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Evaluating the current practice of therapeutic positioning in neurological rehabilitation: a qualitative interview study

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Abstract

Background/aims Therapeutic positioning is believed to enable the achievement of a good postural alignment, optimise rehabilitation and prevent the complications of immobility. It is considered important in the management of people with physical neurological impairments, but achieving a favourable position in a bed can be challenging. There is little evidence to inform present practice. Therefore, this study explored staff views and experiences of bed positioning practice on a regional neurological rehabilitation unit.

Methods Face-to-face, semi-structured interviews were completed with a purposive sample of nurses, physiotherapists and occupational therapists working on a neurological rehabilitation unit. The interviews were audio recorded, transcribed and analysed using inductive thematic analysis.

Results A total of 12 participants completed an interview and six themes were identified relating to positioning practice. An interaction of four of these themes (patient needs, staff role, communication and knowledge) influenced a fifth theme of staff experiences. The sixth theme of practical positioning resources identified a pattern of resource use within current practice.

Conclusions Positioning was recognised as integral to rehabilitation, and staff experiences were influenced by the interaction of a range of factors. The participants' views and experiences around practical positioning resources provide a valuable new insight into positioning practice. Further research is needed to evaluate these resources.

Key words

Neurological rehabilitation; Positioning; Practical positioning resources; Thematic analysis; Qualitative research

Introduction

Neurological disorders are the leading cause of disability globally, and the demand for rehabilitation is increasing (GBD 2016 Neurology Collaborators, 2019). Stroke is the largest contributor to neurological disability (GBD 2016 Neurology Collaborators, 2019), with 300 000

people living with moderate to severe disability as a result of stroke in England alone (National Audit Office, 2010). In addition, in the UK, there are approximately 25000 to 33000 new cases of moderate to severe traumatic brain injury in adults every year (National Institute of Health and Care Excellence, 2023) and between 32 000–43 000 people living with advanced multiple sclerosis (Roberts et al, 2016).

People with severe neurological physical impairments can have difficulty maintaining or changing their posture and position and they frequently spend long periods of time in bed across a 24-hour period (Pope, 2007). Therapeutic positioning (referred to hereinafter as positioning) interventions are recommended for people with neurological impairments, with a consensus of their importance across a variety of therapeutic approaches (Fraser, 2009; Carr and Shepherd, 2010; Kilbride and Cassidy, 2011). It is also recommended within stroke clinical guidelines (Intercollegiate Stroke Working Party, 2016). Positioning was identified as the most frequently used physical rehabilitation intervention for people following severe stroke (McGlinchey et al, 2021); however, there is little evidence evaluating the effectiveness of positioning (Liepert, 2015) or what it achieves. A comparison of the effects of conventional and neutral positioning in lying, in non-ambulatory adults with neurological conditions, demonstrated improvements in passive range of motion and comfort when participants were in a neutral position (body parts aligned with muscles in a mid-position) (Pickenbrock et al, 2015). Generalisability from this study is very limited as the intervention was only a single two-hour positioning session. A systematic review into rehabilitation interventions following severe stroke did not identify any trials that considered positioning interventions (McGlinchey et al, 2020). The clinical aims of positioning have been more widely documented and include the modulation of muscle tone, supporting body segments, improving sensory feedback, optimising respiratory and swallow function, providing comfort, optimising physical recovery and preventing secondary complications (Chatterton et al, 2001; Intercollegiate Stroke Working Party, 2016; McGlinchey et al, 2021).

The absence of research into positioning interventions poses challenges for identifying optimal positioning in practice. Achieving a favourable position in a bed can also be difficult because of altered muscle tone and reduced interaction with the supporting surface (Carter and Edwards, 2002). In practice, the supporting surface may be adapted, and external support provided, using resources including pillows, towels, wedges, T-rolls and beanbags. Pope (2007) suggested that these resources are of benefit in the short term but that positioning systems should be considered for longer-term support. A positioning system was evaluated for night-time positioning in children in a community setting, with subjective improvements in position and tone reported by parents (Goldsmith, 2000). However, this may not be transferable to adult populations and different settings, where evidence of evaluation of any form of positioning resource is presently lacking.

Positioning adults with severe neurological physical impairment in bed is not well described in the literature and the influences on this practice including the use of individual support items and comprehensive positioning systems (referred to hereinafter as practical positioning resources) is also poorly understood. Within an adult inpatient neurological rehabilitation setting, the nursing and therapy staff are identified as the key providers of positioning. Their experiences and insights are relevant to start to develop an understanding of current practice, with the potential to inform aspects of future practice and areas for further research. While not the focus of this work, it is acknowledged that the experiences of patients and care partners are also needed to fully understand current practice.

The aim of this study was to explore the views and experiences of staff in a regional neurological rehabilitation unit regarding current bed positioning practice, including the use of practical positioning resources, when positioning people with severe neurological physical impairment.

Methods

Design

A post-positivist approach underpinned the study. This approach seeks to understand the area of interest rather than explain it as one absolute truth. It allows for a range of sources including qualitative interview data to inform understanding and recognises the role of the researcher in interpretation of the findings (Fox, 2008). The study design used semi-structured interviews followed by thematic analysis to explore participants' views and experiences. The study design and reporting are in line with the Standards for Reporting Qualitative Research (O'Brien et al, 2014).

The study was conducted in a UK NHS neurological rehabilitation unit that provides a specialist inpatient regional service for adults with acute, disabling neurological injuries including brain and spinal injury, and conditions such as multiple sclerosis or Guillain-Barré syndrome. At the time of the study, it was a 28-bed unit with an average length of stay of 72 days.

Ethical approval and research governance

The study was approved by both the Lancashire Teaching Hospitals NHS Foundation Trust Research and Innovation Department (reference: SE-265) and the University of Central Lancashire Health Ethics Review Panel (reference: HEALTH, 0011). The study was a service evaluation and so NHS Research Ethics Committee review and Health Research Authority approval was not required. Written informed consent was gained from all participants prior to their interviews.

Participants

To be eligible for inclusion, participants needed experience of positioning people with severe neurological injury and to have worked on the neurological rehabilitation unit for over 3 months. Physiotherapists, occupational therapists, therapy assistants, registered general nurses, assistant practitioners and health care assistants were invited to participate. A pre-determined sample size of 12 to 15 participants was identified as a number appropriate to achieve data saturation (Guest et al, 2006), while allowing for adequate representation from the different staff groups.

Staff were approached via e-mail, and team leads supported the recruitment process. Recruitment started in December 2019 and continued for 12 weeks. All staff who expressed an interest to be involved were provided with a participant information sheet and an opportunity to discuss the study with a member of the study team.

Data collection

Face-to-face semi-structured interviews took place in a private room and were audio recorded on a digital voice recorder. Interviews lasted no longer than 60 minutes. They were conducted by a physiotherapist who was undergoing research training at Masters level and had clinical experience of working with people with neurological injuries. The interviewer, while known to staff, did not work clinically with or line manage any of the participants, reducing the risk of participants answering in a way they perceive is desirable (Holloway and Wheeler, 2010).

An interview guide was developed based on the Capability, Opportunity, Motivation – Behaviour (COM-B) model, which provides a starting point for understanding behaviour in the context in which it occurs (Michie et al, 2014). A pilot interview was conducted with an occupational therapist, experienced in neurological rehabilitation but not working on the neurological rehabilitation unit, and minor amendments were made. The key topics included in the interview

guide were background and current role, understanding of current positioning practice, experiences of current positioning practice, the use of practical positioning resources, barriers and facilitators to effective positioning and views on changes to practice (*Appendix 1*).

Data processing and analysis

Interviews were transcribed verbatim, and analysis followed an inductive thematic analysis approach (Braun and Clarke, 2006), which provides a method for identifying, analysing and reporting themes in rich data. The data was coded line by line (facilitated by NVivo Release 1.3 software) to explore the full dataset without aligning it to a pre-existing framework. Relationships between codes were explored and themes developed, which were then reviewed against both individual codes and the full data set to ensure a true representation of the data.

The interviewer analysed all the transcripts, with a second researcher, not from a clinical background, independently analysing one-third of transcripts as a method of investigator triangulation (Carter et al, 2014). Areas of conflict were discussed, and themes confirmed. It is acknowledged that while relevant clinical experience may strengthen interpretation, it may also influence the findings through preconceptions about the topic (Holloway and Wheeler, 2010). The second non-clinical researcher balanced this risk of bias.

Participants, who consented to receive a summary of the key themes of their interview for member checking, were invited to comment if the summary was an accurate representation of their views. A 2-week response period was provided and after this it was assumed that there was no feedback to provide. All transcripts were anonymised using a participant number.

Results

Participant demographics

A total of 12 participants took part in an interview between January and the beginning of March 2020 just before the UK went into lockdown because of the COVID-19 pandemic. They comprised three physiotherapists (25%), two occupational therapists (16.67%), two therapy assistants (16.67%), two registered nurses (16.67%) and three healthcare assistants or assistant practitioners (25%). Participants P1, P2, P3, P4, P5, P6 and P8 were members of the therapy team (physiotherapists, occupational therapists, and therapy assistants), and P7, P9, P10, P11 and P12 were members of the nursing team (registered nurses, healthcare assistants and assistant practitioners). Further demographic details relating to individual participant numbers have not been provided to preserve the anonymity of participants.

Participants had been in their present role for a mean of 6.3 years (range 1–22 years) and in their profession for a mean of 13.5 years (range 1–36 years). A total of nine (75%) participants participated in the member checking process and no feedback was received.

Key themes

The focus of the evaluation was positioning in bed with participants referring to variations on supine, side lying and sitting positions. No mention was made of prone positioning. Data saturation was achieved in relation to the generation of codes and themes.

The analysis identified six key themes: patient needs, staff role, communication, knowledge, staff experiences and practical positioning resources. Each theme contains two or three sub-themes and as the analysis progressed, associations between the themes became apparent. These associations

are described within each theme with an overview shown in *Figure 1*. An interaction of four of these themes (patient needs, staff role, communication and knowledge) appeared to influence the fifth theme of staff experiences. The sixth theme of practical positioning resources focused on the use of specific resources and was considered independently to the other five.

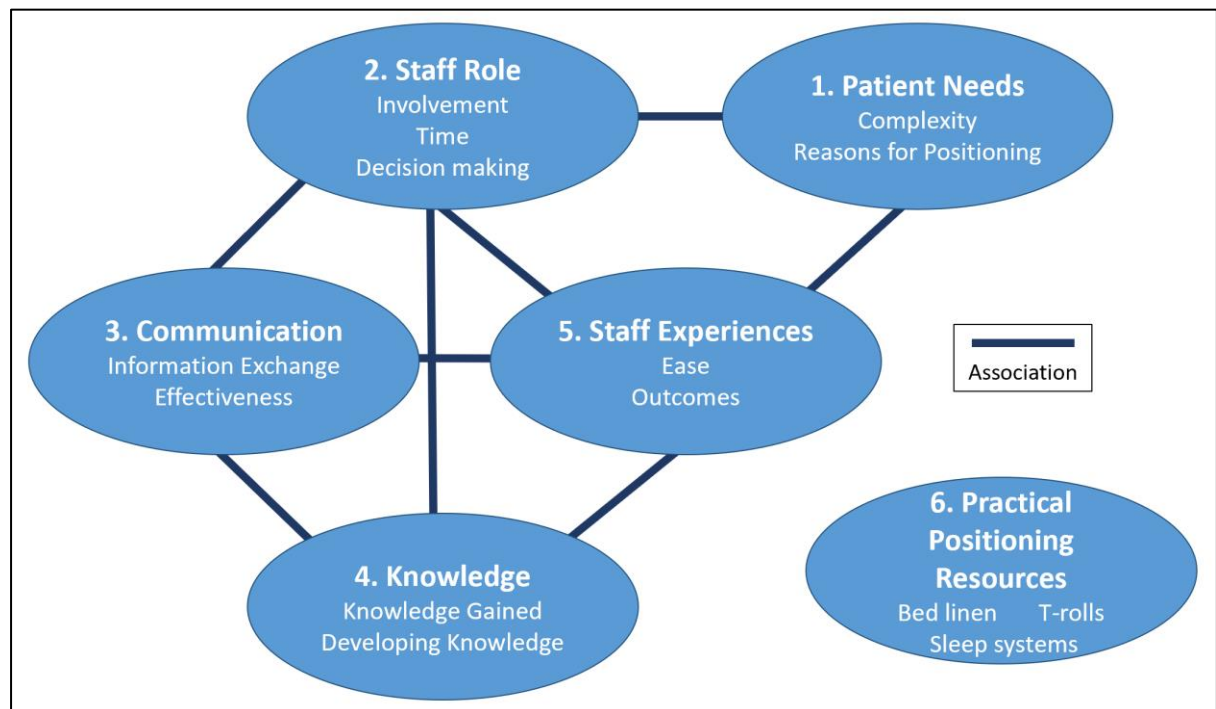


Figure 1. Associations between themes and sub-themes

Patient needs

Participants provided an overview of the complexity of the patient cohort and explained their reasons for positioning patients within the neurological rehabilitation unit setting.

Complexity

Participants reported that many patients on the neurological rehabilitation unit had complex presentations and were unable to position themselves.

‘The majority of patients that we have here need help maintaining a good position and alignment.’ (P6)

Participants associated complex physical presentations with altered muscle activity, muscle shortening, reduced sensory awareness and vulnerability to pressure injuries. Complexity was further increased by cognition, behavioural or communication difficulties.

‘There’s stiffness and increased tone.’ (P8)

‘The patients sometimes don’t even know that they’re on a bed.’ (P3)

‘Very cognitively impaired or is behaviourally very challenged.’ (P1)

Reasons for positioning

Many participants explained that positioning was about being in the correct alignment, with patient comfort and their ability to participate in rehabilitation identified as key reasons for positioning. More specific reasons associated with rehabilitation and recovery included enabling rest, maintaining muscle length, providing sensory awareness and enabling effective movement for daily activities.

‘The ultimate thing is the patient’s comfort.’ (P3)

‘It usually helps with their rehabilitation journey.’ (P4)

Staff role

All participants had considerable involvement in positioning practice, but their responsibility for decision-making varied. They reported differing views about the time they had in their role for positioning.

Involvement

Most participants reported that they positioned patients multiple times during the day, acknowledging this as an important aspect of nursing care or therapy interventions. Positioning was considered a key part of the rehabilitation process, which linked to the positioning aims identified by participants.

‘It’s very important that you can position them in the right way because it helps with their rehab[ilitation].’ (P9)

Decision-making

Participants agreed that decision-making about positioning was therapy-led on the unit. However, it was acknowledged that the nursing team were with the patients over the full 24-hour period and often had to make decisions in the absence of the therapy team.

‘It’s very therapy-led.’ (P1)

‘If a patient comes in at the weekend when they’re [therapy team] not here, we try and figure something out for ourselves until they are here to help us.’ (P9)

Time

Opinion was divided about whether participants felt they had enough time for positioning within their role. Factors that impacted on time were identified as staffing levels and the consideration that positioning was just one part of a patient’s care or therapy and must be balanced with other needs and interventions. Time limitations were also reported as a barrier to effective communication and knowledge development.

‘[If] two HCAs [healthcare assistants] (or) a trained nurse ... ring in sick [for a shift], there [are] no extra staff around.’ (P10)

‘We try to make that time and consider it important but ... we’re not just looking at positioning.’ (P8)

Communication

The way information about positioning was communicated varied and participants reported differing views about the effectiveness of communication.

Exchange of information

Decisions about positioning were communicated from the therapists to the nursing staff in two key ways. Informal demonstrations at the end of a therapy session, or more formally as a combination of a handover and teaching session (referred to by some as a rehab round), were positively reported and acknowledged as contributing to staff knowledge development. Pictorial positioning charts were also considered to be a beneficial way to communicate information.

‘I think the best form of communication is definitely getting as many people in as possible to provide a demonstration for a patient.’ (P4)

‘I think that [positioning charts] are really effective because they’re just easy, they [staff] don’t have to remember, they can just look at it and think “right, I’m putting that there”.’ (P6)

Positioning information was also communicated verbally, and verbal feedback and discussion between staff was encouraged. This two-way communication positively impacted on the development of staff knowledge and their experiences of positioning.

‘If there’s any query, then we’ll just go and ask the therapists.’ (P7)

Effectiveness

Opinions varied on the effectiveness of communication on the unit, with available staff time identified as a key barrier to effective communication. Some participants also reported a loss of clarity when information was repeatedly verbally communicated; they felt being at the demonstrations was preferable to being handed over information verbally.

‘We’ve not been able to do any [rehab rounds] for a while because of staffing.’ (P10)

‘If you’re not working that day ... you get passed on information and sometimes it’s not as accurate.’ (P11)

Knowledge

Participants discussed how they had gained knowledge and skills relating to positioning practice and highlighted a need for ongoing development.

Gaining knowledge

All participants felt their knowledge and skills had come from clinical experience, with the majority also identifying that working with others had supported their development. Many highlighted that they seek support within the team.

‘Learning over time with experience.’ (P8)

‘If we ever were struggling, we could go to them [therapy team] and say, “can you show me again how to do it?” and they would always come and help us.’ (P9)

The therapy team identified that they had received formal training around positioning through in-house training and specialist courses, in comparison to the nursing staff who reported that they had no formal training. The demonstration sessions provided informal training for the nursing staff in relation to specific patients.

Developing knowledge

All participants felt that there was a need for training to be increased for all staff to promote a greater understanding of positioning. Positioning was referred to as a specialist skill by the therapy staff who identified that, in general, the nursing staff had less in-depth knowledge on positioning. This was considered to impact on patient positioning over a 24-hour period when nursing staff were making decisions in the absence of therapists. Barriers to addressing nursing staff knowledge were highlighted, which included the turnover of nursing staff and available time for training.

‘It’s a lack of understanding from the wider MDT [multidisciplinary team] of the importance of it which is why it gets missed a little bit sometimes from a 24-hour rehab approach.’ (P5)

‘The new staff and bank staff that come and they just, ram [force] the towels in because they were there when they approached the patient – they don’t understand why they’re [the towels] were there.’ (P12)

‘Those six [nurses] can’t go off to training because there’s nobody to look after the patients.’ (P10)

Participants discussed ideas around training, nursing competencies, increasing demonstration sessions, and freeing up nursing time with additional therapist assistant support on the ward.

‘I think the physio[therapist]s should do more training sessions.’ (P12)

‘The competencies will go across nursing activities but some of that will be based around positioning.’ (P1)

‘Therapy assistants could support on the ward with nurses on to free up another [nurse] to go into training.’ (P10)

Staff experiences

Participants explored their own experiences of positioning on the neurological rehabilitation unit.

Ease

Overall, participants felt confident to position patients, although the ease of positioning patients was dependent upon the complexity of individual patients, including their cognitive and physical presentations.

‘That’s very much based upon the patient, it’s a very individual thing.’ (P1)

‘If your patient can actively participate, initiate, or just understand, they’re much more compliant.’ (P3)

‘If you’ve got a patient with really increased tone or a lot of spasticity ... it can be really difficult.’ (P12)

Positioning was considered easier when information was effectively communicated, and staff had the appropriate knowledge to make decisions and skills to position the patient.

‘Making sure that everybody knows how to position them, that makes it a lot easier.’ (P9)

Outcome

All participants acknowledged that positioning did not always work. They reported that the outcome of positioning was informally evaluated at the time of positioning through verbal feedback from the patient, physical response to positioning and patient engagement in tasks. Formal evaluation of the effectiveness of positioning practice was not discussed by any of the participants.

‘On the way back from sessions they’ve fallen asleep, and you think, they must be really comfortable.’ (P6)

‘Sometimes where you’re trying to put all these items in, like towels and pillows, and the patients just kick them out.’ (P7)

‘You can see it in the person’s face, you know they’re a lot better, they’re more engaged.’ (P2)

When positioning was difficult or did not work, participants identified that they would trial different positions or seek support and advice through communication with others. Alternative actions included discussing medical management and ensuring good communication with the patient.

‘Find out the reasons why that isn’t working and try and put something else in place.’ (P1)

‘I’d go to the therapists and I’d say “look, this is what’s happened and it’s not working, is there anything else you can come up with?”.’ (P7)

‘You talk to the consultant about a medication ... that might help to reduce tone and improve positioning.’ (P8)

‘Talking to them [the patient] and asking them and explaining what you’re doing.’ (P6)

Practical positioning resources

Practical positioning resources were used to support patients in a good position. Discussion centred around three groups of resources: bed linen, T-rolls and sleep systems, and a pattern as to how these resources were used was identified. This pattern is explored further in the subsequent sub-themes and appears to be related to the ease of use in relation to the perceived benefits of use. This pattern of use influences how often the resources are used and staff confidence in their use.

‘The first “go to” would be towels and possibly blankets and pillows... And then you go on to [using] more positioning type things [items] ... so T-rolls and things like that... And then ... occasionally, we don’t use them very often, but with specific cases, we also use a specialist positioning system.’ (P8)

Bed linen

Bed linen (towels, pillowcases, pillows and blankets) were most regularly used, and participants identified how these could be used to provide support and sensory feedback. Participants felt confident using bed linen and found it accessible and easy to use. Therapy team participants also highlighted that it is an easy skill to teach. Participants felt that the bed linen was an effective positioning resource most of the time, but was less effective if the patient was moving about a lot or pushed strongly against the support.

‘The towels are easy to use, where they go and things, is just easy.’ (P9)

‘It seems to work well with the towels, and we always have loads of towels.’ (P12)

‘If you’ve got someone that would roll back a lot or push back a lot, they’re [towels] not always strong enough to maintain that.’ (P8)

T-rolls

T-rolls were used more than sleep systems but less than bed linen. These were mainly used under and between the knees. They could be difficult to put in place although participants reported that they felt confident to use them and considered them to be effective. The therapists issued them to specific patients.

‘I feel confident using them but sometimes with some patients, it can be a bit more difficult.’ (P10)

‘The T-roll is useful, it does what it needs to do.’ (P5)

Sleep systems

Sleep systems were used infrequently, with many participants identifying that they had not used one for several years and were therefore less confident in using them. Only the therapists had access to the sleep systems and provided them for specific patients.

‘I’m definitely less confident using the sleep system just because you don’t get as much exposure to it.’ (P3)

The sleep systems were considered more complex, required more skills and knowledge to use and made handover between staff more difficult. The complexity also created challenges in relation to time demands, maintenance of equipment and the moving and handling of patients.

‘It can be quite complicated because some of the bits look like each other and it can be difficult to know where the bits go together.’ (P4)

‘It’s not ideal especially if your patient is incontinent and it [the sleep system] gets soiled and rolling them and sliding them up and down is quite difficult.’ (P12)

The sleep systems were reported to be used for a specific group of patients who were restless. Opinions were equally divided about the effectiveness of the sleep systems with participants reporting variable experiences of success.

‘It would often be the patients who are more restless and more agitated, because they don’t really know where they are in space, to provide them with increased sensory stimulation.’ (P8)

‘I have known them to work before because they have settled a patient and they’ve felt more secure ... and then we’ve had patients that just think they’re being strapped in.’ (P7)

Discussion

Positioning was recognised as integral to the nursing and therapy roles when rehabilitating people with complex neurological conditions. The positioning aims identified within the present study concur with findings from previous research, including stabilising body segments, comfort (Chatterton et al, 2001) and optimising physical recovery (McGlinchey et al, 2021). McGlinchey et al (2021) also explored the interventions used across both inpatient and community services, reporting that inpatient services had a greater focus on function, independence and prevention of secondary complications compared to community services, which focused on longer-term management interventions. The focus on recovery and rehabilitation identified in the present study is likely reflective of the study setting.

The interaction of patients’ needs, staff role, communication and knowledge were found to influence the staff members’ experiences of positioning, which highlights the importance of these factors for consideration within clinical practice. Regarding communication these findings suggest that effective communication increased staff knowledge and helped staff to position patients more effectively. This is in agreement with a previous neurorehabilitation study, which also identified communication as a key influence on team effectiveness and as fundamental to patient care (Suddick and De Souza, 2007).

Staff knowledge was also reported as a key contributor to positioning practice, which had a direct impact on the ease of positioning. Participants identified that clinical experience and learning from others provided the largest contribution to their knowledge. Nursing participants described difficulty in accessing training and education courses because of staffing and workload. These findings support previous work (Long et al, 2002) that reported ‘learning by experience’ was the most frequently mentioned source of post-registration education for rehabilitation nurses. They raised the concern that experiential learning can be inconsistent, therefore formal learning opportunities are important. While all staff in this study agreed further positioning training would be of benefit, evaluation of formal positioning training provides varied findings. Mauk (2013) examined the wider value of education to nursing staff, with a suggestion that it improves the quality of patient care, in line with the present study’s findings that ongoing training and education was important for practice. In contrast, a randomised controlled trial across 10 UK stroke rehabilitation units did not find any significant difference in the outcomes of patients cared for by nurses who had received a formal programme of positioning training (Jones et al, 2005). However, positioning is one part of a complex rehabilitation intervention, and the trial did not control other variables that may have influenced patient outcomes.

Rehabilitation is provided by the interventions of the whole team over a 24-hour period (Fraser, 2009). Nurses have previously been identified as the only health professionals who are continuously present on a ward and therefore play a key role in ensuring optimum positioning (Jones et al, 2005). In the present study, decision-making was reported as therapist-led but the nursing team needed to make decisions in the absence of therapists. This implies a potential disconnect between those making the decisions and those delivering the care and could explain why appropriate knowledge and effective communication were considered important in this setting. The findings around communication, knowledge, and variability over a 24-hour period are not new or unexpected concepts. In comparison, the clear pattern of practical resource use that emerged provides new information to an area where documentation of current practice is limited. Findings from the present study suggest that this pattern of use was based on staff experience relating to the ease and perceived benefits of use of each resource, without formal evaluation of effectiveness. It is important to reflect

that the practice reported demonstrates current, and not necessarily best, practice within a neurological rehabilitation context. No literature was found, that evaluated any of these resources, in any adult context, with which to compare these findings.

Implications for practice

These findings strengthen the importance of ensuring effective communication strategies between, and appropriate training of, both nursing and therapy staff in clinical practice to optimise positioning practice. There remains insufficient evidence to make any recommendations about the use of specific practical resources in practice, so it is important that staff problem solve and evaluate the use of these resources with the individuals they are supporting.

Study strengths and limitations

The qualitative methodology and representative sample from the neurological rehabilitation unit studied provided a rich account of participants' views and experiences of positioning practice. The data collected on the use and effectiveness of practical positioning resources provide a valuable contribution to an area where documentation of current practice is limited. However, these findings, from a single unit, may not be generalisable to other settings, in particular community settings where the primary focus of positioning may be different. Recognition needs to be given to the risk of bias resulting from the difference between participants' responses and their actual experiences or actions. This may be influenced by the participants responding in ways they perceive as desirable to themselves or the research (Sedgwick, 2014).

Future research

Future research is required to evaluate the use of different practical positioning resources with consideration for both patient outcome and patient experiences of the resource use. An exploration of the barriers and facilitators to the use of practical positioning resources across a variety of settings would also be of benefit to support implementation and sustained use within different areas of practice.

Conclusions

This qualitative study of the current reported practice of bed positioning in neurological rehabilitation highlights that a range of factors influenced the practice, and documents the use of practical positioning resources. Positioning was recognised as integral to rehabilitation, and staff experiences were influenced by an interaction of factors including knowledge and communication. The participants' views and experiences provide valuable new information about the use of practical positioning resources. Further research is needed to evaluate these resources.

Key points

- The positioning of people with physical neurological impairment is considered a key component of rehabilitation.
- Patient needs, staff role, communication and knowledge all influenced positioning practice and should be considered within clinical practice.
- While a clear pattern of practical positioning resource use emerged, this was based on participant experience rather than formal evaluation of effectiveness.
- Further research is required to evaluate the use and effectiveness of practical positioning resources in clinical practice.

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Appendix 1. Semi-structured interview guide version 2 (post pilot)

Area of Interest	Question	Prompts
Background	So firstly, I would like you to please tell me a bit about your professional background?	• Profession and job title • Banding • How long you have worked on the neurological rehabilitation unit for? • Have you had any experience of positioning before working on the neurological rehabilitation unit? Was that as [role] or in a different role? And how many years was that for?
Role in current practice	In your current role can you tell me what your involvement is with positioning patients in bed on the neurological rehabilitation unit? Ie, what do you do?	• How often do you position patients? • How do you position patients? • Why do you position patients? • How does positioning fit with the other tasks in your role? • What resources do you use to position patients? • How/why do you use these resources? • How/where do you record patient positioning?
Understanding of current practice	Thinking about your background knowledge, how do you know how to position a patient in bed or what practical resources to use?	• Training/experience/support/guidelines/documents? • Routines? What do these involve? • In your opinion who makes the decisions on the neurological rehabilitation unit about how patients are positioned? • How does this decision-making work – sharing information/communication within the team? • How effective or not effective is this? • How do you decide which positioning resources to use? • Who and/or what are the main influences on your practice around positioning?
Experiences of current practice	What I would like to explore now is your experiences and feelings about positioning patients in bed on the neurological rehabilitation unit? Use examples if this helps.	• How confident do you feel when positioning a patient? • How easy or difficult do you find positioning patients? • Does it always work? How do you know? If not, what do you do/what happens next? • How do you feel when you are successful (it works) or unsuccessful (it does not work) in positioning a patient? • How important is it to you to position your patients? What are your thoughts? • Do you have enough time in your role to position patients?
Experiences of positioning resources	Continuing to think about your experiences and feelings tell me about using the different practical resources on the neurological rehabilitation unit? Use examples if this helps.	• How confident do you feel using them? • How easy or difficult do you find them to use? • Can you explain if they do the job you want them to do? Do they do what they need to do? If not, why? • How easily can you access them?

		• Are there other resources which you use? • Are there are resources available that you do not use? Can you explain what these are and why you don't use them?
Barriers, facilitators and need for change	I would like you to think about what makes positioning people easier or more difficult.	• Is there anything you can do to make things easier/overcome these difficulties? What are these? • Are there things you cannot influence?
	Do you think anything needs to change or have any concerns around current positioning practice on the neurological rehabilitation unit?	• What? • Can you explain why? • Have you any ideas about how practice could be changed
Close	Have you any other comments that you wish to make as part of this study?	