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SYSTEMATIC REVIEW

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Continuity of care for patients with chronic conditions from rural or remote Australia: A systematic review

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Abstract

Objective: To identify the barriers and facilitators of achieving continuity of care between health services for patients with chronic conditions living in regional, rural and remote Australia.

Design: A systematic literature review of peer-reviewed journal publications between January 1990 and April 2018.

Setting: Publications were sourced from medical and scientific databases, including: PubMed; Embase; OvidSP; ProQuest research library; and ScienceDirect.

Participants: Studies, involving two groups, were included in the review: (a) Australian adults, residing in non-metropolitan areas with a chronic condition, who accessed health care services; and (b) health care service providers (eg, doctors) who provided care to non-metropolitan patients.

Main outcome measures: Facilitators and barriers of continuity of care for non-metropolitan patients with a chronic condition.

Results: Initially, 536 studies were included in the review. Of these, 12 studies were found to have met the eligibility criteria and were included in the final analysis.

Conclusions: Coordination of health care services for non-metropolitan patients with chronic conditions substantially improves the outcomes for patients. Overall, communication, availability of resources and location are the major barriers and facilitators to continuity of care, depending on how they are managed. Recommendations have been provided to assist practitioners and policy-makers to improve the experience of shared care and health outcomes for non-metropolitan patients.

KEYWORDS

barriers, coordination of care, facilitators, quality of care, regional

1 | INTRODUCTION

Chronic health conditions represent the leading cause of death and disability in Australia.[1] Adverse health outcomes, including premature death and poor health due to illness, injury and disability, resulting from chronic conditions are higher for rural and remote Australians, as compared with metropolitan Australians.[2,3] Individuals with chronic health conditions typically interact with multiple health care service providers.[4] Contemporary research has shown that patients

benefit from the collaboration between health professionals who are involved in the treatment or management of their health.[5] Such collaboration is referred to as "continuity of care" and requires an effective coordination of services and information sharing between health care professionals.[6,7]

In practice, there is a vast disparity between the continuity of care experience of rural and metropolitan patients in Australia, with information sharing between health care professionals typically reduced as remoteness increases.[8] Specifically, primary care providers for rural patients are typically not informed of supplementary care requirements by other medical professionals following hospital admission or consultation with a specialist—particularly when treated in metropolitan areas.[8]

In order to address the disparity in the provision of health care between metropolitan and rural patients, the Australian Government developed the *National Strategic Framework for Rural and Remote Health,* aimed at improving the integration and coordination of care between the rural health providers.[9] It is important to understand the current experience of rural and remote patients' interaction with health care professionals and associated facilitators and barriers to achieving a positive continuity of care outcome.

This systematic review synthesises empirical scientific literature to inform practical advancements and improved health outcomes for patients with chronic conditions living in regional, rural and remote Australia.

What is already known on this subject:

- Increasing access to comprehensive health care for rural and remote Australians is a national priority. Continuity of care has been identified as an area for improvement.

What this study adds:

- This paper provides a synthesis of the scientific literature related to key facilitators of, and barriers to, achieving continuity of care for rural and remote Australians; and clear recommendations to improve patient outcomes.

2 | METHODS

2.1 | Literature search

A comprehensive literature search was conducted of medical and scientific databases including PubMed, Embase, OvidSP, ProQuest research library and ScienceDirect using the terms: "continuity of care" AND "rural" OR "regional" OR "remote" AND "Australia" AND "chronic condition*" OR "disease" OR "complex condition" AND "satisfaction" OR "quality of care" OR "cost" OR "appointment" OR "facilitat*" OR "barrier*" OR "access to care" OR "clinical". Results were limited to peer-reviewed publications which were written entirely in English and published in journals between 1st of January 1990 and 30th of April 2018. Reference lists of studies, included in this review, were searched using the same criteria and PROSPERO was checked for relevant systematic reviews. All potentially relevant studies were reviewed for suitability. Citations identified by searches were downloaded to Endnote (Version 8), and duplicates were removed.

2.2 | Study selection, data extraction and thematic synthesis

The screening and selection of studies was conducted independently by four reviewers using the Wesley Medical Research Systematic Review Protocol.[10] Disagreements about eligibility were discussed and resolved by consensus. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist[11] was completed.

Studies, eligible for inclusion, comprised: controlled trials; pre-test and post-tests; interrupted time series analyses; and qualitative studies. Participants included adult non-metropolitan patients with a chronic condition and health care service providers (eg, doctors) of such patients. Consistent with the systematic review by Aubin et al,[7] this review included studies that explicitly researched continuity of care or other relevant models described as shared care, case management, interdisciplinary or multidisciplinary teams that clearly involved collaborative clinical care or follow-up provided by multiple health care providers. Outcomes included barriers or facilitators to achieve continuity of care. Three of the reviewers independently conducted the data extraction and risk of bias assessments for each study.

Consistent with the thematic synthesis method detailed by Thomas and Harden,[12] the reviewers used inductive coding to independently code the meaning and content of each line of text from the results reported in the included studies. The reviewers searched for similarities and differences to group the codes into descriptive themes. Reviewers then analysed the descriptive themes and inferred barriers or facilitators and considered the implications for achieving continuity of care for non-metropolitan patients. Disagreements were discussed and resolved by consensus.

3 | RESULTS

The process of the study identification and selection is outlined in Figure 1. From a total of 536 unique studies identified across five databases and reference lists, 12 studies satisfied the selection criteria.[13-24]

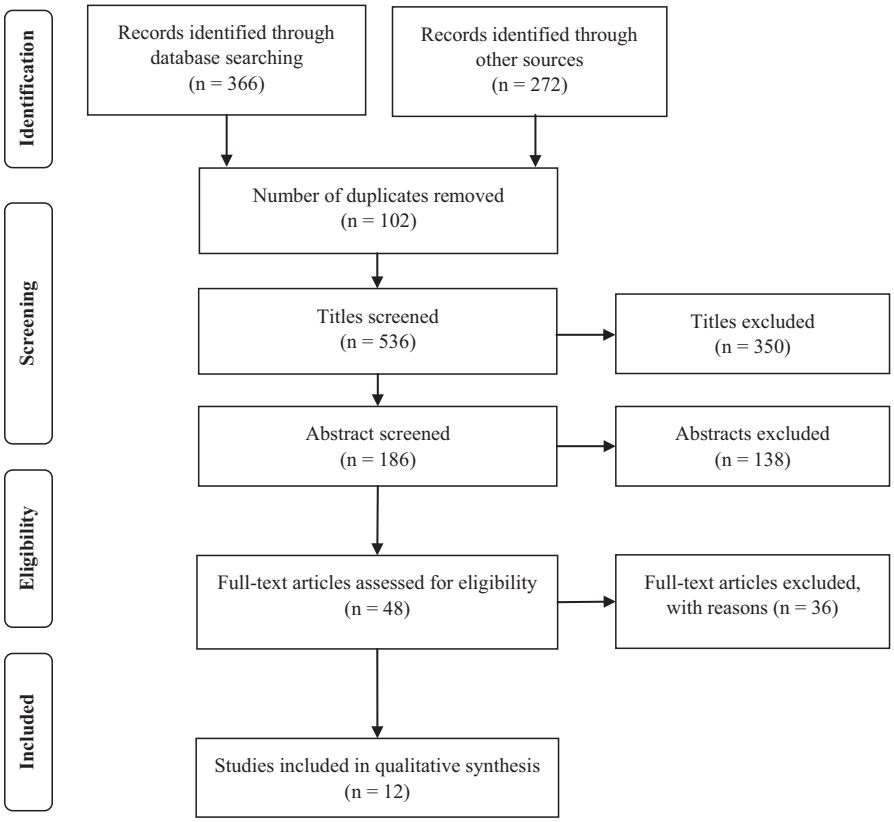

FIGURE 1 Selection of studies based on predetermined inclusion criteria

3.1 | Study characteristics

The PICOS of the included studies are described in Table 1. The review included: pilot trials (n = 2); qualitative studies (n = 3); mixed methods design (n = 5); and a protocol paper (n = 1). The included studies incorporated numerous health care services, including: telemedicine; cardiac rehabilitation programs; air ambulance transfer; asthma management; psychosocial support service; and discharge processes and communication plans. Five studies did not provide a specific intervention, but discussed treatment initiatives.

4 | FINDINGS

Three themes emerged as barriers and facilitators to continuity of care within Australia's rural environment: communication and coordination, availability of resources and location. Key subthemes are indicated in italics.

4.1 | Communication and coordination

Most studies reported *inconsistent management of patient's illness* as a barrier, either between metropolitan and rural services[15,16,18] or between different services within a rural area.[17,20,21,23] For example, incongruent advice was provided to patients between metropolitan and local health practitioners.[15,16] Inconsistencies originated from poor *discharge-planning and referral systems*. Poor documentation and incomplete discharge documentation resulted in fragmented health care and poor health outcomes.[15,17,20] Incompatible systems, poor patient data coding and a lack of awareness of available services were associated with poor discharge-planning and lack of referrals.

While several studies suggested that poor communication and coordination were barriers to achieving continuity of care within rural areas,[14-18] others reported that good communication between professionals facilitated collaborative care.[13,14,19,22,24] These studies recognised the importance of sharing information between health professionals and maintaining regular contact with patients. Most of these studies also reported that having a *dedicated role specific to the coordination of care* improved the collaboration between health care providers. For example, Lobo et al[19] reported that having a nurse responsible for coordinated patient care was associated with higher rates of follow-up, improved consultations and responsiveness to patient needs.

4.2 | Availability of resources

Four studies reported that the success of coordinated care models was contingent on the *availability of skilled and*

TABLE 1 Study characteristics, continuity of care facilitators and barriers

Author, year/state	PICOS	Themes		
		Communication and coordination	Availability of resources	Location
Blackwell et al[12]/ Queensland	Pilot evaluation study of simultaneous Telemedicine consultation by a local practitioner and an external specialist. Prospective review of referral patterns/patients presenting to the ED of a remote hospital with an acute ophthalmological problem requiring specialist opinion (n = 24) and patients who were reviewed 1 y before (n = 17); no age or gender specified. Three-month review and 3-mo pilot study.	F	F/B	F
Courtney-Pratt et al[13]/ Tasmania	Pilot evaluation study of 7-wk cardiac rehabilitation program: Program facilitators were local public and private health care providers. Interviews with patients following cardiac surgery, diagnosis or at risk of CVD (N = 8); mean age: 60 years; 50% men. Data collection occurred pre, post and 6 mo after the program. The Health Education Impact Questionnaire measured the effectiveness and outcomes of program.	F	F/B	F
Digiacomo et al[14]/Western Australia	Qualitative study of Implementation of the Strengthening Cardiac Rehabilitation and Secondary Prevention program for Aboriginal and Torres Strait Islander Peoples Guidelines. Health professionals (N = 38) servicing patients with CVD and Aboriginal people; no age or gender specified. Interviews to investigate awareness, perceived guidelines, and implementation barriers.	B	B	NA
Johnson[15]/New South Wales	Qualitative study of air ambulance transfer experience from a rural hospital to a metropolitan critical care unit. Interviewed randomly selected patients (N = 10); 19-76 y, no gender specified .	B	B	NA
Laurence et al[16]/South Australia	Mixed methods study of the integration of asthma management between a primary and acute care setting. Hospital audit, survey of consumers who attended ED and interviews with consumers and health professionals. Patients with asthma attending the ED (n = 41), GPs (n = 11), consumers (n = 4), pharmacists (n = 2) and nurses (n = 8) from three rural communities; over 18 y, no gender specified.	B	B	NA
Lee[17]/Victoria	Qualitative study of psychosocial support services for rural patients with cancer. Patient questionnaire. Two interviews and six focus group discussions. Nurses (n = 37), Occupational therapists (n = 5), a Psychologist (n = 1), Social workers (n = 8) and Managers (n = 8) involved in patient care; no age or gender specified (N = 59).	B	B	B
Lobo et al[18]/Western Australia	Mixed methods study of Nurse-supported shared care services for patients with hepatitis C. Interviews with health professionals from: regions operating a shared care service (GP n = 1, Liver Specialist n = 1, Physicians n = 2 and Nurses n = 3), regions not operating a shared care service (Physicians and Nurses N = 4). Questionnaire with patients in a shared care program (N = 20); patients 40-65 y, no gender specified.	F/B	F/B	B
Mackenzie and Currie[19]/ Northern Territory	Qualitative study and audit of discharge summary process and communication between the rural hospital and community health clinic. Interviews with hospital staff (n = 18) and community health clinic staff (n = 13). Audit of patient discharge summaries for Aboriginal residents in four isolated communities (N = 350); no age or gender specified.	B	NA	B

(Continues)

TABLE 1 (Continued)

Author, year/state	PICOS	Themes		
		Communication and coordination	Availability of resources	Location
McDonald et al[20]/New South Wales	Qualitative case study of collaborative care in the private and public sector. Interviews and group feedback sessions with health professionals involved in the management of type 2 diabetes mellitus: Dieticians (n = 8), GPs (n = 5), Practice Nurses (n = 2), Medical Specialists (n = 3), Optometrist (n = 2), Pharmacist (n = 1), Physiotherapist (n = 1) and Podiatrist (n = 5); Aboriginal health education officer (n = 1), Community Nurse (n = 3), Diabetes educator (n = 2), Fitness instructor (n = 1), Aboriginal community worker (n = 1) Health Care Managers (n = 10) and patients with type 2 diabetes mellitus receiving care from two or more organisations (n = 8); aged 51-76 y, 75% men.	F/B	F	NA
Morrissey et al[21]/New South Wales	Pilot study of a Pharmacist-driven, Doctor and Pharmacist collaboration primary care model of medication adherence monitoring through algorithms. Patient measures included: patient medication adherence, clinical information and health behaviours (via questionnaires). Health outcomes were measured at baseline and at the end of the study. Patients from rural and remote towns with one or more chronic conditions (n = 84) and Pharmacy owners (n = 9); aged 40+ y, no gender specified.	F	B	NA
Shepherd and Chalmers[22]/ Queensland	Qualitative study of a rural general practice-based cardiac rehabilitation program. Survey with stakeholders sampled from six remote communities: Indigenous cardiac patients (n = 47), Indigenous health workers (n = 22), medical practitioners (n = 11) and nurses (n = 8); 65% of patients were aged over 50 years; 55% of patients were women.	F/B	B	NA
Yu et al[23]/New South Wales	Mixed methods study of an Integrated Care Strategy that addressed care navigation, shared care planning multi-disciplinary case conferencing, health and social care coordination, care navigation, team-based care and shared electronic medical records. Data analysis of reports on patient reported measures and health service activity data, which extracted patient samples from three rural sites (Site 1 n = 50, Site 2 n = 40, Site 3 n = 40). Interviews and focus groups with providers from three sites.	F	F/B	NA

B: barrier; CVD: cardiovascular disease; ED: emergency department; F: facilitator; GP: general practitioner; NA: Non Applicable.

experienced health care providers and that training might be required, when technology was introduced.[13,16-18] Access to *Indigenous health practitioners* with cultural understanding was noted as an essential facilitator to improve continuity of care for Indigenous patients.[15,23] Five studies identified *lack of funding and the costs associated with shared care services* as a barrier.[13,17,18,23,24] For example, telemedicine services, provided within a shared care model, can be expensive and not covered by Medicare.[13,24] A lack of *availability of technology* was sometimes seen as a barrier to achieving continuity of care within the rural areas.[15,16,22] *Multiple clinical information systems,* that might be inconsistent or incompatible between care providers, were also a barrier.[15,22]

4.3 | Location

Lack of access to specialist services was identified as a barrier due to *geographical isolation and transportation issues.*[16,18-20] Initiatives, such as telemedicine and conference calls, facilitated the continuity of care among rural patients, while reducing the need to travel. For example, Blackwell et al[13] reported a better management of ocular conditions among rural patients with a shared care telemedicine consultation. Provision of medical interventions in local clinics, rather than hospitals, reduced barriers associated with travel for some participants.[14]

5 | DISCUSSION

Understanding the key facilitators of, and barriers to, achieving continuity of care for rural Australians is critical in order to inform best practice policies and procedures for achieving continuity of care. Effectively managing collaborative care improves patient outcomes with regard to increased: cost savings[13]; access to health services[14,19]; appointment attendance[14]; patient satisfaction[19]; and awareness of local health services.[14] Interestingly, this review identified that communication and coordination, availability of resources and location can operate as both barriers and facilitators to continuity of care depending on how they are managed.

Based on the findings herein, it is recommended that when implementing a shared care model, it is important to manage unintended barriers. For example, financial disincentives for participation relating to services not being covered by medical benefit schemes[24]; or perceived threats to professional power or duplication of services.[21] To encourage collaboration and respect, rather than competition between health service providers, the role of each care provider should be clearly defined and communicated to minimise gaps in the continuity of care or disputes potentially arising related to responsibilities for tasks.[18,21] This might include promoting the involvement of specialists, such as Indigenous health workers, to increase Indigenous patient participation.[23] Additionally, where funding permits, a care coordinator should be appointed to oversee the coordination and continuity of health care for patients.[13,14,19,22,24]

Communication between health care professionals is required to: educate providers on the function, importance and urgency of discharge summaries[20]; increase the awareness of local services and referral systems[15,16]; ensure adequate training in the use of technology[13]; facilitate a detailed documentation to manage the risk of knowledge loss associated with turnover in regional care providers[19]; and promote the collaboration between providers to ensure consistent data collation and access, treatment, management, advice and enhanced continuity of patient care experiences.[15-17]

To assist in bridging the burden of disease gap between the rural and metropolitan patients, this review synthesises Australian research related to the implementation of shared care models. Recommendations are outlined to manage key facilitators of, and barriers to, achieving continuity of care. Business service managers, policy-makers and practitioners should implement these recommendations immediately to improve the experience of shared care and health outcomes for non-metropolitan Australian patients.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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