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# NURSE PERCEPTIONS OF IMPLEMENTING STROKE GUIDELINES IN AN ACUTE STROKE UNIT

## ABSTRACT

**Aim:** To identify nurse perspectives on the barriers to and the facilitators of implementing the nationally endorsed stroke guidelines, in a New Zealand acute stroke unit.

**Background:** In New Zealand, the burden of stroke is projected to increase. Clinical practice guidelines have been demonstrated to improve patient outcomes in stroke care. Nurses are key participants in implementing guidelines, as they provide 24-hour bedside care. The perspectives of nurses working with clinical practice guidelines, in an acute stroke unit in New Zealand, are yet to be established.

**Methods:** This study used an exploratory qualitative design. Data were collected in 2021 through a focus group with four nurses who worked in an acute stroke unit at a single hospital. The focus group was audio-recorded, transcribed and analysed for themes.

**Findings:** Barriers to the use of the stroke guidelines included limited resources, poor accessibility and a lack of knowledge of the guidelines. A wealth of nursing knowledge could also be a barrier to implementation of the guidelines. Facilitators included having a stroke nurse champion, nursing-specific guidelines and effective communication within the multidisciplinary team.

**Conclusion:** This research contributed to an understanding of the challenges and successes experienced by nurses using clinical practice guidelines in an acute stroke unit. Understanding the barriers and facilitators nurses may face when using clinical guidelines offers opportunities to enhance their use in nursing practice.

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## KEYWORDS

Stroke nursing, clinical practice guidelines, stroke guidelines

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## INTRODUCTION

A stroke can be a devastating medical event. Recent estimates indicate that each year, around 9000 people in New Zealand will have a stroke (Ranta, 2018). The extent to which a stroke has an impact on a person's life is individualised and depends on the location, extent and severity of the damage; however, all who have a stroke are at risk of neurological impairment (Prabhakaran et al., 2015). Access to timely acute stroke care is crucial to achieve the best patient outcomes (Prabhakaran et al., 2015; Wu et al., 2018).

Over the past 30 years, clinical practice guidelines have become increasingly popular, as they enable the dissemination of current clinical recommendations, thus supporting the provision of organised, timely and evidence-based care (Murad, 2017). Guidelines are used in stroke care; however, it is yet to be established how they inform the practice of New Zealand nurses in an acute stroke unit. This study aimed to identify nurse perspectives on the barriers to and the facilitators of implementing the nationally endorsed stroke guidelines, in a New Zealand acute stroke unit. The purpose was to identify how the use of clinical guidelines in nursing practice may be enhanced.

## BACKGROUND

A stroke, also known as a cerebrovascular accident, occurs when the blood supply in the brain is interrupted through a blockage or rupture of blood vessels: classified as an ischaemic or haemorrhagic stroke, respectively (Stroke Foundation, 2021). When an ischaemic stroke occurs, it is initially characterised by an ischaemic core; this is an unsalvageable area of tissue caused by the severe lack of blood flow at the centre of the stroke (Prabhakaran et al., 2015). Surrounding this core is a penumbra, which is characterised by a lack of oxygen and nutrients, and cellular dysfunction, but which remains temporarily salvageable and functionality can be recovered (Prabhakaran et al., 2015). Access to organised and coordinated management of stroke care, therefore, can improve health outcomes for patients who have a stroke (Langhorne & Ramachandra, 2020; Stroke Foundation, 2021; Wu et al., 2018).

Clinical practice guidelines are a recognised way of disseminating clinical recommendations to facilitate safe and timely care, thus promoting recovery from stroke (Stroke Foundation, 2021). Guidelines are regularly updated with evidence-based recommendations to inform and improve health-care professionals' practice (Murad, 2017). In the specialty of stroke care, there have been a plethora of guidelines developed internationally by organisations such as the National Institute for Health and Care Excellence (England), the American Heart Association/American Stroke Association, and the Australian Stroke Foundation. New Zealand has contributed to, and implemented, the guidelines produced by the Australian Stroke Foundation. Recently, the title of these guidelines was updated to reflect the trans-Tasman partnership. They are now called the Australian and New Zealand Clinical Guidelines for Stroke Management (Mahawish et al., 2018; Stroke Foundation, 2021).

Common to all stroke guidelines are recommendations for the entire spectrum of care, from acute presentation through to rehabilitation. The guidelines typically include time targets for assessments, goals for physiological measurements, recommended treatments, suggestions for actions in response to an adverse event, and nurse-specific care (Stroke Foundation, 2021). A persistent challenge associated with all clinical guidelines, however, is keeping the recommendations up-to-date with the ever-growing body of primary research (Murad, 2017). For example, the 2017 stroke guidelines recommend patient mobilisation after 24 hours and before 48 hours, whereas an earlier version recommended mobilisation before 24 hours (Stroke Foundation, 2021). In an effort to reduce the lag between new research and updated guidelines, the Australian and New Zealand guidelines have been made a "living" document (Stroke Foundation, 2021). In contrast to previous practice, this means the guidelines are regularly updated, and health-care professionals are advised to check them frequently to ensure their own practice is based on current evidence (Stroke Foundation, 2021).

One of the aims of clinical practice guidelines in stroke care is to disseminate how to facilitate safe and timely care and recovery (Stroke Foundation, 2021). Adherence to stroke-based clinical guidelines decreases mortality, and patients experience less disability on discharge; nevertheless, there are several factors which influence nurses' use of stroke guidelines (Baatiema et al., 2017; Urimubenshi et al., 2017; Wu et al., 2018). Studies have shown that nurses were better able to implement stroke guidelines when they worked in an

environment based on trust, and with good communication between colleagues (Donnellan et al., 2013; Purvis et al., 2014). Donnellan et al. (2013) highlighted that strong supportive clinical leadership, and having a person who was responsible for the implementation of the guidelines, promoted nurses' adherence to the recommendations in the guidelines. Additionally, training and professional development in stroke care helped nurses implement the guidelines effectively (Purvis et al., 2014). Conversely, poor communication, inadequate staffing or limited access to resources, equipment and professional development, affected nurses' adherence to stroke guidelines (Baatiema et al., 2017; Donnellan et al., 2013).

In New Zealand, there is limited research describing nurses' use of stroke guidelines; although, in general nursing, a New Zealand study found that the nurses' level of registration and education, and whether they had a positive attitude, had an impact on their use of evidence-based practice (Prior et al., 2010). Furthermore, another New Zealand study that explored physiotherapists' and occupational therapists' perceptions of the usefulness of the stroke rehabilitation guidelines, found that available resources and time, expertise and knowledge of the guidelines influenced the extent to which the guidelines were used (Mudge et al., 2017). If occupational therapists and physiotherapists encounter these challenges, it is plausible that stroke nurses may encounter similar challenges.

Nurses play a crucial role in patient monitoring and assessment, and escalation of care. They are, therefore, involved in most aspects of implementing stroke guidelines (Stroke Foundation, 2021). This study explored the use of the stroke guidelines by nurses in an acute stroke unit. The focus was the acute phase of stroke nursing care, which for an acute stroke unit covers the first week post-stroke (Stroke Foundation, 2021). The research question was: *What factors influence nurses' implementation of the nationally endorsed stroke guidelines in a New Zealand acute stroke unit?*

## METHODOLOGY

A qualitative descriptive design was chosen to answer the research question. This approach allows participants' voices to be clearly heard and facilitates researcher transparency in the portrayal of their perspectives (Sandelowski, 2000). The research setting was an acute stroke unit in a New Zealand hospital. To ensure participants had sufficient experience to draw on, convenience sampling was used to recruit registered or enrolled nurses, who worked in the unit at least twice a fortnight. Recruitment was by way of a general email and posters in the common areas of the wards associated with the unit. Nurses were asked to contact the student researcher if they were interested in participating; the researcher then emailed them further information about the study. The aim was to recruit a minimum of eight participants for two focus groups (four nurses in each). However, only four participants were recruited, which was likely due to workload stress during the COVID-19 pandemic.

Data were collected through a semi-structured, audio-recorded focus group interview with four nurses (see Table 1, page 34, for questions). This approach meant nurses could collectively share their experiences and enabled further exploration of their ideas. The one-hour focus group was facilitated by the student researcher, in a private hospital room, and at a time suitable to the participants. Participants also answered demographic questions.

Data were analysed using Braun and Clarke's (2012) steps

for thematic analysis, which is an accessible method to draw findings from the data. The student researcher led the analysis with input and discussion from two experienced supervisors. The first step involved familiarisation with the transcribed data, by reading the transcript several times and then assigning preliminary codes. These initial codes were then inductively categorised according to similarities and patterns: overlapping and redundant codes were removed. From these categories, themes were identified, refined and described. The final step was presenting the themes as a coherent story to answer the research question (Braun & Clarke, 2012).

To promote trustworthiness in this research, the student researcher debriefed regularly with her supervisors to ensure she was being true to the data and avoiding bias in the interpretations (Lincoln & Guba, 1986). Quotes from the data are used to illustrate the themes and provide the reader with the opportunity to assess whether the findings may be applicable to their setting. The participants were given the chance to clarify their perspectives at the end of the focus group.

Ethics approval for the study was obtained from the University of Otago Ethics Committee (D21/043) and the hospital (01757). All participants were given comprehensive information about the study, and all gave informed written consent. To assist with confidentiality, the location of the study and participant names are omitted. In an effort to promote a safe and confidential environment, the charge nurse manager and the associate charge nurse manager were not invited to participate, as employees may not be as willing to speak freely when there is an unequal power relationship.

## FINDINGS

Four female nurses with at least six years of general nursing experience contributed to the findings of this study. There was a range of stroke nursing experience, from less than 12 months to 10 years. The frequency that each nurse worked in the acute stroke unit generally varied between one to four days each week. All nurses had engaged in either formal or informal stroke education, and three of the nurses had either completed or were engaging in, postgraduate study.

Initially, the researcher intended to only explore the use of the Australian and New Zealand Clinical Guidelines for Stroke Management. However, at the beginning of the focus group, it became apparent that this scope was too narrow. After some discussion in the focus group, it was established that the guidelines' recommendations had been formatted to suit the needs of the participants' hospital and the nursing discipline. The findings presented here encompass the use of the guideline recommendations in both their original and formatted form. Four main themes were identified:

**Table 1. Interview questions**

1. Can you tell me what you do on a typical day in the unit?
2. Can you tell me about your understanding of the stroke guidelines used in the unit?
3. What are your experiences of using the guidelines?
4. How do these guidelines influence your nursing practice?
In your experience:
5. Are there benefits of using the guidelines for the nurse? Do you have examples?
6. Are there benefits of using the guidelines for the patient? Do you have examples?
7. Are there challenges in implementing the guidelines? Do you have examples?
8. In your scope, how do you use your clinical reasoning within the guidelines?

1. Engagement with the guidelines.
2. Accessibility of the guidelines in the acute stroke unit.
3. The synergy within the MDT.
4. The ward environment.

Together, these themes provide a small insight into the perspectives of four nurses using the stroke guidelines to provide patient-centred and evidence-based care. Excerpts from the focus group data are used to illustrate the themes.

### Engagement with the guidelines

The nurses all agreed that in principle, the guidelines were useful as a prompt and structure for their nursing care. However, the nurses' engagement with the guidelines varied depending on their clinical experience. One of the senior nurses believed that the provision of timely, evidence-based care was her responsibility, and this required a sound understanding of the stroke guidelines used in the unit. However, other nurses in the group suggested that experienced nurses could be reluctant to familiarise themselves with updated recommendations within the guidelines, particularly if changes to practice were not disseminated well.

*"I didn't make myself familiar with it, didn't go to the in-services. It probably took me a while to adjust . . . it probably took a while for a few nurses to change . . . nurses can be hard to change sometimes".*

The nurses explained that those new to stroke nursing, or the unit, might not engage with the guidelines due to being unfamiliar with the environment and the associated stroke nursing resources. Instead, the senior nurses were often a quick source of information, as opposed to the time-consuming process of searching for, and accessing guidelines.

*"I didn't know for stroke patients you have to get their blood sugar, even if they aren't diabetic. I didn't know that we have to take an ECG but it's actually in the guidelines . . . I think not everyone knows about it."*

*"If you haven't looked after stroke patients before it's very, well, quite anxious . . . there's like a pathway when the patient comes . . . if I'm still not sure, I usually ask some senior nurse."*

The more experienced nurses reflected that as their confidence in their clinical judgment and stroke nursing practice grew, they engaged less actively with the written guidelines. One experienced nurse reflected that she felt that her knowledge of the nursing expectations within the guidelines had been sufficiently developed. The nurses also explained that clinical judgment required sound assessment skills and the ability to recognise patient deterioration, which might not be encapsulated by the guidelines.

*"I wouldn't readily reach for [the written guidelines] . . . a lot of it is second nature . . . I just [would look] to double check that I'm 100% correct in my mind."*

*"Our clinical judgment is very important, and the guidelines somehow everything is there, so your clinical judgment will be based on what you see in the patient . . . because you could say that the vital signs are ok but then the patient doesn't feel good."*

The nurses also discussed the need to balance guideline implementation with their own clinical judgment. There was a suggestion that over-adherence to the guidelines could result in missed care, or unnecessary precautions being taken.

*"I find . . . they could deteriorate fast, or they could get better. Clinical judgment is very important in stroke patients."*

*"With blood sugars, probably no one is going to panic if there's one reading just above 10mmol but if there's a trend, well, you'd expect that hopefully, the nurses and the medical team will be picking up on that."*

Importantly, clinical judgment is recommended in the guidelines themselves, which states that the guidelines should be used to support the judgment of the professional, in the context of the individual patient (Stroke Foundation, 2021).

## **Accessibility of the guidelines in the acute stroke unit**

The nurses spoke about the burden of documentation associated with stroke care. They explained that the number of resources on the hospital database could be overwhelming; thus, unfamiliar documents such as the national stroke guidelines were not necessarily a realistic source of information.

*"We use the care plan, and we have the admitting document the patient comes in with . . . Then I will just use any other document [on the hospital database] related to that patient."*

In an attempt to increase the accessibility of the national stroke guidelines, a senior nurse had collated the applicable nursing guidelines into a single document. She explained her reasoning:

*"The idea was that nurses could refer to this when they use the nursing care plan . . . so if nurses were unfamiliar, they could look at this . . . just to try and be a wee bit more*

*structured about the care of the patient and to get everyone on the same page."*

A number of challenges, however, arose from this collation of the guidelines, in that some nurses did not necessarily know the evidence base informing their actions. Furthermore, the formatted guidelines were not regularly updated; this meant the guidelines could be outdated. Additionally, accessibility was hindered as the formatted nursing document was not on the hospital database, which is where most nurses searched for information. The nurses were, however, motivated to discuss ways to increase the accessibility of the guidelines, as they recognised the value that guidelines brought to nursing care.

*"Your information is on [the hospital database system] . . . I think if we had this readily available it would be really helpful!"*

## **Synergy within the multidisciplinary team**

The nurses discussed the importance of communication and teamwork within the multidisciplinary team (MDT), to provide effective stroke care. They also spoke about the important role each MDT member played in the adherence to guideline recommendations, and towards a patient's recovery. This was particularly pertinent if divergence from the guidelines might be warranted.

*"You'd discuss it with the patient's medical team and the MDT if you thought there was something that you needed to do that might be outside of the guidelines."*

The nurses also discussed how use of the guidelines, when communicating with the MDT, strengthened their ability to advocate for patients, and promoted teamwork within the MDT.

*"It's really helpful because I can be like 'okay doctor this is the protocol'. I have evidence to be like, 'this is what we need, and this is why we need it because we need their BP in these parameters' . . . Gives what you are saying more strength."*

However, coordination of the MDT could be challenging for the nurses, especially during the weekends as there was less MDT input. Other team members may also lack specialist stroke knowledge or skills; as a result, nurses may need to advocate for the patients, to ensure that care was provided in line with the guidelines.

*"No MDT after hours and weekend . . . Only one physio on for the whole hospital adult service so they just can't come and help you mobilise the patient so that patient might not be mobilised until Monday morning."*

*"We already put in the task list for the doctor to chart some intravenous fluids as patient was NBM [nil by mouth]. . . this doctor never came . . . again I asked . . . then they came to check the ECG and they decided to start IVF . . . he was NBM for like 4-5 hours."*

## **The ward environment**

The nurses discussed how the pulse of the workplace, exemplified through time pressures and heavy workloads, meant implementing the guidelines could be challenging. Meeting the ideal timelines,

outlined in the guidelines, was particularly difficult when they were busy.

*"It's the workload as well . . . cause sometimes you get other medical patients . . . if you have an acute stroke patient . . . if someone is post thrombolysis, one on one is ideal . . . If you've got 2 quite new or heavy stroke patients, it should be just 2 patients to a nurse but that also never happens."*

A lack of bed space, combined with the slow movement of patients to a rehabilitation ward, was also discussed as a barrier to consistent and timely guideline implementation.

*"Our patients don't move in a timely fashion into a rehab bed . . . sometimes they do but not . . . nearly as often as they should . . . It could be three days, or it could be seven days"*

The nurses talked about the importance of developing specialised assessment skills, to promote safe decision-making in line with the guideline recommendations. It was apparent, however, that education opportunities were lacking, which acted as a barrier to the implementation of guidelines. There was also a mutual agreement that the high turnover of ward staff hindered not just the dissemination of the guidelines, whether by email or in person, but also the upskilling of nurses. This made it particularly difficult to maintain the level of expertise required for working in the stroke unit.

*"But the thing is not everyone knows about it [guidelines]. I think education is very important"*

*"Trying to train nurses . . . we sort of constantly train but we constantly lose . . . so that's a barrier to meeting that guideline . . . it's hard to keep up when a lot of the nurses aren't trained to do that"*

## DISCUSSION

This study explored nurse perspectives on the barriers to and the facilitators of implementing the nationally endorsed stroke guidelines in a New Zealand acute stroke unit. Depending on the context, influencing factors could either be a barrier or a facilitator. Although initially it appeared that the nurses were not aware of the national stroke guidelines, further discussion revealed they were nursing according to the guideline recommendations. This finding is not unique, as other studies report that health professionals may struggle to articulate the specific underpinnings of their practice (Donnellan et al., 2013; Mudge et al., 2017).

There was unified agreement, within the focus group in this study, that consistently high workloads placed unrealistic time pressures on the nurses to implement the guidelines, especially if they were unfamiliar with them. The nurses also emphasised that a lack of staff, particularly after hours and at weekends, and a lack of bed space, affected the timeliness of care recommended by the guidelines. Insufficient resources, whether time, staffing or bed space, are common challenges faced by nurses, which hinders guideline implementation (Donnellan et al., 2013; Mudge et al., 2017; Purvis et al., 2018). In the context of this present study, there was a high staff turnover which meant that nurse expertise and knowledge were not always retained. According to Mudge et al. (2017), if staff expertise

is lost, this exacerbates pressure on staff, and affects their ability to implement, disseminate and provide nurse training on the guidelines.

The nurses in this study suggested that teamwork within the MDT could influence the use of the stroke guidelines; this reflects the literature which shows that when communication is facilitated in the MDT, implementation of the guidelines is promoted (Mudge et al., 2017). While it is acknowledged, in the wider stroke literature, that communication and team culture within the MDT are important in the provision of evidence-based care, little is known about the true contribution of the MDT in relation to guideline implementation (Donnellan et al., 2013). In this present study, the nurses acknowledged that although communication with the MDT was not always perfect, when it did occur, it was a significant contributor to the provision of timely, guideline-informed care.

The findings in this study showed that nursing experience could be both a barrier and a facilitator of the implementation of the guidelines. It was apparent that experienced nurses were more confident in their knowledge of the guidelines; appropriate and timely nursing care occurred when the guidelines were held in balance with clinical judgment. These nurses could, however, be more reluctant to update their practice in accordance with the latest research. Conversely, another senior nurse in this study had endeavoured to improve adherence by formatting the guidelines to be applicable to nurses in the local context, which is a key step in knowledge translation (Curtis et al., 2017). However, translating and formatting the guidelines to be more applicable to ward staff meant the stroke guidelines became static as opposed to "living" guidelines. While the purpose of "living" guidelines is to help facilitate the translation and implementation of scientific knowledge into clinical practice, it was apparent that it did not sufficiently bridge the gap for the nurses in this study (Stroke Foundation, 2021).

Understanding the interaction between clinical practice guidelines, nurse decision-making, and clinical judgment requires nuanced discussion. In the wider literature, novice nurses tend to rely upon clinical practice guidelines more than experienced nurses, as a source of clinical judgment, and to support their decision-making (Nibbelink & Brewer, 2018). When experienced nurses make decisions in patient care, they tend to use guidelines as part of their wider nursing skills, such as intuition, past experience and a holistic view of the patient situation (Nibbelink & Brewer, 2018). The Australian and New Zealand Clinical Guidelines for Stroke Management have a disclaimer that they should be used in partnership with, and not replace, clinical judgment (Stroke Foundation, 2021). This is important, because evidence informing the recommendations in the guidelines can be of variable quality. Critiquing the quality of the evidence in the guidelines is therefore important, especially if they have been formatted to be applicable and more accessible to nurses on a ward.

As with any clinical practice guidelines, adherence is promoted through the employment of people who are experts in the area (Purvis et al., 2018), which reflects the finding in this study that a key facilitator was having a senior nurse with a special interest in stroke care. Nurses with a special interest can champion change through education, updating the clinical guidelines and auditing adherence on the ward (Purvis et al., 2018). In this study, there was at least one senior nurse with special stroke knowledge, yet implementation of the guidelines and the "explicit" nursing knowledge of the guidelines was suboptimal. This highlights that while improvements in one area

can promote guideline adherence, more than one intervention is necessary for change to occur. Although the influence of the MDT, ward environment and individual nurse expertise are important to consider, this should not undermine the role of a specialised stroke nurse; they can be instrumental in the provision of nursing care which is informed by clinical guidelines. Their oversight of the unit can facilitate change and ensure that nurses are maintaining a high standard of care (Donnellan et al., 2013; Purvis et al., 2018). According to Purvis et al. (2018), the benefits of a specialist stroke nurse have the most effect in a hospital with a stroke unit. In New Zealand, however, only 70 per cent of hospitals that admit acute stroke patients have an acute stroke unit; 64 per cent have a stroke clinical nurse specialist, and 40 per cent a stroke nurse educator (Thompson et al., 2020).

## RECOMMENDATIONS

Within the wider realm of stroke care, adherence to stroke guidelines was more likely to occur when there was a coordinated team effort, or when a stroke nurse, with specialised stroke knowledge and experience, was involved in the coordination of care (Purvis et al., 2018; Wu et al., 2018). Including the relevant nursing guidelines during orientation to the stroke unit may be beneficial. Prioritising and resourcing nursing education may also enhance nurses' use of clinical guidelines and improve adherence (Purvis et al., 2018). Support from senior staff and the wider MDT to implement guidelines is also required, because change cannot happen in isolation from the context in which it occurs (Curtis et al., 2017). Designating the responsibility of updating the guidelines to a health professional is recommended if the guidelines are to be a "live" document, and a

reliable source for wards to use. Employing and resourcing specialist stroke nurses may also promote engagement with clinical guidelines, and ultimately, improve patient outcomes (Donnellan et al., 2013; Purvis et al., 2018).

Further exploration of the factors that affect nurses' use of the guidelines in practice would further our understanding of this topic. Studies to investigate whether, and how, the stroke guidelines promote the provision of equitable care in New Zealand would also be beneficial.

## LIMITATIONS

This was a small qualitative study in one setting; therefore, the implications and recommendations might be limited. The researchers acknowledge that in the focus group, the experienced nurses had more to say than the less experienced nurses.

## CONCLUSION

Clinical guidelines promote evidence-based, timely care for the improvement of stroke outcomes. Nurses play an important role in the care of the acute stroke patient and are therefore in an ideal position to promote engagement with the national stroke guidelines in their unit. While clinical guidelines are useful in the workplace, true change can only occur if up-to-date, evidence-based practice is seamlessly integrated into practice. Establishing ASUs in New Zealand has been a good starting place for the improvement of patient outcomes. These outcomes can continue to be improved if the organisations that provide stroke care enable nurses to upskill, and to critically and consistently integrate the guidelines into their everyday nursing practice.

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