



Review Article

Advanced Nurse Practice: Present and Future: Where to now?

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Abstract

Background: Significant variations exist in how countries define the Advanced Nurse/Midwife Practice (ANP/AMP) role which has led to countries not yet recognising or partially recognising the role and its associated competencies. Even though the ANP/AMP role encompasses the assessment, diagnosis and treatment of a range of conditions by undertaking advanced decision making clinical skills and competencies the role remains undervalued in many countries. **Aim:** To identify the roles and competencies currently being undertaken by ANP/AMPs and the outcomes being achieved that highlight the complex nature of the roles and some of the successes in relation to patient care that are being achieved. **Method:** An evidence review was undertaken, in 2023, to identify what is known about the subject. A total of 65 manuscripts were retrieved through EBSCO host, Pub Med Central, Google Scholar, Medline and CINAHL. Themes were identified, defined, named, reviewed, analysed and coordinated. **Findings:** Where the role is recognised many advantages accrue to the patient, nurse, healthcare and society. This is especially true in the areas of emergency, cardiac, respiratory, trauma care, recovery from surgery, pain relief and neonatal amongst others. However, the contribution of ANP/AMPs remains under-recognised in some areas. **Conclusions:** ANP/AMPs realise and articulate the value and diversity that they bring to health systems. However, internationally, they have been under-utilised generally, creating barriers to achieving universal health coverage and the Sustainable Development Goals. Over-crowded clinical learning environments may contribute to this lack of role recognition. Recognition of the role and the sustainable innovations being achieved would be enhanced and further developed through advanced practitioners themselves promoting their roles, complexity and outcomes by research and publications. Identification of stakeholder collaboration, which is taking place needs highlighting, as do the systemic processes that enable and constrain the ANP/AMP role and affect the role's potential contribution to the healthcare system. **Recommendations:** Advanced Practitioners need to increase the quantity and quality of their research in journal manuscripts that highlight the extraordinary growth of the role and of their impact. ANP/AMPs need to more actively articulate the value and diversity that they bring to health systems to strengthen their contribution to them and to global health sustainability.

Background

Advanced Nursing Practice / Advanced Practice Nursing (ANP/APN) (also known as Advanced Practice Nursing/ Midwifery) extends the boundaries of the scope of practice of nurses and midwives, promotes professional development, and enhances nursing and midwifery knowledge [1]. ANP/AMP roles vary by description, title and regulations between nations [2,3]. ANP/AMPs promote wellness, offer healthcare interventions and advocate healthy lifestyle choices for patients, their families and carers in a wide variety of setting, within the framework of relevant regulation and legislation. They demonstrate advanced clinical decision-making skills and competencies to manage a patient caseload by being accountable for their practice and their professional judgement, undertaking a health assessment of a range of clinical conditions, evaluating the effectiveness of care provided and demonstrating professional and clinical leadership by communicating a vision for practice that is beyond the current practice [2,4].

ANP/AMPs possess expert knowledge and leadership skills that can be optimised to ensure access to high-quality health care globally. However, it is recognised that ANP/AMPs have been under-utilised generally in the current global health environment, thus creating barriers to achieving universal health coverage and the Sustainable Development Goals [5,6]. Ongoing empirical data collection and policy change is needed to enable the full scope and strategic utilisation of ANP/AMPs across healthcare systems and contexts [5,7].

Recent research posits that ANP/AMPs realise and articulate the value and diversity that they bring to health systems to strengthen their contribution to them. However, widespread education for interdisciplinary partners, policymakers and the public regarding ANP/AMP capacities is needed as lack of awareness of the systemic processes that enable and constrain the ANP/AMP role affects their contribution to healthcare systems [8]. Certainly, organisational culture can constrain ANPs when there are limited supports and a lack of knowledge regarding ANP clinical autonomy [9].

Policies that safely expand their roles are critical. One such study undertaken in Ireland by Mc Crory et al. [10] explored the impact of adding an advanced nurse practitioner to patients with chronic renal disease. Results indicated successful outcomes in several areas from this addition. Maier et al. [11] analyse the nurse practitioner workforce in six countries by size, growth, and physician substitution potential and finds variances in these areas that impact on the role. They recommend that role titles and remuneration reflective of their scope and service need to lead, sustain, and grow the workforce internationally. Recognition of the role and the sustainable innovations being achieved would be enhanced and further developed through ANMPs promoting

their roles, complexity and outcomes by undertaking individual and interdisciplinary research. Identification of stakeholder collaboration, which is taking place, needs highlighting.

Methods

Data collection

The search strategy combined two concepts: what is known about role development, expansion and complexity of the role and outcomes from practice to better understand the current state of advanced practice. These concepts were operationalized broadly to capture as many relevant articles as possible. The review was limited to articles that were written in English and published between 2018 and 2023 mainly. The searches yielded 65 papers, most of which were utilised in this study.

Search history databases: Becoming familiar with data

Library databases searched included EBSCO host, Pub Med Central, Google Scholar, Medline and CINAHL.

Evaluation of data: Search for themes

Results of the literature review were screened against inclusion and exclusion criteria. Articles were included if they met most, or all, of the following criteria: based on empirical research, contained an abstract and focused on advanced nurse and midwife practice.

Data interpretation

Papers were reviewed for study design, sample size, methods used, aims presented, outcomes, relevance, and recommendations.

Review of themes

Themes were identified, defined, named, reviewed and coordinated. Papers were deemed to yield a greater level of information than was possible to present in this study. The majority of articles used either descriptive, qualitative or mixed methods design.

Research methods

Thematic analysis was undertaken. The following themes were elicited from the data. Sub-themes were also identified.

Theme 1: Role identity, ANMP systems and current global environment

Theme 2: Emergency care, perceptions of role in different situations

Theme 3: Technology use, virtual and other forms of communication

Theme 4: Neurology and neurosurgery

Theme 5: Cardiology

Theme 6: Orthopaedics, trauma care, pain relief

Theme 7: Enhanced recovery after surgery

Theme 8: Potential new roles for ANMPs

Theme 9: New Systems and expansion of roles.-

Findings and Discussion

Findings from the evidence review indicate the significance of the research. The process commenced in 2023. Two experienced advanced nurse practitioners (No's 3, 4 authors) contributed significantly to gaining understanding of the themes identified and on future recommendations.

Theme 1: Role identity, ANMP systems, strategy and current global environment

Where the role is recognised many advantages accrue to the patient, population, profession and practitioner [3,5], yet identity remains underdeveloped. Significant variations exist in how countries define advanced practice nursing and how it is regulated at academic and practice levels, leading to the lack of clarity on its development and implementation across Europe [3]. Areas found where the role is being strongly developed relate to emergency, cardiac, respiratory, orthopaedic, trauma care and pain relief. The ANP/AMP also practices in other areas but not yet to the same extent. Some rationale is proposed by recent researchers to identify why this is so. Thompson and McNamara [8] propose a theory for this lack of identity. They say that ANP systems realise their power through increased autonomy by individuating and differentiating and stress that hierarchical structures positioning ANPs in subservient roles should be challenged. Lockwood [9] suggests that ANP/AMPs report misuse of power when they were unable to perform their full clinical autonomy due to their scope of practice being deliberately curtailed at the organisational level, with high clinical workloads impacting on their ability to undertake continuing professional development and research.

Processes of integration are expressed in collaborative practices and recognised in many studies [1,12,13]. Thompson and McNamara [8] recommend that ANP/AMPs realise and articulate the value and diversity that they bring to health systems. In doing so they strengthen their contribution by understanding that constraints to the role affects the role's potential contribution to the healthcare system. Equally, Rosa et al. [5] suggest that while ANP/AMPs possess expert knowledge and leadership skills that can be optimised to narrow disparities and ensure access to high-quality health care globally, they have been under-utilised generally in the current global health environment, thus creating barriers to achieving universal health coverage and the Sustainable Development Goals. Hope and McPeake [14] advise that future research could focus on exploring safety outcomes by finding ways to develop and test implementation strategies to improve

the recovery after critical illness. The American Association of Nurse Anaesthetists [15] (AANA) in evaluating the impact of the Institute of Medicine report in the United States (2010) stress that advancing the health of populations will depend upon nurses, including advanced practice nurses, leading change in health care delivery [15].

Strategy published in Ireland by the Department of Health explore key trends including the extent and change to nursing roles [16]. The Department of Health's mission is to improve the health and wellbeing of people in Ireland by delivering high quality health services and getting best value from health system resources. The Chief Nursing Officer's (CNO's) and Professional Regulation Division is responsible for developing and overseeing implementation of policy in relation to the nursing and midwifery profession, thus providing strategic leadership and expert nursing and midwifery advice to the department, government, broader health system and regulatory and professional bodies. This includes the development of the role of advanced nurse and midwife practitioners [17]. Advanced practice is also presented in the Slaintecare action plan [18]. Public health services in Ireland are delivered by the Health Service Executive (HSE) [19] and guided by the National Service Plan [20]. The Plan sets out the services that will be provided to the people of Ireland for the investment entrusted to the HSE and are in line with the HSE Corporate Plan (2021-2024) and the Programme for Government: Our Shared Future. Several innovative areas of practice were found in the literature relating to research carried out by Irish and international advanced nurse practitioners, including but not limited to emergency and trauma, cardiac, neurology, surgery, pain relief and systems.

Theme 2 Emergency advanced nurse practice -Emergency care, perceptions of role in different situations

Positive outcomes have been reported within emergency and critical care settings, focusing on quality of care, clinical outcomes, patient satisfaction and cost [21-24]. The ANP role in teams has also been explored. Walker [25] explored teams in advanced and specialist nursing practice in emergency surgery and advised that ANP posts in surgery should have the freedom and authority to act autonomously in the assessment, diagnosis, treatment, including prescribing, of patients with multi-dimensional problems. However, they advise that these roles need to be integrated within the surgical multidisciplinary team and focused upon the provision of seamless care, in conjunction with team members. Absence of, or limited training sites may contribute to a lack of role recognition and training. Expansion of health professions educational programmes has led to an acute shortage of available clinical training sites. Kayingo et al. [26] recommend a vision for practice that involves 'thinking outside the box' in an era of preceptor shortages. Growth in the number of medical schools,

ANP programmes and Physician Associate studies, all of which share a need for similar types of clinical training experiences, has placed new challenges on educational institutions and on clinical sites. This is particularly so in emergency departments [3].

Difference in ANPs perceptions are found in some contexts. Kerr [27] explored emergency ANPs perceptions of their role, positionality and profession from a qualitative approach in seven different Emergency Departments in Ireland. Findings indicate that little empirical evidence exists directly from ANPs' perception and professional identity. Bourdieu's theoretical framework was applied to this analysis revealing that ANPs' (Emergency) perceptions of their role, position within the organisation and emergent professional identity are multidimensional, complex and unique within the field of healthcare practice.

Role perceptions were also explored in vascular nursing and in urology. The perception of physicians (n = 10) and nurses (n = 8) about the ANP role within the vascular medicine team in France was explored by Kubiak et al. [23]. The study examined the cooperation these practitioners could have with the ANP in caring for patients suffering from Peripheral Artery Disease (PAD). Responses identify a care gap which the authors suggest could be bridged by an ANP service. This service would create a continuum in the care of patients through assessment, supervision, screening for adverse events and ensuring therapeutic education is developed for each patient. Smith-Burgess [28] identify early detection of abdominal aortic aneurysms. An abdominal aortic aneurysm (AAA) is an under-diagnosed, potentially life-threatening condition. This study highlights the risk factors associated with aneurysm development and the benefits of performing opportunistic aortic palpation in at-risk people. Currently AAA screening programmes, in the UK, only offers initial screening to men aged 65, but many other men and women are at high risk of developing an AAA. This paper also explores the role ANPs can have in becoming AAA champions.

Kelly and Horrigan Kelly [29] in an Irish study undertaken by ANPs, explored the lived-experience of patients with ureteric stents. They recommend that urological nurses can enhance the patient's experience of living with a ureteric stent by providing psychological support, including pain relief and education. McCrory *et al.* [10] explored the impact of, and perceptions of ANPs on patient outcomes in chronic kidney disease (CKD). Findings indicate that the addition of an ANP is at least equal if not superior to the usual care models for the management of CKD. The study aim was achieved through the incorporation of managerial and organisational skills into work processes. This article stimulates professionals to examine the behavioural, systems and professional environments underpinning healthcare management in these circumstances.

Boman et al. [30] explored nurses' understanding of a developing ANP role in emergency care in Norway and Casey

et al. [21] explore the enablers and challengers to advanced roles in a study undertaken in Ireland. Recognition of the role and the sustainable innovations being achieved would be enhanced and further developed through ANPs promoting their roles, complexity, research outcomes and stakeholder collaboration by research [3]. Oncology is an increasing area of practice for Advanced Practitioners. Richmond et al. [31] explore stakeholders' perceptions of a community-based ANP-led integrated oncology care model for adults receiving oral anti-cancer medication in an Irish hospital (n = 33). This study demonstrates that patients and health care providers (HCPs) perceived the proposal positively. They identify the ANP as the appropriate HCP to care for this cohort. The importance of communication and strategic planning for transitioning this model of care to the community setting is highlighted. Collaboration amongst stakeholders is evident from this study.

Theme 3: Technology use, virtual and other forms of communication

This is an important area of development in advanced nurse practice. Ingram and Offiah [32] describe the setting up of an ANP-led virtual telephone chest pain clinic, in Ireland. This study compared the ANP virtual chest pain clinic to the face-to-face nurse specialist-led clinic. Findings indicate that autonomous nursing management is significantly higher in the virtual clinic, significantly fewer patients were referred for further tests and ANP autonomy and experience enabled continued chest pain assessment and diagnosis. Similarly, Detheridge [33] in investigating the use of telephone triage in a general practice home visiting team in Scotland advises that telephone triage (TT) is increasingly being used in primary care to manage demand and ANPs are well placed to support TT. Interviews were completed with 8 staff (3 specialist nurses and 5 GPs). Findings indicate that TT enables the patient to see the correct clinician and support care management in general practice. During Covid-19 innovative procedures were developed in care homes in Scotland, where a local enhanced service delivered by two ANPs was set up in response to the difficulties care home staff were experiencing in accessing professional support from NHS 24, at the weekend. Dalgarnoo and Donoghue [34] found that ANPs consulted, recommended appropriate action and provided relevant updates. The service was well received by care home nursing staff, managers and relatives with the expertise of the ANP service providing invaluable support during a stressful time for care home staff. The service was an excellent example of collaborative working between the care sector and the health and social care partnership.

A technology innovation was explored by Bhimaraj et al. [35] relating to ambulatory hemodynamic monitoring (AHM) when using an implantable pulmonary artery pressure sensor (CardioMEMS). This method has been found to be effective

in improving outcomes for patients with heart failure, but the operations of AHM programmes had not yet been described. A web-based survey was emailed to clinicians at AHM centres in the United States. Fifty-four respondents (40%) of which 44% (n = 24) were advanced HF cardiologists and 30% (n = 16) ANPs working in this area of practice. Findings indicate that the adoption of pulmonary artery pressure monitoring is concentrated at advanced heart failure centres, and modest numbers of patients are implanted at most centres. Understanding and addressing the barriers to referral of eligible patients and training is needed to maximise the clinical benefits of AHM and to extend the ANP's role in this procedure.

Theme 4: Neurology and Neurosurgery

ANPs are involved in delivering care in the areas of neurology and neurosurgery. Lavery and Whitaker [36] explored how ANPs are trained to perform lumbar puncture, a diagnostic procedure often undertaken in acute medical units and recognised as a technical procedure that requires skill, knowledge and experience. Lumbar punctures used to be performed mostly by doctors but, today, nurses in advanced roles can perform them, as long as they receive the necessary training and are adequately assessed. This article describes how ANPs at Aintree University Hospital have expanded their role to include performing lumbar puncture and the benefits accruing for patients and medical colleagues.

An envisioning of the scope and role of the ANP in stroke care is presented by Laird et al. [37]. The study aimed to gain insights into the scope and role of future ANPs in stroke care from the perspectives of key stakeholders. Stroke prevalence is rising internationally, yet ANPs contribution to stroke services is under researched. A sample of 18 participants, comprising stroke nurses, stroke unit managers, stroke survivors and their family carers were recruited in one UK healthcare trust. Findings indicate support for the implementation of advanced practice nursing in the hyper-acute and acute stroke phases of the care pathway. The study also supports an inter-professional model of clinical supervision to support the developing ANP in autonomous clinical decision-making.

Neurosurgery nursing is another area of expansion for advanced nurse and midwife practitioners and advanced nurse neonatal practitioners. Behan et al. [38] in a study undertaken in Ireland explored the management of a 39-year-old woman with intractable focal epilepsy whose condition deteriorated during pregnancy and who required emergency neurosurgery. The authors believe that this is the first-time surgery was planned and executed urgently with a successful outcome, without obstetrical or surgical complications and seizure freedom achieved. This study identifies the value of rapid communication between established women's health ANPs clinics, the multidisciplinary epilepsy surgery group and specialist obstetrical epilepsy service.

Memory assessment is a new advanced nurse practice role. Service user and carer experiences of the ANP role in using Kirklees memory assessment team was explored by Greenbank et al. [39]. A cross-sectional survey (n = 85) was developed using the Royal College of Nursing's four pillars as a structure: clinical/direct care practice, leadership and collaborative practice, improving quality and developing practice, and developing self and others. Findings indicate that patients and families are highly satisfied with the service provided by the ANP. High-quality research is needed on the cost effectiveness and outcomes of ANP interventions. However, ANPs within memory services can support prompt diagnoses of dementia. Further understanding of the role is necessary as evidence on its effectiveness is limited.

Theme 5: Cardiology

Cardiac nursing is an evolving areas of advanced nurse practice. A role being undertaken by ANPs is in the area of hypertension. Brown [40] presents a patient with newly diagnosed hypertension in Northern Ireland and identifies the effective history taking, physical examination, differential diagnoses and the shared decision making which occurred between the patient and the ANP. It is acknowledged that adherence to medications is poor in long-term conditions, such as hypertension, but using a concordant ANP approach in practice can optimise patient outcomes and enhance adherence to medication and chronic conditions.

Collaboration between ANPs in two cardiology units in Ireland demonstrates innovative practice. A study by O'Toole et al. [41] demonstrates that ANPs offer equitable care to patients presenting to ED with chest pain. Findings indicate high levels of patient satisfaction with pain relief with this pioneering ANP-led cardiology service. Manoj et al. [42], explore the impact on patient outcomes of nurse-led elective direct current cardioversion (DCCV) in patients with atrial fibrillation. Findings indicate that high rhythm conversion success rates support the belief that highly skilled nurses can ensure positive results. As the incidence of AF increases healthcare settings will continue to face challenges in providing appropriate timely intervention. The provision of DCCV has primarily been doctor-led. Due to the increasing requirement of hospital beds and cost restriction the roles of ANPs and clinical nurse specialists have been driven to include elective DCCV.

Another Irish study explored direct current cardioversion with positive outcomes for patients presenting with atrial fibrillation. A rare case of Vernakalant-induced 1:1 atrial flutter during chemical cardioversion of atrial fibrillation, requiring emergency direct current cardioversion, was published by ANPs working in Emergency Cardiology in Beaumont Hospital, Dublin [43]. Additionally, ANPs working in this department offer a general cardiology virtual OPD clinic, managing an average of 3,000 patients per year that facilitates the discharge of, for example, non-acute coronary syndrome chest discomfort, and

rate controlled atrial fibrillation/flutter, reverted SVT, HTN and stable heart failure. Whilst this service, has protected access to a comprehensive range of outpatient cardiology diagnostic modalities, is also the first of its kind in Ireland to develop a public – private collaborative partnership to facilitate autonomous inter-hospital referral for high dose radiologic procedures which, until very recently, were not permissible without a change in the law. These legislative changes announced in SI 256/2018 now allow nurses practicing at advanced practice levels in Ireland to refer for radiologic procedures containing high dose ionising radiation, allowing the service to refer for Coronary CT angiogram and Perfusion Cardiac MRI (CMRI) as part of a discharge pathway for emergency department patients when acute coronary syndrome has been ruled out; thus enhancing the quality of life of patients treated.

Theme 6: Orthopaedics -

ANPs are increasingly involved in the care of orthopaedic patients. Shen et al. [44] explored the clinical effect of application of interventional treatment models for the improvement of quality of postoperative recovery in elderly patients following Total Hip Arthroplasty (THA) (n = 50). Findings indicate that ANPs accelerate the recovery of elderly patients after THA and increase their satisfaction degree. McDonall et al. [45] found similar satisfaction outcomes from a nurse-led multimedia Intervention to Increase patient participation in recovery after knee Arthroplasty. Mashimo et al. [46] in exploring the impact of early mobility on functional recovery after hip fracture surgery (n = 110) identified implications for ANP progression in terms of patient functional recovery, early mobility and discharge and walking status after surgery. Li Y et al. [47] studied the effect of internet plus continuous nursing on physical recovery and medication compliance of patients with knee joint replacement in China (n = 100). Fifty patients each were assigned to receive routine care (routine group) or “Internet+” continuity of care (continuity group). Findings show that the “Internet+” continuity of care, delivered by specialist nurse practitioners is highly feasible and can effectively promote the postoperative functional recovery of knee replacement patients, improve medication compliance and provide enhanced home care. ANPs also collaborate with pain clinic nurses and teams in pain management following orthopaedic surgery [45]. McBrien [48], in an acute hospital trauma care setting, studied the role of ANPs in diagnosing and effectively managing Lisfranc injury to the tarso-metatarsal joint complex. Trauma care is one of the main functions of ANPs working in emergency minor injury units. ANPs use a range of clinical skills to effectively manage patients’ injuries with this condition including the diagnostic decisions and management options in minor injuries units. Freter *et al.* [49], explored how prevention strategies may be translated into routine clinical care for the elderly with hip fractures and delirium and conclude that delirium-friendly pre-printed postoperative orders (PPOs)

executed by ANPs results in significant reduction in postoperative delirium in routine post-hip fracture care. PPO’s were found to be most effective in a representative elderly population, including individuals with dementia, thus reducing their physical and psychological pain. In a similar strategic initiative aimed at reducing trauma in spinal cord injury, Reynolds *et al.* [50] evaluate a bundle of implementation strategies through a strategic pre-program, post-program, and follow-up design. Findings indicate that this strategy improved neuro-critical care nurses’ knowledge of, and adherence to spinal cord injury guidelines.

Theme 7: Enhanced Recovery after Surgery (ERAS)

Enhanced recovery from surgery (ERAS) is a key area for development by ANPs. DE Belvis et al. [51] explored this area in a multicentre study which piloted integrating health and social care for critical care survivors. The study demonstrated improvements in health-related quality of life and self-efficacy at 12 months. Findings will resonate in advanced nursing practice to improve the recovery experience of patients after critical illness, as the transitions in care during their recovery journey are points of heightened vulnerability, often associated with adverse events including sepsis. Enhanced Recovery after Surgery programmes has demonstrated improved outcomes in non-cardiac surgery. Salenger et al. [52] implemented cardiac ERAS in a community based programme (n = 73) and compared them with the same number treated before implementing ERAS. The ERAS programme consisted of 6 perioperative care bundles. Findings indicate that ERAS patients required significantly less opioids, and experienced less nausea and less light headedness compared with pre-ERAS patients. These areas of practice are within the domain of advanced nurse practitioners.

The introduction of ERAS programmes has radically improved postoperative outcomes in many surgeries including colorectal surgery. Tweed et al. [53] investigated the feasibility and safety of a 23-h accelerated enhanced recovery protocol (ERP) for colorectal cancer patients (ASA I-II) undergoing elective laparoscopic surgery. The 23-h accelerated ERP, called the CHASE protocol consisted of adjustments in pre, peri- and postoperative care. Findings demonstrated that compared to the retrospective cohort (n=75), length of stay was significantly shorter in the CHASE-cohort. This study has important resonance for the ANP is this new role. Kitchin et al. [54] utilised a quality improvement approach to-ERAS and the protocols that exist to optimise perioperative care in North America. The efficacy of ERAS protocols has been studied in various surgical specialties, including paediatric surgery and otolaryngology, but its role in paediatric otolaryngology has not been widely demonstrated in the literature. This review article attempts to assess the current state of ERAS within these areas and more specifically paediatric otolaryngology to identify opportunities for future development and utilisation, including the role of the ANP.

A different approach is taken by Buss et al. [55] in their ‘values to value for recovery’ and they ask why now? They say that in times of crisis, we look to our core values. To realise the benefits of a ‘Values to value’ approach, building trust and confidence is needed, by engaging the workforce in transformative approaches, and fostering participative leadership at all levels. ANP’s have a vital role in this re-imagining through their leadership competencies. Similarly, a Danish study by Kehlet [56] posits that ERAS-is developed based on the question “Why is the patient in hospital?” and say recovery is evolving in the context of multimodal perioperative care programmes. Major benefits with respect to the need for hospitalisation and the risk of complications were found. Future challenges to improvements include patient and procedure-specific modification of inflammatory/immunological stress responses, improvement of post-discharge recovery and improving research design strategies.

In orthopaedic care, Hampton et al. [57] explore the benefits of implementing ERAS protocols in orthopaedic surgery due to their ability to control pain adequately in the immediate postoperative window, allowing for earlier mobilisation, shorter hospital stays, and fewer complications. Virginia Commonwealth University created a multimodal pain management approach that has potential for ANPs to extend their practice. Zhang et al. [58] explore if cognitive frailty predicts delayed neurocognitive recovery after non-cardiac surgery in frail elderly individuals. Delayed neurocognitive recovery (DNR) is a common post-surgical complication among the elderly. Cognitive frailty (CF) is also an age-related medical syndrome. However, little is known about the association between CF and DNR. This study questions if CF is associated with DNR in elderly patients (n = 146) undergoing elective non-cardiac surgery, explores the potential risk factors for DNR in frail elderly individuals, and constructs a prediction model. Findings indicate that the prediction model has a good degree of discrimination, which means it can individually predict the risk probability of DNR in frail elderly individuals. This study has relevance for ANP development due to their work with frail elderly patients undergoing surgery and cognitive frailty. Such studies highlight the extended roles of ANPs.

Choudhury et al. [59] explored proactive care post-discharge to reduce 30 day readmissions to hospital. Healthwatch England state that some emergency readmissions could be avoided by providing patients with urgent out of hospital medical care or support. This study by Choudhury et al. [59] is comprised of Sovereign Health Network (SHN) with three GP practices, and a combined population of 38,000. Plan, Do, Study, Act (PDSA) cycles x 4 were used to test the administrative and clinical processes. The ANP in the practice reviewed all discharge summaries, added alerts to records, and proactively contacted patients either by text, telephone or home visit. Following ANP interventions, there were 55% less than expected readmissions during the same time period.

Proactive interventions saved approximately 102.9 bed days, with potential savings of 1,775 bed days over a year. Results from the model are promising and could be replicated by other Primary Care Networks to result in larger savings in bed days.

Taking a different approach to recovery after surgery Cui et al. [60] explore the potential risk factors for prolonged length of stay protocol for elderly patients undergoing short-level lumbar fusion surgery. Preoperative metrics were compared to identify risk factors associated with prolonged LOS. In this retrospective study the potential risk factors associated with delayed LOS despite specialist and advanced nurse practitioners implementing ERAS were analysed, age ≥ 75 years old, female sex and Clavien-Dindo grade >1 were independently correlated with prolonged LOS.

Burgess and Hedrick [61] explored postoperative analgesia in ERAS protocols by reviewing recent trends in ERAS analgesia and what current evidence and research supports that may not be as beneficial as once thought, thus recommending further research in the area. In a further ERAS study, undertaken in Australia, with ANPs, McDonall et al. [45] explored recovery after surgery with an intervention to increase patient participation in recovery after knee arthroplasty. They found that advances in digital technology and the use of multimedia platforms to deliver information provides clinicians with a unique opportunity to develop innovative ways to support patient participation. They found that collaboration with specialist and advanced nurses and patients before and during implementation assisted in identifying potential barriers to successful implementation of the intervention.

Theme 8: Potential New Roles for ANPs

Potential roles where the ANP could deliver enhanced care to patients was also explored. Lee et al. [62] explore recovery after Thyroid and Parathyroid Surgery and ask ‘how do patients really feel? The study was undertaken by using mobile phone text messages to evaluate real-time patient recovery (n = 155) following outpatient surgery. Pain, opioid use, voice quality, and energy levels were assessed. Impaired voice and energy was defined as a score $< 2/3$ of normal. Findings demonstrate that forty eight patients (36 %) did not use any opioids postoperatively. They recommend real-time SMS survey as an effective and potentially valuable way to monitor patient recovery following this surgery. ANPs have a role in progressing this communication model due to their enhanced communication skills. Almazedi et al. [63] explore the safety of short 3-hour recovery and same-day discharge following lower-limb angioplasty in outpatients in patients with intermittent claudication and critical limb ischaemia. A retrospective analysis was undertaken of the medical records of 301 patients, 57% with intermittent claudication and 43% with critical limb ischaemia, undergoing 605 angioplasties. Analysis demonstrates that this model may significantly increase patient throughput and alleviate pressure on stretched hospital inpatient

resources by safely discharging patients on the day of procedure. This is a potential role for ANP involvement due to their advanced clinical assessment skills.

Theme 9: New systems/roles and expansion of ANP roles

Thompson and McNamara [8] believe that healthcare systems are becoming increasingly complex and that systems thinking can help us to understand this complexity and how to apply that understanding to design and evaluate interventions that improve health outcomes. With the current emphasis on developing advanced practice they examined systemic processes that characterise ANP systems and their interactions with wider healthcare systems, and how these processes enable and constrain the role.

Funding and reimbursement for clinical coding practices are also explored in the healthcare systems domain. Clinical coding is the method by which departments in the UK are reimbursed for providing services to patients, yet recognised as being widely mis-practised within the NHS [64]. This study aimed to improve clinical coding accuracy and guide efficient resource allocation. Findings indicate that by implementing simple changes in coding procedure, and without any additional administrative cost, significant improved coding accuracy was achieved. They caution that careful auditing and implementation changes are needed to raise national clinical coding standards, to enable clinical restructuring, staff development including specialist and advanced practice nurses, and provide more efficient, patient-centred care. In a similar vein, Hacker [65] advise that ANPs are one of two new roles that have been added to the additional roles reimbursement scheme (ARRS) under a series of changes introduced through a new GP contract. NHS England say: ‘Staff {ANPs} are providing significant numbers of additional appointments, improving patient access to general practice, and providing personalised, proactive, care for the populations they serve.’ Busse [66] in a similar endeavour undertaken in the Netherlands, explores the costs and effects of new professional roles by redesigning health services to contain labour costs. The PRISMA checklist was used to report costs and the EPHPP-Quality Assessment Tool to assess the quality of the studies. Forty-one studies of specialist nurses (SNs) and ANPs were selected for data extraction and analysis. Findings indicate that studies evaluated most often quality of life, clinical outcomes and costs and significant advantages were seen most frequently regarding health care utilisation, patient information and patient satisfaction in care being provided by new ANPs and SNs. Moxham and McMahan-Parkes [67] aimed to determine whether advanced nurse practitioner triage reduced waiting times and hospital admissions and expedited essential investigations and treatments. Findings indicate that ANP triage has made significant improvements to the efficiency and effectiveness of care and management of medically expected patients who were referred to

acute hospital settings. Utilisation of ANP triage in the ambulatory care setting was found to be an effective method.

New roles have recently become involved in venous Thromboembolism (VTE) and Coagulation. This is a relatively new ANP role to Ireland, the first still in its infancy in Beaumont Hospital since September 2022. The Coagulation ANP consults on noncomplex venous thromboembolism (VTE) inpatient cases directly. This process has the potential to decrease overall inpatient length of stay and allows for early intervention to advice medical /surgical teams on additional work up that may be warranted and to identify any personal or familial potential provoking causes. This consult by the ANP affords counselling time to patients and their families on anticoagulation risks and benefits and gives the ANP an opportunity to access for any potential anticoagulation problems such as dosages, bleeding risk, creatinine clearance etc. Having the ANP consult and intervene early at the bedside can also aid the patient accept for their VTE diagnosis and the potential longer term implications of it [68]. In Quarter 3 of 2023 the ANP in VTE / Coagulation will improve admission avoidance through the implementation of the Ambulatory DVT (deep vein thrombosis) Pathway which will see patients being discharged directly from ED with an early follow up clinic appointment with the ANP in Coagulation. Evidence supports treating some patients with VTE as outpatients [69]. This will ultimately have a knock-on effect of improving medical outpatient waiting lists, cost-savings and will also improve Patient Experience Time (PET) in ED. The advent of this role has also seen the commencement of “3 month Post PE Clinic” which any patient discharged from the hospital with a new diagnosis of PE can be referred. A key component of this clinic sees the ANP assessing for CTEPH (Chronic Thromboembolic Pulmonary Hypertension) and intervening early with additional laboratory, radiological or cardiology investigations to expedite CTEPH referrals. The impact of which would have significant impact on patient length of stay and on hospital cost savings.

New roles are also evolving in mental health and in disaster care. Weston et al. [70] describe the first year of implementation of the integrated health care delivery model. To address gaps in access to care, a partnership was formed among a large mental health authority in Texas and the Texas University School of Nursing to create an inter-professional team-based health care delivery model that would be led by ANPs working in underserved areas. Academic-practice partners identified five clinics for an integrated behavioural health care delivery model (n = 3,183). Results revealed implementation challenges in many areas including the electronic health record, service integration and low staffing levels during a global pandemic. They recommended the need for effective communication, education and further training for all stakeholders involved. Scholarship for effective nurse education was explored by a task force resulting in a consensus statement defining the nurses’ role in various situations [71]. Hutton et al. [72] explore

the level of advanced nurse practice in Australia that took place in a disaster by use of a scoping review which was guided by Arksey and O'Malley's framework. Then, hospitals and nurses became the centre of events. During disasters, most nurses were found to be flexible and adaptable, demonstrated fundamental expertise and the agility to pivot when the occasion demanded. As a result of this study, it is evident that these Australian nurses, including specialist and advanced nurse practitioners work beyond conventional limits during a disaster, many taking on a variety of new roles. New roles are also recommended in Ireland. The National Service Plan 2023 has an increased focus on eHealth initiatives, digital solutions and health information systems capability to enable better management and use of health information, and access to that information by clinicians and patients [20]. Advanced nurse and midwife practitioners are ideally placed to deliver the innovative initiatives recommended in the National Service Plan.

Implications for ANP/AMPs and management

New initiatives to support ANP/AMPs in their extended roles need highlighting to all stakeholders. Supports that are identified by the ANP/AMP need to be in place to enhance future education and advanced practice and to recognise the identified positive outcomes for patients from advanced practice.

Conclusions

Rapid growth in the number of medical schools and ANP programmes, all of which share a need for similar types of clinical training experiences, has increased competition for clinical training sites and placements and may lead to slow development and progression of ANPs. System changes to health care delivery and management is leading to reduced professional roles at clinical level even though ANPs realise and articulate the value and diversity that they bring to health systems and to sustainable goal achievement. It may be that lack of awareness of the systemic processes that enable and constrain the ANP role affects the ANP role contribution to healthcare systems. ANPs have been under-utilised generally in the current global health environment, creating barriers to achieving universal health coverage and the Sustainable Development Goals. Greater awareness of the potential of ANPs contribution to health care systems and patient care outcomes by all stakeholders is likely to strengthen their contribution effect. Recognition of the role and the sustainable innovations being achieved would be enhanced and further developed through ANPs promoting their important contribution to patient care by greater research and publication.

Limitations

These findings should be interpreted in the context of limitations inherent in literature searches and in the questions posed in the search. Our study focuses on a significant stakeholder group and represents a snapshot of data available in 2023 that is relevant

to advanced nurse and midwife practice but also recognises that research in the area is expanding each year. Small sample sizes were mainly found indicating that larger studies would promote the complexity and importance of the role to a wider audience.

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Ethical Guidelines

Ethical guidelines were adhered to. Permission was granted by the university faculty to undertake the research. As this study is a literature search no ethical permission was needed.

Conflict of interest Statement

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