A Scoping Review of Adult Experiences of Hospital to Home Transitions in Rural Settings

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Abstract

Scoping Review Question: How do adults experience hospital to home transitions in rural settings?

Background: Adequate preparation for transition from hospital to home can ensure continuity of patient care and is important in rural communities, which lack equitable access to healthcare services and professionals. After hospital discharge, rural patients feel unprepared, and have more emergency visits and hospital readmissions than urban patients.

Methods: The scoping framework designed by Arksey & O'Malley (2005) guides the methods. Eligible papers were published peer-reviewed reports in English of data collected in a rural setting that examined experiences of adults during transition from hospital to home. The search included MeSH and keywords and was adapted to fit different databases. Screening of titles and abstracts was followed by full text screening and data extraction.

Results: A total of 1448 papers were accessed, 701 titles and abstracts screened, 68 screened at full text, with 28 meeting inclusion criteria. The two main reasons for exclusion were that the topic was not transition from hospital to home, and the setting was unidentified or not rural.

Findings: There was a broad range of geographic distribution, care settings, recipient groups, research designs, and transition experiences. Four main factors influenced transitions: communication; continuity of care; variations in patients, healthcare professionals, and/or services; and attention to the rural context.

Recommendations: Based on the review, recommendations were made to improve discharge processes in rural settings.

Keywords: scoping review, hospital discharge, hospital to home, transitional care, rural, patient experience, nursing

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Transitional care has been defined as "a set of actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations" such as hospital to home (Coleman & Boult, 2003, p. 556). Adequate preparation for hospital to home transition can ensure continuity of patient care, a key quality indicator for maintaining health (Fox et al., 2020; Holland & Harris, 2007; Wan et al., 2017;). Poorly managed care transitions can result in poor follow-up on tests and results, adverse medication events, and excess emergency visits and rehospitalizations (Li et al., 2021) especially in rural areas where health determinants are adversely influenced (Subedi et al., 2019) and equitable access to health professionals and services is lacking (Canadian Institute for Health Information [CIHI], 2018; Wilson et al., 2020). Rural patients experience significantly more emergency visits and hospital readmissions than urban patients in the first month after hospital discharge (CIHI, 2012). Rural discharge planning may be more complex (Bolch, 2005), especially when patients must rely on informal home caregivers (Dellasega & Zerbe, 2002), or have no one to rely on (Henning-Smith et al., 2019). Rural patients

reported inadequate support and felt unprepared to manage their care after hospital discharge, perhaps due to a "pronounced shift" from care provided by professionals to home self-management (Fox et al., 2020, p. 2). The aim of this scoping review is to share knowledge of rural hospital to home transitions to inform research, practice, and policy.

Methods

Review methods were guided by the work of an international group of methodologists (Arksey & O'Malley, 2005; Daudt et al., 2013; Khalil et al., 2016; Tricco et al., 2018). A six-stage process is used.

Stage 1. Identify Objectives and Research Question

The objective of this scoping review was to examine published literature to determine the extent, range, and nature of knowledge available to answer the research question: How do adults experience hospital to home transitions in rural settings?

Stage 2. Identifying Relevant Literature

The goal was comprehensive identification of studies without having a restricted or excessive number of papers to screen (Arksey & O'Malley, 2005; Daudt et al., 2013; Elliot et al., 2019). The search strategy was drafted and refined using variations of MeSH terms and key words *hospital to home*, *patient experience*, and *rural*. *Home* was defined as a private or family residence rather than a rehabilitation, long-term or alternate level of care institution (Fox et al., 2019). The final search strategy in Table A was run in MEDLINE, CINAHL, EMBASE, ProQuest, and EMCARE databases. Guided by the research question, papers were included in the review if they met the following criteria:

1. The primary aim was to report adult patient experiences during transition from hospital to home in any type of rural setting identified by the author(s).

2. The paper was a published peer-reviewed report of data collected with any study design.
3. The full-text English version was available.

Papers were excluded if they were grey literature, opinion piece, editorial, or conference proceedings.

Table 1

Search Strategy

#	Searches	Results
1	"Patient Acceptance of Health Care"/	49,513
2	Patient Acceptance of Health Care.mp.	49,604
3	Patient Participation/	26,867
4	"Patient Participation".mp.	28,505
5	Patient Preference/	9,239
6	Patient Preference.mp.	13,117
7	Patient Satisfaction/	84,033
8	Patient Satisfaction.mp.	102,890
9	Preference, Patient.mp.	62
10	Satisfaction, Patient.mp.	340
11	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10	18,6070
12	Health Services Accessibility/	78,027
13	Health Services Accessibility.mp.	78,371
14	Health Services, Indigenous/	3,444
15	Health Services, Indigenous.mp.	3,463
16	Hospitals, Rural/	4,958
17	Hospitals, Rural.mp.	4,993
18	Medically Underserved Area/	7158
19	Medically Underserved Area.mp.	7225
20	Rural Health/	23,590
21	Rural Health.mp.	39,198
22	Rural Health Services/	13,110
23	Rural Health Services.mp.	13,522
24	Rural Nursing/	111
25	Rural Nursing.mp.	399
26	Rural Population/	61,946
27	Rural Population.mp.	65,779
28	Center*, Rural Health.mp.	8
29	Communit*, Rural.mp.	103
30	Health, Rural.mp.	70
31	Health Cent*, Rural.mp.	17

#	Searches	Results
32	Health Service*, Rural.mp.	11
33	nonmetropolitan.mp.	730
34	non-metropolitan.mp.	563
35	nonurban.mp.	484
36	non-urban.mp.	604
37	Nursing, Rural.mp.	8
38	Population*, Rural.mp.	123
39	reservation.mp.	2,095
40	rural.mp.	172,472
41	Rural Communit*.mp.	
42	Rural Health Cent*.mp.	775
43	Rural Hospital*.mp.	3,960
44	Service*, Rural Health.mp.	5
45	"small town*".mp.	1,792
46	village*.mp.	31,764
47	12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46	272,062
48	(Continuity of Patient Care or Transitional Care or Patient Discharge or transition or hospital to home or hospital discharge or discharge planning or coordination of care or continuity of care or care coordination or care continuity).af.	435,749
49	11 and 47 and 48	761
50	limit 49 to "all adult (19 plus years)"	479
51	50 and 2021:2021.(sa_year).	3

Database(s): Ovid MEDLINE(R) and In-Process, In-Data-Review & Other Non-Indexed Citations 1946 to April 20, 2021

Stage 3. Selection of Sources of Evidence

Final search results were exported into review management software, where duplicates were removed. Initial screening of titles and abstracts was completed by the author, acceptable at this stage due to tight guidance by inclusion and exclusion criteria and the reviewer's broad and deep understanding of the project (Van Mossel et al., 2012). To ensure accuracy, a second reviewer screened a random 10% of titles and abstracts, with a predetermined interrater agreement level set at a minimum 80% (Lim et al., 2012), which was exceeded. This process was repeated for full text screening. Reference lists of included articles were reviewed for potential additional articles, which were screened in the same manner.

Stage 4. Data Charting Process

The word *charting* refers to extracting and documenting data in scoping reviews (Arksey & O'Malley, 2005; Tricco et al., 2018). Two forms of data charting were developed to chart results, which were piloted and adjusted: 1) a tool with detailed information about pre-determined data to extract from each paper, such as author(s), publication information, country, research objectives, study design, and key findings about transition experiences; and 2) a tabular document to provide a cumulative view of results.

Stage 5, Collating, Analyzing, Applying Meaning, and Reporting the Results

Data were analyzed and details about transition experiences are reported here in written format (Tricco et al., 2018). Details are available in Supplementary Information.

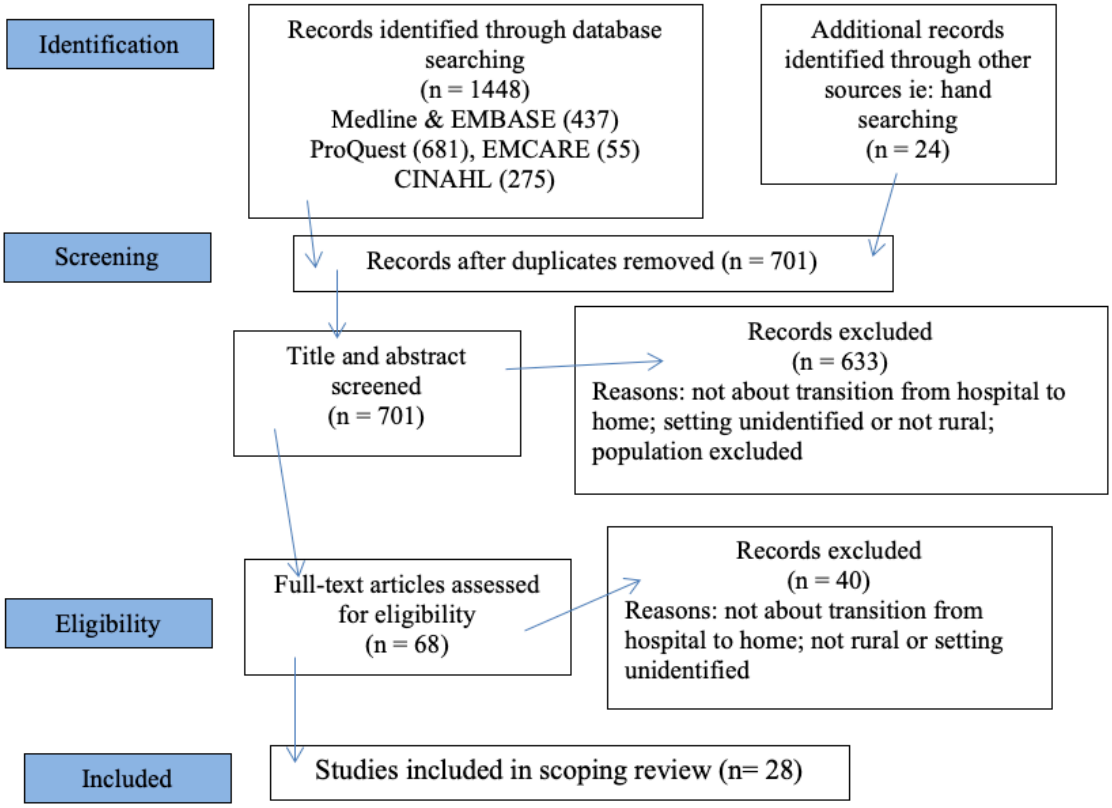
Stage 6, Stakeholder Consultation, if Applicable. This stage was considered not applicable.

Results

The number of citations retrieved from database searches is shown in Figure 1, with exclusion reasons at each stage. There were 1,448 citations; duplicates were removed and 24 were added from other sources, resulting in 701 for title and abstract screening. Full-text screening was completed on 68 papers – 28 met inclusion criteria. Publication years span 1997 to 2021, with three papers in the 1990's, six from 2000 to 2009, and 19 from 2010 to 2021. There is no clear reason for research tripling in the last decade but two papers from the United States mentioned a federal program to reduce hospital readmissions (Baldwin et al., 2014; Kind et al., 2012). This program, the Affordable Care Act (U.S. House of Representatives, 2010), adjusts hospital funding if 30-day readmission rates are excessive, which seems a logical reason to increase research on patient transitions at discharge.

Figure 1

PRISMA-ScR Flow Diagram



Adapted from Moher et al., (2009) with permission through open access, please see references for full credit.

Geographic distribution spanned seven countries: one paper from Norway; two each from China, Scotland, and Sweden; three from Canada; four from Australia; and 14 from the United States. Each paper had one to nine authors, with three the most common, from disciplines in areas such as clinical, public, or rural health. Nurses were noticeably prominent as authors on all but three papers. Designs were 14 quantitative (three randomized controlled trials [RCT], one systematic review), 10 qualitative, and four mixed methods. There was one study each on post-

hospital care of patients with cancer, bariatric surgery, diabetes, pain, and hip surgery; two each for medications, congestive heart failure, and adverse events; three each for post-stroke and post-natal care; four for cardiac care; and seven for discharge or transition processes. Time frames varied widely from the first week after discharge to 40 years; the majority covered the first six months. Eleven papers described discharge from rural hospitals and 15 from urban. The mean age of participants was 65 years and 40% were female. Nine studies reported having only rural participants, and there were 9-708 participants per study with a mean of 123.7.

Factors Affecting Transitions

Reviewed papers described transitions from hospital to home ranging from "smooth" (Eassey et al., 2017, p. 1119) to "treacherous" (Kind et al., 2012, p. 2659). Patient experiences were influenced by four factors: communication; continuity of care; variations in patients, healthcare professionals, and/or services; and attention to the rural context. There were varied degrees of influence, which was compounded if multiple factors were involved.

Communication. The importance of communication of healthcare professionals with each other and with patients during hospital to home transition was highlighted in most papers. Several papers reported positive outcomes from communication that began in hospital and continued post-discharge, such as between hospital-based Clinical Nurse Specialists (CNS) and rural patients who had frequent emergency department visits and/or hospital admissions (Baldwin et al., 2014). The CNS managed phone appointments in a 30-day transitional care program completed by 39 patients with congestive heart failure, diabetes, or chronic obstructive pulmonary disease; patient satisfaction improved, and emergency visits, readmissions, and costs decreased. The three RCTs all highlighted communication, which resulted in better self-management and reduced readmissions (Cui et al., 2019), promoted collaboration of physicians and patients (Askim et al.,

2004), and reduced pain interference with activity (Reynolds, 2009). Telephone communication made patients feel "humanized" after cardiac revascularization (Pesut et al., 2013, p. 93).

A study of transitions after hip fracture care drew attention to discharge notes being an endpoint of clinical accountability with a unidirectional flow of patient information received from or provided to health professionals or family caregivers (Johnson et al., 2013). Research with patients and carers found that a lack of communication at discharge caused confusion, bitterness, resentment, and insecurity, resulting in missed treatments, complications such as wound infections, and increased costs (Williams et al., 2006). Significant quality and safety problems were related to written and verbal transfer information that was "incorrect, conflicting or missing", resulting in missed appointments, unmanaged complications, medication changes not implemented, and staff time wasted (Bar-Zeev et al., 2012, p. 370). Ekdahl and colleagues (2012) found that discharge discussions usually involved only physicians and nurses, with decisions made during paper-based rounds, not at bedsides. Poor communication between multiple healthcare professionals and a lack of communication to patients contributed to medication-related problems within four months of hospital discharge (Eassey et al., 2017).

Continuity of Care. Effective and timely communication contributes to continuity of patient care, which is critical during transitions from hospital to home since hospital stays are shorter and patients may be at higher risk if not fully recovered at discharge (Dellasega & Fisher, 2001). Several papers reported that continuity of care through communication that began in hospital and continued during transition to home was successful, such as when a specialized early discharge midwife met with new mothers before they left the hospital to discuss information, and continued support at home via planned telephone follow-up (Löf et al., 2006). In another study, rural and urban cardiac patients were met by researchers in hospital and communication occurred by

telephone for five months post-discharge in an exploration of their recovery and medication use (Dellasega et al., 1999). Continuity of care was also promoted during development of a transitional care model that resulted in multiple interventions such as medication adjustments by Clinical Nurse Specialists with prescriptive authority (ie. insulin, nebulizers, diuretics) which helped patients manage at home (Baldwin et al., 2014). Managing at home was also highlighted in a study of cardiac rehabilitation, where patients preferred a home-based program rather than attending a hospital-based one and had better adherence rates in maintaining contact with rehabilitation nurses (Blair et al., 2011). Continuity of care was promoted in another study when nurse case managers were "tightly integrated with both the inpatient and outpatient teams" of 708 veterans discharged to rural homes (Kind et al., 2012, p. 2665). Almost half of the veterans needed medication corrections at the first phone call post-discharge despite pre-discharge counselling and medication reconciliation. This example highlights the necessity for continuity of care when transitioning from hospital to home.

Some studies drew attention to the lack of continuity, such as the discharge process being "fragmented with major discontinuities" due to the frantic hospital setting and lack of a discharge coordinator (Bar-Zeev et al., 2012, p. 371). In a different study, continuity of care was negatively affected when patients were admitted and discharged "rapidly*"* and some returned to hospital the next day (Ekdahl et al., 2012, p. 3). Continuity of care can be negatively affected by poor uptake of cardiac rehabilitation; only 17% of rural patients followed in one study completed the full 36-week program (J. E. Johnson et al., 1998,), and in another study 16% of patients declined it, 11% were not referred, and none was available for 33% (Pesut et al., 2013).

Variations. Three types of variations affected rural transitions home. These variations include patients, healthcare professional practice, and services available.

Patients. The earliest paper in the review examined variations in post-hospital health needs of 41 rural and 40 urban patients; the findings revealed no significant functional differences, but significantly more skilled care was needed by rural patients (Schultz, 1997). Urban patients received more support from family and friends than rural, who had more paid help due to decreasing availability of informal support; this was deemed a "critical concern" (Schultz, 1997, p. 33). A similar study found it "troubling*"* that 57% of rural participants had no home caregiver – effective individual discharge assessment and planning was "critical*"* (Dellasega & Fisher, 2001, p. 258). New mothers in a study by Löf and colleagues (2006) varied in the amount of support they wanted from family at home after early discharge, with some wanting help and others preferring privacy, while in a different study new mothers varied in the amount of anxiety they felt and preference for type of technology in post-natal care such as video links, emails, text, or digital interactive television (Roberts et al., 2009). A feasibility study of telemonitoring for 10 rural patients with lung cancer found variations in patient-reported perceptions of their symptoms (ie. shortness of breath and pain) and physiologic values (ie. blood pressure and temperature), which could impact self-management (Petitte et al., 2014). Eassey and colleagues (2017) found variations in the amount patients want to be involved in their care; some preferred none while others collaborated with healthcare professionals about medication management.

Some authors noted variation in patient ages as a factor in hospital to home transition, such as J. E. Johnson and colleagues (1998) who noted older age as a significant positive factor for attending a cardiac rehabilitation program, particularly when combined with other factors such as rurality and social support. Another study found that patients receiving home care after discharge who were female, lived alone, and older than 60 had more preventable adverse events, primarily with medications and complications from procedures (Tsilimingras et al., 2019).

Healthcare Professional Practice. Another factor that could affect the transition experience for a patient is variation in the practice of individual health professionals. Johnson and colleagues (1998) found that the strongest influence on patient attendance at cardiac rehabilitation after hospital discharge was if a physician recommended it. Another study found varying speeds at which patients were discharged from hospital depended on "the doctor in charge and his/her attitude to frail elderly people" (Ekdahl et al., 2012, p. 7). Patients reported conflicting advice from health professionals, especially when specialist care was required (Eassey et al., 2017). One described how some "heart pills were stopped" when he was in hospital, but at a post-discharge visit his cardiologist told him that was "incorrect and put me back on them", and another had been prescribed a medication by one doctor but a different one said not to take it (p. 1117). Morrison and colleagues (2016) found variations in whether a transitional program was led by CNS or physicians with palliative care experience – there was significant reduction in emergency room visits in the CNS group.

Services. Blair and colleagues (2011) noted rural communities have varied needs and requirements and found that cardiac rehabilitation services showed equal effectiveness of home and hospital-based programs in improving cardiac risk factors and reducing further cardiac events, mortality rates, hospital readmissions, and lengths of stay. Askim and colleagues (2004) found access to services supporting early discharge after stroke improved patient quality of life. Some rural patients told "difficult stories" of travel to and from an urban cardiac care centre, lack of emergency services, and feeling that cardiac rehabilitation had an urban focus with little relevance to the everyday rural lifestyle (Pesut et al., 2013, p. 92). A new "service innovation" in Australia was provided by cardiac rehabilitation nurse mentors, who were able to meet rural patients pre-discharge and provide six weeks of phone contact (Frohmader et al., 2018, p. 98).

In a feasibility study, most new mothers approved of service innovation with video support for infant feeding after hospital discharge, but only if it was available "24 h a day, 7 days a week" and did not disrupt existing services (Roberts et al., 2009, p. 351). Dellasega and Fisher (2001) found there was a lack of professionals (i.e. visiting nurse, physiotherapist, or physician) in rural settings, therefore patients relied more on non-professional (i.e. home delivery of meals, transportation services, companionship). Bar-Zeev and colleagues (2012) described how services in the rural setting were not the same as in urban, although hospital staff may have an unrealistic idea that it is, such as a midwife being available for several visits daily to support a new mother with breastfeeding, not realizing the consequences of their "poor discharge practices" (p. 371). Deng and colleagues (2020) highlighted the need for a variety of services in transitional care, particularly due to the complexity of stroke rehabilitation.

Attention to the Rural Context.

In this review strong attention to the rural context is described as clearly defining the rural setting and addressing the influence of context such as by comparing urban versus rural findings, which could affect the transition experience. Several papers were published in journals with *Rural* in the title, suggesting a focus on that setting, which was usually the case but not always. Approximately half of the studies paid strong attention to the home destination being rural. An example is a quantitative study about use of cardiac rehabilitation programs, which has the word rural in the title and abstract, defined a locally designed rurality index, and included rural in the results and discussion; 69% of the respondents (175) lived in rural areas and 31% (79) in small towns, and the degree of rurality had no significant influence on attendance (J. E. Johnson et al., 1998). Two other examples are a comparison of medication use by elderly cardiac patients in rural and urban locations (Dellasega et al., 1999) and an examination of post-hospital professional and

non-professional home care for 70 frail older adults in rural locations (Dellasega & Fisher, 2001). Both identified rural in the title and introduction and compared rural and urban in the results and discussion, drawing attention to the impact of closing rural hospitals (Dellasega & Fisher, 2001; Dellasega et al., 1999).

Pesut and colleagues (2013) note in their introduction to a study of post cardiac revascularization that lack of a common definition of rurality complicates patient experiences and address it well by providing a definition for their study (two hours distance by car from treatment centre and population less than 10,000) and including the setting in analysis and discussion. The rural context was the reason for a feasibility study of home telemonitoring of patients with lung cancer after discharge from hospital, aimed at promoting self-care, setting the stage for a clinical trial despite some challenges recruiting and retaining patients, and finding patient homes in the mountains for follow-up visits (Petitte et al., 2014).

Several papers missed opportunities to highlight the rural context. Bennett and colleagues (2012) include a title describing post-hospital follow-up of rural patients with diabetes however three-quarters of the data is from urban patients. The definition of rurality is clear, results show rural residents had similar rates of follow-up physician visits in the first 30 days post-discharge compared to urban residents, but transition to outpatient care is "not ideal in smaller rural areas" (Bennett et al., 2012, p. 7). Other studies were much weaker due to a lack of definition and minimal/complete lack of mention to the potential impact it might have during transition from hospital to home. This was surprising if the word rural was in the title of the journal or the paper and/or abstract, indicated some intent at examining the impact of the setting.

Askim and colleagues (2004) compared patients in three rural communities to evaluate the effect of usual or extended service after stroke; rural was in the title, but there was minimal mention

in the text, and no definition. Similarly, several other papers used rural superficially in titles, abstracts, findings, and discussion, with no clear definition (Cui et al., 2019; Ekdahl et al., 2012; H. Johnson et al., 2013; Kitzman et al., 2017; Löf et al., 2006; Roberts et al., 2009). The title of the Baldwin and colleagues (2014) study suggests that development of a transitional program is rural, however the population is 55% urban, rural is not defined, and mentioned minimally in the text regarding patients "geographically isolated from healthcare" (p. 154).

Discussion

The topic of interest for this scoping review was hospital to home transitions in rural settings. Findings included a broad range of papers across seven countries with various research aims and designs by individuals or teams from multiple disciplines, primarily nurses, with varying patient populations. Although these broad variations created challenges for drawing findings together, and some anticipated information was not reported, some common factors influenced patient transition experiences: communication; continuity of care; variations (patients, healthcare professional practice, and/or services); and attention to the rural context.

Results of this scoping review give rise to several points of discussion that link with existing literature. The first point is that during transitions from hospital to home in the rural setting, effective communication and continuity of care are vital and reciprocal – one promotes the other and vice versa. Patient outcomes were improved when there was timely post-discharge follow-up care that included effective communication especially when it began in hospital and continued throughout the transition process. Improved patient outcomes identified in the reviewed papers include reduction in emergency department visits and 30-day readmissions (Morrison et al., 2016; Muus et al., 2010), improved patient safety due to reduced medication discrepancies post discharge (Dellasega et al., 1999; Eassey et al., 2017; Kind et al., 2012; Tsilimingras et al., 2015), improved

post-natal care (Bar-Zeev et al., 2012; Löf et al., 2006; Roberts et al., 2009), and improved patient outcomes from targeted rehabilitation after stroke (Deng et al., 2020; Kitzman et al., 2017), cardiac events (Frohmader et al., 2018; J. E. Johnson et al., 1998; Pesut et al., 2013), and hip fracture (H. Johnson et al., 2013).

Communication and continuity of care have been the core dimensions in the delivery of patient-centred healthcare since its inception (Gerteis et al., 1993). The Picker Institute in the United States coined the term *patient-centered care* in 1988 (Barry & Edgman-Levitan, 2012) and it was promoted as a primary health system aim (National Research Council, 2001). Patient-centred care has been adopted globally (World Health Organization, 2018). Patients may require care past the hospital discharge boundary (Holland & Harris, 2007) however it is unclear if patient-centred care occurs during transitions from hospital to home. Although some reviewed papers hinted, only one specifically mentioned it. The cardiac rehabilitation Aussie Heart Guide Program supported by nurse mentors was "based on the patient centred care (PCC) approach" (Frohmader et al., 2018, p. 94). Some nurses had difficulty adopting this "new approach" but gained understanding of the values and benefits with experience and felt more education and organizational support would be helpful. This review found literature that indicates care is still being organized by healthcare professional choices instead of patients (Van Humbeeck et al., 2020), which does not promote patient-centred care.

The second point of discussion is that patient, healthcare professional, and service variations can create challenges during transitions. This is in line with literature, such as Pollack and colleagues (2016) who described challenges that patients experienced during transition to self-management after hospitalization related to knowledge, resources, and self-efficacy. There were gaps in system-based self-management support (such as verbal information transfer at discharge

and inability to integrate the knowledge into their everyday life) and elements of individual self-management (information was provided but hospital staff did not assess if patients had the resources such as money to purchase new medications or provide time for them to learn and practice new skills needed to carry out the plans). Patients may be unprepared or unable to process this information when in the hospital, and their needs may be uncertain at the time of discharge – they need tailored individual support as they adjust to home (Allen et al., 2002; Pollack et al, 2016). Findings from the review also support the literature about varying types of transitions. A systematic review found three types:

- pre-discharge interventions with discharge planning, patient education, medication reconciliation, and scheduling a follow-up appointment;
- post-discharge interventions with follow-up telephone calls, patient-activated hotlines, timely communication with ambulatory providers and home visits; and
- bridging interventions with transition coaches, physician continuity across the inpatient and outpatient settings, and patient-centred discharge instruction (Hansen et al., 2011).

The third point of discussion are the missed opportunities to draw attention to the rural context during transitions. It is particularly important in rural settings that patients and next of kin are included in discharge planning due to their knowledge of potentially accessible local resources (Kealy-Bateman et al., 2021). A recent Canadian model was developed for rural primary health care (PHC) management of dementia, noting that rural settings are different than urban, lack adequate services, struggle with physician recruitment and retention, and that there is "tremendous diversity across rural settings and PHC teams" (Morgan et al., 2019, p. 2). Nursing practice in rural settings presents unique ethical challenges, particularly a lack of resources, which is "a major barrier to quality care" (Alzghoul & Jones-Bonofiglio, 2020, p. 1038).

The fourth point of discussion is that one of the main goals of projects to improve transitions from hospital to home is to reduce unplanned trips to the emergency department and hospital readmission, however the 30-day readmission concept has been challenged in the literature. A chosen 30-day time frame makes it more likely that poor outcomes were "related to the index admission or discharge process" (van Walraven et al., 2010, p. 553). Hansen et al. (2011) noted that "avoiding rehospitalization has captivated policymakers" and suggested "reconsideration of planned penalties" (p. 527). Wan and colleagues (2017) examined patterns over six years of rural disparities in hospital 30-day readmissions and found multiple factors to consider, such as variations among county populations, rural health clinics, and patients, echoing the finding that patient and community level factors affect readmission (Rennke et al., 2013). The *LACE Index* was developed to determine the level of patient risk for unplanned readmission to hospital within 30 days of hospital discharge based on the sum of four variables:

- **L**ength of hospital stay;
- **A**cuity of admission;
- **C**omorbidity; and
- **E**mergency room visits in the six months pre-admission, with expected probability increasing at higher scores (van Walraven et al., 2010).

As noted by Morrison and colleagues (2016) included in this review, research on the most effective delivery of transitional care has varied greatly by intensity, healthcare providers involved, services provided, and care approach, with two being the most consistently studied – the Care Transitions Intervention (Gardner et al., 2014) and Transitional Care Model (Naylor et al., 2014). The Care Transitions Intervention® (CTI) was developed by Dr. Eric Coleman at the University of Colorado, School of Medicine in 2003, and has reduced hospital readmission rates in various

patient populations who work with a Transitions Coach® to ensure their needs are met during transition from hospital to home with five encounters over 30 days: a hospital visit, if possible, a home visit, and three follow-up phone calls (Care Transitions, n.d.). The CTI has a "patient-centered focus" to ensure patient care needs are met, with explicit attention to medication reconciliation and enhancing healthcare continuity (Coleman et al., 2006, 1827).

The Transitional Care Model (TCM) has been tested and refined by a multidisciplinary (doctors, other nurses, social workers, discharge planners, pharmacists, and others) research team at the University of Pennsylvania since 1991 (Naylor et al., 2009). The TCM provides comprehensive hospital discharge planning and follow-up at home for chronically ill high-risk older adults, led by the Transitional Care Nurse (TCN), who follows patients from hospital to home, providing services designed to streamline care plans, interrupt patterns of frequent acute hospital and emergency department use, and prevent decline in health status. Randomized controlled trials of the TCM found significant reduction in rehospitalizations, emergency department visits, and healthcare costs after patient discharge (Naylor et al., 2004, 2014).

The final point of discussion arises from the noticeable engagement of nurses in most of the reviewed studies (25/28). Nursing is important during transitions from hospital to home since little happens in healthcare without going through the hands of a nurse (Allen, 2015). An integrative review of 25 studies evaluating transitional care interventions for patients with heart failure (HF) found that the majority (15) were delivered by nurses, which the authors note "confirmed that nurses are the most important healthcare providers of transitional care for patients with HF" (Ba et al., 2020, p. 14). The reviewed study by Morrison and colleagues (2016) also noted that most transitional care programs in the literature are multidisciplinary teams with care directed by Advance Practice Nurses, although some rely on other professionals.

As noted in mixed methods study comparing outcomes of discharge planning and follow-up care by nurses (APN, expert, and novice) for elders with chronic healthcare conditions, there are ethical limitations to examining care by different providers, making it difficult to assess the effectiveness of different types of transitional care (Jeangsawang et al., 2012). In a more recent study, there were difficulties determining causality in a large multi-year multi-phase mixed methods comparison of care transition strategies to improve patient care funded by the Patient-Centered Outcomes Research Institute (Li et al., 2021). Key findings include that during care transitions, patients and family caregivers want to feel cared for and cared about by medical providers; a clear understanding of who is responsible for their health care; and to feel prepared to implement their care plan when discharged from the hospital (Li et al., 2021). Transition care strategies emphasizing "trust, plain-language communication, and tailored care planning" with "bridging activities" pre- and post-discharge were consistently and strongly associated with reduced health care use and improved patient-reported outcomes and experiences (p. 29). Some study sites were identified as rural based on zip code population, health literacy was identified as requiring help filling out medical/hospital forms or survey language being non-English, and some statistics were provided, but there was no discussion of these topics in the lengthy report.

Recommendations

As Levine (1998) noted, "… discharge planning should make the hospital-to-home transition a smooth one" (p. 25). Drawing from this review, recommendations to promote smooth transitions to reduce return emergency visits and hospital readmissions in rural settings include:

- Attention to discharge residential location and availability of supports and services.
- Clearly defined standards of discharge care practice, responsibilities, and accountability.
- Improved standardized discharge instructions and checklists for specific conditions.

- Improved discharge planning and care coordination with careful consideration to assessing discharge needs from patient perspectives and including carers if possible.
- Standardization of hospital- and home-based rehabilitation (i.e. cardiac and stroke).
- Written communication such as two-way booklets between care settings and patient journals/logbooks for symptoms such as pain. All verbal and written communication must be clear and understandable in plain language for patients and carers.
- Potential role for telehealth, including input via video conference from specialists.
- Use of a transitional care model for planning and discharge purposes.
- More engagement of nurses in the planning process.

Further research is recommended, and in addition to patient-centred care, topics missing from the papers reviewed provide opportunities, such as gender and age differences, financial factors, the acute/primary care disconnection, most effective communication methods to promote quality patient outcomes, variations in programs, and health literacy. In cross-sectional analysis of 384 patients transitioning from hospital to home, findings indicate that those who screened with inadequate basic health literacy had more transitional care needs and were associated with inadequate caregiver support, which increased patient vulnerability (Boyle et al., 2017).

Limitations

One limitation is that excluding papers not in English may reduce the findings, and another is that papers in the scoping review primarily represent the western conceptualization of rural. This review may have missed some published work, and a single reviewer of the majority of full-text papers and for data extraction may have missed some information. Critical appraisal of papers and instruments used was not completed in this scoping review, consistent with guidance from the literature (Arksey & O'Malley, 2005; Levac et al., 2010; Peters et al., 2020).

Conclusion

In the first month after discharge patients are at risk for "post-hospital syndrome…(a) transient period of vulnerability" (Krumholz, 2013, p. 100), and unplanned readmission may occur, making transition care important as a preventive mechanism. This scoping review was guided by the research question: How do adults experience hospital to home transitions in rural settings? Findings about common factors that improve or hinder rural patient transition experiences resulted in several recommendations to improve discharge processes in rural settings. Gaps in the evidence base provide information to guide future research opportunities.

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Supplementary Information: Details of Papers Reviewed

#	Authors/ Year/ Journal/ Place	Title	Study Design	Professions, Participants	Key Findings
1	Askim et al. 2004 *Clinical Rehabilitation*, 18, 238-248. Norway	Evaluation of an extended stroke unit service with early supported discharge for patients living in a rural community. A randomized controlled trial.	Randomized controlled trial Early d/c with extended support vs. ordinary care	PH + CVA MD researchers 62 rural patients acute CVA	At 52 weeks post CVA: NO positive effect on functional outcome but trend toward better quality of life NO significant differences in length of stay
2	Baldwin et al. 2014 *Clinical Nurse Specialist*, 28(3), 147 US, TX	Developing a rural transitional care community case management program using Clinical Nurse Specialists	QI project to prevent readmissions of un & under-insured	All = CNS (RN PhD + 2 MSN) with Rx authority 39 patients were phoned weekly or more	Multiple timely interventions i.e. insulin readjustment, med refills Improved patient satisfaction Decreased hospital and ED 30-day visits, decreased costs
3	Bar-Zeev et al. 2012 *Midwifery*, 28(3), 366-373. Australia	From hospital to home: The quality and safety of a postnatal discharge system used for remote dwelling Aboriginal mothers and infants in the top end of Australia	Case study + Key informant interviews + observation in regional hospital and two remote health centres	RN/Midwife Researchers Remote dwelling Aboriginal mothers and infants	Poor discharge documentation, communication and coordination between hospital and health centre staff. Serious risks to safety for mothers and infants due to adverse effects of poor standards of care.
4	Bennett et al. 2012 *Rural and Remote Health*,	Missing the handoff: Post-hospitalization follow-up care	Quantitative analysis of Medicare data from Chronic	MDs + Researchers 1.4 million Medicare	Residents of smaller rural areas are less likely to obtain f/u care.

#	Authors/ Year/ Journal/ Place	Title	Study Design	Professions, Participants	Key Findings
	12 Article 2097 US, SC.	among rural Medicare beneficiaries with diabetes	Conditions Warehouse (CCW)	beneficiaries with DM Urban/rural differences 30 days post discharge of MD follow up	Personal (i.e. age, race, gender) and illness characteristics more predictive than rurality for MD follow up.
5	Blair et al. 2011 *Rural and Remote Health* 11, 1532. (Online) UK: Scotland	Home versus hospital-based cardiac rehabilitation: A systematic review	Systematic review 22 articles reviewed	RN + University Researchers Patients had been d/c'd from hospital and had cardiac rehab	No clinically significant reduction in mortality or CV events, health costs. Some reduced readmissions due to rehab. Home rehab helps rural and patients felt in control
6	Cui et al. 2019 *Rural and Remote Health,* 19(5270). China	A nurse-led structured education program improves self-management skills and reduces hospital readmissions in patients with chronic heart failure: An RCT	RCT 12-month follow up education + self-mgmt scales	RN + MDs + Researchers 96 patients + some caregivers	Medication adherence, dietary modifications, social support, symptom control better in intervention group. Readmission rate for HF 10.4% vs. 27.1% Little rural attention
7	Dellasega et al. 1999 *Journal of Gerontology*, 54(10), M514-M520. US, PA	Postdischarge medication use of elderly cardiac patients from urban and rural locations.	Mixed methods Phone interviews 2, 4, 12, 20 post d/c + survey	NP PhD MD Research team 32 patients aged 65+	Urban subjects with same illness severity prescribed more drugs + had significantly more drug changes, directly predicted hospital

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					readmission + ER visits
8	Dellasega and Fisher 2001 *J of Community Health Nursing*, 18(4), 247-260 US, PA	Posthospital home care for frail older adults in rural locations	Longitudinal Baseline in hospital then phone calls after 48 hrs., 2, 4 + 6 weeks	2 NP PhD 70 patients aged 65+ 57% had no caregiver	Non-professional services by unpaid family/friends, home meal delivery, transportation services were used most often, most intense use at 2 weeks
9	Deng et al. 2020 *Clinical Rehabilitation*, 34(4) 524–532 China	Effects of an integrated transitional care program for stroke survivors living in a rural community: An RCT	RCT	Rehab Research team 98 patients home rehab for intervention group, control had secondary CVA prevention	Intervention group scored significantly better. No significance in Caregiver Strain Index. Program is feasible Little rural attention
10	Eassey et al. 2017 *Health Expectations*, 20(5) , 1114-1120 Australia	"I have nine specialists. They need to swap notes!" Australian patients' perspectives of medication-related problems following discharge from hospital.	506 surveys = 45% (228) rural 174 reported medication related problem when transitioning home	Pharmacists	Patient-centred care required for smooth transitions Need more communication + collaboration Conflicting advice
11	Ekdahl et al. 2012 *BMJ Open*, 2(6), e002027 Sweden	'Are decisions about discharge of elderly hospital patients mainly about freeing blocked beds?' A qualitative	Qualitative observational	Geriatric MD, district RN, + senior medical & palliative RN 9 Patient + hcps 6 RNs 3 MD interviews, Observation in	Patients often excluded by MDs + nurses from discharge discussions and very little participation in decision making

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		observational study.		2 general rural + 1 urban teaching hospitals	Preoccupation to free up beds. Patients feel unwelcome in hospital
12	Frohmad et al., 2018 *Australian Critical Care*, 31, 93-100 Australia	Structures, processes and outcomes of the Aussie Heart Guide Program: A nurse mentor supported home based cardiac rehabilitation program for rural patients with acute coronary syndrome	Case study	All RNs 13 patients recovering from ACS interviewed and 7 nurse mentors surveyed	Patients thought the program assisted their recovery Therapeutic relationship developed
13	J. E. Johnson et al. 1998 *Public Health Nursing*, 15(4):288-296 NV, US	Rural residents' use of cardiac rehabilitation programs	Survey of patients from 4 hospitals of factors affecting participation	3 RN PhDs 254 patients 28% (72) attended any CR and only 17% (43) completed the full 36 (3xwk. x 12)	Degree of rurality not significant influence on use but economic adequacy was. Hazardous roads, bad weather, lack of public transportation complicated CR utilization.
14	H. Johnson et al. 2013 *Physiotherapy Canada*, 65(3), 266-275 Ontario Canada	Hip fracture care in rural SW Ontario: An ethnographic study of patient transitions and patient handoffs	Rehab Network: PT, OT, + researchers	11 patients (3 went home for rehab), 8 family caregivers, 24 hcps + documents	Information gaps and poorly timed. Unidirectional info flow – lack feedback if papers reached intended person Information needs to be structured + timely

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					Important: PT to PT, other hcps, family
15	Kind et al. 2012 *Health Affairs*, 31(12), 2659-2668 US, WI	Low-cost transitional care with nurse managers making mostly phone contact with patients cut rehospitalization at a VA hospital	Quality improvement project Weekly calls x4	MD Public Health, RN on in + outpatient team Nurse case manager met 708 veterans + caregiver prior to d/c, phoned within 72 hours, did medication reconciliation	C-TraC protocol development to improve care transitions 47% had med discrepancy despite pre d/c med rec, was corrected at 1st phone call. Lower rates of 30-day rehospitalization. Net cost avoidance = $1,225 per veteran
16	Kitzman et al. 2017 *Journal of Community Health*, 42, 565-572. US, KY	Care coordination for community transitions for individuals post-stroke returning to low-resource rural communities	Program assessment	Researchers from Rehab + Rural Health 30 patients (17 females 13 males) 70% had ≥5 comorbidities Began monthly support group	Specially trained Community Health worker to support transitions contacted participant first time in home then by phone 1x/week first 3 months then every other week for 6 months. Mostly education
17	Löf et al. 2006 *Scandinavian Journal of Caring Sciences*; 20(3), 323-330 Sweden	Factors that influence first-time mothers' choice and experience of early discharge	Qualitative interviews	RN Midwives 9 first time mothers Rural and urban	Early discharge team provided positive experience – mothers confident and secure Mothers well informed about how to get support

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18	Morrison et al. 2016 *Journal of Nursing Scholarship*, 48(3), 322-329. US, VT	Reducing preventable hospitalizations with two models of transitional care	Retrospective cohort comparison pre- and post-intervention	CNS, DNP, RN PhD 98 patients from CNS 41 patients from MDs Average 81 years 63% female	Both programs have value, but CNS program patients had significantly fewer ED visits + hospitalizations 4 months after intervention.
19	Muus et al. 2010 *Rural and Remote Health*, 10(1447). No place noted.	Effect of post-discharge follow-up care on readmissions among US veterans with congestive heart failure: A rural-urban comparison.	Analysis of administrative data from Veterans Affairs	Rural Health Researchers 36,566 hospitalizations 1/3 rural 98% male	~17% had potentially preventable readmission; were older, disabled, had longer initial hospital stays due to illness severity. Post d/c MD or cardiologist visit within 30 days ↓r/a for urban & rural. No ↑ CHF readmission risk for rural.
20	Pesut et al. 2013 *The Journal of Rural Health,* 29, 88–96 Canada	Understanding the landscape: Promoting health for rural individuals after tertiary level cardiac revascularization	Pilot mixed methods study with phone survey and interviews Rurality = 2 hours by car pop <10,000	1 All are PhD RNs 24 rural patients (25% of total) Age 36-95 average 65 12 were interviewed	No significant difference in CR participation. Unmet needs = transportation & lifestyle changes. Rural patients had few complications. Good info flow – printed + f/u phone calls.
21	Petitte et al. 2014	Feasibility tudy: Home telemonitoring for	Feasibility study using exploratory,	RNs + some PhDs	No statistical differences

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	Oncology Nursing Forum, 41(2), 153-161 US	patients with lung cancer in a mountainous rural area	descriptive, and observational methods	10 patients lived within 75 miles of hospital. 5 had usual care 5 had telemonitors 14 days + daily nurse phone call	Challenges = environment, culture, technology, enrolment, retention One home visit to check patient and pick up monitors
22	Reynolds 2009 *Pain Management Nursing*, 10(2), 76-84 US, WA + ID	Postoperative pain management discharge teaching in a rural population	RCT	RN PhD 87 patients 10-minute intervention and 59 control from two rural hospitals = pop <50,000	Intervention = pre-d/c education for self-pain management. No statistical difference but intervention group had lower pain scores and less interference with activities due to pain
23	Roberts et al. 2009 *Maternal and Child Nutrition*, 5, 347–357. UK Scotland	The use of video support for infant feeding after hospital discharge: A study in remote and rural Scotland	Concurrent mixed methods	Midwives and Nursery Nurses Centre for Rural Health 20 interviews + 91 surveys (22.6%) from regional maternity + 3 rural midwifery units	Varied use of video – some enthusiasm but most preferred face-to-face. Worry= continuity of care if video replaces current phone & in-person. Midwives were preferred over GPs
24	Schultz 1997 *Public Health Nursing*, 14(1), 28-36 US, ME	Identification of needs of and utilization of resources by rural and urban elders after hospital discharge to the home	Descriptive comparative quantitative at 3 days and 3 weeks after discharge	RN PhD Nurse Researcher 41 rural (19 female) = <6 people/sq. mile + 40 urban; ¾ had medical Dx	Use of community services + family assistance similar. More paid help in rural – less costly? Rural had significantly more skilled care needs,

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					complexity, and unmet needs. Urban had sig longer LoS
25	Tsilimingras Schnipper, et al. 2015 *Journal of General Internal Medicine*, 30(8), 1164–71. US, Fl.	Post-discharge adverse events among urban and rural Patients of an urban community hospital	Prospective cohort study	MD MPH, DNP MS 344 rural + 340 urban Rural = zip code with density < 100/sq. mile Nurse phone interviews + chart review	AEs similar in both groups = 28% of which 2/3 were preventable Different rural/urban risk factors require different interventions to improve patient safety during transitions
26	Tsilimingras, Zhang, and Chukmaitov 2019 *Home Health Care Management & Practice*, *31*(4), 257-262 US, FL	Post-discharge adverse events among patients who received home health care services	Prospective cohort study Interviews and extensive chart review	MD, MPH, PhD, MD PhD 39 rural 46 urban patients phoned by research nurses 3-4 weeks after discharge	42.4% rural patients had AE = high due to extensive document review 47% preventable Factors = live alone, DM, pneumonia, infection
27	Wang et al. 2019 *Obesity Surgery*, *29,* 2704–2706. TWH Toronto Canada	Exploring the effects of telemedicine on bariatric surgery follow-up: a matched case control study	Matched case control Contingent on access to appropriate technology	Bariatric Surgery + CAMH Rurality Index for Ontario 192 patients 96 telemedicine + 96 non	Up to 5 years f/u post-op = mean of 2.59 No sig difference in appointment attendance between tele (93%) & non-tele (89%) or lost to f/u 20% vs 14%
28	Williams et al. 2006 *Australian Journal of*	Going home from hospital: The post discharge experience of patients and	19 patients + carers. Pre and post discharge surveys, 12	SW + Academics	No post discharge plans even for patient with new colostomy.

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	Rural Health, 14, 9–13 Australia	carers in rural and remote Queensland	post interviews	+50km to qualify for subsidy	Discharge was sudden and confusing No carer needs arrangements

https://doi.org/10.14574/ojrnhc.v22i1.703