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Exploring advanced nursing practice in stroke services: a scoping review

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Abstract

Background: Stroke care is becoming increasingly reliant on advanced nursing practice (ANP); however, little is known about these roles within the stroke specialty.

Aims: To explore the current knowledge of advanced nursing practice in stroke services internationally, specifically the conceptualisation of ANP and the rationale for its implementation.

Methods: Arskey and O'Malley's scoping review methodology was employed, and six academic databases were utilised.

Findings: Two key themes were identified; 'role development' and 'four pillars of advanced practice'. The review identifies that ANP is implemented primarily to provide acute stroke care.

Conclusions: Current research does not clarify the rationale for implementing these posts or how ANP is conceptualised. This review does identify that stroke ANP incorporates the four pillars of advanced practice (clinical, research, leadership and education) and was implemented to improve the quality of stroke care. Barriers and facilitators to implementation were also identified.

Keywords

advanced nursing Practice; stroke; cerebrovascular accident; care quality; service development

Introduction

Stroke services in the UK follow an established trend of using advanced nursing practice (ANP) (Burton et al, 2009; King et al, 2017). Advanced practice is defined by the International College of Nursing as practice carried out by registered nurses 'that have acquired expert knowledge and clinical competences for expanded practice' (International Council of Nurses, 2019). The rationale behind ANP implementation has, at least partially, been attributed to medical staffing shortages, and stroke services are no exception to this (British Association of Stroke Physicians, 2019). However, there may be additional or alternative explanations for the implementation of ANP in stroke services, as a shortage in medical staffing alone would not explain the prevalence of ANP roles in the UK healthcare context.

In the UK, ANP remains unregulated beyond initial registration as a registered nurse (RN), leaving the regulation in the scope of employers (Nursing and Midwifery Council (NMC), 2017; King et al, 2017). Several national bodies have created frameworks, or standards, to guide the development of advanced practice roles and help fill this regulatory gap. The most prevalent of these in the UK are the Royal College of Nursing's (RCN) Credentialing scheme and Health Education England's (HEE) Multi-Professional Framework for Advanced Clinical Practice (HEE, 2017; RCN, 2018). There are separate advanced practice frameworks for the other nations of the UK: the Advanced Practice Toolkit of NHS Scotland (2012), Northern Ireland's Advanced Practice Framework (Department of Health Social Services and Public Safety, 2014) and Wales' Framework for Advanced Nursing (Ryley et al, 2016). Each of these frameworks use similar language/terminology and standards, referring to the four pillars of advanced practice: clinical practice, leadership, facilitating learning/education, and research (HEE, 2017; RCN, 2018). The RCN has recently published the UK Career Framework for Stroke Nurses in an attempt to provide some guidance on what advanced practice looks like in stroke specifically, which ties into the above existing frameworks (RCN, 2020).

There is a broad variation of the interpretation, utilisation and titling of ANP roles internationally (Kennedy et al, 2012). The roles of nurse consultant (NC), nurse practitioner (NP), clinical nurse specialist (CNS) and advanced level nurse practitioner (ALNP) are all considered to work at an advanced level in the UK (Maylor, 2005; Cooper et al, 2019). The boundaries between ANP and specialist practice are also unclear, particularly in the UK, where there are no regulatory distinctions (Ormond-Walshe et al, 2001; Begley et al, 2013; NMC, 2017; Cooper et al, 2019). Although their impact is well established in certain healthcare settings, such as primary care (Laurant et al, 2018), the nature of how ANP is deployed and reasons for implementation in stroke services are not yet fully understood. For the purposes of this review, ANP refers to advanced nursing practice and ALNP refers to advanced level nurse practitioner, a term used by the Royal College of Nursing for advanced nursing roles (RCN, 2018).

Aims

This review explored the literature to better understand the rationale for the implementation of ANP roles in stroke services. It also sought to create a greater understanding of the conceptualisation of ANP in stroke. The search questions used for the review were:

1) What are drivers and motivations of nurse leaders, clinical leads and managers for developing ANP roles in stroke services?
2) How is ANP conceptualised in stroke services?

Methods

This study followed a methodological framework for scoping reviews outlined by Arskey and O'Malley (2005). A Population, Exposure Outcome (PEO) framework (*Table 1*) was used to identify search terms based on the research question. The 'outcome' aspect of this framework was not utilised in the search, as its inclusion resulted in zero papers being returned. Removing the outcome was thought to reduce the specificity of the search, but

not its sensitivity, thereby increasing potential results and workload of the researcher but not compromising the search strategy.

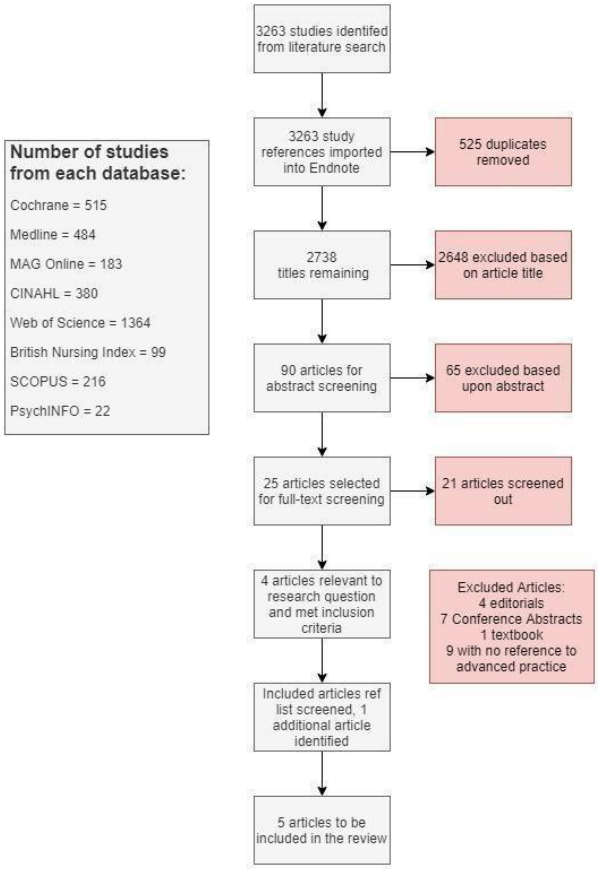
Table 1. Population, Exposure Outcome (PEO) framework and search terms

PEO framework		Search terms
Population	Advanced nursing practice (ANP)	'advanced nurse practitioner', 'ANP', 'nurse consultant', 'consultant nurse', 'lead nurse', 'nurse clinician', 'advanced nurse', 'advanced specialist nurse', 'advanced clinical practitioner', 'nurse practitioner', 'ACP'
Exposure	Stroke	AND 'stroke', 'cerebrovascular accident', 'CVA'
Outcome	Developing ANP	N/A

hese search terms, along with appropriate medical subject headings (MeSH) where available (e.g. 'advanced nursing practice' for MEDLINE), were used to search eight academic databases (*Figure 1*) chosen for their specificity to nursing research and to ensure adequate coverage (Bramer et al, 2017).

Google Scholar was used to increase the number of results; however, no additional studies were identified. The references of included studies were subsequently hand-searched. The databases and their respective results can be found in *Figure 1.*

Figure 1. Scoping review flowchart and database list



Results

Study characteristics

The included studies were published between 2002-2018. Three were conducted in the US, of which two used quantitative methods (Moran et al, 2016; Wood, 2016) and one used a qualitative method (Rattray et al, 2017). The remaining two were conducted in the UK and used qualitative methodologies (Burton et al, 2009; Sanders et al, 2018).

Moran et al (2016) and Wood (2016) used a cohort study design to assess the impact of ANP in acute stroke services. While one of the qualitative studies examined NC roles in stroke (Burton et al, 2009), the second explored an ALNP in the role of a stroke coordinator in a US veteran's hospital (Rattray et al, 2017). The final study explored the introduction of advanced practice into a stroke specialist nursing team through a masters degree program to further enhance their expert knowledge and skills (Sanders et al, 2018). A tabulated summary can be found in *Table 2*.

Table 2. Characters of studies included in scoping review

Author(s)	Location	Aim	Method	Findings
Burton, Bennet and Gibbon (2009)	UK	Explore factors that have shaped non-medical consultant roles	Exploratory study using two focus group discussions made up of 13 consultants (11 nurses) and 2 allied health professionals (AHPs)	Six themes: the Nature of clinical expertise; diverse pathways to consultantship; policy as opportunity; entrepreneurship; support for role and personal development; and succession planning
Moran (2016)	US	Test if the implementation of 24/7 acute care nurse practitioner (ACNP) reduces door- to-needle time	Retrospective cohort study (24 months pre/33 months post)	ANCP reduced door-to-needle time by 8 minutes (53>45). Increased compliance with quality measures (e.g. scan time).
Wood (2016)	US	Evaluation of economic and quality outcomes associated with collaborative ANP/physician care on inpatient stroke	Retrospective cross-sectional design	Significantly increased patient satisfaction with care in collaboration arm. Improved length of stay and no against medical advice discharges in collab arm. Improved performance of quality markers

Rattray et al (2017)	US	Evaluate how advanced practice professionals (APPs) operated across boundaries	Comparative case-based approach. Semi-structured interviews with HCPs	APP involved in care for an extended period directly connected with better care (using established quality markers) APPs are 'prime movers' – able to able to facilitate quality improvement activities.
Sanders and Ashman (2018)	UK	Explore the implementation of an advanced practice training programme on team of stroke specialist nurses	Case report using audit data	Role implemented to improve performance and increase availability of acute stroke treatment. ANP increased performance in acute stroke measures

Discussion

Theme 1: Implementation of advanced nursing practice in stroke services

Role implementation

The primary rationale for ANP implementation was to improve stroke services, with this being dependent on the context and needs of the service (Burton et al, 2009; Moran et al, 2016; Wood, 2016; Rattray et al, 2017; Sanders et al, 2018). For example, an advanced practice training programme was used to enhance the skills of a specialist nursing team and improve service performance (Sanders et al, 2018). Advanced level nurses (ANLs) improve services through both advanced clinical skills and leadership (service improvement activities) (Burton et al, 2009; Rattray et al, 2017; Sanders et al, 2018).

Where there is a financial incentive coupled with performance, ANP may bring an economic benefit to services, such as with Medicare in the US (Centers for Medicare and Medicaid Services, 2017).

Where ALNP work in acute care provision, this increased quality of care may also assist in lessening the economic burden of stroke through better patient outcomes (Xu et al, 2018). The specific economic benefit of ANP in stroke services was not examined.

Stroke ALNPs appear to have a specific function that informs their role implementation (*Table 3*). For the ANP roles presented in the five papers, their intended function was to improve specific areas of performance for the service (Moran et al, 2016; Wood, 2016; Rattray et al, 2017; Sanders et al, 2018). The NC role was implemented as a result of a specific policy, the National Service Framework for Older People (NSFOP), which identified the potential contribution NCs could have on healthcare services and facilitated their use (Department of Health, 2001; Burton et al, 2009). The traditional view that ANP has been developed due to medical staffing shortages was not discussed in the results of the included studies. This suggests that the idea ANP has been used to replace medical staff is not upheld in stroke services, despite ongoing consultant shortages in this specialty; however, this would require further study to confirm (British Association of Stroke Physicians, 2019).

Table 3: Role of advanced level nurse practitioner in stroke services within included studies

Study	ANP Role	Country	Primary Responsibility
Burton, Bennet and Gibbon (2009)	Nurse consultant	UK	Implemented to facilitate and assess service performance and undertake service improvement. Implementation facilitated by policy
Moran (2016)	Hyperacute stroke care provider	US	Assessment, diagnosis, and treatment of acute stroke in collaboration with senior level physician
Wood (2016)	Stroke ALNP working as part of the medical team.	US	ALNP assigned to stroke unit to provide care in collaboration with the existing medical workforce
Rattray et al (2017)	Stroke coordinator	US	Coordination of care from hospital admission to discharge
Sanders and Ashman (2018)	Hyperacute stroke care provider	UK	Assessment, diagnosis, and treatment of acute stroke in collaboration with senior level physician

Note: ALNP: advanced level nurse practitioner; ANP: advanced nursing practice

The evidence from this review suggests that NCs focus more on leadership and service development activities (Burton et al, 2009), while another group, with titles such as ALNP, focus more on direct patient care (Moran et al, 2016; Wood, 2016; Rattray et al, 2017; Sanders et al, 2018). Research indicates that the utilisation of ANP is determined by context rather than role title (e.g. NC or ALNP) (Jokiniemi et al, 2012; Cooper et al, 2019).

Facilitators and barriers to successful implementation

An unintentional result of this review was the identification of facilitators and barriers to successful role implementation. Good quality supervisory relationships were found to enhance ANP implementation (Burton et al, 2009; Rattray et al, 2017; Sanders et al, 2018; Casey et al, 2019; Torrens et al, 2019). Uncertainty around the purpose and level of autonomy afforded to an ALNP role was found to be a barrier to successful implementation (Burton et al, 2009). Where there is clarity or specific purpose to an ANP role, there is less uncertainty (Bryant-Lukosius, DiCenso, et al, 2004; Lamb et al, 2018), and this is also the case for ALNPs in stroke (Moran et al, 2016; Wood, 2016; Rattray et al, 2017; Sanders et al, 2018).

None of the ALNPs in this review were responsible for the decision-making processes required to give thrombolysis treatments independently, despite this being the case in

cardiology (Wilmshurst et al, 2000; Qasim et al, 2002; Heath et al, 2003). This suggests a limit on the ALNP scope of practice, which can reduce job satisfaction and inhibit successful implementation (Bryant-Lukosius and Dicenso, 2004; Poghosyan et al, 2015; 2016; Norful et al, 2018). The rationale for this restriction on ANP scope of practice relating to stroke requires further consideration.

Theme 2: Four pillars of advanced practice in stroke

Theme 2 reveals how stroke ANP aligns with the four pillars of advanced nursing practice. From the included studies, ALNPs were found to focus on either clinical practice or leadership, with all having some involvement in education (Burton et al, 2009; Sanders et al, 2018; RCN, 2018).

Clinical practice

Clinical practice appears to be at the forefront of ANP in stroke services—specifically, the provision of acute treatments, such as thrombolysis (Moran et al, 2016; Sanders et al, 2018). The characteristics, abilities and specific tasks undertaken by stroke ALNPs were not identified in this review beyond broad clinical tasks, such as assessment and treatment of stroke. The extent to which ANPs conducted these tasks autonomously was not revealed by this review. Other research has identified that ALNPs, in other settings, are capable of independent practice, with advanced clinical skills at various levels (Mantzoukas et al, 2007; Mcdonnell et al, 2015; Cooper et al, 2019). However, a comprehensive picture has not been evidenced in stroke by the results of this review. Therefore, the detailed nature of the scope of the stroke ANP requires further research. The extent that NCs are involved in clinical practice also requires further clarification, as there have been significant changes in the model of stroke care since 2009 (Burton et al, 2009).

Undertaking clinical practice autonomously is a key element of the four pillars (RCN, 2018). Thrombolysis and thrombectomy are only a part of stroke service provision, with up to 15% of stroke patients eligible for thrombolysis and up to 10% for thrombectomy (Rowley, 2016). However, according to this review, ALNPs nurses in stroke are unable to carry out assessment and administration of thrombolysis independently, with consultant approval being required in each study where ALNPs are responsible for acute stroke care (Moran et al, 2016; Rattray et al, 2017; Sanders et al, 2018). The rationale for this requires further exploration to understand.

The responsibility and autonomy afforded to stroke ALNPs in non-acute inpatient care is also unclear from this review (Wood, 2016; Rattray et al, 2017). What is clear is that stroke ALNPs combine their knowledge and skills to facilitate, with speed, neurological assessments and investigations that require significant coordination and the navigation of complex systems (Moran et al, 2016; Wood, 2016; Rattray et al, 2017; Sanders et al, 2018).

Leadership

Leadership comprises both professional leadership and clinical leadership (Begley et al, 2013; Lamb et al, 2018). Clinical leadership is associated with the autonomy and clinical

decision-making integral to ANP. Professional leadership refers to other activities that ALNPs might undertake outside their clinical workload, such as service improvement activities (Begley et al, 2013). The papers included in this study did not examine in detail how ALNPs carry out clinical leadership. The professional leadership activities undertaken were examined, such as the service development activities performed by NCs (Burton et al, 2009). In research that covers other areas of nursing, ALNPs are seen to exhibit clinical leadership more clearly, which included coaching and educating, advocating for patients, and maintaining person-centred care (Carryer et al, 2007; Begley et al, 2013; Lamb et al, 2018). Therefore, it would be useful to conduct an in-depth study to better understand the conceptualisation of ANP in stroke services across a variety of locations and service models.

Education

The review identified that ALNPs provide formal and informal educational programmes in healthcare and academic settings (Burton et al, 2009; Rattray et al, 2017; Sanders et al, 2018). The exact nature or content of these programmes is unknown. However, drawing on research on ANP in other areas, it can be assumed that stroke ALNPs use research to underpin and develop their educational activities (Gerrish et al, 2011; Kennedy et al, 2012; Mcdonnell et al, 2015).

In the studies included in the review, ALNPs integrate the four pillars of advanced practice, through specific skills or elements, to their individual roles. For example, service evaluation (a leadership skill) is undertaken by most ALNPs in this review, whereas clinical assessment of acute stroke is specific to two of the five included studies. This indicates that ALNPs in stroke services are clinically focused leaders and educators, who undertake a broad range of activities to the benefit of patients and services alike. However, the evidence to support this is weak. Further research is required to understand how ANP is conceptualised in stroke services.

The review indicates that the scope of practice of ALNPs in stroke services varies. Further exploration is required to understand the rationale behind limits put on practice.

Limitations

This review was limited by the small number of articles available that met the inclusion criteria, although attempts were made to address this—in particular, the adapation of the PEO framework to increase the scope of the review. The definition of ANP/ALNPs used in this review may have been limiting, as this excludes clinical nurse specialist roles that are considered to be practice at an advanced level.

Conclusion

The review indicates that the main use of ANP in stroke services is the provision of acute stroke care (including thrombolysis and thrombectomy), often with the aim of improving the performance of quality standards. There was no evidence found regarding the use of ANP in rehabilitation or community stroke settings. For the past decade in the UK, there has been a focus on policy and targets in the acute phase of the stroke pathway, which may

have affected ANP implementation (Teasell et al, 2014). However, the increased focus on long-term stroke care as a result of the NHS Long-Term Plan may influence future implementation of ALNPs in stroke services in the coming years (NHS England, 2019).
In the UK, there remains a large variation in the provision of stroke care, particularly for hyper-acute care (Sentinel Stroke National Audit Programme, 2019). The number of vacancies for stroke consultants is likely to rise in coming years, which may prove to be a driver for the further expansion of the ANLPs workforce in stroke services (British Association of Stroke Physicians, 2015; 2019). However, this review shows that ALNPs contribute to high-quality patient outcomes in stroke services in their own right, due to their expert knowledge and skill as independent practitioners. Therefore, this presents an additional or alternative, and arguably more positive, rationale for their implementation. While the small number of papers in this review imposes a limit on a potentially clear evidence base for such an alternative explanation, there are, regardless, indications that this might be acting as a motivating force for the continued development of ALNP roles in stroke services. For the implementation of ANP in stroke services to be successful, a greater understanding of its utilisation needs to be developed.

Key points

- Advanced nursing practice can be used to improve the quality of stroke care
- There is variation in the implementation of advanced nursing roles in stroke services
- Advanced nursing practice in stroke appears to align broadly with the four pillars of advanced practice.
- There is a need for better understanding of advanced nursing practice in the stroke specialty and how it can be of benefit to stroke survivors and stroke services.

Reflective questions

- Would regulation of advanced nursing practice be a barrier or a facilitator for its implementation?
- To what extent does context influence the focus of advanced level nursing practitioner roles?
- Where else on the stroke pathway could advanced nursing practice be of benefit—community or rehab, for example?

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