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A realist evaluation case study of the implementation of advanced nurse practitioner roles in primary care in Scotland

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Abstract

Aim: To evaluate Advanced Nurse Practitioner (ANP) role implementation in primary care across Scotland in contributing to primary care transformation, and establish what works, for whom, why and in what context.

Design: A realist evaluation using multiple case studies.

Methods: Two phases, conducted March 2017 to May 2018: (1) multiple case studies of ANP implementation in 15 health boards across Scotland, deductive thematic analysis of interviews, documentary analysis; (2) in-depth case studies of five health boards, framework analysis of interviews and focus groups.

Results: Sixty-eight informants were interviewed, and 72 documents were reviewed across both phases. ANP roles involved substitution for elements of the GP role for minor illness and injuries, across all ages. In rural areas ANPs undertook multiple nursing roles, were more autonomous and managed greater complexity. Mechanisms that facilitated implementation included: the national ANP definition; GP, primary care team and public engagement; funding for ANP education; and experienced GP supervisors. Contexts that affected mechanisms were national and local leadership; remote, rural and island communities; and workload challenges. Small-scale evaluations indicated that ANPs: make appropriate decisions; improve patient access and experience.

Conclusions: At the time of the evaluation, the implementation of ANP roles in primary care in Scotland was in early stages. Capacity to train ANPs in a service already under pressure was challenging. Shifting elements of GPs workload to ANPs freed up GPs but did little to transform primary care. Local evaluations provided some evidence that ANPs were delivering high-quality primary care services and enhanced primary care services to nursing homes or home visits.

Impact: ANP roles can be implemented with greater success and have more potential to transform primary care when the mechanisms include leadership at all levels, ANP roles that value advanced nursing knowledge, and appropriate education programmes delivered in the context of multidisciplinary collaboration.

KEYWORDS
advanced, nurse practitioners, primary care, realist evaluation

1 | INTRODUCTION

Globally, primary care services face unprecedented challenges, including a shortage of General Practitioners (GPs), increasing workload and policy drivers promoting: the delivery of healthcare closer to people's homes; person-centred care and improved quality of care (Baird et al., 2016; Boerma et al., 2015; Scottish Government, 2016).

To address these, the Scottish Government's (SG) vision for primary care involved moving away from the traditional model of the GP as first point of contact for all patients and expanding the primary care multi-disciplinary team to enable them to work together to support people in the community, ultimately freeing up GPs to see patients with more complex needs who need their expertise (SG, 2016). Advanced Nurse Practitioner (ANP) roles were envisaged as central to achieving this vision. The potential contribution ANPs could make in primary care had already been highlighted in a review of urgent and out of hours (OOH) care (Richie, 2015). Primary care services across Scotland responded to the SGs challenge to transform models of care through the implementation of ANP roles.

The Scottish School of Primary Care (SSPC) was commissioned by the SG to undertake a national evaluation of new models of primary care being introduced by health boards. This case study was one of seven within this national evaluation and was conducted over 15 months (March 2017–May 2018) (Mercer et al., 2019; Strachan & Hoskins, 2019).

2 | BACKGROUND

Advanced nursing roles were first introduced in the 1960s, in the United States of America and Canada, to address workforce challenges (Dalamarie & Lafortune, 2010; Sheer & Wong, 2008). Since then, global development of advanced nursing roles has continued, often in response to a shortage of doctors in a particular area (Carnwell & W.M. Daly W., 2003). In the last few years, frameworks for advanced nursing and advanced clinical practice have been published to guide practice in all UK countries (National Leadership and Innovation Agency for Healthcare Framework, circa 20182020; The Department of Health, 2018; Department of Health, Social Services and Public Safety, 2016; NHS Education for Scotland, 2018; HEE, 2017).

Advanced nurse practitioners in primary care have varied roles, working with people with chronic and acute conditions. Their scope of practice includes assessment, diagnosis, ordering tests, prescribing, health promotion and education, administration and working with marginalized groups. Unfortunately, the existence of a range of different advanced nursing roles causes some confusion in terminology, as the following titles all describe nurses working in advanced roles: nurse practitioner, nurse consultant, advanced practice nurse, clinical nurse specialist, nurse specialist (Baird et al., 2016). While

the ANP title is not recordable or registered with the UK Nursing and Midwifery Council, a nationally agreed definition and criteria exists in Scotland and was therefore used in this study (Sottish Government, 2017). It delineates the ANP from the Practice Nurse, who works across primary healthcare in the UK but does not meet the criteria for advanced nursing practice. The Scottish Government's ANP definition is comparable to the International Council of Nursings' definition of Nurse Practitioner/Advanced Practice Nursing (ICN, 2020):

ANPs are educated to master's level (minimum Post Graduate Diploma); non-medical prescribers and deemed as competent in their area of practice, and defined as

> *'…. experienced and highly educated registered nurses who manage the complete clinical care of their patients, not focusing on any sole condition. ANPs have advanced-level capability across the four pillars of practice: clinical practice facilitating learning leadership and evidence, research, and development. They also have additional clinical-practice skills appropriate to their role.'*
> *(Scottish Government, 2017)*

International evidence exists that nurses working at an advanced level in primary care can substitute effectively for certain roles traditionally performed by a primary care doctor. Many studies report nurses in advanced roles undertaking a similar role to doctors (Altersved et al., 2011; MacDonald, 2005; Poghosyan et al., 2015; Sangster-Gormley et al., 2015; Schadewaldt et al., 2016; Van Soeren et al., 2011; Wilson et al., 2005).

Systematic literature reviews of the outcomes of such roles suggest that ANPs achieve: improved access and reduced waiting times (Dalamarie & Lafortune, 2010); a similar process of care to primary care doctors (Laurant et al., 2005); similar resource utilization as primary care doctors including numbers of referrals, admissions, return visits and prescriptions (Horrock et al., 2002; Laurant et al., 2005; Stanik-Hutt et al., 2013); potential cost savings (Martínez-González et al., 2015); higher levels of patient experience compared with primary care doctors (Dalamarie & Lafortune, 2010; Horrock et al., 2002; Laurant et al., 2005; Stanik-Hutt et al., 2013; Swan et al., 2015); quality of care that is equal to, or possibly better than primary care doctors (Horrock et al., 2002); equivalent or better patient outcomes compared with primary care doctors (Martin-Misener et al., 2015; Swan et al., 2015; Stanik-Hutt et al., 2013; Dalamarie & Lafortune, 2010; Laurant et al., 2005;). There is some evidence of a higher probability of greater consultation length (Dalamarie & Lafortune, 2010; Horrock et al., 2002; Laurant et al., 2005; Swan et al., 2015). Despite suggestions that 'the expanded time factor' may be more cost-effective in the longer term by reducing the need for future consultation (Williams & Jones, 2006), a more recent study of nurse practitioner consultations in primary care found that the mean consultation time compared favourably with that of GPs in NHS England and that patient satisfaction

and enablement were not correlated with consultation length (Barratt & Thomas, 2019a).

Much of the evidence to date focusses on the effectiveness of advanced nursing roles in comparison to doctors. Understanding what nurses working at advanced level actually 'do' is also of crucial importance. The policy perspective recognizes the need to transform primary healthcare, not just shift workload from one practitioner to another. Nurses face similar workforce challenges to doctors (Baird et al., 2016), therefore transformation will require new ways of working (HEE, 2017). This case study aimed to evaluate Advanced Nurse Practitioner (ANP) role implementation in primary care across Scotland in contributing to primary care transformation, and establish what works, for whom, why and in what context.

3 | STUDY DESIGN

The design was a two-phase multiple case study using realist evaluation. A case was defined as a health board that provided or managed primary care, community and OOH urgent care services. The two complementary phases were based on the SSPC evaluation framework (Mercer et al., 2019). Phase one involved semi-structured telephone interviews with key informants from each health board or 'case' and documentary analysis, to ascertain the extent of ANP role implementation across Scotland and facilitate purposive sampling for phase two. Phase two comprised in-depth exploration of five cases, to gain a deeper understanding of the implementation of ANP roles and determine their actual impacts and likely spread and sustainability.

A case study approach is used to obtain an in-depth appreciation of complex issues in their real-life context (Crowe et al., 2011). Realist evaluation is a theory-driven approach, which recognizes that programmes work differently in different contexts and through different change mechanisms, therefore they are not necessarily replicable across different contexts in achieving the same outcomes. However, theory-based understanding about what works, for whom, and how, in varied contexts, programmes are transferable (Greenhalgh et al., 2015; Pawson et al., 2005; Pawson & Tilley, 1997).

From a realist evaluation perspective this required exploring context, mechanisms and outcomes (CMOs) of a programme. Context includes the political, social and economic structures; organizational context, history and geography that might influence mechanisms and outcomes. Mechanisms include ANP roles (intervention), the reasoning and resources that enable these roles to work. Outcomes are the intended and unintended impacts that ANP roles have on different stakeholders including service users, organizations, primary care teams and ANPs.

Realist evaluation is a suitable method to assess complex interventions or programmes. (Greenhalgh et al., 2015,). This approach has been used successfully in evaluating large-scale programmes

across Scotland (Cheyne et al., 2013). Additionally, a realist evaluation can be undertaken at any point in a programme's implementation (Pawson &Tilley, 2004). The implementation of ANP roles in primary care was considered a complex programme, covering different stages of implementation across Scotland.

3.1 | Programme theory development

The first step in a realist evaluation is to make explicit the programme theory, that is the underlying assumptions about how an intervention or programme is meant to work and what impacts it is expected to have. Moreover, the programme theory is used to evaluate the study results by guiding the data collection to confirm, refute or add to the programme theory and refine it (Pawson et al., 2005). The programme theory used in this study was based on prior knowledge and existing literature on ANP role implementation. Programme theory components were extracted deductively from the extant literature using the core concepts of realist evaluation, namely CMO, in addition to the programme i.e., ANP roles and models of care. Members of the research team (HS, MW, GH), who were nurses with PhDs with experience of working in primary care or advanced practice, generated the programme theory, which included a high-level overarching CMO statement (Strachan & Hoskins, 2019):

> 'Scotland's national agenda aims to transform primary care services through multi-disciplinary teams that include Advanced Nurse Practitioners who have had necessary academic preparation, clinical competency development and effective supervision to enable them to become competent and confident Advanced Nurse Practitioners able to deliver sustainable, high quality primary care services.'

This statement encompassed the ANP programme components that required to be tested, as defined in Table 1.

3.2 | Phase one – Multiple case studies of ANP implementation in primary care across Scotland

3.2.1 | Design

A multiple case study design involved semi-structured telephone interviews with key informants regarding ANP role implementation in primary care across Scotland in all 14 geographical health boards, and one special health board NHS24 ($n = 15$ 'cases') (Strachan & Hoskins, 2019). A qualitative approach was employed using documentary analysis and semi-structured interviews with key informants.

TABLE 1 ANP programme theory components (Strachan & Hoskins, 2019)

Contexts - what are the social, economic and political structures, organizational context, participants, geography and history that might influence mechanisms?	Mechanisms – what roles are ANP undertaking (intervention) and what reasoning and resources will enable the intervention to work?
POLITICAL External policy context driving change – Transforming Nursing Roles Programme has provided clarity on definition of ANP roles nationally	INTRODUCTION Communication systems – Engaging relevant stakeholders to understand role of ANP supports the acceptance of new models of care
POLITICAL External policy context driving change – Primary care transformation and workforce challenges and opportunities encouraging primary care teams to think about different ways of delivering the service	IMPLEMENTATION Resources to make change happen – National and NHS Board funding made available to enable the education and development of ANPs in Primary Care
PROFESSIONAL Professional policies and procedures – NMC code and non-medical prescribing enable nurses to work at a high level of autonomous decision making	IMPLEMENTATION Training and Education – Academic education, competency development and clinical supervision enable ANPs to develop confidence and competency as senior clinical decision makers
PRIMARY CARE External policy context – Urgent and OOH Care review champions the contribution of ANPs in Primary Care	IMPLEMENTATION Supervision and leadership – Availability of clinical supervisors to support work based education and assessment of ANPs
PRIMARY CARE Physical environment – Different nature of rural and urban localities affects model of primary care and ANP roles	EVALUATION Quality and Safety Cultures – Governance systems and indicators to monitor service quality and measure success of change
Outcomes – What impact (both intended and unintended) do ANP roles have on different stakeholders?	
Primary Care Team – Increase flexibility and mobility for multi-disciplinary teams to deliver the right care in the right setting to meet service users' needs	
ANPs – ANP roles offer experienced nurses' educational opportunities, a clinical career pathway and a high level of job satisfaction	
Service users – ANPs improve access and timeliness to primary care services, coordination and continuity of care and reduced hospital admissions	
Service users – ANPs provide person centred care that supports an excellent patient and family experience	
Organization – ANPs provide sustainable, efficient, effective high-quality primary care services	

3.2.2 | Key informant sample and recruitment

A snowball approach was used to identify potential informants from the health board cases who were 'information rich' in relation to ANP implementation i.e., individuals or groups especially knowledgeable or experienced about the issue of interest (Quinn, 2002). The intention was to interview one or two members of staff at an organizational level per health board (*n* = 15–30); however, for many cases up to four informants were required to reach data saturation. Directors of Nursing and Primary Care Leads were invited to identify relevant key informants to participate in the study by telephone or email. These nominees were sent a study invitation and those who confirmed an interest were emailed the participant information sheet, consent form and an interview date request. Reminders were also sent. Forty-four key informants across all cases were interviewed (Table 2).

3.2.3 | Data collection

The aims of the interviews were to:

TABLE 2 Role of key informants – Phase one and two

Role of key informant	Phase one	Phase two
Clinical Lead/Manager Nursing	11	3
Director of Nursing/Professional Advisor	6	
ANP Lead	6	
ANP		10
ANP trainee		7
Associate Director of Nursing	5	
Primary Care Medical Director/GP Lead	4	
Education Lead	4	2
Primary Care Lead	3	
Practice Nurse Lead	3	
Clinical Lead/Manager Medical	2	1
General Practitioner	1	1
Total	44	24

- identify the scope of ANP role implementation in primary care in Scotland
- test the identified ANP programme components from an

TABLE 3 Research questions (Strachan & Hoskins, 2019)

Context	Mechanisms	Outcomes
What are the key drivers for implementing ANP roles in primary care?	What is the role of the ANP in primary care and who undertook this role previously?	What has been the impact of implementing ANP roles in primary care on the primary care team?
What are the policies and legislation obligations for implementing ANP roles?	What competencies do ANPs need in primary care and how are these developed?	What has been the impact of implementing ANP roles on the ANPs?
What national and local leadership is available to support implementation of ANP roles?	What funding is required to implement ANP roles in primary care?	What has been the impact of implementing ANP roles in primary care on the service?
How does the primary care and General Practice culture affect implementation of ANP roles?	What systems are in place to ensure quality governance of the implementation of ANP roles?	What has been the impact of implementing ANP roles in primary care on the organization?
What are the needs of remote and rural or urban populations and models of primary care that ANPs will contribute too?	What indicators are used to evaluate impact of ANP roles in primary care?	What are the long-term goals/vision for primary care?
What are the associated challenges and facilitators of implementing ANP roles in primary care?	What are the associated challenges and facilitators of implementing ANP roles in primary care?	What are the associated challenges and facilitators of implementing ANP roles in primary care?

organizational perspective.

An interview schedule was developed and piloted based on research questions derived from the ANP programme components (Table 3). The researcher (HS), experienced in qualitative interviews and focus groups, obtained written consent and conducted the interviews with informants by telephone (n = 27) or face-to-face (n = 17) on health services premises and took 45–60 min. The interviews were audio recorded, transcribed and depersonalized.

Informants were invited to provide local documentation relating to ANP role implementation in primary care e.g., role descriptions, education curriculum and governance frameworks. These were sent to the researcher via email. In total, 68 documents and websites were reviewed, including: correspondence from government to health boards, national reports, professional policies, role descriptions, competency frameworks, education curriculum, clinical supervision policies, assessment guidelines and governance frameworks.

3.2.4 | Data analyses

Data from the interviews were subject to deductive thematic analysis (Braun & Clarke, 2006). One researcher (HS) extracted data deductively using the ANP programme theory components as a framework. Data from all informants from each case were synthesized into descriptive summaries. Documentation added to or verified the interview data. A second researcher reviewed the summaries (GH). The summaries were sent to informants to check for accuracy and permission to use quotes. The analysis contributed to the on-going development of the programme theory and informed the selection of the health boards for phase two in-depth case studies.

3.3 | Phase two: In-depth case studies of five health boards

3.3.1 | Design

A multiple case study approach continued with in-depth case studies of five health boards cases) to refine the programme theory (Strachan & Hoskins, 2019). This involved semi-structured interviews and a focus group with informants at a primary care team level to understand their perspectives. In addition, an informant from each health board who had participated in phase one was re-interviewed to explore how the programme had changed over time, its impact and sustainability issues. Documentation of local evaluations of ANP implementation was requested.

3.3.2 | Selection of cases

A purposive sample of five health boards (cases) involved in phase one was selected based on a range of criteria including: innovative and unique mechanisms of ANP role implementation, varied contexts or combinations of context and mechanism and feasibility of conducting an 'in-depth review'.

3.3.3 | Key informants' sample and recruitment

New informants were recruited using a snowball approach. An informant from phase one was asked to send an invitation to potential informants who could describe their experience of working as, or with, ANPs at a primary care team level. Informed consent was obtained using the same approach as in phase one. Of 86 GP and ANP informants invited, 24 were interviewed, including 19 telephone

interviews and one focus group (*n* = 5). Table 3 presents informants' roles across the five health boards.

A purposeful sample of informants from each case who had participated in phase one was invited to be re-interviewed (*n* = 5). These informants were selected based on the comprehensive knowledge of ANP implementation they had demonstrated during their phase one interview. The researcher contacted them by email.

3.3.4 | Data collection

The aims of the interviews were to identify primary care teams and ANPs experience of the implementation of ANP roles in primary care across different Scottish contexts and refine the ANP programme theory.

The interview schedule for primary care team informants included topics covered in phase one with some rephrasing to account for different roles and perspectives. The interview schedule for those informants who were re-interviewed focused on impact, scaling up and sustainability of ANP role implementation.

Written consent was obtained, and data collected during telephone or face-to-face semi-structured interviews or focus group discussions, which were audio recorded, transcribed verbatim and depersonalized. Four internal evaluation reports conducted by health boards were obtained. Documentary analysis of these contributed to evidence on outcomes.

3.3.5 | Data analyses

Data were analysed using framework analysis, a method of qualitative data analysis involving a systematic process of sifting, charting and sorting material according to key issues and themes. Framework analysis is a well-established approach to analyse complex multi-layered data (Gale et al., 2013; Richie & Spencer, 1994). Data from phase one, relating to the five health boards involved in the in-depth case studies, were combined with phase two data for case analysis.

The researchers (HS, PA) familiarized themselves with the interview transcriptions and devised a coding structure based on programme theory components e.g., ANP education and sub-themes that emerged from the transcripts e.g., clinical supervision, study leave. This initial coding structure was agreed by the research team who met to devise and agree the analytical plan (HS, GH, PA).

Anonymised transcripts were imported into NVivo 11 and grouped into cases i.e., health boards. These cases were divided between two researchers (HS, PA) who reviewed transcripts within each case. The transcripts were then coded using NVivo by assigned data segments containing discrete pieces of information from the transcripts to a relevant code. The researchers used a mixture of deductive coding, based on the coding structure, and an inductive, open-coding based on additional themes as they emerged. The research team met regularly to discuss initial impressions from the coding, emergent themes and how to apply and refine the analytic framework across the cases.

In particular, data analysis considered what contexts helped or hindered a mechanism to be implemented and what was the impact.

A framework matrix plan was developed that listed codes and cases based on the key programme theory components i.e., ANP role, education, evaluation, were created for each case. Data were then charted into the matrix using automatically generated framework matrices in NVivo. The data from each framework was exported onto Excel spreadsheets to allow verbatim data within the framework matrix to be charted, which involved identifying and summarizing key points, enabling the analysis and synthesis of data within the realist concepts of mechanisms, context and outcomes. The analysis for each case was recorded as a detailed narrative and resulted in case-specific CMO statements for each health board.

Data were analysed using cross-case comparison and synthesis which involved a level of abstraction that transcended each case. Three researchers (HS, PA, GH) together reviewed the detailed narratives and the CMOs, for all five cases. CMOs were then refined to identify the contextual factors that were common across the cases and the associated mechanisms and outcomes re-examined. This allowed a CMO to explain how a mechanism might work in more than one case site if a particular context was present. This resulted in the final programme theory CMOs.

3.4 | Ethics statement

The study was approved by the University of Stirling General University Ethics Panel (06/06/17). All health boards gave the research team permission to approach staff to participate in the study in line with their governance arrangements.

3.5 | Rigour

Rigour, a way to establish trust or confidence in the findings of a research study, has been demonstrated using Baillie (2015) four categories of trustworthiness: transferability, credibility, dependability and confirmability. The study demonstrated transferability by including health boards from across Scotland. Credibility was increased by analysing verbatim transcripts and using quotes to demonstrate conclusions. Dependability was increased by using interview schedules for all informants. Confirmability was applied by asking informants to review their health board's summaries for accuracy. They were also provided with an opportunity to comment on the final report.

4 | FINDINGS

4.1 | Phase one – overview of ANP development and implementation in Scotland

The number of ANPs employed in primary care could not be established. Reasons included: not all nurses with the title ANP met the national ANP definition and criteria, which had only recently been

agreed; and national primary care workforce data did not exist (at this time). It was confirmed that ANPs that met the national definition were employed in all but two health boards' primary care services, although these boards had ANP trainees.

A shortage of ANPs with primary care experience was acknowledged across all health boards. It was notable that remote and rural health boards had previously established advanced nursing training for OOH, particularly in island communities, to address capacity issues they faced. With additional education and development, this provided good foundations for future ANP models of care. One urban health board had an established master's programme and was quickly able to build on this and include primary care as a speciality.

4.1.1 | Key drivers

Informants reported the main drivers for ANP role implementation in primary care were problems with GP recruitment and retention issues. Additionally, informants recognized that the external policy context for the transformation of primary care, aimed at developing new models of care delivered by multi-disciplinary teams (Scottish Government, n.d.), was driving change.

> "So, I guess the ways that I see the care changing, and we come back to that again, about right person, right time, right place, so actually that front door of primary care, you've got a range of options, and unfortunately culture dictates, quite often, that the GP is the first option, and it doesn't need to be, and hasn't needed to be, maybe, for quite a long time, and the ANP is just one part of that."
>
> (GP P14)

National nursing leadership had defined and promoted ANP roles which was considered by key informants as both a driver and a facilitator. Professional policies, including the Nursing and Midwifery Council Code of Practice and non-medical prescribing legislation, allowed nurses with appropriate competencies to work at a high level of autonomous decision making.

> "The transforming nursing roles work has helped clarify that actually ANPs need to have broad knowledge and skills and they need to be able to manage the complete care of the patient."
>
> (ANP lead P3)

4.1.2 | ANP roles

ANPs in primary care cared for adults and children over 1 year (although for some ANPs, over 5 years of age) across the range of primary care services including emergency, urgent and intermediate care; in general practice and community settings such as prisons, nursing and care homes and people's homes. Their roles involved assessment, provisional and differential diagnosis, investigations, prescribing, developing treatment plans and discharge or referral to other specialties.

Patient access to primary care usually involved triaging, with ANPs managing patients with minor illness and injuries. Roles varied across geographical context and needs of the local population. Most ANPs were generalist, but there was an example of a specialist ANP trainee with expertise in learning disability nursing who had been employed to support a residential home in the area. In remote and rural health boards, ANPs often dealt with more complexity and carried out multiple roles e.g., practice, community and advanced nursing including urgent care.

Most ANP roles involved performing clinical tasks previously undertaken by GPs, which could be considered substitution rather or transformative (i.e., establishing new models of care). This 'shifting of workload' included clinical tasks considered more appropriate for nurses with advanced decision-making skills as well as tasks GPs felt were 'safe' to relinquish. There were a few examples of ANP roles that enhanced current services for example, by providing preventative care; and some transformative roles that benefited from ANPs combined nursing experience and advanced clinical decision making, for example, undertaking nursing home visits.

> "...helping out with workload in General Practice to put it in a one liner, is probably the main reason why they're developing (ANP roles) at the moment, but I would be expecting to see other outcomes from...if you are employing nurses in these roles what's the added value of having a nurse in these roles?"
>
> (ANP Lead P3)

Despite GP role substitution, ANPs' professional identity was perceived as firmly within the nursing domain. ANPs were believed to perform thorough comprehensive assessments. Their holistic approach and interpersonal skills were frequently highlighted as being valued, while acknowledging that GPs also demonstrated these skill sets. Most informants perceived ANPs brought something different to the role.

> "But a nurse...I don't know what it is, but I think a nurse does bring something different. I don't want to use the word 'holistic' because that was...is insulting GP colleagues because of course they have a holistic view. But...nurse training asks you to really look at the patient. And I don't mean 'look at', I mean look at...look inside and out. And, you know, when I see a patient I see someone who's vulnerable, who's scared, who needs information over and above the point of interaction of why they're there, if that makes sense."
>
> (ANP P25)

ANPs were recognized as accountable, autonomous decision makers. In remote and rural locations particularly those working in isolation, ANPs tended to have more autonomy. However, there was a perception that they were protocol driven and that GPs had overall responsibility for patients.

> "You've got to make them feel comfortable. You've got to make them feel that they can come to you and talk to you, because that reduces your risk as a (GP) partner and it's your practice, your responsibility, your patients, but it also supports the ANP to feel supported."
>
> (GP P10)

ANP role focus was mainly the clinical pillar of practice. There was limited focus on the leadership, education and research pillars of practice. There were examples of ANPs sharing their expertise with other members of the primary care team. There was an expectation that experienced ANPs would mentor and supervise new ANPs in the future.

4.1.3 | ANP education

The national definition expected ANPs to have at least 5 years' experience and most ANP trainees were from the practice or community nursing population as it was believed they were more familiar with the primary care culture. ANPs in OOH often had acute backgrounds. It was also recognized that it was not always possible to create new posts, however this produced a dilemma, with ANP trainees also continuing with their practice nursing roles.

A tripartite approach to education included master's level academic preparation, clinical competency development and effective supervision. Education approaches demonstrated overall consistency with the national competencies; however, the amount of clinical supervision and study leave varied extensively. Some ANP trainees received between 1 and 2.5 study days per week and continued to manage a patient caseload while others were supernumerary. Supervision was provided by GPs; some were experienced supervisors and delivered a model of work-based training that mirrored GP training. This variability seemed to be based on employer, funding and capacity, rather than ANP's training needs.

While some GPs were employing nurses with an offer of support to undertake ANP training, increasingly health boards were directly employing an ANP lead to collaborate with higher education institutions and establish close working relationships with GPs to deliver work-based learning placements, supervision and support the ANP trainees.

A recently established West of Scotland Advanced Practice Academy involved a collaboration of health boards that provided leadership intended to progress ANP implementation in primary care in relation to education and governance. It included a leadership group who provided an overarching view of advanced practice development and a 'network' of ANPs who supported learning and

professional development. This 'Academy' approach has since been expanded to include other professions and services across Scotland.

4.1.3 | Anticipated impact of ANP roles and how actual impacts would be measured

The anticipated impact of the ANPs role was described from a range of perspectives. From an organizational viewpoint, ANPs were believed to lead and be part of new care models of multi-disciplinary teams that could meet the health needs of communities, delivering high-quality and efficient primary care services.

At a team level, ANPs would contribute to multi-disciplinary working to enable flexible and appropriate primary care services, making best use of the teams. GPs would manage service users with complex healthcare needs and act as clinical leaders. This would free up GP appointments, reduce GP workload and stress. However, some team members were concerned about how ANPs would affect their roles. There were concerns from ANP leads that the less desirable elements of the GP's role would be given to ANPs, while some GPs had reservations that they would lose some of the 'best bits' of their role. There was widespread acknowledgement that ANPs would benefit from having greater career opportunities in primary care and increased job satisfaction.

Service users were expected to benefit from a holistic approach that enhanced their experience, continuity and coordination of care, by reducing onward referral to other team members and waiting times for prescriptions, and increased preventative care.

The measurement of the ANP workload or actual impact at a team or health board level was underdeveloped. Concerns were expressed regarding the difficulty of measuring ANPs impact on clinical outcomes with a belief that absence of measurement could mean inappropriate role development, or lack of valuing these roles.

4.1.5 | Facilitators and challenges to the implementation of ANP roles across primary care contexts

Key facilitators were:

Leadership
National leadership had created a definition and criteria that provided a clear steer for ANP role and education.

> "It is clear what an advanced nurse practitioner is. It is clear what they need to do. It's clear what band they should be at and it's clear the level of support they require, not just during their training but after their training."
>
> (ANP Lead P25)

Senior leadership at organizational level that promoted ANP roles and multi-disciplinary primary care teams and enabled involvement of GPs at all stages of ANP role implementation.

> "So, we're very lucky that the leadership at a board level is very much joined up, and also very much about how do we all do this together; so it's not just about nursing, it's also about the service managers, it's also about the medics being involved."
>
> (ANP Lead P24)

An 'organic' (i.e. gradual and exploratory) approach to role development from local leaders enabled a flexible approach to ANP role implementation.

> "I think it's (ANP role development) been quite organic. And then it's almost got pulled together from the active learning that we've done over the last…. five years and as we've looked and learned and what's worked and what hasn't worked."
>
> (GP P20)

Multi-disciplinary team working and relationships

Good working relationships between GPs, ANPs and other team members was a key facilitator, as was involving the public. This was also enabled by triaging patients at the first contact with the primary care team to ensure they accessed the most appropriate healthcare professional.

Education, competencies and governance

The 'Academy' approach supported peer networking across health boards, developed good links with GPs and enabled sharing of good practice frameworks for competency, education and governance for ANP roles, education and development.

> "I think the academy might be, or will be, useful in terms of sharing that knowledge and experience and seeing actually what works…what's going to work best."
>
> (ANP Lead P3)

A structured, co-ordinated and resourced tri-partite education solution (academic modules, competency development and work-based learning) supported and delivered by health boards and HEIs, in collaboration with GPs, was a significant facilitator.

Challenges included:

Understanding the ANP role

Overall, there was inconsistent and inappropriate use of ANP titles, which was largely due to a lack of understanding by some primary care team members of advanced practice and autonomy of ANPs.

> "So, you know, interesting that we were at an event a few weeks ago, and some of the GPs around the table, just couldn't really understand what an ANP was and would offer."
>
> (Primary Care Lead P14).

This lack of understanding also created resistance from some GPs and primary care teams, influenced by fear of their own role erosion.

> "Historically (GPs) are the ultimate jack of all trades although…that's the beauty of the job and that was the attraction of the job and bit by bit it's been whittled away. Obviously, midwives now do all the antenatal care. If you take all the good bits of a job away, then what's left and partly does that make it all less attractive to people to come into it."
>
> (GP P40)

Professional identity issues also created a perception that some patients were resistant to seeing an ANP, which in turn created challenges educating service users about ANP roles and how best to utilize them.

> "The patients still think that, you know, what's that all about, it's really the doctor I want to see. They object even some of them to the receptionist asking to get a bit of background. 'What's with you, I'll discuss it with the doctor', so there's a wee bit of education, clearly, for professionals, but I think there's a bit of education required for the general public."
>
> (GP P44)

This led to, and was compounded by, ANP roles focusing on substitution for GPs rather than reviewing models of care and team responsibilities.

> "So, there is something about how do we work differently as a team…. So yes, we focus on ANP, and the training is there, but there is the dynamics of looking at the whole team and up skilling the team"
>
> (ANP Lead P24)

Rural ANPs

Extensive breadth and depth of ANP roles, particularly in rural areas, created significant challenges across a range of issues including recruitment, maintenance of their wide range of competencies and sometimes a lack of clinical support and professional isolation.

> "The nurses on those islands…now, if you then become an advanced nurse practitioner on top of practice nurse and community nursing and emergency care you then add on the diagnosis and the management of general practice cases. That is, you know, that

is another massive, massive skillset that you're asking them to do."

(GP P32)

Mentorship, supervision and competencies

Overall, there were inconsistent standards of mentorship, supervision and assessment of competencies, compounded by inadequate study leave or clinical supervision due to limited capacity, shortage of clinical supervisors (both ANPs and GPs) and variable funding arrangements.

General practical barriers

The coordination of patient care across primary care, community and acute services was hampered by the limitations of information technology systems. Although this was not only a problem for ANPs, it could be particularly challenging if an ANP worked across a group of GP practices. There was often a lack of office space and administrative support for ANP roles.

4.2 | Phase two – In-depth case studies in five health boards

A summary of key context, mechanisms and outcomes for each case studies are provided in Table 4.

4.2.1 | Evaluation and sustainability

Perceptions of key informants and small-scale evaluations in the five health boards indicated that ANPs can perform elements of the GP's role and OOHs service which deliver appropriate clinical decisions and referrals, provide a positive patient experience, improve access to primary care, manage complete care of a patient thereby improving coordination of the patient journey, enable longer appointment times with GPs, enable GPs to focus on more complex cases, reduce use of GP locums, improve multidisciplinary team working. These suggestions are in line with policy recommendations (SG, 2016).

In relation to scaling up and sustainability, there was recognition that ANPs with primary care experience were in short supply. It took 2/3 years to train an ANP and the main recruitment pool was practice nurses who were older than 45 years. Also highlighted was the high attrition rate of ANPs to higher paid positions offered by some GPs, resulting in the depletion of one primary care team in favour of another and making GPs less willing to invest in the training.

4.2.2 | Programme theory and CMO statements

Three main themes: ANP role, education and governance, were analysed, resulting in a revised programme theory (Table 5). The statements within the revised programme theory were further analysed

to reflect on the realist evaluation CMO concepts, see (Figure 1 - ANP role), (Figure 2 - Education) and (Figure 3 - Governance).

Based on the analysis and consistent with the realist approach (Wong et al., 2016), the authors suggest that ANP role implementation will more likely succeed when the following key mechanisms and contextual features are found:

Role CMO suggests considering local health needs and location (i.e., urban, remote, rural or island) (C), ANP role development that combines advanced nursing and decision-making skills while developing and valuing all primary care team members (M) can enable the most appropriate member of the multidisciplinary team to deliver care that improves patient access to care, journey and experience to enhance or transform primary care (O).

Education CMO indicates that a national ANP definition, criteria, competencies and leadership at all levels (C) facilitated appropriately resourced, competency-based academic and work-based learning opportunities delivered in collaboration with experienced GP supervisors andANP leads (M). Networking across ANPs and multidisciplinary teams (M) enabled a high standard of education, a positive learning experience for ANPs and reduced professional isolation (O).

Governance CMO proposes that vision, commitment and experience of a multidisciplinary approach to service delivery by primary care teams (C) were enabled through collaboration between GPs and 'Academies', sharing of governance frameworks and conducting local audits (M), which supported GPs to develop confidence in ANP roles and transparent governance arrangements (O).

5 | DISCUSSION

5.1 | ANP role

Reflection on our initial programme theory components and revised programme theory confirms the importance of key mechanisms including resources, education, supervision and leadership. In particular, engaging relevant stakeholders to understand the role of ANPs was a mechanism that was less well implemented but was crucially important for successful implementation.

Lack of awareness or acceptance of ANP roles from doctors or other healthcare professions was a commonly reported challenge. In contrast, an appropriate ANP definition and efforts to build collaborative and supportive relationships between ANPs and other health professions acted as facilitators. This resonates with the international literature which found 'team factors' were the most frequently reported challenges and facilitators, with acknowledgement that for doctors to accept the ANP role they needed to believe in the positive impact the role could have (Torrens et al., 2020).

This study found that ANP roles had been developed in isolation from other primary care team members leading to their role erosion concerns. A review of the introduction of NPs in Canada highlighted that role definition and planning at the team level was a chance to establish a shared vision for the team and review the model of care (Contandriopoulos et al., 2015).

TABLE 4 Key context, mechanisms and outcomes of in-depth case studies

Health boards	Case 1	Case 2	Case 3	Case 4	Case 5
Geography	Rural and urban	Dispersed urban	Urban	Remote and Rural	Island
Population	367,000	1,200,000	800,000	320,000	23,000
Key Context	Member of the 'Academy' High degree of collaboration with GPs Up skilling practice nurses familiar with primary care	Member of the 'Academy' Multidisciplinary leadership of primary care transformation Focused on new models of primary care for clusters of GPs	Well established ANP masters education programme New models of primary care developed including multidisciplinary advanced practitioners Up skilling practice nurses familiar with primary care	Remote and Rural multidisciplinary model of care. Recruitment challenges key driver. ANPs have high degree of autonomy, wide breadth, often working in isolation	4/5 general practices managed by health board Comprehensive governance framework in place GP recruitment challenges were a key driver. Multi-disciplinary teams working culture
Key Mechanism	Funding for ANP trainees study leave and clinical supervision Senior management support and dedicated ANP lead Criteria for ANP training practices similar to GP training practices Triage to direct patient access to primary care team members	ANP trainees' salaries funded by health board Dedicated primary care transformation lead and ANP lead. Triage to direct patient access to primary care team members	Robust ANP trainee recruitment process includes assessment of clinical decision making Funding for study leave and clinical supervision Dedicated ANP lead Experienced GP trainers funded for clinical supervision	Capabilities framework and assessment of competencies Toolkits Use of technology to provide feedback on clinical decision making and support clinical governance An experienced ANP manages ANP team	Patient and public consultation regarding ANP role Multidisciplinary education and development GP supervision integrated into GPs work plans ANPs supported to undertake full MSc in Advanced Practice
Key Outcomes (evaluation focus and methods differed)	Improved access to primary care. GPs developed confidence in ANP role and education GPs focus on more complex cases Creation of clinical career opportunities Attrition of ANPs to higher paid positions	ANPs combining nursing experience and advanced clinical decision making to manage complete care of patient Improved access to primary care and longer appointment times with GPs Improved Multi-disciplinary teams working Improved ANP job satisfaction Attrition of ANPs to higher paid position	Immediate Care service demonstrates improved user journey, appropriate referrals, and positive service user feedback experience. GPs with good understanding of ANP role. Clear ANP career pathway Clinical career development opportunities for nurses	ANPs made appropriate clinical decisions ANPs focus on keeping people well at home ANPs provide 40% OOHs service GPs 60% Reduction in use of GP locums Attrition of ANPs to higher paid positions	Improved access to primary care. ANP role positively received by GPs and practice nurses they work with. Positive patient experience Reduce hospital and A&E attendance Clinical career opportunities for ANPs in primary care up to band 7

Conversely, many informants perceived benefits of an 'organic nature' to implementing ANP roles, which allowed GPs time to gain confidence in the ANP role. According to other international studies implementing ANP roles using this 'trial and error' type approach was common (Contandriopoulos et al., 2015). However, this approach does little to address the concerns of other team members, nor does it signpost to how services might benefit from redesign.

In terms of the professional context and our initial programme theory, it was acknowledged that the UK has no professional or legal barriers to nurses practicing autonomously; however, this

TABLE 5 Programme theory of ANP role implementation in primary care – Scotland (Strachan & Hoskins, 2019)

ANP Role Context, Mechanism and Outcome Statements

ANP role implementation had been driven by a shortage of GPs resulting in GPs employing ANPs to 'fill the gap' and relinquishing elements of their roles to ANPs that they thought were safe for them to undertake or were less appropriate for a GP.

Shifting workload from the GP to an ANP relieved GP workload and stress but may not achieve primary care transformation or make best use of advanced nursing competencies to deliver new models of primary care.

ANPs in primary care were generalist practitioners and senior clinical decision makers. When these roles were combined with their nursing competencies and the leadership, research and education pillars of practice, ANPs managed the complete care of patients with undifferentiated diagnoses and advanced primary care services to deliver new models of care.

Appropriate triaging of appointments, together with availability of clinical support, enabled ANPs to take on elements of a GPs workload and Out-of-hours services within the scope of ANP practice.

ANPs were perceived to deliver quality care and manage risks by undertaking a comprehensive clinical assessment, the appropriate use of clinical guidelines and protocols, and a holistic approach to caring for the whole person.

Resistance of some GPs to ANP roles was influenced by a lack of understanding of the ANP role, their education and concern that the GP role would be eroded.

A culture that values the contribution of all primary care team members and has a good understanding of the ANP role and its relationship to the roles of other team members enhances job satisfaction for the multi-disciplinary team.

ANPs working in remote and rural conditions or in smaller general practices were carrying out multiple nursing roles to provide a flexible workforce.

As ANP roles develop in primary care, there were/will be opportunities to review roles and skill mix of multi-disciplinary primary care teams to enable all members of the team develop and practice to the full scope of their capabilities and deliver new models of care.

ANP Education and Development Context, Mechanism and Outcome Statements

Development of a national ANP definition and competencies had improved understanding of the ANP role and enhanced provision of ANP education and development although its implementation across Scotland was variable.

Collaboration between independent general practices, health boards and HEIs together with dedicated local leadership had enabled a coordinated approach to delivering appropriate ANP work-based education.

The 'Academy' approach had promoted ANP role implementation across health boards through the sharing of frameworks for competencies, education and governance.

Funding across health boards for clinical supervision and study leave was variable and therefore ANPs were experiencing inequality and inconsistent education and development opportunities and experience. Recommendations for study leave ranged from 30 to 50% initially and in some cases ANP trainees were supernumerary.

To develop the necessary confidence and competencies ANPs required 2/3 years to complete necessary academic education, competency development and clinical supervision. Together with considerable support and commitment from the GP, the ANP needed to be resilient and self-directed.

ANPs without primary care experience required additional education and development to adapt to the primary care culture and ANPs who were registered adult nurses required paediatric and mental health education.

Using the GP model of training in approved general practices for ANPs provided high-quality clinical supervision and enhanced the ANP trainee's clinical decision-making skills. However, the lack of focus on the other pillars of the advanced nursing role created perceptions that ANPs were training to be doctor substitutes.

ANPs valued the peer support and networking opportunities of other ANPs and guidance from ANP supervisors, leaders and managers to: maintain their nursing focus; support CPD opportunities; and prevent professional isolation.

Governance and Sustainability Context, Mechanism and Outcome Statements

A lack of measures of ANP impact and concern that ANP roles must evidence that they provided safe care meant evaluation was focused on adverse events rather than how ANPs added value to the primary care services. The exception was patient experience, on which ANPs had a positive impact.

Variable quality governance arrangements across independent general practices caused concern regarding the professional development and support for ANPs.

Health boards investing in ANP education and development were losing ANPs to independent general practices that reportedly paid a higher pay band, creating challenges for workforce planning and development.

Primary care transformation funding had been instrumental in ANP implementation and despite funding from the Government to support future academic education; health boards and GPs were concerned about funding for future work-based learning and study leave.

There was limited capacity of both medical and nursing clinical supervisors and assessors to support ANP work-based learning.

There was uncertainty over future manpower and succession planning for ANPs in primary care as the main recruitment pool for ANPs was the experienced primary care and community nursing workforce, many of whom are over 45 years of age.

study found that GPs were cautious about handing over responsibility for case management, which by default challenges the notion of autonomy. This suggests a true multi-disciplinary culture in primary care in Scotland may take time to embed and was an important revision to the programme theory. 'Lines of responsibility' which included restrictions being placed on the ANP's ability to work autonomously was the second most reported challenge related to ANP roles in a review of facilitators and barriers
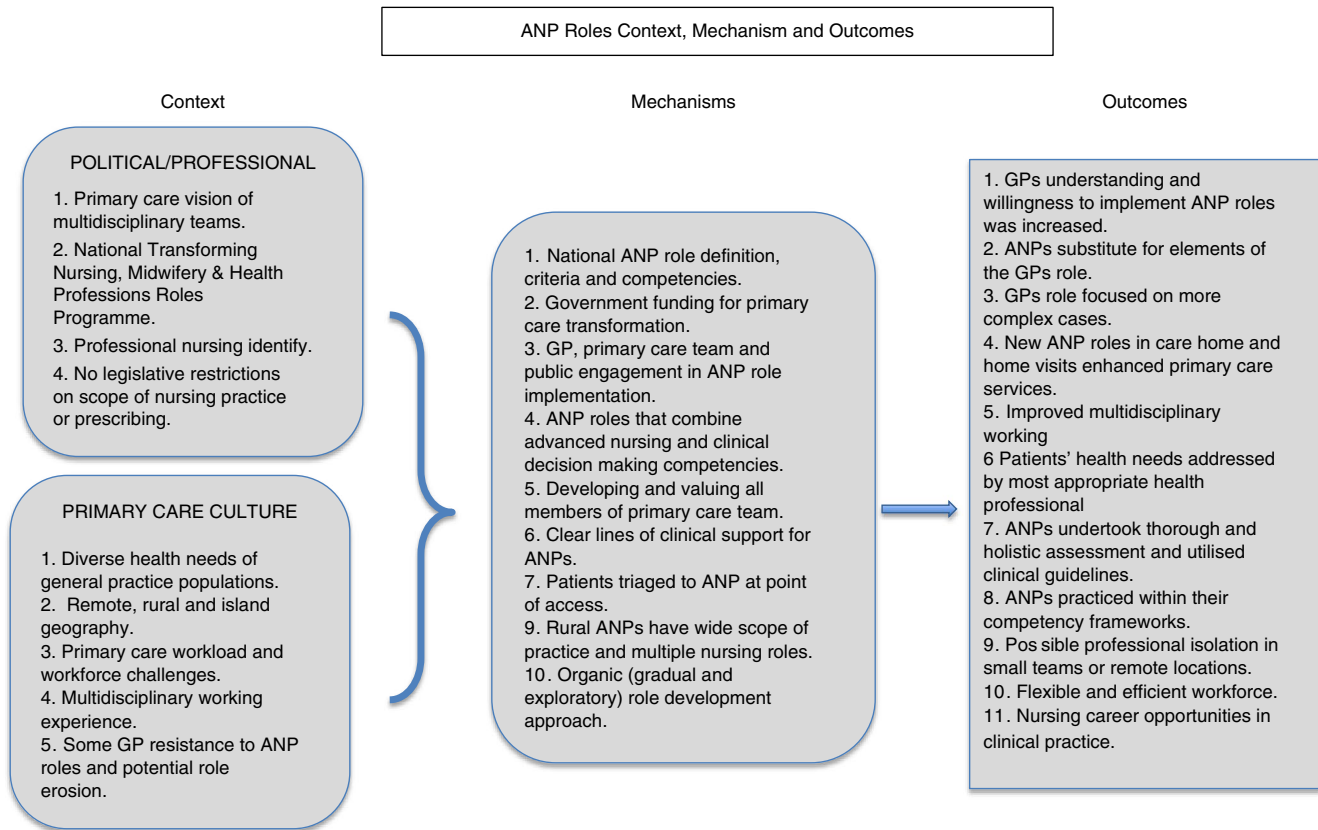
ANP Roles Context, Mechanism and Outcomes

Context | Mechanisms | Outcomes

POLITICAL/PROFESSIONAL

1. Primary care vision of multidisciplinary teams.
2. National Transforming Nursing, Midwifery & Health Professions Roles Programme.
3. Professional nursing identify.
4. No legislative restrictions on scope of nursing practice or prescribing.

PRIMARY CARE CULTURE

1. Diverse health needs of general practice populations.
2. Remote, rural and island geography.
3. Primary care workload and workforce challenges.
4. Multidisciplinary working experience.
5. Some GP resistance to ANP roles and potential role erosion.

1. National ANP role definition, criteria and competencies.
2. Government funding for primary care transformation.
3. GP, primary care team and public engagement in ANP role implementation.
4. ANP roles that combine advanced nursing and clinical decision making competencies.
5. Developing and valuing all members of primary care team.
6. Clear lines of clinical support for ANPs.
7. Patients triaged to ANP at point of access.
9. Rural ANPs have wide scope of practice and multiple nursing roles.
10. Organic (gradual and exploratory) role development approach.

1. GPs understanding and willingness to implement ANP roles was increased.
2. ANPs substitute for elements of the GPs role.
3. GPs role focused on more complex cases.
4. New ANP roles in care home and home visits enhanced primary care services.
5. Improved multidisciplinary working
6 Patients' health needs addressed by most appropriate health professional
7. ANPs undertook thorough and holistic assessment and utilised clinical guidelines.
8. ANPs practiced within their competency frameworks.
9. Pos sible professional isolation in small teams or remote locations.
10. Flexible and efficient workforce.
11. Nursing career opportunities in clinical practice.

FIGURE 1 ANP role CMOs

(Torrens et al., 2020). Without full autonomy, ANPs could be required to refer to GPs for decisions, making them be less efficient and effective. The importance of ANP role autonomy was demonstrated in a study that found a statistically significant association between ANP level of autonomy and improved patient outcomes (Oliver et al., 2014).

5.2 | Education

Our initial programme theory recognized that education was aimed at developing confident, competent ANPs. This study highlighted the importance of national leadership for ANP implementation with an agreed national definition enabling consistent education provision across Scotland. However, the inconsistent resourcing of trainee posts, study leave and supervision appeared to impact negatively on the education experience of ANP trainees and potentially standards of practice.

The international literature reflects the importance of facilitation and support for the development and implementation of ANP roles (Dalamarie & Lafortune, 2010). Likewise, the importance of strong leadership and support from managers, doctors and senior nursing colleagues in addition to mentoring and supervision (mainly from doctors) has been suggested as central to building confidence in ANPs (Torrens et al., 2020).

5.3 | Governance

While most informants had high expectations of what ANPs could contribute to primary care, there were few comprehensive evaluations undertaken by health boards. There was, therefore, little clear evidence that care provided by ANPs led to specific patient outcomes. Identifying the impact of ANPs, as members of a multidisciplinary team, on the quality and efficiency of primary care services will be important in moving forward.

While not ANP specific, a Cochrane review of nurse-led services in primary care, which examined 18 randomized controlled trials, revealed that nurses probably achieve higher levels of patient satisfaction, and that the quality of care they provide and resulting patient outcomes are equal too, or possibly even better, compared with primary care doctors (Laurant et al., 2018). A systematic review of ANPs in primary care found that they provided comparable quality of care at a similar or lower cost to GPs, but that the care they provided was in some ways different (Swan et al., 2015). Kraus and DuBois (2017, p286) highlight 'the unique nursing approach to patient care'.

Our study found that ANP roles were perceived firmly within the professional identity of nursing. The international literature confirms this point (Choi & De Gagne, 2016). However, informants in this study found it difficult to articulate the differences in approach between nurses and GPs. Williams and Jones (2006) highlight style
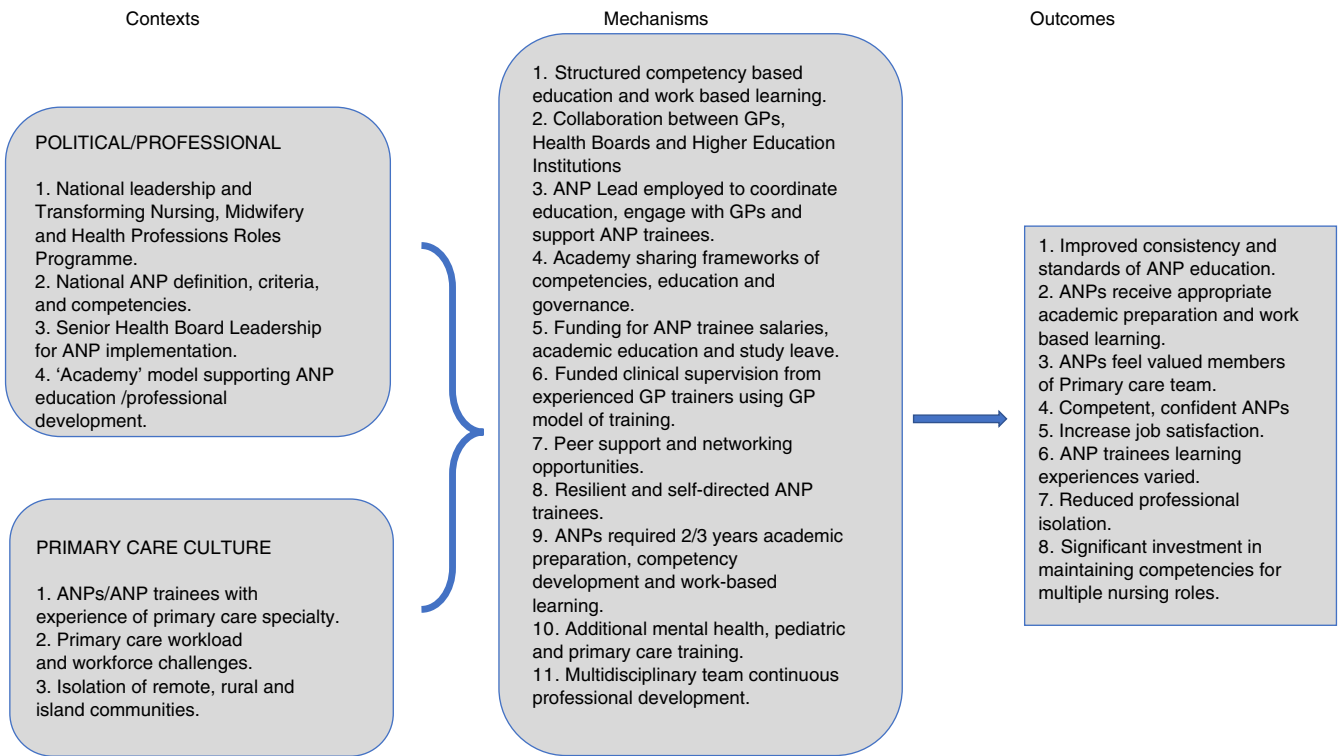
ANP Education Context, Mechanisms and Outcomes

Contexts

Mechanisms

Outcomes

POLITICAL/PROFESSIONAL

1. National leadership and Transforming Nursing, Midwifery and Health Professions Roles Programme.
2. National ANP definition, criteria, and competencies.
3. Senior Health Board Leadership for ANP implementation.
4. 'Academy' model supporting ANP education /professional development.

PRIMARY CARE CULTURE

1. ANPs/ANP trainees with experience of primary care specialty.
2. Primary care workload and workforce challenges.
3. Isolation of remote, rural and island communities.

1. Structured competency based education and work based learning.
2. Collaboration between GPs, Health Boards and Higher Education Institutions
3. ANP Lead employed to coordinate education, engage with GPs and support ANP trainees.
4. Academy sharing frameworks of competencies, education and governance.
5. Funding for ANP trainee salaries, academic education and study leave.
6. Funded clinical supervision from experienced GP trainers using GP model of training.
7. Peer support and networking opportunities.
8. Resilient and self-directed ANP trainees.
9. ANPs required 2/3 years academic preparation, competency development and work-based learning.
10. Additional mental health, pediatric and primary care training.
11. Multidisciplinary team continuous professional development.

1. Improved consistency and standards of ANP education.
2. ANPs receive appropriate academic preparation and work based learning.
3. ANPs feel valued members of Primary care team.
4. Competent, confident ANPs
5. Increase job satisfaction.
6. ANP trainees learning experiences varied.
7. Reduced professional isolation.
8. Significant investment in maintaining competencies for multiple nursing roles.

FIGURE 2 ANP education CMOs

ANP Governance and Sustainability Context, Mechanisms and Outcomes

Contexts

Mechanisms

Outcomes

POLITICAL/PROFESSIONAL

1. Anticipated impact of ANP roles was to enable the primary care vision of multidisciplinary teams.
2. Recruitment pool of ANPs was mainly practice and community nurses over 45 years.

PRIMARY CARE CULTURE

1. Independent nature of General Practice employment practice and variable governance arrangements.
2. Commitment and experience of a multidisciplinary team approach to service delivery

1. Primary care transformation funding to support ANP role
2. Academy collaboration and sharing of governance and education frameworks
3. Small scale surveys of patient experience of ANPs.
4. Local audits of ANP activity.
5. ANP career pathways across primary care and community.
6. GPs able to offer higher ANP grades (>7) to attract limited pool of ANPs

1. Limited measurement of impact of ANP Role.
2. Indications suggest ANPs improved patient access, patient journey, a positive primary care experience.
3. Indications suggest ANPs make appropriate referrals, decisions making, keep people well at home and reduce hospital and A&E admissions.
4. GPs developed confidence in ANP roles
5. Recruitment, retention and succession planning of ANPs difficulties.
6. High levels of attrition of ANPs to GPs offering higher grades.
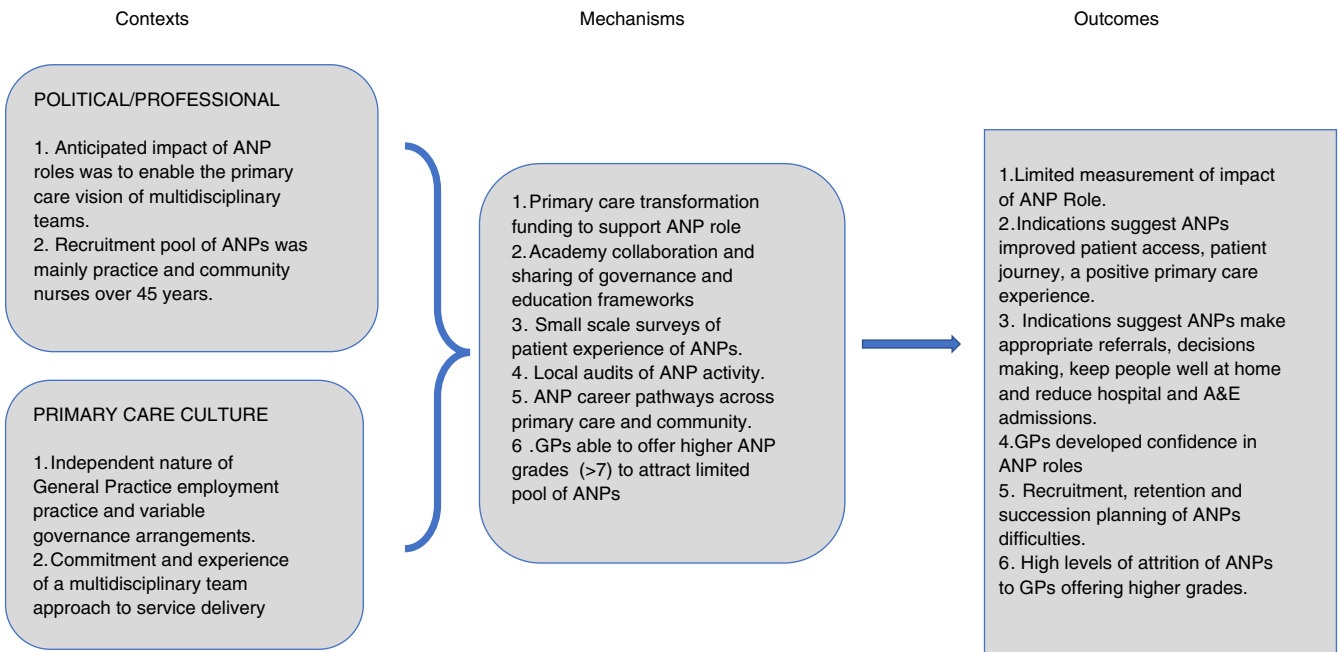
FIGURE 3 ANP governance and sustainability CMOs

and emphasis of consultation as important factors in patient experience. Additionally, Barratt and Thomas (2019b found patient-centred interaction styles, which characterizes nurse practitioners' consultation are not necessarily contingent with longer consultation times. Interaction styles could be an important consideration in the different approaches between ANPs and GPs. The personal skills, abilities and flexibility of ANPs have been widely cited as a facilitator to ANP roles (Torrens et al., 2020). The initial programme theory did not emphasize this component adequately, and the findings of the study suggest that more debate around nurses' unique contribution is required although some evidence suggests the communication processes and social interaction may be a factor in this (Barratt & Thomas, 2019c).

5.4 | Sustainability

One outcome identified by the initial programme theory was that ANPs would provide sustainable, efficient and effective high-quality primary care services. However, this study suggested significant challenges. Nurse leaders in this study were concerned about future funding for ANP trainee posts, study leave and supervision, as initial funding was from primary care transformation funds. Perhaps unsurprisingly, these findings concur with barriers described in the international literature (Torrens et al., 2020).

Additionally, investing in ANP training was a challenge in a service already under pressure, with GPs having to take time to supervise ANP training, although the capacity to scale up this training may get easier when there are more ANPs to provide the supervision. However, given that the primary source of potential ANPs comes from Practice Nurses, many of whom are over 45 years old, succession-planning needs to be addressed. The importance of appropriately funded trainee posts alongside a career structure for nurses in primary care should be a high priority for nurse leaders as it would enable succession planning and increased capacity for ANPs education. Developing transparent governance arrangements to address concerns regarding standards of education and evaluation of practice is warranted.

5.5 | Strengths and limitations

This is the first national UK evaluation of ANP roles in primary care, utilizing realist theory to inform the implementation of advanced nurse practitioners. The research team included nurses with primary care knowledge who worked closely with multidisciplinary colleagues from the Scottish School of Primary Care.

There are some limitations to our work. It is recognized that primary care is very diverse across Scotland and informants from the in-depth case studies were a small sample of primary care teams and some team members were not represented i.e., other nursing staff. We did not seek views from service users and relied on local evaluations for our outcome-focused findings. This evaluation also

took place at a time of early-stage implementation of ANP roles in primary care.

6 | CONCLUSION

This study has used realist evaluation techniques within a multiple case study approach to evaluate Advanced Nurse Practitioner (ANP) role implementation in primary care across Scotland and the contribution ANPs have made to primary care transformation.

ANP role implementation is in the early stages of development in Scotland and existing roles mainly substitute for GPs rather than transforming primary care through multidisciplinary teams and new models of care. However, limited local evaluations suggest ANPs are delivering high-quality primary care services. This realist analysis suggests that ANP roles can be implemented with greater success when advanced nursing knowledge is valued, when there is leadership at all levels, and where appropriate education programmes are delivered in the context of multidisciplinary collaboration. When these contexts and mechanisms are present, the potential for ANPs to transform primary care is increased.

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