

RESEARCH

Open Access



Identification of implementation enhancement strategies for national comprehensive care standards using the CFIR-ERIC approach: a qualitative study

Beibei Xiong^{1*}, Daniel X. Bailey^{1,2}, Christine Stirling³, Paul Prudon¹ and Melinda Martin-Khan^{1,4,5}

Abstract

Background Comprehensive care is important for ensuring patients receive coordinated delivery of healthcare that aligns with their needs and preferences. While comprehensive care programs are recognised as beneficial, optimal implementation strategies in the real world remain unclear. This study utilises existing implementation theory to investigate barriers and enablers to implementing the Australian National Safety and Quality Health Service Standard 5 - Comprehensive Care Standard in acute care hospitals. The aim is to develop implementation enhancement strategies for work with comprehensive care standards in acute care.

Methods Free text data from 256 survey participants, who were care professionals working in acute care hospitals across Australia, were coded using the Consolidated Framework for Implementation Research (CFIR) using deductive content analysis. Codes were then converted to barrier and enabler statements and themes using inductive theme analysis approach. Subsequently, CFIR barriers and enablers were mapped to the Expert Recommendations for Implementing Change (ERIC) using the CFIR-ERIC Matching Tool, facilitating the development of implementation enhancement strategies.

Results Twelve ($n = 12$) CFIR barriers and 10 enablers were identified, with 14 barrier statements condensed into 12 themes and 11 enabler statements streamlined into 10 themes. Common themes of barriers include impact of COVID-19 pandemic; heavy workload; staff shortage, lack of skilled staff and high staff turnover; poorly integrated documentation system; staff lacking availability, capability, and motivation; lack of resources; lack of education and training; culture of nursing dependency; competing priorities; absence of tailored strategies; insufficient planning and adjustment; and lack of multidisciplinary collaboration. Common themes of enablers include leadership from CCS committees and working groups; integrated documentation systems; established communication channels; access to education, training and information; available resources; culture of patient-centeredness; consumer representation on committees and working groups; engaging consumers in implementation and in care planning and delivery; implementing changes incrementally with a well-defined plan; and regularly collecting and discussing feedback. Following the mapping of CFIR enablers and barriers to the ERIC tool, 15 enhancement strategies were identified.

*Correspondence:

Beibei Xiong
Beibei.Xiong@uq.edu.au

Full list of author information is available at the end of the article



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Conclusion This study identified barriers, enablers, and recommended strategies associated with implementing a national standard for comprehensive care in Australian acute care hospitals. Understanding and addressing these challenges and strategies is not only crucial for the Australian healthcare landscape but also holds significance for the broader international community that is striving to advance comprehensive care.

Keywords Comprehensive care, Care standard, Implementation sciences

Introduction

In acute care hospitals, patients often present with acute, serious, and complex health conditions [1, 2], necessitating a comprehensive approach to address not only their clinical needs but also physical and psychological needs [3]. Many patients require coordinated care delivery from a diverse team of care professionals throughout their hospital journey [4]. Recognising the critical need to address patients in a holistic manner, the concept of “comprehensive care” has arisen as a fundamental framework in acute care settings [5].

Comprehensive care is the coordinated delivery of total health care that meet patients’ needs and preferences through multidisciplinary collaboration after shared decision making with the patient, family or carers [5, 6]. Comprehensive care consists of three components: person-centredness, multidisciplinary approach, and coordination of care. A prior review of 16 studies investigating the effectiveness of comprehensive care indicates that its implementation results in improved patient care and health outcomes within acute care settings [7]. Three countries, Australia, Norway, and the UK, have introduced comprehensive care as a national standard [5, 6, 8, 9].

Implementing national standards for comprehensive care has proven to be challenging, internationally [10–12]. The implementation of Norwegian standards did not cover the expected proportion of patients [12], while 15% of the assessed health service organisations did not meet all the requirements of Australian standard two years after its mandate [10]. Review of implementation of a new national standard is an important part of policy implementation for quality improvement.

While widely recognised as a national standard, Xiong et al.’s (2023) review underscores the scarcity of studies focusing on a national standard for comprehensive care [5]. This scarcity emphasises the imperative for additional research to assess the barriers and enablers associated with the implementation of national standards for comprehensive care in acute care hospitals. To address this gap, this study explored the implementation barriers and enablers of the Australian Comprehensive Care Standard (CCS) in acute care hospitals. Understanding the barriers and enablers can improve the sustainability of the standard and provide learning opportunities for other countries that follow such a standard.

Background

In 2017, the Australian Commission on Safety and Quality in Health Care (ACSQHC, or the Commission) released the CCS, one of the National Safety and Quality Health Service (NSQHS) Standards [6]. These standards are mandated in all acute care hospitals in Australia. The CCS has four criteria and 36 actions. Acute care hospitals have been accredited against the CCS based on those criteria and actions since 2019 and are reassessed every three years.

Developing a comprehensive care plan is one of the CCS criteria. A comprehensive care plan is also a common and essential criterion in a national standard for comprehensive care [5, 6, 8, 9]. It is referred to as an “Individualised Care Plan” in Norway and a “Personalised Care and Support Plan” in the UK. The care plan is an important document that includes relevant patient care information such as patients’ goals of care, available resources, and action plans. It is an important communication tool for care planning and delivery. Meeting the criterion of developing a comprehensive care plan is an important component of implementing the CCS.

The implementation of the CCS is relevant to consumer engagement, given its focus on patient experiences. Consumer engagement is also becoming mandatory in many countries [13]. The manner in which consumers are engaged in the planning and implementation of the CCS will affect the success of its implementation.

Our project explored the implementation and impacts of the Australian CCS in acute care hospitals, including the barriers and enablers associated with developing a comprehensive care plan and consumer engagement. Previous reports from our study covered care professionals’ insights into the issues associated with the development of a comprehensive care plan, the approaches of consumer engagement with the process, and the impacts of the CCS on patient care and health outcomes [14]. The focus of the current paper is on barriers and enablers to the implementation of the CCS to enable generalisability for international applicability.

Framework

Implementation science offers a range of theories and frameworks that help to identify the barriers and enablers and strategies to improve the implementation. The Consolidated Framework for Implementation Research (CFIR) was used in the current study. The CFIR

is deeply rooted in a comprehensive review of implementation literature and has been universally utilised in health services research [15–18]. The CFIR is a compilation of 48 constructs related to implementation across five domains. The domains include characteristics of the intervention (in this case, implementation of the CCS in accordance with ACSQHC guidelines), the inner setting (the hospital), the outer setting (the context in which the hospital resides), individual characteristics of the implementers (hospital staff), and the processes used for implementing the intervention [15, 19]. The CFIR was used as an organising framework to categorise reported barriers and enablers based on thematic analysis of qualitative data collected from healthcare staff.

The Expert Recommendations for Implementing Change (ERIC) [20, 21] is a refined compilation of implementation strategy terms and definitions, systematically gathered from a wide range of stakeholders with expertise in implementation science and clinical practice. The CFIR-ERIC Matching Tool [22] was developed based on expert consensus and was utilised to help guide choice of theoretically informed matching strategies to address CFIR barriers. It provides a prioritised list of strategies to consider based on researchers' knowledge of potential CFIR barriers. The CFIR-ERIC Matching Tool is available on the CFIR website (cfirguide.org, accessed on November 1, 2023). It proposes level one and level two strategies, determined by the consensus level attained. A level one strategy is characterised by over 50% agreement among experts regarding its effectiveness in addressing a particular CFIR construct, while a level two strategy is defined by less than 50% agreement.

The CFIR-ERIC Matching Tool is based on the previous version of CFIR [15]. The CFIR was updated in 2022 [19], but the CFIR-ERIC Matching Tool has not been updated yet. As a result, several new constructs added to the updated CFIR, such as Critical Incidents, Opportunity, Tailoring Strategies, Teaming, and Implementation Team Members, do not currently have mapped strategies in the CFIR-ERIC matching tool. To address these new constructs, we have identified strategies from ERIC that may be useful. The updated CFIR also includes new

constructs that align with constructs from the previous version. The constructs from the earlier version were utilised to capture the corresponding constructs in the new version. For better clarity, these constructs are represented in a comparison table (Table 1).

Methods

This project was part of a larger study exploring the implementation and impacts of the CCS in Australian acute care hospitals [23]. This qualitative study utilised open-ended responses to questions in a survey study that aimed to explore care professionals' knowledge, experiences, and perceptions about the implementation and impacts of the CCS in Australian acute care hospitals.

Survey development and administration

A questionnaire was developed for this study, underpinned by the Commission's evaluation of the CCS survey [11], the ACSQHC model [24], and previous literature [5, 7]. The development and administration of the survey was described in detail previously [14]. BX, MMK, and CS collaborated iteratively in developing and refining the questionnaire, including a pilot test to ensure its content validity and appropriate scope.

The study population consisted of care professionals (including doctors, nurses, midwives, pharmacists, and other allied health professionals). We employed convenience and snowballing sampling techniques to distribute the survey through our research team and work organisations, healthcare organisations and facilities, and clinical networks. Participation was voluntary. Ethical approval was granted by the University of Queensland Human Research Ethics Committee (ID: 2022 /HE001036).

The survey was completed by 649 participants, of whom 256 (39%) responded to the open-ended questions analysed in the current article. The questionnaire included five free-text questions that allowed respondents to qualitatively report their reflections on the implementation of the CCS.

The five questions were: (1) Did your organisation formally involve patients or care partners in the preparation, training, or implementation process of the CCS? If yes, how; (2) What is the proportion of patients in your area/unit that have a care plan that meets the CCS? If not "all" or "not applicable", why do you think this is; (3) Are there any challenges you are aware of at your organisation which interfere with implementing the CCS? If yes, what are the challenges; (4) Were there any things that were already in place that assisted in implementing the CCS at your organisation? If yes, what are the things; and (5) Please write down any comments you would like to share about the implementation of the CCS.

The questions were designed to gather information in a neutral manner, allowing respondents to provide input

Table 1 Alignment of constructs between the updated and previous versions of the Consolidated Framework for Implementation Research (CFIR)

Updated CFIR Constructs (2022)	Previous CFIR Constructs (2009)
Implementation Leads	Formally Appointed Internal Implementation Leaders, Champions
Engaging Innovation Recipients	Patients/Customers
Motivation	Individual Stage of Change, Individual Identification with Organisation
Capability	Knowledge & Beliefs about the Intervention, Self-efficacy

without any assumptions being made about the presence of barriers or enablers. This approach encouraged participants to share their experiences and insights openly, without feeling constrained by any preconceived notions.

Data analysis

Data were entered into NVivo software (Version 12.3.0) [25] for analysis. Participants generally provided concise and note-like responses instead of detailed and discursive ones, aligning with the survey's format for input [13]. A deductive content analysis approach [26] was used to code data with predefined codes based on the CFIR.

Table 2 Demographic characteristics of respondents ($n=256$)

Characteristics (denominator)	Count (%)
Gender ($n=245$)	
Female	136 (55.5)
Male	104 (42.4)
Unspecified	5 (2.0)
State and territory ($n=245$)	
Queensland	97 (39.6)
South Australia	40 (16.3)
Australian Capital Territory	35 (14.3)
New South Wales	28 (11.4)
Victoria	14 (5.7)
Tasmania	13 (5.3)
Western Australia	11 (4.5)
Northern Territory	7 (2.9)
Location ($n=244$)	
Metro	96 (39.3)
Regional	108 (44.3)
Rural	35 (14.3)
Remote	5 (2.0)
Organisation ($n=245$)	
Public	189 (77.1)
Private	56 (22.9)
Work area/unit ($n=244$)	
Emergency department	62 (25.4)
General Medicine	55 (22.5)
Surgery	31 (12.7)
ICU	25 (10.2)
Other	71 (29.1)
Profession ($n=244$)	
Registered nurse/midwife	113 (46.3)
Allied health professional	68 (27.9)
Medical doctor	63 (25.8)
Being a manager/director/leader in their profession ($n=244$)	104 (42.6)
Work experiences ($n=244$)	
Less than 3 years	24 (9.8)
3–10 years	127 (52.0)
11–20 years	47 (19.3)
More than 20 years	46 (18.9)

Note. Location is classified according to the Modified Monash Model. Available from <https://www.health.gov.au/topics/rural-health-workforce/classifications/mmm>

New codes were created if some parts of the texts did not directly fit into any of the CFIR constructs. Frequencies of quotes on constructs were counted. A prioritisation process based on cumulative majority ($n \geq 10$) was conducted to provide a focus for enhancing implementation. Then, theme analysis [27, 28] was used to generate barrier and enabler statements and themes using an inductive approach based on CFIR barriers and enablers. Finally, CFIR-ERIC Matching Tool was used to create matching strategies to address prioritised barriers and amplify prioritised enablers.

BX performed the initial qualitative analyses, and PP reviewed and validated the analysis. Consensus discussions were held to resolve disagreements. CS provided guidance and support when disagreement existed. All authors assisted with reviewing and refining coded themes.

Results

Demographics of respondents

Most respondents were employed in public hospitals ($n=189$, 77.1%) located in Queensland ($n=97$, 39.6%). The majority worked in regional ($n=108$, 48.4%) or metro ($n=96$, 39%) areas, with 46.3% ($n=113$) being registered nurses/midwives. About 42.6% ($n=104$) held leadership roles, and 52.0% ($n=127$) had 3–10 years of work experience. Table 2 shows the demographics of respondents.

CFIR domains and barrier constructs

Thirty-five ($n=35$) constructs from five domains were mentioned as barriers. Twelve constructs across four CFIR domains were selected for prioritisation and mapping as they represented the cumulative majority of respondents. Table 3 summarised the barrier coding results.

The inner setting of the hospital itself emerged as a predominant barrier affecting the implementation of the CCS. Respondents identified several key elements within the inner setting, with the structural characteristics ($n=110$), available resources ($n=36$), and access to knowledge and information ($n=28$) being dominantly mentioned. The individual domain was also a crucial barrier ($n=115$), with motivation ($n=37$), opportunity ($n=29$), and capability ($n=28$) being frequently mentioned.

CFIR domains and enabler constructs

Twenty-nine ($n=29$) constructs from five domains were mentioned as enablers. Ten constructs across three CFIR domains were selected for prioritisation and mapping. Table 4 summarised the enabler coding results.

The inner setting of the hospital itself also emerged as a predominant enabler affecting the implementation of the CCS. Respondents most frequently cited structural

Table 3 Barrier coding results from survey

CFIR Domain	Constructs	Barrier statement	Exemplar Quotes (Role, Years of Experience)
Outer setting <i>n</i> = 30	Critical incidents <i>n</i> = 13	COVID impact to health care system, staff, and consumers	<ul style="list-style-type: none"> Healthcare generally has become significantly substandard since the advent of the COVID pandemic (nurse, > 20 years) Process fatigue - especially post COVID when everyone is exhausted (allied health, > 20 years)
Inner setting <i>n</i> = 215	Structural characteristics <i>n</i> = 110	Documentation system (electronic, paper-based, or mixed) is not integrated	<ul style="list-style-type: none"> Our systems and processes for multidisciplinary team communication into a single source of truth are not yet fit for purpose (allied health, 11–20 years) We are currently using a paper-based plan that is not suited to our needs (nurse, > 20 years)
		High volumes, complexity, and severity of patient causing heavy workload	<ul style="list-style-type: none"> [Documentation] is a challenging task with EMR [electronic medical record] that does not have a summary patient page which includes all components of the standard (doctor, > 20 years)
	• Work infrastructure o High workload o Staff shortage o Staff characteristic	Staff shortage, lack of skilled staff, and high staff turnover	<ul style="list-style-type: none"> Paper to digital workflows. Paper had all information in one spot. Digital is spread throughout and MDT aren't all together (nurse, 3–10 years) A large and complex organisation with very high patient numbers (allied health, > 20 years)
	• Documentation system (information technology infrastructure) <i>n</i> = 22		<ul style="list-style-type: none"> Lack of skilled staff, junior medical staff with regular rotations (allied health, 3–10 years) High staff turnover, resignation, secondment and relocation (nurse, 11–20 years) Lack of workforce/nurse ratio breeches due to workforce shortages (allied health, 3–10 years)
	Available resources <i>n</i> = 36	Lack of resources, especially human resources and funding	<ul style="list-style-type: none"> It always comes down to resources - short staffing; recent industrial action meaning staff not doing certain duties (allied health, > 20 years) Lack of funding (nurse, 11–20 years)
	Access to knowledge & information <i>n</i> = 28	Lack of education and training	<ul style="list-style-type: none"> Lack of training, education and support (allied health, 3–10 years) Lack of comprehensive ongoing training (doctor, 3–10 years)
Individual <i>n</i> = 115	Culture <i>n</i> = 12	Implementation work is nursing focused and dependent	<ul style="list-style-type: none"> While it was presented as a document that all medical, nursing and allied health staff could contribute to, in reality, the onus is on nursing staff to complete the entire document (nurse, 3–10 years) Nursing dependent (nurse, 11–20 years)
		Relative priority <i>n</i> = 11	Competing priority between clinical care and documentation
	Motivation <i>n</i> = 37	Lack of buy-in from doctors and allied health professional	<ul style="list-style-type: none"> Not activated by all staff (nurse, > 20 years) Has become a nursing focused standard with lack of buy in from other allied professions (nurse, > 20 years) No MDT buy-in (nurse, 11–20 years)
Implementation <i>n</i> = 50	Opportunity <i>n</i> = 29	Lack of availability	<ul style="list-style-type: none"> Time constraints and too many assessments and documentation requirements (nurse, 3–10 years) Limited clinician time to assess and provide comprehensive care (doctor, > 20 years)
	Capability <i>n</i> = 28	Lack of knowledge and awareness	<ul style="list-style-type: none"> Limited time and skills of clinicians in developing shared care plans with patients and family (doctor, > 20 years)
	Tailoring strategies <i>n</i> = 16	Lack of tailored strategies to fit various hospital settings, especially ED	<ul style="list-style-type: none"> A complex environment where acute emergencies take precedence (allied health, > 20 years) In ED we do more of an action plan than a comprehensive care plan for majority of patients simply due to their reason from presenting (nurse, < 3 years)
	Doing <i>n</i> = 14	Insufficient planning and adjustments and lack of cumulative optimisation practices	<ul style="list-style-type: none"> Temporal arrangement (allied health, 3–10 years) Simultaneous service changes/ high turnover of executives and senior leaders/ inconsistent approach (allied health, 11–20 years)
	Teaming <i>n</i> = 10	Lack of multidisciplinary collaboration	<ul style="list-style-type: none"> Lack of interactive team work between workers (allied health, < 3 years) MDT aren't all together (nurse, 3–10 years)

Note. *n* denotes the frequency of quotes within a construct; constructs mentioned by respondents 10 times or more were prioritised and presented in this table. CFIR: Consolidated Framework for Implementation Research; MDT: multidisciplinary team, ED: emergency department

Table 4 Enabler coding results from survey

CFIR domain	Construct	Enabler statement	Exemplar Quote (Role, Years of Experience)
Inner setting <i>n</i> = 172	Structural characteristics <i>n</i> = 39 • Work infrastructure <i>n</i> = 28 • Committee <i>n</i> = 20 • Documentation system <i>n</i> = 10	Integrated documentation system Comprehensive care committee and working groups	<ul style="list-style-type: none"> The doubled sided PARIS form allowed a quick assessment of risk factors for each admitted patient. Following completion of this, relevant forms would be collected such as a Mini-Cog or falls risk assessment that remained in a bedside patient file and were reviewed and updated regularly (nurse, 3–10 years) ieMR [integrated electronic medical record] orders, reporting and monitoring identifies whether risk assessments have occurred and whether care plans have been put in place (allied health, > 20 years) Standard 5 committee and some sub working groups under standard 5 - eg falls (nurse, >20 years)
	Communication <i>n</i> = 38	Good communication with consumers and regular staff meetings	<ul style="list-style-type: none"> Adhere to the regular meeting system. Research the central problem, constantly summarise experience, pay attention to information feedback (allied health, > 20 years) Hold regular meetings with patients and families for them to make suggestions and comments on our care services (nurse, 3–10 years)
	Access to knowledge & information <i>n</i> = 37	Education, training and information are accessible to both care professionals and consumers	<ul style="list-style-type: none"> Seminars and periodic workshops (nurse, 3–10 years) Posters on the ward corridors (allied health, > 20 years)
	Available resources <i>n</i> = 33 • materials & equipment <i>n</i> = 13 • procedures & protocols <i>n</i> = 16	Resources (especially risk screening and assessment tools and procedures) are available	<ul style="list-style-type: none"> A well-equipped facility (nurse, 3–10 years) Standardised assessment tools (allied health, 3–10 years) Handover practices, communication tools (nurse, 11–20 years)
	Culture <i>n</i> = 12	Culture of recipient-centredness	<ul style="list-style-type: none"> A deeper “patient-centred” service concept in the whole hospital (nurse, 3–10 years)
Individual <i>n</i> = 60	Implementation team members <i>n</i> = 31	Consumers representation on committees and working groups	<ul style="list-style-type: none"> Consumer representation on Standard 5 committee and some sub working groups under standard 5 - e.g. falls (nurse, > 20 years) Consumer embedded into the Comprehensive Care committee to ensure key linkages with bodies of work undertaken, and with the Consumer Advisory Group (allied health, > 20 years)
	Implementation leads <i>n</i> = 12	Comprehensive care committee	<ul style="list-style-type: none"> Comprehensive Care Committee and a good governance structure in the organisation (allied health, > 20 years) Standard 5 Committee leads the work and makes people accountable (allied health, > 20 years)
Implementation <i>n</i> = 135	Engaging Innovation recipients <i>n</i> = 60	Engaging consumers in implementation and in care planning and delivery	<ul style="list-style-type: none"> Patient-led handover (nurse, 11–20 years) Involving patients and families in all aspects of improvement work, including planning, design, implementation, and evaluation (doctor, > 20 years)
	Doing <i>n</i> = 11	Strategic implementation including care plan tool trial and quality improvement project	<ul style="list-style-type: none"> Careful planning and execution (doctor, > 20 years) Timely implementation of clinical handover policies (nurse, 3–10 years)
	Reflecting & evaluating Implementation <i>n</i> = 41	Collect and discuss feedback from both consumer and staff	<ul style="list-style-type: none"> Opinions were sampled from patients and care partners through survey, and a kind of service box (doctor, < 3 years)

Note. *n* denotes the frequency of quotes within a construct; constructs mentioned by respondents 10 times or more were prioritised and presented in this table. CFIR: Consolidated Framework for Implementation Research

characteristics (*n*=39), communication (*n*=38), access to knowledge and information (*n*=37), and available resources (*n*=33). Implementation domain was also a crucial enabler, with engaging innovation recipients (*n*=60) and reflecting & evaluating implementation (*n*=41) the constructs most commonly mentioned.

Themes of barriers and facilitators

Based on CFIR-coded barriers and enablers, barrier and enabler statements were generated. Twelve (*n*=12)

themes of barriers and 10 themes of enablers were merged from the statements, as shown in Fig. 1.

ERIC strategy mapping

CFIR-coded barriers and enablers were mapped to the ERIC tool to enable the selection of strategies. Strategies were selected based on the level of agreement regarding their efficacy in addressing barriers or reinforcing enablers [29]. We prioritised strategies with the highest percentage of agreement. In instances of close agreement

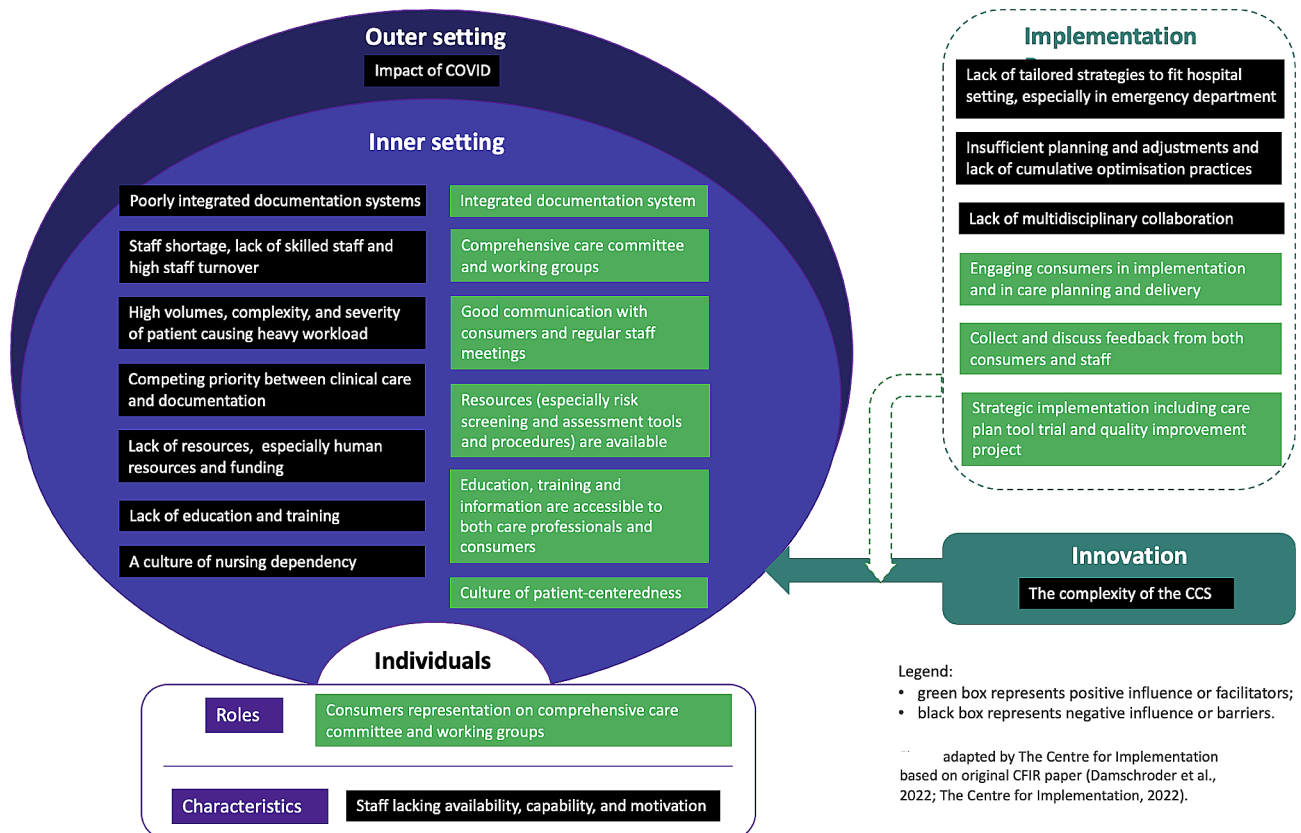


Fig. 1 Overview of barriers and enablers on the implementation of the Comprehensive Care Standard (CCS) organised according to the Consolidated Framework for Implementation Research (CFIR) domain

Note: The complexity of the CCS standards was mentioned nine times and was added in this figure so that all five domains of the CFIR framework could be covered

percentages (e.g., 43% and 40% for addressing the barrier of innovation complexity), multiple strategies were selected. Following this analysis, 15 strategies surfaced as potentially effective for enhancing implementation, as outlined in Table 5. The matrix generated by the CFIR-ERIC Matching Tool is provided in the Supplementary file 1.

Discussion

To the best of the authors' knowledge, this study is the first to identify the barriers and enablers influencing the implementation of a national standard for comprehensive care in acute care hospitals, using a rigorous implementation methodology. Our findings offer insights and learning experiences for other countries in the planning and refining stages of the implementation of a national standard for comprehensive care, as well as for hospitals seeking to adopt such a standard. Furthermore, the study utilised the CFIR-ERIC Matching Tool to develop tailored implementation enhancement strategies for acute care hospitals, addressing common barriers and promoting enablers to improve the CCS implementation. Unlike conventional studies that predominantly focus on

barriers and their solutions, our research incorporates enablers into the analysis to both address issues hindering optimal implementation and enhancing the current approach [29].

From an implementation science perspective, identifying barriers and enablers is crucial for several reasons. First, it allows for tailored interventions. Customised strategies increase the likelihood of success as they address an organisation's specific needs and fit its unique environment and challenges, thereby improving the effectiveness of the implementation [30]. Second, it allows for the efficient allocation of resources, directing efforts where they are most needed rather than other areas where they might not be as effective. This targeted approach could maximise the impact of the resources available [19]. Third, it enhances stakeholder engagement. When stakeholders are aware of the potential challenges and facilitators, they are more likely to support the implementation process and contribute valuable insights and resources, fostering a collaborative environment [19]. Fourth, it aids in risk mitigation. By proactively identifying barriers, hospitals can anticipate potential risks and develop contingency plans, minimising

Table 5 Summary of enabler and barrier constructs mapped to ERIC strategies

CFIR construct	Barrier	Enabler	ERIC Strategy (Most Strongly Recommended)	% of Agreement
Relative priority	√		Conduct local consensus discussions	46
Motivation	√		Identify and prepare champions	44
			Make training dynamic	40
			Conduct local consensus discussions	39
			Build a coalition	36
Capability	√		Conduct educational meetings	56
			Conduct ongoing training	41
			Provide ongoing consultation	41
			Make training dynamic	41
Structural characteristics	√	√	Assess for readiness and identify barriers and facilitators	36
Available resources	√	√	Access new funding	78
Access to knowledge & information	√	√	Conduct educational meeting	79
Culture	√	√	Identify and prepare champions	52
Doing	√	√	Purposely reexamine the implementation	45
Reflecting & evaluating implementation		√	Develop and implement tools for quality monitoring	60
			Audit and provide feedback	56
Implementation leads		√	Identify and prepare champions	67
Engaging Innovation recipients		√	Involve patients/consumers and family members	59
Communication		√	Promote network weaving	57
			Organise clinician implementation team meetings	52

Note: Critical Incidents, Opportunity, Tailoring Strategies, Teaming, and Implementation Team Members do not currently have mapped strategies from ERIC. CFIR: Consolidated Framework for Implementation Research; ERIC: Expert Recommendations for Implementing Change

disruptions and enhancing the resilience of the implementation plan [31]. Finally, a thorough understanding of barriers and enablers sets the stage for continuous improvement. As the implementation progresses, ongoing assessment and adaptation ensure that the evidence-based recommendations remain relevant and effective, allowing for adjustments based on real-world feedback and evolving circumstances and leading to more sustainable and successful implementation outcomes [32, 33]. A crucial element of continuous improvement from a policy perspective is the explicit identification of barriers and enablers and the sharing of this information in the wider industry community to support broader effectiveness of implementation (a key priority for policy based initiatives).

Our below discussions were organised using CFIR-coded barriers and enablers, fostering a consistent terminology beneficial for future research utilising the same framework. The CFIR-ERIC Matching Tool offers a structured method to link barriers and enablers with appropriate strategies.

Barriers

We identified twelve CFIR barriers affecting the implementation of a national standard for comprehensive care in acute care hospitals. The barriers cover a range of challenges, with deficits in the hospital's structural characteristics, including work infrastructure limitations and documentation limitations, emerging as a prominent barrier. Additionally, staff lacking motivation, opportunity, and capability were identified as three distinct barriers.

Other challenges comprised deficits in resources, limited access to knowledge and information, a culture of nursing dependency, lack of multidisciplinary collaboration, competing priorities, the absence of tailored strategies, insufficient planning and adjustments, and the impact of the COVID-19 pandemic.

Deficits in the hospital's structural characteristics were particularly important, with literature consistently highlighting their influence on implementation [34, 35]. The original sub-construct of "information technology infrastructure" was modified to "documentation system" to better align with the prevailing context of many hospitals in Australia utilising paper-based documentation infrastructure [36]. High patient volumes, alongside the complexity and severity of their conditions, contributed to a substantial workload, exacerbated by issues such as staff shortage, turnover, and lack of skilled workforce. These factors, along with competing priorities, likely impact task allocation, limiting staff's ability to undertake new initiatives or improve practices [35, 37, 38]. Inadequate systems further exacerbated the challenge of organising work tasks and procedures [39]. Poorly integrated documentation systems, whether electronic, paper-based, or mixed, led to duplicative efforts and reduced efficiency [40]. The ERIC strategy of assessing readiness and identifying barriers and enablers may be crucial in addressing these challenges.

The lack of available resources dedicated to implementation, such as insufficient human resources, funding, tools, and procedures, was identified as another barrier. This resonates with previous studies highlighting a sense

of under-resourcing, especially in small rural hospitals [11]. One crucial resource highlighted by this study, as well as in prior literature, is a standardised comprehensive care plan used by all disciplines, regardless of the information source (paper or electronic) [5, 11]. The ERIC strategy proposed to address this issue is to access new funding, recognising that the scarcity of resources often stems from inadequate funding. Adequate provision of funding, along with materials, tools, and equipment, plays a pivotal role in the successful implementation and delivery of an innovation [41–43].

The COVID-19 pandemic exacerbated the challenges of implementation, leading to understaffing, increased workload, and significant disruptions in health service delivery, especially in resource-limited hospitals. This aligns with previous literature citing COVID-19 as a barrier to implementing the CCS [11]. The global scale of the COVID-19 problem, its enormity, and the complexity of finding solutions were evident, with no hospital managing it well. It underscores the capabilities of both governments and hospitals in handling crises. The full implementation of the CCS was extended by one year to 2023. Similarly, other countries, such as China, also postponed the implementation of their national standard to fully support the prevention and control of the COVID-19 pandemic [10, 44, 45].

Three distinct barriers related to innovation deliverers were identified. The lack of opportunity, capability, and motivation among staff posed significant challenges to the implementation process. This aligns with previous feedback to the Commission, indicating ‘differing opinions across disciplines about the value of the comprehensive care plan’ [11]. Literature consistently emphasised the importance of proactive involvement of care professionals in planning activities [46]. The ERIC strategies of conducting educational meetings, identifying and preparing champions, conducting ongoing training, providing ongoing consultation, making training dynamic, conducting local consensus discussions, and building a coalition were identified as crucial enhancement strategies. These strategies are beneficial to ensure that staff are well-prepared and motivated to effectively implement and sustain the CCS.

Furthermore, a lack of access to knowledge and information was identified as an important barrier. Consistent with previous literature, despite the Commission’s publication of resources, a perception of a lack of access to knowledge and information persisted [11]. An investigation into web activity regarding the Commission’s publication of resources revealed that newer resources were downloaded much less frequently than older ones, possibly due to staggered releases and disjointed linkages between resources. The ACSQHC’s (2022) study [11] emphasised the need for the Commission to develop

a targeted communication strategy aimed at improving awareness among nurses, allied health workers, medical staff, and quality managers about the resources developed on comprehensive care. The ERIC strategy of conducting educational meetings could be used to address this barrier.

Challenges in implementing small steps, tests, or cycles of change to optimise the delivery of comprehensive care were noted, a barrier not highlighted in the ACSQHC’s (2022) study [11]. Recognising the importance of sufficient planning, taking an incremental approach involves breaking the innovation down into manageable parts that can be implemented gradually [47]. In our study, nine respondents mentioned the complexity of the CCS as a barrier. The ability to implement innovation incrementally, can help decrease perceptions of complexity and, consequently, implementation difficulty. It also allows deliverers to have enough time to do their work and to learn new skills associated with the new innovation [48]. The ERIC strategy of purposely re-examining the implementation process was identified as a valuable approach to address these challenges.

A culture of nursing dependency and a lack of multidisciplinary collaboration were also identified as barriers, emphasising the need for joint efforts in comprehensive care. This aligns with previous literature highlighting the importance of involvement of a multidisciplinary approach in comprehensive care [5, 11]. The culture within an organisation is crucial, playing a significant role in determining whether it fosters a happy and healthy work environment, where teams collaborate rather than working in isolation [49]. The ERIC strategy of identifying and preparing champions, particularly from multiple disciplines, is essential for promoting organisational commitment to implementing the CCS and fostering multidisciplinary collaboration.

The absence of tailored strategies fitting diverse hospital settings, especially in the ED setting, emerged as a notable barrier, given the mandatory nature of the CCS as a national standard for all Australian hospitals. Recognising the varied situations of hospitals, operationalising tailored implementation strategies became essential for addressing barriers and leveraging enablers within the context of each hospital. After assessing needs and contexts, implementation strategies can be selected and tailored to address specific implementation challenges which may influence implementation in a given context [50, 51]. Powell et al. (2015) proposed four methods, including implementation mapping used in our study, that could be used to match implementation strategies to identified barriers and enablers [51].

Enablers

Ten CFIR enablers were identified, good structural characteristics (including an integrated documentation system and processes supporting comprehensive care), established communication channels, access to knowledge and information, available resources, a culture of patient-centeredness, engaging consumers in the delivery of comprehensive care, leadership from CCS committees and working groups, the inclusion of consumers in the implementation team, implementing changes incrementally with a well-defined plan, and regularly reflecting and evaluating the process. Several of these constructs are the reverse of the previously mentioned barriers, and as such, they have already been addressed. Therefore, they will not be revisited in the subsequent discussion. Constructs coded as enablers only and selected for prioritisation included Communication, Implementation leads, Implementation team members, Engaging recipients, and Reflecting & evaluating implementation.

Having formal leadership roles such as CCS committees and working groups as implementation leads enabled the implementation. This aligns with previous literature, which shows that implementation leads could improve implementation outcomes, either directly or by enhancing the implementation climate [52, 53]. In CFIR, the sub-construct of “Implementation Lead” is used to focus on “individuals who are leading the implementation effort” [54]. However, our study revealed a noteworthy deviation, as respondents identified teams, rather than individuals, in the role of implementation lead. Teams as implementation leads could offer strategic and operational management of the processes, contributing to implementation success [55]. This observation indicates a potential limitation of CFIR, which currently may not fully capture the important role of teams within the ‘role’ sub-construct.

Involving consumers as implementation team members and engaging consumers in the implementation and delivery of comprehensive care align with the significance of partnering with consumers [5, 11, 13]. The Australian NSQHS Standards outline various activities in which consumers should be involved, including service planning, care design, management and evaluation [56]. Previous studies have shown the real-world examples of mechanisms for partnering with consumers and partnering activities [13]. Our findings also confirm previous research indicating that consumers were more commonly involved in existing committees or working groups, rather than being integrated into overall strategy or governance [13]. Further exploration of the consumer’s role is warranted to better understand their potential contributions and enhance their integration into overall strategic and governance frameworks.

Effective communication, both formal and informal, including activities like meetings, emerged as facilitators. Strong intra-organisational communication is positively linked to implementation, as it decentralises decision-making to front-line teams or individuals [57–59]. The ERIC strategy to address this is to promote network weaving and organise clinician implementation team meetings. Establishing a welcoming environment through effective communication, fostering peer collaboration, and clearly communicating mission and goals are all factors that enhance effective implementation [60]. Additionally, our findings underscored the importance of communication not just with staff but also with consumers.

Evaluating and reflecting throughout the implementation process to cumulatively optimise it facilitated the overall progress. This aspect was not identified in the ACSQHC’s (2022) study [11]. While historically less attention has been paid to the need for group and personal reflection, more recent literature acknowledges its key role in strong teaming and team-building [61]. Allocating time for reflection or debriefing before, during, and after implementation is one way to promote shared learning and improvements [62]. Timely availability of data for monitoring, evaluation, and process improvement is crucial [42]. The ERIC strategy of developing and implementing tools for quality monitoring and auditing and providing feedback may enhance implementation.

Strengths and limitations

To the best of our knowledge, this project stands out as the first that applies the CFIR-ERIC Matching Tool to identify strategies for overcoming barriers and amplify enablers in implementing a national standard for comprehensive care [5]. The strategies outlined in the study contribute to the emerging body of knowledge on effective implementation practices. Furthermore, data were drawn from a national survey administered to care professionals in acute care hospitals across Australia, providing a broad and diverse sample. The diversity of the sample enriches the study’s insights, offering a comprehensive perspective from care professionals in various roles and positions. Additionally, this study employs a robust approach, quantifying the frequency of identified constructs and extracting common themes through a cumulative priority method. This methodological rigor enhances the reliability and validity of the findings. Moreover, the use of an implementation science framework in evaluating a national standard is a novel aspect of this study. Few national standards undergo evaluation with such a framework, making this work pioneering and potentially valuable for other national mandatory programs facing similar challenges. Given the increasing need for comprehensive care, this project serves as a useful example

for enhancing the implementation of comprehensive care models. The insights gained are timely and can inform strategies to strengthen and improve the delivery of comprehensive care.

This study also has some limitations. The survey was conducted during a period when the full implementation of the CCS was extended. Most hospitals had completed the accreditation assessment, but hospitals were at different stages of their implementation journey. These variations may impact the reported barriers. While the CFIR-ERIC Matching Tool suggests strategies for overcoming barriers, hospitals need to carefully interpret and select strategies based on their feasibility and applicability. Thus, although expert consensus was higher for Level 1 strategies, hospitals should also consider Level 2 strategies if those are more applicable and feasible to implement based on the context at their hospital [63]. The CFIR-ERIC Matching Tool was developed based on expert consensus, highlighting the need for empirical evaluation to assess the feasibility and suitability of the recommended strategies within the Australian context. Future studies are essential to validate these strategies in Australian hospital settings. It should be noted that some new CFIR constructs do not have matched strategies in the matching tool, including Critical incidents, Opportunity, Tailoring strategies, Teaming, and Implementation Team Members. However, some strategies identified from the ERIC were relevant and may address them, including assessing for readiness and identifying barriers and facilitators, revising professional roles, tailoring strategies, organising clinician implementation team meetings, promoting network weaving, and using advisory boards and workgroups. Besides, the brevity of survey responses may limit the depth of information obtained. Important barriers or facilitators may have been underexplored, and a more detailed exploration could be achieved through in-depth interviews [23].

Future work

As a next step, we have conducted an interview study to explore the specific implementation approaches used by hospitals to implement the CCS, the barriers and facilitators they faced, and the impacts of the implementation. This study will provide deeper insights into the contextual factors influencing implementation and offer practical recommendations for enhancing the implementation of a comprehensive care standard. We will elaborate on these findings in future publications, providing a more detailed analysis and cross-referencing the current study to build a cohesive body of knowledge.

Conclusion

This study constitutes a noteworthy addition to the global literature on comprehensive care, offering valuable insights for both research and practice communities. By examining the real-world barriers and enablers of implementing a standard for comprehensive care within a developed country setting, our findings contribute to the identification of strategies and perceived enablers while shedding light on the challenges inherent in comprehensive care implementation. The application of the CFIR-ERIC approach not only yielded clear and concise recommendations but also aligned closely with empirical evidence, suggesting that the implementation enhancement strategies have the potential to improve the uptake and engagement with comprehensive care. These derived recommendations serve as a practical blueprint, intended to be tested for effectiveness in future studies. The study is focused in Australia, a country currently implementing a national comprehensive care standard, therefore, the findings hold broader implications for informing international policy and practice regarding the strategies and key challenges encountered by national organisations implementing comprehensive care. Acknowledging the limitation of our brief survey, we advocate for future research endeavours to delve deeper into the nuanced approaches used for the introduction and implementation of policy standards. Investigating how a policy standard is implemented, monitored, and what lessons are gained from the process will contribute valuable insights to the ongoing enhancement of healthcare practices. Incorporating in-depth interviews into our methodology has the potential to yield richer insights into both barriers and facilitators, enhancing our understanding of the complexities inherent in policy implementation. As a next step, we plan to conduct a deeper exploration through semi-structured interviews with care professionals working at hospitals.

Abbreviations

ACSQHC	Australian Commission on Safety and Quality in Health Care
CCS	Comprehensive Care Standard
CFIR	Consolidated Framework for Implementation Research
ERIC	Expert Recommendations for Implementing Change
MDT	Multidisciplinary Team
NSQHS	National Safety and Quality Health Service

Acknowledgements

The authors wish to acknowledge the support of our friends, colleagues, and work organisations (University of Queensland, University of Tasmania), healthcare organisations (Agency for Clinical Innovation, Australian Medical Association, Queensland Health, Health Translation Queensland, Alfred Health), as well as clinical networks (Queensland Statewide Clinical Networks, New South Wales Statewide Clinical Networks) for their invaluable assistance in disseminating this survey. We also extend our appreciation to those individuals and organisations that have assisted us in distributing the survey, despite remaining unidentified. We wish to acknowledge the University of Queensland eQC Patient and Carer Advisory Board for their support for this project from inception to dissemination.

Author contributions

BX, DB, CS, & MMK conceptualised and designed the study. BX, MMK, & CS contributed to the design and pilot of the survey. BX distributed and administered the survey. BX and PP performed the data analysis. All authors contributed to interpreting the results. BX drafted the manuscript with guidance from CS, DB, & MMK. DB, CS, PP, & MMK critically reviewed the manuscript, provided input, made suggestions, and BX revised the manuscript accordingly. All authors read and approved the final manuscript.

Funding

Beibei Xiong is supported by Graduate School Scholarships from the University of Queensland. This work is part of the project "Improving quality of care for people with dementia in the acute care setting (eQC)" which is funded by the National Health and Medical Research Council of the Australian Government (ID: APP1140459). The research was designed, implemented, and analysed independently, with no involvement from the funding organisation.

Data availability

The datasets generated and/or analysed during the current study are not publicly available due to privacy or ethical restrictions but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Ethical approval was granted by the University of Queensland Human Research Ethics Committee (ID: 2022/HE001036). Informed consent was obtained from all study participants. The study was performed in accordance with the Declaration of Helsinki guidelines and regulations.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

¹Centre for Health Services Research, The University of Queensland, Brisbane, Queensland 4102, Australia

²Centre for Clinical Research, The University of Queensland, Brisbane, Queensland 4102, Australia

³School of Nursing, University of Tasmania, Hobart, Tasmania 7000, Australia

⁴Department of Health and Life Sciences, University of Exeter, Exeter EX1 2HZ, England, UK

⁵School of Nursing, University of Northern British Columbia, Prince George, British Columbia V2N 4Z9, Canada

Received: 31 January 2024 / Accepted: 26 July 2024

Published online: 23 August 2024

References

- Lloyd HM, Pearson M, Sheaff R, Asthana S, Wheat H, Sugavanam TP, Britten N, Valderas J, Bainbridge M, Witts L, et al. Collaborative action for person-centred coordinated care (P3C): an approach to support the development of a comprehensive system-wide solution to fragmented care. *Health Res Policy Syst.* 2017;15(1):98–98.
- Van Den Ende ES, Schouten B, Kremers MNT, Cooksley T, Subbe CP, Weichert I, Van Galen LS, Haak HR, Kellett J, Alisma J et al. Understanding what matters most to patients in acute care in seven countries, using the flash mob study design. *BMC Health Serv Res* 2021, 21(1).
- Fujisawa D, Park S, Kimura R, Suyama I, Koyama Y, Takeuchi M, Yoshikawa H, Hashiguchi S, Shirahase J, Kato M, et al. Unmet supportive needs of cancer patients in an acute care hospital in Japan—a census study. *Support Care Cancer.* 2010;18(11):1393–403.
- Afilalo M, Xue X, Soucy N, Colacone A, Jourdenais E, Boivin JF. Patient needs, required level of Care, and reasons delaying Hospital Discharge for Nonacute patients occupying Acute Hospital beds. *J Healthc Qual.* 2017;39(4):200–10.
- Xiong B, Stirling C, Martin-Khan M. The implementation and impacts of national standards for comprehensive care in acute care hospitals: an integrative review. *Int J Nurs Sci* 2023.
- ACSQHC. National Safety and Quality Health Service Standards. 2nd ed. In. Sydney: ACSQHC; 2021.
- Grimmer K, Kennedy K, Fulton A, Guerin M, Uy J, Wiles L, Carroll P. Does comprehensive care lead to improved patients outcomes in acute care settings? An Evidence Check rapid review. In. Sydney: The Sax Institute (www.saxinstitute.org.au) for the ACSQHC; 2015.
- § 2–5 Right to individual plan. [<https://www.helsedirektoratet.no/rundskriv/pasient-og-brukerrettighetsloven-med-kommentarer/rett-til-helse-og-omsorgstjenester-og-transport/rett-til-individuell-plan#referere>]
- What is personalised care? [<https://www.england.nhs.uk/personalisedcare/pcsp/>]
- Murgo M, Dalli A. Australian health service organisation assessment outcome data for the first 2 years of implementing the Comprehensive Care Standard. *Aust Health Rev.* 2022;46(2):210–6.
- ACSQHC. Comprehensive Care Standard: review of implementation. In. Sydney: ACSQHC; 2022.
- Bjerkan J, Richter M, Grimsmo A, Hellesø R, Brender J. Integrated care in Norway: the state of affairs years after regulation by law. *Int J Integr Care* 2011, 11(1).
- Farmer J, Bigby C, Davis H, Carlisle K, Kenny A, Huysmans R. The state of health services partnering with consumers: evidence from an online survey of Australian health services. *BMC Health Serv Res* 2018, 18(1).
- Xiong B, Stirling C, Bailey DX, Martin-Khan M. The implementation and impacts of the comprehensive care standard in Australian acute care hospitals: a survey study. *BMC Health Serv Res.* 2024;24(1).
- Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci.* 2009;4(1):50.
- Breimaier HE, Heckemann B, Halfens RJG, Lohmann C. The Consolidated Framework for Implementation Research (CFIR): a useful theoretical framework for guiding and evaluating a guideline implementation process in a hospital-based nursing practice. *BMC Nurs* 2015, 14(1).
- Damschroder LJ, Lowery JC. Evaluation of a large-scale weight management program using the consolidated framework for implementation research (CFIR). *Implement Sci.* 2013;8(1):51.
- Ross J, Stevenson F, Lau R, Murray E. Factors that influence the implementation of e-health: a systematic review of systematic reviews (an update). *Implement Sci* 2016, 11(1).
- Damschroder LJ, Reardon CM, Widerquist MAO, Lowery J. The updated Consolidated Framework for Implementation Research based on user feedback. *Implement Sci.* 2022;17(1):75.
- Waltz TJ, Powell BJ, Chinman MJ, Smith JL, Matthieu MM, Proctor EK, Damschroder LJ, Kirchner JE. Expert recommendations for implementing change (ERIC): protocol for a mixed methods study. *Implement Sci.* 2014;9(1):39.
- Powell BJ, Waltz TJ, Chinman MJ, Damschroder LJ, Smith JL, Matthieu MM, Proctor EK, Kirchner JE. A refined compilation of implementation strategies: results from the Expert recommendations for Implementing Change (ERIC) project. *Implement Sci.* 2015;10(1):21.
- Waltz TJ, Powell BJ, Fernández ME, Abadie B, Damschroder LJ. Choosing implementation strategies to address contextual barriers: diversity in recommendations and future directions. *Implement Sci.* 2019;14(1):42.
- Xiong B, Stirling C, Martin-Khan M. Implementation challenges and impacts of the comprehensive care standard in Australian acute care hospitals: protocol for a mixed-method study. In: 20th national conference of emerging researchers in Ageing; 2022; 2022. p. 91.
- ACSQHC. Implementing the comprehensive care standard - a conceptual model for supporting comprehensive care delivery. In. Sydney: ACSQHC; 2018.
- NVivo. (Version 12.3.0) computer software. [<https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>]
- Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res.* 2005;15(9):1277–88.
- Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Res Psychol.* 2006;3(2):77–101.
- Clarke V, Braun V, Hayfield N. Thematic analysis. *Qualitative Psychology: Practical Guide Res Methods.* 2015;222(2015):248.

29. Delaforce A, Li J, Grujovski M, Parkinson J, Richards P, Fahy M, et al. Creating an implementation enhancement plan for a digital patient fall prevention platform using the CFIR-ERIC approach: a qualitative study. *Int J Environ Res Public Health*. 2023;20(5).
30. Léegaré F, Zhang P. Barriers and facilitators: strategies for identification and measurement. *Knowl Translation Health care* 2013:121–36.
31. Agostini L, Onofrio R, Piccolo C, Stefanini A. A management perspective on resilience in healthcare: a framework and avenues for future research. *BMC Health Serv Res* 2023, 23(1).
32. Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. *Lancet*. 2003;362(9391):1225–30.
33. Dogherty EJ, Estabrooks CA. *Why do barriers and facilitators matter? Complex interventions in health*. edn.: Routledge; 2015. pp. 273–81.
34. Geerligs L, Rankin NM, Shepherd HL, Butow P. Hospital-based interventions: a systematic review of staff-reported barriers and facilitators to implementation processes. *Implement Sci* 2018, 13(1).
35. Cheema JR, Asrar-ul-Haq M. Effects of staff participation, morale, and shortage on organisational performance: an international survey. *Issues Educational Res*. 2017;27(4):677–96.
36. Vimalachandran P, Liu H, Lin Y, Ji K, Wang H, Zhang Y. Improving accessibility of the Australian My Health Records while preserving privacy and security of the system. *Health Inf Sci Syst*. 2020;8(1):31.
37. Garcia C, Abreu L, Ramos J, Castro C, Smiderle F, Santos J, et al. Influence of burnout on patient safety: systematic review and meta-analysis. *Medicina*. 2019;55(9):553.
38. Kieft RA, De Brouwer BB, Francke AL, Delnoij DM. How nurses and their work environment affect patient experiences of the quality of care: a qualitative study. *BMC Health Serv Res*. 2014;14(1):249.
39. Squires JE, Aloisio LD, Grimshaw JM, Bashir K, Dorrance K, Coughlin M, Hutchinson AM, Francis J, Michie S, Sales A. Attributes of context relevant to healthcare professionals' use of research evidence in clinical practice: a multi-study analysis. *Implement Sci*. 2019;14:1–14.
40. Yuan S, Wang F, Li X, Jia M, Tian M. Facilitators and barriers to implement the family doctor contracting services in China: findings from a qualitative study. *BMJ open*. 2019;9(10):e032444.
41. Ashok M, Hung D, Rojas-Smith L, Halpern MT, Harrison M. Framework for research on implementation of process redesigns. *Qual Manage Healthc*. 2018;27(1):17–23.
42. Dy SM, Ashok M, Wines RC, Smith LR. A framework to guide implementation research for care transitions interventions. *J Healthc Qual*. 2015;37(1):41–54.
43. Leeman J, Baquero B, Bender M, Choy-Brown M, Ko LK, Nilsen P, Wangen M, Birken SA. Advancing the use of organization theory in implementation science. *Prev Med*. 2019;129:105832.
44. ACSQHC. AS18/14: comprehensive care standard: screening and assessment for risk of harm. In: Sydney: ACSQHC; 2020.
45. ACSQHC. AS18/15: comprehensive care standard: developing the comprehensive care plan. In: Sydney: ACSQHC; 2020.
46. Bjerkan J, Vatne S, Hollingen A. Web-based collaboration in individual care planning challenges the user and the provider roles - toward a power transition in caring relationships. *J Multidiscip Healthc*. 2014;7:561–72.
47. Damanpour F. Organizational innovation: a meta-analysis of effects of determinants and moderators. In: *Organizational innovation*. edn.: Routledge; 2018. p. 127–62.
48. Helfrich CD, Weiner BJ, McKinney MM, Minasian L. Determinants of implementation effectiveness: adapting a framework for complex innovations. *Med Care Res Rev*. 2007;64(3):279–303.
49. Tsai Y. Relationship between organizational culture, leadership behavior and job satisfaction. *BMC Health Serv Res*. 2011;11(1):98.
50. McHugh SM, Riordan F, Kerins C, Curran G, Lewis CC, Presseau J, Wolfenden L, Powell BJ. Understanding tailoring to support the implementation of evidence-based interventions in healthcare: the CUSTOMISE research programme protocol. *HRB Open Res*. 2023;6:7.
51. Powell BJ, Beidas RS, Lewis CC, Aarons GA, McMillen JC, Proctor EK, Mandell DS. Methods to improve the selection and tailoring of implementation strategies. *J Behav Health Serv Res*. 2017;44(2):177–94.
52. Egeland KM, Borge RH, Peters N, Bækkelund H, Braathu N, Sklar M, Aarons GA, Skar A-MS. Individual-level associations between implementation leadership, climate, and anticipated outcomes: a time-lagged mediation analysis. *Implement Sci Commun* 2023, 4(1).
53. Williams NJ, Wolk CB, Becker-Haimes EM, Beidas RS. Testing a theory of strategic implementation leadership, implementation climate, and clinicians' use of evidence-based practice: a 5-year panel analysis. *Implement Sci* 2020, 15(1).
54. Updated CFIR. Domains and Constructs: Short Definitions and Detailed Descriptions. [https://static-content.springer.com/esm/art%3A10.1186/s13012-022-01245-0/MediaObjects/13012_2022_1245_MOESM6_ESM.docx]
55. Kitson AL, Harvey G, Gifford W, Hunter SC, Kelly J, Cummings GG, Ehrenberg A, Kislov R, Pettersson L, Wallin L, et al. How nursing leaders promote evidence-based practice implementation at point-of-care: a four-country exploratory study. *J Adv Nurs*. 2021;77(5):2447–57.
56. ACSQHC. NSQHS Standards safety and quality improvement guide for partnering with consumers. In: Sydney: ACSQHC; 2012.
57. Mutebi H, Muhwezi M, Ntayi JM, Munene JC. Inter-organisational communication: organisational future orientation, inter-organisational interaction quality and inter-organisational group mechanism. *J Int Humanitarian Action* 2022, 7(1).
58. Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q*. 2004;82(4):581–629.
59. Meyers PW, Sivakumar K, Nakata C. Implementation of industrial process innovations: factors, effects, and marketing implications. *J Prod Innov Manage*. 1999;16(3):295–311.
60. Simpson DD, Dansereau DF. Assessing organizational functioning as a step toward innovation. *Sci Pract Perspect*. 2007;3(2):20.
61. Edmondson AC. Teaming: how organizations learn, innovate, and compete in the knowledge economy. Wiley; 2012.
62. Edmondson AC, Bohmer RM, Pisano GP. Disrupted routines: Team learning and new technology implementation in hospitals. *Adm Sci Q*. 2001;46(4):685–716.
63. Shin MH, Montano AL, Adjognon OL, Harvey KLL, Solimeo SL, Sullivan JL. Identification of implementation strategies using the CFIR-ERIC Matching Tool to mitigate barriers in a primary care model for older Veterans. *Gerontologist*. 2023;63(3):439–50.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.