

## Abstract

**Background:** Stroke prevalence is rising internationally. Advanced practice nursing is established across many jurisdictions, however its contribution to stroke services is under researched.

**Aim:** To gain insights into the future scope and role of future advanced nurse practitioners in stroke care from the perspectives of key stakeholders.

**Design:** A qualitative descriptive approach

**Methods:** Interviews were conducted in 2019 with a purposive sample of 18 participants, comprising stroke nurses, stroke unit managers, stroke survivors and their family carers, recruited in one UK healthcare trust. The research is reported in line with COREQ. Data were analysed in accordance with an inductive content analysis approach.

**Results:** The abstraction process generated four main themes. These were “The lynchpin of the acute stroke service”, “An expert in stroke care”, “Person and family focussed”, and “Preparation for the role”.

**Conclusion:** These findings offer new perspectives on the potential scope and role of advanced nurse practitioners in stroke service delivery. Further research should focus on how to address the challenges confronted by advanced nurse practitioners when endeavouring to engage in autonomous clinical decision-making.

**Impact:** Study findings may advance post registration education curricula, clinical supervision models and research directions.

**Relevance to clinical practice:** There is support for the implementation of advanced practice nursing in the hyper acute and acute stroke phases of the care pathway. An interprofessional model of clinical supervision has potential to support the developing advanced nurse practitioner in autonomous clinical decision making.

**Keywords:** Advanced Nurse Practitioners, Education, Leadership, Qualitative Approaches, Stroke

## Introduction

Stroke can affect people of all ages but is more prevalent among adults aged 65 years and older. In tandem with ageing demographic trends and rising prevalence of metabolic syndrome, it is anticipated that the prevalence of stroke will increase globally (GBD 2016 Stroke Collaborators, 2019). In the UK, the expectation is that there will be a 44% rise in the number of people experiencing a new stroke over the next twenty years (Kings College London, 2017). The quality of stroke care varies across the UK (Royal College of Physicians, 2017), and this is despite robust research that demonstrates that access to hyper acute and acute stroke units, and faster intervention of thrombolysis and thrombectomy, generate improved clinical outcomes (Friebel et al., 2018; Hastrup et al., 2018). To date, stroke nurses have been pivotal to the delivery of hyper acute and acute stroke services internationally (Middleton et al., 2015; Kummarg et al., 2018). In addition, research has demonstrated that nurse led protocols for management of pyrexia, hyperglycaemia and swallowing in the acute stroke phase reduce mortality and have potential for long term and sustained benefits for patients (Middleton et al., 2017). This paper presents a qualitative study that addresses the future role and scope of an advanced nurse practitioner in the delivery of stroke services in a region of the UK.

## Background

Advanced practice nursing is firmly established across many jurisdictions, including the US (National Council of State Boards of Nursing APRN Advisory Committee, 2010), Australia (Nursing and Midwifery Board of Australia, 2016) and the UK (Royal College of Nursing [RCN], 2018). Advanced practice nursing defines a higher level of practice demonstrated by advanced clinical skills, experience and knowledge. The advanced nurse practitioner (ANP) is educated to at least Master's degree (RCN, 2018), and in the US, nurse practitioners must be certified and licensed. In the UK, nurses who meet the required competencies for ANPs will have their advanced status and prescribing authority recorded on the Nursing and Midwifery Council register. There is a paucity of published peer reviewed research nationally and internationally that has addressed advanced practice nursing in the sphere of stroke care. In the grey literature, Minchin and Wensley (2003) reported that the introduction of medical nurse practitioners, defined as experienced registered nurses with further training and competence in assessing, diagnosing and treating complex problems, facilitated timely referral to the specialist stroke team. More recently, Sanders (2019) reported that the implementation of an advanced nurse practitioner programme in one stroke service supported enhanced quality of care. A scoping review undertaken by Wilson & Ashcroft (2018) has described a variety of nurse practitioner roles in stroke care in primary care, acute hospital care and secondary prevention in the community.

The four regions of the UK have made a commitment to enhancing and reshaping their stroke services towards centralised models of care (NHS England, 2019; NHS Scotland, 2019; NHS Wales, 2017; Northern Ireland Health and Social Care Board, 2017). There is potential that the implementation of ANPs in stroke care delivery can drive enhancements and efficiencies. ANPs in the UK are supported by standards developed by the Royal College of Nursing (2018), and regional practice frameworks (Northern Ireland Practice Education Council [NIPEC], 2016). Nurse prescribing is a prerequisite skill to advanced nursing practice in the UK, and there is an expectation that ANPs will contribute highly developed assessment, diagnostic, analytical and clinical judgemental skills, and perform many functions previously reserved for doctors (RCN, 2018). This has relevance in stroke care as pharmacological interventions and management are pivotal to the prevention,

treatment, and long-term management of stroke. In addition, there is potential for the ANP to expedite the treatment regimens for patients with ischaemic stroke in the hyper acute stroke phase. Whilst the evidence demonstrates that faster time to initiation of lysis treatment, is associated with improved clinical outcomes, it is important to point out that lysis treatment is associated with adverse events for up to 6% of patients (Jahan et al., 2019). To date, there are no ANPs employed in stroke services in Northern Ireland. In a climate of increasing demand and tight fiscal management, nurses with advanced skills have potential to reduce the burden of stroke and make a significant contribution to the delivery of timely, effective and efficient care.

There is currently a paucity of published research nationally and internationally that has addressed advanced practice nursing in the sphere of stroke care and there is a lack of clarity around what an ANP role in the delivery of stroke services will encompass. The present study aimed to explore perspectives about the scope and role of future advanced nurse practitioners in the delivery of stroke services from a range of key stakeholders. The purpose of the study was to ascertain the level of support for the role and to develop a substantive description of scope and role to inform curriculum development, service planning and future research.

## **Methods**

The study employed a qualitative descriptive approach that utilised semi-structured interviews for the collection of data. The qualitative description is a design that seeks to produce a low inference description of a phenomenon, with the intention to remain close to the original data (Neergaard et al., 2009; Sandelowski, 2000, 2010). With regards to methods, a variation sampling approach is appropriate, in order to gain a broad insight into the phenomenon (Neergaard et al., 2009). In addition, semi-structured interviews are commonly used in data collection, to glean a straightforward description generated from a range of perspectives of individuals and groups (Lambert & Lambert, 2012). The study was conducted in accordance with the consolidated criteria for reporting qualitative research (COREQ supplementary file 1) (Tong et al., 2007). It incorporated a purposive sampling approach to generate perspectives from adults that had experienced a stroke, and their family carers, in addition to senior stroke nurses, specialist stroke nurses, and stroke service managers.

## **Participants and setting**

The study was conducted from July 2019 to November 2019 at two hospital sites in one healthcare trust in the UK, and in the homes of stroke survivors and their family carers. The target population for healthcare professionals was senior stroke nurses, specialist stroke nurses, and stroke unit managers employed in the Trust's stroke service. The inclusion criteria for these healthcare professionals were at least four years' experience in the delivery of stroke services, and willingness to participate.

The target population for service users was adults living at home, that had experienced stroke care in the Trust, as well as their family carers. The inclusion criteria for stroke survivors were age 18 years and older, living at home, experienced a stroke in the previous six months, engagement in community rehabilitation services, and ability and willingness to participate in an interview. The inclusion criteria for family carers were age 18 years and older, with ability and willingness to participate in an interview. The ability to participate in an interview, was construed by ability to

engage in the stroke community rehabilitation service after discharge from hospital and confirmed in consultation between the gate keeper appointed to support recruitment and the rehabilitation service managers.

The rationale for the mix of participant groups was to gain a breadth of perspectives that could encompass the aspirations for advanced nursing practice in stroke services. It was anticipated this approach would also identify the challenges and strengths in the existing service, that participants perceived could be addressed and/or built on, in advanced nursing practice. The research invitation and information pack for participants included general information about advanced nursing practice to ensure that all participant groups were sufficiently informed to be able to provide perspectives. The purposive sampling method was used to recruit the participants, with sampling continuing until no new substantive data or new category was acquired. Selection of the participants was based on the variation of samples and the progression of the interviews. Accordingly, a total of 18 individuals provided their written informed consent to participate in the study. These included four adults that had experienced a stroke, and their family carers (n=4), four senior stroke nurses, three specialist stroke nurses, and three stroke unit managers.

This study was approved by the Research Ethics Filter Committee of the School of Nursing and School of Health Sciences, University of Ulster, and Northwest Liverpool Central REC 19/NW/0256 in March 2019. The main ethical issues related to voluntariness, consent, confidentiality and protection of data. Prepared letters of invitation and participant information sheets and separate consent forms for stroke service participants, service user participants and carer participants supported voluntariness, informed consent, and right to withdraw from the study. There was full adherence to research governance pertaining to processing, storage and disposal of data.

### **Data collection**

The data were collected through 18 face to face individual interviews conducted in the time period from 2nd July 2019 to 22nd November 2019, with each lasting between 30 to 55 minutes. The interviews with the healthcare professionals were conducted by the first author in private meeting rooms in Healthcare Trust locations that were convenient to them. The interviews with the adults that had experienced a stroke, and carers were conducted individually in a private room in their own homes. The interviews with the adults that had experienced a stroke were conducted by the first author, and the interviews with the family carers were conducted by the second author. All four authors have expertise in qualitative interviewing and qualitative research. With the permission of the participants, each interview was audio recorded. In addition, field notes during and after each interview were made by the interviewers, to support data analysis. Interview guides were formulated for each participant group and subjected to critical review by two specialist stroke nurses employed in a healthcare trust not involved in this study, academic colleagues in the School of Nursing, and a stroke advocacy group. Constructive feedback informed amendments and the final versions that were used. The interview guides were focussed on perspectives of the participants and their current and past experiences of delivering or receiving stroke care. The series of open general questions were supported by probes designed to clarify responses and to elicit more detailed information and are available in supplementary file 2.

## Data Analysis

Qualitative content analysis is a systematic means of describing phenomenon (Schreier, 2012). The interview data underwent qualitative content analysis in accordance with the inductive process described by Elo and Kyngas (2008). This method of analysis was chosen, because of the paucity of published research and the lack of clarity pertaining to the role of the ANP role in the delivery of stroke services. The audio interview data were transcribed, and participant names were replaced by pseudonyms. The preparation stage of the analysis involved a review of the transcriptions, followed by repeated reading and study of the text to generate deeper understanding of the link between the data and the scope and role of a future ANP in stroke care. The organisation phase encompassed 1) the selection of meaning units and open codes, 2) the grouping of related codes, 3) categorisation of the groups, and 4) the abstraction process which generated four main themes. This was a progressive process whereby the extracted categories that evolved after successive interview data were analysed until data saturation was reached. The initial data analysis and extraction of meaning units and the grouping of related codes were carried out by the first author. Then the second author reviewed and validated both the transcripts and the codes. A few incompatibilities in coding were identified by the second author, leading to further study of the data on the part of the first author and refinements in the coding and subsequently agreement was reached between the authors. Extracted codes that were identified as similar were classified into categories, and then grouped into sub-themes, and then further grouped into the four main themes. All four members of the research team were involved through discussions and critical appraisal of the analysis, in the formulation of the final list of main themes, and sub-themes. These are presented in table 1.

Insert Table 1

## Rigour

The conduct and presentation of this study was informed by the Consolidated criteria for reporting qualitative research (Tong et al., 2007). Data trustworthiness was assessed by the four criteria recommended by Lincoln and Guba (1988). The credibility and confirmability criteria were achieved through a thorough engagement with the research from conception, through planning, physical engagement in the field for purposive sampling, selecting and recruiting participants, undertaking preliminary data analysis after each interview, ensuring accurate verbatim transcription of the audio files, repeated review of the transcripts and cross checking with field notes, classification of the extracted codes and categories, and maintenance of an audit trail. Furthermore, a summary of the developing analysis and interpretation was shared with two of the senior nurse participants and one service user and carer, and their review confirmed interpretation. Confirmability and dependability of data is supported by the inclusion of raw data (meaning unit quotes), the data analysis and data reduction through presentation of the main themes, sub-themes, and the results. To enhance the level of transferability, the service user participants have been allocated ID codes P1, P2 etc, the carer participants have been allocated ID codes C1, C2 etc, and the healthcare professional participants are coded HP1, HP2 etc.

## Findings

A total of 18 people participated in this study of which four were adults that had experienced a stroke, four were family carers, four were senior staff nurses, three were stroke unit managers, and three were specialist stroke nurses. The participants that had experienced a stroke and their family carers were aged 38-65 years and 39-66 years respectively. Three of the four people that had experienced a stroke were women, and two of the four family carers were women. All the stroke nurses and stroke unit managers were women. Analysis of the interview data resulted in four main themes. These were *“The Lynchpin of the acute stroke service”*, *“An expert in stroke care”*, *“Person and family focussed”*, and *“Preparation for the role”*.

### ***“The lynchpin of the acute stroke service”***

This theme encompasses the scope of the ANP. The healthcare professionals conjectured that the ANP role will predominantly fall within the acute treatment component of the stroke pathway. A specialist stroke nurse stated: *“The ANP would be the lynchpin of the acute stroke service.”* (HP6). The word lynchpin refers to a vital member of a group or organisation, that holds together the other members or parts for them to function as intended (Merriam-Webster Dictionary, 2020). This definition was reflected in data conveying the importance of the rapid stroke team response, projecting a calming influence in the hyper-acute stroke phase, and enhanced coordination of the stroke pathway. A family carer illuminated the positive impact of early engagement with a senior nurse in the hyperacute stroke phase:

*“There was a doctor standing behind the nurse in ED, and we told the nurse what had happened. She instantly lifted the phone to the stroke team, and the team came down and my wife was being dealt with in minutes.”* (C4).

For the stroke team response to be coordinated, timely and effective, the healthcare participants proposed that the ANP should be available as soon as the person with suspected stroke is coming through the hospital door. A senior staff nurse outlined that *“the ANP will first see the patients in ED, and she will then follow them in the ward”* (HP7). A specialist stroke nurse explained that *“They'd be involved primarily with instigating everything that needs to be done for the patient.”* (HP1), and another conjectured that placing the ANP at the acute end of the stroke pathway would not only expedite timely initiation of treatment but would lead to better clinical outcomes for patients.

*“The ANP role should encompass the quick response diagnosis and the initiation of treatment, because with the prescribing and thrombolysis, the scan needs to be read quickly. If we have all that in place, then obviously there will be a better outcome.”* (HP1)

Stroke is a frightening condition. The data richly illuminated the psychological and emotional context of people and families feeling overwhelmed and fearful in the hyper acute stroke phase.

*“All the team came in very quickly; everything was done one after the other. I was getting confused at the speed. I was kind of overwhelmed because my brain wasn't taking it all in. The speed was obviously paramount, and it was 100% efficient. The nurse being there helped me. I was slow, and a wee bit overwhelmed but it was necessary.”* (P1).

Nurses appeared to be tuned into the fear experienced by people with a new stroke, and their reflections portrayed a level of confidence that rendered a sense of calm.

*“You see the fear in their faces. In ED, someone was inserting a cannula, another doing an ECG, another taking bloods, and the consultant was trying to get a cohesive history. I introduced myself and explained that I'll be with you through this journey. Later I went to see her in the ward, and she recognised me, and when she felt secure enough, she let the tears fall about everything that happened to her in such a short period of time.”* (HP4).

A senior staff nurse highlighted the negative impact of fear on blood pressure and pulse and provided this as a rationale for the calming intervention of an ANP: *“Anyone coming in with a stroke is scared, and fear can exacerbate blood pressure and pulse. If you had the calming influence of one nurse, who says I'll be there with you.”* (HP10). She later conjectured that the ANP role should extend beyond the hyperacute stroke phase and stated: *“Ideally you would like the ANP to stay with the patient until they get them settled on the stroke ward.”* (HP10). Furthermore, a family carer postulated that one to one support for the patient should be provided for 24 hours *“For the first 24 hours, I think that each patient should have a dedicated nurse that is just slowly looking after that one patient and is focused on that one patient.”* (C3)

The healthcare participants highlighted that expediting the stroke pathway through enhanced coordination would be pivotal to the delivery of evidence-based care. A specialist stroke nurse explained: *“When we get the hyper acute unit, there will be a faster pace in getting the patients in and getting them out... The ANP will be the one that knows the person with stroke is going to the right place and expedite all their test investigations.”* (HP4). It was anticipated that the ANP would generate efficiency: *“The ANP will make the journey for the patient as direct as possible, getting the patient in the right place and making their journey as stress-free as possible. Having their scans and doing everything in a timely fashion.”* (HP5).

### ***“An expert in stroke care”***

This theme is an acknowledgement that the ANP will be an expert in stroke care. How this expertise will manifest and be experienced by others was captured in data which conveyed bridging the gap between stroke nursing and medicine, clinical competence, sharing knowledge and educating, and the ability to implement change. The healthcare professionals anticipated that the ANP will take responsibility for key aspects of clinical practice that are currently the remit of junior medical staff or physician associates. They were appraising the parameters of the role: *“An ANP may be doing more than a junior doctor. I looked at the associate medical role, and the ANP role would not be far off that.”* (HP4). Their appraisal supported the understanding that *“The ANP will be bridging the gap between stroke nursing and medicine.”* (HP8). Whilst they were keen to highlight their accrued

competence to undertake full assessments of patients with stroke, it was less clear whether their assessments were supporting autonomy in implementing plans for diagnostics, treatment and care.

Interprofessional teamwork supports quality stroke care and underpins clinical confidence. A family carer emphasised that ANPs must be able to convey clinical confidence within the inter professional team, and particularly with medical staff: *“The ANP must have a good relationship with the doctor and be more affirmative with doctors if she/he thinks this or that should be done”* (C2). The nurses were anticipating the potential for power dynamics to surface and interfere with the ability of ANPs to deliver fully on their role. A senior staff nurse stated that:

*“The ANP will need to be a confident person to say this is the way we should be doing it, and to stand your ground with medical staff, for yourself and for your nursing staff and for your patients.”* (HP10).

Stroke care in the region, is supported by an annual professions conference, and close relationships between stroke organisations, universities and healthcare trusts. The healthcare participants shared the expectation that the ANP will keep up to date with emerging research and best practice clinical guidelines in stroke care, and act as an education resource. One nurse stated this as an essential element of the role: *“The ANP needs to have knowledge of the best practice and to share it”* (HP7). Another nurse emphasised the ability to educate clinical colleagues: *“The ANP needs to be able to pass on that knowledge and expertise to other colleagues.”* (HP6). It was further clarified that the ANP’s education role will extend to patients and students.

*“An ANP is an expert in stroke care and will be the person for communicating up to date methods and treatments and a resource for nurses, patients and students to go to, for information.”* (HP10).

A transformative leadership style was evoked. Perhaps this is not surprising given that the data conveyed a time of flux and impending change: *“A big thing is implementing change. There are plans for a hyperactive unit, and my role is going to be changing.”* (HP4). The healthcare professionals conveyed a strong desire for the ANP to be the transformational agent, who can engage collaboratively with multi-disciplinary colleagues to overcome challenges: *“To be innovative as well, and especially with the medical team, because there can be barriers between the doctors and the nurses.”* (HP10). A specialist stroke nurse highlighted an approach that the ANP may use to steer the team towards successful change: *“The ANP should be able in conjunction with colleagues, to say this is what we need to do, and this is how we need to do it. Now, how can we achieve it?”* (HP6)

### ***“Person and Family Centred”***

Stroke is a condition, that affects lives in a most abrupt manner. One third of people with a new stroke will experience depression, and the majority that are discharged from hospital, leave with a disability. This understanding might explain why approaches that serve to actively engage, empower and support the person and family from early in the stroke diagnosis, pervade the data. Nurses conjectured that the values of the ANP will manifest in a desire to take time to share the diagnosis and pertinent information with the patient and family: *“I envisage that the ANP will be the type of nurse that wants the patients to get their diagnosis with their families, takes time to sit and explains*



*the details and the impact it may have on them.*" (HP10). Furthermore, the service users and carers were anticipating that the ANP will perceive the person living with stroke and the family as integral members of the stroke team and actively encourage their contribution in care planning. A patient explained: *"The nurse said to my sister "Is anybody staying tonight?" I think she understood the importance of somebody being there, you know, as my husband had the kids to come home to."* (P3). A carer put forward the view that the establishment of early rapport and trust with close members of the family is not only crucial to wellbeing but is also a way of drawing on their lived experience of caring for their loved one.

*"The initial days were so important. Your husband's life is in their hands. You look at them to look at you and to find out if there is something that the family can help with."* (C2).

One major benefit of working closely with the person and family is the learning that can be derived about past medical history, co-morbidities and self-management strategies. A significant proportion of people that experience a stroke have comorbidities, such as diabetes, cardiovascular disease, or other long-term conditions. A tendency for healthcare professionals to focus on the stroke diagnosis and give lesser attention to comorbidities was conveyed by the service user and carer participants. The importance of paying attention to comorbidities was stressed. A patient related *"I have a chronic back injury. I was telling them, and some of the nurses did not seem to understand. Then there was one nurse, and she pushed to get the medications for me."* (P4). Patients need to feel confident that nurses are not only paying attention to the past medical history, but that they are giving due attention to the treatment of co-existing conditions: *"I have diabetes, and the most important thing of concern for me in the early days after my stroke was that the nursing staff didn't seem to understand my schedules for insulin and eating."* (P2). This statement conveys the understanding that the patient may not be able to start fully engaging with the new stroke diagnosis and care plans until he/she is assured that the treatment regimens for co-existing conditions are put in place to their satisfaction.

Stroke affects people in uniquely individual ways. Some stroke symptoms are overt, such as a limb weakness. Other symptoms, such as fatigue, speech and language difficulties, cognitive deficits and difficulties with emotions can present significant challenges to the person but manifest in less apparent ways. The importance of an ANP taking time to listen attentively and to support the formulation of questions and answers in the presence of aphasia, was emphasised by stroke survivors.

*"The nurse was with me, that first night, and she asked me a question, and then said write down the answer, so I picked up the pen in my right hand, and I couldn't use my right hand. She then put it in my left and I just scribbled, and she understood what I was asking for. I felt so much relief that she was able to understand me."* (P3).

The healthcare professional, service user and carer participants stressed the importance of and the anticipation that the ANP will take account of the many ways that stroke can affect people, and that this will generate a sensitive communication approach. More specifically, a carer conveyed the concept of 'tuning in' to the patient: *"They (ANPs) need to understand the way stroke affects people, and the way it can change them. My sister would be much slower in processing conversations and movement. There's nothing physically showing. The ANP would need to be tuned in. At that time Carol was quite emotional."* (C1).

## **“Preparation for the role”**

The fourth theme is an acknowledgement that ANPs will require preparation for the role and encompasses the development of an ANP skills facilitated through clinical education placements, clarification on who should deliver the lysis bolus, and clinical supervision. The healthcare professionals outlined a skill set that comprises history taking, medical assessment and identification of stroke mimics, lysis administration, GTN infusion administration, NIH assessments and interpretation of diagnostics, nurse prescribing, medication reviews, and progress reviews. Nurses were keen to highlight that their skill set was advancing in line with medical advances in stroke treatments. A nurse stated:

*“Obviously, we do the lysis observations, and we’re getting more GTN infusions. Then you have the fasting blood glucose protocols for people that are nil by mouth. We are getting more advanced and more technical. You need to have your skills set because their condition can change in an instant.”* (HP8).

When nurses take on more advanced roles, there is a risk that some fundamental elements of care will receive lesser attention. A nurse pointed out that there are consequences if this was to happen: *“Don’t forget the fundamental skills too. People do not realise how important the swallow screen is. When we’re doing the lysis, we’re keeping these patients without swallow screens for longer than necessary.”* (HP4).

The healthcare professionals identified the emergency department and neurovascular / transient ischaemic attack (TIA) clinics as ideal first placements for ANP trainees to hone their diagnostic skills. It was recommended that trainees should then rotate to placements in hyper-acute and acute stroke unit care, because *“it is important to know how hyper acute and acute stroke care is delivered”*. (HP9). It was proposed that additional learning could be attained in stroke review clinics, and regional centres of excellence: *“Consider placement days in other hospitals as well, to see the excellence that they provide, like the clot retrieval in the regional hospital. Maybe a short placement in the stroke review clinics too.”* (HP7). Whilst the healthcare professionals largely conveyed an incremental approach through a series of different clinical learning placements, consideration was also given to a person-centred approach.

*“The ANP trainee needs to be in the TIA clinics and ED and see the patient from when they come in the door, and then follow them through the whole aspect of lysis treatment. They need to get the whole process of door to needle.”* (HP5)

An area in need of clarity uncovered in our data, pertained to whether an ANP or a physician will administer the Lysis bolus infusion. Prompt screening for suitability for Lysis treatment, and rapid door to needle times are hallmarks of a modern 24/7 hyper-acute stroke service. A specialist stroke nurse contended: *“I can order the diagnostics, the CT scans, and it’s a group discussion on the lysis. I’m not saying whether the ANP would want to give the lysis, but you certainly are a big influence on the decision making.”* (HP4). The nurses indicated a hesitancy with regards to taking on the lead role for Lysis bolus administration, and that perspective was carried through to ward manager level: *“The ANP would have the active part to play with the doctor, who is still administering the bolus. I*

*think that's something that needs to remain with the physician. It's more the initial assessment that the ANP could have greater involvement, and aid the decision making around that."* (HP2)

The healthcare professionals supported the need for a clinical supervision team to aid the development of the ANP. The proposed membership of the team included *"an ANP or stroke specialist nurse already in post, and a stroke consultant and someone from diagnostics"*. (HP8). A nurse highlighted the contribution that a consultant physician could bring to the team: *"A team must include a consultant who sees people with stroke on a regular basis, or a neurologist who would also have the knowledge, experience, and research background."* (HP6). The advantages of widening the team beyond nursing and medical expertise were identified: *"We need involvement of radiology because you'll be examining and interpreting CT scans and MRIs."* (HP4). A ward manager gave consideration for pharmacist involvement: *"The medical staff need to be involved, and maybe to an extent input from the pharmacist, because we work closely with the pharmacist on the ward."* (HP3). In addition, nurses pointed out that the supervision team will need support and guidance from the Stroke Lead in the university. This was based on the understanding that *"the Stroke Lead will be delivering the education and will have the knowledge to guide the team"* (HP4), and that a joint up approach would have most potential for success.

## Discussion

The findings of the present study indicated strong support for advanced nursing practice in the delivery of stroke service. Wilson and Ashcroft's (2018) scoping review of nurse practitioner roles in stroke care identified a wide variety of different roles undertaken that spanned the entire stroke care pathway, including primary care, pre-hospital care, acute care treatment, and secondary care prevention. This broad scope contrasts with the findings of our study. In our study, the dominant perspective was that the ANP will be the lynchpin of the acute stroke service, with priority roles in instigating the rapid stroke team response. The psychosocial context of people and families feeling overwhelmed and fearful was moderated by nurses introducing themselves and building early rapport. Our findings also differed from Wilson and Ashcroft (2018) with the envisioning that the ANP will expedite timely transit through the stroke pathway. The literature more generally indicates that ANP leadership has a positive impact on service delivery (Vaismoradi et al., 2016; Kraus & DuBois, 2017). However, Kraus and Dubois caution that further research is required to establish the relationship between the leadership practices of APNs and clinical outcomes.

The 'Expert in stroke care' theme refers to up to date knowledge about stroke treatments, ability to share best practice guidelines, clinical confidence, and transformational leadership. A key challenge is whether the ANP will be able to translate clinical confidence into autonomous clinical decision making. An integrative review of the literature (Heinen et al., 2019) has reported that leadership competencies for advanced nursing practice fall within clinical, professional, health systems. and health policy domains. The potential for power dynamics within the interprofessional team to reduce the scope of ANPs was a key finding in emergency care research undertaken by Boman *et al.* (2018). The nurse practitioner role was perceived as a threat to colleagues and organizational structures, with the consequence that their autonomous status only pertained to care of individuals with non-urgent clinical needs. Boman *et al.* concluded that in order to achieve successful implementation of advanced practice nursing, there must be engagement with co-workers as part of

the process. Further support for the need to harness interprofessional support and address organisational factors for successful implementation of advanced nursing practice is derived from a qualitative study conducted by Casey et al (2018).

The values articulated in our study place the person and family firmly at the centre of stroke care planning. Patients and family carers understand that the focus of nurses will be on the management of acute stroke, but they are concerned that their co-existing medical conditions, may receive lesser attention. This is an interesting finding, given that research has indicated that diabetes management may be sub-optimal in stroke care (Mitchell et al., 2012). If the ANP utilises approaches that actively involve, support and empower the person and family unit as anticipated, there is potential for agreement about priorities in care and partnership approaches towards improved management of co-morbidities. Healthcare professionals experience challenge in communicating with stroke survivors with speech and cognitive impairments (Clancy et al., 2020), and therefore the training needs of the ANPs in this regard will need to be addressed. More generally, the research that has investigated the nature of the discourse between ANPs and people and their families, demonstrates mixed findings (Jenkins *et al.*, 2018; Siouta *et al.*, 2019). There is evidence that ANPs in primary care are contributing towards quality person-centred care (Jenkins et al., 2018). However, in other spheres of care, a discourse dominated by the biomedical model of care is surfacing. For example, Siouta et al (2019) utilised discourse analysis to investigate the communication style of ANP consultations in nurse-led chemotherapy clinics. What emerged was discourse framed by the biomedical model, with only fragments of the values of person-centredness evident when the ANP was localising the person's health problems to their sociocultural context. The inter-connectedness of social and personal values and power is manifested in discourse (Foucault, 2002). With the trend towards expanding the scope of advanced nursing practice, the authors of the present study recommend that discourse analysis is afforded greater attention by nurse educators and researchers.

Preparation for the ANP role encompasses development of a skill set, clinical education placements, role clarification, and clinical supervision. Our findings indicate that the skill set of stroke nurses in the UK has already evolved, and embraces history taking, medical assessment, National Institute of Health stroke assessment scores, interpretation of diagnostics, treatment and care. In addition, our findings convey that specialist stroke nurses are prescribing, and undertaking medication and progress reviews. What will differentiate the ANP from the bedside stroke nurse, will be advanced assessment skills, prescribing and administering the lysis regime, and autonomous clinical decision making, in line with the imperative that ANPs will execute diagnostic, analytical and clinical judgemental skills (NIPEC, 2016). The literature demonstrates that the implementation of advanced nursing practice in new clinical fields needs careful planning (Boman et al., 2018; Casey et al., 2018). Role clarity is a significant area that must be addressed, before implementation of ANPs (Casey et al., 2018). A finding of the present study was the lack of clarity about whether an ANP or a physician should administer the Lysis bolus infusion in the hyper acute stroke phase. Hesitancy was evident among the nurse participants with regards to taking on this role. It is possible that the ANP prescribing role in the hyper acute stroke phase could expedite the commencement of treatment regimes. There is a narrow time window of opportunity to treat the patient with acute ischemic stroke, for successful outcomes, and this carries risk. Adverse events can occur in up to 7% of patients (Jahan et al., 2019). Even in a tight 30 to 120-minute treatment window, there is pressure to treat early, because faster time from arrival at the hospital door to initiation of lysis treatment, is

associated with improved clinical outcomes (Jahan et al., 2019). There are inherent hazards, when making clinical decisions in such a narrow time frame, and this may in part explain the hesitancy among the nurses for this crucial role. Therefore, it is important that the prescribing role of ANPs in the delivery of hyper acute stroke services is developed and supported by Trust protocols, and processes are put in place to ensure that ANP trainees are supported to gain the requisite confidence and competence. A participant in our study cautioned that the ANP should not dismiss fundamental nursing skills in advancement of their role and pointed out that quality stroke care was dependent on fundamental needs of patients being addressed. This is an important consideration given the growing concern that fundamental nursing skills are being de-valued (Feo *et al.*, 2019). A recommendation therefore is that ANPs embrace and advocate for exemplary fundamental skills.

The clinical placements proposed for supporting the development of the skill set of the student ANP include the emergency department, TIA clinics, the hyper-acute stroke unit, including access to regional centres of excellence for thrombectomy services, the acute stroke unit, and stroke review clinics. A key finding in the present study was the broad support for an inter professional model of supervision for the developing ANP trainee. A model of interprofessional supervision team has potential to build the quality of collegial cohesion that will be able to address organisational contexts, power dynamics and role clarity (Boman et al., 2018; Casey et al., 2018).

### Limitations

The context of the study was a region in the UK where its healthcare staff and service users are preparing for major reorganisation of stroke services. This was therefore a time of flux. Despite this context, the participants were keen to share their perspectives, and their passion for stroke care was evident in the data. A total of 18 people participated in this study, comprising individuals that had experienced a stroke and their family carers, stroke unit managers, senior staff nurses, and specialist stroke nurses. In total, only three of the participants were male. This gender imbalance was not unanticipated among the stroke service users, given the evidence that women are more likely to experience stroke (Fonseca et al., 2018), nor in a study where most participants are nurses. Despite a slightly smaller sample size than was proposed at the outset of the study, data saturation was achieved, and the analysis was opened to critical dialogue with the team. A summary of the themes generated was presented to a subgroup of four participants and was verified. These measures support the trustworthiness of the results.

### Conclusions

This qualitative study aimed to address a lack of clarity around the potential scope and role of advanced nurse practitioners in the delivery of stroke services. There was strong support for an advanced nurse practitioner role in the acute stroke phase of the pathway. A challenge that surfaced pertained to how the ANP can be enabled to move from confidence in patient assessment to autonomous clinical decision making, lysis prescribing and administration. Given the hesitancy of nurses to take on a role in administration of the lysis bolus, our study suggests that role clarification will be a key area that needs to be addressed for successful implementation of advanced practice

nursing in acute stroke services. Prescribing and administering lysis treatment is not without risk, and ANPs will need clinical supervision and prescribing protocols in place in their Trusts to support them to develop confidence and competence in their role. The fear experienced with a new stroke was strongly conveyed in our study, and in addition, an expectation that advanced nurse practitioners will utilise person centred approaches and demonstrate sensitivity in communicating with the person with stroke and their family carers. The literature indicates a tendency for advanced nurse practitioners to adopt a consultation style that is framed by the biomedical model. We therefore recommend that discourse analysis be incorporated into education programmes for advanced nurse practitioner trainees. Our study supports the premise that advanced nurse practitioners can make a significant contribution to the delivery of timely, effective and efficient stroke care, however further research will be required to establish the relationship between the practices of APNs and clinical outcomes.

### Relevance to Clinical Practice

Nurses are pivotal to the delivery of evidence informed stroke services, and nurse led protocols for the management of people in the acute stroke phase can reduce mortality. There is potential for the implementation of advanced practice nursing in stroke services to drive forward further enhancements in care. This study is relevant to clinical practice because it aimed to clarify the potential scope and role of advanced nurse practitioners in the delivery of stroke services. Our study indicates strong support for the implementation of advanced practice nursing in the hyper-acute and acute stroke phases of the care pathway. Our findings demonstrate that nurses are confident in undertaking a range of assessments of people with acute stroke, but that they will require education and an interprofessional model of clinical supervision in order to develop the confidence and competence for the level of autonomous clinical decision making that is required of an advanced nurse practitioner. The literature indicates that reducing door to needle times is crucial for enhanced clinical outcomes for patients with ischaemic stroke. Our findings indicate that nurses are informing decisions with regards to administration of lysis, but that they are hesitant about taking on a lead role in administering the lysis bolus. It is important that nurses engage with medical staff in open dialogue and discussion and resolve the hesitancy of nurses to undertake this vital role. There is an expectation that advanced nurse practitioners will utilise person centred approaches to actively involve people with stroke and their family carers in their care, however the literature suggests that advanced nurse practitioners have a tendency to adopt a consultation style that is framed by the biomedical model. The consultation style of the developing advanced nurse practitioner is therefore an area that will need to be monitored in education curricula and assessed in clinical practice. Further research will be required to establish the relationship between the practices of APNs and clinical outcomes.

What does this paper contribute to the wider global clinical community?

- New perspectives on the scope and role of advanced nurse practitioners in stroke service delivery.
- There is support for the advanced nurse practitioner role particularly in the acute stroke phase of the pathway.
- Our findings indicate a need to clarify the role of advanced nurse practitioners in lysis bolus administration in the hyper acute stroke phase.

## References

- Boman, E., Egilsdottir, H.O., Levy-Malmberg, R. 2018. Nurses' understanding of a developing nurse practitioner role in the Norwegian emergency care context: A qualitative study. *Nordic J Nurs Res* doi: 10.1177/2057158518783166.
- Casey, M., O'Connor, L., Cashin, A., Fealy, G., Smith, R., O'Brien, D., Stokes, D., McNamara, M., O'Leary, D., Glasgow, M.E. 2018. Enablers and challenges to advanced nursing and midwifery practice roles. *J Nurs Manag* 27 (2); 271– 277. doi: 10.1111/jonm.12697.
- Clancy, L., Povey, R., Rodham, K. 2020. "Living in a foreign country": experiences of staff–patient communication in inpatient stroke settings for people with post-stroke aphasia and those supporting them. *Disabil Rehabil* 42 (3); 324-334. doi: 10.1080/09638288.2018.1497716.
- Elo, S., Kyngäs, H. 2008. The qualitative content analysis process. *J Adv Nurs* 62: 107– 115. doi: 10.1111/j.1365-2648.2007.04569.
- Feo, R., Frensham, L. J., Conroy, T., Kitson, A. 2019. "It's just common sense": Preconceptions and myths regarding fundamental care. *Nurs Edu Practice* (36); 82-84. doi:10.1016/j.nepr.2019.03.006
- Fonseca, A.C., Marto, J.P., Alves, P.N., Inácio, N., Viana-Baptista, M., Melo, T.P., Ferro, J.M., Almeida, A.G. 2018. Women Who Have Ischemic Strokes Have a Higher Burden of Left Atrial Fibrosis Than Men - A Cardiac Magnetic Resonance Study. *Stroke* (49); 2584–89. doi:10.1161/STROKEAHA.118.022105.
- Foucault, M. 2002. *Archaeology of Knowledge*. Oxon: Routledge.
- Friebal, R., Hauck, K., Aylin, P. 2018. Centralisation of acute stroke services in London: Impact evaluation using two treatment groups. *Health Econ* 27 (4); 722-32. doi: 10.1002/hec.3630.
- GBD 2016 Stroke Collaborators. 2019. Global, regional, and national burden of stroke, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet Neurol.* 48; 439-458. doi: 10.1016/S1474-4422(19)30034-1.
- Hastrup, S., Johnsen, S.P., Terkelsen, T., Hundborg, H.H., von Weitzel-Mudersbach, P., Simonsen, C.Z., Hjort, N., Møller, A.T., Harbo, T., Poulsen, M.S., de Morales Ayudarte, N.R., Damgaard, D., Andersen, G. 2018. Effects of centralizing acute stroke services - A prospective cohort study. *Neurology* 91(3):e236-e248. doi: 10.1212/WNL.0000000000005822.
- Health and Social Care Board. 2017. *Reshaping Stroke Services in Northern Ireland*. Available at: <http://www.hscboard.hscni.net/stroke/>. Accessed 25 March 2019.
- Heinen, M., van Oostveen, C., Peters, J., Vermeulen, H., Huis, A. 2019. An integrative review of leadership competencies and attributes in advanced nursing practice. *J Adv Nurs* 75(11), 2378-92. doi: 10.1111/jan.14092.
- Jahan, R., Saver, J.L., Schwamm, L.H., Fonarow, G.C., Liang, Li., Matsouaka, R.A., Xian, Y., Holmes, D.N., Peterson, E.D., Yavagal, D., Smith, E.E. 2019. Association between time to treatment with



endovascular reperfusion therapy and outcomes in patients with acute ischemic stroke treated in clinical practice. *JAMA*. 2019;322(3):252-263. doi:10.1001/jama.2019.8286

Jenkins, J., Docherty, M., Cain, J. 2018. Advanced Nurse Practitioners impact across Primary Care. *Int J Int Care* 2, 18, 1-2. doi: 10.5334/ijic.s2340.

Kings College London. 2017. The Burden of Stroke in Europe. Available at: [https://www.stroke.org.uk/sites/default/files/the\\_burden\\_of\\_stroke\\_in\\_europe\\_-\\_challenges\\_for\\_policy\\_makers.pdf](https://www.stroke.org.uk/sites/default/files/the_burden_of_stroke_in_europe_-_challenges_for_policy_makers.pdf). Accessed 20 February 2020.

Kraus, E., DuBois, J.M. 2017. Knowing Your Limits: A Qualitative Study of Physician and Nurse Practitioner Perspectives on NP Independence in Primary Care. *J Gen Intern Med* 32, 284–290. doi.org/10.1007/s11606-016-3896-7.

Kummarg, U., Sindhu, S., Muengtaweepongsa, S. 2018. The Early Outcomes of Nurse Case Management in Patients with Acute Ischemic Stroke Treated with Intravenous Recombinant Tissue Plasminogen Activator: A Prospective Randomized Controlled Trial. *Neurol Res Int* doi:10.1155/2018/1717843.

Lambert, VA, Lambert, CE (2012) Qualitative descriptive research: An acceptable design. *Pacific Rim International Journal of Nursing Research* 16: 255–256.

Middleton, S., Grimley, R., Alexandrov, A.W. 2015. Triage, Treatment, and Transfer - Evidence-Based Clinical Practice Recommendations and Models of Nursing Care for the First 72 Hours of Admission to Hospital for Acute Stroke. *Stroke* 46 (2); 18-25. doi: 10.1161/STROKEAHA.114.006139.

Middleton, S., Coughlan, K., Mnatzaganian, G., Low Choy, N., Dale, S., Jammali-Blasi, A., Levi, C., Grimshaw, J.M., Ward, J., Cadilhac, D.A., McElduff, P., Hiller, J.E., D'Este, C. 2017. Mortality Reduction for Fever, Hyperglycemia, and Swallowing Nurse-Initiated Stroke Intervention. QASC Trial (Quality in Acute Stroke Care) Follow-Up. *Stroke* 48; 1331-36. doi: 10.1161/STROKEAHA.116.016038.

Mitchell, E.A., Coates, V.E., Ryan, A.A., McCarron, M.O., Lyttle, D., McCrum-Gardner E. 2012. Hyperglycaemia monitoring and management in stroke care: policy vs. practice. *Diabet Med* 29 (9) 1108-1114. doi: 10.1111/j.1464-5491.2012.03693.

Minchin, A., Wensley, M. 2003. The medical nurse practitioner's role in early stroke recognition. *Nurs Times*; 99 (7); 33–35.

National Council of State Boards of Nursing APRN Advisory Committee. 2010. Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education [https://www.ncsbn.org/Consensus\\_Model\\_for\\_APRN\\_Regulation\\_July\\_2008.pdf](https://www.ncsbn.org/Consensus_Model_for_APRN_Regulation_July_2008.pdf)

National Health Service England. 2019. The NHS Long Term Plan. <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/01/nhs-long-term-plan-june-2019.pdf>

National Health Service Wales. 2017. 2017 – 2020 Stroke Delivery Plan <https://gov.wales/sites/default/files/publications/2018-12/stroke-delivery-plan-2017-to-2020.pdf>

National Health Service Scotland. 2019. Scottish Stroke Improvement Programme 2019 Report. <https://www.strokeaudit.scot.nhs.uk/Publications/docs/2019/Scottish-Stroke-Improvement-Programme-2019-National-Report.pdf>

Neergaard, M. A., Olesen, F., Andersen, R. S., & Sondergaard, J. 2009. Qualitative description– the poor cousin of health research? *BMC Medical Research Methodology*, 9(1), 52–56. doi:10.1186/1471-2288-9-52

Northern Ireland Practice Education Council. 2016. *Advanced Nursing Practice Framework*. Belfast: Department of Health, Social Services and Public Safety.

Nursing and Midwifery Board of Australia. 2016. *Safety and quality guidelines for nurse practitioners*. Melbourne: Nursing-and-Midwifery-Board.

Royal College of Nursing. 2018. *Royal College of Nursing Standards for Advanced Level Nursing Practice*. London: Royal College of Nursing.

Royal College of Physicians. 2017. *Sentinel Stroke National Audit Programme (SSNAP) Clinical audit April 2017 – July 2017 Public Report*. Available at: <https://www.strokeaudit.org/Documents/National/Clinical/AprJul2017/AprJul2017-PublicReport.aspx>. Accessed 15 May 2019.

Royal College of Physicians. 2019. *Stroke and transient ischaemic attack in over 16s: diagnosis and initial management - NICE guideline*. Available at: <https://www.rcplondon.ac.uk/guidelines-policy/stroke-and-transient-ischaemic-attack-over-16s-diagnosis-and-initial-management-nice-guideline>.

Sanders, C., Ashman, G. 2018. The impact of an Advanced Nurse Practitioner training programme in an acute stroke service. *B J Neur Nurs* 14 (3). doi:10.12968/bjnn.2018.14.3.130.

Sandelowski, M. 2000. Whatever happened to qualitative description? *Research in Nursing and Health*, 23, 334–340.

Sandelowski, M. 2010. What's in a name? Qualitative description revisited. *Research in Nursing and Health*, 33, 77–84. doi:10.1002/nur.20362

Schreier, M. 2012. *Qualitative content analysis in practice*. Thousand Oaks, CA: Sage.

Siouta E., Farrell, B., Chan, A., Walshe, C., Molassiotis, A. 2019. Communicative constructions of person-centred and non-person-centred caring in nurse-led consultations. *Eur. J. Oncol. Nurs* 40, 10-21. doi: 10.1016/j.ejon.2019.02.008.

Tong A, Sainsbury P, Craig J. 2007. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349-357.

Vaismoradi, M., Griffiths, P., Turunen, H., Jordan, S. 2016. Transformational leadership in nursing and medication safety education: a discussion paper. *J Nurs Manag* 24 (7); 970-980. doi:10.1111/jonm.12387.

Wilson, E., Ashcraft, S. 2019. Ischemic Stroke: Management by the Nurse Practitioner. *J Nurs Practit* 15(1), 47-53. doi: 10.1016/j.nurpra.2018.07.019.

**Table 1: Main themes, sub-themes and selected meaning units in the envisaging of an advanced nurse practitioner in stroke care.**

<b>Main themes</b>	<b>Sub-themes</b>	<b>Selected meaning unit</b>
<i>'The lynchpin of the acute stroke service'</i>	The instigator of the rapid stroke team response	<i>"The ANP role should encompass the quick response diagnosis and the initiation of treatment"</i>
	A calming influence in the hyper acute stroke phase	<i>"The calming influence of one nurse, who says I'll be there with you"</i>
	Expediting the Stroke Pathway	<i>"The ANP will make the journey for the patient as direct as possible"</i>
<i>'An expert in stroke care'</i>	Bridging the gap between stroke nursing and medicine	<i>"An ANP will be doing more than a junior doctor"</i>
	Clinical confidence	<i>"The ANPs must be confident in what they are doing"</i>
	Shares knowledge and educates	<i>"The ANP needs to have knowledge of the best practice and to share it"</i>
	Can implement change	<i>"A big thing is implementing change"</i>
<i>'Person and family focussed'</i>	Actively engages the person and family in care planning	<i>"You look at them to look at you and to find out if there is something that the family can help with"</i>
	Pays attention to the person's medical history	<i>"There was one nurse, and she pushed to get the medications for me"</i>
	Communicates with sensitivity, anticipating speech, language and cognitive deficits	<i>"They need to understand the way stroke affects people, and the way it can change them"</i>
<i>'Preparation for the role'</i>	The ANP skills set	<i>"You need to have your skills set because their condition can change in an instant"</i>
	Clinical Education Placements	<i>"TIA clinics and ED will hone their diagnostic skills"</i>
	Clarification on who should administer the Lysis bolus	<i>"I'm not saying whether the ANP would want to give the lysis"</i>
	Clinical Supervision	<i>"A team must include a consultant who sees people with stroke on a regular basis"</i>