

Health professionals' practices and perspectives of post-stroke coordinated discharge planning: a national survey

Lara Ingram^A, Rachelle Pitt^{A,B} and Kirstine Shrubsole^{A,C,D,E,*} 

For full list of author affiliations and declarations see end of paper

*Correspondence to:

Kirstine Shrubsole
School of Health and Rehabilitation
Sciences, The University of Queensland,
Brisbane, Australia.
Email: k.shrubsole@uq.edu.au

Handling Editor:

Natasha Lannin

Received: 29 August 2023

Accepted: 8 February 2024

Published: 7 March 2024

Cite this: Ingram L *et al.* (2024) Health professionals' practices and perspectives of post-stroke coordinated discharge planning: a national survey. *Brain Impairment* **25**, IB23092. doi:10.1071/IB23092

© 2024 The Author(s) (or their employer(s)). Published by CSIRO Publishing on behalf of the Australasian Society for the Study of Brain Impairment.

This is an open access article distributed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND)

OPEN ACCESS

ABSTRACT

Background. It is best practice for stroke services to coordinate discharge care plans with primary/community care providers to ensure continuity of care. This study aimed to describe health professionals' practices in stroke discharge planning within Australia and the factors influencing whether discharge planning is coordinated between hospital and primary/community care providers. **Methods.** A mixed-methods survey informed by the Theoretical Domains Framework was distributed nationally to stroke health professionals regarding post-stroke discharge planning practices and factors influencing coordinated discharge planning (CDP). Data were analysed using descriptive statistics and content analysis. **Results.** Data from 42 participants working in hospital-based services were analysed. Participants reported that post-stroke CDP did not consistently occur across care providers. Three themes relating to perceived CDP needs were identified: (1) *a need to improve coordination between care providers*, (2) *service-specific management of the discharge process*, and (3) *addressing the needs of the stroke survivor and family*. The main perceived barriers were the *socio-political context* and health professionals' *beliefs about capabilities*. The main perceived facilitators were health professionals' *social/professional role and identity*, *knowledge*, and *intentions*. The *organisation* domain was perceived as both a barrier and facilitator to CDP. **Conclusion.** Australian health professionals working in hospital-based services believe that CDP promotes optimal outcomes for stroke survivors, but experience implementation challenges. Efforts made by organisations to ensure workplace culture and resources support the CDP process through policies and procedures may improve practice. Tailored implementation strategies need to be designed and tested to address identified barriers.

Keywords: barriers, coordinated discharge planning, discharge planning, facilitators, health professional perspectives, implementation, stroke, survey.

Introduction

Going home after a stroke is a significant milestone in the stroke recovery journey (Allen *et al.* 2002). Person-centred discharge planning is essential for a successful transition home, as it reduces length of stay, risk of rehospitalisation following discharge (Shepperd *et al.* 2010; Gonçalves-Bradley *et al.* 2022), and risk of secondary stroke (Johnston *et al.* 2010). Moreover, person-centred discharge planning improves compliance with community-based rehabilitation (Almborg *et al.* 2009a) and is associated with greater quality-of-life (Andrew *et al.* 2018). As such, stroke clinical guidelines from countries including the USA, Canada, the UK, Ireland, and Australia, recommend that appropriate, timely follow-up for the stroke survivor should be person-centred and arranged with specialist stroke services and primary care providers (Cameron *et al.* 2016; Adeoye *et al.* 2019; Mountain *et al.* 2020; Intercollegiate Stroke Working Party 2023; Stroke Foundation 2023).

As well as ensuring a person-centred approach to discharge planning, there is emerging evidence that a coordinated approach to discharge planning offers additional benefits. Coordinated discharge planning (CDP) is a multifaceted process that involves the person experiencing a particular health concern, their families, and all healthcare professionals involved in care (such as the multidisciplinary stroke team) and includes interorganisational coordination between inpatient and community care providers as well as a connection with a key contact in the community (such as a case manager or primary care provider). For example, CDP ensures timely follow-up of service provision (Carlsson *et al.* 2012) and effective communication between stakeholders whilst maintaining a person and family-centred approach (McDonald *et al.* 2007; Reeves *et al.* 2019). Although the Australian Clinical Guidelines for Stroke Management (Stroke Foundation 2023) recommend that the 'discharge planning process may involve relevant community services...stroke support services, (and) any further rehabilitation or outpatient appointments', the process of communicating and supporting an integrated transfer of care between providers is not explicitly addressed. While the provision of a written discharge plan is an important aspect to communicate information to all stakeholders (Carlsson *et al.* 2012), there is a distinction between the presence of a written discharge plan and the process of coordinating discharge planning with key stakeholders; the presence (or lack) of a written plan does not reflect whether CDP has occurred.

There is evidence suggesting breakdowns in many aspects of CDP practices that have the potential to impact the successful transition home. For example, studies have shown that the frequency of providing written discharge care plans, in addition to their quality and accuracy, is poor. A recent report from the Australian Stroke Clinical Registry identified that approximately one third of stroke survivors missed out on receiving a written care plan upon hospital discharge (Cadilhac *et al.* 2022). Omissions of critical components of discharge care plans have been reported (Kind *et al.* 2012), with stroke survivors identifying a lack of education and support when returning home (Jones *et al.* 2008; Ellis-Hill *et al.* 2009; Luker and Grimmer-Somers 2009). Furthermore, Andrew *et al.* (2018) found that only 18% of 200 participants received all aspects of 'best practice' discharge care planning, indicating significant evidence-practice gaps for aspects such as complete information about medications and support structures.

In addition to gaps in the provision of written discharge plans, there is evidence that stroke survivors, families, and healthcare professionals have unmet needs surrounding CDP processes. Stroke survivors have reported a lack of participation in discharge planning and have identified a need for a communicative 'alliance' when negotiating services with health professionals (Hedberg *et al.* 2008; Almborg *et al.* 2009b). The concept of an alliance was also reflected in a recent Swedish survey of 21 stroke survivors,

their families, and healthcare professionals (Lindblom *et al.* 2020), where the need for an open and responsive discussion about all stakeholders' perspectives was required to achieve success in coordinated transition from hospital. Primary care providers have also identified that communication from inpatient settings is often inadequate. A recent qualitative study conducted with 40 primary care providers found that discharge care plans often lacked content and clarity and were typically reported from a 'medical perspective' rather than focussing on stroke survivors' recovery goals and community needs (Sheehan *et al.* 2022).

Improved coordination of services across hospital and community settings is needed to support continuity of care after stroke; however, there is limited evidence about how to do so. Previous interventions have found that care transitions for stroke survivors improve when a community-based 'key worker' facilitates case management and support (e.g. Allen *et al.* 2002; Reeves *et al.* 2019) and when primary care teams are guided by integrated care pathways (Abdul Aziz *et al.* 2020), but these community-based interventions are unlikely to improve hospital processes. Given that the majority of stroke services are provided in inpatient hospital settings in many countries, including Australia (Lynch *et al.* 2019), it is important to understand how to improve CDP processes and interorganisational collaboration prior to discharge.

Research has identified a wide range of barriers and enablers that influence CDP practices in stroke care. One commonly reported barrier relates to organisational constraints, including a culture of deprioritising discharge planning (Cadilhac *et al.* 2017) and a lack of organisational resources to support the transition from hospital (Chen *et al.* 2020). These cultural and organisational barriers have been shown to complicate CDP processes, despite the potential for strategies such as information systems (e.g. e-records), specialist discharge roles, and group-based planning activities (e.g. ward rounds) to support CDP (Waring *et al.* 2019). Other reported hospital-based barriers include pressure to discharge patients (Magdon-Ismail *et al.* 2016; Kable *et al.* 2019) and decision-making dominated by medical issues (Waring *et al.* 2016). Post-discharge barriers, including inadequate, delayed, or inaccessible discharge care plans (Waring *et al.* 2016; Lynch *et al.* 2017; Kable *et al.* 2019; Sheehan *et al.* 2022), have also been reported to impact the continuity of care for stroke survivors discharged home. In contrast, having a shared understanding of stroke survivors' and their families expectations, needs, and wishes (Allen *et al.* 2002; Sheehan *et al.* 2022; McDonald *et al.* 2007) has been found to facilitate CDP.

In order to develop strategies or innovations to enhance implementation of CDP within stroke services, it is necessary to understand the factors influencing health professionals' practice using behaviour-change theory (Eccles *et al.* 2005). It is well recognised that implementation strategies developed and tailored to address context-specific

barriers are more effective than non-tailored interventions or passive guideline dissemination (Baker *et al.* 2015), and this process can be facilitated by the use of theoretical frameworks. The Theoretical Domains Framework (TDF) (Michie *et al.* 2005; Cane *et al.* 2012) is one example of a framework that is useful in designing clinically meaningful and replicable implementation strategies (French *et al.* 2012; Phillips *et al.* 2015). The TDF is a synthesis of 33 behaviour-change theories that includes 14 domains: (1) knowledge; (2) skills; (3) social role and identity; (4) beliefs about capabilities; (5) optimism; (6) beliefs about consequences; (7) reinforcement; (8) intentions; (9) goals; (10) memory, attention, and decision processes; (11) environmental context and resources; (12) social influences; (13) emotion; and (14) behavioural regulation (Cane *et al.* 2012). The TDF has been used in many areas of healthcare research, including smoking cessation (Fulton *et al.* 2016), hand hygiene (Smith *et al.* 2019), and stroke rehabilitation (Lynch *et al.* 2017).

However, few studies have utilised behaviour-change theory to explore barriers and facilitators to CDP practice, and hence, there has been little progress towards tailored and theory-informed implementation. One exception is an Australian study (Cadilhac *et al.* 2017) that utilised the TDF (Cane *et al.* 2012) to investigate factors influencing adherence to stroke discharge care processes (including the provision of a discharge care plan) in two 'top performing' Australian hospitals. In their pilot study, Cadilhac *et al.* (2017) developed a multifaceted organisational intervention that improved and sustained discharge care in hospitals, which contributed to a 22% increase in the provision discharge care plans. The intervention included an educational meeting, performance feedback and action planning to agree on strategies, such as using the Stroke Foundation's 'My Stroke Journey' education booklet and care planning guide (Stroke Foundation 2019). This preliminary study provides valuable evidence that theory-informed implementation can lead to improved discharge planning processes; however, the concept of 'coordinated' discharge planning was not specifically addressed. Moreover, there is a need to understand factors influencing discharge planning in a broader range of contexts (not only 'top-performing' hospitals) to inform the development of a contextually relevant implementation strategy to enhance CDP.

In summary, CDP is a complex and multifaceted process, and there are evidence-practice gaps in current practice. In addition, there is a paucity of theory-informed research that has investigated and designed strategies to address the barriers faced by health professionals within the Australian healthcare context. To inform the development of potential solutions to improve discharge planning, further research is needed to better understand factors influencing post-stroke CDP, guided by a theoretical framework. Therefore, this study aimed to (1) describe the practices of stroke health professionals in undertaking stroke discharge planning and (2) identify the factors (i.e. barriers and facilitators)

influencing CDP practices specific to the Australian health-care context using the TDF.

Materials and methods

Design

A mixed-methods survey was distributed nationally to health professionals working in stroke to gather data on their practices and the factors (barriers and facilitators) influencing CDP post-stroke. A mixed-methods design was selected as the combination of both qualitative and quantitative methods to study human phenomena and provide a better understanding of a problem than either method alone (Creswell and Plano Clark 2011). The survey was distributed and completed electronically from July to October 2019. Ethical clearance was obtained from The University of Queensland, School of Health and Rehabilitation Sciences, in accordance with the National Health and Medical Research Council's Guidelines (2019000914).

Participants

The stroke professionals who participated in this study were medical, nursing, and allied health professionals recruited through snowball sampling via stroke professional networks, social media, and in-person recruitment at conferences. To be included, participants were required to be employed within Australia and provide services in a setting relevant to the care of stroke survivors. Such settings included hospital-based acute or rehabilitative care, and primary or community care, including community-based rehabilitation services, general practice, and private allied health practice. Professionals with less than 3 months experience working with people with stroke were not eligible to participate in the study, as they were not considered to have adequate experience to fully address the survey questions. Informed consent was provided by all participants.

Procedure

For the purposes of this study, 'CDP' referred to the identification and documentation of the specific post-discharge care needs of the stroke survivor, developed in partnership with the stroke survivors and their significant others, with active coordination of care with relevant community service providers. This working definition was developed by the research team and intended to integrate the key concepts related to successful and integrated discharge planning and care transfer across the literature reviewed. Part 1 of the survey collected relevant demographic information and data on participants' practices in their roles. Part 2 questions were guided by a previously validated questionnaire based on the TDF (Huijg *et al.* 2014), requiring responses to statements according to a five-point Likert scale (1 = strongly

disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Participants were also asked to describe the most significant facilitators and barriers to engaging in CDP between specialist and primary/community care in open-ended questions.

The survey was drafted by two authors with experience using the TDF and refined by a third author. Questions were then piloted by multiple ($n = 6$) nursing and allied health professionals and/or students to determine clarity and appropriateness. Feedback informed minor modifications. Final refinement occurred before distribution to ensure all TDF domains were represented. The survey (Supplementary Appendix S1) was distributed electronically via the Qualtrics platform.

Data analysis

Data from Qualtrics was downloaded and collated into a Microsoft Office Excel spreadsheet, then cleaned to remove duplicate responses and ensure all responses were valid and complete. Descriptive statistics were calculated for analysis in the form of percentages. Responses to TDF statements were collapsed into two categories of 'less than agreement' for 1–3 (strongly disagree–neutral) and 'agreement' for responses 4–5 (agree–strongly agree) as per the methods by [Chang *et al.* \(2018\)](#). Open-ended responses relating to current CDP practices were analysed using qualitative content analysis ([Schreier 2014](#)). For these responses, codes were derived by highlighting words and phrases that represented key perspectives. Related codes were grouped into categories. After all transcripts were coded, categories were further clustered into subthemes and themes. For responses relating to the factors (i.e. barriers and facilitators) influencing CDP practice, this data were deductively mapped to the TDF domains ([Michie *et al.* 2005](#); [Cane *et al.* 2012](#)). For each domain, specific underlying subconstructs were inductively identified. Coding was conducted by the first author (L. I.) and peer checking was conducted by the other two authors (R. P. and K. S.) to enhance qualitative rigour. Consistency of coding was reviewed with the full research team at regular meetings, and any discrepancies were discussed until consensus was reached. The research team then developed specific belief statements that represented the integration of the subconstructs of the TDF and the categories coded from participant responses. An additional step of integration of the quantitative and qualitative data was undertaken to identify the key factors influencing practice (barriers and facilitators). During the integration phase, the domains identified as barriers and facilitators were examined to determine if qualitative comments supported quantitative ratings (i.e. if participants who rated the domain as a barrier on the Likert scale made a comment about the domain being a barrier and vice versa) to explore possible patterns in responses. Participant demographic information was also examined to determine patterns in

relation to their profession, years of experience, gender, and whether they reported discharge planning needed to improve. Trustworthiness was maintained through regular meetings with the full research team during final data analysis for increased transparency.

Results

Results are presented according to the structure of the survey, with demographic information reported first. The remaining results from Part 1 of the survey are presented under the heading 'Post-stroke discharge planning practices'. Results from Part 2 of the survey relate to the TDF and are presented under the heading 'Factors influencing post-stroke coordinated discharge planning'. The final section relates to the integration of qualitative and quantitative findings.

Participant sample

A total of 70 participants commenced the survey, but six did not meet the inclusion criteria, and 13 did not continue beyond the consent or demographic questions. Of the remaining 51 datasets, 42 participants working in acute or rehabilitative hospital settings responded; these results are reported below, and participant demographic profiles are shown in [Table 1](#). The majority of respondents were allied health professionals, such as speech pathologists ($n = 12$; 28%), physiotherapists ($n = 6$; 14%), and occupational therapists ($n = 8$; 19%), with a large proportion from either Victoria (40%) or Queensland (30%), and approximately three quarters were from a metropolitan area. Years of experience working with stroke was relatively well distributed from less than 1 year to over 20 years' experience, with the largest number of respondents in the '3–5' ($n = 11$; 26%) and '11–15' ($n = 10$; 24%) years of experience groups. The proportion of participants' stroke caseloads also varied. As only nine participants working in primary or community care settings responded, this data were not included due to the small sample size and lack of equivalence to the hospital group.

Post-stroke discharge planning practices

Responses to statements regarding participants' discharge planning practice are displayed in [Table 2](#), ranked on a five-point Likert scale. The majority reported the following aspects of their CDP practice as occurring 'frequently' or 'always': contributing to discharge plans (90%); being certain that a person with stroke received a discharge plan (90%); involving stroke survivors and their families in developing the discharge plan (88%); and coordinating the discharge plan with other services, including the stroke survivor's general physician and community services

Table 1. Participant demographics (n = 42).

Variables	N	%
Sex		
Female	36	85.71
Male	6	14.29
Age (years)		
20–30	20	47.62
31–40	9	21.34
41–50	7	16.67
51–60	2	4.76
60 +	3	7.14
Unspecified	1	2.38
Highest level of education		
Bachelor	18	42.86
Bachelor with Honours	8	9.05
Postgraduate Masters	16	38.10
Clinical role		
Allied health professionals	32	76.19
Speech pathologist	12	28.57
Physiotherapist	6	14.29
Occupational therapist	8	19.05
Dietitian	3	7.14
Social worker	2	4.76
Unspecified	1	2.38
Nursing professionals	9	21.43
Unspecified	9	21.43
Medical professionals	1	2.38
Unspecified	1	2.38
Length of experience as health professional		
<1 year	2	4.76
1–2 years	6	14.29
3–5 years	8	19.05
6–10 years	8	19.05
11–15 years	5	11.90
16–20 years	4	9.52
20+ years	9	21.43
Number of years experience as a health professional working with stroke survivors		
<1 year	3	7.14
1–2 years	5	11.90
3–5 years	11	26.19
6–10 years	6	14.29

(Continued on next column)

Table 1. (Continued)

Variables	N	%
11–15 years	10	23.81
16–20 years	3	7.14
20+ years	4	9.52
State/territory	40	
Australian Capital Territory	1	2.50
New South Wales	6	15.00
Northern Territory	0	0.00
Queensland	12	30.00
South Australia	0	0.00
Tasmania	4	10.00
Victoria	16	40.00
Western Australia	1	2.50
Region	41	
Metropolitan (urban)	31	75.61
Regional	8	19.51
Rural/remote	2	4.88
Proportion of caseload consisting of working with stroke survivors in the last 12 months		
75–100%	13	31.71
50–74%	10	24.39
25–49%	13	31.71
Few (<24% but >0%)	5	12.20

(61%). Less than half (39%) of the respondents were ‘frequently’ or ‘always’ sure that recommendations from discharge plan had been actioned. Participants identified which methods of CDP they used most frequently. The most frequently used methods to coordinate care between providers involved more than one modality, such as a written referral and discharge plan (39%) or a written discharge plan and phone call (26%), as opposed to a single method, such as a written referral only (5%).

Over half (n = 24, 57%) of the respondents reported there being a need to improve discharge planning, whereas 12% (n = 5) reported there was no need to improve discharge planning, and 30% (n = 12) reported being unsure. Of the 23 who explained their reasoning for their response, three key themes were identified, presented in Table 3. When reporting respondents’ quotes, discipline is represented in the following way: nursing staff = NP; occupational therapist = OT; physiotherapist = PT; social worker = SW; speech pathologist = SLP.

The first theme was a perceived need to improve coordination between care providers, where respondents described challenges with follow-up (such as knowing whether referrals had been received or acted on) and perceived gaps in

Table 2. Responses to questions regarding current discharge planning practices.

Question	Rarely (%)	Occasionally (%)	Sometimes (%)	Frequently (%)	Always (%)
Frequency of contribution to discharge plans (n = 42)	0.00	7.14	2.38	40.48	50.00
Frequency of being sure a patient has received a discharge plan (n = 42)	0.00	2.38	7.14	45.24	45.24
Frequency of involving patients and their families in developing the discharge plan (n = 42)	0.00	4.76	7.14	40.48	47.62
Frequency of coordinating the discharge plan with other services, including the patient's GP and community services (n = 42)	0.00	9.52	28.57	47.62	14.29
Frequency of being sure that recommendations from discharge plans have been actioned (e.g. referrals, medication management, support groups) (n = 41)	2.44	26.83	31.71	34.15	4.88

communication between providers and access to services. Several described a lack of capacity to ensure that referrals had been made, for example, 'beyond the point of discharge from our health service I am rarely in a position to be aware of outcomes' (NP9). Another respondent expressed concern that referrals may 'slip through the cracks', particularly for stroke survivors 'with communication difficulties who cannot advocate for themselves or lack insight into their deficits' (SLP2). There were challenges reported in communication between medical teams and allied health clinicians, as well as with external providers. One respondent highlighted the need for 'more active coordination between services, including the general practitioner (GP), further therapy services (e.g. home-based or community-based rehab), and stroke services (e.g. Stroke Foundation, local support groups)' (SLP10).

The second theme related to *service-specific management of the discharge process*, where elements such as resources, documentation processes, and role designation were identified as being things that either needed improvement or worked well. Some described discharge planning as being resource-intensive due to the time ('it [discharge planning] is a timely process... time is something we don't have in an environment when demand vastly outstrips supply' (NP4)) and effort required ('Our service does a lot of running around to ensure appropriate discharge planning' (SLP3)). Another respondent identified that certain professions had a designated role in the discharge process: '[discharge] coordinators and social work that do a predominant amount of the discharge planning process and organisation' (PT5). The third theme highlighted respondents' beliefs that discharge planning *should address the needs of the stroke survivor and their family*, with a greater emphasis on collaboration and consistent processes that are accessible and individualised. The need for collaboration was identified by several respondents, who suggested having 'clearer discussions with survivors and their families/supporters' (AHP1) and 'more communication with GPs' (OT3). In addition, one respondent highlighted that, 'More needs to be done to ensure secondary stroke prevention measures are put in place on discharge, particularly if a patient is being discharged straight home from acute' (PT4).

Factors influencing post-stroke CDP

Participant responses to statements regarding their role in CDP, corresponding to TDF domains (Michie et al. 2005; Cane et al. 2012), are shown in Fig. 1, where the percent 'less than agreement' (barrier) and percent in 'agreement' (facilitator) was calculated per domain. The main barriers included the *socio-political context* (81% less than agreement) and health professionals' *beliefs about capabilities* (50% less than agreement). The domains with the highest percentage agreement included *social/professional role and identity*, *knowledge*, *emotions*, and *intentions*, indicating

Table 3. Perceptions regarding the need to improve current discharge planning practices.

Theme	Sub-theme	Category	Exemplar quote
Need to improve coordination between care providers (<i>n</i> = 9)	Primary/community care providers (<i>n</i> = 1)	Access and eligibility (<i>n</i> = 1)	'Another area that needs improvement is access to and eligibility for community-based services.' (SLP5)
	Need for follow-up (<i>n</i> = 5)	Patients are expected to self-manage (<i>n</i> = 1)	'I do often worry that my referral may 'slip through the cracks' - this is obviously concerning as a SLP for patients with communication difficulties who cannot advocate for themselves or lack insight into their deficits to acknowledge the need for ongoing care/that a referral has not been actioned.' (SLP2)
		No capacity to check on referrals (<i>n</i> = 4)	'...Beyond point of discharge from our health service I am rarely in a position to be aware of outcomes.' (NP9)
	Communication between providers (<i>n</i> = 6)	Poor communication with medical staff (<i>n</i> = 2)	'We have a lot of difficulty ensuring the medical team are aware of what is happening. They are just too hard to contact, don't respond to emails, and don't look at discharge summaries that have been posted to them.' (SLP3)
		NDIS implications (<i>n</i> = 1)	'Implications from recent NDIS [National Disability Insurance Scheme] roll-out on discharge planning.' (SW1)
		Slip through the cracks (<i>n</i> = 2)	'I am sure there are people who fall through the cracks.' (SLP5)
Service-specific management of the discharge process (<i>n</i> = 8)	Discharge planning is resource intensive (<i>n</i> = 2)	Need more communication between all services (<i>n</i> = 1)	'There should be more active coordination between services including the GP, further therapy services (e.g. home-based or community based-rehab), and stroke services e.g. Stroke Foundation, local support groups etc.' (SLP10)
		Time (<i>n</i> = 1)	'It is a timely process – time is something we don't have in an environment when demand vastly outstrips supply.' (NP4)
		Running around (<i>n</i> = 1)	'Our service does a lot of running around to ensure appropriate discharge planning.' (SLP3)
	Documentation and processes (<i>n</i> = 1)	Competing priorities (<i>n</i> = 1)	'Focus tends to be on acute care.' (NP4)
		Need to include allied health professionals (<i>n</i> = 1)	'Include Allied Health Discharge Plan as part of Hospital Discharge Plan to GP.' (D1)
	Designated discharge roles (<i>n</i> = 1)	Discharge coordinator (<i>n</i> = 1) Social work (<i>n</i> = 1)	'We have D/C [discharge] coordinators and social work that do a predominant amount of the discharge planning process and organisation.' (PT5)
Should address the needs of the stroke survivor and their family (<i>n</i> = 8)	Overall discharge management at practice setting (<i>n</i> = 4)	Discharge managed well (<i>n</i> = 4)	'Feel this is managed well at the facility where I practice.' (SLP7)
		Uncertainty about other services (<i>n</i> = 1)	'Not in our small hospital, I think we do it well – but not sure about other places.' (MP1)
		Needs to be more collaborative (<i>n</i> = 3)	'Needs to be more collaborative with the patient and their family.' (SW2)
	Collaboration (<i>n</i> = 5)	Consistent stroke survivor and family involvement (<i>n</i> = 1)	'I believe... patient/family involvement is consistent.' (NP9)
		Needs to consider stroke survivor perspective (<i>n</i> = 1)	'Would be interesting to know the stroke survivor's perspective.' (OT1)
		Accessible to patients (<i>n</i> = 1)	'Documentation for discharge plan should be more accessible/clearer rather than generic hospital discharge plan/summary.' (SW2)

(Continued on next page)

Table 3. (Continued)

Theme	Sub-theme	Category	Exemplar quote
	Focus on secondary stroke prevention (<i>n</i> = 2)	Better secondary stroke prevention (<i>n</i> = 2)	'More needs to be done to ensure secondary stroke prevention measures are put in place on discharge, particular if a patient is being discharged straight home from acute.' (PT4)
	Facilitate access to stroke support groups (<i>n</i> = 1)	Better support group access (<i>n</i> = 1)	'Stroke support groups (carers and survivors).' (OT8)

SLP, speech language pathologist; OT, occupational therapist; PT, physiotherapist; D, dietitian; NP, nursing professional; SW, social worker; MP, medical professional.

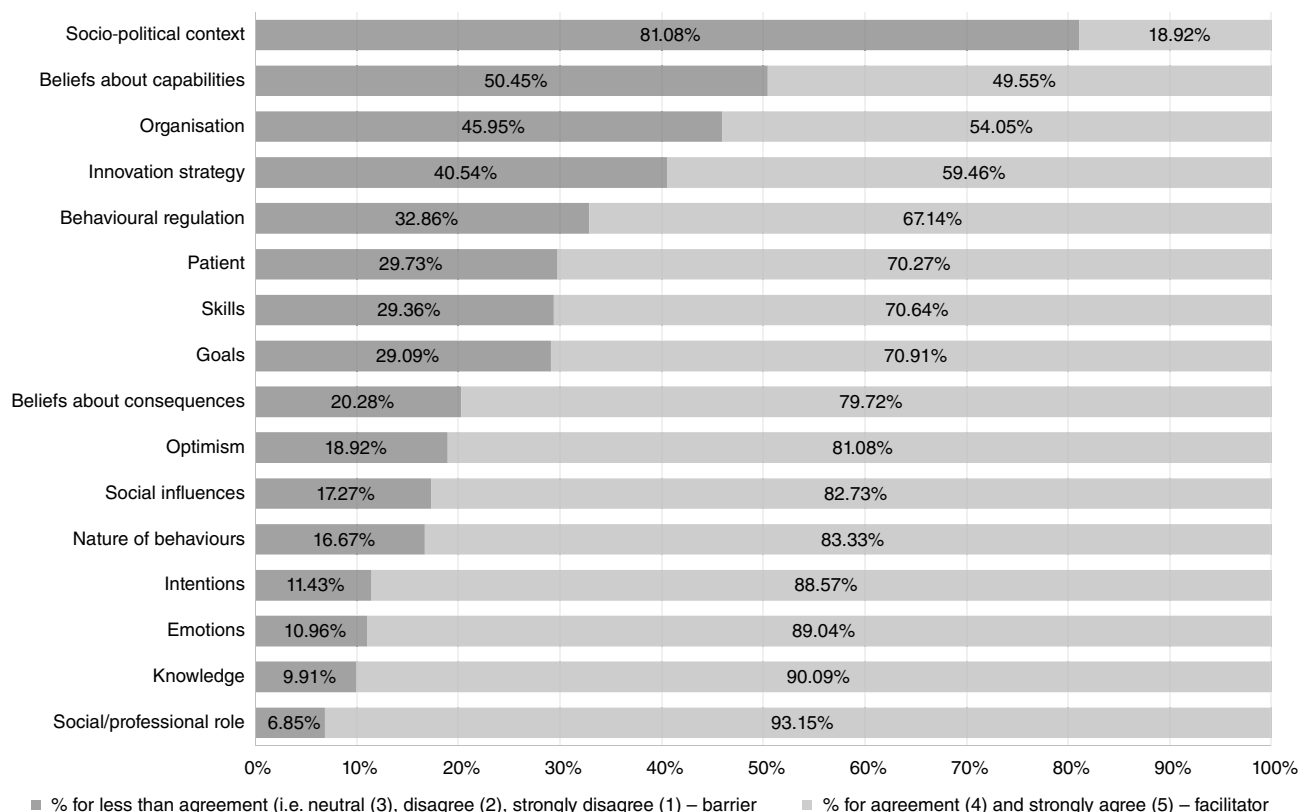


Fig. 1. Agreement with TDF statement regarding implementation of CDP (*n* = 42).

these were the main CDP facilitators. Percent agreement for individual TDF-aligned statements can be found in Supplementary Appendix S2.

Participants' responses to open-ended questions about the 'most significant' facilitators and barriers to engaging in CDP were analysed using deductive analysis with content units mapped to TDF domains; these are summarised in Tables 4 and 5. Overall, the 'organisation' domain was linked to the majority of reported barriers (*n* = 29) and facilitators (*n* = 25), described further below. Following this, the next most reported categories of barriers included the *socio-political context* (*n* = 8) and health professionals' *beliefs about capabilities* (*n* = 6). Examples of these barriers included a 'lack of community services/providers... [that] impacts wait lists, intensity of therapy and available

discharge options' (SLP2), and 'competing demands' (SW2) that had a negative impact on healthcare professionals' perceived behavioural control. In addition to the 'organisation', the main facilitators to CDP were health professionals' positive *social influences* (*n* = 7), such as a 'supportive team environment' (SW2) and *social/professional role and identity* (*n* = 6), including 'expectations that discharge handovers and referrals will be completed' (OT5).

Integration of quantitative and qualitative data

Key factors influencing practice (barriers and facilitators) were identified by integrating quantitative and qualitative data. The qualitative results reinforced the majority of the quantitative findings, with the main barriers being the *socio-*

Table 4. Barriers to CDP identified as most significant by participants mapped to the Theoretical Domains Framework (TDF).

Domain	Specific belief/subconstruct ^A	Example quotes	N reported
Organisation	The organisation in which I work, including its resources (time, money, staffing, general resources), its culture (of discharge summaries, staff access, discharge timing, focus, communication and external services), and my interaction with the environment, is a barrier to CDP.	'Inadequate time available...not knowing when patients are discharging.' (D1)	29
Socio-political context	The socio-political context, including service availability, the National Disability Insurance Scheme, external organisation demands, and funding, is a barrier to CDP.	'Lack of community services/providers – this impacts wait lists, intensity of therapy and available discharge options (e.g. patients who are 'too good' for RACF [residential aged care facility] but require some level of support/assistance/supervision that cannot be provided by family).' (SLP2)	8
Beliefs about capabilities	Beliefs about my capabilities, including my caseload demands and perceived behavioural control, is a barrier to CDP.	'...Competing demands...' (SW2)	6
Patient factors	Patient characteristics and circumstances are barriers to CDP.	'The biggest challenge in previous roles I had was patients having a GP to provide handover...' (OT1) 'Complex family situations' (SLP04) 'Client's motivation/ability to take on a bigger role as they reach the end of the time at community rehabilitation (in relation to initiation).' (SLP 5)	5
Knowledge	Knowledge, including procedural knowledge (of referring to available services, adapting to processes of different areas) and knowledge of impairments, are barriers to CDP.	'...Knowledge of referral processes. 'Who do I contact about that?'' (NP9)	4
Innovation strategy	Innovation strategies, such as training, are barriers to CDP.	'...Education/training' (NP7)	1
Social influences	Social influences, including social support, are barriers to CDP.	'Engagement of GPs...' (SLP5)	1
Social/professional role and identity	My professional role, including the competing demands related to my role in CDP, is a barrier to CDP	'We do not have a dedicated stroke OT on our acute wards.' (OT2)	1

SLP, speech language pathologist; OT, occupational therapist; D, dietitian; NP, nursing professional; SW, social worker.

^AEach specific belief/subconstruct has been created based upon subconstructs of the TDF in combination with categories derived from participant responses.

political context and health professionals' *beliefs about capabilities*, and the main facilitator being *social/professional role and identity*. There was some variation in the identified facilitators, with *social influences* identified more strongly in the qualitative findings than the quantitative results. In addition, although *knowledge*, *emotions*, and *intentions* were key facilitators in the quantitative findings (with high agreement), there was limited evidence of these factors being important in the open-ended responses. The *organisation* domain appeared to be central to the implementation of a discharge plan, with integrated quantitative and qualitative results indicating that this acted as both a barrier and facilitator to CDP. The *organisation* was identified as both a barrier (46%) and a facilitator (54%) by participants, with various subconstructs influencing practice, including associated resources (time, staffing, documentation/handovers), organisational culture (staff access, expectations/views, communication, and collaboration), and interaction with the environment (evident in Tables 4 and 5).

It was possible to triangulate quantitative and qualitative data relating to the 'organisation' domain to identify patterns of responses, as this domain had the greatest number

of coded responses. A pattern was seen where over half of the participants had mixed views of the organisation, with divergent ratings and comments seen for these respondents where the domain was identified as both a barrier and facilitator. Those who agreed that their organisation provided '*all necessary resources*' were more likely to highlight facilitating aspects of the multidisciplinary team (MDT) team in their response, such as team meetings and case-conferences. For example, high levels of organisational support, including initiatives such as multidisciplinary case conferences and accessibility of the MDT, were noted to 'provide the opportunity to discuss patient's goals, recommendations for follow-up' and facilitate discussion around 'appropriate discharge options and plan(s)' (SLP2). Conversely, there was a pattern of responses where lower levels of perceived organisational support was linked to organisational barriers being identified, such as inadequate time to complete discharge planning.

The *organisation* domain was the only factor with sufficient quantitative and qualitative data for triangulation. There was limited data to support that any factors relating to participant demographics influenced participant

Table 5. Facilitators to CDP identified as most significant by participants mapped to the Theoretical Domains Framework (TDF).

Domain	Specific belief/subconstruct ^A	Exemplar quotes	N reported
Organisation	The organisation in which I work, including its associated resources (time, staffing, documentation/handovers), culture (staff access, expectations/views, communication and collaboration), and my interaction with the environment, is a facilitator to CDP.	'Weekly multidisciplinary case conference and accessibility of the allied health team – both of these provide the opportunity to discuss the patient's goals, recommendations for follow-up and essentially bounce ideas around regarding appropriate discharge options and plan.' (SLP2)	25
Social influences	Social influences, including social support and modelling, are facilitators to CDP.	'Supportive team environment' (SW2)	7
Social/professional role and identity	My professional role, including conducting ward rounds, the expectation of completing documentation and handovers, and showing leadership, is a facilitator to CDP.	'Expectations that discharge handovers and referrals will be completed.' (OT5)	6
Knowledge	Procedural knowledge, including knowledge of available services and referral processes, is a facilitator to CDP.	'Awareness of post-discharge services and processes to refer them to.' (AHP – unspecified)	2
Intentions	Intentions, including my motivation, is a facilitator to CDP.	'My own motivation' (SLP5)	1
Beliefs about consequences	Beliefs about my consequences, including my outcome expectancies, are facilitators to CDP.	'Seen as 'part of the process' for stroke patients.' (SLP7)	1
Skills	Skills, including practice, are facilitators to CDP.	'Previous experience working for the stroke foundation.' (SLP5)	1
Patient factors	Patient characteristics and circumstances are facilitators to CDP.	'When patients and their families are able to advocate for themselves.' (SLP8)	1
Behavioural regulation	Behavioural regulation, including self-reflection, is a facilitator to CDP.	'...Self-reflection on pros/cons of providing coordinated discharge planning in the past...' (SLP5)	1
Beliefs about capabilities	Beliefs about my capabilities, including my perceived behavioural control, are facilitators to CDP.	'...Writing good chart entries and discharge summaries...' (PT1)	1
Socio-political context	The socio-political context, including good community services, is a facilitator to CDP.	'...Good follow-up services in the community, however, these may be stretched at times.' (OT7)	1

SLP, speech language pathologist; OT, occupational therapist; PT, physiotherapist; SW, social worker; AHP – unspecified, allied health professional who did not specify their discipline.

^AEach specific belief/subconstruct has been created based upon subconstructs of the TDF in combination with categories derived from participant responses.

perspectives of barriers and facilitators to CDP or their perceived need to improve practice. For example, the small sample of participants who reported 'no need' to improve discharge planning also provided mixed levels of agreement to the TDF statements and identified some organisational barriers in response to the open-ended questions.

Discussion

This study explored Australian stroke healthcare professionals' discharge planning practices and identified factors influencing CDP. Findings suggested that although most participants reported high levels of involvement from key stakeholders, including the stroke survivor, family and hospital-based clinicians in discharge plan development, there was inconsistent coordination of this process between care providers across different settings, such as community. Reported practice and health professionals' perceived needs

for improvement are discussed below, in addition to the key factors influencing practice and barriers that should be considered in future implementation efforts.

The majority of respondents reported that stroke survivors in their service frequently received a discharge plan (90%) and that stroke survivors and families were frequently involved in this plan's development (88%). These results highlight a discrepancy between clinicians' perceptions and national data, indicating that 69% of stroke survivors receive a discharge care plan and 31% do not (Cadilhac *et al.* 2022). This higher self-rating aligns with previous literature, indicating that clinicians tend to overestimate their adherence to guidelines (Sadeh-Sharvit *et al.* 2022). Similarly, although our findings suggest higher levels of stroke survivor and family involvement than previously reported (Almborg *et al.* 2009a, 2009b; Perry and Middleton 2011), these differences between health professionals, stroke survivors, and families' perspectives may also represent an overestimation of stakeholder involvement. Several participants in our study

reported a need for more collaborative and communicatively accessible discharge planning processes that include the stroke survivor and family, which aligns with previous findings (Hedberg *et al.* 2008; Almborg *et al.* 2009a, 2009b; Perry and Middleton 2011) and suggests ongoing work to optimise stroke survivor and family participation is needed.

Discrepancies were also identified between the level of CDP involvement of inpatient staff and external care providers, with inpatient staff involved more frequently. Specifically, results indicated high levels of contribution to discharge plans from multidisciplinary hospital staff (90%), whereas over one third of participants reported that coordination with external care providers (e.g. general physicians, community services) occurred only 'sometimes' or 'occasionally'. These findings indicate inconsistent coordination of care between inpatient and external care providers, supporting previous reports of poor communication with external care providers in stroke and other populations (Røstad *et al.* 2013; Waring *et al.* 2016).

The impacts of inconsistent coordination between care providers were demonstrated in reports of uncertainty around enacting discharge plan recommendations. More than half of respondents indicated they were unsure if recommendations had been actioned from care plans. These findings align with previous literature that health professionals perceive poor follow-up care as a threat to safe discharge, with concerns relating to perceived limitations in community and primary care providers' involvement in post-discharge care (Waring *et al.* 2016). This uncertainty reinforces the existing evidence that highlights the need for enhanced communication between care providers across the care continuum (Lindblom *et al.* 2020) and further supports the argument that giving information in the form of a written discharge plan does not equate to care coordination. Consequently, further research into improving CDP processes is a priority.

Despite the generally positive perceptions of discharge planning processes overall, few participants reported CDP was managed well in their practice setting. These results suggest that CDP practices are inconsistent between hospitals and that some stroke survivors may receive better quality care depending on the hospital to which they are admitted, highlighting the need for a standardised discharge protocol (McCann *et al.* 2009; Cadilhac *et al.* 2011; Cadilhac *et al.* 2017). These results may also indicate that participants' perceptions of discharge planning differed and that some may not have been aware of or valued the importance of coordination with external care providers. To explore the underlying reason for these results further, more detailed observational or in-depth exploratory studies are required.

Explicit exploration of the factors influencing CDP identified that the *organisation* domain was perceived as both a barrier and a facilitator, reflecting complex and multifaceted organisational structures. Almost half (46%) of our respondents rated this domain as a barrier, with 29 qualitative

responses relating to how the organisation hindered CDP. The finding that organisational culture can prevent prioritisation of discharge planning is similar to previous research, where it has been reported that stroke survivors are often discharged from hospital survivors before CDP can occur, due to low bed capacity (Magdon-Ismail *et al.* 2016; Waring *et al.* 2016; Cadilhac *et al.* 2017). Several other organisational barriers were common to the study by Hesselink *et al.* (2014) in a general population, including workload and time pressure, work shift structures, and a lack of communication. As mentioned above, poor collaboration with external care providers was also common to previous research (Røstad *et al.* 2013; Waring *et al.* 2016), suggesting that further guidance may be needed regarding expectations of reciprocal communication between hospital and primary/community care providers.

Qualitative responses from 25 participants in this study also provided evidence of the organisation facilitating CDP. Communication and collaboration across all professionals, with access to multidisciplinary staff who shared a person-centred approach to discharge planning maximised the opportunity to provide CDP. Although resources and processes such as documentation and handover were reported to facilitate CDP, no participants specifically identified the Stroke Foundation's 'My Stroke Journey' resource (Stroke Foundation 2019). This resource, which aims to support care planning in the transition from hospital to home (Stroke Foundation 2019), has previously been used to improve provision of discharge care plans as part of an intervention promoting collaboration in discharge planning (Cadilhac *et al.* 2017). The role of this and other resources in facilitating CDP and their perceived value by health professionals requires further exploration.

Other key barriers and facilitators were identified that could be addressed in a future implementation intervention. One specific barrier identified within the *socio-political context* domain was a lack of community services available to refer stroke survivors to upon discharge, a finding common to several other studies (Hickey *et al.* 2012; Waring *et al.* 2016; Lynch *et al.* 2017). Although this barrier may not be easily modifiable for individual clinicians, as it typically requires system-level change (Halladay and Bero 2000), facilitating factors, such as procedural knowledge of referral processes and available services (*knowledge domain*) and a positive team culture (*social/professional role and identity domain*), could be leveraged to decrease barriers. For example, Cadilhac *et al.* (2017) addressed inconsistent procedural knowledge through regular multidisciplinary team meetings to foster social support within their intervention that improved provision of discharge care plans.

The *social/professional role and identity* domain was identified as the main factor facilitating post-stroke CDP, with the highest percent agreement (93.15%) and several qualitative responses. This reflects findings from Lynch *et al.* (2017), who found that adherence to a rehabilitation

assessment tool in acute stroke units was strongly influenced by whether participants perceived it as part of their role. Methods for optimising this domain should be considered, such as role clarification within procedural and governance documents, which could contribute to a standardised discharge protocol. As positive *intentions* were also reported to facilitate CDP, a social learning environment with well-intentioned health professionals may be an effective way to improve practice. This strategy is supported by a theory-informed overview of systematic reviews, which showed that implementation strategies requiring health professionals to learn in a social environment to enact new practices had the greatest impact on behaviour change (Johnson and May 2015). A novel finding from our study was that positive *emotions* also facilitated CDP, suggesting that leveraging this domain through strategies such as promoting positive patient stories may be important to successful implementation.

Implications and future directions

This study expanded on the work by Cadilhac *et al.* (2017) by exploring health professionals' perspectives more broadly across Australia to reinforce the presence of an evidence-practice gap in post-stroke discharge planning processes. Our study highlights ongoing perceptions of inconsistent coordination of discharge planning in post-stroke care, suggesting that clearer guidance and support is needed to improve communication between hospital-based clinicians and primary and community care providers. These inconsistencies in CDP practices have the potential to negatively impact the discharge experience and associated outcomes for stroke survivors and their families. Although the Australian and New Zealand Living Clinical Guidelines for Stroke Management (Stroke Foundation 2017, 2023) state that 'discharge planning relies on effective communication between team members, stroke survivors, families/carers, and community service providers including general practitioners', health professionals are in a difficult position to achieve CDP without further support from the healthcare systems in which they work. Improved integration of systems and processes are likely required to support reciprocal communication and collaboration between inpatient and community care providers. In addition, future research involving the development and evaluation of a tailored implementation strategy to address the key barriers and leverage the key facilitators identified in our study is required.

Limitations

Our study was limited by a relatively small sample size despite efforts to increase response rates. Medical and nursing professionals were relatively underrepresented in the sample, and responses from professionals working in hospitals and primary/community care were unable to be

compared due to low response rates from the latter group. In addition, it is possible that self-selection bias may have impacted results, with people more interested in CDP choosing to participate. These factors may limit the generalisability of the results. As such, future research should explore the needs and perspectives of primary and community care providers to further understand how to improve CDP processes across the care continuum. In addition, although some specific challenges were identified in accessing the *National Disability Insurance Scheme* (available to eligible Australians under the age of 65 years), we did not collect information about specific discharge challenges related to the stroke survivor's age, so further research into age-related service accessibility may be required. As the survey was conducted prior to the COVID-19 pandemic, which majorly disrupted health service provision, we acknowledge that CDP practices and barriers may have changed. Despite these limitations, the use of behaviour-change theory to understand factors influencing CDP via the TDF (Michie *et al.* 2005; Cane *et al.* 2012) was a strength, as was the use of a valid and reliable questionnaire (Huijg *et al.* 2014) to inform survey development. Although conducted in the Australian context, many of our findings are consistent with previous research on discharge planning (e.g. Hedberg *et al.* 2008; Almborg *et al.* 2009a, 2009b; Perry and Middleton 2011; Waring *et al.* 2016; Cadilhac *et al.* 2017) and may be generalisable to other countries with similar service delivery models for stroke care.

Conclusion

There are inconsistencies and evidence-based practice gaps in post-stroke CDP processes. Despite hospital-based health professionals perceiving CDP as part of their *social/professional role and identity*, and generally having the *knowledge* and *intentions* to engage in CDP processes, there are numerous barriers to practice. In particular, post-stroke CDP is limited by the *socio-political context*, health professionals' *beliefs about capabilities*, and aspects of the *organisation*. 'Best practice' in post-stroke discharge planning processes may be achieved by addressing the identified barriers and facilitators through future development and evaluation of a tailored implementation strategy.

Supplementary material

Supplementary material is available [online](#).

References

- Abdul Aziz AF, Mohd Nordin NA, Muhd Nur A, Sulong S, Aljunid SM (2020) The integrated care pathway for managing post stroke patients (iCaPPS[®]) in public primary care Healthcentres in Malaysia: impact on quality adjusted life years (QALYs) and cost

- effectiveness analysis. *BMC Geriatrics* 20(1), 70. doi:10.1186/s12877-020-1453-z
- Adeoye O, Nyström KV, Yavagal DR, Luciano J, Nogueira RG, Zorowitz RD, Khalessi AA, Bushnell C, Barsan WG, Panagos P, Alberts MJ, Tiner AC, Schwamm LH, Jauch EC (2019) Recommendations for the Establishment of Stroke Systems of Care: A 2019 Update: A Policy Statement From the American Stroke Association. *Stroke* (1970) 50(7), e187–e210. doi:10.1161/STR.0000000000000173
- Allen D, Lyne P, Griffiths L (2002) Studying complex caring interfaces: key issues arising from a study of multi-agency rehabilitative care for people who have suffered a stroke. *Journal of Clinical Nursing* 11(3), 297–305. doi:10.1046/j.1365-2702.2002.00555.x
- Almborg AH, Ulander K, Thulin A, Berg S (2009a) Discharge planning of stroke patients: the relatives' perceptions of participation. *Journal of Clinical Nursing* 18(6), 857–865. doi:10.1111/j.1365-2702.2008.02600.x
- Almborg AH, Ulander K, Thulin A, Berg S (2009b) Patients' perceptions of their participation in discharge planning after acute stroke. *Journal of Clinical Nursing* 18(2), 199–209. doi:10.1111/j.1365-2702.2008.02321.x
- Andrew NE, Busingye D, Lannin NA, Kilkenny MF, Cadilhac DA (2018) The Quality of Discharge Care Planning in Acute Stroke Care: Influencing Factors and Association with Postdischarge Outcomes. *Journal of stroke and cerebrovascular Diseases* 27(3), 583–590. doi:10.1016/j.jstrokecerebrovasdis.2017.09.043
- Baker R, Camosso-Stepinovic J, Gillies C, Shaw EJ, Cheater F, Flottorp S, Robertson N, Wensing M, Fiander M, Eccles MP, Godycki-Cwirko M, van Lieshout J, Jäger C (2015) Tailored interventions to address determinants of practice. *Cochrane Database of Systematic Reviews*, CD005470. doi:10.1002/14651858.CD005470.pub3
- Cadilhac DA, Dalli LL, Morrison J, Lester M, Paice K, Moss K, Carter H, Campbell B, Cloud G, Kilkenny MF, Faux S, Dewey H, Hill K, Donnan G, Grimley R, Middleton S, Lannin NA, on behalf of the AuSCR Consortium (2022) The Australian Stroke Clinical Registry Annual Report 2021. The Florey Institute of Neuroscience and Mental Health; December 2022, Report No. 14, 66 pages. <https://doi.org/10.26188/21753812>
- Cadilhac DA, Andrew NE, Stroil Salama E, Hill K, Middleton S, Horton E, Meade I, Kühle S, Nelson MR, Grimley R, on behalf of the Australian Stroke Clinical Registry Consortium (2017) Improving discharge care: the potential of a new organisational intervention to improve discharge after hospitalisation for acute stroke, a controlled before-after pilot study. *BMJ Open* 7(8), e016010. doi:10.1136/bmjopen-2017-016010
- Cadilhac DA, Kilkenny MF, Longworth M, Pollack MRP, Levi CR (2011) Metropolitan-rural divide for stroke outcomes: do stroke units make a difference? *Internal Medicine Journal* 41(4), 321–326. doi:10.1111/j.1445-5994.2010.02280.x
- Cameron JI, O'Connell C, Foley N, Salter K, Booth R, Boyle R, Cheung D, Cooper N, Corriveau H, Dowlatschahi D, Dulude A, Flaherty P, Glasser E, Gubitz G, Hebert D, Holzmans J, Hurteau P, Lamy E, LeClaire S, et al. (2016) Canadian Stroke Best Practice Recommendations: Managing Transitions of Care Following Stroke, Guidelines Update 2016. *International Journal of Stroke* 11(7), 807–822. doi:10.1177/1747493016660102
- Cane J, O'Connor D, Michie S (2012) Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation Science* 7(1), 37. doi:10.1186/1748-5908-7-37
- Carlsson E, Ehnfors M, Eldh A, Ehrenberg A (2012) Accuracy and continuity in discharge information for patients with eating difficulties after stroke. *Journal of Clinical Nursing* 21, 21–31. doi:10.1111/j.1365-2702.2010.03648.x
- Chang HF, Power E, O'Halloran R, Foster A (2018) Stroke communication partner training: a national survey of 122 clinicians on current practice patterns and perceived implementation barriers and facilitators. *International Journal of Language & Communication Disorders* 53(6), 1094–1109. doi:10.1111/1460-6984.12421
- Chen L, Xiao LD, Chamberlain D (2020) An integrative review: Challenges and opportunities for stroke survivors and caregivers in hospital to home transition care. *Journal of Advanced Nursing* 76(9), 2253–2265. doi:https://doi.org/10.1111/jan.14446
- Creswell JW, Plano Clark VL (2011) 'Designing and conducting mixed methods research', 2nd edn. (SAGE Publications: Thousand Oaks)
- Eccles M, Grimshaw J, Walker A, Johnston M, Pitts N (2005) Changing the behavior of healthcare professionals: the use of theory in promoting the uptake of research findings. *Journal of Clinical epidemiology* 58(2), 107–112. doi:10.1016/j.jclinepi.2004.09.002
- Ellis-Hill C, Robison J, Wiles R, McPherson K, Hyndman D, Ashburn A (2009) Going home to get on with life: patients and carers experiences of being discharged from hospital following a stroke. *Disability and Rehabilitation* 31(2), 61–72. doi:10.1080/09638280701775289
- French SD, Greeb SE, O'Connor DA, et al. (2012) Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework. *Implementation Science* 7, 38. doi:https://doi.org/10.1186/1748-5908-7-38
- Fulton EA, Brown KE, Kwah KL, Wild S (2016) StopApp: Using the Behaviour Change Wheel to Develop an App to Increase Uptake and Attendance at NHS Stop Smoking Services. *Healthcare (Basel)* 4(2), 31. doi:10.3390/healthcare4020031
- Gonçalves-Bradley DC, Lannin NA, Clemson L, Cameron ID, Sheppard S (2022) Discharge planning from hospital. *Cochrane Database of Systematic Reviews* 2(2), Cd000313. doi:10.1002/14651858.CD000313.pub6
- Halladay M, Bero L (2000) Implementing evidence-based practice in health care. *Public Money and Management* 20(4), 43–50. doi:10.1111/1467-9302.00235
- Hedberg B, Johanson M, Cederborg A-C (2008) Communicating stroke survivors' health and further needs for support in care-planning meetings. *Journal of Clinical Nursing* 17(11), 1481–1491. doi:10.1111/j.1365-2702.2007.02053.x
- Hesseling G, Zegers M, Vernooij-Dassen M, Barach P, Kalkman C, Flink M, Öng G, Olsson M, Bergenbrant S, Orrego C, Suñol R, Toccafondi G, Venneri F, Dudzik-Urbaniak E, Kutryba B, Schoonhoven L, Wollersheim H, on behalf of the European HANDOVER Research Collaborative (2014) Improving patient discharge and reducing hospital readmissions by using Intervention Mapping. *BMC Health Services Research* 14, 389. doi:10.1186/1472-6963-14-389
- Hickey A, Horgan F, O'Neill D, McGee H, on behalf of the Steering Committee of the Irish National Audit of Stroke Care (INASC) (2012) Community-based post-stroke service provision and challenges: a national survey of managers and inter-disciplinary healthcare staff in Ireland. *BMC Health Services Research* 12(1), 111. doi:10.1186/1472-6963-12-111
- Huijg JM, Gebhardt WA, Dusseldorp E, Verheijden MW, van der Zouwe N, Middelkoop BJ, Crone MR (2014) Measuring determinants of implementation behavior: psychometric properties of a questionnaire based on the theoretical domains framework. *Implementation Science* 9(1), 33. doi:10.1186/1748-5908-9-33
- Intercollegiate Stroke Working Party (2023) National Clinical Guideline for Stroke for the UK and Ireland. (Intercollegiate Stroke Working Party: London, UK) Available at www.strokeguideline.org
- Johnson MJ, May CR (2015) Promoting professional behaviour change in healthcare: what interventions work, and why? A theory-led overview of systematic reviews. *BMJ Open* 5(9), e008592. doi:10.1136/bmjopen-2015-008592
- Johnston SC, Sidney S, Hills NK, Grosvenor D, Klingman JG, Bernstein A, Levin E (2010) Standardized discharge orders after stroke: results of the quality improvement in stroke prevention (QUISP) cluster randomized trial. *Annals of Neurology* 67(5), 579–589. doi:10.1002/ana.22019
- Jones SP, Auton MF, Burton CR, Watkins CL (2008) Engaging service users in the development of stroke services: an action research study. *Journal of Clinical Nursing* 17(10), 1270–1279. doi:10.1111/j.1365-2702.2007.02259.x
- Kable A, Baker A, Pond D, Southgate E, Turner A, Levi C (2019) Health professionals' perspectives on the discharge process and continuity of care for stroke survivors discharged home in regional Australia: a qualitative, descriptive study. *Nursing & Health Sciences* 21(2), 253–261. doi:10.1111/nhs.12590
- Kind AJ, Thorpe CT, Sattin JA, Walz SE, Smith MA (2012) Provider characteristics, clinical-work processes and their relationship to discharge summary quality for sub-acute care patients. *Journal of General Internal Medicine* 27(1), 78–84. doi:10.1007/s11606-011-1860-0
- Lindblom S, Ytterberg C, Elf M, Flink M (2020) Perceptive dialogue for linking stakeholders and units during care transitions – a qualitative study of people with stroke, significant others and healthcare professionals in Sweden. *International Journal of Integrated Care* 20(1), 11–11. doi:10.5334/ijic.4689

- Luker J, Grimmer-Somers K (2009) The relationship between staff compliance with implementing discharge planning guidelines, and stroke patients' experiences post-discharge. *Internet Journal of Allied Health Sciences and Practice* 7(3), Article 11. doi:10.46743/1540-580X/2009.1255
- Lynch EA, Luker JA, Cadilhac DA, Fryer CE, Hillier SL (2017) A qualitative study using the Theoretical Domains Framework to investigate why patients were or were not assessed for rehabilitation after stroke. *Clinical Rehabilitation* 31(7), 966–977. doi:10.1177/0269215516658938
- Lynch EA, Mackintosh S, Luker JA, Hillier SL (2019) Access to rehabilitation for patients with stroke in Australia. *The Medical Journal of Australia* 210(1), 21–26. doi:10.5694/mja2.12034
- Magdon-Ismail Z, Sicklick A, Hedeman R, Bettger JP, Stein J (2016) Selection of postacute stroke rehabilitation facilities: a survey of discharge planners from the Northeast Cerebrovascular Consortium (NECC) region. *Medicine (Baltimore)* 95(16), e3206. doi:10.1097/MD.0000000000003206
- McCann L, Groot P, Charnley C, Gardner A (2009) Excellence in regional stroke care: an evaluation of the implementation of a stroke care unit in regional Australia. *Australian Journal of Rural Health* 17(5), 273–278. doi:10.1111/j.1440-1584.2009.01098.x
- McDonald K, Sundaram V, Bravata D, et al. (2007) 'Definitions of Care Coordination and Related Terms. Vol. 7.' (Agency for Healthcare Research and Quality)
- Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A (2005) Making psychological theory useful for implementing evidence based practice: a consensus approach. *Quality & Safety in Health Care* 14(1), 26–33. doi:10.1136/qshc.2004.011155
- Mountain A, Patrice Lindsay M, Teasell R, Salbach NM, de Jong A, Foley N, Bhogal S, Bains N, Bowes R, Cheung D, Corriveau H, Joseph L, Lesko D, Millar A, Parappilly B, Pikula A, Scarfone D, Rochette A, Taylor T, et al. (2020) Canadian Stroke Best Practice Recommendations: Rehabilitation, Recovery, and Community Participation following Stroke. Part Two: Transitions and Community Participation Following Stroke. *International Journal of Stroke* 15(7), 789–806. doi:10.1177/1747493019897847
- Perry L, Middleton S (2011) An investigation of family carers' needs following stroke survivors' discharge from acute hospital care in Australia. *Disability and Rehabilitation* 33(19–20), 1890–1900. doi:10.3109/09638288.2011.553702
- Phillips CJ, Marshall AP, Chaves NJ, Jankelowitz SK, Lin I, Loy CT, Rees G, Sakzewski L, Thomas S, To T-P, Wilkinson S, Michie S (2015) Experiences of using the Theoretical Domains Framework across diverse clinical environments: a qualitative study. *Journal of Multidisciplinary Healthcare* 2015, 139–146. doi:10.2147/JMDH.S78458
- Reeves MJ, Fritz MC, Woodward AT, Hughes AK, Coursaris CK, Swierenga SJ, Nasiri M, Freddolino PP (2019) Abstract 119: Final Patient-Level Results From the Michigan Stroke Transitions Trial (MISTT): A Randomized Clinical Trial to Improve Stroke Transitions. *Stroke* (1970) 50(Suppl_1), A119. doi:10.1161/str.50.suppl_1.119
- Rørstad T, Garåsen H, Steinsbekk A, Sletvold O, Grimsmo A (2013) Development of a patient-centred care pathway across healthcare providers: a qualitative study. *BMC Health Services Research* 13(1), 121. doi:10.1186/1472-6963-13-121
- Sadeh-Sharvit S, Rego SA, Jefroykin S, Peretz G, Kupersmidt T (2022) A Comparison Between Clinical Guidelines and Real-World Treatment Data in Examining the Use of Session Summaries: Retrospective Study. *JMIR Formative Research* 6(8), e39846. doi:10.2196/39846
- Schreier M (2014) Ways of doing qualitative content analysis: disentangling terms and terminologies. *Forum Qualitative Social Research* 15(1), 146–155. doi:10.17169/fqs-15.1.2043
- Sheehan J, Lannin NA, Laver K, Reeder S, Bhojti A (2022) Primary care practitioners' perspectives of discharge communication and continuity of care for stroke survivors in Australia: a qualitative descriptive study. *Health and Social Care in the Community* 30(5), e2530–e2539. doi:10.1111/hsc.13696
- Shepherd S, McClaran J, Phillips CO, Lannin NA, Clemson LM, McCluskey A, Cameron ID, Barras SL (2010) Discharge planning from hospital to home. *Cochrane Database of Systematic Reviews* (1), CD000313. doi:10.1002/14651858.CD000313.pub3
- Smith JD, Corace KM, MacDonald TK, Fabrigar LR, Saedi A, Chaplin A, MacFarlane S, Valickis D, Garber GE (2019) Application of the Theoretical Domains Framework to identify factors that influence hand hygiene compliance in long-term care. *Journal of Hospital Infection* 101(4), 393–398. doi:10.1016/j.jhin.2018.12.014
- Stroke Foundation (2017) Clinical Guidelines for Stroke Management 2017. Available at <https://informme.org.au/en/Guidelines/Clinical-Guidelines-for-Stroke-Management>
- Stroke Foundation (2019) My Stroke Journey. Available at <https://strokefoundation.org.au/What-we-do/Support-programs/My-Stroke-Journey>
- Stroke Foundation (2023) Living clinical guidelines for stroke management. Available at <https://informme.org.au/guidelines/living-clinical-guidelines-for-stroke-management>
- Waring J, Bishop S, Marshall F (2016) A qualitative study of professional and carer perceptions of the threats to safe hospital discharge for stroke and hip fracture patients in the English National Health Service. *BMC Health Services Research* 16(1), 297. doi:10.1186/s12913-016-1568-2
- Waring J, Bishop S, Marshall F, Tyler N, Vickers R (2019) An ethnographic study comparing approaches to inter-professional knowledge sharing and learning in discharge planning and care transitions. *Journal of Health Organization and Management* 33(6), 677–694. doi:10.1108/jhom-10-2018-0302

Data availability. The data that supports the findings of this study are available in the tables and supplementary material of this article.

Conflicts of interest. The authors declare no conflicts of interest.

Declaration of funding. This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Ethics standard. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Acknowledgements. The authors would like to thank all the health professionals who generously participated in this study.

Author contributions. All authors read and approved the final paper.

Author affiliations

^ASchool of Health and Rehabilitation Sciences, The University of Queensland, Brisbane, Australia.

^BOffice of the Chief Allied Health Officer, Queensland Health, Qld, Australia.

^CQueensland Aphasia Research Centre, The University of Queensland, Herston, Australia.

^DSpeech Pathology Department, Princess Alexandra Hospital, Metro South Health, Brisbane, Qld, Australia.

^ECentre for Research Excellence in Aphasia Recovery and Rehabilitation, La Trobe University, Bundoora, Vic., Australia.