study, we also propose implications for future research.

2. Methods

2.1. Design

Our paper is a pragmatic narrative meta-synthesis of 13 empirically grounded research studies on care transitions (Table 1). It is pragmatic in the sense that the primary research studies included in this synthesis paper were identified and selected based on their inclusion in an international collaborative project that convened research teams from around the world to share their learnings on quality and safety in care transitions (Aase et al., 2017b). Each study in the abovementioned collaborative work was included in order to gain, either theoretically or empirically, a new understanding of care transitions; the inclusion of each study was based on the current track record of the corresponding researchers in their respective fields. Moreover, the studies were located within the broader literature on quality and safety in care transitions, with the aim to identify, develop and contribute new knowledge. Given

Table 1
The primary studies and their qualifications for inclusion.

Authors	Country	Care transition type	Care transition concept	Study method(s)	Main empirical theme(s)
Laugaland, Dyrstad & Aase	Norway	Acute admissions to hospital, discharge from hospital to community care	Transitional care	Observations, interviews	Recruitment processes, data collection strategies
Bragstad & Foss	Norway	Discharge from hospital to community care	Transitions	Questionnaire	Instrument development, post-discharge outcomes
Scott	UK	General admissions and discharge	Care transitions	Documents, survey, co-design	Patient experiences of safety, feedback
Dyrstad & Storm	Norway	Acute admissions to hospital, discharge from hospital to community care	Transitional care	Observations, interviews	Next-of-kin perspective: advocacy, information brokering, support
Marshall	UK	In-hospital transitions at stroke units	Patient (bed) moves	Observations, interviews	Empathetic care, emotional processes
Scott, Flynn, Chan & Sujan	UK, Canada	Pre-hospital emergency transitions	Handover, transitions	Case study, improvement project	Handover improvement interventions, patient and family involvement
Storm	Norway	Hospital admissions and discharge	Transitional care	Observations, interviews	Competency: professional, system, job tasks and functions
Bishop & Waring	UK	Discharge from trauma orthopaedic unit	Care transitions	Observations, interviews	Knowledge brokering roles, practices, collective interaction
Rapport, Braithwaite, Mitchell, Westbrook & Churruca	Australia	Transitions for people with chronic conditions and for older people	Transitional care, care coordination	Documents, system reform samples	Care coordination programmes: chronic conditions, older people
Østergaard, Madsen, Petersen & Siemsen	Denmark	Various in-hospital handover types	Handover	Action research design process	Handover design elements: leadership, team roles, training
De Bont & Zwart	Netherlands	Transitions between hospital and primary care centres	Patient transitions, transitional safety	Team reflection approach, interviews	Care transition safety programme, evidence-based reflexivity
Heskestad & Aase	Norway	Transitions between primary and secondary care providers	Transitional care	Observations	Educational programme elements, inter-organisational knowledge transfer
Groene, Pimperl & Hildebrandt	Germany	Health services integration across primary and secondary care	Integrated care	Documents, system reform sample	Best practice model, population-based integrated care

Note: N = 13. Source: Aase et al. (2017b). The basis for the international collaborative project on care transitions involved twin projects conducted in Norway ('Quality and safety in the transitional care of the elderly'; Research Council Norway No. 204637) and in the UK ('An ethnographic study of knowledge sharing across the boundaries between care processes, services and organisations: the contributions to safe hospital discharge'; National Institute for Health Research, Health Services and Delivery Program). Thus, more studies were presented from these countries (five from Norway and four from the UK) than from other countries.

that this paper does not include a thorough or systematic review of the literature, it should be regarded as a pragmatic position paper.

The diversity of research designs and the breadth of findings of the 13 primary studies made standardised data extraction and evidence review impractical. As such, a qualitative narrative meta-synthesis was adopted (Thomas and Harden, 2008). This approach more easily accommodates different theoretical traditions, research methodologies and empirical findings, with the aim of identifying emergent and cross-cutting themes. Specifically, thematic narrative synthesis is an inductive approach wherein the research findings and themes from individual studies are organised into descriptive and analytical themes that both build on and elaborate new conceptual links between the findings of these individual studies.

2.2. Analysis

We read and re-read each study to identify (1) the underpinning conceptual understanding and operational definition of care transitions, (2) the theoretical framing in the broader literature on quality and safety, (3) the methodological orientation, (4) the substantive empirical focus, (5) the main empirical findings and analysis and (6) the recommendations for policy and practice. Through this process, we identified overarching or aggregate descriptive and analytical themes that served as the foundations of the proposed heuristic framework. For example, all of the primary studies described in different but complementary ways the importance of boundaries, although with varying degrees of theoretical grounding. Similarly, nearly all of the primary studies highlighted the importance of patient-centred care, which also showed varying degrees of significance. By conducting a review across and within the studies, we developed the heuristic themes. We then collected

and reviewed these themes through an iterative process that involved drafting and sharing written interpretative summaries, deliberating ideas and elaborating cross-cutting themes. This process led to an early collection of themes that were related back to the existing literature on care transitions to understand how these themes confirm, challenge and contribute to the existing theories and debates. A preliminary outline of these themes was described in an edited collection that resulted from the international collaboration (Aase et al., 2017b), which we subsequently revised and expanded, resulting in the heuristic care transitions framework presented in this paper.

3. Results

In our analysis, we identified six distinct themes common among the included primary papers. These themes indicate the complexity of researching the quality and safety of care transitions, and they constitute the building blocks of a possible analytical framework for care transitions. The themes are as follows: (1) conceptualisation, (2) methodology, (3) the role of patients and carers, (4) complexity, (5) boundaries and (6) improvement interventions.

3.1. Difficulty of conceptualising care transitions

In our analysis of the primary papers as well as in the broader literature within the field, there were numerous diverse terms and concepts used to describe and analyse care transitions. Prominent synonyms or adjacent concepts include handover, integrated care, care coordination, transitional care, handoff, transfer, patient journey and patient pathway (see Table 1). Thus, there is a lack of conceptual clarity and no globally accepted definition of care transitions (Aase et al.,

2017a).

In an effort to achieve some conceptual clarity and in consultation with our international collaborators, we treat care transitions as a broad and collective term free from specific preconceptions. Specifically, *care transitions* is defined and operationalised to encompass a wide view on inter-professional and inter-organisational interactions related to patient movements across care settings. The care transition concept is positioned somewhere between clinical handovers (between teams or shifts) on one end of a continuum (Østergaard et al., 2017) and integrated care on the other end (Groene et al., 2017). It recognises that handovers and associated forms of inter-professional communication and collaboration are essential features of effective care and invariably contribute to care transitions. However, these concepts do not necessarily entail the transition of care between care settings, and they may include the transfer of care responsibilities between teams or shifts in a relatively bounded space or location. A care transition, therefore, refers more explicitly to the passage of patients and their care from one setting to another. It is closely related to transitional care, although distinct from it given that care transitions broadly describes the movement of care provision from one setting to another, whilst transitional care describes a particular package (e.g., specific measures) or mode of care (e.g., care of older patients) to support or enhance continuity before, during and after movement. That is, transitional care is the specific package of support offered during a care transition.

Advancing a broad and collective approach to care transitions affects how we view quality and safety in care transitions. The accomplishment of high-quality and safe care transitions thus relies upon the coordination of multiple professionals working within and across multiple care processes, settings and organisations, each group with its own distinct ways of working, profile of resources and modes of organising. Based on our thematic analysis, the following description forms the basis for our framework for quality and safety in care transitions:

> *Quality and safety in care transitions encompass patient-centred, communicative, collaborative, cultural, competency-based, accountability-based and spatial components to ensure interaction among the patients and carers, the healthcare professionals and the organisations as patients move across care settings.*

By *patient-centred* we mean the inclusion of the unique perspective (knowledge and experience) of the patients and carers in all phases of care transitions. By *communicative* we mean the shared understanding of medical histories and plans for future care, wherein specialists might have different insights. By *collaborative* we mean the reconciled and mutually coordinated efforts of all stakeholders involved in care transitions. By *cultural* we mean the distinct meanings, values, assumptions and beliefs that guide care transition practices. By *competency-based* we mean the distinct professional knowledge of clinical job tasks, functions and systems related to care transitions. By *accountability-based* we mean the institutional socio-legal roles and responsibilities of different specialists involved. Finally, by *spatial* we mean the structure of different geographical locations (home, hospital and community) that require different transportation means to facilitate care transitions.

3.2. Methodological challenges

As a subject of enquiry, care transitions are approached from many research, improvement and policy perspectives: from group psychology and human factors to social and political theories, from applied process re-engineering projects to exploratory ethnographic studies and from large-scale policy innovations to local improvement initiatives. The included primary studies illustrate this diversity (see Table 1), from an observational study exploring the emotional processes of patients involved in care transitions at a stroke unit (Marshall, 2017) to the design and evaluation of a care transition programme between hospitals and primary care centres (De Bont and Zwart, 2017).

The inherent variability in empirical focus, from the micro-process of decision making to the broader organisational and cultural factors, poses methodological challenges in research and practice. In particular, the best approach to gather evidence for the analysis of care transitions to illuminate the multitude of issues involved and to ultimately achieve service improvement remains unclear. By drawing from their experiences in an observational study on complex care transitions for frail older patients across multiple stakeholders, Laugaland et al. (2017) proposed 10 methodological challenges as well as recommendations related to recruitment processes and data collection priorities. Additionally, Bragstad and Foss (2017) described their lessons from developing a survey instrument—the Discharge of Elderly Questionnaire—which targets the experiences of patients and their carers, and they offered broad recommendations for those interested in conducting survey research on care transitions. The variability of components and contextual issues surrounding care transitions most often warrants fierce prioritisations in the research design, with different expectations or preferences for evidence amongst research disciplines, professional groups, service leaders and patient and carer groups. Possible remedies include increased multidisciplinary research initiatives, meta-analyses and large-scale research programmes on care transitions. Common recommendations among the included papers are the use of both quantitative and qualitative perspectives, which are beneficial to research and practice, and – more importantly – the use of mixed-methods designs that can potentially offer greater breadth and depth in understanding care transitions. That is, research needs to bring to light the lived care transition experiences from the perspective of patients, carers and professionals. These experiences of quality and safety can then be located in their immediate or proximal context of interacting social actors and human factors and – in turn – in the context of distal factors consisting of broader socio-cultural, organisational and regulatory dynamics. Paying attention to the methodological and theoretical aspects of any one of these dimensions is illuminating and important in its own right, but it is arguable that only by integrating lines of evidence and understanding from across these dimensions can the components influencing the quality and safety of care transitions be adequately understood.

3.3. Distinct role of patients and carers

A major finding of our analysis is the endorsement and support for better involvement of patients and carers in care transition processes. The primary papers included in our synthesis study powerfully demonstrate in different ways the roles that patients and carers can play in creating and sustaining quality and safety in care transitions. Healthcare professionals often have a limited viewpoint on and insight into the entirety of the care system and processes involved in care transitions. In short, they operate in spatial, temporal and professional silos. In contrast, patients and carers have a unique perspective regarding receiving and providing information about care processes across these silos and boundaries.

Scott (2017) described how patients understand safety in care transitions differently from clinicians and how they can be involved in their own safety. Dyrstad and Storm (2017) detailed the prominent role of carers in complex care transitions for older patients, highlighting the contributions of the former through advocacy, information brokering and support. Aase et al. (2017a) supported the use of patient journeys by documenting the stories of Eva and Thelma, elderly patients with hip fractures and with additional diagnoses and co-morbidities who were reliant on a number of medications and care services. Their stories shed light on common issues, such as communication and information exchange, multiple actors and professional boundaries as well as different coordination and collaboration challenges. Despite these exemplary accounts and the increasing body of literature (e.g., Bate and Robert, 2007; O'Hara et al., 2019), there are still challenges related to valuing and incorporating the experiences of patients and carers into the

planning, organisation and improvement of care transitions. Care transitions reinforce the need for patient and carer involvement as they offer a unique perspective regarding these transitions, and this perspective is often unknown to clinicians and managers.

3.4. Complexity surrounding care transitions

All of the papers included in our narrative synthesis describe the different aspects of complexity surrounding care transitions, from the context of improving handover in emergency care transitions in British Columbia (Scott et al., 2017) to the transitional care issues related to system-level reforms and programmes for people with chronic conditions and older people in the Australian healthcare system (Rapport et al., 2017). Due to their complexity, care transitions have been described in many ways; sometimes care transitions are recognised as being embedded within and as a product of the complex systems of care that characterise most, if not all, healthcare systems. The included papers show healthcare as a complex adaptive system characterised by variability, non-linearity and complex interactions, which collectively place extraordinary demands on the stakeholders involved to ensure the quality and safety of care transitions. Take, for example, emergency pre-hospital care, which often involves many transitions within a short period of time and numerous stakeholders (Scott et al., 2017), such as a community care worker visiting a patient in their home, the emergency services call handler, a rapid response unit, an individual paramedic, an ambulance crew, the patient's family and the ED staff. In such a scenario, multiple aspects could influence the quality and safety of patient care, ranging from the communication between the actors involved to the role of the patient and family members.

Complexity can be experienced at the horizontal level of the care transition journey, such as in the pre-hospital care example above, as well as in terms of non-linear, parallel and recursive processes. In other care transition settings, such as care coordination for people with chronic conditions or for older people, complexity can be seen in the way care transitions involve many false stops, dead ends and revolving doors (Rapport et al., 2017). However, by placing care transitions in the wider, system-level context, it becomes possible to understand the vertical dimensions, such as the interaction between local teams, work routines, organisational policies and procedures, funding systems and regulatory pressures. This vertical positioning further supports the need for research to address the proximal and distal factors that influence quality and safety at multiple levels, namely, from the clinical micro-system to the meso- and macro-care system. Such complexity is exacerbated by contemporary policy expectations for enhanced vertical and horizontal integration across healthcare, social care and public health. Our collection of primary papers sheds light on both the horizontal and vertical complexities of care transitions.

3.5. Boundary issues

Our synthesis paper supports the idea that care systems are both characterised by and complicated by organisational and professional boundaries. Such boundaries are consistently shown to influence and inhibit the types of inter-professional and inter-organisational work that is integral to the delivery of high-quality and safe care transitions (Waring et al., 2015). This boundary issue is tightly coupled with the complexity surrounding care transitions, and our analysis documents the distinct and important role of boundaries inherent in this complexity. The persistence of a diverse set of social, cultural and institutional boundaries – for instance, the boundaries of professional competencies and knowledge brokering activities across professional groups during care transitions – are presented in several of the included papers (Bishop and Waring, 2017; Storm, 2017).

In summary, our analysis highlights how the quality and safety of care transitions is influenced by at least four overlapping types of boundaries. *Organisational boundaries* can be seen in the extensive

number of units and service providers involved in the provision of care (e.g., ED, surgery, orthopaedics, nursing homes and community-based services), each of which has a distinct boundary in terms of its care responsibilities and purpose; distinct funding, resources and governance arrangements; and organisational identity. *Knowledge boundaries* are related to differences in the underlying knowledge or expertise that define and influence the organisation and provision of care. Such boundaries can be seen, for example, in the challenges related to understanding medical histories and in planning future care, wherein different specialists have different insights, and problems can arise from miscommunication. This scenario is often associated with the need for improved communication or information exchange, but it can also apply to more tacit and less explicit forms of knowledge that separate or isolate areas of health and care (Waring et al., 2014). Knowledge boundaries are often embedded within *professional boundaries* in terms of the institutional socio-legal roles and the responsibilities of the different specialists involved; such boundaries determine who can do what. Furthermore, *cultural boundaries* are found in the distinct meanings, values, assumptions and beliefs that guide the professional practices of care transitions. Importantly, our synthesis demonstrates how these boundaries overlap and pre-suppose each other, that is, organisational boundaries tend to overlap or reinforce professional boundaries, and professional boundaries in turn align with cultural and knowledge boundaries. At the same time, these boundaries are not interchangeable and must be recognised and analysed as distinct domains that influence the quality and safety of care transitions.

3.6. Expanding the toolbox of improvement interventions

Many of the efforts made to improve the quality and safety of the current care transition practices are patterned on those of other high-performing industries and sectors. Such efforts focus on the level of an individual or a team, especially the development and implementation of guidelines and checklists. More specifically, there has been considerable interest in communication and the application of communication tools; there has also been interest in building on the improvements realised in clinical handovers (Coleman et al., 2006). These improvements range from the use of face-to-face or inter-professional handover checklists to electronic communication systems that work across primary, secondary and community care settings. It remains the case, however, that limited understanding of the complexity of care transitions has resulted in the use of interventions that are typically operationalised within care settings and at the level of the individual or of a small group. As such, they are not always well suited to quality and safety improvement across care settings and at the level of the care system. Overall, this synthesis of the included primary studies conducted in diverse healthcare settings documents how improving the quality and safety of care transitions requires identifying strategies and interventions that are explicitly targeted at the horizontal and vertical complexities of care transitions.

Some of the included papers in our analysis offer novel insight into the approaches and interventions specifically developed to address the horizontal and vertical dimensions of care transitions. The Transitional Incident Prevention Program described by De Bont and Zwart (2017) shows the potential contribution of reflexive discussion to gaining better understanding and improving the safety of care transitions. Here, the horizontal dimensions of shared understanding and collaborative working practices among general practitioners and hospital doctors were improved through direct personal communication and by strengthening their informal relationships. Horizontal coordination through inter-professional and inter-organisational dialogue was further developed by Heskestad and Aase (2017), who described the potential benefits of the Meeting Point intervention in supporting knowledge exchange. Taking a broader system-wide perspective by addressing vertical coordination, Groene et al. (2017) described how the Healthy Kinzigtal model developed in Germany can provide a potential solution in the form of system-level governance and responsibility for care

transitions. This model takes a socio-economic perspective on care transitions, providing incentives and capacity for providers and purchasers to overcome the fragmentation in care delivery.

4. Discussion

Our synthesis of empirically-based research studies formed the basis of the proposed six-dimensional framework (conceptualisation, methodology, patient and carer focus, complexity, boundaries and improvement interventions) for researching quality and safety in care transitions. The framework offers a roadmap for planning, designing and conducting research studies on care transitions, and it provides direction for future research and policy interventions.

4.1. Application of the care transition framework

Our suggested framework for care transition research is empirically grounded in a set of primary research studies conducted in different countries with different contextual and clinical settings. These studies vary in different ways, from involving pre-hospital acute settings to highlighting long-term care for people with chronic conditions, from studying micro-level emotional processes to macro-level integrated care models and from being patient focused to nation focused (Table 1). Thus, the framework should not be interpreted as generic in any sense but rather as a motivational and directional compass when expanding the theoretical and methodological perspectives of care transitions. Nevertheless, our pragmatic synthesis suggests that the crux of the matter regarding the quality and safety of care transitions extends beyond national or local considerations, indicating that most healthcare contexts have something in common that renders care transitions challenging.

Based on our synthesis, we arrived at a set of learning points or recommendations related to the six dimensions in our care transitions framework:

4.1.1. Conceptualisation

In conducting research on care transitions, there is a need to clarify in advance which components of the care transition concept the study seeks to understand and/or influence. We suggest that the following components are relevant to quality and safety in healthcare: patient centeredness, communication, collaboration, culture, competence, accountability and spatiality.

4.1.2. Methodology

When planning a research study on care transitions, decisions concerning proximal (e.g., relevant practices, geographic locations, actors involved and care transition components) and distal (e.g., contextual factors, cultural issues and institutional configurations) factors must be established. Possible methodological remedies include the use of multidisciplinary, mixed methods and/or multi-component improvement approaches.

4.1.3. Patients and carers

There is a pressing need for care transition studies that focus on how the experiences of patients and carers can be captured and used in a way that is meaningful and beneficial for improvements. A useful remedy is the utilisation of patient journeys or patient stories to depict care transition variability and complexity.

4.1.4. Complexity

Care transitions should be regarded as complex processes that take place within complex systems. Understanding the proximal and distal factors and the horizontal and vertical complexities of care transition processes is necessary to advance the research field. Variability, non-linearity, interactions and adaptability are key research concepts that capture such complexity. This ultimately results in the need for a deep understanding of care transition work processes, organisational policies and procedures, funding systems and regulatory practices and pressures.

4.1.5. Boundaries

Understanding the nature of different types of boundaries is key to advancing the research on care transitions. Collective involvement in knowledge work, opportunities for cross-boundary interaction during daily practices and development of collective trust are vital issues in this respect. Brokering as a means to reduce the challenges in care transitions boundaries should be acknowledged across healthcare settings.

4.1.6. Interventions

Communication or handover interventions centred on points of interaction within discrete care settings can certainly enhance the quality and safety of care transitions, but these interventions have a limited capacity to address and ameliorate the broader distal factors that influence and shape care transitions. Improvement interventions, therefore, must build on the clinical micro-system and address the system-wide and socio-cultural factors associated with the diverse boundaries that characterise complex care transitions. Intervention bundles that include care transition components beyond the communicative and micro level are thus necessary.

4.2. Future research

Moving beyond the care transitions framework, our synthesis paper has also revealed more generic research needs in order to improve the quality and safety of care transitions. More specifically, we suggest a set of topics that could serve as starting points in planning and designing future research:

- *Patient- and carer-centred approaches:* Given the distinct role of patients and their carers in care transitions, there is a need to investigate the different roles they can play in planning and decision-making processes, as well as the role they play as a medium for communication and knowledge exchange. Participatory approaches and patients and/or carers as co-researchers should serve as useful points of reference (e.g., Ellins et al., 2012).
- *Expansion in the methodology used to map patient movements:* As a patient is often the only point of continuity and consistency across the complex care pathway, there is a need for more extensive integration of different methods that consistently map patient movement. Current approaches, such as patient tracking, shadowing, storytelling and diaries, should be applied in care transition research to a greater extent (e.g., Waring et al., 2014). Exploiting such a methodology requires sufficient time and resources and warrants new forms of analysis.
- *Stakeholder involvement in shared responsibility:* Care transition planning and coordination require the involvement of all relevant stakeholders. The existing literature on care transitions (e.g., Glasby, 2003) consistently recommends the importance of shared and multidisciplinary decision making. However, this practice is easier said than done, especially when meetings and decisions conflict with organisational and spatial boundaries. We therefore call for researchers to identify new forms of stakeholder involvement in order to acknowledge the central involvement of patients and carers as well as to define the incentives and professional and cultural drivers of shared responsibility. Examples of such research include the study on the presence of carers during hospital admissions or discharge (Dyrstad and Storm, 2017) or the study on joint meeting arenas among hospital and primary care healthcare personnel, patients and carers (Heskestad and Aase, 2017).
- *Bridging interventions:* A multitude of measures and interventions are suitable to address the complexity of care transitions across stakeholders, organisations, professionals and patient groups. Research identifying the effect of care transition measures should focus on the

establishment of bridging interventions, that is, multicomponent and multidisciplinary interventions involving relevant stakeholders (e.g., Coleman et al., 2006).

- *Investigation of the vertical dimension of care transitions:* As mentioned previously, we need to further investigate how care transitions are influenced by upstream organisational and system factors. This means that research needs to integrate, for example, regulatory, economic, political and cultural adversity as drivers of quality and safety in care transitions in order to identify the characteristics of vertical integration. Key issues in research focusing on care transitions' vertical dimensions include system-based care models, translational research, programme evaluation and transnational studies.

4.3. Limitations

We acknowledge that the pragmatic meta-synthesis presented in this position paper has a number of limitations. First, the synthesis draws upon a relatively small selection of primary papers derived from a pre-existing collaborative project. As such, it does not represent a systematic review of the existing evidence base. That said, the authors did consult the wider literature when developing this collaborative project, and in different ways, each of the included contributions engages with the wider literature in its respective field.

Second, and as a consequence of the first, this paper does not directly include research conducted within the US healthcare system. It should be noted that numerous prominent studies and interventions in the field have been produced by US-based research teams. These authors and teams were invited to participate in our collaborative project, but they were unavailable; nevertheless, their ground-breaking works were routinely used as key reference points in shaping our thematic analysis.

Finally, and as discussed in this paper, overlap and tension exist between the concept of care transitions and the terms associated with handover and hand-off. Without intending to present one as more important than the other, and recognising that handover-type interactions are inherent to care transitions, we have endeavoured to distinguish between these concepts by focusing on the differences in terms of focus and scale. That is, handovers (and the like) tend to focus on interaction and communication between care providers at the point of transferring responsibilities, whereas care transitions focus on the passage or transfer of a patient between care settings.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

Aase, K., Schibevaag, L., Waring, J., 2017a. Crossing boundaries: quality in care transition. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 3–29.

Aase, K., Waring, J., Schibevaag, L., 2017b. Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham.

Arora, V.M., Johnson, J.J., 2006. A model of building a standardized hand-off protocol. Joint Comm. J. Qual. Patient Saf. 32 (11), 646–655. https://doi.org/10.1016/S1553-7250(06)32084-3.

Bate, P., Robert, G., 2007. Bringing User Experience to Healthcare Improvement. Radcliffe Publishing Ltd., Abingdon.

Bishop, S., Waring, J., 2017. The knowledge brokering situations of care transitions. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 159–178.

Bragstad, L.K., Foss, C., 2017. Studying complex care transitions from a quantitative perspective. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 49–68.

Catchpole, K., De Leveal, M.R., Mcewan, A., Pigott, N., Elliott, M.J., et al., 2007. Patient handover from surgery to intensive care: using Formula 1 pit-stop and aviation models to improve safety and quality. Pediatr. Anesthes. 17 (5), 470–478.

Cohen, M.D., Hilligoss, P.B., 2010. The published literature on handoffs in hospitals: deficiencies identified in an extensive review. Qual. Saf. Health Care 19 (6), 493–497. https://doi.org/10.1136/qshc.2009.033480.

Coleman, E.A., Mind, S., Chomiak, A., Kramer, M.A., 2004. Posthospital care transitions: patterns, complications, and risk identification. Health Serv. Res. 39 (5), 1449–1466.

Coleman, E.A., Parry, C., Chalmers, S., Min, S., 2006. The care transitions intervention. Arch. Intern. Med. 166, 1822–1828.

De Bont, A., Zwart, D., 2017. Can an elephant crack a nut with a sledgehammer? How physicians cross boundaries. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 223–237.

Dyrstad, D.N., Storm, M., 2017. The role of next of kin in care transitions. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave MacMillan, Cham, pp. 87–101.

Ellins, J., Glasby, J., Tanner, D., et al., 2012. Understanding and Improving Transitions of Older People: A User and Carer Centred Approach, Final Report. National Institute for Health Research Service Delivery and Organisation Programme, Southampton.

Forster, A., Murff, H., Peterson, J., Gandhi, T., Bates, D., 2003. The incident and severity of adverse events affecting patients after discharge from hospital. Ann. Intern. Med. 138 (3), 161–167.

Glasby, J., 2003. Hospital Discharge: Integrating Health and Social Care. Radcliffe Medical Press, Abingdon.

Greenwald, J., Denham, C., Jack, B., 2007. The hospital discharge: a review of a high risk care transition with highlights of a reengineered discharge process. J. Patient Saf. 3, 97–106.

Groene, O., Pimperl, A., Hildebrandt, H., 2017. The role of integrated care and population health. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 259–279.

Heskestad, R.N., Aase, K., 2017. The meeting point: organising for knowledge transfer. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 239–257.

Kripalani, S., LeFevre, F., Phillips, C.O., et al., 2007. Deficits in communication and information transfer between hospital-based and primary care physicians. J. Am. Med. Assoc. 297 (8), 831–841.

Laugaland, K.A., 2015. Transitional Care of the Elderly from a Resilience Perspective (PhD Thesis). University of Stavanger. https://brage.bibsys.no/xmlui/bitstream/handle/11250/2399484/Kristin_Alstveit_Laugaland.pdf?sequence=1isAllowed=y. accessed 19.01.2020.

Laugaland, K.A., Aase, K., Barach, P., 2012. Interventions to improve patient safety in transitional care: a review of the evidence. Work J. Prev. Assess. Rehabil. 41, 2915–2924.

Laugaland, K.A., Aase, K., Waring, J., 2014. Hospital discharge of the elderly: an observational case study of functions, variability and performance-shaping factors. BMC Health Serv. Res. 14, 365.

Laugaland, K.A., Dyrstad, D.N., Aase, K., 2017. Studying complex care transitions from a qualitative perspective. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 31–48.

Manser, T., 2013. Fragmentation of patient safety research: a critical reflection of current human factors approaches to patient handover. J. Public Health Res. 2 (e33), 194–197.

Manser, T., Foster, S., 2011. Effective handover communication: an overview of research and improvement efforts. Best Pract. Res. Clin. Anaesthesiol. 25, 181–191.

Marshall, F., 2017. Connecting with older people: multiple transitions in same place. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 103–119.

McFetridge, B., Gillespie, M., Goode, D., Melby, V., 2007. An exploration of handover process of critically ill patients between nursing staff from the emergency department and the intensive care unit. Nurs. Crit. Care 12 (6), 261–269. https://doi.org/10.1111/j.1478-5153.2007.00244.x.

Mohr, J., Batalden, P., Barach, P., 2004. Integrating patient safety into the clinical microsystem. BMJ Qual. Saf. 13 (Suppl. 2), ii34–ii38.

O'Hara, J., Aase, K., Waring, J., 2019. Scaffolding our systems? Patients and families 'reaching in' as a source of healthcare resilience. BMJ Qual. Saf. 28, 3–6. https://doi.org/10.1136/bmjqs-2018-008216.

Østergaard, D., Madsen, M.D., Petersen, L.F., Siemsen, I.M., 2017. In-hospital handovers: a context-specific design process. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 203–221.

Rapport, F., Braithwaite, J., Mitchell, R., Westbrook, J., Churruca, C., 2017. Transitional care in a federated landscape. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 179–200.

Rennke, S., Nguyen, O.K., Shoeb, M.H., et al., 2013. Hospital-initiated transitional care interventions as a patient safety strategy: a systematic review. Ann. Intern. Med. Suppl. 158 (5), 433–440.

Russell, L.M., Doggett, J., Dawda, P., Wells, R., 2013. Patient Safety – Handover of Care between Primary and Acute Care. Policy Review and Analysis. National Lead Clinicians Group/Australian Government Department of Health and Ageing, Canberra.

Scott, J., 2017. Patient experiences of safety in care transitions. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 71–86.

Scott, J., Flynn, D., Chan, K., Sujan, M.A., 2017. Pre-hospital transitions and emergency care. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 123–142.

Storm, M., 2017. The role of professionals' competencies in care transitions. In: Aase, K., Waring, J., Schibevaag, L. (Eds.), Researching Quality in Care Transitions: International Perspectives. Palgrave Macmillan, Cham, pp. 143–157.

Storm, M., Siemsen, I.M., Laugaland, K., Dyrstad, D.N., Aase, K., 2014. Quality in transitional care of the elderly: key challenges and relevant improvement measures. Int. J. Integrated Care 14 (April–June), 1–15.

Thomas, J., Harden, A., 2008. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Med. Res. Methodol. 8 (45), 1–10. https://doi.org/10.1186/1471-2288-8-45.

Tierney, A., Gloss, J., Hunter, H., Macmillian, M.S., 1993. Experiences of elderly patients concerning discharge from hospital. J. Clin. Nurs. 2 (3), 179–185.

Vincent, C., 2010. Patient Safety. Wiley-Blackwell, West Sussex.

Waring, J., Bishop, S., Marshall, F., 2016. A qualitative study of professional and carer perceptions of the threats to safe hospital discharge for stroke and hip fracture patients in the English national health service. BMC Health Serv. Res. 16 (297), 1–14. https://doi.org/10.1186/s12913-016-1568-2.

Waring, J., Marshall, F., Bishop, S., 2015. Understanding the occupational and organizational boundaries to safe hospital discharge. J. Health Serv. Res. Pol. 20 (1_Suppl. l), 35–44.

Waring, J., Marshall, F., Bishop, S., et al., 2014. An ethnographic study of knowledge sharing across the boundaries between care processes, services and organisations: the contributions to 'safe' hospital discharge. Health Serv. Deliv. Res. 2 (29) https://doi.org/10.3310/hsdr02290, 1-160.

World Health Organization, 2016. Transitions of Care: Technical Series on Safer Primary Care. World Health Organization, Geneva.