Factors influencing community-based advanced clinical practitioners maintaining their physical assessment skills: A qualitative study

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Acknowledgements / Dedication

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Glossary of terms

Auscultation: Auscultation involves listening to internal bodily sounds using a stethoscope. Auscultation is performed for the purposes of examining the respiratory and circulatory systems (breath and heart sounds) and the gastrointestinal system (bowel sounds) to aid diagnosis.

Community advanced clinical practitioner (ACP): An autonomous practitioner who works with complex and acutely unwell patients, often with undifferentiated diagnosis, and has the clinical skills to assess, diagnose, prescribe and treat. These are senior, highly experienced practitioners who have completed a clinically based university advanced practice master's degree programme.

Complex patient: A patient with a complex medical history and multiple conditions.

Health related diagnosis: Health related diagnosis is a judgement about what a particular health problem or illness is, made in conjunction with history taking, physical examination and pathology.

High acuity patient: A patient who is unwell and at risk of deterioration.

Inspection: Inspection involves examining bodily parts closely to support diagnostic information.

Observation: Observation is used by skilled clinicians to glean information about patients using senses to aid diagnosis.

Palpation: Palpation provides diagnostic information. The sense of touch with the hand is used to assess temperature, organ size and location, rigidity, masses, swelling, pulsation, texture, moisture, vibration, crepitation and pain. Specific areas of the hand are used for palpation, depending on the body part being examined.

Percussion: Percussion requires tapping body parts with fingers or small instruments as part of a physical examination, to obtain diagnostic information. It is used to assess absence or presence of fluid in body areas, and the consistency, size and borders of body organs.

Physical assessment skills: The systematic assessment of each bodily system, involving inspection, palpation, percussion and auscultation.

Red refusal: A seriously ill patient who declines hospital admission.

Safety netting: Advice shared with patients and carers to help them know when to seek medical help if their condition changes, i.e., deteriorates.

Abbreviations

ACM	Active case manager
ACP	Advanced clinical practitioner
AHP	Allied health professional
ANP	Advanced nurse practitioner
AP	Advanced practitioner
CNS	Clinical nurse specialist
CM	Community matron
COPD	Chronic obstructive pulmonary disease
CSPD	Community Specialist Practitioner Degree
DH	Department of Health
DN	District nurse
GP	General practitioner
ICT	Intermediate care team
MPAS	Medical physical assessment skills
NHS	National Health Service
NHST	Nursing home support team
NMC	Nursing and Midwifery Council
NP	Nurse practitioner
PA	Physical assessment
RCN	Royal College of Nursing
RN	Registered nurse

Abstract

Background: Numerous government White Papers have predicted significant health professional skills gaps in meeting patients' needs within the National Health Service (NHS). Community advanced clinical practitioners (ACP) were identified as key skilled workers to support both patients and doctors. A wide range of physical assessment skills are essential to assess, diagnose and treat acutely unwell complex patients at home by providing safe, effective, timely care. Existing research is predominantly quantitative and focuses on the use of physical assessment skills; no studies have explored how these skills are maintained. **Aim:** This study explores the concept and application of community ACP roles, identifies practitioners' understanding related to factors influencing maintaining their physical assessment skills, and generates a framework of how these skills can be optimised and supported in practice. **Design and methods:** A qualitative interpretivist single case study design using one-to-one semi-structured interviews with ACPs was conducted, and data generated analysed thematically. **Findings:** Community ACPs worked in highly autonomous roles assessing, diagnosing and managing acutely unwell patients with complex health needs, thus required wide ranging physical assessment skills. Accessing continued professional development (CPD) and clinical supervision were major contributing factors to difficulty maintaining some physical assessment skills, including those used less frequently. This reflected isolated working practices and the busyness of their environment, with reduced opportunities to rehearse skills. Clinical training gaps made it difficult for them to achieve their full potential. Innovative approaches for maintaining physical assessment skills were exposed, and multiple opportunities to gain practical experience, as opposed to one-off training courses, were seen as a necessity. Greater understanding on the part of employers would benefit skill maintenance. **Recommendations:** Advanced practice training needs to give more consideration to generic community roles to support practitioners in fully developing and maintaining their skills. Refresher courses incorporating opportunities for practical experience in varied clinical settings, regular clinical supervision and more opportunities for collaborative learning between doctors and this group of professionals are recommended. **Contribution of knowledge:** This study makes a unique contribution to understanding factors influencing community based ACPs maintaining their physical assessment skills. The findings supported the development of an innovative framework to promote CPD in this area of practice and demonstrate how skills can be optimised and supported in these highly autonomous roles.

Chapter 1 Introduction

1.1 Study introduction

With a nursing career in the National Health Service (NHS) spanning a quarter of a century, working exclusively in community settings, it was clear to me that community roles required significant change to meet challenging population health needs and provide care closer to home. Semi-retiring from the NHS five years ago, on return as a senior advanced clinical practitioner I supported establishing a community crisis response service. The service was created to prevent hospital admissions through ACPs leading patient care using physical assessment skills, along with history taking and clinical decision-making skills (skills traditionally used by doctors), to diagnose and treat acutely unwell patients at home. ACPs are registered health and care practitioners educated to advanced practice master's level and whose role is characterised by their high levels of clinical autonomy and complex decision-making (Health Education England [HEE], 2017). Physical assessment within this community role crucially helped address huge NHS gaps created by the increased prevalence of long-term conditions (Department of Health [DH], 2019), an ageing population (Office for National Statistics [ONS], 2018), increasing complexity of healthcare needs (DH, 2019), shortages of general practitioners (GPs) (Buchan, Charlesworth, Gershlick & Seccombe, 2019) and increased demand on hospital services mainly due to unnecessary hospital admissions (NHS England [NHSE], 2015). Delivering cost-effective timely care closer to home, however, challenged NHS healthcare practices as it required significant workforce redesign.

Thus, the NHS had to find new ways of working and a workforce to meet patient need, by shifting traditional well established clinical working boundaries across nursing, allied health professions and medicine. Registered nurses (RN) and allied health professionals (AHP) developed advanced physical assessment skills to provide more acute and chronic complex care independently in specialist and generalist capacities (DH, 2019; HEE, 2017). Shifting care from hospital to community, however, resulted in community ACPs providing much more varied, complex care at home. Maintaining wide-ranging physical assessment skills within this generic role was therefore crucial for safe, effective, and timely diagnosis and treatment. This thesis examines whether those crucial clinical skills were being supported.

Studies have shown that many physical assessment skills taught were not being used and that advanced nurse practitioners (ANPs) used fewer skills (Shin, Kim & Kang, 2009) than RNs

(Giddens, 2007), but these findings are difficult to corroborate as there has been limited advanced practice research in this area. Papers, predominantly quantitative, have focused on the number and frequency of skills used by ward-based RNs (Cicolini et al., 2015).

Finding this knowledge gap about advanced practice and physical assessment skills in community settings was a significant driver in the research presented in this thesis. Maintaining these skills was a poorly understood area of clinical practice and no primary research existed, despite the ACP role being firmly grounded in clinical practice and direct patient care (Evans, Pearce, Greaves & Blake, 2020; HEE, 2017, 2020a).

Working as a front-line community ACP in a diverse crisis response role and as mentor to trainee and newly qualified ACPs further inspired me to explore these skills. Although advanced practice involves a wide spectrum of clinical work, I felt that understanding how ACPs maintain their physical assessment skills was important to supporting them in this role.

1.2 Study aim and objectives

The overarching aim of this research was to explore the concept and application of ACPs' roles, ultimately identifying community ACPs' understanding related to factors influencing maintaining their physical assessment skills. Generating a picture and plan related to community ACPs' roles involving these skills was an anticipated outcome of this study.

The primary objectives were:

(1) to explore the concept and application of ACP roles
(2) to identify community ACPs' understanding relating to factors influencing maintaining their physical assessment skills
(3) to identify how physical assessment skills can be optimised and supported through study findings and recommendations.

1.3 Study design

I used an interpretative qualitative single case study approach to generate understanding and context from selected participants using one-to-one semi-structured interviews. The adoption of such an interpretivist approach employed Stake's (1995) intrinsic case study design and Braun & Clarke's (2006) thematic analysis.

1.4 Thesis structure

Chapter 2 explores advanced physical assessment skills and gives definitions of the ACP role and title, as there are many competing ideas both locally and internationally regarding what this role involves and what it should be called. An examination of the role and the socioeconomic demands on healthcare provision in community settings is detailed. Consideration of national and international development of the role is factored into discussions related to its regulation. Community ACPs' front-line roles in the COVID-19 pandemic are discussed.

Chapter 3 describes the approach used to locate and critically review literature to discover what research had been undertaken and identify what is unknown within the topic area. The literature review evidence supported the development of the research aim, objectives, interview question guide and my methodological decisions.

Chapter 4 discusses research paradigms and presents the rationale for adopting a qualitative interpretivist single case study design. The underlying epistemology and ontology of constructivism that shaped the methodological approach is explored. The recruitment procedures, sampling strategies, ethical considerations and data gathering methods used in this study are outlined. Reflexivity, including my personal reflections as a researcher and experienced practitioner are also discussed. A discussion of research trustworthiness, followed by the application of the analytical framework and themes that emerged from the data concludes this chapter.

Chapter 5 presents the findings. The analysis and presentation of ACPs' reflections are illustrated within the themes and sub-themes. Examples are provided showing how the semantic meaning was elicited and how that contributed to the thematic finding.

Chapter 6 discusses the findings in relation to the wider literature. A newly developed framework for supporting ACPs to maintain their physical assessment skills is also presented within this chapter.

Chapter 7 presents a summary of the research aims and key findings. The study's strengths and limitations are discussed critically. The contribution of the study to the body of knowledge and application to practice is provided. The recommendations from the study's findings concludes this chapter.

1.5 Changes in clinical terminology

When I began this study the term used for physical assessment skills within crisis response was ‘medical physical assessment skills’ (MPAS), but the phrase now used is ‘physical assessment skills’. Similarly, the term ‘advanced practitioner’ (AP) has now been replaced by ‘advanced clinical practitioner’. In the writing of this thesis I have used current terminology, unless quoting from the literature or participants’ interviews.

Chapter 2 Background

2.1 Physical assessment skills

The starting point for this thesis was that definitions of physical assessment performed in advanced clinical practice appeared to me to be limited, potentially failing to demonstrate the detail and complexity involved. Definitions refer to general features, using terms such as high-level autonomy and complex decision-making, without including specifics such as the complexity of the assessment skills that ACPs use (HEE, 2017).

Baid (2006) offers a structured assessment framework focusing on: identifying the assessment purpose; taking a detailed history; establishing the approach (comprehensive or focused); examining the patient using physical assessment skills (inspection, palpation, percussion and auscultation); and interpreting and acting on the findings. Bickley (2020) highlights that fully understanding the patient's chief complaint and medical history are essential to direct practitioners as to which assessment approach to use. Clinicians working as ACPs are expected to undertake comprehensive assessments, as most of their patients are likely to have complex health issues that require an in-depth approach (Baileff, 2015; HEE, 2017). To examine patients safely and effectively, ACPs are expected to be confident and competent in a range of standard physical assessment skills, yet there is no current standardisation of the range of skills they require (Mallinson, 2021; Nadaf, 2018). However, this may relate to the wide range of ACP roles in both specialist and generic settings where skill sets may differ to meet health service delivery needs (Gaskell, Beaton & Neville, 2015). Comprehensive physical examination is a complex process involving a head-to-toe approach to examine different bodily systems including cardiovascular, respiratory, gastrointestinal, musculoskeletal and neurological systems, using physical assessment skills (Baid, 2006). This thesis focuses on the physical assessment skills used during this process, as highlighted in Chapter 1.

Physical assessment skills are essential diagnostic and evaluation skills involving inspection, palpation, auscultation and percussion used during physical examinations of patients to assess, understand and discover both normal and abnormal anatomical signs (Bickley, 2020; Jarvis & Eckhardt, 2023). For example, during a cardiac examination an ACP will palpate the anterior thorax (the front of the chest) for heaves, thrusts or palpable murmurs, and heart sounds will be auscultated at specific sites (aortic, pulmonic, tricuspid, mitral and Erb's point) and their characteristics summarised for abnormalities (Bickley, 2020). A heart murmur relates to blood

flow alteration across the heart values where further investigation (if it is a new problem) is required (Thomas, Heaton & Makaryus, 2022), which demonstrates the important information these skills can identify.

Physical assessment skills are an essential but not isolated aspect of the physical assessment, requiring the clinical reasoning capability to integrate them with the patient's medical history and pathophysiology (Garibaldi & Elder, 2021). Physical examination yields approximately 20% - 25% of the clinical data supporting differential diagnosis and treatment plans (Toney-Butler & Unison-Pace, 2022; Uddin, 2019). Although physical assessment skills provide less information in the diagnosis process than history taking (Toney-Butler & Unison-Pace, 2022), these skills are critical to confirm a suspected diagnosis (Jain & Jain, 2021). In a study by Verghese, Charlton, Kassirer, Ramsey & Ioannidis (2015), dominant diagnostic errors were related to underuse of these skills which demonstrates their importance in the diagnosis process. It is clear from these findings that without the use of these skills there could be diagnostic mistakes. Thus, when community ACPs working in isolated settings need to provide timely diagnosis and complete episodes of care, physical assessment skills are essential to their role (Garibaldi & Elder, 2021). This is a key reason why this aspect of the clinical assessment is being explored in this thesis. Furthermore, as highlighted in Chapter 1, many of these skills were taught but not used by ANPs in Shin et al.'s (2009) study, however this is difficult to confirm due to lack of research in this area. The benefits of these skills are demonstrated in Raleigh & Allan's (2016) research, where the use of these skills increased ANPs' role autonomy through their diagnostic responsibility, thus enabling them to treat patients independently.

For the ACP, 'physical assessment' is not simply applying advanced physical assessment skills: it also involves interpreting and acting on clinical findings (Garibaldi & Elder, 2021). Translating findings can be difficult if patients have complex medical histories and multiple conditions. For example, if a patient diagnosed with chronic obstructive pulmonary disease (COPD) and heart failure is having difficulty breathing, they must differentiate between the two conditions, using complex history taking, physical assessment and decision-making skills. The time it takes to make a diagnosis and provide treatment is critical, as the patient could deteriorate rapidly, becoming severely unwell and requiring hospital admission (Garibaldi & Elder, 2021). If the ACP listening to the patient's breathing cannot interpret different types of wheezes or crepitations, the consequences for that patient are serious, such as wrong diagnosis

and treatment (Zambas, Smythe & Koziol-McLain, 2016). Moreover, if they cannot interpret findings, they along with the patient are disadvantaged. For community ACPs practising autonomously, accurate interpretation is essential for safe patient care because, unlike in a hospital, 24-hour medical care is not present in patients' homes. Poor interpretation of physical assessment not only threatens patient safety, as the probability of diagnostic errors increases, but can also result in unnecessary investigations that might cause them harm (Verghese et al., 2015) and drain NHS resources (Garibaldi & Elder, 2021).

The perfunctory use of physical assessment skills could weaken the diagnostic chain. For example, a logical examination sequence is critical: abdominal palpation before auscultation could induce bowel activity, falsely increasing bowel sounds and could influence the findings (Zuin, Rigateli, Andreotti, Fogato & Roncon, 2017).

Signs and symptoms can be ambiguous and interpreting them can be difficult even for expert physicians (Wears, 2009), adding to the complexity of physical examination. Wears reports the case of a 20-year-old woman whose acute clinical presentation was diagnosed as postpartum haemorrhage. Blood results indicated otherwise, so diagnostic possibilities shifted. However, the patient rapidly deteriorated and puerperal sepsis was recorded on the autopsy report. This example demonstrates the diagnostic difficulties that lone-working community ACPs may face. Weick (1995) aptly reflects on the challenge of diagnosing in crisis response settings with unwell patients with complex presentations:

> *"In real world practice, problems do not present themselves as givens. They must be constructed from the materials of problematic situations that are puzzling, troubling, and uncertain. In order to convert a problematic situation to a problem, a practitioner must do a certain kind of work. He must make sense of an uncertain situation that initially makes no sense."* (Weick, 1995, p. 9)

An example of constructing the clinical problem in a "troubling and uncertain" home environment is a 'red refusal patient' (a seriously ill patient who declines hospital admission) (Cottrell, Holland & Nicol, 2019). with chest pain and a language barrier that challenges history taking. Although telephone translation services are available, timely chest pain assessments are key to accurate diagnosis and effective treatment (Stepinska et al., 2020). Simple actions such as surveying the patient's environment for clues such as cardiac medication are also important. In other conditions, such as COVID-19, signs and symptoms are multiple and change daily: sometimes patients do not present with classic symptoms but are nevertheless virus positive (Looi, 2023). Ambiguous presentations such as that discussed in Wears' (2009) case study add

another layer of diagnostic complexity. Trying to make sense of uncertain crisis response situations can be a challenge until vital diagnostic information is linked together. Thus, as Weick (1995) points out, diagnosis is complex, detected and constructed rather than assumption based, highlighting the diagnostic value of physical assessment skills.

Clinical reasoning and diagnostic skills are also core skills used by ACPs in conjunction with physical assessment skills to support their diagnosis (HEE, 2017; Diamond-Fox & Bone, 2021). Clinical reasoning is defined as a complex ability requiring procedural (physical assessment skills), and declarative knowledge (evidenced-based research) to support diagnosis (Rencie, Lambert, Schuwirth & Durning, 2020). The ability to develop critical thinking skills is central to preventing diagnostic errors (Jacob, Duffield & Jacob, 2017) thus developing these skills is critical to the diagnostic process (Diamond-Fox & Bone, 2021). In Abrandt Dahlgren, Valeskog, Johansson and Edelbring's (2022) study, practitioners' experience influenced the cognitive process, where during diagnostic reasoning novice physiotherapists used a step-by-step approach similar to hypothetico-deductive reasoning. Clinical experts are more likely to use pattern recognition by drawing on their previous experience of similar patient cases to support their diagnosis (Kicklighter, Barnum, Geisler & Martin, 2016). It may be inferred that clinical reasoning skills are not instantaneous but based on practitioners' experience. However, being able to gather and synthesise the relevant information (medical history and physical assessment findings) is the important part of diagnostic reasoning (Garibaldi & Elder, 2021) which takes time to develop (Diamond-Fox & Bone, 2021). Thus, to support the development of these skills, exposure to different clinical patient presentations and diagnosis was found to be important (Rogers & Steinke, 2022). Physical assessment skills provide key data to the clinical reasoning and diagnostic process (Jain & Jain, 2021). These skills in ACP roles have improved access to prompt treatment (Evans et al., 2020; Oliver, 2017), offering more clinical flexibility than traditional assessments such as the nursing process.

2.2 Traditional nursing assessment

Traditional UK nursing assessments focused on the nursing process of holistic patient care and involved four stages: assessment, planning, implementation and evaluation (Yura & Walsh, 1967). Although this process was classed as a decision-making tool promoting nurses' critical thinking (Yildirim & Ozkahraman, 2011), advanced physical assessments (auscultation, palpation, percussion and inspection) were missing, suppressing their autonomy. For example, from my nursing experience for district nurses (DN) during the 1990s, physical elements of

traditional assessments were restricted to observational monitoring of temperature, blood pressure and pulse. Patient findings outside 'normal' observational parameters were escalated for GPs to action, passing diagnosis and treatment responsibility to them. Clinical reasoning and decision-making are more apparent in the modern nursing process framework, which now includes diagnosis (American Nurses Association [ANA], 2017; Standing, 2023; Watkins, 2020).

The argument for inclusion of physical assessment as defined in Section 2.1 is that it supports nurses' autonomy, their clinical judgement to firm up diagnosis and their ability to provide holistic patient care. Nurses endeavour to provide holistic patient care; however, rounded care requires skills to assess and understand patients' underlying pathophysiology through effective history taking and physical assessment skills to inform diagnosis and treatment. This process aligns more with the core value of 'holism', where diagnosis and treatment reflect the entirety of patients' needs (The King's Fund, 2011; Timmons et al., 2023), which is integral to government policy (DH, 2019). The key point here is that physical assessment in nursing reflects the whole patient, enabling the blending of bio-medical knowledge and skills with psycho-social, physical, and spiritual assessment skills learnt in the nursing process.

Advances in assessment processes have equipped nurses to move away from fragmented care and reliance on doctors towards much more independent approaches to patient care (Raleigh & Allan, 2016). Developing roles using advanced physical assessment, history taking, and high-level clinical decision-making is reflected in my job description as an ACP, critically supporting patients' increasing healthcare needs in the context of constrained NHS resources and a challenged workforce in both hospital and community settings.

2.3 Hospital advanced clinical practitioner roles

RNs working in hospitals were required to extend and expand traditional nursing roles to advanced nursing roles, taking on medical tasks such as physical assessment. The purpose of this development was to: support the reduction in junior doctors' working hours set by the European Working Time Directive (Coombes, 2008); achieve clinical targets; and manage cost-efficiency pressures (Tsiachristas et al., 2015). Junior doctors were substituted by ACPs who absorbed medically focused work, and some performed consultants' less complex tasks (Hooks & Walker, 2020). Pressures resulting from inadequate junior doctor numbers and trusts not being able to fulfil rosters still exist (Spence, 2019). However, ACPs today are viewed as

independent practitioners, seen not simply to be mopping up medical work through skills extension and expansion but as valuable NHS assets with wide-ranging clinical practice abilities, experience and knowledge (Hooks & Walker, 2020). Boundaries have been pushed further across medical and non-medical professions, with skill margins reducing; for example, some hospital-based ACPs have taken on general surgical roles (Hunt, 2016) and tracheal intubations and arterial and central venous catheterisation in critically ill patients (Kreeftenberg, Aarts, Bindels, van der Meer & van der Voort, 2020), thus advancing clinical practice further.

The value of this hospital-based role has been acknowledged through ACPs' rapidly developing presence in most other secondary care areas (Imison, Castle-Clarke & Watson, 2016; McDonnell et al., 2015; Mannix & Jones, 2020). Those based in hospitals have close support from medical colleagues and peers with their clinical findings, whereas those working in the community are 'the' key risk assessors, making medical decisions without immediate medical or peer support. Those working in medically orientated environments also have the benefits of medical colleagues to help them develop and maintain their physical assessment skills. In my work in the community, I found it difficult to access medical clinical supervision. However, hospital-based ACPs are more likely to develop clinically in specialised areas such as cardiology and respiratory medicine with defined patient groups (McDonnell et al., 2015), which could narrow their assessment skills as they may not get the opportunity to assess outside their speciality area. In comparison, community ACP roles are generic, thus wide-ranging physical assessment skills are vital to support them making time-critical clinical decisions (discussed in Section 2.1) (Raleigh & Allan, 2016).

2.4 Community advanced clinical practitioner roles

The community matron/advanced clinical practitioner (CM/ACP) was one of the first community roles using physical assessment skills tasked to case manage older patients with complex health and social needs (DH, 2004, 2005a, 2005b, 2009; Royal College of Nursing [RCN], 2013). The aim of this role is to proactively support patients to manage their long-term conditions so that they can recognise and act on early health changes to prevent them becoming acutely unwell and requiring hospital admission (Barrett, Robinson & Molloy, 2018). Community matrons' role also involves facilitating patients' care by referring them to other members of the multi-disciplinary team for support such as occupational therapists and social workers (DH, 2004, 2005a). Thus, the complex chronic and acute care traditionally provided

in hospital settings could be delivered in patients' homes by community matrons supporting active case management and district nursing teams.

Shifting care from hospital to the community resulted in community nurses and AHPs advancing their clinical skills beyond the realms of traditional roles to effectively manage patients with acute and complex health needs (DH, 2005a, 2005b; HEE, 2017). They now use medical skills previously located in the GP's domain (medical history taking, physical assessments, diagnostic reasoning and prescribing), enabling truly independent working. Physical assessment together with clinical reasoning skills essentially help them to establish diagnosis and make clinical decisions about whether it is safe to treat patients at home, who would otherwise be sent to hospital. Community ACPs' level of diagnostic responsibility demonstrates the need for clinical training programmes that enable them to develop and maintain generic assessment skills to support their role. They currently complete a two-year advanced clinical practice master's programme focusing on core modules and practical work-based learning to support their clinical development (Salford University, 2023). Furthermore, advanced practice training is continually evolving. A hub and spoke model introduced to provide trainee ACPs in primary care (general practice settings) with robust built-in formal clinical support by GPs during their two-year training has been found to support generical physical assessment skills and clinical consistency (Gloster, Tomlins & Murphy, 2020), and they also have a structured clinical capability framework to work through (HEE, 2020a). Unfortunately, a similar training model is not available to those ACPs working in community services, who also require wide-ranging generic skills to do their job effectively, particularly those caring for 'complex patients' (patients with complex medical histories and multiple conditions), including the elderly.

2.5 Long-term conditions and community advanced clinical practitioners

Elderly people often have complex conditions with multiple comorbidities, making them frequent users of GP resources (Yadegarfar et al., 2018) and putting extra pressure on services in areas with GP shortages (Bostock, 2017). Furthermore, GPs' ten-minute consultations are a challenge to the management of long-term health and social care for elderly patients as GPs are not able to give them enough time (Raleigh & Allan, 2016; Salisbury, 2019). However, patients with long-term conditions experiencing illness episodes such as respiratory exacerbation require regular monitoring and early medical intervention to prevent hospital

admission. The CM/ACP role was introduced in part to alleviate such problems by supporting patients at home.

Elderly patients living with long-term conditions are also frequent users of hospital healthcare systems, increasing government spending (Friebel, 2018). Ten million people in the UK are over 65 years of age and three million are over 80, with figures over the next 20 years set to double (Oxford Population Health [OPH], 2021). At a local level a higher proportion of residents had one or more chronic conditions (Manchester Health & Care Commissioning [MHCC], 2019a, 2019b, 2019c, 2019d). In my clinical practice experience elderly patients with long-term conditions such as heart failure were often housebound and frail, and frequently had poor carer support to help manage their long-term health and social needs (although they often declined support services). Polypharmacy made it difficult for them to remember to take medication if not reminded by a carer or medication prompting aids. Forgetting to take diuretics in patients with heart failure could increase their risk of fluid overload and breathlessness through pulmonary oedema (Stewart & Dajani, 2022). Establishing the cause of breathlessness in a crisis requires the ACP to use their advanced clinical skills to diagnose and treat to keep the patient at home. Hospital admissions of patients aged 65 and over in England increased by 46% (from four to six million) between 2005 and 2016, and many of these patients were diagnosed with long-term conditions (Friebel, 2018). Unplanned hospital admissions in England in 2016-2017 cost £17 billion (Steventon, Deeny, Friebel, Gardner & Thorlby, 2018). It was estimated that almost 1.5 out of 5.8 million emergency admissions in England could have been avoided with more effective community healthcare such as case management to stop patients deteriorating and requiring emergency care (Torjesen, 2018). Patients with multiple long-term conditions and frailty have longer hospital stays (NHS Improvement, 2018). Moreover, prolonged hospital stays are not only economically draining on the NHS, but they also expose patients to hospital acquired infections, reduce functional ability and increase the risk of falls (OPH, 2021; Van der Broek et al., 2020). Such findings all support the argument for maintaining generic physical assessment skills in community ACP roles, for effective management of elderly patients closer to home, reducing the number needing hospital treatment.

2.6 Community advanced clinical practitioners supporting patients in their homes

Knowing that they could contact their CM/ACP for a physical assessment and effectively managed care at home meant that patients were less likely to see GPs or attend A&E (Downes & Pemberton, 2009; The King's Fund, 2011). Home care depends on the severity of the patient's condition, for example some patients with an acute exacerbation of COPD and respiratory complications may require closely monitored hospital care. Being able to prevent inappropriate hospital admissions by using integrated working is also key to delivering care in the most appropriate settings to effectively meet patients' needs (Morciano et al, 2020).

The need for greater service integration across general practice, acute sectors, community and ambulance services became evident nationally and locally as hospital admissions increased (Friebel, 2018; Greater Manchester Combined Authority [GMCA], 2015; Oakley, 2018), emergency departments were close to tipping point, and healthcare services reaching capacity (Evans, 2016; Oakley, 2018). A link was clearly needed between ambulance and community services. For example, before crisis response was established, paramedics had no option but to take patients to places of safety, namely hospitals.

2.7 Cross-boundary and integrated working

In the trust where I work, community ACPs support cross-boundary working as prominent members of a non-medical interprofessional crisis response service by supporting emergency ambulance services to keep patients at home. They lead the service, telephone triaging referrals from on-scene paramedics. Patients' illnesses can be anything and range from minor health problems such as simple back pain and earache to red refusals (seriously ill patients declining hospital admission) including undiagnosed falls and head injuries (Cottrell et al., 2019). From the clinical history given by the paramedics, they are already forming potential differential diagnosis and considering which physical assessment skills they should use. An ACP must visit an acutely unwell patient within two hours of the paramedic's call, depending on illness acuity. However, the variety of patients' illnesses demonstrates ACPs' diagnostic responsibility, highlighting the importance of generic physical assessment skills in this role to effectively manage and treat different clinical presentations.

GPs refer to crisis response however referrals tend to increase at weekends as many general practices do not operate during this period. Referrals also come from many other pathways, including district nursing and acute A&E (for example, patients meeting the crisis response frailty and back pain pathway criteria). All referrals revolve around preventing hospital admission and providing quality care at home. Crisis response involves a well-rounded multidisciplinary approach including social workers, occupational therapists, nurses, physiotherapists, and pharmacists, however ACPs lead patient care through their clinical capabilities (HEE, 2017). Furthermore, their high-level clinical autonomy and leadership skills support well-organised integrated working.

Integrated working across ambulance and community services involved a combination of processes to establish the crisis response (multiple stakeholder meetings and staff consultations), methods (based on a tested and successful local crisis response model using amber pathway patient criteria) and tools (ACPs physically assessing, diagnosing and treating) to facilitate care and reduce admissions (Goodwin & Smith, 2011; Oakley, 2018). A successful crisis response service relies on the availability of ACPs, good management, organisational commitment and vision. Sharing goals and values across services fosters commitment and enthusiasm for joint working, but integration is only deemed successful if it delivers cost effective care, improved care outcomes and a good patient care experience (Goodwin & Smith, 2011). Patient surveys and closely monitored key performance indicators have demonstrated patient satisfaction, reduced A&E attendance and hospital admissions. However, the success of integrated models is also dependent on an NHS workforce clinically skilled and open to cross-boundary work.

2.8 Advancing roles and sharing skills

Extension into medical territory using physical assessment skills to support care in the community reflects the impetus to share roles and skill mix: with it comes new challenges and the need to support integrated working and increased responsibility. For example, a patient in my area who was in hospital with COVID-19 wished to die at home and arrangements were made for smooth discharge and good end-of-life community palliative care. ACPs were able to support DNs with this patient's care as well as prescribing palliative medication and expediting end-of-life documentation from medical professionals. DNs are working to full capacity and supporting them is crucial. Poor retention and recruitment have resulted in high team vacancies and in insufficient qualified nurses to replace experienced DNs retiring (RCN,

2019; The Queen's Nursing Institute [QNI], 2019). As a previous DN team lead, I found that poor staffing levels influenced many factors, including caseload management, skill mix availability, educational opportunities and morale. It has been estimated that a lack of community nursing care provision resulted in a 65% increase in the numbers of elderly patients attending A&E (NHS Networks [NHSN], 2017; RCN, 2017a), emphasising the need for support from other community professionals.

Community nursing numbers have fallen by 43% in the past ten years (from 7,055 to 4,031 DNs providing care for a 55.8 million population in England) (RCN, 2019). Stark figures show that many DNs are over 45 years of age, with 25% planning retirement and 21% due to leave the service within the next six years, further depleting services (QNI, 2019). District nursing numbers did not align with government policy on providing community care, the need for which has significantly increased with COVID-19 patients and those being discharged home early for community care.

In my area, when DNs pursue trainee ACP crisis response posts this depletes services further. On the other hand, senior DNs' community experience, familiarity with autonomous working, and community specialist practitioner degrees are solid clinical foundations for advanced practice training. Nursing shortages could jeopardise blueprint promises for care delivery outlined in the NHS Long Term Plan: it is pledged that investment in community and primary care services to keep patients at home will grow faster than the overall NHS budget (DH, 2019). The establishment of the local community crisis response service I work in had heavy investment to provide effective 7-day, 13.5-hour urgent care cover. Innovative community care models demonstrate that organisational commitment is needed to develop and support clinical roles managing high acuity patients at home (Imison et al., 2016; Oakley, 2018).

There were few clinical training opportunities for community ACPs, and no physical assessment skill updates were available locally. The trust focused advanced practice training on trainees. A three-day clinical refresher course on physical assessment skills was offered as a one-off on the trust site, but funding and service changes forced me to access and fund courses elsewhere. Accessing courses run by a range of providers can result in skill inconsistency. However, significant CPD investment funding has recently been made available within the trust and nationally, which could be used to access skill development (Greater Manchester Training Hub [GMTH], 2021). The lack of structured opportunities to support the maintaining of generic physical assessment skills could have been related to the ACP role in the UK not

being clearly defined in the past (Millar, Cox & Williams, 2009), but research shows that role recognition and understanding are still lacking some years later (Hooks & Walker, 2020; Lawler, Maclaine & Leary, 2020).

2.9 Defining advanced clinical practitioner roles

Defining UK ACP roles has been challenging, possibly because of the multiple reasons for creation of the role, including demographic and socio-economic factors, shortages of medical staff, reduced doctors' working hours, and nursing career progression. Despite the clinical complexity of these roles, no standardisation exists, and the scope of the roles and job titles remain unclear.

ACPs using advanced clinical skills have been called mini-doctors (Nadaf, 2018), compared with junior doctors (Glendinning & Walker, 2019) and perceived as doctor substitutes (Laurant et al., 2018). This has been referred to as physician task shifting (Maier & Aiken, 2016), however physical assessments are not simply tasks: they are advanced skills, requiring complex interpretation, along with history taking and clinical reasoning skills to form differential diagnosis (discussed in Section 2.1). In my area, these skills have earned community ACPs the trust to undertake GP home visits. Inclusion on ward medical rosters suggests that they are part of medical teams, demonstrating their clinical responsibility (Nadaf, 2018). Although ACPs have not undertaken the necessary medical training to earn the title 'doctor' they are expected to perform similar clinical roles to doctors (Evans et al., 2020), although their role identity is ambiguous, as they perform hybrid duties and functions (Woo, Lee & Tam, 2017). As a working ACP, it is important to maintain my professional nursing identity when patients refer to me as 'doctor', associating the medical activities of a physical assessment (such as auscultation) with hierarchical status. My professional identity, 'who I am', stems from my nursing background and is based on my core nursing values (compassionate, caring, empathetic, motivated and committed), underpinned by the Nursing Midwifery Council (NMC) code of professional conduct (NMC, 2018). However, ACPs are far more than mini-doctors mopping up medical tasks: they have many years of professional experience, knowledge and skills.

ACPs are defined as experienced, registered health and care practitioners delivering advanced clinical practice, characterised by highly autonomous complex decision-making, that enables innovative solutions across diverse settings to improve patient outcomes (HEE, 2017). The

clinical importance of the interface with medicine is demonstrated in this definition, as ACPs exercise high-level clinical autonomy, accountability and decision-making in contexts of uncertainty, complexity and increased risk, which corroborates community crisis response roles. For example, these ACPs work with high levels of autonomy and diagnostic responsibility, as they lead the care making complex clinical decisions as to whether unwell patients (referred by paramedics) with undifferentiated diagnosis are safe to be treated at home or require admitting to hospital. Their clinical skills are integral to the process of physically assessing and diagnosing to make that important clinical judgement. This stresses the need to maintain wide-ranging physical assessment skills to cover all clinical scenarios.

Advanced clinical practice is underpinned by four pillars: clinical practice; education; research; and leadership, and ACPs must demonstrate area-specific clinical competence and core capability (HEE, 2017). Core capabilities are a blend of attributes including skills, knowledge, experience and behaviour that demonstrate ACPs are working at advanced practice level by exercising their autonomy across the four pillars of practice, not just the clinical practice pillar (HEE, 2017). In terms of the clinical practice pillar, practitioners' competences and capabilities may vary as their original professional training i.e., 'nurse' or 'physiotherapist', and prior clinical experience will relate to their discipline. Thus, ACPs from a nursing background may require more support developing their musculoskeletal physical assessment skills than a physiotherapist where these core skills are integral in their training (HEE, 2018). A key point in this definition is that clinical competence, i.e., physical assessment skills in community crisis response roles, is generic, in line with the work of GPs, suggesting the need for CPD to support ACPs to maintain their clinical capabilities. Leadership, research, and education have become implicit aspects of the role, which seems to be encapsulated in clinical duties, with no protected time to devote to the other pillars (Evans et al., 2020). Although the clinical focus has been essential with the COVID pandemic ACPs were also leading health care provision in the community by providing education for patients and their colleagues about this disease. Furthermore, maintaining effective levels of patient contact is critical with patients now presenting with health problems related to 'long COVID' (World Health Organisation [WHO], 2022). However, the focus on clinical practice in ACPs' roles (Evans et al., 2020), could make it more difficult to firmly embed the other three pillars of advanced practice (education, leadership, research), which is important when these roles are continuing to increase (Royal College of Emergency Medicine [RCEM], 2022)

ACP roles are becoming more common in other UK professions in generalist and specialist capacities and areas of practice, including midwives (Goemaes et al., 2016), physiotherapists (Caine & Wynne, 2016), pharmacists (HEE, 2019), paediatrics (RCN, 2017b), general practice (Royal College of General Practitioners [RCGP], 2015) radiography (Thorn, 2017), paramedics (College of Paramedics [CP], 2019, 2021), mental health (RCN, 2015), and oncology (Alotaibi & Al Anizi, 2020). This could complicate our understanding of the scope of practice and skills required in each role as it will vary according to population needs and the health service delivery required to meet those needs (Gaskell et al., 2015). Furthermore, ACPs including nursing and AHPs remain solely recorded with their original professional regulatory bodies as they do not have an advanced practice professional registration. Expanding the workforce indicated the need for integrated role definition, and the first national multi-professional advanced practice definition includes physiotherapists and pharmacists (HEE, 2017). The crisis response service has provided AHP ACPs the opportunity to work generically to support service transformation, which has required a move from their traditional roles thus physiotherapists have developed generic physical assessment skills (Barrow, 2015). However, the majority are still nursing professionals (Nadaf, 2018). Thus, a broadly focused multi-professional advanced practice definition is important as it embraces all professions. Por (2008) has suggested that lack of advanced practice standards and national oversight have resulted in roles emerging ad hoc and that the meaning of advanced practice in the UK is open to interpretation. The valuable contribution of these roles could be lost if role function as well as title are not clearly understood.

2.10 Title confusion and advanced clinical practitioner roles

The numerous titles used in advanced practice have included nurse practitioner (NP) (Canadian Nurses Association, 2023) clinical nurse specialist (CNS) and nurse consultant (Gardner, Duffield, Doubrovsky & Adams, 2016), AP (Hardy, 2021), ANP (Hooks & Walker, 2020) and more recently the generic title ACP (HEE, 2017). Generic titles that promote cohesion in advanced practice are particularly important since one survey found that only 19% of AHPs' titles included 'advanced' (Stewart-Lord et al., 2020). Nevertheless, multiple titles are confusing, hindering other professionals' and patients' understanding of the role, and could fragment instead of strengthening the cohesion of this role. Since qualifying in 2007, my titles have included CM/ACP, ANP, AP and most recently ACP. The generic title 'ACP' signifies clinical importance, as was well as embracing non-nursing colleagues (HEE, 2017).

Titles are being used inappropriately. For example, some UK nurses using 'advanced practice' in their titles do not have the required clinical master's qualification or the clinical competence and experience this complex role demands (Biscoe, 2016). Inconsistency of qualifications in roles using this title is evident. In Leary, Maclaine, Trevatt, Radford and Punshon's (2017) study, analysis of 18,000 specialist UK nursing posts found that 323 had ANP or specialist nurse titles but no NMC registration, which could jeopardise public safety and cause role confusion. ANP (2,214) and NP (1,977) were two of the most commonly used titles identified in this study. However, the title ANP in one part of England could have a very different meaning in another part of the country due to role variation (Sutcliffe, 2022a). Leary et al. (2017) and Sutcliffe (2022a) thus demonstrate the need for title and role clarity in advanced practice. Unethical use of the title could result in dangerous practice, for example those using titles unregistered put patients and themselves at risk. The title remains unprotected, and anyone can use it, which highlights the lack of national advanced competency frameworks and the variation in training.

Advanced practice qualifications are evident in policy documents from the DH (2010), HEE (2017), National Leadership & Innovation Agency for Healthcare [NLIAH] (2010a) and Scottish Government (CNO Directorate, Scottish Government, 2008) which highlight the requirement of master's level education. Up until recently the RCN (2020) was willing to consider senior nurses practising at an advanced level but who did not have a full master's degree through grandfathering into credentialing. However, policy changes from January 2023 indicate that only a full master's degree is now acceptable which is already endorsed in Wales, Scotland and Northern Ireland and also internationally (RCN, 2020). Educational disparities may have supported ad hoc use of titles and roles. Confusion about role function, title and national educational requirements could be factors influencing UK role regulation and registration, which internationally is firmly embedded.

2.11 International regulation and advanced clinical practitioner roles

The origins of advanced practice in nursing can be traced back as far as the 1960s in the USA and was developed in response to health care service pressures; the development of this role in the UK began in the 1980s (Barton & East, 2015) and has now become established globally (International Council of Nurses [ICN], 2020). However, internationally all countries except the UK and Finland have strict regulation processes for advanced practice roles in place (ICN,

2020). Patients want to know who they are seeing and that practitioners are qualified, competent, and capable of undertaking roles with high levels of clinical autonomy (Rogers, 2019), demonstrating the global importance of regulation and patient safety. The ICN's (2008) global advanced practice nurse (APN) definition reinforces the importance of regulation as it acknowledges that important aspects of the role (namely the advanced capabilities and complex decision-making (discussed in Section 2.9) are only achieved through additional post registration education (minimum of a master's degree), and role characteristics are formed by the context in which APNs are credentialed to practice. In the USA, as well as completing an advanced practice master's degree, a licensing exam must be passed giving the legal right to practise clinically (Advanced Practice Registered Nurse Joint Dialogue Group [APRNJDG], 2008). Falsely identifying as an APN in the USA is a criminal offence (Toney-Butler & Martin, 2023). Lack of regulation could affect standards of care particularly if someone is calling themselves an ACP without the qualification (discussed in Section 2.10) (Leary et al., 2017). Strict international regulation suggests that it would be difficult to practise without the required advanced practice training, but as highlighted above regulation of roles has yet to occur in the UK.

2.12 UK regulation and advanced clinical practitioner roles

Although the ACP role has existed in the UK for many years (ICN, 2008) the progression towards regulating roles has been long debated (King, Tod & Saunders, 2017; Preston & Irvine, 2019; Timmons et al., 2023). As the NMC moved away from the concept of recordable qualifications, plans to regulate advanced practice were non-existent (Nadaf, 2018). UK regulation could provide clarity on educational standards and the scope of practice and control title misuse. However, advanced practice developments have been locally driven and reactive to the populations served, supporting the organisational needs of different regional healthcare services (East, Knowles, Pettman & Fisher, 2015), which is a challenge to regulation. This lack of regulation could damage role credibility, reducing the opportunity for clinical standardisation across educational institutes. As a mentor supporting students from different local universities, I found that physical assessment skills that trainee ACPs were expected to achieve varied significantly, which supports the argument for further developing and maintaining these skills post-qualification. Furthermore, Mallinson (2021) points out there are no standardised frameworks to guide advanced practice education as to what range of physical assessment skills ACPs require.

The variation in advanced practice education and training and the misuse of the title are now being addressed by agreed national training standards and programme accreditation for all advanced training level courses in England (HEE, 2020b). Robust educational accreditation programmes could help move away from title misuse and create role consistency and understanding across the advanced practice spectrum. The NMC announced its first review into advanced practice after identifying a patchwork of education across the UK and regulatory oversight (Launder, 2022a), and recent papers suggest the nursing regulator is looking to approve new standards for advanced nursing practice by 2025 (NMC, 2022). According to Sutcliffe (2022b) as part of this consultation the NMC could also consider the viability of protecting the ANP title. However, this would align with what many countries have already done internationally (Rogers, 2019) which is not surprising with the identified misuse of titles (discussed in Section 2.10). National standards for advanced practice education are to be welcomed since some of the clinical expectations of community ACPs' work resemble those of GPs (Evans et al., 2020). Some argue that they require some form of regulation like GPs (General Medical Council [GMC], 2018) to demonstrate that they are equally prepared and clinically up to date for this clinically focused role (Hooks & Walker, 2020; Timmons et al., 2023). However, it could be more difficult to regulate multi-professional advanced practice, where clinical roles are about being creative, innovative and diverse to meet population needs, while not reducing role flexibility. Regulation through standardisation could provide employers with assurance of their clinical knowledge and skills, thus supporting clinical governance and clinical risk.

The RCN (2018a) responded to the lack of ACP role regulation by introducing credentialing. Credentialing provides formal recognition of qualifications, clinical skills and experience, and those meeting the credentialing criteria are entered onto a publicly available advanced practice register (RCN, 2018a). However, credentialing is not compulsory, which may result in incomplete registers with little meaning. Credentialing, as opposed to regulation could still leave these highly autonomous clinical roles open to misuse and confusion.

There has also been a more recent initiative to support standardisation in advanced practice. The e-Portfolio was launched in 2021 for those ACPs who completed their training before 2017 (HEE, 2021a) as prior to this date universities were not accredited (HEE, 2022a). The key point of completing this e-Portfolio is to demonstrate quality assurance for patients and employers by acknowledging that ACPs training is recognised at advanced practice level. However, this

could also be one way of supporting ACPs' clinical development as they may identify clinical skill gaps that need addressing. ACPs who completed their training from 2017 will be able to gain recognition through their university's accreditation status, however this is dependent on whether their university has achieved accreditation (HEE, 2022a). The portfolio could offer further standards in advanced practice whilst regulation continues to be debated.

The lack of regulation may be linked to the current financial climate, as it has cost implications not only for professional bodies, but also for ACPs and organisations supporting this process. The DH (2011) reported that a key factor in the absence of regulation of UK ACP roles is that it may be a disproportionate response to the level of risk to the public, advocating that employers should manage risk. However, managing risk effectively may be difficult if managers and organisations are out of touch with the clinical involvement of advanced practice (Jones, Powell, Watkins & Kelly, 2015). Managing clinical risk can also be more difficult in community settings, owing to the isolated working and the reliance on transparency. HEE (2017) has stated that employers must be responsible for ensuring that existing and future ACP roles do not compromise patient safety. Patient risk can be minimised, and their safety maximised by supporting them clinically, but litigation in advanced practice is increasing, with claims for wrong and delayed patient diagnosis (Ford, 2016). Inaccurate physical assessment findings could result in dangerous practice, loss of their professional registration and potential criminal court cases. ACPs have a duty of care and accountability for their actions, including non-maleficence and beneficence, which are key to safe patient care, highlighting the importance of maintaining physical assessment skills (Health & Care Professionals Council [HCPC], 2016; NMC, 2018).

2.13 COVID-19: community advanced clinical practitioner front-line roles

The coronavirus pandemic has further emphasised the importance of the ACP role in supporting COVID-19 patients in the community as hospitals became overwhelmed. COVID-19 is a potentially severe acute respiratory infection significantly affecting the lungs and airways, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronaviridae Study Group [CSG], 2020). Clinical presentation varies between individuals as symptom severity ranges from those of a mild common cold to severe viral pneumonia resulting in the potentially fatal acute respiratory distress syndrome (Beeching, Fletcher & Fowler, 2020). Key diagnostic factors include cough, pyrexia and dyspnoea (Chen et al., 2020;

Grant et al., 2020), and altered sense of taste or smell (Tong, Wong, Zhu, Fastenberg & Tham, 2020); less common diagnostic factors include lower urinary tract symptoms (Creta et al., 2021). However, with new variants diagnostic factors are constantly changing (Looi, 2023). This demonstrates the amount of clinical information and physical examinations that need to be considered when assessing patients.

Virus transmission is high and both healthcare community bases and patients' homes are potential hazards in my role. Vaccination, handwashing, personal protective equipment (PPE) and social distancing are therefore key to reduce spread (WHO, 2020). Social distancing is difficult in unpredictable patient home environments and undertaking physical examination such as auscultating chests involves close patient contact. PPE supplies in the crisis response team where I work were well organised and adequate, which was critical when referred patients started presenting with many different symptoms or were asymptomatic.

With such varied symptoms and diagnostic risk factors, it was critical to treat all patients referred to crisis response as potentially being COVID-19-positive, in terms of physical assessment, PPE and transmission risk. In primary care, GPs reduced face-to-face patient appointments and home visits, focusing their work on video and telephone consultations, so crisis response ACPs picked up more GP referrals. Paramedic referrals of suspected and COVID-19-positive patients increased; some individuals had started monitoring their temperature and if it was raised called paramedics, who referred to crisis response. Some COVID-19-positive patients, such as mildly affected adults without complex medical histories, could be managed via telephone contact and 'safety netting' (advice shared with patients and carers to help them know when to seek medical help if their condition changes, i.e., deteriorates). However, assessment skills and knowledge were still required to ascertain whether this option was safe.

Media attention has focused on acute COVID-19, people either needing hospital treatment, dying or recovering. However, COVID-19 infection for some people is a longer-term illness (National Institute for Health Research [NIHR], 2021) and can include symptoms such as breathing difficulties, chest pain, fatigue and joint pain (Carfi, Bernabei & Landi, 2020). The WHO (2022) defines long COVID as the continuation or development of new symptoms three months after the initial infection**.** Patients with long COVID also require clinical and holistic support from crisis response, for example during an exacerbation of their symptoms such as

increased breathlessness ACPs can use their clinical skills to assess and support their management during these potentially debilitating episodes of this disease (Carfi et al., 2020).

The COVID-19 pandemic further strengthens the argument for maintaining generic physical assessments skills to ensure that those ACPs performing in these community roles are clinically equipped to assess and manage different patient presentations including those diagnosed with acute and long COVID (Mallinson, 2021).

2.14 Conclusion

There were huge gaps within NHS services created by the changing population structure, GP shortages and increased demand on hospital services, mainly due to unnecessary admissions and more recently the impact of the COVID-19 pandemic. To enable care delivery closer to home the NHS underwent significant workforce redesign, developing a workforce to meet these demands by shifting working practice boundaries across nursing, medicine and allied health professions. Multi-professional ACP roles using generic physical assessment skills together with their advanced history taking, diagnostic reasoning and prescribing skills, offered promising solutions for addressing the rising levels and complexity of healthcare demands and supported integrated cross-boundary working between ambulance, primary care, community and acute services to meet patients' complex needs at home.

Physical assessment skills give ACPs the ability to provide truly independent end-to-end clinical care by assessing, diagnosing and treating complex and acutely unwell patients, skills traditionally used by doctors. However, these are not just technical skills, but complex systematic processes, requiring accurate interpretation of patients' signs, symptoms and medical history. As Weick (1995, p.9) highlighted, *"in real world practice, problems do not present themselves as givens"*, mirroring the diagnostic challenges of crisis response with complex patients. Furthermore, diagnosis is a complex process that requires detection and construction, not assumption, and this supports the diagnostic value of the physical assessment. Ineffective interpretation or lack of skills could jeopardise patient safety through wrong diagnosis and treatment; furthermore, the ACP's own safety could be implicated. For these reasons maintaining wide-ranging physical assessment skills in generic isolated community-based roles is crucial to providing safe, effective timely patient care. However, this practice area is difficult to understand when research evidence is missing.

Although the ACP role has significantly evolved, problems are still being identified, including misuse of the title, educational variation, and lack of understanding and regulation of the role. New initiatives are being launched, and accreditation of advanced practice educational programmes and the introduction of the e-Portfolio, should go some way to creating consistency across this critical role. However, ACPs still require clinical support at the end of their training, highlighting the need to explore their understanding of factors that influence how they maintain their physical assessment skills.

Chapter 3 Literature review

3.1 Overview

In this chapter I critically analyse selected literature relating to physical assessment skills to provide background information to contextually position this study. Critically analysing and synthesising the research helped me to identify gaps in the knowledge and methodological limitations of the included studies to support the rationale for this study and my methodological decisions.

3.2 Literature review approach

I used a narrative literature review approach to identify and interpret similarities, differences and features of interest in the research literature, particularly as research evidence on advanced practice and physical assessment skills is limited (Fink, 2019). As Mulrow (1994) identified, a descriptive review, while useful, can be subject to idiosyncratic perspectives, whereas a narrative approach offers context, as well as descriptive interpretive opportunity, and this is particularly useful for a research study with a practical application (with recommendations). Given the limited evidence in the topic area and to reduce reviewer bias, I used a broad inclusive literature search approach to explore theory and evidence.

3.3 Search strategy

The initial literature search was undertaken between June 2017 and January 2018 (with updates to stay abreast of any newly published relevant literature). I searched CINAHL, MEDLINE, PubMed, EMBASE, BNI, PsycINFO, and the Cochrane Library to extract and review the literature. These multiple health-related databases were selected to provide relevant evidence on the topic. Exploring multiple databases helps prevent papers being missed but increases potential duplication of study reports. Using appropriate search processes and terminology is crucial to an effective search (Ho, Liew, Ng, Shunmugam & Glasziou, 2016). Later searches included adapted terms ('ACP'), refreshing the literature.

3.4 Search terms

I used the population, intervention, comparison and outcome measures (PICO) model to highlight initial key search words (Petticrew & Roberts, 2006):

- Population – ACPs
- Intervention – physical assessment skills
- Comparison – no comparison as this is a single case study
- Outcome measures – understanding factors that influence community ACPs maintaining their physical assessment skills and generate a plan as to how these skills can be supported in practice.

Search terms for the population and intervention varied; for example, when searching for 'advanced clinical practitioner', other terms used included 'clinical practitioner' and 'advanced nurse practitioner' (multiple titles describe this role, as discussed in Chapter 2). Different search terminologies were also used for physical assessment skills, including 'examination skill'. Word truncation such as nurs* retrieved words 'nurse', 'nurses' and 'nursing' (Bell & Waters, 2014). Advanced database search facilities enabled the use of a combination of thesaurus terminology (descriptors) and keywords (Beecroft, Booth & Rees, 2015). Boolean operators AND/OR linked the terms together (Beecroft et al., 2015; Greenhalgh, 2019). Other key search terms were used to reduce omission of research studies (Table 1) and grey literature was also accessed.

Grey literature included policy documents from relevant national databases: the Department of Health (DH), Nursing and Midwifery Council (NMC), Royal College of Nursing (RCN), Chartered Society of Physiotherapy, Royal College of General Practitioners (RCGP), General Medical Council (GMC) and the Association of Advanced Practice Educators UK (AAPE UK). Books published on advanced practice (Barton & Allan, 2015; Hill & Diamond-Fox, 2022; McGee & Inman, 2021; Rolfe & Fulbrook, 1998; Woods, 2000) together with accessed national databases informed the context of this study.

Table 1 Key literature search terms

Profession or service	Skills	Context
Advanced clinical practitioner*	Assessment skill*	Acute
Advanced practitioner*	Auscultat*	Communit*
Advanced nurse practitioner*	Clinical assessment*	Emergency dept*
Advanced physiotherapist practitioner"	Clinical skill*	General practice
Active case manage*	Clinical examination*	Intermediate care
Clinical nurs*	Clinical examination skill*	Nursing hom*
Clinical practitioner"	Examination skill*	Outreach service*
Community matron*	Inspect*	Primary care
Community nurs*	Medical assessment*	
District nurs*	Medical assessment skill*	
Homecare nurs*	Medical examination*	
Nurs*	Medical examination skill*	
Nurse practitioner*	Medical physical assessment*	
Physiotherapist*	Medical physical assessment skill*	
Specialist nurs*	Observ*	
	Palpat"	
	Percuss*	
	Physical assessment	
	Physical assessment skill*	
	Physical examination	
	Physical examination skill*	

3.5 Inclusion/exclusion strategy

To address the topic area comprehensively, inclusion criteria included one or more of the areas listed in Table 2. The original literature review inclusion plan was ACPs only; however, literature on this group of professionals was limited. To widen the search I included RNs and AHPs to gain knowledge and understanding of physical assessment skills and explore methodologies.

Medical studies (n = 5) and joint medical and nurse studies (n = 3) identified in this search were included in the study. Physical examination is traditionally a medical not a nursing skill, where much knowledge from research can be gleaned.

Table 2 Inclusion criteria

Maintaining physical assessment skills
The use of physical assessment skills
Barriers and facilitators to maintaining physical assessment skills
The benefits and consequences of physical assessment skills
Physical assessment skills education and training
Clinical supervision and physical assessment skills
Physical assessment skills competence and confidence

I placed no constraints on country or publication date, both because of the paucity of research and because of the early introduction of physical assessment skills internationally, as discussed in Chapter 2. Comparing research from a number of countries deepens understanding and knowledge, giving local and international perspectives and preventing blind spots in knowledge and research design (Wagner, 1993). Appendix 1 shows the research identification, screening and inclusion processes.

3.6 Outcome

The search yielded 3049 papers, titles and abstracts were examined for suitability to the field of inquiry. Following removal of duplicate studies, literature reviews, ACP role, and opinion papers, 39 studies met inclusion criteria (Appendix 1). Papers focusing specifically on advanced practice roles (n = 130) were excluded, as these papers mainly explored role evolvement and evaluation, lacking specific information on physical assessment skills. However, they informed the study context, such as the concept and application of these roles discussed in Chapter 2 (Evans et al., 2020). Williamson, Twelvetree, Thompson and Beaver's (2012) paper exploring ward-based ANP roles within my trust was included. The study information identified views about being inadequately prepared after a local advanced practice training programme that was also accessed by community crisis response ACPs, which I considered important to my study inquiry. Snowball methods including supplementary hand searching through these papers (Greenhalgh & Peacock, 2005) identified four further studies. On inspection, two studies were excluded as the sample comprised students not qualified health professionals (Alamri & Almazan, 2018; Kohtz, Brown, Williams & O'Connor, 2017). In total, 41 papers were identified relevant to physical assessment skills.

3.7 Research approaches

Thirty-three of the 41 identified studies used a quantitative approach. Eight studies used qualitative methods; five of these were of UK origin and examined physical skill use following the completion of a clinical skill module (*n* = 3) (Aldridge-Bent, 2011; Coombes & Moorse, 2002; Edmunds, Ward & Barnes, 2010), explored ANPs skill use in the community (*n* = 1) (Raleigh & Allan, 2016) and evaluated the ANP role on nursing practice and patient care (*n* = 1) (Williamson et al., 2012). Studies were conducted in numerous countries, including the USA, Italy, China and Japan, providing a wide mix of multi-national perspectives.

I carried out a detailed assessment of the quantitative and qualitative studies using critical appraisal tools specific to the research paradigm before inclusion in the literature review (Greenhalgh, 2019; Long, Godfrey, Randall, Brettle & Grant, 2002).

Using the critical appraisal skills programme (CASP) tool enabled me to systematically evaluate the qualitative research papers by using the specific criteria to judge the study's trustworthiness and relevance to the topic area (Long, French & Brooks, 2020). For example, establishing whether the study's research design and recruitment strategy were appropriate to meet the research aim, and if the relationship between participants and researcher had been considered to acknowledge potential bias (Long et al, 2020). Greenhalgh's (2019) individualised critical appraisal checklists were also used according to study type, such as Likert scale surveys used in the questionnaire studies (Birks, Cant, James, Chung & Davis, 2013; Giddens, 2007) to evaluate their quality. Although these tools support research evaluation consistency, using my critical judgement was an important aspect of this process to decide if papers were trustworthy and useful to this study (Greenhalgh, 2019).

3.8 Philosophical ideas

It was difficult to establish the philosophical concepts underpinning choice of methodology in some studies. The chosen research approach and design give ontological and epistemological transparency, thus increasing the rigour of the research (Jackson, 2013). Unlike quantitative research where rigour is based on validity, reliability and objectivity (Polit & Beck, 2018), in qualitative research trustworthiness relies on the credibility, dependability, transferability and confirmability of the study (Lincoln & Guba, 1985). Raleigh and Allan's (2016) interpretative constructionist case study exploring multiple perspectives on the use of physical assessment skills gave me an understanding of philosophical concepts of research. Researchers choose this

methodology to provide in-depth accounts and to meet their interest in understanding different interpretations among the ANPs about the topic area (Guba & Lincoln, 1994). Differing philosophical stances in qualitative research are to be expected, as researchers acknowledge fundamental philosophical assumptions as well as bringing their world-view and experience to shape the direction of their research and methodological decisions.

3.9 Research design

The first qualitative study (Barrows, 1985) examining use of physical assessment skills by emergency department nurses lacked information on methodology, including research design. However, its importance lies in its early recognition of physical assessment in nursing and its historical in-depth data. Information on methodology determines research quality and helped me to refine my research methodology.

Qualitative research designs included exploratory (Aldridge-Bent, 2011), longitudinal (Edmunds et al., 2010), case study (Coombes & Moorse, 2002), single embedded case study (Raleigh & Allan, 2016), ethnographic (Williamson et al., 2012) and hermeneutic pragmatic (Zambas et al., 2016). Being able to explore various qualitative designs from these studies provided more methodological understanding for my own study. Quantitative nursing papers mainly used survey-based questionnaires, but some studies lacked methodological detail. The key objective of many of these papers was evaluating skill use in practice to inform education programmes; no studies explored how these skills were being maintained. Medical studies explored physical assessment skills using very different research designs to nursing, including retrospective (Oliver, Hunter, Ikeda & Galletly, 2013), perspective (Pines et al., 2005) and intervention evaluation (Nicholl et al., 2012). Table 3 lists the qualitative and quantitative papers with the overall key topics and research study design.

Table 3 Qualitative and quantitative papers by study topic, showing research design

Topic and study	Study design
Physical assessment skill use	
Adib-Hajbagher & Safa (2013)	Cross-sectional
Barrows (1985)	Qualitative study (design not stated)
Cicolini et al. (2015)	Cross-sectional on-line survey
Liyew, Tilahun & Kassew (2020)	Non-experimental survey
Lont (1992)	Cross-sectional survey
Osborne, Douglas, Reid, Jones & Gardner (2015)	Cross-sectional survey
Schroyen, George, Hylton & Scobie (2005)	Quantitative (design not stated)
Yamauchi (2001)	Descriptive correlation survey
Zambas et al. (2016)	Qualitative (hermeneutic pragmatic)
Physical assessment skill use and issues for education	
Birks et al. (2013)	On-line survey
Giddens (2007)	Descriptive survey
Heeyoung Jiyeon & Kyung (2012)	Exploratory survey
Shinozak & Yamauchi (2009)	Delphi
Physical assessment skill use post-training module	
Aldridge-Bent (2011)	Qualitative (exploratory)
Brown, Brown & Bayaer (1987)	Quantitative (design not stated)
Coombes & Moorse (2002)	Qualitative (case study)
Edmunds et al. (2010)	Qualitative (longitudinal descriptive)
McElhinney (2010)	Delphi
Neville, Dillon & Milligan (2011)	Quantitative (design not stated)
Reaby (1990)	Quasi experimental pre/post test
Secrest, Norwood & DuMont (2005)	Exploratory descriptive survey
Giddens (2006)	Cross-sectional
Barriers to physical assessment skill use	
Douglas et al. (2014)	Survey psychometric scale
Liyew, Tilahun & Kassew (2021)	Cross-sectional survey
Shi, He, Zhang, Morrow & Zhao (2020)	Cross-sectional survey
Sony (1992)	Quantitative (design not stated)
Physical assessment skill use and clinical settings	
Colwell & Smith (1985)	Quantitative (design not stated)
Fennessey (2016)	Cross-sectional
Skillen, Anderson & Knight (2001)	Exploratory/descriptive survey
Physical assessment skill use comparison in nursing and medicine	
Kinley et al. (2002)	Randomised controlled trial
Rushford, Bliss & Burge (2000)	Randomised controlled trial
Rushford (2006)	Randomised controlled trial
Physical assessment skill use in medicine	
Nicholl et al. (2012)	Evaluation study
Oliver et al. (2013)	Retrospective
Pines et al. (2005)	Prospective
Rousseau, Könings & Touchie (2018)	Qualitative study (no design stated)
Verghese et al. (2015)	Cross-sectional study
Physical assessment skills in advanced practice	
Estes, Robinson & Madigosky (2016)	Survey and focus group
Raleigh & Allan (2016)	Qualitative (embedded case study)
Shin et al. (2009)	Quantitative (design not stated)
Williamson et al. (2012)	Qualitative (ethnographic)

3.10 Hierarchy of evidence

The evidence base on nursing practice was mainly derived from qualitative small-scale studies not randomised controlled trials or meta-analysis. Nursing research often involved exploration of nurse and patient experiences or views, which do not fit neatly into numerical boxes. Rousseau et al.'s (2018) study involving doctors was also qualitative.

In the quantitative studies, descriptive, cross-sectional and exploratory surveys were used. Six studies did not report study design. Although several studies were pilot (n = 5), which can lack credibility, they were important for identifying and reducing design weaknesses such as instrument reliability and validity prior to conducting the main study (Polit & Beck, 2018). However, three studies were randomised controlled trials, which in scientific forums are highly regarded (Ackley, Ladwig, Swan & Tucker, 2008). Although these studies involved nurses, they were medically led, which possibly accounts for the scientific research approach. Evidence hierarchies, however, are not set in stone, and evidence categorisation varies depending on author (Fitzpatrick, 2007).

3.11 Qualitative methods

The methods used in qualitative studies to provide in-depth information on physical assessment skills were: focus groups (Aldridge-Bent, 2011; Raleigh & Allan, 2016), non-participatory observation (Edmunds et al., 2010), and semi-structured (Aldridge-Bent, 2011; Barrows, 1985; Edmunds et al., 2010; Raleigh & Allan, 2016; Rousseau et al., 2018) and unstructured (Zambas et al., 2016) interview methods. Three studies (Edmunds et al., 2010; Raleigh & Allan, 2016; Rousseau et al., 2018) used triangulation methods, interview and focus groups to generate and synthesise data, increasing the probability that the research findings and interpretations will be credible.

Focus group research requires specific skills. Focus group methods encourage group interactions (Polit & Beck, 2018), but bringing together a group of healthcare professionals could be more difficult to achieve than one-to-one interviews, owing to their work commitments. In focus groups, some participants can dominate in giving their views, restricting the valuable opinions of others, resulting in potentially unbalanced data (Krueger & Casey, 2015). Participants can also stray from the field of inquiry, making effective group facilitation skills as well as group interaction analysis essential, otherwise understanding and contextualising data could be difficult (Nyumba, Wilson, Derrick & Mukherjee, 2018).

Interviewing relies on interviewees' recall (e.g., of physical assessments), as opposed to observational studies demonstrating what they actually do, not what they say they do (Polit & Beck, 2018). However, observational methods can be influenced by researcher presence, for example the halo effect refers to when the participant aims to please the researcher (Holloway, 1997). It is also important to be aware of researcher bias in both qualitative and quantitative research.

3.12 Quantitative methods

In the early quantitative studies (Colwell & Smith, 1985; Reaby, 1990; Sony, 1992) the Likert scale questionnaires assessing physical assessment skill use were based on professional opinion, and the face and content validity as well as the reliability of the research tool was not established. In Yamauchi's (2001) later survey, a Likert scale questionnaire was examined for content validity and piloted to establish reliability. Survey instruments between 2005 and 2015 were developed using tools previously tested in other research (Birks et al., 2013), thus increasing content validity (Zamanzadeh et al., 2015) and reliability (Heale & Twycross, 2015).

The instrument measuring physical assessment skill use in Giddens' (2007) paper was developed from two nursing undergraduate textbooks (Jarvis, 2003; Wilson & Giddens, 2000) and included 126 Likert scale items. Giddens (2007) justified this range as necessary to represent all physical assessment content areas to improve content validity. However, it was recognised that some of the included aspects of physical assessment were unlikely to be performed by nurses. Although this questions the instrument's content validity, it also indicates that no prior assumptions were made about nurses' skill knowledge base or practice to bias findings. Content validity was further determined by experts reviewing the survey instrument to verify inclusion of relevant areas of knowledge, but their background was unclear, which could question tool validity (Giddens, 2007). Nevertheless, Giddens' Likert scale instrument was modified and used in later studies exploring physical assessment skill activity (Birks et al., 2013; Cicolini et al., 2015; Heeyoung et al., 2012). An interesting finding is that earlier surveys evaluated significantly fewer Likert items: 36 (Colwell & Smith, 1985), compared with 121 (Birks et al., 2013) 126 (Giddens, 2007; Shin et al., 2009) and 171 in the one of the latest studies (Shi et al., 2020).

Pines et al. (2005) used a prospective study approach to explore physical assessment skills activity in doctors. Oliver et al.'s (2013) retrospective study used large amounts of data from a

35-year period. In retrospective research it can be difficult to clarify the accuracy of information because of the time span, which could affect research findings. Only one researcher extracted the data, thus valuable information might have been omitted, increasing researcher bias owing to the limited perspective. Nicholl et al. (2012) used an evaluation study to examine practice intervention, but this study depended on patient recall, which could bias findings as memory can fail.

Earlier surveys examining physical assessment skills were paper-based postal questionnaires (Brown et al., 1987; Sony, 1992). Later studies (Birks et al., 2013; Cicolini et al., 2015) used online surveys to engage large diverse nursing samples across geographical regions which could reduce research time and cost, but neither study reported the response rate. Low response rates were acknowledged in other online surveys (Bregger, Nystad, Cappelen & Bakke, 2007; Dannetun, Tegnell & Giesecke, 2007), which could be due to factors such as email checking, research interest and time constraints. Fear of breach of confidentiality was an identified area affecting response rate (Dillman, 2000). The honesty of online questionnaire data was also difficult to ascertain, owing to difficulty verifying who completed the questions.

In quantitative studies a rigid questionnaire structure can limit participants' responses and provide insufficient opportunity to gather in-depth information. In qualitative research, in-depth data depends on participant response, question quality and interviewer skills. Nevertheless, quantitative studies were still important to this literature review, to gain understanding of the topic area. Participants in both quantitative and qualitative studies were mainly chosen using purposeful and convenience methods to generate relevant data. Most study samples, however, were ward-based RNs (Cicolini et al., 2015; Heeyoung et al., 2012); Barrows (1985) and Reaby (1990) were the earliest studies involving community nurses. Only four studies involved ANPs (Estes et al., 2016; Raleigh & Allan, 2016; Shin et al., 2009; Williamson et al., 2012), demonstrating a significant research gap in this professional group. Appendix 2 shows a summary of key studies in the literature review**.** The studies supported development of the aims and objectives (Chapter 1 Section 1.2), interview question guide and selection of methodology.

3.13 Theme synthesis from identified studies

The narrative literature review approach that I used provided descriptive synthesis and balanced views of primary papers about physical assessment skills (Fink, 2010). A thematic

analysis approach generated themes across the dataset, guided by the study's aim and objectives (Braun & Clarke, 2006). The lack of research on physical assessment in advanced practice suggested an inductive approach, allowing flexibility and broader data inclusion. Reading papers several times to record initial ideas, I analysed the content of each study. Features emerging in the data that were of interest or important to this research project were highlighted systematically across the dataset using colour codes to identify, analyse and synthesise patterns, variation and exceptions (Braun & Clarke, 2006). Coding helped reduce the data and provide meaning, by collating and grouping features together to form emerging themes and sub-themes (Maguire & Delahunt, 2017), which were verified by re-reading the papers with the coded extracts several times for data accuracy. Data was synthesised using cross-analysis of themes, reporting variations and similarities in the findings. As each literature review section was written, information was re-verified against the original papers for accuracy. The overarching features of this literature review were the four dominant themes and their sub-themes listed in Table 4 and discussed in Sections 3.14–3.17.

Table 4 Emerging themes and sub-themes

Theme number	Theme	Sub-themes	Number of papers
1	The importance of maintaining physical assessment skills	Underutilisation of physical assessment skills	19
		Skill utilisation and equipment availability	12
		Clinical experience	4
		Contextual influence	6
2	Isolation and autonomy	Physical assessment in community roles	4
		Patient complexity	5
3	Professional and organisational challenges	Physical assessments: taking responsibility	9
		Breaking professional barriers	3
		Support and supervision	8
		Busy environments	15
4	Skill confidence and competence: the link with education and practical training	The influence of confidence	16
		Fear of making mistakes	8
		Feeling unprepared	3
		Support on how to do the job	21
		Skill rehearsal	6
		Clinical competence: doctors and nurses roles	8
		Patient safety	4

3.14 Theme 1: The importance of maintaining physical assessment skills

3.14.1 Introduction

Physical assessments in advanced practice were introduced to help fill huge healthcare gaps nationally and locally that were created by changing population structure, complex health needs, and demand on acute and GP services (discussed in Chapter 2). However, physical assessment is dependent on skill use.

3.14.2 Underutilisation of physical assessment skills

The frequency of use of physical assessment skills in nursing practice has been evaluated in many (n = 19) Likert scale quantitative studies over the past 30 years, demonstrating the growing importance of physical assessments in non-medical roles (Adib-Hajbaghery & Safa, 2013; Birks et al., 2013; Brown et al., 1987; Cicolini et al., 2015; Colwell & Smith, 1985; Fennessey, 2016; Giddens, 2006, 2007; Heeyoung et al., 2012; Lont, 1992; Neville et al., 2011; Osborne et al., 2015; Reaby, 1990; Schroyen et al., 2005; Secrest et al., 2005; Shin et al., 2009; Shi et al., 2020; Skillen et al., 2001; Sony, 1992; Yamauchi, 2001). Although these studies explore the use of these skills, no primary study has explored factors influencing maintaining the skills. Many of these studies were conducted in the USA and involved hospital-based RNs who had completed a clinical skill degree module; the exception is Shin et al.'s (2009) Korean study involving ANPs. Findings emerging from these papers are clear: many skills taught are not being used, and reasons why are explored in this review.

Interestingly Shin et al.'s (2009) study examining physical assessment skill use and educational needs found that only 14, mostly inspection, out of 126 learnt skills were used regularly; however, training needs were acknowledged. Giddens' (2007) research showed that RNs in the USA routinely performed more skills, 30 out of 126, again mostly inspection. Registered USA nurses may be more advanced in physical assessments than Korean ANPs, as these skills originated in the USA in the 1960s and formed part of general nurse training (Solomon, 1990). Being taught these skills does not necessarily equate to competence: experience applying them in clinical practice is key. Furthermore, the more frequent use of inspection skills may relate to these skills being central in all nursing assessments. However, advanced physical inspection such as observing for finger clubbing, splinter haemorrhage and spider nevus, requires complex interpretation in combination with the patient's history and other clinical findings to provide

accurate diagnosis and effective care planning. For example, splinter haemorrhage and Osler's nodes together with other signs and symptoms, such as a new heart murmur, fever and tachycardia, could indicate infective endocarditis (Chong et al., 2016). Thus, other core physical examination procedures, such as palpation, auscultation and percussion, are important to complete the clinical picture. However, owing to insufficient research into physical assessments in advanced practice and limitations in study design, it was difficult to ascertain why ANPs in Shin et al.'s study (2009) used fewer skills than RNs in Giddens (2007).

A later Australian survey by Birks et al. (2013) used one of the largest and most diverse nursing samples (n = 1220) in a range of hospital settings to examine physical assessment skill use and education needs using Giddens' (2007) Likert scale (modified to 121 items). Findings demonstrated that the skills taught were used rarely (31%) or not at all (35.5%), which in a study sample this large questions how skills were generally being maintained. However, some participants were non-practising nurses, including researchers, tutors and managers, which could reflect lower skill set use in these roles. Nurses working night shifts on wards rarely needed to use their physical assessment skills. However, that does not mean the skills and knowledge were redundant, as they could be used to understand doctors' diagnoses and planned patient care. It had been assumed that nurses utilised all 121 skills, but the low number actually used could relate to Australian nurse training and the scope of their clinical practice. In Shi et al.'s (2020) survey involving RNs (n = 1115) from multiple hospital settings, the number of physical assessment skills assessed on Likert scales had risen to 171, but only 15% were used regularly. This indicates a dichotomy between skills taught and those used in clinical practice. Many of the nurses believed that physical examination should only be conducted on patient admission and in severe illness. However, it was noted that they had minimal training to develop these skills. This indicates lack of importance placed on the complexity of physical assessments discussed in Chapter 2. The large number of items (171) on the questionnaire might have prevented busy nurses from completing it truthfully, which might be reflected in findings. However, one of the first published studies exploring physical assessment skill use, Colwell & Smith (1985), which had only 36 items, and Birks et al.'s study (2013), which had 121 items, highlighted similar issues, i.e., that only very few were used on a regular basis.

3.14.3 Skill utilisation and equipment availability

Access to equipment was found to influence skill use. Lack of equipment was an identified problem for physical examinations in both nursing and medical studies (Aldridge-Bent, 2011;

Nicholl et al., 2012; Rousseau et al., 2018). In Aldridge-Bent's (2011) study, community nurses (n = 10) reported difficulties accessing equipment and some had to purchase their own. Providing their own equipment could lead to substandard equipment being used, which could ultimately affect patient outcomes. In Rousseau et al.'s (2018) study, doctors had to search for equipment such as ophthalmoscopes, otoscopes and reflex hammers, which might have an impact on patient time. Lack of equipment could be viewed as indicative of the low level of commitment and priority some trusts give to physical examination, or equipment could simply be misplaced. As an ACP it was a surprise to find that lack of equipment was a problem, within my trust it was the individual's responsibility to request equipment, which was always provided.

Over-reliance on equipment was found in four nursing papers, affecting use of physical assessment skills (Douglas et al., 2014: Liyew et al., 2021; Osborne et al., 2015; Shinozaki & Yamauchi, 2009). Nurses were more likely to use pulse oximeter equipment than observe patient respiration (West, 2003), even though respiratory rate is recognised as a more reliable marker for determining patient deterioration (West, 2006). Using equipment instead of observation was identified as a problem in a report by the National Confidential Enquiry into Patient Outcome and Death (Cullinane, Finally, Hargraves & Lucas, 2005). If an important but a basic observational nursing tool such as monitoring respiratory rate is not being used, it supports why other more in-depth examination processes such as palpation, auscultation and percussion may be omitted. Nurses may not fully understand or feel adequately skilled in physical assessment, owing to lack of training. For a time-strapped nurse on a busy clinical ward, attaching probes to a patient's extremities may seem quicker than observing their respiratory rate. Equipment used in conjunction with physical assessment skills could support clinical findings and reveal changes in a patient's condition which might otherwise go unnoticed. However, in Rousseau et al.'s (2018) study, doctors reported over-reliance on diagnostic imaging, resulting in abbreviated physical examinations. Thus, technology appears to be moving assessment further away from physical interaction and connection with patients.

Historically, equipment such as stethoscopes were viewed as specialised and traditionally used only by doctors. Only two studies (Raleigh & Allan, 2016; Shin et al., 2009) highlighted knowledge and understanding of equipment interestingly both studies involved ANPs, reinforcing the significance of physical assessments in these roles. This evidence prompted me to reflect that no training on equipment use was provided during my advanced practice training

in 2005, yet I had never even held a stethoscope: it was a case of learning on the job. However, today a declaration of equipment training is a mandatory policy in my healthcare trust. In Shin et al.'s (2009) study, ANPs reported that lack of experience using equipment such as ophthalmoscopes challenged their use of physical assessment skills. These findings were supported in Nicholl et al.'s (2012) study, where junior doctors performed poorly using ophthalmoscopes. Yet this equipment detects retinal artery occlusion, Roth spots and disc swelling, which if left undetected can cause patient harm (Purbrick & Chong, 2015). Furthermore, only one in five doctors felt confident recognising papilloedema (Nicholl et al., 2012), even though the study was conducted after interventions including increased education following a serious incident in which papilloedema was missed. Reaby's (1990) study highlighted the importance of eye assessment in community nursing roles, as elderly patients often have diabetes mellitus and hypertension, which can affect the eyes. As long-term conditions such as diabetes are becoming more common, these skills are essential for ACPs.

3.14.4 Clinical experience

As well as equipment challenges, some studies found that clinical experience influenced skill use. Osborne et al.'s (2015) cross-sectional survey of nurses and midwives ($n = 434$) found that those with more years of experience and higher-level qualifications (master's degrees) used fewer physical assessment skills than less experienced nurses. Adib-Hajbagher & Safa (2013) found no increase in skill use with experience, which could suggest difficulty maintaining skills. However, Yamauchi's (2001) survey contrasted these views, demonstrating that the longer nurses practised, the more their knowledge of physical assessment skills increased and the less difficulty they had performing them. Self-reporting was used to obtain data in these three studies, which could be open to subject bias, and participants' honesty and truthfulness were difficult to ascertain. Explanations put forward in Osborne et al.'s (2015) study included nurses' reluctance to change practice and career progression to management positions that resulted in skill decline. Moreover, the length of experience nurses in Osborne et al.'s (2015) study had (13.7 years on average) was significantly less than in Yamauchi's (2001) study (38 years on average). Both studies used a survey design, but Osborne et al.'s response rate (38%) was significantly lower than Yamauchi's (97.8%). The low response rate might be related to survey design, which required the nurses to complete two questionnaires; response would also be dependent on how well the surveys were executed. Furthermore, the hospital involved was undergoing radical governmental cost-saving measures, including workforce cuts, which might

have contributed to low morale and nurses' lack of response. At the time that Yamauchi's study was conducted in Japan, physical assessments performed by nurses were a newer phenomenon in that country, which might have stimulated research interest and motivated skill use. In a later study, Liyew et al. (2020) demonstrated that experience positively influenced physical examination, although these were nurses working in an intensive care setting, so detecting change in patients' condition was an essential part of their role.

3.14.5 Contextual influence

Nurses working in high-intensity clinical settings such as A&E and intensive care units (ICUs) were found to use more physical assessment skills than nurses working on general wards, owing to patient acuity (Adib-Hajbagher & Safa, 2013; Fennessey, 2016). Physical assessments are key in clinical areas, where nursing work focuses on diagnostics and closely monitoring patients' changing pathophysiology (Fontenot, Hamlin, Hooker, Vazquez & Chen, 2022). However, general hospital wards also have patients at risk of acute deterioration, so physical assessment is just as important. Giddens (2007) reports that inspection, auscultation and palpation were identified as core skills by those in specialised midwifery practice but not by any of the other subgroups, including medical and surgical ward nurses. However, midwives often oversee patients from pregnancy to birth and often work independently, as opposed to ward nurses who have doctors available to assess and diagnose. Coombes & Moorse's (2002) qualitative study demonstrated the benefits of physical assessment skills in nurse-led outreach hospital services, with rising levels of patient acuity and increasing demands on intensive care beds, as these enabled them to carry out independent nursing actions in the absence of doctors. These studies show that physical assessments have many important potential outcomes, such as recognising patient deterioration, supporting pregnancy and childbirth, identifying differential diagnosis as well as supporting role autonomy, demonstrating their significance in care delivery.

Secrest et al. (2005) surveyed surgical, medical, ICU, paediatric, and home health nurses and university nurse educators on physical assessment skills taught and used in clinical practice. The findings supported Birks et al.'s (2013), Giddens' (2007) and Shin et al.'s (2009) studies, showing that only a small percentage (29%) of skills (120) taught were performed on a daily or weekly basis in clinical practice. Nurses working on wards were found to use physical assessments such as respiratory to determine whether patients needed turning, suctioning or moving. Secrest et al. (2005) have questioned the application of a medical model to teach ward-

based nurses, deeming it more appropriate in home health nursing roles where diagnostic work is central. However, the study's small non-random sample lacked uniformity, containing more intensive care nurses, which possibility accounted for the way physical assessments were used. Nevertheless, the paper emphasised the value of physical assessments in understanding disease processes for timely interventions and pointed out that, as opposed to ward-based nursing, wider physical assessment skills are needed in community roles, indicating the importance of maintaining these skills.

3.14.6 Summary

Physical assessment in nursing and advanced practice roles is critical to managing changing demand in healthcare needs and care provision as discussed in Chapters 1 and 2. Yet multinational quantitative Likert scale surveys spanning over 30 years consistently reported that physical assessment skills learnt were not being used, suggesting that underuse is an international problem. Inspection was used most frequently, thus further investigation is needed as to why palpation, percussion and auscultation were not being used. Many of these studies involved RNs who had only completed a physical assessment skills module. It is interesting that earlier Likert scale surveys evaluated far fewer skill items (36) than later studies (171), perhaps reflecting increasing role expectations and patient complexity. However, Likert scale instruments restrict deeper understanding of skill underuse. It is debatable whether simply establishing lists of physical assessment skills used in practice made a significant contribution to research knowledge to help improve this area of practice, when no primary studies explored how they were being maintained.

Despite physical assessments being at the forefront of advanced practice it was disappointing that only one quantitative study (Shin et al., 2009) involved ANPs. However, its results showed that they were using significantly fewer physical assessment skills than RNs (Giddens, 2007). Although this study added to the limited body of evidence in this area of practice, deeper insight and understanding are missing.

The design and methodology of the studies made it difficult to ascertain whether experience of clinical practice affected skill use and they involved ward-based RNs, making it difficult to compare findings with community settings. Findings from nursing and medical papers suggest that over-reliance on equipment reduced physical assessment, and lack of equipment and

ineffective equipment use could comprise patient care, highlighting educational needs in multi-professional groups.

The evidence suggests that physical assessment skills may need adapting according to role and clinical setting; the value of extensive skill training where core skills are often not needed or used is debatable. However, being able to identify health problems, recognise and prevent patient deterioration and diagnose in multiple settings supports holistic care and autonomous practice. Although contextual factors appear to influence how core assessment skills are used, no studies explored how they were being maintained. Thus, research into factors influencing the maintaining of physical assessment skills is clearly needed to establish a picture and plan, otherwise core skill sets could become too narrow to be considered safe practice.

3.15 Theme 2: Isolation and autonomy

3.15.1 Introduction

Shifting care from hospital to community has resulted in community roles providing much more acute and complex care at home (DH, 2019), as discussed in Chapter 2. Physical assessments and history taking within these roles are key to provide differential diagnosis and timely patient care to prevent hospital admission. However, research papers exploring physical assessment skills in community settings are limited.

3.15.2 Physical assessment in community roles

One of the few UK qualitative studies on physical assessment in community nursing explored the value of skills in a small DN group ($n = 10$) (Aldridge-Bent, 2011). The aim was to establish whether the inclusion of a clinical skills module in a community nursing degree was beneficial to practice, service demand and professional development. Although all DN participants agreed that their knowledge base had improved, findings showed that physical assessments risked the loss of their highly regarded core holistic assessment practices. However, combining them with DNs' core assessment skills can only add to more holistic patient assessment by enabling them to diagnose and better identify early patient deterioration. Despite obvious changes in patients' healthcare needs due to increasing rates of long-term conditions (Head, Fleming, Kypridemos, Schofield & Pearson-Stuttard, 2021) and the move towards community care (DH 2004, 2005a), DNs' views about protecting their assessment practices could hinder their use of physical assessment. However, as more DNs train as ANPs (Raleigh & Allan, 2016), understanding and

owning these skills will highlight the benefits and importance of these skills in the assessment and diagnostic process (Garibaldi & Elder, 2021).

Some DNs in Aldridge-Bent's (2011) study reported abnormal physical assessment findings to GPs, handing over diagnostic and treatment responsibility to them, as they believed these were roles for 'doctors' not 'nurses'. Declining responsibility was also reflected by ward nurses in other papers (Barrows, 1985; Colwell & Smith, 1985; Liyew et al., 2020; Schroyen et al., 2005; Sony, 1992; Yamauchi, 2001). However, unlike ward nurses, community nurses work autonomously in isolation, with no immediate colleague or medical support to corroborate findings and clinical decision-making, which could influence their confidence in physical assessment and risk-taking responsibility. Moreover, the DNs in the study had completed a stand-alone clinical skills module with no further support maintaining skills. DNs not only work in isolation, but the patients they visit often live in isolation as well: there is no one to monitor their decisions when they leave patients' houses, which could contribute to risk aversion in physical assessment. Lack of immediate access to patients' medical records to support clinical findings, particularly for patients with complex health needs, at the time of Aldridge-Bent's (2011) study could have challenged nurses working in isolation. However, this has now changed, with the introduction of iPads using applications that enable access to patients' NHS hospital and GP medical history records. Furthermore, these were older studies and community roles have significantly changed, with multi-professional ACPs specifically employed for their clinical input managing patient complexity (HEE, 2017).

In a later paper exploring the use of physical assessment by ANPs, Raleigh & Allan (2016) highlight skill deficits even among experienced qualified practitioners. Participants acknowledged that interpretation of physical assessment is essential to prevent redirection of patient care to GPs to make clinical decisions. One GP in the study felt strongly that ANPs needed to take responsibility for what they were doing: if they were unable to make clinical decisions, their skills were pointless. The study found that skill sets achieved did not match generic community role expectations: a large part of the physical examination, including urology, was missing, reflecting lack of medical supervision and opportunity for skill rehearsal during training (discussed in Themes 3 and 4 below). Not being equipped with wide ranging skills may result in them having to redirect care to doctors. The study's findings, however, also demonstrated that in-depth skills enable cross-boundary working to deliver wide-ranging services to meet patient and service need. Some of the GPs reported that they used physical

assessment effectively to diagnose and manage complex patients. This study demonstrated the value of physical assessment in community roles and the need to develop and maintain these vital skills to manage patients' health complexity.

3.15.3 Patient complexity

Neurological, cardiovascular and respiratory physical assessments are often used in community nursing, because of conditions due to the ageing process (Reaby, 1990; Schroyen et al., 2005). Just using one of these systems when examining a patient demonstrates skills complexity as described by Baid (2006; 2009) and Bickley (2020). Furthermore, the complexity of patients' health was a challenge during physical examinations.

Active case managers (ACM) in Skillen et al.'s (2001 p.81) community-based study reported *"I do not do enough assessments on normal healthy people to detect abnormalities"* and *"I often feel uncertain of my findings and how to interpret them"*. They performed physical assessments only when health problems arose, which could result in missed opportunity to detect other health problems for early intervention or early recognition of deterioration. All the DNs in Aldridge-Bent's (2011) study corroborated Skillen et al.'s finding that participants reported lack of 'normal' patients, making it difficult to detect abnormalities. Both studies demonstrated lack of knowledge and understanding of physical assessment skills and that not all patients were 'textbook' perfect, but individual and complex. In my community workplace, housebound patients are acutely unwell, often with multiple health conditions such as heart failure and COPD. Listening to some chests is challenging to me as an experienced ACP, as a myriad of sounds, both cardiac and respiratory, can often be heard. Thus, papers (Reaby, 1990; Schroyen et al., 2005; Secrest et al., 2005) rightly endorsed that the range and depth of skills required in autonomous community nursing roles to diagnose and treat is wider than that required in ward-based nursing roles focusing on assessment. Moreover, community nurses are often the first contact for acutely unwell patients. Given the isolated nature of community in comparison with ward work, developing and maintaining skills with no immediate support can be challenging. For example, describing physical assessment sounds such as cardiac murmurs after the event is difficult without the patient in front of you. Being uncertain about the interpretation of examination findings may influence practitioners' confidence and impact on the use of their assessment skills (Osborne et al., 2015). Illness complexity in community care is increasing (DH, 2019), reinforcing the need to maintain physical assessment skills.

3.15.4 Summary

The drive for physical assessments in community ACP roles was essential to meeting population needs and redirect care from hospital to community. Community evidence is limited but suggests that a wider set of skills is required in community settings, but isolated working challenges their application.

In community working, isolation combines with increased clinical autonomy, patient complexity and diagnostic responsibility. Community nurses reported that they rarely saw healthy patients, making detection of abnormalities difficult, and that housebound patients often had complex illness with multiple comorbidities, which could explain why ACMs reported using assessment skills only when health problems arose. One study reported that skill sets did not meet generic role expectations: as ANPs were not fully equipped with core physical assessment skills which could result in them having to redirect care to GPs. However, that study also demonstrated how assessment skills could support delivery of effective healthcare services in response to patient and service need.

These studies demonstrate that isolation and autonomy remain key reasons to maintain generic skills in community advanced practice and nursing roles, as patients have no medical support after they have left their house. Isolation and autonomy, however, do not necessarily imply that practitioners were not being supported maintaining skills, but this was difficult to establish when they worked behind closed doors. Isolated working might challenge skill development but the paucity of research in this area of practice makes this difficult to explore, highlighting the need for the present study and further research.

3.16 Theme 3: Professional and organisational challenges

3.16.1 Introduction

Professional and organisational challenges to use of physical assessment skills were evident, including crossing professional boundaries, lack of medical and peer support and time constraints. However, the lack of research makes it difficult to ascertain how skills learnt were being maintained.

3.16.2 Physical assessments: taking responsibility

Ward nurses identified skills decline because the presence of doctors reduced their opportunity to practise physical examinations (Birks et al., 2013; Douglas et al., 2014). Specialist skills such as endocrine, reproductive and neurological were viewed as the responsibility of specialist hospital doctors (Brown et al., 1987; Colwell & Smith, 1985; Edmunds et al., 2010; Lont, 1992; Yamauchi, 2001). Routinely seeing ward doctors performing physical assessments could reinforce this view, causing non-medical professionals to see responsibility for using their skills passively. Although these studies are dated and clinical role responsibility has somewhat shifted (HEE, 2017), conflict associated with assessment and diagnosis was still shown to exist some years later. One participant in Raleigh & Allan's (2016 p.10) community study suggested *"It's how you describe the symptoms to the doctor because some doctors absolutely hate it that nurses can actually do this ... well, it's very typical of cellulitis, you're not actually saying it is cellulitis"*. By using a 'softly, softly' approach they are suggesting, not stating the diagnosis which may reinforce doctors' medical authority and professional boundaries. ACPs' and nurses' confidence in physical assessment could influence the language they use i.e., assertive or passive, when discussing diagnostic findings. In McElhinney's (2010) study the ability to communicate with doctors on their level supported NPs' use of physical assessment. However, nurses could view physical assessments as taking on doctors' undesirable tasks or as increased responsibility for no financial reward, particularly those completing a stand-alone physical assessment module expected to exercise diagnostic autonomy.

3.16.3 Breaking professional barriers

In one of the first studies exploring physical assessment in nursing (Barrows, 1985), doctors viewed nurses using these skills as a threat, which was more acceptable as these skills in nursing were in their infancy. GPs were concerned that NPs' clinical capability to diagnose and treat independently would threaten their status and financial and job security and result in deskilling (Wilson, Pearson & Hassey, 2002). Doctors in 2019 were conflicted about the rising number of ACPs able to undertake physical examinations, diagnose and treat independently (Spence, 2019). Doctors have always wielded healthcare power with strong political support, but breaking doctors' monopoly position with these roles was leading to improved accessible healthcare (Spence, 2019). GPs however might be concerned about risk to patients, as they may view ACPs as having less training, experience and clinical exposure than them, but ACPs are senior clinicians with a vast amount of clinical knowledge, training and experience (HEE,

2017). Shifting traditional medical roles appears to have created uncertainty by blurring professional identities, but the significant GP shortage and increased care complexity (discussed in Chapter 2) mean that professional boundaries must be crossed to support patients' needs.

Professional role boundaries have challenged the use of physical assessment. For example, hospital nurses in Edmunds et al.'s (2010) and Birks et al.'s (2013) studies had to obtain doctors' permission to use these skills. Although lack of understanding of nursing and medical role boundaries might have contributed to this problem. With the introduction of ACPs, doctors were more on board with the clinical scope of these roles (Evans et al., 2020). Nevertheless, nurses and ACPs working alongside doctors need to be able to challenge obstructions to cross-boundary clinical practice, but this might be difficult if their physical assessment skills are not being maintained. Edmund et al.'s (2010) study involved a small sample of RNs ($n = 7$) known to the researcher, increasing researcher bias risk (Polit & Beck, 2018). Role understanding and transparency across nursing, allied health and medical professions is crucial to establishing role responsibility and accountability to meet the increasing demands of complex patient care. The ACP role demonstrates that medical work is transferable to non-medical professions (as discussed in Chapter 2) (Spence, 2019).

Cross-boundary working through community ANPs being able to undertake physical assessments is perceived to improve patient outcomes (Raleigh & Allan, 2016). Patients' expectations and preference (i.e. GP, ACP or nurse) should also be considered, as in the past patients have preferred doctors to non-medical clinicians, reinforcing medical boundaries (Redsell, Stokes, Jackson, Hastings & Baker, 2006). Roles are changing, and many patients just want contact and effective medical attention regardless of status. Thus, fostering cultures supporting physical assessments to enable new ways of interprofessional working is essential.

3.16.4 Support and supervision

Several papers highlighted that medical support and supervision were lacking, influencing the use of physical assessment in both hospital and community nursing roles (Barrows, 1985; Brown et al., 1987; Raleigh & Allan, 2016). Yet medical supervision was found to influence NPs' physical assessment ability (McElhinney, 2010). Lack of medical support was first highlighted in 1985 and was still evident in 2016 (Barrows, 1985; Raleigh & Allan, 2016), however this may relate to the lack of understanding of non-medical roles using these skills

and the positive impact they can have on supporting doctors' workload (Torrens et al., 2020). These findings were not country specific, demonstrating that lack of medical support and supervision is not just a UK problem. The hub and spoke model (discussed in Chapter 2) supports trainee primary care ACPs with robust built-in formal GP support (Gloster et al., 2020) but does not support those working in community settings. Owing to lack of research it is difficult to understand what medical support for clinical development is available to qualified community ACPs.

Lack of peer support also hindered use of physical assessment skills (Barrows, 1985; Brown et al., 1987; Schroyen et al., 2005; Skillen et al., 2001; Sony, 1992; Yamauchi, 2001); for example, Skillen et al. (2001) reported that lack of peer acceptance reduced case managers' use of these skills. These results are surprising as most of the studies were conducted in the USA where the skills were first introduced (RCEM, 2022). These were older studies when physical assessment in nursing was a new phenomenon, so peers might have felt threatened by the new breeds of nurse extending clinical boundaries or they may not have learnt and understood the complexities of these skills. However, unsupportive NHS learning cultures were identified much later, although they were caused by pressured environments and increased service demands (Raleigh & Allan, 2016) associated with changing population healthcare needs identified in Chapter 2. As already pointed out, many ACPs and nurses work in isolation, leading to social role isolation, so good peer support is essential. In McElhinney's (2010) study, 76.2% of NPs agreed that strong peer support would boost confidence in conducting physical examinations, but when asked about actual peer support of clinical practice, consensus was unreachable. In other words, peer support in ideal clinical worlds was recommended, but in reality, i.e., in busy clinical environments, it was difficult to access. Moreover, peer and medical support could be difficult to access if time is a factor.

3.16.5 Busy environments

Nurses in various settings reported that constraints on doctors' time were a barrier to receiving medical support and supervision in clinical practice (Barrows, 1985; Birks et al., 2013; Brown et al., 1987; McElhinney, 2010; Raleigh & Allan, 2016). GPs already mentor junior doctors, and the shortages of GPs in the UK adds to their heavy workloads (Lee, Baker, Stewart & Raleigh, 2023; Spence, 2019). Moreover, GPs are paid for clinical time mentoring medical students (NHSE, 2020), which possibly deters unpaid supervision of non-medical roles. Raising doctors' awareness of the positive effect that physical assessments and independent

working have on patient outcomes (Raleigh & Allan, 2016), and on relieving their overstretched time, is critical to improving patient care.

Papers (n = 15) also reported that constraints on nurses' time were a barrier to use of physical assessment skills in practice. These were predominantly international studies, covering a period of over 30 years (Aldridge-Bent, 2011; Barrows, 1985; Birks et al., 2013; Colwell & Smith, 1985; Douglas et al., 2014; Liyew et al., 2021; Lont, 1992; McElhinney, 2010; Osborne et al., 2015; Raleigh & Allan, 2016; Schroyen et al., 2005; Shi et al., 2020; Skillen et al., 2001; Sony, 1992; Yamauchi, 2001). Time constraints relating to heavy workloads (McElhinney, 2010; Raleigh & Allan, 2016), interruptions (Douglas et al., 2014; Osborne et al., 2015; Liyew et al., 2021), patient documentation (Douglas et al., 2014) and managing complex patient care (Aldridge-Bent, 2011; Raleigh & Allan, 2016) hindered the practice of physical assessment. Deeper assessment skills, such as percussion, palpation and auscultation, were likely to be avoided, resulting in skills redundancy (Birks et al., 2013). One nurse simplified this by reporting that too much documentation resulted in less time and minimal patient care. DNs (48%) said that time constraints imposed by having too many patient visits meant that necessary nursing activities were sometimes left undone (although 63% never refused referrals despite staffing and other resource issues), demonstrating the busyness of the community environment (QNI, 2019). However, as nurses struggle to carry out basic nursing activities because of time and heavy workloads, the importance of in-depth physical assessments may be overlooked. GPs have very short consultation times (Matthews-King, 2015), but have developed skills such as pattern recognition, which speed up the assessment and diagnosis process (Eva, 2005), which ACPs are also using as they become more experienced (Barratt, 2018). The use of pattern recognition is dependent on practitioners' experience and level of clinical expertise as discussed in Chapter 2 (Abrandt Dahlgren et al., 2022; Kicklighter et al., 2016). However, some nurse managers were unaware that time constraints were reducing nurses' use of these skills (Raleigh & Allan, 2016), making this problem difficult to address. This also questions why budgets and time out of practice are being spent on training nurses in clinical skills they are not using, reinforcing the importance of management support in using and maintaining these skills. However, UK community nursing recruitment and retainment is at an all-time low (discussed in Chapter 2), so the increased workloads and vast amounts of documentation nurses are expected to undertake are unlikely to change soon.

3.16.6 Summary

Papers show that, despite the radical shifts in healthcare provision, there are still professional and organisational challenges to physical assessment use in non-medical roles. Breaking professional barriers to cross-cultural adaption of physical assessment skills in ACP and nursing roles is challenged by factors including the presence of doctors to perform the assessments, nurses requiring permission to use skills or not being assertive with their findings, which could foster a passive approach to physical assessment and skills decline. Lack of medical support and supervision influences the use of physical assessments in non-medical roles. Although doctors are becoming more aware that ACPs' clinical skills reduce their own workloads and free up their time, some still see ACPs as a threat to their status. Peer support also needs fostering, as community ACPs and nurses working in isolated, time-pressured environments indicated the need for strong peer support.

The studies showed that time constraints challenge the way physical assessment skills are used in advanced practice and nursing roles, including depth of the examination. Managers' awareness of the time implications of carrying out a physical assessment is critical to supporting safe patient care. Adopting new ways of working, such as pattern recognition used by GPs, could help use skills more effectively to manage time, but this is dependent on ACPs clinical experience. However, time will always be challenged in busy NHS roles, but if physical assessments are not being used because of time constraints and lack of supervision, we should question how these skills are being maintained.

3.17 Theme 4: Skill confidence and competence: the link with education and practical training

3.17.1 Introduction

Confidence and competence in using physical assessment skills are strongly linked to education and practical training which this section explores in detail.

3.17.2 The influence of confidence

Lack of diagnostic confidence among ANPs (Shin et al., 2009; Raleigh & Allan, 2016) and nurses (Barrows, 1985; Brown et al., 1987; Edmunds et al., 2010; Heeyoung et al., 2012; Liyew et al., 2021; McElhinney, 2010; Neville et al., 2011; Osborne et al., 2015; Reaby, 1990; Skillen

et al., 2001) was found to affect their use of physical assessment skills in clinical practice. In McElhinney's (2010) UK qualitative study 81% of NPs lacked confidence in identifying heart sounds and 76.2% in practising abdominal examination. This lack of confidence is high but not surprising, as the increased workloads, reduced staffing, time constraints and lack of medical support identified in Theme 3 challenge the use of these skills. Lack of confidence might be linked to nurses' self-efficacy, their belief in their capability to undertake physical assessments. Although participants in McElhinney's (2010) study were NPs (n = 21), they had only undertaken a clinical skills degree module, not master's advanced practice training, which might be reflected in the findings. However, many papers discussed in this literature review indicated a lack of physical assessment confidence among nurses, such as declining role responsibility (Aldridge-Bent, 2011; Barrows, 1985; Colwell & Smith, 1985; Liyew et al., 2020; Schroyen et al., 2005; Sony, 1992; Yamauchi, 2001) and difficulty distinguishing between normal and abnormal findings (Aldridge-Bent, 2011; Skillen et al., 2001).

Only two papers (McElhinney, 2010; Raleigh & Allan, 2016) also reported factors that positively influence confidence and competence in physical assessment skill use (positive patient outcomes; self-motivation; trust of senior colleagues; medical supervision; autonomy; and opportunity to rehearse physical assessments in practice). This demonstrates a clear gap in research relating to facilitators of physical assessment skill use: too much research focusing on the barriers could create negativity about the use of these skills in non-medical roles.

3.17.3 Fear of making mistakes

Clinical competence in both ward and community-based nursing practice was a frequently cited barrier to physical assessment (Adib-Hajbagher & Safa, 2013; Aldridge-Bent, 2011; Brown et al., 1987; Heeyoung et al., 2012; Shi et al., 2020; Skillen et al., 2001) and advanced practice (Shin et al., 2009: Raleigh & Allan, 2016). Participants in Skillen et al.'s (2001) community-based study were "scared of making mistakes", which correlated with the lack of continuing education reported in their findings. However, these earlier studies were conducted when nursing assessments focused on patients' psycho-social and spiritual needs, rather than the integrated bio-psycho-social-spiritual assessment process used by ANPs today (ICN, 2008). In later studies, when physical assessment was expected in nursing roles, findings were more concerning, questioning the congruence between education in physical assessment and the needs of patients, healthcare policies and practitioners.

3.17.4 Feeling unprepared

ANPs in Williamson et al.'s (2012) ward-based ethnographic study felt that the advanced practice master's degree had not adequately prepared them for their clinical role, despite having easy access to doctors for clinical support. However, as discussed in Theme 3, the presence of doctors reduced physical assessment opportunity on wards. This study was conducted in North West England and the MSc programme was also accessed by community ACPs in the trust for which I work, but if ward-based practitioners did not feel clinically prepared this was likely to be reflected by those lone working. Community practitioners diagnosing and treating patients require wider-ranging physical examination skills than ward-based nurses (Schroyen et al., 2005) but gaps in training were evident as the skills did not meet role expectations (discussed in Theme 2) (Raleigh & Allan, 2016). Williamson et al.'s (2012) study suggests that more clinical consideration is needed in community advanced practice MSc programmes, such as longer more in-depth training periods and ongoing updates if they are expected to cross medical boundaries working in high-level clinically autonomous generic roles. Both studies (Williamson et al., 2012; Raleigh & Allan, 2016) supported the need to explore how skills are being maintained.

3.17.5 Support on how to do the job

GPs have reported that ANPs were focused on getting their physical assessment competency records signed off as opposed to developing general competency by learning how to do the job (Raleigh & Alan, 2016). However, this might be due to the intensity of the advanced practice master's and trying to get through the volume of the work on the course. Moreover, trainee ACPs had to independently find medical or ACP mentors to assess their physical assessment competency (Raleigh & Allan, 2016), unlike medical students, whose clinical learning programmes and mentorship were arranged (NHSE, 2020). However, clinical practice standard setting in advanced master's programmes is now subject to accreditation (HEE, 2020b), with increased focus on clinical supervision processes (HEE, 2020c) and robust GP clinical support (discussed in Chapter 2) (Gloster et al., 2020).

Raleigh & Allan (2016) argued that integrating physical assessment skills into undergraduate professional curriculums would provide a solid base for skill development in post graduate education and thus would be more practice ready for ANP roles. However, they did not discuss maintaining these skills long term. Newly qualified nurses being able to undertake head-to-toe

examinations and having good understanding of pathophysiology can only improve the quality of care and will support the changes in healthcare needs. However, they are usually consolidating basic nursing fundamentals rather than trying to develop advanced clinical assessment skills. Perhaps looking at other ways of developing these skills, such as multi-professional learning across medicine, advanced practice and nursing, could be one way of improving this area of clinical practice. Interprofessional learning between doctors (n = 166) and trainee ANPs (n = 41) was the focus of Estes et al.'s (2016) survey and focus group study. ANPs initially found shared learning intimidating but their anatomy and physiology knowledge from spending time with doctors improved. Although their physical assessment skills scores did not increase, it enriched their educational experience and supported team collaboration. Thus, more diverse ways of learning could enhance clinical development in these professional roles.

International papers from Australia (Birks et al., 2013) and the USA (Colwell & Smith, 1985; Giddens, 2006, 2007; Secrest et al., 2005) highlighted that university-level clinical courses needed re-evaluation to establish the relevance of physical assessment skills to settings and roles. This is not surprising given the number of these skills used, not needed or declining (discussed in Theme 1). However, having generic skills would equip practitioners for assessing and diagnosing a wide range of illnesses and would support continuity of care (Raleigh & Allan, 2016). Moreover, complex assessment skills cannot be learnt in a one-off module without ongoing clinical support.

Papers dating back more than three decades (Barrows, 1985; Brown et al., 1987; Cicolini et al., 2015; Edmunds et al., 2011; Heeyoung et al., 2012; Kinley et al., 2002; Schroyen et al., 2005; Shi et al., 2020; Shin et al., 2009; Yamuchi, 2001; Zambas et al., 2016) identified that more attention was needed on education and training. Aldridge-Bent (2011) and Shinozake & Yamauchi (2009) were more specific, highlighting the need for more focus on competency in anatomy and physiology, as without this knowledge physical assessment findings will be difficult to interpret. Later papers raised questions as to whether identified educational deficits are being addressed. Sony's (1992) earlier paper, however, suggested that nurses who received physical assessment updates subsequently used these skills more frequently.

When I undertook this research, neither my trust nor local universities offered formal physical assessment skill update programmes supporting qualified ACPs: emphasis was on putting trainees through advanced practice programmes without long-term strategy for maintaining

these skills. The assumption remained that once qualified as an ACP, you were a clinical expert. Line managers, however, unfamiliar with physical assessment processes, possibly lacked understanding of the skills complexity involved. Updates were important when ACP numbers in the UK were rising significantly to meet government policy of safely managing patients' complex health needs closer to home (Bhardwa, 2016; Spence, 2019). Maintaining skills once qualified could be even more difficult owing to workload time pressures (discussed in Theme 3), financial constraints and training recognition post-advanced practice qualification. Physical assessment skill updates and pathophysiology knowledge are important in community roles to ensure practitioners working in isolation have robust generic skills to provide all-round effective care. The lack of research exploring skill updates in community ACP roles makes this area of advanced practice more difficult to understand. However, before educational updates can be adequately addressed, factors maintaining these skills need to be identified. One particular factor is nurses' opportunity to rehearse their physical assessment skills.

3.17.6 Skill rehearsal

Skill rehearsal is crucial, as reinforced in community studies (Theme 2) where nurses had difficulty interpreting findings and redirected care to GPs. Six papers (Brown et al., 1987; Raleigh & Allan, 2016; Schroyen et al., 2005; Skillen et al., 2001; Sony, 1992; Yamauchi, 2001) highlighted that more opportunity was needed for physical assessment rehearsal. However, lack of protected time, supervision and organisational understanding discussed in Theme 3 made it difficult to provide opportunities for nurses to gain clinical experience. Lack of regular generic physical assessment experience may result in decline of the very skills for which ACPs are employed.

3.17.7 Clinical competence: doctors' and nurses' roles

Interestingly, studies demonstrated that doctors also experienced difficulty carrying out physical assessments. Doctors in Pines et al.'s (2005) survey had difficulties identifying heart murmurs using auscultation and diagnosing acute abdominal presentations. A later retrospective study by Oliver et al. (2013) from patient medical notes found that the quality of junior doctors' physical examinations in liver and spleen palpation and cardiac murmur was declining through lack of clinical competence. Records might have been inaccurate and difficult to clarify retrospectively, and the data was extracted by one researcher, so valuable information might have been missed. The study made recommendations for improvements,

including cultural change, formative feedback, senior supervision and guidance. In a later study, Rousseau et al. (2018) found variation in physicians' teaching skills and a generation lacking ability to teach assessment skills they had never learnt properly themselves. Lack of physical assessment skill competence might be linked to over-reliance on equipment used in diagnostics (discussed in Theme 1), which could take them away from practising and embedding skills.

UK studies comparing doctors' and RNs' preoperative assessments involving physical assessment judged nurses to perform better than junior doctors, although they took longer completing assessments (Kinley et al., 2002; Rushford et al., 2000; Rushford, 2006). In Kinley et al.'s (2002) study both groups missed an equal number of clinical problems and did not perform well, verified by specialist anaesthetist registrars. Doctors, however, picked up more cardiac problems and nurses more respiratory problems. Although these are older studies, the finding that doctors underperformed is interesting, as it is often assumed doctors are clinical experts due to their generalist clinical training (GMC, 2023). Although these findings are encouraging, they reinforce that maintaining generic physical assessment skills is essential in both professions, otherwise critical problems could be missed. Kinley et al.'s (2002) study advised that nurses should continue the role but needed more support. However, it is difficult to ascertain how these studies relate to current practice, owing to lack of more recent research. Not surprisingly, lack of competence could lead to suboptimal care, particularly when patient assessments were not comprehensive (Massey, Aitken, & Chaboyer, 2009; Odell, Victor, & Oliver, 2009). In Verghese et al.'s (2015) cross-sectional study, medical errors and adverse events resulted from failure to perform physical assessment (63%) and misinterpreted assessment signs (13.5%). Consequences included missed or delayed diagnosis (76%), incorrect diagnosis (27%) and delayed treatment (42%). However, this survey-based study might have been subject to recall bias and lack of contextual information (e.g., the doctors' specialties were not always given, making it difficult to establish the background to their skills errors). Cicolini et al.'s (2015) large-scale (n = 11,182) Italian survey found physical assessment skill use by a third of the sample of RNs to be suboptimal but did not suggest reasons for the poor standards. However, it can be concluded from these studies that rigour is needed performing physical assessments and interpreting findings as well as a clear need for ongoing education and training to ensure health professional and patient safety.

3.17.8 Patient safety

In the UK, national and local policy, including incident reporting and audit processes, is in place to prevent and manage identified suboptimal care (GMC, 2018; NMC, 2019). Clinical competence in interpreting physical assessment findings is key to safe patient care (Zambas et al., 2016; Rousseau et al., 2018; Verghese et al., 2015). However, abdominal auscultation was one of the least competently performed yet most frequently used skills in Heeyoung et al' (2012) study, which could call into question the accuracy of examinations. Ford (2016) has reported that litigation is increasing in advanced practice, with claims linked to wrong or delayed diagnosis, but does not explore the reasons for these claims. Wrong diagnosis linked to the physical assessment, for example incorrect interpretation of findings, could result in ACPs losing their original professional registration (e.g., with the NMC) and facing potential criminal court cases (Duke, 2012). ACPs are accountable for the care they provide reinforcing the need to maintain robust physical assessment skills. However, as in many professional endeavours, research is key to identifying and understanding factors influencing the maintaining of these skills.

3.17.9 Summary

National and international papers show that ACPs and nurses lack confidence and capability performing some physical assessments. This was not surprising with increased workloads, reduced staff, time constraints, lack of medical support (identified in Theme 3) and education and training deficits identified in this chapter. Standardised sets of physical assessment skills do not fit all roles and settings, but generic physical assessments would allow clinical management of a wider range of patient conditions. Medical studies showing their difficulties performing physical assessments further illuminate the complexity of the skills and the need to maintain them. Regardless of their country, role and setting, practitioners' incompetence or lack of knowledge and skills in physical assessment could result in suboptimal care. Continuing and varied education and training, including hands-on practical rehearsal, is critical when roles using these skills are increasing to meet rapid changes in healthcare.

3.18 Conclusion

Breaking the mould and blurring professional boundaries was needed to improve patient care and manage increased prevalence of long-term conditions, an ageing population and rising

demands on healthcare services. Training in physical assessment provided ACPs and nurses with the skills to assess, monitor, diagnose and treat patients.

Despite physical assessment being at the forefront of advanced practice, findings show that ANPs used significantly fewer assessment skills (Shin et al, 2009) than RNs (Giddens, 2007) but the findings were difficult to corroborate, owing to lack of research and methodological limitations. Most studies published over a 30-year period were predominantly quantitative and used Likert scales to evaluate physical assessment skill use in samples of RNs; these reported that skills learnt were not being used. An interesting finding is that later surveys examined many more skills (171) than earlier studies (36), which could reflect underuse of skills. However, a rise in the number of skills that nurses were assumed to use supports the increase in patients' complex healthcare needs and clinical responsibility in non-medical roles.

Many barriers to use of physical assessment skills were identified, including: lack of medical supervision; the presence of doctors; time constraints; and lack of education and opportunities for skill rehearsal. Thus, it is not surprising that confidence and competence in performing physical assessments was affected. Interestingly, reported barriers to skill use have remained unchanged over the past three decades; however, these studies involved mainly ward-based RNs, who were likely to use physical assessment differently owing to the presence of ward doctors. Studies advocated a wider range of skills in community roles, because of autonomous isolated working and high-level diagnostic decision-making and the need for patient safety. When community ACPs and nurses leave patients' homes, unlike ward settings, there is no follow-up care. Therefore, it is essential that they perform physical assessments competently and maintain their skills.

Community nurses highlighted that patient complexity made interpreting findings difficult, particularly as they had little support to corroborate findings and they rarely had the opportunity to examine 'normal' patients. Difficulty interpreting physical assessment findings was associated with lack of confidence and competence, and some community nurses redirected their findings to GPs for diagnosis. Education and supervision were clear requirements for supporting these skills. Even doctors had difficulty interpreting some physical examination findings, which demonstrates the complexity not only of using but also maintaining these skills.

The research highlighted that use of physical assessment skills is a complex process influenced by many factors. Qualitative studies exploring how these skills are maintained are essential to ensure that community practitioners such as ACPs provide safe patient care.

3.18.1 What was already known

Physical assessment in nursing has been practised since the 1960s. Quantitative studies explored physical assessment skill use using Likert scales, and the increasing range of skills evaluated in these studies might be related to increasing patient complexity and healthcare demands, although in practice skills learnt were underused. Methodological design limited the in-depth information that could be gleaned from these studies and samples involved were mainly hospital-based RNs. The few community-based studies identified the need for generic skill sets in these autonomous roles. However, it was unclear how skills were being maintained as research was missing.

3.18.2 Knowledge gaps

I found no primary research either in the UK or internationally identifying community ACPs' understanding of factors influencing their maintaining of physical assessment skills. Only one ward (Shin et al, 2009) and one community-based study (Raleigh & Allan, 2016) explored the use of physical examination in advanced nursing practice, thus exploration in community ACP roles is an obvious knowledge gap.

3.18.3 Methodological limitations of the published research

From the literature review I found that the quantitative studies did not provide sufficiently rich information and left questions unasked (such as how the skills were being maintained). I therefore considered whether a mixed-methods design would be better, but decided against it, as I felt it was debatable whether simply extending the lists of skills used would make significant research contribution to support improvements in practice. Thus, the methodological limitations of the published research directed me to a qualitative case study using an interpretivist approach to gain rich, in-depth knowledge from community ACP perspectives about maintaining physical assessment skills in isolated autonomous working. The identified studies and their methodological limitations thus supported the formation of the aim, objectives and interview question guide for my study and my selection of a research approach and study design.

Chapter 4 Methodology and Methods

4.1 Introduction

Chapter 4 outlines research paradigms and gives justification for adopting an interpretivist approach using Stake's (1995) intrinsic case study methodology to explore community ACPs' understanding related to factors maintaining their physical assessment skills. The sampling, ethical and data collection strategies which underpin this study are outlined. The research trustworthiness of this constructivist case study and an explanation of the data analysis method used concludes this chapter. Table 5 summarises the study's methodology and methods.

Table 5 Summary of methodology and methods

Methodology	Methods
Constructivist/interpretivist	Semi-structured interviews
Single intrinsic case study design	Thematic analysis

4.2 Philosophical positioning

Research paradigms are worldviews informed by sets of assumptions, beliefs and theoretical perspectives that research is based upon (Polit & Beck, 2018). Several philosophical paradigms exist including interpretivism, positivism and pragmatism, and each is underpinned by different sets of epistemological and ontological viewpoints that influence a study's methodological approach (Kivunja & Kuyini, 2017). The two fundamental paradigms used within research inquiry are interpretivism and positivism and are discussed in this section (Polit & Beck, 2018).

The positivist paradigm was considered for my research inquiry. However, epistemologically, I did not intend to distance myself objectively to gain new knowledge through methods including measurement (such as Likert scales) or testing theories and hypotheses (McLeod, 2022). Positivists often use quantitative approaches such as surveys using structured questionnaires (Polit & Beck, 2018), however generating data using a reductionist approach was unsuitable for this study. For example, only allowing the collection of superficial objective data such as the number or types of skills maintained would provide little understanding about the topic area. It is debatable whether establishing lists of skills maintained makes a significant contribution to research knowledge to improve this area of practice. Furthermore, the ontological orientation of positivism focuses on a value free approach underpinned by realist

views that a single reality exists (McLeod, 2022), however this is incongruent with the aim of this study.

My research aim and objectives were exploratory in nature to gain deep insight into community ACPs' views. A constructivist methodology was therefore most suited to generating this knowledge as it recognises that reality is produced by human intelligence interacting with real world experience, i.e., ACPs working in clinically isolated settings maintaining their physical assessment skills (Elkind, 2004). Each ACP's values and meanings will be different because of the subjective nature of their reality. An advantage of using a constructivist approach is that it allows for the complexities of ACPs' physical assessments in different situations, where patients' illnesses and home environments differ.

Qualitative studies often involve small samples (Gray, Grove, & Sutherland, 2016; Silverman, 2017), and the trade-off for the rich description they obtain is that their findings are not usually generalisable to other populations. However, exploring the subject to generate in-depth original knowledge where limited information exists was important in this research. I therefore chose constructivism as the mechanism with which to explore and understand different dimensions of ACPs' social world to gain this knowledge.

Interpretivism underpins constructivism, allowing me to see the world of physical assessment through ACPs' views, backgrounds and experiences to co-construct and interpret their meanings (Mertens, 2009). However, using an interpretivist approach required me to be aware of their differing explanations in order to effectively interpret the data (Gray, 2017). Being familiar with ACPs' roles and the language used was beneficial to understanding the data. It was also important that I was aware of the researcher–participant relationship and my own preconceived ideas in order to recognise potential study bias (discussed in this chapter).

4.3 Ontological and epistemological stance

A qualitative research study was further justified by my philosophical viewpoint that obtaining subjective views was the most effective way to explore the nature of the reality being researched. As a relativist, this approach allowed the view that there was no single way to know about factors influencing the maintaining of physical assessment skills, but a number of socially constructed alternative realities. Key with this approach were similarities between my ontological view and the philosophy of nursing, i.e., that nursing was holistic, humanistic and

patient centred, as was this qualitative study with its focus on ACPs and their values, beliefs and perceptions.

Generating new knowledge by capturing ACPs' in-depth views through their multiple realities (Creswell, 2017; Crotty, 1998) was important to gain deeper understanding about physical assessment skills and rich contextual data about how they can be supported in this clinically responsible role.

Furthermore, a constructivist world-view allowed me to address contextual importance, including physical, political, social, economical, spatial and personal factors, to gain better understanding about this unexplored phenomenon. Positioning this study within the constructivist paradigm supported using a case study design. I considered other research designs congruent with constructivist epistemology, including phenomenology and ethnography (Table 6), but they did not meet the nature of the study inquiry as effectively as a case study.

Table 6 Summary of other research designs considered

Research approach	Research focus and data collection	Application to the current study
Ethnography Roots in sociology and anthropology (Wolcott, 2008)	A framework for exploring cultures within a group. Examines relationships and behaviours within environments. Participant observation. Data is collected mainly by observation as the researcher becomes immersed in the field of study.	The aim of this study was not to explore the culture within a group of ACPs. Using this approach might put participants off involvement in the study as they might assume that the purpose of observation is to monitor how they carried out physical assessments.
Phenomenology Roots in psychology, philosophy and education (Heidegger, 1962; Moustakas, 1994)	A model for exploring and understanding the essence of lived experiences. Data collection primarily by interview. Researcher describes/interprets participants' accounts of the phenomenon being researched.	This approach was unsuitable as this study was not about exploring the meaning of ACPs' lived experiences. Bracketing preconceived ideas and experiences in an effort to produce pure data is a process used in phenomenology.
Grounded theory Roots in sociology (Strauss & Corbin, 1990)	Focuses on developing theory grounded in data from the field of study. Data collection, analysis and theory development occur in an iterative process until theoretical saturation is reached. Relies on iterative recruiting (theoretical sampling). Inductive approach.	Studies the actions or interactions of individuals using large samples (n = 20–30) to develop well-saturated theory. Thus, this approach was inappropriate for this small-scale study (n < 10). Broader contextual factors are often omitted, but they are key in this study.

4.4 A case study approach

Owing to its strength accounting for realities in clinical practice, the case study is consistent with a constructivist approach. The research term 'case study' implies simplicity, as opposed to other research terms such as 'phenomenology'. However, case studies are used to generate multi-faceted, in-depth understanding of complex issues in a real-life context, which corresponds with the chosen case (Paparini et al., 2020).

Case study has been defined as *"the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances"* (Stake, 1995, p. xi). This definition accords with the complexity of the community ACP's role, how they use physical assessment skills and potential difficulties they may experience maintaining these skills working in the isolated environment of patients' homes. Its defining characteristics are: holistic, with links between phenomenon and context (physical assessment skills and community); empirical and emphatic, based on experience (their experience and reflections); and interpretive, with value on researcher–subject interactions (Stake, 1995). Researchers' own beliefs and preconceived ideas are useful in understanding participants' views and contextual factors (Stake, 1995). Context is central in this model, which in this research reflects the case importance by generating understanding of maintaining physical assessment skills in isolated community environments or, indeed, "important circumstances".

Understanding the case requires the researcher to experience case activity as it occurs in context (Stake, 1995), which could be associated with ethnography, where researchers are immersed in the field of study. My experience as a senior ACP using physical assessment skills will enable me to become immersed in participants' reflective clinical accounts.

Stake (1995) argued that a case study is not a choice of methodology, but a choice of what is being studied, an object rather than a process, thus shifting focus from the methodological process on to the case in question. Stake's (1995) approach offers research flexibility, which enables Parlett and Hamilton's (1972) "progressive focusing", where research pathways are not fully charted in advance, as things may change.

In comparison with Stake (1995), Yin (2018) presented case study as a legitimate research methodology and structured research approach. Yin (2018) defined case study as an empirical inquiry and research strategy to investigate a phenomenon in a real-life context. This approach identifies three stages: defining and designing the case study (including case selection);

preparation and data collection (recruitment and access); and analysis and conclusions (including within and cross-case analysis and report preparation). However, Yin's (2018) case study design focusing on cross-and within-case analysis felt to me more prescriptive and more suited to a larger sample. Although Yin's (2018) organised case study structure might provide a more supportive framework for novice researchers, Stake's (1995) model is more contextually suited to my aim and objectives and its flexibility allows for research originality. Being aware of the strengths and limitations of case study was important in selecting an appropriate case study design.

4.5 Case study types

There are several types of case study: Stake's model, for example, includes intrinsic, instrumental, and collective (Stake, 1995, 2006) (Table 7). Selecting the case study type to capture in-depth perspectives and context was crucial in an area where knowledge was lacking. I therefore chose a single intrinsic case study to facilitate 'thick' description, investigating what was happening in totality to provide holistic explanations about factors influencing the maintaining of physical assessment skills (Stake, 2005). I also chose Stake's (1995) intrinsic case study because the case itself – 'community ACPs maintaining physical assessment skills' – was the main focus of interest and importance. Furthermore, this approach suited the constructivist/interpretivist paradigm by allowing in-depth holistic insight to support understanding of the phenomenon (Stake, 1995). The interrelationship between context (community) and phenomenon (physical assessment skills) was integral to the intrinsic case study. I also considered Stake's (1995) instrumental case study, but in this approach the case facilitates the understanding of something more than the case itself. As no research in the topic area existed the key focus was to learn about the case, so an instrumental case study model would deflect from the study principle.

Table 7 Case study classification

Constructivist – interpretivist	**Characteristics**
Intrinsic (Stake, 1995)	To seek better understanding of the case, the case is the main focus of interest and importance. Aims for thick description with opportunity to learn.
Instrumental (Stake, 1995)	The case is used to better understand an issue, something wider than the case itself. Thus, the case becomes secondary.

Constructivist – interpretivist	Characteristics
Collective (Stake, 2006)	A number of cases are studied jointly to better understand a phenomenon. Enables comparison of cases, enhancing opportunity to theorise.

4.6 Defining case boundaries

As well as establishing the case study type, defining the case boundaries was also important. Binding the case is an integral aspect of case study approaches (Stake, 1995; Yin, 2018). Cases can be bounded by context (Miles & Huberman, 1994), activity and time (Stake, 1995).

This case was bounded by 'context' (community settings and the population served), 'activity' (maintaining physical assessment skills) and 'time' (time in history that this research was undertaken, and the time required to collect the data and complete this thesis) (Stake, 1995). Section 4.7 presents the first of these: context.

4.7 The contextual case boundary of this study

The case 'community ACPs maintaining physical assessment skills' is located in real-life community healthcare settings in the city of Manchester, located in North West England. Community care within this city involves a wide range of health and social care from different service providers, including crisis response, which was established to support local population needs in the context of a health and social care crisis.

The population served was an estimated 193,953 adults (Manchester Population Health Knowledge & Intelligence Team [MPHKIT], 2018) aged 18 and over, of various geographical origins and socioeconomic status. It was diverse and multicultural, with 47.4% from ethnic minority groups, in comparison with the national average of 14.6% (MPHKIT), 2018). Many residents had limited English (MHCC, 2016a, 2016b, 2016c, 2016d), which could add to complexity of healthcare. However, the NHS multilingual interpretation services were available in the community to help patients and health professionals to obtain relevant medical data and provide appropriate care. Nevertheless, evidence has demonstrated that patients who experience language barriers are more likely to have poorer health outcomes compared with those who speak the native language (Squires, 2017).

Health outcomes within the locality were poor, with life expectancy among England's lowest: 76.1 years for males and 80.4 years for females (MPHKIT, 2018). Mortality and premature mortality rates (under 75 years of age) were also higher than the national average, with comorbidities major contributors (MHCC, 2016a, 2016b, 2016c, 2016d). A higher proportion of the residents had one or more long-term conditions (MHCC, 2019a, 2019b, 2019c, 2019d), with cardiac and respiratory diseases and diabetes higher than the national average (MHCC, 2016a, 2016b, 2016c, 2016d). It has long been accepted that patients with long-term conditions should be cared for in the community to provide patient-centred care closer to home to ultimately prevent hospital admissions (DH, 2005b, 2019). However, patients with cardiac and respiratory conditions often have complex health and social needs and can deteriorate quickly, which demonstrates the complexity of care delivery in the community. Furthermore, compared with the national average a higher proportion of pensioners within the case boundary lived alone (ONS, 2011).

Living alone can result in loneliness for some people, which can affect their physical and mental well-being (National Institute on Aging [NIA], 2019). For example, an elderly patient referred to my crisis response team had complex health conditions and lived alone; she made multiple contacts to emergency services (ambulances and police) owing to increased anxiety about her health. It transpired that a neighbour had died alone at home and this patient was afraid that the same thing was going to happen to her. Thus, being able to use clinical skills to assess patients and reassure them about their health and refer to appropriate multidisciplinary agencies (in this case social support and counselling) is important in supporting isolated patients like this in the community. Furthermore, social isolation has similar health risks to other lifestyle risk factors, including smoking up to 15 cigarettes a day, physical inactivity and obesity (Holt-Lunstad, Smith & Layton, 2010).

High prevalence of smoking, alcohol misuse, physical inactivity and mental ill health have been reported for the population (MHCC, 2016a, 2016b, 2016c, 2016d, 2019a, 2019b, 2019c, 2019d), which could be linked to the higher incidence of long-term conditions within the case boundary (Ng, Sutradhar, Yao, Wodchis & Roselloa, 2020). Meeting the health and social needs of such a high-need population resulted in considerable pressure on services. Locally, A&E attendances and hospital admissions were increasing (NHS Central Manchester CCG [NHSCMCCG, 2017], as was demand on general practice (Oakley, 2018) and ambulance services (North West Ambulance Service NHS Trust [NWASNHST], 2020). High costs and

non-elective admissions were evident in key areas, including respiratory and cardiac disease, consistent with the high prevalence of long-term conditions (NHSCMCCG, 2017). Rising demand for healthcare services and pressure on hospital beds were difficult to support with existing health and social care models. Reducing the impact on acute services required innovative community services that could support patient care at home (Oakley, 2018). A community crisis response service was set up to deal with higher patient acuity and complexity, with ACPs providing autonomous high-level diagnostic care. Traditional community service models such as district nursing were not sufficiently skilled or lacked the capacity for this type of care. Crisis response interventions enabled patients to be supported safely at home to prevent unnecessary hospital admissions.

4.8 Summarising the case

The case can be summarised using the '5 Ws' framework:

Who: identifying the case – community ACPs maintaining physical assessment skills

What: about this group of health professionals – qualified, with six months' post-qualification experience

Where: the location bounding this case – community setting, with crisis response service visiting patients' homes

When: in terms of time – the time in history this research was undertaken and completed and the projected timescale

Why: why select this case – working effectively is critical to the community ACP role assessing, diagnosing and providing timely, safe patient care to prevent hospital admission.

I anticipated that data gathered from these participants using methods outlined in the following sections of this chapter would generate a picture and plan to support how these skills in community roles can be optimally maintained.

4.9 Sampling strategy

My sampling strategy was to recruit individual ACPs to question in-depth to maximise learning opportunity, rather than to seek a representative sample population which Yin (2018) described as sampling logic. I used purposive, non-probability sampling to enable a targeted approach to the case of interest and importance (Stake, 2005). ACPs were included if they worked in the

community crisis response team in which I worked, had six months or longer experience as ACPs prior to recruitment, and were willing to provide written informed consent. With this sampling strategy, ten potential participants were eligible for inclusion. ACPs (n = 2) with less than six months advanced practice experience or trainees (n = 1) were excluded. Those with limited clinical experience might not have a true picture of factors influencing their maintaining of physical assessment skills, which would not meet the aim of this research. I considered recruiting ACPs who worked in general practice and local hospitals, however I felt that the importance of factors influencing the maintaining of these skills in isolated community settings would be diluted. Focusing on ACPs working in community settings was also important to this study as literature in Chapter 3 identified a gap in the research in this area of practice and setting.

4.10 Sample size

A good response rate was anticipated as eligible ACPs were keen to express their views and promote research in this area of practice. The final sample (n = 7) was fewer than the ten anticipated, as three left the trust before interviewing started. However, the sample was large enough for qualitative research offering rich, in-depth data (Stake, 1995).

4.11 Ethical principles

Following the robust ethical principles of beneficence, non-maleficence, respect for human dignity and justice were key in this study to ensure participants' rights and safety were protected at each stage of the research process including study approval, participant consent and confidentiality (RCN, 2011; Beauchamp & Childress, 2019; Polit & Beck, 2018).

4.11.1 Study permission

To protect participants and ensure they did not come to any harm, ethical approval was sought from the required organisations in the early development phase of the study (Beauchamp & Childress, 2019). The study involved NHS staff, so only a Health Research Authority (HRA) submission was required, and this was approved (Appendix 3). As the study was conducted in partial fulfilment of academic requirements for the award of a professional doctorate, a research proposal was submitted and approved by the university health research ethical approval panel (Appendix 4). The study was discussed and approved with the trust chief medical officer and my line manager, who approved it and also agreed to the use of work time for interviews

(Appendices 5 and 6). The research and development (R&D) officer provided confirmation of NHS trust capacity and capability for the study and trust research site access was permitted (Appendix 7). Obtaining ethical approval from the three organisations (HRA, university and trust) improved my knowledge in this area, as each had their own ethical polices and guidelines.

4.11.2 Consent

Respect for human dignity was achieved by ensuring participants were fully informed about the study and were aware of their rights to voluntarily decide whether to be involved, Polit and Beck (2018) refer to this as full disclosure and self-determination. Informed consent was achieved by providing sufficient information to potential participants (an email flyer, participant invitation letter, participant information sheet and written consent form) (Appendices 8-11). The following steps were taken to ensure individuals did not feel coerced into participating:

- The email flyer invited potential participants to contact me to show their interest in the study. If no response was received, a second email was sent. No response to the second email was taken to indicate a lack of interest in participating and no further contact was made.
- The participant information sheet highlighted that study participation was completely voluntary with no obligation to take part. A 24-hour cooling off period was offered between agreeing to be involved in the study and consent.
- Potential participants were given the opportunity to discuss the study, which was highlighted in the participant invitation letter.
- The ACPs working in the team (including myself) had equal status.
- ACPs approached individually were willing to participate in this study (as they had shown interest by contacting me after receiving the email flyer).
- No reimbursements or incentives were provided.
- Interviews took place during working hours with management agreement.

4.11.3 Confidentiality

Participant confidentiality was also a significant ethical factor that was given in-depth consideration. Strengthening anonymity and maintaining confidentiality underpins the

principle of justice (Polit & Beck, 2018). Thus, recruitment information was sent to each potential participant's trust (work) email address individually, preventing them identifying other potential study participants (Oliver, 2010; Smith, 2009), and this information detailed that their confidentiality and anonymity would be maintained.

As data was collected from trust employees, data storage protecting participants' identity and their right to data protection was vital. All confidential information, including consent forms, audio recordings, transcripts and field notes, were kept in an NHS site in a locked drawer (I had the only key) in a secure office (Wollack & Fremer, 2013). I used a locked bag to transport hard copies of notes, documents and the audio recorder. The interview audio recorder device was encrypted, promoting security of voice recordings. Audio recordings were uploaded to a password protected computer. I transcribed the audio recorded interview data into a password protected document. To protect participants' anonymity, names were substituted with codes in the transcribing process (Griffiths, 2009). Direct quotes were anonymised when reporting study findings, as highlighted in the consent form (Appendix 11 point 8).

Following the completion of data analysis, all data will be deleted as per general data protection regulations. Participant data will be kept for a maximum of three years and then destroyed (User Research Community [URC], 2018) as per the university's standard operational procedure. The audio recordings will be destroyed on study completion (McCrae & Murray, 2018). As I was data custodian, tight data management was possible. No other risks were anticipated, although consideration was given to identifying poor clinical practice from the provided data.

4.11.4 Risk management

The principles of beneficence and non-maleficence were followed, to ensure that potential unforeseen events were considered (Beauchamp & Childress, 2019). The participant information sheet stated that, should poor practice or safeguarding issues be revealed, I would be obliged to report this information by raising concerns with their line manager as well as incident reporting (see Appendix 10, Section 10).

Although unlikely, management of distress caused to ACPs during the study was to be addressed by referring to staff support following the trust's standard operational procedure. However, staff support services were not required during the completion of this study.

4.12 Preparing to enter the field

The appropriate trust members were fully informed of this study and essential details were provided for research processes to be undertaken and to gain access to the research site (discussed in Section 4.11.1). The aim was to recruit qualified ACPs from the community crisis response service, key informants to understanding factors influencing the maintaining of physical assessment skills. A description was provided of the trust individuals involved and their relevance to this study.

The lead operational manager, community nursing director, and R&D officer were contacted and meetings arranged. Details of the proposed research information, including the project summary, aims, objectives and timelines, were discussed. The knowledge I gained from completing the professional doctorate leader/practitioner module supported this aspect of research preparation. Using a transformational leadership approach critically engaged and ensured relevant staff were aware of my study. Being in the clinical area meant I could disseminate information in an iterative way, for example the literature review findings could be shared with colleagues who were keen to be updated. There was overall support from the ACPs, community nursing director, lead operational manager and R&D officer.

4.12.1 Recruitment strategy

I took care to plan and document the recruitment strategy, as insufficient detail could weaken research quality (Arcury & Quandt, 1999). Participant recruitment information was sent by email flyer addressed to individual potential participants (n = 7), with details for registering interest in the study (Appendix 8). A reminder email was proposed but not required as all seven replied expressing their interest.

Once ACPs showed an interest in participating, invitation letters, participant information sheets and consent forms were circulated with pre-paid envelopes to return them to me. Most participants (n = 5) were keen to read and return the documentation the same day, while the other (n = 2) posted it to me. No participants asked for clarification of the study or any further discussion. Once I had received the documentation from each participant, I contacted each individually to arrange a face-to-face interview. The interviews were scheduled to last approximately 60 minutes and were arranged around participants' shift patterns. I conducted the interviews during my annual leave or days off.

4.12.2 Study participants

Seven ACPs (six nurses and one physiotherapist) agreed to participate, giving a 100% response rate. A high response rate suggests their level of commitment to sharing their views on the topic, but it might indicate that they agreed to participate to please me, their colleague. However, I took care to reduce researcher bias, including promoting a voluntary research approach and a cooling off period between agreeing to participate and providing consent (see Appendix 10, Section 11). Furthermore, when the participants were recruited to the study the crisis response service had not long been established. Prior to joining the team, the ACPs worked in different community settings within the trust from the researcher, therefore were not well known to them. Also, crisis response is a seven-day, 12.5-hour service and ACPs all worked different shifts to cover the rota therefore you might not see an ACP for long periods of time.

I had hoped that both advanced physiotherapy and nursing professionals would be involved so that findings could be compared, but depleted physiotherapist numbers in the crisis response team resulted in only one physiotherapist. Therefore, to maintain anonymity results are presented generically, referring to all participants as ACPs.

4.12.3 Participants' clinical experience

The majority (n = 5) of participants had been qualified as ACPs for one to two years; the others (n = 2) had been qualified for over ten years. Thus, they had all had time using and maintaining physical assessment skills in practice. All participants had previous advanced practice experience before joining the crisis response service, ranging from general practice, active case management, intermediate care, nursing home and elderly care settings (Table 8). Three had been re-deployed from active case management and long-term condition management to crisis response urgent care treating high acuity patients. In accordance with national and local policy (DH, 2019; Oakley, 2018), community ACP roles had one important goal: to prevent unplanned hospital admissions by employing their advanced clinical skills. The wealth of their experience demonstrates an appropriate sampling strategy, which was critical to exploring the topic and generating rich, in-depth data.

Table 8 Length of ACP qualification and experience

Participant	Length of ACP qualification	Settings worked	ACP experience
ACP001	1 year	(1) ACM	(1) Proactively managing patients with LTCs.
		(2) ICT	(2) Rehabilitating patients stepped down from hospital or stepped up from the community.
		(3) Crisis response	(3) Urgent care highly autonomous role triaging, physically assessing, diagnosing, prescribing and treating, including high acuity patients and hospital red refusals.
ACP002	2 years	(1) ACM	(1) Proactively managing patients with LTCs.
		(2) NHST	(2) NHST managing patients in later years of life with complex health / end of life care needs.
		(3) ICT	(3) Rehabilitating patients stepped down from hospital or stepped up from the community.
		(4) GP practice	(4) GP practice, highly autonomous role. Patients with acute and chronic illness. Rapid turnover (10-minute consultation) requiring assessing, diagnosing, prescribing, treating, referring for investigation including X-ray, echocardiograms and cancer pathways and health promotion.
		(5) Crisis response	(5) Urgent care highly autonomous role triaging, physically assessing, diagnosing, prescribing and treating, including high acuity patients and hospital red refusals.
ACP003	1 year	(1) ACM	(1) Proactively managing patients with LTCs.
		(2) ICT	(2) Rehabilitating patients stepped down from hospital or stepped up from the community.
		(3) Crisis response	(3) Urgent care highly autonomous role triaging, physically assessing, diagnosing, prescribing and treating, including high acuity patients and hospital red refusals.
ACP004	1 year	(1) Urgent care – minor ailments	(1) Managing patients with minor ailments requiring assessing, diagnosing, prescribing and treating. Rapid patient turnover.
		(2) ICT	(2) Rehabilitating patients stepped down from hospital or stepped up from the community.
		(3) Crisis response	(3) Urgent care highly autonomous role triaging, physically assessing, diagnosing, prescribing and treating, including high acuity patients and hospital red refusals.

Participant	Length of ACP qualification	Settings worked	ACP experience
ACP005	11 years	(1) ACM	(1) Proactively managing patients with LTCs.
		(2) NHST	(2) NHST managing patients in later years of life with complex health / end of life care needs.
		(3) Older people and frailty	(3) Managing older people and frailty ensuring appropriate social and healthcare needs were met.
		(4) Crisis response	(4) Urgent care highly autonomous role triaging, physically assessing, diagnosing, prescribing and treating including high acuity patients and hospital red refusals.
ACP006	2 years	(1) GP practice	(1) Seeing patients in GP practice, assessing, diagnosing and treating.
		(2) ICT	(2) Rehabilitating patients stepped down from hospital or stepped up from the community.
		(3) Crisis response	(3) Urgent care highly autonomous role triaging, physically assessing, diagnosing, prescribing and treating, including high acuity patients and hospital red refusals.
ACP007	10 years	(1) NHST	(1) NHST managing patients in later years of life with complex health and end of life care needs.
		(2) ACM	(2) Proactively managing patients with LTCs.
		(3) ICT	(3) Rehabilitating patients stepped down from the hospital or stepped up from the community.
		(4) Crisis response	(4) Urgent care highly autonomous role triaging, physically assessing, diagnosing, prescribing and treating, including high acuity patients and hospital red refusals.

ACM, active case management; ICT, intermediate care team; LTC, long-term conditions; NHST, nursing home support team; hospital red refusals, seriously ill patients declining hospital admission.

4.12.4 Data gathering: interview methods

Gathering high-quality data relied on effective questioning tools and my interviewing techniques. Semi-structured interviews provided interactive opportunity and open discussion for exploring participants' views (DeJonckheere & Vaughn, 2019). Using open-ended questions such as "Can you give me any examples?" or "Can you explain them in more detail?" sought their in-depth perspectives on factors influencing their maintaining of physical assessment skills, thus minimising confirmation bias. The practicality of bringing together a

group of community ACPs in a busy crisis response service with unforeseeable urgent patient referrals would have challenged using a focus group discussion. However, a focus group might have created debate and uncovered perspectives that may not have emerged in individual interactions (Bowling, 2014; Robson & McCartan, 2016). Unstructured interviews might have enhanced conversation flexibility, but vital information might have been missed because of the lack of structure (Olson, 2011). Moreover, unstructured interviews could add to the complexity of data extraction, management and analysis. Semi-structured interviewing allowed for in-depth data generation to prevent multiple rounds of interviews, which was important for participants working in a busy, time constrained service.

The question guide that I used in the interviews was developed from the literature (see Appendix 12). It focused on key topics to encourage consistency of data generation while allowing participants to make their own individual responses. It used uncomplicated, logically flowing questions to avoid both parties losing the conversational thread and to enhance data quality (Rubin & Rubin, 2012).

4.13 The interview field

The interviews took place on NHS premises in quiet, comfortable rooms booked in advance; settings varied owing to room availability. Chairs were placed informally, with no barriers between interviewer and participant. Permission was gained to place a no-interruption sign on the interview room door, to promote participant privacy and confidentially (King, Horrocks & Brooks, 2019) (although interviews could be interrupted or postponed if a new acute patient referral came through). Creating a safe, relaxed environment was important to encourage participants' openness. Inadequately addressing preparation of the interview field might have affected data quality. The interviews were conducted over a three-week period at times convenient to the ACPs and lasted between 25 and 38 minutes (see Table 9).

Table 9 Interview schedule

Participant	Date interviewed	Interview duration, minutes
ACP001	28/09/2019	25.5
ACP002	01/10/2019	25
ACP003	05/10/2019	24.5
ACP004	08/10/2019	25.5

Participant	Date interviewed	Interview duration, minutes
ACP005	08/10/2019	25.5
ACP006	10/10/2019	25
ACP007	16/10/2019	38

Six of the interviews lasted just under 30 minutes. Using a suitable sampling method (purposive) to recruit individual ACPs (discussed in Section 4.9) enabled a targeted approach to generating relevant in-depth data within the timeframe of the interviews which is demonstrated in the findings in Chapter 5 (Stake, 2005). An inappropriate sampling method such as convenience sampling may not have evoked the rich data this study generated even if the interviews had been longer, as the participants may not have had the required physical assessment skill experience (Polit & Beck, 2018). Furthermore, the interview guide questions were well structured which helped keep the interview relevant to gain maximum data and greater insight into the topic area (Appendix 12). Only one interview (the final one), lasted longer than 30 minutes. This ACP had been qualified many years and had lots of knowledge and insight to share about the topic area.

4.14 The interviews

I audio recorded the interviews and none of the participants objected to being recorded. The audio recorder was tested before each interview for recording and acoustic clarity, to improve transcription quality (King et al., 2019). To maximise participants' openness, before beginning each interview I explained the data protection measures being taken, and stressed anonymity and confidentiality; I also placed the audio recorder discreetly.

The key to successful qualitative interviewing is building rapport (Patton, 2015; Seidman, 2019), so before each interview commenced, I thanked the participant for attending and offered refreshments. It was noticeable that some participants initially looked uncomfortable and were put at ease by engaging in general conversation. Research interviews can provoke anxiety, but in these interviews the participants, not the researcher, held the power in their views and beliefs about maintaining their skills which I used my communication skills to evoke (Hunter, 2005). I reassured participants, explaining that I would be listening to their expert views on the topic, not judging the quality of their responses (Braun & Clarke, 2013). Interviewing people you work with is acceptable and termed 'acquaintance interviewing' (Garton & Copland, 2010),

but entering a dual relationship as researcher and colleague raised additional ethical considerations. Awareness of not coercing participants to disclose information they might not have otherwise revealed is crucial to promoting truthful subjective data (Brinkmann & Kvale, 2014). Maintaining some distance during interviews is important, and I adopted a neutral stance; I also conducted the interviews during my annual leave and days off, which together with the duty rota schedule (discussed in Section 4.12.2) promoted temporal distancing as I did not see participants for long stretches.

To reduce bias response, before starting the audio recorder I discussed the purpose of the study with each participant, giving them further opportunity to ask questions. All participants had already received a participant information sheet and had consented to interview and audio recording. I then asked them if they were ready to start the interview. This discussion, together with the introductory processes mentioned above, provided space for participants to adjust to being audio recorded.

As the interviews were semi-structured and conducted in conversational style, I was aware that I had to maintain objectivity and neutrality and not lead participants by putting words into their mouth. Taking care not to influence them when asked my opinion meant being non-committal or waiting until the interview had finished. Actively listening to the conversation was sometimes difficult, as ambulance sirens regularly sounded, indicating potential urgent paramedic patient referrals and interruption to the interview. However, active listening techniques acquired from taking patients' complex histories in noisy home environments helped me refocus. Jotting down keywords related to a participant's responses also helped to keep focus and promoted further questioning. The semi-structured interview method offered some flexibility, which was important when responses to the questions about physical assessment skills often overlapped (Braun & Clarke, 2013). Furthermore, tailoring the interview questions to the participants' narrative enhanced the flow of data. My communication and interviewing style reflected my consultation skills: when participants spoke slowly and softly, I echoed this, enabling participants to open up so that I could probe issues about maintaining these skills. If participants expressed unclear views, I clarified them using paraphrasing to reduce misunderstanding.

On completion of the interview, I switched off the recorder, thanked the participant for openly sharing their views and asked if they had any questions. Most participants thanked me for giving them the opportunity to discuss physical assessment skills as they felt it was a clinical

area requiring attention. I made brief notes on any feedback immediately, to ensure that no data was lost to recall. After each interview I uploaded the audio recording to a password protected computer, in line with data protection regulations and confidentiality (see Section 4.11.3).

4.15 Field notes

Field notes taken during the interviews supported the audio recorded data. I took them down on A4 paper and included the date, time, venue and participant number. These descriptive notes captured context that supported data transcription and included uncontrolled interruptions to the conversation (such as referral alerts), my own and participants' non-verbal communication and prominent physical assessment information. For example, ACP003 had been keen to attend an urgent care course and had approached management trying to secure funding: they said, *"My goodness, it's only £100 – £100"* (raised eyebrows, gesturing strongly with hands) *"and they can't even pay that. I could pay for it myself but it's the principle"*. Documenting facial expressions and gestures helped recall and clarified audio recorded comments. However, I kept field notes to the minimum so as not to distract from the focus of the interview. Field notes also helped to contextualise the interview setting. One interview room was tiny, the central heating made it hot and stuffy, increasing the aroma of the coffee provided to participants. Windows only opened six inches, making it difficult to air the room. Although the interviews were not lengthy, I gave participants the opportunity to take breaks and provided them with cooled water.

The descriptive data in my field notes supported the audio recordings and provided reflexive resources and insight into my actions and perceptions, supporting my reflective journaling.

4.16 Reflexivity

Completing this research while working as a senior crisis response ACP was supported by reflexive processes. I reflected on the potential difficulties that could arise through being both a clinician and a researcher and how my professional and personal behaviour, values and beliefs could affect my research. I did not enter this research value free (Patton, 2015).

Qualitative research is reflexive, and researchers are part of the research, not separated from it (Aamodt, 1982), thus analysing the self within the research context is crucial to study credibility (Guba & Lincoln, 2005). Considering how my views about factors influencing the maintaining of physical assessment skills would be affected by my personal clinical experience

influenced the data recording and management decisions I took to reduce bias. Approaches to assist reflexivity included:

- keeping a reflective journal, which enhanced my awareness of my personal views on unfolding happenings, including the interview and data analysis processes (see appendix 13 insights from my reflective journal)
- field notes, which captured my actions and perceptions during the interviews
- thematic analysis, which promoted a systematic, transparent approach to data management
- participants' views, which were presented by quoting large amounts of their raw data.

Reflexivity is also needed to address differences in class, culture and power relations between participants and researchers (Grbich, 1999), and is often described as researcher positionality (Rowe, 2014). Thus, was I viewed as an insider 'clinician' or outsider 'researcher'? The reported advantages of being a colleague 'insider' are improved access to research settings, being easily accepted and understanding the cultural language, which reduced my effect on the research (Holmes, 2020). Being over-familiar with the participants, i.e., 'being one of the team', might influence data analysis by blurring boundaries, which could result in a myopic view (Burns, Fenwick, Schmied & Sheehan, 2012). Interpreting the data required stepping out of my reference frame, viewing the situations the participants presented through their lenses. Thus, returning to the raw data throughout the analysis ensured that the ACPs', not my own, views were presented.

My positionality was highlighted during one interview, for example, when the participant asked what challenges I faced in keeping my physical assessment skills refreshed. I see from the transcript that, instead of discussing my thoughts after the interview so as not to bias their response, I unconsciously lapsed into my clinician role. Furthermore, during transcription I saw that some questions had been leading, which possibly related to my own familiarity with physical assessment. At times the ambiguity of being both a clinician and a researcher dedicated to improving clinical practice made it difficult to maintain impartiality. Listening to the recordings after each interview increased my awareness of areas in my approach that needed addressing. My supervisors provided reflective space and supported the development of my interview techniques.

Interviewing was a challenging process. It required multitasking: actively listening; understanding body language and voice tone; using the interview guide; identifying areas to

probe with further questions; and maintaining awareness of my positionality. Reflecting on my first interview, I appeared to hurry the first few questions, perhaps because I was aware that the ACP was on duty and an urgent referral could come through. I might have used the silences between questions more effectively: instead of allowing these to occur naturally, at times I appeared to move to the next question quickly. However, allowing long awkward silences might have provoked anxiety, and the participant might have felt pressured to speak. Time constraints were a large part of my busy clinical role and hurrying was a difficult habit to break. Although I presented myself as a calm researcher/interviewer I was excited to be finally undertaking the interviews, so heightened emotions might also have contributed to rushing. The more interviews I conducted, the more I relaxed, giving participants more time between questions, as well as encouraging deeper response by asking "Could you tell me more about that?", which also gave me time to process my thoughts.

My personal and professional values were shown during interviews by creating a warm environment to ensure that participants felt safe. For example, if a participant was late owing to work commitments, I encouraged them to take time to gather their thoughts before the interview started. They seemed relaxed during the interviews, and none referred to being recorded; this might have been related to my communication skills or their immersion in giving their views. The participants appeared open in their discussions and they expressed positive views, such as receiving excellent peer support and working with talented clinicians, as well frustrations, such as a lack of clinical training. However, negative views about limited resources to support clinical development demonstrated their commitment to improving patient care. Inviting them into my research to share their unique views on physical assessment practices enabled me to enter their emotional world (Dadds, 2008). Reflective journaling helped me to consider whether as an ACP colleague I had been sensitive to their feelings and reactions that the interview questions might have raised. For example, one participant who had been qualified for less than two years became annoyed at the lack of organisational understanding that clinical support was limited, although they were hopeful that my study would help. After the interview I was able to share my personal ACP experiences and perspectives about physical assessment skills, which Northway (2000) referred to as reciprocating.

Once the interviews were completed and transcribed, they were ready for coding (discussed in Section 4.23). Although this process was exciting it was not without its challenges. Coding vast

amounts of qualitative data was initially overwhelming as I tried to make sense of it. So as not to lose focus it was therefore essential to take a step back to fully understand this process. Commencing data analysis with semantic coding helped me to progress to latent, more in-depth coding; double coding the data verified the findings by ensuring that my interpretation correlated with participants' views (Bryne, 2022). It was important I did their data justice: they had given valuable time and their personal views. My supervisors promoted confidence in my method of analysis by corroborating its suitability. Although double coding the data supported transparency of analysis, it was very time consuming in my dual role as a researcher and front-line worker. Furthermore, during the completion of this research the coronavirus pandemic was declared.

The pandemic interrupted my study, extending the project's timescale. My focus was on my role as a front-line senior ACP working in challenging, unnatural and unprecedented times. Dealing with the unknown, i.e., patient referrals with potential COVID-19, and with increased GP referrals as more worked remotely further emphasised the importance of maintaining generic physical assessment skills and conducting this research.

4.17 Credibility (truth of the data)

The credibility of this study is dependent on truthfully reporting/conveying participants' accounts (Guba & Lincoln, 1989) and is supported by my description and explanation of the research experience (Koch, 2006). Thus, I used my journal to reflect on the research procedures, my views and aspects of interactions with the participants and my relationship with them (Koch, 2006). Awareness of how these factors could influence the research process (such as data collection, selection and interpretation) support study credibility.

Other procedures that I undertook to ensure findings were true to participants' views through accurate representation included: transcribing the data myself, as opposed to using transcription apps and outside individual transcribers who lacked contextual understanding; and using large raw quotes. Multiple participant perspectives or triangulation clarified the meaning of their data by identifying different realities, reducing the potential of misinterpreting the data (Lincoln & Guba, 1985; Stake, 2008).

My experience as an ACP and my understanding of ACPs' culture and clinical world allowed me to gain a better understanding of their views about the topic area (Lincoln & Guba, 1985).

However, not losing my curiosity through over-familiarity and not becoming enmeshed by the difficulty of separating my experience from theirs was critical to discovering new truths in this area of practice (Lincoln & Guba, 1985).

Member checking, where participants are given the opportunity to check for accuracy and interpretation of data, is advocated to enhance study credibility (Birt, Scott, Cavers, Campbell & Walter, 2016). However, this approach could weaken credibility owing to the reliability of memory recall (Morse, 2015). I did not use participant checking because of time constraints imposed on the busy crisis response team. However, peer debriefing supported study credibility, as interview transcripts and emerging themes were critically reviewed by my supervisor, providing clarity, support and at times redirection (Lincoln & Guba, 1985).

4.18 Transferability (findings applicable to other settings or groups)

A single case study approach using a small sample in one geographic location challenges a study's generalisability (Zainal, 2007). Although this study was not intended to be generalisable to other settings, Stake's (1995) concept of naturalistic generalisation shows how the results could be useful in understanding similar situations. For example, the findings could be used by ACPs in other organisations to compare their experiences of maintaining physical assessment skills. To enable readers to make a judgement on transferability, I provide thick descriptions (Lincoln & Guba, 1985). Sample details discussed in Section 4.9 and documentary information in Chapters 2 and 4 provide detailed case description to support transferability.

4.19 Dependability (the process of the research study)

Dependability judges whether another researcher would achieve similar interpretations as this study if they followed the same decision pathways (Sandelowski, 1993). Thus, dependability is reliant on the quality of my audit trail, which included logical, clearly documented data collection, analysis and interpretation processes (discussed in this Chapter) (Lincoln & Guba, 1985). Recoding data during analysis by reverifying segments several weeks later and using a dual coding system showed consistency in data interpretation. Reflexivity helped to reduce bias through research transparency, thus increasing the study's dependability (Guba, 1981).

4.20 Confirmability (how findings are interpreted)

Study confirmability is demonstrated with audit trails showing how findings and interpretations were concluded (Guba & Lincoln, 1989; Tobin & Begley, 2004). Taking steps to reduce researcher bias was important to ensure the participants' views were represented, rather than my own perspectives. Divulging my own values and beliefs is integral to achieving confirmability by helping readers understand my positionality. Furthermore, reasons for my theoretical, methodological and analytical choices are clearly given throughout the study; these, supported by my reflective journal accounts, underpin research decision transparency (Koch, 1994). The auditability of the analytical decision-making processes through the use of a thematic analysis framework shows the links between the participants' raw data and interpretations evidenced through semantic and latent coding and the emergence of themes.

4.21 Thematic analysis

Thematic analysis supported the study's interpretivist approach, enabling the presentation of participants' rich detailed accounts. Braun and Clarke's (2006) six-phase guide provided structure, systematic audit trails and decision-making transparency during the analysis process, from transcribing and coding the interview data to the emergence of themes. Thematic analysis was not a linear process that progressed through consecutive phases: it involved moving back and forth between the phases, revisiting the data. Using an analysis framework provided structure to the large volume of qualitative data.

A theoretical thematic analysis approach allowed segments of data to be coded that were relevant or of interest to the aim and objectives (Braun & Clarke, 2006). For example, views on how ACPs training had impacted on their physical assessment skill development was interesting and relevant to the topic area. Theoretical thematic analysis has been likened to a top-down approach, as it usually focuses on one specific aspect of the data (Boyatzis, 1998; Braun & Clark, 2013). However, similar to Evans et al.'s (2020) study exploring the role of ACPs in primary care, the data analysed in my study covered multiple aspects about factors influencing maintaining physical assessment skills to provide good insight into the topic area. I considered other thematic analysis approaches (such as inductive analysis), but themes identified using this framework are data driven, bearing similarity to grounded theory, which is reliant on larger samples to reach data saturation (Patton, 1990). I also considered framework analysis, which facilitates cross-case analysis in case studies, which was not required in this

single case study (Ritchie, Spencer & O'Connor, 2003). However, as with any analysis approach, familiarisation with the data – participants' narratives – was key.

4.22 Phase 1: familiarising myself with the data

Transcription accuracy was essential to ensure that the participants' accounts were appropriately represented, and I transcribed the accounts immediately after the interviews to help recall (Bailey, 2008). Transcribing the interviews independently helped me to become familiar with and immersed in the data, and careful listening facilitated ideas about themes. For example, from participants' clinical accounts the level of diagnostic responsibility within this community role became clear, which led to the emergence of Theme 1 (advanced clinical autonomy). Transcripts are not neutral accounts of events but reflect the researcher's interpretation of the data; being aware of my potential influence on the relevance of data helped me maintain objectivity (Bailey, 2008). Nevertheless, it was unavoidable that some issues participants highlighted (such as clinical training opportunities) were significant to me as a practising ACP. Outsider data transcription might have resulted in information loss, through unfamiliarity with the subject and context. For example, transcribing audio recordings requires the transcriber to add punctuation to clarify the speaker's words, and unfamiliarity with the area and with the context might alter their meaning. Trialling a transcription app on short interview segments resulted in incorrect word transcription and difficulty making sense of the data, although this might have been due to differing spoken accents.

I transcribed the audio recorded interviews verbatim (Poland, 1995) (Appendix 14). However, representing the spoken word in writing is an interpretative process and the first step of the analysis involved judgement, rather than a mechanical process of putting words on to paper (Bailey, 2008). Thus, taking into account participants' non-verbal behaviour, such as facial expression, gestures, voice and sounds, was integral. Playing and replaying short recording segments multiple times enhanced my familiarity with the data and supported accuracy of transcription (Poland, 1995). Understanding the transcribed data was an active not passive process, as some spoken language was untidy, words were repeated, participants hesitated, and some phrases were unfinished. The transcripts were unedited, including their actual words, linguistic variety and non-semantic sounds (such as er, erm, um) to create as clear and complete accounts as possible and enable understanding through deeper contextual insight (Miles, Huberman & Saldana, 2019).

I added non-linguistic (e.g., laughing) and paralinguistic contextual information (e.g., voice tone, rhythm and pauses) after text translation (Appendix 15). Noting when referral alerts/sirens sounded during interviews added depth to narratives as they indicated potential referrals to crisis response ACPs from paramedics. Interpreting non-linguistic information depends on the researcher's understanding, for example laughter could be interpreted as nervous, happy or mocking, all of which can convey different messages (Anikin, Baath & Persson, 2018). When discussing their role ACP002 mockingly laughed when they[1] said *"ACPs were just expected to run with it",* added meaning to their words. Omitting non-linguistic and paralinguistic information from transcripts avoids cluttering the text (Tilley, 2003) and could save time but goes against the meaning of constructivist/interpretivist research. Bringing text to life was important to gain deeper understanding of participants' accounts. For example, ACP001's voice tone became louder on the words *"especially out in the community"* when talking about the importance of physical assessment skills and diagnosis. Emphasising these words indicated the significance of physical assessments in advanced autonomous roles in the isolated setting of the patient's home. Transcriptions are less reliable than actual audio recorded conversations, and for this reason I cross-checked with the original voice recordings during analysis (Poland, 1995).

Transcripts, audio recordings and field notes were used together to further support data quality. More information is captured, and less bias is introduced through audio recordings and transcripts as opposed to field notes, as researchers can be selective in field note writing (Tessier, 2012). My field notes supported my contextual understanding of the interviews. For example, ACP003 came across as very knowledgeable and passionate about their role. They were insightful about national and local policy relating to the commissioning of ACP roles in crisis response and felt that physical assessment skills were the bedrock of keeping patients at home. Concerns were expressed about the lack of opportunities to maintain these skills in community roles (emphasised by a field note documenting eye rolling, hand and head shaking gestures and voice tone change). The conversation lifted when they acknowledged (smiling) their appreciation that the interview allowed an opportunity to discuss this area of practice. Researchers' explanation of participants' non-verbal communication and verbatim

[1] To protect participants' anonymity in this small sample, I use 'they' instead of 'he' or 'she'.

transcription has been reported as key to the reliability of qualitative data (MacLean, Meyer, & Estable, 2004).

On completion of transcription, I replayed the interviews and reread the transcripts to gain an holistic overview of the data content. I wrote my initial observations and ideas at this point on the transcript sheets, and these acted as triggers for code and theme formation and locating relevant transcript information (Appendix 16); I also used these ideas in the development of the coding framework.

4.23 Phase 2: developing the coding framework

The coding process was the part of analysis that allowed the data to be organised into meaningful groups (Bazeley, 2013). I highlighted and systematically coded information relevant to the study's aim and objectives on hard copies of the transcripts, providing the building blocks for analysis (Appendix 17). Making sense of the data involved two coding levels – semantic and latent – supporting data interpretation and theme formation (Braun & Clarke, 2013). I assigned open semantic and latent coding to words or phrases capturing the essence of what participants were conveying in the interview extracts. Semantic coding captured the explicit content of the narratives' surface meanings, helping to understanding the data and to progress to latent interpretative coding (Table 10). I used prompts to myself such as "What was happening here?" and "What sense can be made of this account?" to support this process (Braun & Clarke, 2006). No formula was applied developing the codes as it was important to stay close to the participants' voices by carefully choosing words accurately representing their views. Data coding identified, organised and reduced a copious amount of data into smaller meaningful chunks. Using a semantic and latent coding approach increased analysis transparency.

Table 10 Semantic and latent coding in action

Semantic coding analysis	Latent coding analysis	Transcription excerpt showing the use of semantic and latent coding
Semantic (explicit) Surface meanings to data (Braun & Clarke, 2006)	Latent (implicit) Interpretative/detailed rich, in-depth data Used in constructionist approaches (Braun Clarke, 2006)	Transcription excerpt ACP001: *"Having some refreshment trainings, to keep our physical assessment skills and access to different trainings, for example where you feel deficient with your skills"* Semantic codes: 'keen to maintain ACP skills' Latent codes: 'supporting professional confidence and competence in PA skills', 'isolation and autonomy key points maintaining PA skills'

PA, physical assessment.

To link the generation of coding with participant findings, each interview transcript line was numbered. Initially I transferred semantic and latent codes and corresponding excerpts for each participant by hand from transcripts on to a large sheet of paper (Appendix 18), but this was messy and difficult to manage. I therefore constructed a computer coding table (Appendix 19) for each participant showing transcript excerpts, semantic and latent codes. Table 11 summarises the steps involved in developing the coding framework.

Table 11 Steps involved in coding framework development

Step	Process	Appendix
1	Initial observations and ideas were noted on transcripts	Appendix 16
2	Information relevant or of interest to the study's aim and objectives was highlighted and coded (semantic or latent) on the hard transcripts	Appendix 17
3	Transcript excerpts, semantic and latent codes for each participant were transferred on to a large sheet of paper. Using this format was messy and difficult to manage.	Appendix 18
4	A computer coding table for each participant was developed showing transcript excepts, semantic and latent codes.	Appendix 19

4.24 Phases 3–5: theme searching, reviewing and defining

Semantic and latent codes were collated methodically on to tables, starting with ACP001 and progressing to ACP007 (Appendices 20 and 21). Duplicate codes were removed.

Semantic and latent codes were colour coded separately, making thematic connections easily identifiable (Appendices 22 and 23). The colour codes were reviewed and some collapsed, for example latent codes 'value of team working and ACP peer support', 'the value of ACP peer/colleague support' and 'the importance of team working' were collapsed into 'the value of team working and ACP support', as they were saying similar things (Appendix 23). However, re-reviewing the codes in conjunction with the audio recordings, 'the value of ACP peer/colleague support' stood out within the narratives, warranting more emphasis on this topic. For example, ACP003 said *"having people on the team who are very experienced ACPs […] that I can bounce off and ask […] and going out on joint visits […] it's really useful"*. I therefore 'uncollapsed' these codes.

The codes were grouped together into preliminary themes (Appendices 24 and 25). For example, several semantic codes related to clinical practice, including 'high acuity patients', 'preventing patient deterioration' and 'taking diagnostic responsibility in challenging situations', giving the emerging theme 'new ways of working'. Closely examining codes enabled further collapsing and movement into coherent themes and sub-themes (Appendices 26 and 27). Theme formation is termed passive but was a complex process requiring reasoning regarding the data relationships (Taylor & Ussher, 2001). Codes that initially seemed to emerge as part of one theme were reorganised into a different theme on revisiting them. Codes that did not belong within a theme at this stage, for example 'lack of PA skills research into ACP roles', 'evidence' and 'new knowledge', were temporarily placed in a theme named 'various codes'. At the end of this process broad preliminary themes had emerged, but at this point they were still open to change.

The preliminary themes were refined, and some were collapsed into each other and renamed (Appendices 26-28). For example, 'Fear of getting it wrong: community ACPs' vulnerability' and 'Community ACPs' vulnerability and fear of getting it wrong' were similar and projected negative connotations. These did not reflect participants' accounts about patient care (see Chapter 5 Theme 1), which demonstrated that they worked autonomously with capability but still carried a degree of stress regarding the support they received to maintain their skills. These themes were collapsed and became part of Theme 2 'Maintaining physical assessment skills: the clinical picture (see Chapter 5).

Reading collated extracts helped clarify emerging themes, and codes were thematically organised and reorganised logically following the flow of the storyline. The final semantic and

latent codes and main theme and sub-theme titles are shown in Appendices 29–31.[2] The steps involved in thematic formation are shown in Table 12. A thematic map identified the essence of each theme and how sub-themes and main themes interacted (Appendix 32).

Table 12 Steps involved in thematic formation

Step	Process	Appendix
1	Collated semantic and latent codes for all participants with duplicate codes removed	Appendices 20 and 21
2	Semantic and latent codes (from Appendices 20 and 21) colour coded for thematic connection Codes reviewed and some collapsed	Appendices 22 and 23
3	Semantic and latent codes sorted into preliminary themes	Appendices 24 and 25
4	Semantic and latent codes further collapsed and moved into coherent themes and sub-themes Preliminary themes reviewed, collapsed and defined	Appendices 26–28
5	Final semantic and latent codes and main theme and sub-theme titles	Appendices 29 -31

4.25 Phase 6: writing up findings

Three distinct themes emerged: Theme 1 'Advanced clinical autonomy', Theme 2 'Maintaining physical assessment skills: the clinical picture' and Theme 3 'Opportunity in an inopportune environment' and will be explored in detail in Chapter 5.

4.26 Summary

The purpose of my study was to explore factors influencing community ACPs maintaining their physical assessment skills. I appraised taking a positivist approach within this study but decided this would only generate superficial objective data and was not appropriate to explore ACPs' multiple realities to gain deeper understanding in an area where knowledge is missing. The research approach I adopted was positioned within the constructivist paradigm, reflecting the philosophical stance of the study. I considered qualitative research designs congruent with constructivist epistemology, including phenomenology and ethnography, but these did not meet the study's exploratory nature as effectively as a case study. I appraised Yin's (2018) case

[2] Appendices 1–28 use the term 'medical physical assessment skills' (MPAS), whereas Appendices 29–32 use 'physical assessment skills' (PA skills), reflecting the minor change in terminology highlighted in chapter 1.

study approach, but it focused too much on theoretical design and felt prescriptive, as opposed to Stake's focus on understanding the case within the case boundary. I chose a qualitative interpretative methodology which linked with Stake's (1995) single intrinsic case study design to generate both perspective and context from selected participants about the topic area.

Using an effective sampling strategy, ensuring robust ethical processes and developing an effective interviewing tool were crucial to meeting the aim of this study. Time invested in these areas before the interviews took place was key.

During interviews, promoting a safe comfortable environment encouraged participants to be open, generating rich, in-depth data. Interviewing was multifaceted and more challenging than initially anticipated. Field notes and reflective journaling affirmed the evidence and contextual information from the semi-structured interviews as well as identifying weaknesses in my interviewing that needed addressing.

Reflexivity identifying my positionality as researcher and clinician was challenging, but self-awareness helped me to take the appropriate steps to reduce potential researcher bias. These steps included reflective journaling and field notes capturing my perceptions, values, feelings and actions. Measures were taken to support the trustworthiness of this study, including transparency in methodological approaches and the inclusion of participants' large raw quotes in Chapter 5. Using a thematic analysis approach provided transparency and demonstrated the connections between the raw data and interpretations evidenced through coding and the emergence of themes. These are explored in detail in Chapter 5.

Chapter 5 Findings

5.1 Introduction

Chapter 5 presents the study findings. The overarching aim of this research was to explore the concept and application of community ACPs' roles, ultimately identifying their understanding relating to factors influencing them maintaining their physical assessment skills. Generating a picture and plan about how these skills can be optimised and supported within this role was an important aspect of this study. From the new knowledge generated from ACP participants' data I have drawn out the following themes and sub-themes (see Table 13), which reflect the aim and objectives of this research and are explored in detail in this chapter.

Table 13 Final themes and sub-themes

Theme number	Theme	Sub-themes
Theme 1	Advanced clinical autonomy	Diagnostic responsibility Blurring professional boundaries
Theme 2	Maintaining physical assessment skills: the clinical picture	Professional confidence and competence Lack of rehearsal and training opportunities Working in seclusion Valuing peer support Medical support in isolated working Pressured environments Organisational understanding
Theme 3	Opportunity in an inopportune environment	Motivation to advance in clinical practice Future directions: clinical training innovations Skill rehearsal opportunity

In the following sections of this chapter the analysis and presentation of ACPs' extracts is illustrated within each sub-theme. At the beginning of each sub-theme an example is provided showing how the semantic finding was drawn out during analysis and how that contributed to the thematic findings; a summary at the end of each main theme consolidates this. In Theme 2, the longest theme comprising several sub-themes, a summary is also provided at the end of each sub-theme to keep the reader updated. The audit trails detailing the six-phase thematic analysis process that I used also illustrate the emergence of these themes (Braun & Clark, 2006), as discussed in Chapter 4 and shown in Appendices 20-32.

5.2 Theme 1: Advanced clinical autonomy

5.2.1 Diagnostic responsibility

ACP003 reflected on why advanced clinical assessment skills were important to them in their role. They inferred that not all paramedics had advanced skills to present a full clinical picture of the patient during telephone triage referral, and ACPs were required to undertake the initial assessment as they had the advanced skills to determine patient outcomes. This ACP viewed advanced clinical assessment skills as the crux of their autonomy in their clinical practice. In other words, they suggested these skills were essential to doing the job of establishing differential diagnosis by finding out what was medically wrong with acutely unwell patients, so that they could be treated effectively. The analysis of this ACP's reflection demonstrates their role autonomy and diagnostic responsibility through the use of their advanced physical assessment skills to diagnose and treat patients with complex health needs. Thus, the semantic meaning drawn out from this extract demonstrates the contribution to the thematic findings 'advanced clinical autonomy and diagnostic responsibility'. The next ACP's account explains the importance of these skills in community settings.

> *"All the NWAS [North West Ambulance Service referrals] we get through on a daily basis need an advanced clinical assessment. Because the crew that initially assess them don't always have those advanced skills. And you can't take for granted what you are being told on the triage telephone call, because quite often when you get there it's a different story. And the only way you can get to the nub of that clinical scenario and the risk of keeping that person at home that otherwise would have gone into hospital is to employ your advanced clinical assessment skills. […] NWAS calls all need an ACP to go and assess on the initial visit. The reason behind that is to establish whether this person is safe to be able to stay at home with appropriate treatment and services brought in, in an urgent fashion or whether this person is deteriorating or at risk of deteriorating to the point where they would need emergency care in A&E." (ACP003)*

ACP001 highlighted the importance of physical assessment skills for different reasons. They suggested that working in this community role with limited access to diagnostic machinery, that physical assessment skills were a necessity to support their autonomous diagnostic decisions. This account demonstrates their reliance on examination findings to make a diagnosis which illustrates their responsibility and the complex decisions they must make. Their emphasis on robust physical assessment skills suggests the importance they placed on practising to a high standard to keep patients safe. The following account demonstrates how they viewed other skills integral to the diagnosis process.

> *"I think in community settings robust clinical assessment skills are very important because you don't have machines and, you know, like X-rays and scans that are available in hospital. You purely mostly rely on your examination findings to make a diagnosis. It is very important that we have sound skills […] to ensure we can do that assessment with a high standard." (ACP001)*

ACP006's reflection highlighted the importance of having multiple clinical skills including history taking, physical assessment, and knowledge of pathophysiology to support their diagnostic reasoning. They spoke confidently about how they employed different clinical skills depending on the patient's complaint, blending skills to support their decision-making and promote their advanced clinical autonomy.

> *"[I] use different clinical skills together with history taking depending on the patient's problem. Taking a detailed history and looking at the patient's signs and symptoms goes hand in hand with clinical skills." (ACP006)*

Paramedic referrals were described by this practitioner as complex patients with high-level undiagnosed needs, who required advanced assessment to unpick what was going on. This practitioner's account suggests they used a comprehensive assessment approach (the examination of multiple bodily systems), to support patients' level of health complexity. There was almost a sense of resentment that patients attending hospital clinics often went for specific and not multifaceted complex health problems. The practitioner made it clear they could not fulfil the role without advanced assessment skills, but also highlighted the importance of critical thinking skills to make diagnostic judgements.

> *"I think it is very difficult to fulfil the needs of the role without all these skills because in the community the range of patients is completely different from a specific department in the hospital because we get anything and everything. So, someone coming with a hip problem, he might have a heart problem, chronic obstructive pulmonary disease, and he has got abdominal problems. So as an ACP the job demands and expects us to do the whole assessment, not only the particular problem*

he is coming with. […] Patients with a lot of uncertainty – that's what we're getting, where it's very difficult to make the decisions […] we need to think a lot and make that reasoning." (ACP006)

ACP004 also illustrated the importance of clinical reasoning skills as they suggested that making a diagnosis for complex patients could be challenging. They compared the complexity of establishing differential diagnosis to detective work i.e., problem solving, looking for clues and joining it all together. This account demonstrates the ACP had a good understanding of assessing complex patients to support their diagnosis and make sure they did not miss anything. The importance of being thorough during assessments is demonstrated in the next practitioner's account.

"They are complex patients, things can be tricky, and things don't always present in the way you would expect […] it's detective work, building the pieces together." (ACP004)

This extract demonstrates the concept and application of their role which goes back to the aim of this study. It was clear how this ACP valued their skills to holistically assess, identify and action multiple health needs. This demonstrated they had good peripheral vision, a wider appreciation of the patient as a person rather than concentrating on a presenting symptom or complaint. They seemed to be satisfied they were able to give good holistic patient-centred care and prevent patients from being admitted. Their description of assessment suggested they used a comprehensive, as opposed to a focused, assessment approach (discussed in Chapter 2). Thus, this ACP's account demonstrates initiative and ability to work flexibly, and their wider vision of the patient's needs demonstrates high-level autonomy and decision-making capability.

"We tend to get complex patient referrals – it doesn't tend to be straightforward and there's a lot going on. You need advanced assessment to be able to pick out everything that's going on. But we have gone in with advanced assessment skills and identified lots of other things going on and we've improved the care and safety of that person in terms of keeping him at home and not sending him into hospital." (ACP003)

Not only were the patients that were referred very complex, but this ACP's account also highlighted the variability of their work, as the type of patients being referred could be unpredictable. ACPs could be faced with a multitude of health complaints during any given day and needed the assessment skills to be able to diagnose and treat. Managing various health complaints was also reflected in the next ACP's account about prescribing practices.

> *"You don't know quite often what is coming through, so you don't know what you are going to see, so you need to be able to assess anything that crosses your pathway really." (ACP002)*

ACP003's account illustrated the value they placed on advanced clinical assessment skills and how such skills supported them to perform in their role with high-level autonomy through their ability to diagnose and prescribe. They made it clear they worked as generalists, meaning they could be diagnosing and prescribing for many different illnesses, emphasising that generic assessment skills were critical for their role autonomy. The reflection shows how professional boundaries were being stretched.

> *"That treatment could be prescribing, um, but you could be prescribing for lots of different scenarios. […] You could be faced with anything really and it's that generalised role requires advanced clinical assessment skills." (ACP003)*

5.2.2 Blurring professional boundaries

ACP006 compared the level of patients' illness (from paramedic referrals) with patients attending GP appointments. This practitioner rated patients' level of illness by positioning GP patients at the lower end whilst situating crisis response patients in the top 70-100 percent. The ACP's perceptions supported these ratings, as they emphasised, in their view, that illness acuity and the risk that they managed was far greater than that managed by GPs. The semantic analysis of this ACP's account highlights how they worked across professional boundaries to manage patient complexity and high levels of clinical responsibility, thus contributing to the thematic finding 'blurring professional boundaries'.

> *"If you rate the level of the people going to a GP – it's similar to 40 then, or 30, or 30 to 70. We see patients 70 to 100 – only going directly to A&E. […] This is more safe for the GPs – the people who are able to go to a GP surgery, they are not that unwell, I mean unwell means they are not critical." (ACP006)*

ACP003's account inferred that their role was very complex and demanding as some of the patients referred to them prior to the establishment of crisis response would have gone to A&E for a medical opinion. Their insight emphasised the enormity of their clinical responsibility and decisions they must make to keep patients safe. It was clear that patient safety was at the forefront of their thoughts, through their emphasis on the need for advanced physical assessment skills in order to make those decisions. This account emphasises the importance of these skills in their role autonomy and how they contributed to ACPs stretching professional boundaries.

> *"You are blurring the boundaries between what we are managing at home now compared to what we used to send into hospital […] It is a really advanced clinical decision to make 'cause these people would have gone into hospital before the urgent care service was set up. And I wouldn't think it would be a safe service if the person assessing that patient in the community didn't have advanced skills, 'cause you could make a very dangerous decision." (ACP003)*

This practitioner suggested that there was a shift within advanced practice to wanting more recognition and this could imply that ACPs wanted to become the main clinician. They was open to having a doctor working within the team, but they also queried whether this would be damaging to their advanced practice standing. To overcome boundary tensions and minimise cognitive dissonance on this point, they also acknowledged that doctors' training was lengthier than that of ACPs.

> *"What I think about advanced practice is we are kind of part of […] a collective move to wanting to be better registered and recognised […] we kind of slide into, um, a kind of a narrative which says you don't need doctors, you need ACPs. My feeling is sometimes I need a doctor. […] I actually don't think a doctor would go amiss in our service. […] It does seem to be that there is a bit of 'them and us' type of thing and in some way, it would be letting down the image of advanced practice to need a doctor for anything, and kinda doctors do a lot more training than us, you know." (ACP007)*

5.2.3 Summary

Theme 1 explored the concept and application of ACP roles which was a key objective in this study. The findings centred on the level of community ACPs' autonomy in their role assessing, diagnosing and treating patients with complex health needs. Each ACP's initiative and ability to work flexibly with high-level autonomy and diagnostic decision-making capability, mirrored the advanced characteristics of this role (discussed in Chapter 2). This theme showed how the role challenged professional boundaries through the use of ACPs autonomous advanced physical assessment and prescribing practices, and that expectations within this community role were high. However, due to their high-level autonomy, diagnostic responsibility and the variation in patient referral illnesses, their accounts strongly suggested the importance of wide-ranging, robust physical assessment skills working in this community role.

The interpretation of ACPs' individual reflections showed how they contributed to the overall thematic finding: advanced clinical autonomy through their diagnostic responsibility and the blurring of professional boundaries.

5.3 Theme 2: Maintaining physical assessment skills: the clinical picture

5.3.1 Professional confidence and competence

ACP006 inferred that not having the assessment skill competence in all bodily systems to do a comprehensive assessment may result in implications for the patient as well as for the practitioner. Being confident and competent with their skills and being a safe practitioner seemed to be at the forefront of this ACP's thoughts. The analysis of this ACP's account demonstrates they needed to be confident and competent in a wide range of skills to be able to assess the health complaints they were presented with. Thus, the semantic meaning drawn out from this extract relates to the thematic finding 'professional confidence and competence'.

> *"If you don't have the clinical skills to assess the systems, that might end up in more complications." (ACP006)*

ACP004 was concerned about potentially omitting elements of their physical assessment through not being aware that they should be doing them, suggesting that some skills had not been fully learnt during their advanced practice training. This also calls into question the clinical support received after qualifying. They acknowledged when they needed to access support from others but suggested this made them feel incompetent and unable to give end-to-end care. However, this account also demonstrates that safe practice was a key consideration of their role. ACP001 in the next extract demonstrates confidence in their skills.

> *"I think it's only when we have the patient in front of you, and you think I don't actually know this bit, I am gonna have to get somebody and it makes you feel like you can't complete that care properly. […] I often worry about if I am missing things out, either through not realising that I should be doing it, or just from kinda being unaware that I have missed it out." (ACP004).*

ACP001 suggested that the examination systems (cardiac, respiratory and abdominal) they used most frequently were easier to preserve. They demonstrated confidence and competence in their differential diagnosis capability by illustrating their practical grasp of the nature of the patient's problem, such as whether it was cardiac or respiratory related. They spoke confidently about looking at the patient's signs and symptoms to guide the use of their core assessment skills of palpation, percussion and auscultation to support their diagnosis.

> *"When I go and assess this patient, I need to do a proper chest examination, including looking at the signs and symptoms and then auscultating, palpation and percussion.*

> *So, not only chest […] it could be related to cardiac, so you should be able to use those skills to ensure that you're treating the patient with the right diagnosis. […] The skills examining chest, cardiac and abdomen are the most common we use generally, so it's easier to upkeep them skills." (ACP001).*

In contrast, ACP006 struggled when performing a cardiac examination. Self-awareness of their limitations helped them to pursue training, however the course appeared to focus purely on theory. Yet what this practitioner seemed to want was the practical application of the physical assessment, such as being able to listen to cardiac sounds in real-life patient situations in a supported clinical environment. It was evident they felt no further on with their cardiac assessment skills, and still had to seek help from others. The next participant's extract shows confidence and competence in applying their skills.

> *"My weaker area is cardiac things, so I have told my clinical lead that I need more exposure on this, so they sent me on a cardiac one-day training. […] But the practical approach is missing. […] Many times when there is a patient with more cardiac problem I always seek advice from my colleagues and peers." (ACP006).*

This ACP demonstrated high levels of confidence and competence using abdominal physical assessment in a very sick patient. Without these skills and pathophysiological knowledge (being able to interpret the lack of bowel sounds and abdominal guarding) and higher-level critical thinking they suggested they may not have made the same decision. Their advanced clinical skill expertise was further exemplified by the unstable environment (the diarrhoea and vomiting outbreak), which might have clouded their clinical judgement. It was evident they were relieved they had advanced skills and could give this patient a good outcome and they had not let anyone down. In the way this ACP used their extensive clinical skills and knowledge to diagnose and manage this patient demonstrates their professional confidence and competence. In the next reflection ACP002 indicates why generic skills were important.

> *"Previously I've had a patient that it was quite lucky really, 'cause if I haven't had the examination skills […] I would not have made the same decision. It was a patient in a nursing home that at the time was closed 'cause they had D&V [diarrhoea and vomiting] within the home. But they referred this patient, said she had D&V but a lot of abdominal pain and they were concerned about her. So my initial thoughts was she had the bug like everyone else, but I actually went in and did a full abdominal assessment. She had no bowel sounds and she had loads of guarding in her abdomen – I actually could not touch her abdomen. So it was a 999 to hospital and she'd actually got a bowel obstruction […] and had I just gone in there thinking this patient has just got sickness and diarrhoea like everyone – it was only through my examination skills that I thought, no this is something else." (ACP005).*

ACP002's response suggests that they were there to bridge the gap in the shortage of GPs. They implied that once they qualified, they were expected to be clinical experts and confidently take on the role by being able to apply generic skills to different patient scenarios. The next practitioner's account shows the importance of maintaining physical assessment skills.

> *"Because obviously we are there to fill a gap in the market, which is, you know, to cover for GPs, ACPs are just expected to run with it." (ACP002)*

ACP001 felt less confident with assessment skills they used infrequently and suggested this could put their skills at risk of declining. Neurological was one of the examination systems they did not feel confident with. Ear nose and throat (ENT) and skin were also examination systems they lacked confidence and competence, which they attributed to the lack of skill exposure during their advanced practice training and the opportunity to develop them working in community isolated settings. In the next extract ACP005 discusses their use of neurological assessment skills.

> *"Sometimes I do a neurological exam, but some of the time I don't feel confident with some of the clinical skills we don't normally use all of the time. So you kind of lose that skill to do it confidently. For example, ENT and skin, which as part of training don't get that much of exposure and there isn't an opportunity to develop that skill to get that confidence, especially in the community." (ACP001)*

ACP005's account demonstrates their confidence in the way they used their neurological assessment skills. Their reflection suggests they used a personalised assessment approach to meet the needs of specific patient populations including the elderly. They implied that being able to modify their examination and focus on aspects patients were able to engage in, supported a holistic approach to care. ACP004 in the next account also spoke about the practicality of patient assessments.

> *"Neuro exams tends to be partial […] in older people, so a lot of the patients can't do a lot of the things in the neuro exam. So it tends to be more like your strength, and your power and your eyes, um, seeing they have got coordination, grip, movement. But sometimes you can't assess the gait for the mobility and things like that." (ACP005)*

ACP004 talked confidently about using a practical approach during their assessment, and similar to ACP005 were able to individualise it to patient need. They suggested patients may not tolerate comprehensive assessments as this approach is lengthy. Again, this practitioner is

looking at the patient as a whole, not just the condition or illness. However, in their next account this ACP also highlights that they did not feel confident with some physical assessments.

> *"It's not always practical to do every bit of that for every single patient, because you know you would spend an awful long time doing that. And patients don't always tolerate it […] So you tend to tailor it to the specific patient and their history." (ACP004)*

ACP004's reflection suggests that clinical exposure and the opportunity to develop confidence and competence in some physical assessment skills was missing. They gave an example of a patient presenting with complex symptoms and suggested that owing to gaps in their training they could not complete the assessment. Although this example occurred prior to this ACP's role in crisis response they still seemed to have to rely on picking up skills in a piecemeal way after they had qualified, which did not appear to support their skill confidence. The next excerpt discusses the potential problems of not being adequately skilled.

> *"We did cranial nerves in uni, um, and then when I went into general practice and people were coming in with pins and needles and tingling on their bodies and you're thinking, where do I start? Um, so I picked up little bits along the way. […] So things like with the cranial nerve examination and stuff – I tend to find that I never got the opportunity to do things like fundoscopy, so I really don't feel confident with that." (ACP004)*

ACP005's reflection highlights the dangers of deficits in physical assessment skills and knowledge. They gave an example of a skin complaint being linked to a serious underlying condition, which suggested that having the confidence to interpret examination findings with pathophysiology knowledge was the advanced skill. The importance of practitioners' clinical experience during physical examinations was also highlighted in this account. The extract identified that learning gaps in university training needed to be explored and also illuminated the importance of skill rehearsal opportunities in different clinical settings to support ACPs' developing wider ranges of clinical skills and confidence.

> *"You might go in and see a rash and you might think it is just a rash, but at the end of the day it […] might be lupus vasculitis or something like that and if you've not come across that you wouldn't know, so it's like everything else. I think that is a gap that university needs to look at." (ACP005).*

5.3.2 Summary

ACPs' reflections show that they all had different levels of competence and confidence in their physical assessment skills. Some practitioners feared missing things and had to seek help from other professionals which made them feel incompetent, however this appeared to be linked to training gaps. Other practitioners demonstrated confidence and confidence in the application of their skills to support their diagnosis and care planning in often complex situations. The semantic meaning elicited from the extracts shows that some ACPs' were confident and competent with their physical assessment skills while others at times felt this was lacking. This relates to the thematic finding 'professional confidence and competence'.

5.3.3 Lack of rehearsal and training opportunities

From ACP004's account, asking questions in front of others during physical skill practical training at university made them feel uncomfortable. Their reflection also suggests that other students were confident with the sounds they heard which may have deterred this ACP from seeking clarification. Despite negative classroom experiences they demonstrated their enthusiasm to develop their skills outside the university setting, however there was a noticeable barrier: working in isolation meant that if they had a skills query, there was no one they could pose questions to, and this seemed to further impact their learning experience. The semantic analysis of this ACP's account highlights there was a lack of physical assessment skill rehearsal opportunities both in their workplace and classroom-based settings which were both factors identified as influencing them maintaining their skills. This extract supports the thematic finding 'lack of rehearsal and training opportunities'. The next practitioner's reflection also shows concern about rehearsing physical assessment skills in a classroom setting.

> *"At uni and you are doing clinical examination skills […] listening to the murmur and everyone's going 'oh yeah, I can hear it, I can hear'. And then you come away and think, could I hear that? Is that actually a murmur and where was it? – the bits you feel silly asking questions about. […] Just to be able to ask stupid questions 'cause they're the things that kind of, you worry about after if you don't feel confident in that area. […] I like to be shown and then I like to be able to go away and have a go, but then when you go and do that in isolation, you can't ask questions." (ACP004).*

ACP006 showed their concern imitating clinical situations in classroom based OSCE: their voice lowered and their expression became serious as they described the experience as far removed from clinical reality. They described it as *"funny"* doing simulated training

(examining a simulation mannequin) in the classroom but *"not fun"* in reality when they were faced with an unwell patient, indicating that OSCE without the practical experience in a clinical setting did not prepare them for dealing with complex real-life patient scenarios. This was also corroborated by ACP004 in the following extract.

> *"In a classroom-based way of doing it such as OSCE [objective structured clinical examination], you know you are imitating or dramatically showing something different. But when it comes to the real patient it's a completely different story. I find it is funny when you do the classroom one, when it comes to the reality it's not fun – it's something completely different." (ACP006).*

Completing OSCEs at university was linked to learning 'parrot fashion' by this participant. They suggested that this style of learning made it difficult for them to contextualise their skills in practice as the critical thinking element was missing. They clearly emphasised the importance of having the opportunity to practise their skills in different clinical settings in order to support developing and maintaining them. In the next extract ACP007 suggests that skill rehearsal opportunities in community settings were limited during their training.

> *"When you do your OSCEs at uni you tend to kinda learn it parrot fashion, but learning parrot fashion for OSCE makes it difficult to put into context. You really do need to practise examination skills in, um, different clinical settings." (AP004).*

ACP007 illustrates their commitment to clinically developing their skills but their reflection suggests they were expected to organise their own learning placements. Despite spending time with a consultant, having to go on to unfamiliar wards in an intrusive manner before their day job whist completing a master's must have been a challenging experience. They explained how doctors got to recognise peculiarities during physical examinations and highlighted that those mechanisms were not built into advanced practice training. This finding demonstrates the challenges this ACP faced accessing skill rehearsal opportunities. From their next excerpt it was easy to see why they accessed clinical development on wards.

> *"I learnt them in the hospital with a consultant […] But in order to do that I used to be going in before work every day at 7 o'clock to go on to the acute medication unit and I'd be working with the consultant. […] I managed to sidle into their sort of informal […] group. […] Someone would put an email out saying there's an interesting patient on ward such and such. Interesting in the respect that there was some sign that you could try and pick up, um, that you don't get, you are not going to get, everyday type of thing. And that's how doctors get to recognise the stuff that isn't standard, yeah, and we didn't and don't have any mechanism really in our training to learn and maintain those skills." (ACP007).*

In this account ACP007 illustrates their difficulty accessing clinical support from a GP. By approaching a GP, they knew they hoped it would increase their prospect of securing a placement to practise their skills, but the GP had their own medical students to support and were astounded that ACPs had to arrange learning placements independently. They highlighted the GP was concerned about how they would keep their skills going with little initial clinical direction. Although this ACP recognised advanced practice training had improved, they were still unsure whether it would make a difference to their skill confidence. The next ACP's account reflects their views on their training.

> *"But as one GP said to me at the time when I asked if I could, um, spend some time with her and it's a GP I got on very well with. She said 'Do you know we have registrars come out with us and we get paid and the university sorts out their clinical skills and supports them with learning […]. And kind of you're being expected to just go and cobble it all together yourself' and she said 'It's astounding. How are you expected to not only clinically develop but keep those skills going with little initial clinical input?' But I think what you do get now is that built into the course […] there's a more structured approach that I kind of imagine would leave you feeling more confident, I don't know." (ACP007).*

ACP001's insight suggests their disappointment in the clinical aspects of their advanced practice training, pointing out that only nine months were clinical, and the remainder was spent completing projects. They indicated that the course should be purely clinical with much more practical experience for their level of diagnostic responsibility and indicated that doctors' training was far more clinically intense, yet they made equally worrying decisions with patients' lives. However, no reference was made to their previous training and experience. This excerpt suggests they wanted to continue to improve clinically, be a safe practitioner and have access to training that was more clinically and practically focused.

> *"[In] ACP training I completed clinical skills, biological basis and clinical decision making, in total nine months clinical. The rest is spent on projects. It should all be clinical for the clinically responsible role we do. […] Doctors get far more training than us and we make equally risky decisions with patients' lives." (ACP001)*

ACP007 corroborated ACP001's views and felt that doctors had more clinical support to develop their physical assessment skills from the beginning of their training and suggested this could ensure their skills were well embedded. They linked doctors' skill development with not having to "shoehorn" their way into clinical placements indicating they had well organised placements. The next also ACP spoke about doctors' training.

> *"I just think they [doctors] get infinitely more in terms of the support to get those skills in the first place. I don't know what they get to maintain them but I think once they have them. […] I kinda think they just got infinitely more support and they weren't having to shoehorn their way into places to get it." (ACP007)*

ACP003 reflected on the clinical decisions they make that are similar to doctors' decisions and that carry a lot of risk. They pointed out that doctors have greater clinical support in their training in comparison to ACPs. They referred to mentoring FY1 doctors on placement with crisis response and remarked on the impressive clinical assessment skills of these trainees, however, they appeared to overlook the valuable contribution of their own years of experience, knowledge and role capability that ACPs were sharing with them. Although this ACP really appreciated having FY1s on the team to learn from, their awareness of doctors' comprehensive training appeared to make them question whether they were getting the clinical support they needed.

> *"Medics are expected to make risky clinical decisions and we are expected and contracted to make those same clinical decisions. We just want the same kind of training and support really, that's all. […] We've got FY1 medics on the team which we are mentoring. […] They spend two weeks placement in crisis response and with other community professionals. And it's really eye opening in terms of the amount of clinical supervision they've received, and how incredibly impressive their clinical assessment skills are. And you know it's great for us to have them on the team 'cause we can learn from them. […] But they are so far advanced in terms of […] that medical clinical model, it just really illustrates the fact that we're not getting the support that we really should deserve and need." (ACP003)*

Similar to ACP003, ACP002 talked about mentoring FY1s and how it highlighted their in-depth learning programmes. They illustrated their disappointment at struggling to find a medical mentor to support them with their physical assessment skills. Their reflection also suggests they had good insight into workforce pressures by recognising that difficulties accessing medical support could be due to time pressures.

> *"If we look at the FY1s [Foundation Year 1 doctors] we've had recently, you know they have a full programme of education continually […] which are purely educational and for clinical practice. Whereas the ACPs tend to be scratting around for a DMP (designated medical practitioner) with time to actually do some physical assessments." (ACP002)*

ACP006's reflection suggested there was an element of surprise in the fact that they were mentoring qualified doctors, but conversely, no one was there to mentor them. Their account

indicated they were feeling a sense of rejection and being less valued than doctors through the lack of investment in their ongoing clinical training and support.

> *"In the crisis team we have FY1s and we are mentoring them. We are mentoring the qualified doctors but no one is there to mentor us." (ACP006).*

This ACP appeared frustrated by the lack of clinical courses available once they had qualified, and implied this may be linked to a lack of understanding of the ACP role from management and the organisation. They indicated that once they had passed their master's degree, there was no structure to support their CPD to maintain their physical assessment skills. They highlighted *"you don't know what you don't know"* which illustrates the importance of ongoing clinical updates and practical support.

> *"Access to courses – there isn't, it's not seen as a requirement […] I think once you have passed the course that's it […] but as for keeping up with actual medical physical assessment skills and, um, the actual focus of what you are looking for and the underlying pathology. […] I always say you don't know what you don't know. […] But I don't think there's any focus on maintaining clinical assessment skills once you have qualified." (ACP005)*

Similar to ACP005's views, this ACP's reflection demonstrates their feelings about the lack of physical skill update opportunity available to them since qualifying. Although they emphasised that their training had been a good foundation, being able to refresh their skills long-term through ongoing learning was also important to them. They demonstrated motivation to continue improving their skills, but it seemed to leave them uncertain about their future development trajectory. The next extract also shows concern about the lack of skill updates.

> *"Nothing, no nothing, nothing. Obviously the ACP MSc is good grounding I am not decrying that. […] But you know there is a lot more that could be done to support ACPs with clinical skills long term." (ACP003)*

ACP002's account suggested that appraisal processes failed to recognise their learning and development needs at advanced practice level. They suggested their appraisal focused on whether they had completed general mandatory training and overlooked the importance of training to maintain their advanced clinical competencies. Their reflection implied they wanted something more specialised to maintain their advanced practice status.

> *"My appraisal is not actually filling that gap that's needed for the training and the upkeep of skilling for the ACPs. […] I suppose it's difficult because the trust come at it from a different angle and for them the important things are ensuring people have done their mandatory training, fire safety, resus [updates]." (ACP002)*

ACP005 also viewed personal development review (PDR) as a generic process which did not acknowledge the developmental needs of this group of professionals. The next account also acknowledges that ACPs' developmental needs were not standard.

> *"When you do your PDR it's not focused on your advanced practice, it's just really on your day-to-day work and your mandatory training and whether you have kept up to date with everything" (ACP005).*

ACP007 recognised that ACPs had specific training needs to maintain their physical assessment skills and implied that these needs were far more complex and time consuming compared with mandatory training. Their reflection indicates that taking time out of practice could affect patient care which suggests that patients were their main priority. However, their account also infers that having the opportunity to maintain their skills was equally important once they had completed their training.

> *"I kind of think that we have particular sort of needs as ACPs to maintain our skills with, um, examining people in this way that are difficult to kind of keep up to date. Also probably, unlike something like hand-washing, I guess it's fairly time consuming. […] But also, yeah, in terms of clinical skills, I kind of think you should be able to learn as much after the course, or maybe not learn but maintain." (ACP007)*

From ACP006's account the apprehension about their lack of access to ongoing training is palpable, but also evident is their enthusiasm for wanting to maintain and improve their skills and make a difference to patient care. It was clear, from the subdued way they spoke and their use of language such as *"difficult and worrying",* that deficits in training were troubling them. The lack of training was discussed in tandem with the issue of advanced practice not being regulated, and they highlighted their concern about the rising numbers of ACPs qualifying with no regulatory body. It was obvious from this account that patients' as well as ACPs' safety was important to them. This excerpt clearly demonstrates a gap in training opportunities to support them maintaining their physical assessment skills.

> *"Trying to keep these skills going with no further training since I qualified is very difficult and worrying – as an ACP I want to give the best clinical care to the patients. […] There is no regulation for advanced practice. There are a lot of people coming in advanced practice now, so there should be a regulatory body for advanced practice." (ACP006)*

ACP004 talked about how their role was purely clinical which seemed to reinforce the importance of ongoing training to maintain their skills. Due to the intensity of their clinical work in the community it was difficult for them to maintain the other three pillars of advanced practice (leadership, research and education).

> *"ACPs' roles should be split between the four pillars. I have found this role 100% clinical-plus – trying to fit in the other pillars in terms of maintaining my roles is quite difficult." (ACP004).*

5.3.4 Summary

The analysis of ACPs' reflections demonstrate that they all had different learning experiences during their training. However, for these ACPs their training appeared to be a challenge from beginning of their university course. This was highlighted in their accounts from the difficulties they found rehearsing physical assessment skills in classroom settings to the challenges of having to organise their own clinical learning placements to practise them. It was evident they wanted a more clinically structured course with the opportunity to rehearse their skills in clinically supported environments to develop and really embed them. However, following on from their advanced practice training there were clear gaps in continuing their professional development to support them maintaining their skills long-term. The lack of opportunity for practical rehearsal and ongoing clinical training issues identified during analysis show how these findings contributed to the thematic finding 'lack of rehearsal and training opportunities'.

5.3.5 Working in seclusion

This ACP's insight suggested that working in patients' homes was isolating and could hinder their clinical development. They perceived ward-based ACPs to have the benefit of ongoing medical support and the opportunity to rehearse their physical assessment skills. Their reflection implied that community ACP roles carried a much higher level of clinical autonomy and diagnostic responsibility in comparison to those working on wards. Ward-based ACPs were more likely to take the patient's history whilst doctors physically examined them and took overall diagnostic responsibility. The semantic meaning drawn from this ACP's excerpt highlights that the seclusion of the environment they worked in and the autonomous nature of their role through the lack of access to support were factors that inevitably challenged the maintaining of their skills. Thus, the sematic analysis from this extract demonstrates its

contribution to the thematic finding 'working in seclusion'. In the next extract ACP004 discusses isolated working in relation to assessment skills.

> *"Again you are isolated in the community, if you compare with hospital ACPs there is support around you and the medics around you if have any doubt or if you want to clarify something or practise your physical examination skills, you can always ask for help. But in the community it is not exactly the same situation, you are out in patients' homes. It is more difficult maintaining some clinical assessment skills working in isolation. […] Ward-based ACPs don't do full assessments, as the medical team do them. ACPs are there to clerk in patients etc. But they take less risk as they have support. Doctors have overall responsibility." (ACP001)*

ACP004's excerpt about interpreting some physical assessment findings in isolation led them to question the upkeep of their skills when they had no one to confirm what they were hearing. The fact they were trying to narrow down a cardiac problem demonstrated their commitment to wanting to finely tune their physical assessment and provide the best patient care. Their insight also demonstrated the loneliness of their role through not having anyone with whom to clarify their assessment queries, which seemed to contribute to them worrying about whether they had covered everything. However, this account also shows the importance they placed on undertaking in-depth assessments.

> *"So you question whether you are maintaining your skills correctly if you have no one to clarify what you're hearing, such as is it a mitral or tricuspid murmur? 'Cause you always want to do the best for the patient, you don't want to miss something. But then sometimes you do question yourself, don't you? And not having someone to be able to question or ask them to come and have a listen as well, yeah, I find that that can be quite hard." (ACP004)*

Similar to ACP004's reflection, from this account there was also a sense of loneliness as well as vulnerability. ACP001's facial expressions and changed tone of voice denoted tension as they explained their decision-making complexities. It sometimes seemed a challenge for them to access support from other more senior professionals to discuss their clinical decisions. The sense of responsibility they felt about having to manage unwell patients in uncontrolled environments with no immediate support was notable, providing an understanding of the importance they placed on safety netting in isolated settings.

> *"When you don't have that support as a practitioner, I sometimes phone the hospital on-call doctors to discuss to make sure that I am taking the right decision. We do have patients who are refusing to go to hospital so how to manage those patients who need to be assessed in hospital in the community, it's a difficult task and how you manage that is quite a lot of responsibility. You try and safety net and try to get help from different professionals, including OOHs [out-of-hours services], GPs, um, to*

make sure that patients are kept safe at home […] and we also have to safety net with the patients." (ACP001)

Like ACP001, from ACP006's extract it was clear that with their high-level of autonomy together with working in isolation came role vulnerability and added pressure. This was demonstrated in how they described their role as senior clinicians leading the care, but when they came across a complex clinical issue support was difficult to find. They wanted a process that enabled immediate access to someone more senior when needed, emphasising the seclusion they were experiencing working in isolated community settings.

"Most of the time when we go on a crisis call we are the senior in that group and we are not getting the support from someone more experienced than us. […] But what I need is someone who I can go to if I am stuck […] Somebody who is available 24/7 while we are on duty, so that kind of support is not in there." (ACP006)

5.3.6 Summary

During the semantic analysis of ACPs' reflections, the isolated nature of their role became apparent and their feelings of isolation were almost tangible. It was evident that working in seclusion carried a lot of stress and responsibility as a result of their autonomy and diagnostic responsibility as leading clinicians managing unwell patients in their own homes. At times there was some frustration that they had no immediate senior support with whom to discuss complex clinical queries or share their physical assessment practices, which challenged maintaining their skills and at times left them questioning their skills. They were able to telephone other professionals who worked outside of their practice, but this was not without its challenges. Thus, the semantic meanings drawn out from these extracts supported the thematic finding 'working in seclusion'.

5.3.7 Valuing peer support

ACP003's insight demonstrated how much they valued their ACP colleagues particularly when they were able to go out on joint visits and learn from their assessments and share ideas. Their account suggests that joint visits promoted a safe learning space. Although they highlighted that going out on joint visits benefited their development, they also suggested that these seldomly occurred. The semantic interpretation of this practitioner's account demonstrates the value they placed on their colleagues as a way of supporting their physical assessment skill development, which contributed to the thematic finding 'valuing peer support'. ACP004 in the next account also shows how they valued joint visits.

> *"People on the team are really experienced ACPs and having those people as peers that I can bounce off and ask and also going out on joint visits with as well, it's really useful. […] Even, you know, not necessarily more advanced in terms of experience, it's just two of us going out together, we can really bounce ideas off each other. It's good to see someone else assessing a patient and I can pick up bits and pieces and think I need to focus on that […]. But joint visits are rare." (ACP003)*

ACP004 demonstrated how they valued joint visits with their peers as a way of observing and learning from their physical assessment practices. Their account also indicated that their role could be isolating. They put forward their argument for joint visits and linked it with the fact that they only learned the basics of physical assessments during their training. In the next reflection ACP001 demonstrates the value of peer support.

> *"But a lot of it is about what should I be looking for, what would you do, type of a thing. Just to get a bit of a feel for what other people would be doing. 'Cause I think as well, I realise that we were shown sort of the basics of each clinical examination." (ACP004).*

From ACP001's reflection peer support was about more than joint visits where they could observe skills, they also saw it as an important mechanism for clinical feedback. Their account suggests that this took place on an ad hoc basis when patient queries arose and not through a formalised, structured process. However, they appeared merely grateful to be given an opportunity to be listened to and receive feedback. They expressed how peers supported their confidence and inferred how important they were when they worked in isolated roles that involved making complex clinical decisions.

> *"Discussing with an ACP – I always feel that I can rely on my judgement with clinical decisions and then that makes me a bit more comfortable when I can discuss that with someone who is more experienced than me. That makes my confidence more boosted when […] I have done everything I should be doing […] so that is kind of an informal way of getting that feedback." (ACP001)*

ACP002 saw peer support as an important resource but indicated that on its own it lacked depth to fully support them maintaining their physical assessment skills. Their reflection suggests that supervision should not be restricted to peers but be more open to include other kinds of supportive opportunities. The next practitioner's account also indicates the need for support from other health professionals.

> *"Peer support is a very valuable thing to have, but it is very one-dimensional so it's not sufficient. You need other ways of maintaining skills." (ACP002)*

Keen to develop their clinical assessment skills this ACP was motivated to practise them with one of their peers. Their refection suggests this was not a practical option as they both had similar skills, indicating that higher-level clinical support and expertise was sometimes needed.

> *"There's another member that has done clinical examination skills, um, that came and asked me if we could kinda do a bit together. When we were sort of talking about it, it transpired that we both trained at the same time in the same place, we both know the same sort of skills, and we are both in the same position really." (ACP004).*

5.3.8 Summary

From the interpretation of ACPs' accounts, peer support was one of their main supportive mechanisms and it was evident how much they valued it. ACPs were grateful for the opportunity to bounce ideas off each other and learn from their assessment practices as well as peers being a channel for feedback which supported their confidence. However, when peers had similar physical assessment skills this made it more difficult to progress their own skills. Overall, the positive benefits of peer support were clear thus the semantic meaning elicited from their extracts supported the thematic finding 'valuing peer support'.

5.3.9 Medical support in isolated working

ACP001 suggested that having access to medical supervision would support the maintaining of their physical assessment skills. Their account also implied that ward-based ACPs had good access to doctors' support and that they were disadvantaged through the isolated nature of their work. The semantic meaning drawn out from this extract demonstrates how it contributed to the thematic finding 'medical support in isolated working'.

> *"We have many ACPs but having medical support would always be an advantage keeping up our skills and support us in our clinical supervision, because we do not have that support in the community like in hospital." (ACP001)*

ACP003's insight also indicated a preference for medical supervision, however they also suggested that organisational structures needed to be in place for this to become embedded in their role. Securing clinical supervision was important as from their current arrangements they seemed to struggle to access it in the community. From their reflection it was clear why they wanted clinical supervision, describing that once they qualified, they had to hit the ground running. The next ACP reflects on their experiences with a medical mentor.

> *"I think having some kind of formalised clinical mentorship and clinical supervision – it's that clinical supervision – we can get access to that but it's the fact you have to scratch around for it and try and maintain it. I think if there was something formalised whereby we had medics who were contracted or reimbursed for their time. […] We are kind of thrown in at the deep end […] when you go into your role the day after you've qualified, your feet don't touch the ground." (ACP003)*

ACP007 illustrated the positivity of having a medical mentor to support their physical assessment development and suggested that a large amount of what they learnt was linked to having access to a proficient mentor. However, they emphasised that effective learning experiences were dependent on access to medical mentors, which seemed to infer that securing supervision in the community might be a challenge.

> *"When I think what I have learnt as an AP […] I would say 90% relates to having had easier access to medical opinion. But my learning has accelerated at times when I have had good access to physicians. […] It really does depend on your access to kinda decent medical support." (ACP007).*

5.3.10 Summary

The ACPs seemed to struggle to access medical supervision which they linked to working in the community. They suggested that the lack of medical support could hinder their skill development in comparison to ward ACPs who were perceived to have this readily available. It was easy to understand from their clinically responsible role why they wanted supervision from doctors as well as their peers so that they could access different levels of clinical experience to support them maintaining their skills. The identified lack of access to medical supervision in community settings and the importance community ACPs placed on doctors supporting their practice contributed to the thematic finding 'medical support in isolated working'.

5.3.11 Pressured environments

It was clear from this ACP's account that the busyness of their role and completing vast amounts of patient documentation was a significant constraint on their time. The large amount of documentation also indicated they went on many patient visits. They suggested the time spent on administration work could impact on their opportunity to attend training and this in turn could impact on their physical assessment skills. The semantic interpretation of this ACP's extract shows, through their multiple visits and documentation, that they worked in a busy pressurised environment which impacted on their time for training opportunities. Thus, the

semantic meaning drawn out from this extract shows how it contributed to the thematic finding 'pressured environments'. The environment and time were also seen as barriers to training by the next ACP.

> *"Um, I think there's several problems actually […] generally there's too much emphasis on paperwork, particularly when you have been out on visits. This can take up hours of time which means that there's less time for clinical skill training opportunity and unfortunately has the undesirable effect of deskilling people." (ACP002)*

ACP006's reflection suggests they had difficulty trying to fit in training to refresh their physical assessment skills because of the unpredictable nature of their workload i.e., the uncertainty of the number of patient referrals they might have to deal with each day. The account suggested discord that ward-based ACPs had protected time in all four pillars to support their advanced practice development needs, whereas they struggled to secure time to meet just one of their pillars (clinical). However, they seemed to accept that protecting time for training could be a challenge due to the uncertainty of their workload.

> *"In crisis response, job demand is completely different because some days you can't predict what you are going to get. So every day is a challenge […]. Our training opportunity time is very difficult to get in. Um, no protected time for skill learning or refreshing your skills. Some of the places on wards I have been in the ACPs have got specific time for their research, education and clinical training needs once in a week. But in crisis when you are on a duty rota with limited ACPs that is not possible." (ACP006).*

5.3.12 Summary

From the analysis of ACPs' accounts the busyness of the crisis response environment was highlighted. The unpredictability of patient referrals and challenging administrative work seemed to create a pressurised environment which resulted in them having to miss out on training opportunities to refresh their skills. The semantic meaning drawn out from their extracts supported the thematic finding 'pressurised environments'.

5.3.13 Organisational understanding

ACP004's account demonstrates the lengths they went to, to try and maintain their physical assessment skills including accessing private self-funded courses. Their account suggests there may be a lack of organisational understanding about their clinical development needs as ACPs, which adds another layer of isolation to their role. Fear of making errors might have resulted in them accessing private clinical training, however initiating their own training shows commitment to their development and highlights their ability in applying autonomy in other aspects of their role. The analysis of this practitioner's extract highlights that organisational understanding around the ACP role is required to recognise and support their clinical developmental needs. The semantic meaning elicited from this reflection shows how it contributed to the thematic finding 'organisational understanding'. Funding was also an issue for the next practitioner.

> *"You pick up the basic skills and then you kind of muddle along doing what you are doing without additional sort of updates. […] I accessed private training, where they talked through different clinical skills or gone over specific areas, just so that you can try and maintain that CPD [continuing professional development]." (ACP004)*

I could almost feel ACP003's frustration trying to obtain organisational funding for training that appeared easily available to ACPs working in general practice. They tried for 12 months to secure funding and senior staff agreed, but organisational bureaucracy was an obstacle. They previously managed patients with long-term conditions, not acutely unwell urgent care patients which from their explanation required different ways of working. It seems from their account that all they wanted was to ensure they were clinically up to date so that they could provide good safe care. The next ACP's account implies why funding may have been an issue.

> *"I have been trying for ages to get on an urgent care, um, training day which ACPs in GP surgeries go to and GPs. […] It's only 100 quid, 180 quid and I have been trying to get funding for 12 months. And all the senior people in the team say 'yeah, you can have the funding'. But then within the organisation it's impossible to get the money. […] My background has been outside of the acute setting so in community my background was long-term conditions and we have started this urgent care from scratch. We've had no urgent care training whatsoever and this one day would be good, a really good grounding in urgent care and the latest updates and guidelines around responding to urgent care scenarios in the community. My goodness, it's only £100 – £100 and they can't even pay that. I could pay for it myself but it's the principle." (ACP003)*

From ACP005's insight once qualified, they were assumed to have the skills to do the job and practising as an ACP maintained their physical assessment skills. They gave the analogy that completing their advanced practice training was similar to passing their driving test in terms of their decision-making processes, implying that once they qualified that they really started making autonomous clinical decisions from this point onwards. They suggested that accessing skill training was through higher management but also indicated that lack of role understanding could be a barrier to securing this. ACP002 also gave their views about role understanding.

> *"I think it's classed that when you have qualified you have qualified. They just think, they pass and that you are working in clinical practice and that maintains your skills. […] I tried to say, well it's like passing your driving test – you get the skills but then when you have to go out into the world and you're on your own you have to make those decisions. […] Um, so I think from a management level – and it's usually them puts all the support and guidance in place – they don't understand. The understanding's not there of the role and the needs – that's the main issue really." (ACP005)*

ACP002's account also suggested that managers lacked understanding about their role and their clinical training needs. They narrowed it down to those from non-nursing backgrounds and suggested that they had less insight into their role. They were eager to maintain their skills and pointed out the benefits of keeping them updated including promoting safe patient care and supporting other health professionals to clinically develop. They considered how they could educate others when they were not being allowed to clinically progress. The next extract highlights difficulties maintaining their advanced practice status.

> *"I think there is a lack of management understanding, particularly non-nursing management, um, they don't have a great understanding around the ACP roles. As a consequence they don't understand the need for up-keeping physical assessment skills within this role. We need to keep up-skilled not only for patient care but to support other community professionals – DNs and trainee ACPs – learning clinical assessment skills and consultations skills. How can we teach others if we are not being allowed to clinically advance?" (ACP002)*

ACP003 was keen to develop in all of the four pillars of advanced practice, but suggested this was difficult when the role commissioned was purely clinical with no time factored in for their development. They indicated that those securing ACP roles had little understanding of their specific development needs, which was also reflected in the lack of detail in their contract. Their account makes clear there was very little support available once they had completed their advanced practice training.

"The role I am in is a clinical role essentially and that what's been commissioned – there's no allowance whatsoever for any time to be set aside for your own development, or for any of the other three pillars of advanced practice. So the commissioners don't really understand the role that they are commissioning. The organisation don't support you in adding in that protected time to your contract and to your job description because they don't understand the role either." (ACP003)

5.3.14 Summary

From the analysis of ACPs' accounts there was a clear lack of organisational understanding about their specific ongoing development needs to maintain their physical assessment skills. No time was factored into their job contracts and there were assumptions that once they had trained, they were clinically skilled to do the job. The semantic meaning drawn out from these extracts shows how it supported the thematic finding 'organisational understanding'.

5.3.15 Overall summary

The semantic analysis of ACPs' reflections and the new knowledge elicited in this theme provided in-depth insight into their understanding of factors influencing them maintaining their physical assessment skills (one of the key objectives of this study). It was clear that some factors supported their skills including peer support, which was also viewed as an important channel for receiving feedback, but many more challenged them to maintain skills. Organisational issues were identified problems, but overall, training and gaps accessing CPD and clinical supervision, as well as working in seclusion were major factors contributing to difficulty maintaining some of their skills. The semantic meaning drawn out from the extracts within the sub-themes shows how it contributed to the thematic finding 'maintaining physical assessment skills: the clinical picture' by providing deeper insight into these skills in multiple areas. The thematic finding is also supported by the in-depth Appendices (20-32) showing thematic development.

5.4 Theme 3: Opportunity in an inopportune environment

5.4.1. Motivation to advance in clinical practice

ACP002's reflection appeared to project two messages and quoting the RCN seemed to strengthen them. They emphasised the importance of ACPs having generic skills and knowledge to manage different patient presentations and highlighted they needed to *"know a bit about everything"* which suggested they were keen to continue clinically developing and maintaining their physical assessment skills. The semantic meaning elicited from this extract contributed to the thematic finding 'motivation to advance in clinical practice'. The next extract demonstrates the importance of keeping their skills updated.

> *"The RCN quotes that it wants ACPs to be generic practitioners, that means you need to know a bit about everything." (ACP002)*

ACP003 provided an explanation as to why CPD in physical assessment skills was so important to them. They inferred that without it, they could be held back professionally, and their skills could be put at risk of stagnating. It was clear from their account that the lack of opportunity to clinically advance made it difficult for them to reach their full clinical potential. Yet, it was evident they were keen to improve and develop which is also reflected in the next extract.

> *"You're not advancing as quickly as you would like, or you are not achieving the level of advancement that you could potentially achieve if [...] that support mechanism was in place, so it's very difficult. You know, there's a risk you stagnate and you get to a point where your clinical skills are, you know, sufficient to do the job." (ACP003)*

This ACP's reflection suggested that physical assessment skills learnt during their training were a foundation to build on, highlighting a clear need for ongoing support maintaining and further developing them. They equated good skills with being able to deliver good quality care, which from their account was the reason they were motivated to engage in training opportunities to improve and update them.

> *"I realise that we were shown sort of the basics of each clinical examination [...] But really we want to be improving and developing and getting better and improving quality and that quality of improvement is in terms of your skills" (ACP004).*

5.4.2 Future directions: clinical training innovations

ACP006 put forward the idea that each qualified ACP should have a clinical passport to support their clinical development. From their reflection they seemed to be suggesting that this passport could be used as a live working document to help them evidence their learning needs and show their achievements. A clinical passport was also seen as a way of promoting different learning opportunities outside of crisis response and possibly securing protected time. It may also be inferred that this ACP was looking for other ways to support the revalidation process which they felt did not allow for the complexities of advanced practice. The semantic analysis of this ACP's extract demonstrates forward thinking by exploring ways ACPs could optimise and maintain their physical assessment skills as well as their advanced clinical practice status through the use of unique clinical passports. The semantic meaning derived from this extract and the following ACPs' accounts in this theme which show ideas to create opportunities for advancing clinical practice, demonstrate the contribution to the thematic finding 'future directions: clinical training innovations'.

> *"My suggestion is every ACP should have a passport where they need to sign up every year this many hours, depending on the particular department or sign off from seniors. […] Revalidation, that's a generic thing across nursing and for physio but there is nothing for advanced practice, which is more complicated." (ACP006)*

This participant's extract suggested there was nothing in place in terms of structured physical assessment appraisal processes. They proposed the idea of an assessment framework that could be used to assess them practising different bodily systems, which suggests it needs to be generically focused. Their reflection implied that all they wanted was confirmation that they were getting it right to support their skill confidence, demonstrating the importance of feedback. Getting it right indicated the importance of delivering quality of patient care and they were keen for all ACPs to be able to access this framework.

> *"There isn't anything you are assessed on to make sure you are getting that feedback to say you are doing everything right. I think it will be good if we have that. That gives you confidence that you are doing it right. If there are deficient areas we need to improve on then we can work on it as well. So something like maybe a framework that you could work through for different systems, I am talking purely from physical assessment skills." (ACP001)*

This ACP's account inferred that physical assessment skill update training and opportunity to practise the skills they felt less confident with would help to maintain them. Their insight also suggests that skill learning needs would be unique to each ACP. Although they valued their

ACP colleagues, they emphasised having doctors to support their clinical development would be beneficial.

> *"Having some refreshment training, to keep our physical assessment skills and access to different trainings, for example where you feel deficient with your skills. […] That would enable us to keep our skills updated and having someone experienced or medics to support us. We have many ACPs but having medical support would always be an advantage." (ACP001)*

ACP005's account highlighted that physical assessment courses were scarce. They talked about the availability of courses for long-term conditions to keep their knowledge about guidelines up to date, but no practical physical assessment courses to support keeping those skills updated. Exploring the availability of physical assessment courses infers this was something they were keen to pursue.

> *"You don't see refresher courses or updates. You do for COPD and asthma and diabetes." (ACP005)*

ACP006's account further suggests that to keep their advanced practice standing they should be able to refresh their physical assessment skills annually; they also felt it was important to have them signed off. This implied they wanted evidence to demonstrate their advanced clinical practice competence and confirm they were a safe practitioner.

> *If you want to keep as an ACP you should have the skill refreshing every year, this many hours that has to be signed" (ACP006)*

ACP002 put forward the concept of having a rolling programme of different physical assessments and suggested this would ensure they were continually updated. Their account also demonstrates their leadership qualities as they appeared keen to be involved in developing this initiative in the future.

> *"I think if we had a rolling programme of physical assessments where we had like neuro one month, respiratory the next and cardiac. If that was rolling continually you would ensure that your physical assessment skills were always up to date. So I think we need to look at some sort of provision for that for the future" (ACP002)*

ACP004 expressed a preference for doctors to demonstrate and support them with their skills. They wanted the opportunity to discuss the complexities involved in physical examinations and be able to solve their more complex queries through doctors' clinical experience. Their

reflection demonstrates that learning must involve much more than revising the technical application of physical assessment.

> *"Doctors demonstrating those skills to us, talking us through things, and having the options to sort of ask questions, the bits that don't make sense. Where you come across something you can't quite figure things out and talking through other peoples' experiences." (ACP004).*

5.4.3 Skill rehearsal opportunity

This participant also posed the idea of physical assessment rolling programmes and to complement them suggested having the opportunity to spend time in different healthcare settings to enhance their skills and experiences. Their reflection implies that as well as looking for different ways to maintain their skills they were also trying to protect learning time by wanting placements outside of their normal clinical setting.

> *"I think we all should have at least once a week or once a month a placement in a different department, refreshing your assessment skills." (ACP002)*

ACP006 was also keen to spend time refreshing their skills in different departments. They narrowed it down into different speciality units and emphasised the importance of protecting time by factoring in a time scale. Their insights suggest it was important for them to gain practical experience with different groups of patients so they could really hone those particular skills.

> *"I think in a year you [should] spend at least 7.5 hours with [the] respiratory department, 7.5 hours with cardiac, 7.5 in the orthopaedic and musculoskeletal. So that should be part of your advanced practice, refreshing the skills." (ACP006)*

ACP007's view implied they had mixed feelings about spending time in other clinical areas. They suggested it would make them feel uncomfortable if they were examined on clinical skills they had not been supported maintaining. Having the opportunity for practical rehearsal of their skills could also boost their confidence by reinforcing the skills and knowledge they had maintained.

> *"I'd like to go somewhere where the assumption was you didn't know anything so I didn't feel like I was being examined on things which for some reason I should be up to date. […] So I'd find it a challenge if I was being examined on them without support to maintain them. I don't want to kinda undersell myself – I kinda think one of the outcomes of that was I would realise how much I knew. But I'd like it to kinda support*

my confidence and to remind me of what I don't know really or what I have forgotten or skills that I have lost." (ACP007).

ACP006 was keen to have access to similar training and clinical experiences as doctors and gave the rationale that these professionals performed similar roles. They inferred that ACPs' practical learning experiences and training lacked sufficient depth for the complexity of their roles. Their view suggests that inter-professional learning across both professions could be an option for continuing their development in physical assessment skills.

"I think as ACPs we should have similar learning experiences and training to medics if we are expected to do similar roles." (ACP006).

ACP001 highlighted the importance of clinical supervision and suggested the idea of having a doctor to support them maintaining their skills would be beneficial to their learning experiences. Their view appeared to be linked to the lack of access to medical support working in the community.

"When we are keeping up our skills having a medic to support us in our clinical supervision would be an advantage because we do not have that support in the community." (ACP001)

ACP003's account highlighted the importance of clinical supervision and being able to reflect on their clinical practice (the patients they had assessed and diagnosed during their shift). They indicated the significance of a conducive environment and protected time to do this effectively when they explained that critical thinking was difficult to engage in after working a long busy shift. It was apparent that being able to reach in-depth analysis and learn from their clinical practice was fundamental to their development as an ACP in a highly autonomous role.

"Reflective practice falls by the wayside once you have been on a 14-hour shift and you think about the scenarios you have covered in a day. It's not critical analysis of your practice whereby you learn and move on." (ACP003).

This participant demonstrated their appreciation that they had been given time to reflect on their physical assessment skills and felt this had increased their awareness in this area of practice. Their account suggested taking time out of practice to focus on their clinical development was something they did not often do, but from their response would really embrace it. They were hopeful that more research in this area of practice would highlight the challenges ACPs faced accessing ongoing training and supervision to support the maintaining of their physical assessment skills.

> *"More research in physical assessment skills after you have qualified would highlight issues – this interview has helped raise my self-awareness of my physical assessment skills." (ACP001)*

ACP002 was also hopeful that findings from this research could be used to highlight the gaps in physical assessment skill training for qualified ACPs. It was evident from this and their previous accounts that they wanted to continue developing their skills through access to practical training opportunities. They suggested the evidence could be used to demonstrate to managers and organisations that formalised clinical development structures in advanced practice are missing and need to be addressed.

> *"Hopefully it's stuff like your research that's gonna actually pinpoint the fact that there's a massive gap in the market and that […] something is needed. But my thoughts on that are that we also need to discuss it with management […] that we need to set something up […] But I do think that's it gonna highlight that something needs to be done. But we just need some hard sort of facts of research behind it to show it so we have some evidence, to provide." (ACP002).*

5.4.4 Summary

Despite the busyness of crisis response and the training challenges faced by ACPs (discussed in Themes 1 and 2), there was an overwhelming sense of personal and professional motivation to maintaining their physical assessment skills. Their accounts in this theme demonstrate how they challenged those barriers by proposing innovative concepts that will support them optimising and maintaining their skills which was integral to this study. They clearly demonstrated their advanced practice capability by providing learning opportunity in what seemed to be an inopportune environment. Thus, the analysis of ACPs' accounts in this theme demonstrate how they contributed to the overall thematic finding 'opportunity in an inopportune environment' which is also supported in Appendices (20-32).

Chapter 6 Discussion

6.1 Introduction

RNs and AHPs developed advanced physical assessment skills to provide more acute and chronic complex care independently in specialist and generalist capacities (DH, 2019; HEE, 2017). Shifting care from hospital to community resulted in community ACPs providing much more varied and complex care at home. The thesis has explored the concept and application of ACPs' roles, with a particular focus on the community ACP to better understand the factors influencing the maintenance of physical assessment skills. Through robust in-depth qualitative research involving ACPs, their views, experiences and ideas to improve professional development were exposed, resulting in the development of a new innovative framework to guide ACP physical assessment skill development. This chapter draws together the unique findings from the study and provides a critical discussion alongside current literature. Three key themes are discussed:

1) Advanced clinical autonomy: the importance of physical assessment skills;
2) Training and supervision;
3) Innovative ACP Framework for physical assessment skills training.

6.2 Advanced clinical autonomy: the importance of physical assessment skills

Advanced clinical autonomy was showcased through ACPs' high-level diagnostic responsibility and complex decision-making in often uncertain situations (HEE, 2017) (see Theme 1 Chapter 5), resonating with Weick's (1995) diagnostic complexity (discussed in Chapter 2, Section 2.1). All paramedic referrals required an ACP to undertake the initial clinical assessment to determine if acutely ill patients were safe to be treated at home. Thus, it was not surprising that they saw physical assessment skills as the glue holding advanced clinical autonomy together, helping them to extract what was going on with complex patients to achieve differential diagnosis and plan timely care. Weston (2008) defines autonomy as having the freedom, authority, and discretion to make judgements about patient care. Thus, autonomy reflected community ACPs' freedom as they made the clinical decisions about how they managed patient referrals to promote safe and effective outcomes. Without physical assessment

skills they would not be able to do their job of supporting patient care and reducing demand on overstretched hospital and GP services (Oakley, 2018).

The importance of physical assessment skills in the community was further expressed. They were not merely seen as technical skills but skills that ACPs relied on to support their diagnosis (Jain & Jain, 2021) in the absence of diagnostic testing such as X-ray and scanning equipment in the community (Wickens, 2022). Similar to the findings in this study, ANPs reported that physical assessment skills enabled them to work with high levels of autonomy and acknowledged their accountability for diagnostic and clinical decision-making (Raleigh & Allan, 2016). However, unlike ACPs in crisis response working in isolation, many of these ANPs worked in an environment (general practice) where GP support was immediately available. ACP003's comment, *"whether this person is deteriorating or at risk of deteriorating to the point where they would need emergency care in A&E"* exemplifies the critical tension alongside balanced autonomous decisions that community ACPs are required to make about keeping patients at home and those at risk of rapid deterioration. Physical assessment skills can identify indicators of patient deterioration beyond physiological monitoring such as blood pressure (Osborne et al., 2015). Physical indicators of patient decline can manifest up to 24 hours before abnormal physiological parameters become apparent (Odell, 2010), showing the importance of physical assessment to ensure early intervention. However, physical assessment skills in community ACP roles come at a price, through their high levels of clinical autonomy and at times, daunting diagnostic responsibility.

Clinical assessment skills were not only used for face-to-face visits, but they also supported telephone triaging of paramedics' referrals. Clinical assessment skills are more than physical assessment skills. For example, one ACP also spoke about the importance of history taking, knowledge of pathophysiology and diagnostic reasoning skills to support their complex diagnostic decision-making (Rogers & Steinke, 2022). Participants applied their 'advanced clinical assessment skills' to critically analyse referral information to ascertain patient acuity and make difficult off-scene decisions about whether the patient required hospital treatment or could be treated at home. Not taking things at face value supported safety in their advanced decision-making and high-level critical thinking (Diamond-Fox & Bone, 2021). This was crucial for patient safety when not all paramedics had advanced clinical skills to examine and make a diagnosis to present the patients' full clinical picture, reinforcing the importance of advanced clinical assessment skills in ACP roles.

ACPs' accounts of paramedic referrals gave the sense of urgency, patient complexity and the reality of working in a fast-moving crisis response team. Participants' excerpts also demonstrated that they saw a variety of health conditions and referral unpredictability. One participant's reflection made clear the complexity of some patient referrals, including those with chronic conditions and various illness presentations, who differed from patients attending hospital departments for specific problems. Patients were not seen as straightforward and there was a lot going on with their health, demonstrating the need for wide-ranging physical assessment skills to be able to undertake in-depth comprehensive assessments (discussed in Chapter 2) (Baid, 2006), an expectation in those roles working at advanced practice level (Baileff, 2015; HEE, 2017). The patients that ACPs' described mirrored the population with high healthcare needs located within the case boundary of this study (discussed in Chapter 4), who had increased risk of hospital admission. National and local policy (NHSE, 2015; Oakley, 2018) does not reflect the depth of uncertainty and clinical complexity that community ACPs appeared to encounter in their work. However, bringing policy to life through ACPs' views of challenging clinical practice can provide some understanding. These findings support Aldridge-Bent's (2011) study, in which DNs reported that the patients they cared for had complex health and social care needs. Given the level of patient complexity and ambiguity of illness presentation, *"things can be tricky and things don't always present in the way you would expect […] it's detective work, building the pieces together"* (ACP004). It was not surprising that ACP006 reflected that, *"we need to think a lot and make that reasoning"* when patient safety and outcomes were directly associated with critical thinking ability (Jacob et al., 2017). Both accounts demonstrate practitioners' ability to blend their physical assessment with their clinical reasoning skills and the realisation that not all patients are textbook perfect but individual and complex.

It was clear how much the participants valued having physical assessment skills. Being able to medically examine patients holistically and identify other health problems that might otherwise have gone unnoticed to keep patients safe at home and improve their care is in line with both local and national policy (DH, 2019; Oakley, 2018). Similar to other studies, ANPs and ACPs also brought that holistic approach to benefit patient care (Raleigh & Allan, 2016; Timmons et al., 2023), and focusing on the whole person enables a more patient-centred approach to care (Lyhne, Bjerrum & Jorgensen, 2022). Participants' holistic assessment practices in this current study might have derived from their original professional training, for example in nursing or physiotherapy, where assessment is related to optimising patients' overall functional health,

not just the acute problem they were referred with. Combined with physical assessment skills, this made the ACPs' role unique in managing complex patients in the community and avoiding hospital admissions (Oakley, 2018). Admissions can put patients at risk of hospital acquired infection, particularly those with risk factors such as older age, comorbidities, frequent hospital attendance and indwelling devices such as catheters (Monegro, Muppidi & Regunath, 2020). Furthermore, hospital admissions not only have an impact on patients and their families but profoundly drain NHS budgets. The annual cost per patient for a hospital admission in the top 5% of users (complex patients with multi-morbidity) of primary and secondary care services in 2014/15 was more than 20 times higher than all other patients (£9,789 vs. £487) (Dreyer, Parry, Jayatunga & Denny, 2019). However, age, their conditions and health need complexity were factors resulting in these patients having longer hospital stays (Dreyer et al., 2019). Similar to the findings in this study, community matrons in Raleigh & Allan's (2016) study also supported complex patients to prevent hospital admissions, and like the ACPs in this study relied on their physical assessment skills to identify and action early signs of physical deterioration.

Collectively, the participants' interviews indicated that physical assessment supported the provision of end-to-end patient-centred care, unlike traditional models where dependence on GPs for diagnostics risked fragmenting care. However, moving further away from reliance on GPs by relying on clinical self-sufficiency could threaten inter-professional working and opportunities for negotiating potential support for clinical development. Clinical support is important, particularly when, *"you don't know quite often what is coming through"* (ACP002). Thus, the unpredictability of patients' illnesses reinforced the importance of confidence and competence in conducting physical assessments, especially when the ACPs' diagnosis often led to prescribing medication for wide-ranging health conditions.

Advanced physical assessment skills were seen as the crux to generic prescribing by supporting their autonomy to assess, diagnose and treat. Competence in interpreting assessment findings was key to safe prescribing (Zambas et al., 2016); poor practice could jeopardise patients' safety through wrong diagnosis and treatment, putting both the patient as well as the clinician at risk (Verghese et al., 2015). Community nurse prescribers have been found to prescribe antibiotics more frequently (Ness, Malcolm, McGivern & Reilly, 2015). A later study found that although nurse prescribers intended to manage upper respiratory tract infections without antibiotics, some felt pressured by patients to prescribe them, and this was sometimes against

their clinical judgement (Ness, Currie, Reilly, McAloney-Kocaman & Price, 2021). Overprescribing could also be related to over-caution prescribing in isolated settings or wrong diagnosis. As ACPs can prescribe the same medications that GPs prescribe (Joint Formulary Committee [JFC], 2021), diagnosis must be accurate, which supports the need to maintain generic physical assessment skills to ensure safe patient care. ACPs who are confident and competent with their physical assessments could support their confidence in explaining to patients their clinical findings and the reasons antibiotics are not always required. From their excerpts it was clear that participants operated as generalists, completing episodes of care from diagnosis to treatment for patients with wide-ranging illnesses, similar to GPs' working practices (Evans et al., 2020).

It was evident that clinical expectations in ACP roles were high. ACPs' accounts show that professional boundaries were being blurred by using advanced clinical assessment skills and the complexities of the patients they saw in comparison to GPs. ACPs working in patients' houses only have their clinical skills and basic medical equipment, with no immediate medical support, which increases role responsibility and complexity. GPs in primary care have prior knowledge of patients booked into clinics, the patients' medical history and other clinicians to hand. ACP003's account added another layer of complexity to community managed patients. In effect not only did they cover some of the GP's workload, but they also covered hospital doctors' work, as prior to the establishment of crisis response and clinically skilled ACPs those patients would have gone to A&E. This further illustrated the advanced decisions they are making.

In terms of the data resonating with other literature on professional role boundaries: nurses in Edmunds et al.'s (2010) study required the permission of doctors to carry out physical assessments. Nurses' grade, experience and confidence might challenge professional boundaries, but Edmunds et al. (2010) did not give sufficient detail on these factors. In Kraus & DuBois's (2017) study, NPs in primary care worked under doctors' supervision using partnership agreements relating to the scope of their practice. Working under supervision could inhibit role flexibility and the progression of autonomous working which is a core requirement within ACP roles (HEE, 2017). Furthermore, in Raleigh & Allan's (2016) study, one ANP participant used tentative language with a GP, describing a patient's diagnosis as "potential" not "actual", to prevent boundary disagreement. However, this could relate to historical attitudes to not overstepping clearly defined boundaries and infringing professional etiquette

by performing roles traditionally belonging to GPs. The community ACPs' reflections in this study indicated that their roles were far from restrictive. They were showing clinical autonomy at high levels by taking the clinical lead for patient outcomes, which significantly stretched and blurred professional and organisational boundaries. Hospital-based ANPs highlighted that without pushing boundaries and crossing barriers it would be difficult to undertake this role (Thompson & McNamara, 2021). In Lawler et al.'s (2020) study, findings show that boundaries were also being stretched as ACPs were rostered onto medical rotas to support patient care. Findings from this and other studies confirm that different levels of clinical autonomy are evident within both hospital and community-based advanced practice roles.

While the ACP role is holistic, integrating the bio-psycho-social-spiritual (ICN, 2008), unlike GPs' role (GMC, 2018) advanced practice is not professionally registered. ACPs felt that wanting better recognition and registration for advanced practice could be interpreted as ACPs wanting to become the dominant clinician, *"you don't need doctors, you need ACPs"* (ACP007). ACPs have been referred to as mini-doctors (Nadaf, 2018) and perceived as substitutes for GPs (Poghosyan, Norful & Martsolf, 2017; Laurant et al, 2018). However, participants in this study suggested that although they carried out advanced clinical tasks, they were not doctor substitutes, but more a workforce that was fit for purpose. ACPs in other studies have further challenged this concept, seeing themselves as "mega-nurses" not "mini-medics"; although they were introduced to manage a shortage of doctors, the skills they brought not only filled a void but surpassed it (Hooks & Walker, 2020). However, as demographics and health care needs change, inevitably the requirements and subsequently roles of health care professionals will also need to change (discussed in Chapter 2) (DH, 2019). The key point is that whichever health professional is responsible for providing care they must be clinically prepared to ensure the best outcome for the patients receiving that care. The findings in this and other studies demonstrate how ACP roles can effectively support cross-boundary working (Hooks & Walker, 2020).

Doctors were seen as useful by the ACPs, but professional boundary tension was evident as ACPs questioned whether asking for medical help devalued the image of their role. This cognitive dissonance was overcome by acknowledging that, *"doctors do a lot more training than us"* (ACP007). Although ACPs' original professional registration and advanced practice training varies from that of doctors (GMC, 2018), ACPs such as those from nursing backgrounds are senior nurses with many years training (i.e., a 3-year nurse training degree

and a 2-year advanced practice masters) and vast amounts of clinical experience which afforded them entry to roles characterised by high-level clinical autonomy (HEE, 2017, 2022b). However, in findings from Evans et al. (2020), one GP recognised ACPs' training and realised that they required additional clinical support. These ACPs were based in primary care, where support was more easily accessible than in isolated community settings. If community ACPs do not ask for clinical support because they want to protect their image, this could be to the detriment of their practice, including their maintaining of physical assessment skills.

6.3 Training and supervision

Participants' accounts showed that clinical expertise is important in these highly autonomous roles to deliver timely, effective and safe patient care (see Chapter 5 Theme 1). The implications of lacking the required physical assessment skills included the potential for increased complications when skills were not fully learnt; ACPs reported feeling inadequate and worried things could be missed (ACP006 & ACP004). Support was needed post-qualification to maintain physical assessment skills. Moreover, ACPs were the clinicians leading the care, and not being equipped with generic skills could result in the risk of a wrong diagnosis, inappropriate or delayed treatment and implications for both the ACP and the patient (Verghese et al., 21015; Asif, Mohiuddin, Hasan & Pauly, 2017). However, as ACP007 made clear, *"sometimes I need a doctor"* and ACP004 stated, *"I am gonna have to get somebody*", they took responsibility, recognised their limitations, and sought help from other health professionals when needed. This demonstrated safe practice. Observed in other studies, primary care NPs acknowledged their limitations and asked for support from GPs, but unlike community ACPs, they had GPs on-site (Kraus & DuBois, 2017). Often community-based nurses had to seek help from doctors for their physical assessment findings (Aldridge-Bent, 2011). Reasons for this included a lack of experience in assessing "normal patients" to understand abnormalities and physical health science knowledge to support interpretation of examination findings (Aldridge-Bent, 2011). ACPs are not trained to become doctors and will likely come across situations requiring higher-level clinical input. Given community ACPs' autonomous diagnostic responsibility and the unpredictable situations they face (demonstrated in Theme 1 Chapter 5), supporting them to do a job that provides clinical quality and consistency is essential.

Respiratory, abdominal, and cardiac were the examination systems identified as most used in critical situations, which made it easier to maintain those skills. ACPs demonstrated confidence

in their differential diagnosis ability and their use of the core assessment skills of palpation, percussion, and auscultation. These skills were rarely used by those nurses working in hospital settings as they were considered to be a doctor's domain (Birks et al., 2013). In the community, core physical assessment skills are a necessity for ACPs to ensure that they can complete the full clinical diagnostic picture (Garibaldi & Elder, 2021). ACPs having the ability to differentiate between conditions is critical to treatment options and subsequent health outcomes (Jain, 2017). NPs in McElhinney's (2010) study lacked confidence in identifying cardiac sounds; however, they had completed a clinical assessment skills module, not two years' advanced practice training. An ACP highlighted a weakness in cardiac assessment, "*my weaker area is cardiac*" (ACP006). Recognising heart sounds is identified as a complex process (discussed in Chapter 2) (Bickley, 2020), however misinterpretation could adversely affect the patient's outcome, reinforcing the importance of well-developed physical assessment skills (Raleigh and Allan, 2016). Studies show that junior doctors can have difficulty identifying cardiac murmurs and apex beat location (Oliver et al., 2013), and cardiac and pulmonary examinations were identified areas that required more teaching to maintain these skills (Li et al., 2014). Perhaps ACPs increased their own clinical expectations, adding extra pressure to what seems an already highly pressured role. Being self-aware helped them to access training, but the most important aspect, *"the practical approach"* (ACP006), was missing, highlighting that embedding these skills required real-life patient scenarios, not just theory.

Accounts and experiences demonstrated confidence and competence using abdominal physical assessment in a very unwell patient (ACP005). They made it clear that without advanced clinical assessment skills and the ability to use higher-level critical thinking that the outcome for this patient could have been very different. ACP005's account clearly demonstrated that being confident physically assessing patients was essential to support good clinical decision-making (Fennessey & Wittmann-Price, 2011). However, their training incorporated a designated GP supervisor one day a week, supporting their clinical skill development, similar to the hub and spoke model (discussed in Chapter 2) (Gloster et al., 2020). Given the findings, it is understandable why a well-developed wider skill set is needed in community roles for accurate assessment and diagnosis (Mallinson, 2021; Schroyen et al., 2005; Secrest et al., 2005). Examples in this study demonstrated how ACPs integrated complex physical assessment data with expert knowledge for safe differential diagnosis, and others highlighted ACPs provided safe effective care (Evans et al., 2020). Although the importance of maintaining

generic physical assessment skills to manage clinical situations that at times could be life threatening, was strongly reinforced (ACP005).

ACPs indicated that once they were qualified, they felt they were assumed to be clinical experts, *"we are there to fill a gap in the market, which is, you know, to cover for GPs"* (ACP002), which resonated with other ACPs covering for GPs (Timmons et al., 2023). Filling gaps for GPs suggests that ACPs need to be able to proficiently undertake physical assessments to perform their role. However, from their accounts it was evident that ongoing training and support was particularly needed where skills were not used regularly. For example, infrequent use of neurological skills resulted in ACP001 feeling they were at risk of deskilling, losing confidence and subsequently experiencing difficulty maintaining those skills. Indeed, studies have observed that 'if you don't use it, you lose it" where doctors' skills declined when they were not practised, but could be retained with sufficient rehearsal (Vine, Chaytor, McGrath, Masters & Wilson, 2013). Other studies exploring the use of physical assessment skills showed that skills learnt were not being used, which could put skills at risk of declining (Giddens, 2007; Shin et al., 2009; Shi et al., 2020). In contrast to the findings in the current study, Heeyoung et al. (2012) reported that RNs were well prepared and competent in neurological assessments. However, this could be related to the clinical setting these nurses worked in, which included emergency and intensive care, where neurological assessment might have been routine.

For the ACPs in my study, physical examination was tailored to patients' physical and mental ability, "*neuro tends to be partial […] in older people"* (ACP005) and *"it's not always practical to do every bit"* (ACP004). From their accounts, being able to adapt their assessments and focus on aspects that patients were able to engage in demonstrated confidence in how they used their skills as well as supporting a patient-centred approach to care. Without ongoing training this could challenge the maintaining of some aspects of physical assessments. Incomplete skill sets could put ACPs in precarious positions, for example not having the skills to support patients' presenting complaints. The lack of physical assessment skills and knowledge can result in practitioners avoiding patients with certain presenting complaints (Mallinson 2021). This is concerning as it could limit the range of patients ACPs can safely assess, delay patient assessment and impact on other ACPs' workload. Although ACPs in this study made conscious efforts to develop their physical assessment skills, they did not get the opportunity to advance their skills, such as those in neurology. In crisis response when referrals could be anything and everything, confident wide-ranging skills are critical.

Participants' accounts (ACP001 and ACP004) suggested that they did not get much exposure to physical examinations in ear, nose and throat (ENT), cranial nerve, fundoscopy and skin as part of their training to develop their confidence, and the opportunity to advance these skills in the community was limited. However, ACP005's reflection that skin complaints could indicate a serious underlying condition reinforced that it is not just carrying out a physical assessment that is important. ACPs also need the clinical experience to piece together their findings. Skin rashes could be red flags for conditions such as sepsis, which require early diagnosis and emergency medical intervention (National Institute for Health & Care Excellence [NIHCE], 2021). However, health professionals are trained to be aware of the signs and symptoms of sepsis (NHS Resolution [NHSR], 2023). Participants' accounts associated a lack of confidence in ENT, skin, and eye examination with their limited opportunity to develop these skills during training. This lack of opportunity to gain practice during training was reported not only by ACPs who qualified many years ago, but also by those more recently qualified, suggesting that gaps in training could still exist. It is possible that this problem is more evident in community roles requiring generic skills as opposed to roles in more specialised settings. Lack of confidence was an identified barrier to physical examination skill use by ANPs (Shin et al., 2009) and RNs (Cicolini et al., 2015; Shi et al., 2020) linked to lack of training opportunity.

Participants' experiences developing and maintaining physical assessment skills suggested that there was a disconnect between classroom-based learning and the supported application of the skills in real-life practice. Theoretical knowledge without support in clinical practice made it difficult for ACPs to transfer the learning of the skills into context (Reynolds & Mortimore, 2021). Similarly, RNs suggested there was a dichotomy between skills taught and support in practice to use them (Shi et al., 2020). Yet the ultimate value of classroom-based learning is being able to transfer the knowledge and skills to real-life patient settings (Gassa, 2021). From ACP004's reflections it was clear that seeking clarification on their skills in front of others made them feel foolish and caused them some concern. Feeling "*silly asking questions"* (ACP004) could affect ACPs' confidence before having the opportunity to use the skills in practice. Similarly, medical students were anxious performing physical examinations in front of their peers (Rousseau et al., 2018). Kang & Min (2019) suggested that it is essential to foster learning environments in which individuals feel free to express their views without judgement. Furthermore, suboptimal learning environments have been associated with the quality and safety of patient care (Kilty et al., 2017). Feeling safe, whether in a classroom or real-life setting, was essential to supporting ACPs in developing and maintaining their skills. Despite

negative classroom experiences they were keen to build on their skills, *"I like to be shown and then I like to be able to go away and have a go, but then when you go and do that in isolation you can't ask questions"* (ACP004). It was more difficult to embed physical assessment skills in isolated working owing to lack of immediate support to address queries. These findings are particularly important as simulated classroom assessment processes were also identified as incomparable with real life settings.

ACP006 showed their concern about imitating patient scenarios in classroom-based OSCE's. This style of learning did not prepare them for managing complex real-life patient situations. Although, OSCE was also associated with rote learning making it difficult to contextualise skills. OSCE has been deemed a useful assessment tool for assessing clinical competency (Chadwick & Murphy, 2019; Lai, Cheng, Wu & Lin, 2022; Lavery, 2022) and empowering students to develop understanding of clinical complexity in safe environments (Aronowitz, Aronowitz, Mardin-Small & Kim, 2017). In this study and others, OSCE did not always reflect the much-needed clinical reasoning ability (Mallinson, 2021; Park, Kang, Myung & Lee, 2015). Thus, this type of learning could give a false sense of security. For example, individuals may perform well in a simulated assessment but experience difficulty when faced with unusual patient circumstances requiring complex reasoning. ACPs cannot learn clinical competency from OSCE alone; supported clinical exposure is needed to enable them to deal with the patient complexity they encounter in the community.

Nursing competencies have been defined as low-level abilities and soft skills not requiring high-level academic qualifications (Windsor, Douglas & Harvey, 2012). However, this oversimplistic reductionist definition fits more with traditional task-orientated healthcare roles, as it lacks appreciation of the knowledge, capabilities, and complexity of the ACP role (HEE, 2017). One of the competency scales used in advanced practice to measure skills acquisition from novice to expert status (NLIAH, 2010b) is based on Benner's (1982) theory that expert status is achieved with experience. However, it could be argued that clinical expertise depends on the healthcare setting and skills required for service delivery. The generic clinical nature of crisis response ACP roles as opposed to specialist roles suggests that they require more clinically focused exposure to physical assessments during and after training to reach and maintain expert status. Rischel, Larsen & Jackson's (2007) observational study involving nurses undertaking admission assessments identified emerging patterns of competence: experienced nurses acted as advanced beginners and inexperienced nurses as experts,

challenging the validity of Benner's (1982) theory. Nurses' competence can be situational; for example, Benner, Tanner & Chesla's (1992) study involved intensive care settings, where technical skill competence was perhaps more easily monitored against expert and beginner, as opposed to generic isolated community roles. From the findings in this study, practitioners' years qualified did not appear to influence the maintaining of their physical assessment skills; this was more dependent on the quality of their training, opportunity to rehearse their skills and access to good mentor support. Participants all had different areas of expertise in physical assessment. However, unless practitioners have assessed a 1000 abdomens and chests they are not advanced in assessments (Fothergill et al., 2022), which shows the importance of having the opportunity to practise skills to gain that clinical experience and expertise.

As well as identifying obstacles to skill rehearsal in the classroom, participants also noted that hands-on practical opportunities in community settings were also limited during their training. Trainee ACPs took full responsibility organising clinical learning placements, some outside of their usual practice such as having to go onto unfamiliar wards in an intrusive manner, to try to develop and maintain their physical assessment skills. Moreover, they described themselves as being almost an imposter in the doctors' circle in order to try to develop a good clinical foundation. The importance ACP007 placed on physical assessment skill development was demonstrated by their determination, motivation and the lengths they went to accessing clinical exposure, but it seems they had few other options as official clinical support did not appear to be readily available. It was not surprising they 'sidled' their way into medical territory; like GPs, community ACP roles are predominantly clinically focused, with complex patients requiring high-level care (see Theme 1 Chapter 5).

It became obvious why ACP007 accessed medical circles in acute settings rather than in GP practice. The GP was surprised by the expectation that the ACP had to independently arrange their learning placements, when registrars had designated, remunerated placements. This participant's account suggests that lack of access to GP support might have hindered them not only in developing physical assessment skills but also in keeping them refreshed. Just arranging GP placements was challenging and given their role responsibility, *"cobbling it all together"* (ACP007) is not a viable option. Trainee and qualified ACPs need robust, organised clinical learning opportunities particularly when they are undertaking roles similar to doctors (discussed in Section 6.2) (Evans et al., 2020; Mannix & Jones, 2020; Timmons et al., 2023). ANPs in one community-based study also had to create learning opportunities and negotiate

medical supervision time (Raleigh & Allan, 2016). In contrast, ward-based ACPs reported that consultants invested time supporting their clinical development, including attending daily ward rounds (Mannix & Jones 2020), something that the current study shows was clearly missing in isolated community roles.

Participants' reflections suggest that negotiating GP placements required good communication skills to justify their clinical learning needs, so approaching doctors they were familiar with appeared the better option. However, GPs might feel uncomfortable that ACPs' level of diagnostic responsibility could threaten professional boundaries (Spence, 2019). ACP numbers are now significantly higher (Evans et al., 2021) and GPs have a better understanding of the role. For example, a GP stated that fully trained primary care ACPs undertook almost everything GPs did, which resonates with the findings of the community ACPs in this study (Evans et al., 2020) (participants' clinical descriptions in Theme 1 Chapter 5). This further reinforces the need for learning and rehearsal of physical assessment skills within this role, which participants' accounts have shown to be difficult. ACP007 did recognise that training had evolved and improved, providing a more structured approach, but still questioned whether it would leave them feeling more confident.

The hub and spoke primary care model offers ACPs in primary care regular consistent clinical support by GPs (Gloster et al., 2020). Furthermore, primary care ACPs have a very structured core capabilities framework, setting out the clinical requirements to manage medical complexity in generalist environments where ambiguity and uncertainty are deemed high (HEE, 2020a). Community ACPs, on the other hand, seem to be lacking developmental support as outside primary care (Evans et al., 2020) this appears to be focused on ACPs working in acute settings (Mannix & Jones, 2020. Given community ACPs' experiences developing and maintaining their physical assessment skills, a framework of education standards and programme accreditation are welcome necessities (HEE, 2020b). From participants' reflections it was clear that training did not meet their expectations.

One ACP suggested that doctors get more support with their physical assessment skill development than ACPs, but they made similar clinical decisions. This ACP felt that their initial advanced practice training and post-qualification clinical support were out of balance with the *"equally risky decisions"* (ACP001) they made during their assessments. However, no reference was made to their previous original professional training and years of clinical experience which would have contributed to the development of their advanced clinical

reasoning and decision-making skills (discussed in section 6.2) (Diamond-Fox & Bone, 2021; Mohammadi-Shahboulaghi, Khankeh & HosseinZadeh, 2021). Junior doctors viewed hospital-based ANPs as role models due to their clinical expertise and in-depth knowledge of how hospital systems worked (McDonnell et al., 2015). Nevertheless, ACPs' accounts about their training are corroborated by community ANPs, suggesting longer and more in-depth training was necessary as their training did not match role expectations (Raleigh & Allan, 2016). A later study found that the advanced practice MSc did not equip practitioners with the necessary physical assessment skills to perform generic roles (Mallinson, 2021). Similar to this study, ward-based ANPs felt inadequately clinically prepared despite working in medically supported settings, which they linked to lack of emphasis on clinical development during their training (Williamson et al., 2012). Interestingly, the ANPs in Williamson et al.'s (2012) study attended the same training programme as the ACPs in my study.

Perhaps ACPs viewed that doctors had more exposure to physical assessment skill development when their accounts suggested that some skills were not fully developed during their training (Mallinson, 2021) and they had to, *"shoehorn their way"* into clinical placements (ACP007). Differences were reported in funding between professional groups with clinical placement providers receiving much more for medical than nurse placements (Beech et al., 2019). This resonates with ACP007's experience where they struggled to secure a GP placement. In addition, one ward-based ACP reported they received much less attention compared to medical students (Reynolds & Mortimer, 2021). However, studies also found that doctors experienced barriers to clinical support and supervision during their education and training (Rothwell, Kehoe, Farook & Illing, 2021).

There was a sense of hopelessness when ACP003 said, *"we just want the same kind of support really, that's all"* and this was reinforced by ACP002 who suggested that *"ACPs tend to be scratting around for a DMP with time to actually do some physical assessment skills"*. ACPs linked this to constraints on GPs' time which are likely to be worse today as figures suggest there are 737 fewer fully qualified full-time equivalent GPs working in the NHS in 2023 compared to 2019 (Hawthorne, 2023). However, ACPs' roles are not meant to be medically focused; this unique role is characterised by their holistic approach (discussed in this section) (ICN, 2008). For this reason, ANPs suggest they are in a much more favourable position than doctors as they have a nursing background and can see the bigger picture when assessing patients (Thompson & McNamara, 2021).

Perhaps however there needs to be shared clinical support between professions that work across shared boundaries such as advanced practice and medicine. Inter-professional learning was evident from the findings in this study, participants reported that they were mentoring Foundation Year 1 (FY1) doctors. Similarly, in ward-based studies, ANPs mentored and provided supervision to junior doctors (Thompson & McNamara, 2021; Williams et al., 2012). FY1 doctors spend time on placements with crisis response teams, and although this appeared to highlight ACPs perceived lack of clinical support during their training, participants greatly appreciated them. It appears that the closest participants in this study got to spending time with medical professionals was in their mentoring of FY1 doctors, *"but no one was there to mentor us"* (ACP006). ACPs have a lot to offer, such as their vast experience independently managing complex situations, scenarios FY1 doctors have possibly been shielded from in hospital environments where medical support is available. Nevertheless, this could be a missed learning opportunity; these doctors were ideally placed to share their clinical skills and support ACPs' ongoing development, but their short placements and clinical objectives could hinder this.

Participants' accounts made clear that CPD was equally as important post-qualification as they felt strongly about the lack of opportunity to update their skills after they had qualified as ACPs. CPD is defined as systematically maintaining, continuously acquiring and reinforcing life-long skills, knowledge, and competencies to meet patients' health care provision and professionals' learning needs (Executive Agency for Heath Consumers [EAHC], 2013). The language used in this definition, centring on maintaining and reinforcing of skills and competencies recognises the importance of ACPs' maintaining their physical assessment skills in the context of patient care. Ongoing clinical training is important to provide ACPs and their employers with the ability to deliver safe, effective patient-centred care (HEE, 2021b). Furthermore, strong links have been identified between effective CPD and improved patient safety (McBride, Collins, Osborne & McVeigh, 2022) which supports the argument for ongoing physical assessment skill support that meets ACPs' needs.

Many studies examining physical assessment skill use also identified the need for ongoing education (Barrows, 1985; Cicolini et al., 2015; Heeyoung et al., 2012; Liyew et al., 2021; Mallinson, 2021; Raleigh & Allan, 2016; Shi et al., 2020; Shin et al., 2009; Tan et al., 2021). However, as one ACP in this study reported it was not seen as a requirement once they had qualified but highlighting, *"not knowing what you don't know"* (ACP005), indicated the importance of ongoing training. Furthermore, practitioners open to *"unknown unknowns"*

could increase patient risk such as incorrect or missed diagnosis (Mallinson, 2021 p.719). In advanced practice the general focus appears to be on the training period, such as looking at ways of improving training (HEE, 2020b); there appears to be little thought given to supporting maintaining skills long-term. ACP003 was very animated about the lack of clinical updates since qualifying, firmly stating they had, *"nothing, no nothing, nothing"*. Although this ACP felt that the advanced practice MSc programme was a good foundation for further clinical development, being able to advance and maintain their clinical skills was important. These findings resonated with Hooks & Walker's (2020) study, in which ACPs also had difficulty accessing continuing education beyond their initial advanced practice training.

Lack of ongoing clinical learning concerned the ACPs in this study particularly as they wanted to provide good quality care. Perhaps this reflected a lack of management and organisational understanding of training needs, with employers possibly assuming that skills were maintained by working in clinical environments. As discussed previously, accessing clinical support in isolated community environments was perceived to be more difficult than in settings such as general practice and acute care. However, ACP002 felt that the trust viewed training from a different perspective and that appraisals were there to ensure that, *"staff have done their mandatory training fire safety, resus updates"* and ACP005 corroborated these views. Thus, appraisals were viewed as more generic across the professional spectrum as opposed to specific in order to support their advanced practice competencies (HEE, 2017).

ACP007 identified, *"we have particular […] needs as APs […] unlike something like hand-washing it's fairly time consuming"*. From this participant's account, hand-washing updates were mandatory, but no formal clinical updates appeared to be in place to support physical assessment skills, yet both training areas are fundamental to delivering safe patient care. However, ACP007's reflection suggests that they were concerned that time out of practice to maintain physical assessment skills might have a greater impact on their patients than the less time-consuming mandatory training. NHS mandatory training is essential for safe and efficient delivery of services by reducing organisational risks (RCN, 2018b). Mandatory training ensures that clinicians have the right knowledge and skills to carry out their roles safely, minimising risk to themselves and others. Therefore, regular physical assessment updates fit the definition of mandatory training. ACP007 suggested, *"I kind of think you should be able to learn as much after the course, or maybe not learn but maintain"*.

From ACP accounts there appears to be a clear lack of structure in place to support their CPD. Perhaps this relates to the complexity of its provision as they originate from different professional backgrounds and each will have their own specific learning needs as identified in this and other studies (Shin et al., 2009). Different training systems are clearly needed to support those working in advanced practice roles to optimise and maintain their skills, particularly when advanced practice in the UK is not regulated (discussed in Chapter 2) (ICN, 2020).

ACP006 expressed their concerns about the lack of clinical development opportunity and regulation in advanced practice not only for themselves but also for the increasing numbers of ACPs. They wanted recognition and formal support, to protect patients and their own safety. A regulatory body was a necessity owing to it being a diverse group of multi-professionals with different levels of clinical experience, as well as the title being open to potential abuse from unqualified practitioners (discussed in Chapter 2) (Timmons et al., 2023). In Hooks & Walker's (2020) study there was also strong recognition from ACP participants that formal regulation of advanced practice was needed to support this group of professionals. It is understandable why ACP006 is keen for advanced practice to be regulated when one of the distinctive features of their role is the undifferentiated nature of patients' health problems and their diagnostic responsibility which highlights the risks associated with their practice. The inherent risk in diagnosing and treating these patients is that things could be missed (Verghese et al., 2015). From ACPs' reflections it is their role to marginalise risks by using their advanced clinical skills effectively to distinguish patients that are safe to be treated at home from those that have a more serious life-threatening illness requiring hospital admission (see Theme 1 Chapter 5). Inevitably in clinical practice mistakes may occur. For example, evidence shows litigation against ANPs and NPs was linked to delayed or wrong diagnosis (Ford, 2016; Launder, 2022b). Lack of regulation in this professional group could be a barrier to accessing regular CPD including physical assessment skill updates, through lack of formal education and training structures that support their particular needs (Pickett, 2017). This reinforces the importance of regulation in this group of health professionals. Recent papers suggest that the NMC is looking to approve new standards including education in advanced practice by 2025 (NMC, 2022), a welcome necessity for reasons discussed in this section.

From the current study, findings strongly suggest that CPD was missing not just in clinical practice but also in the other three pillars of advanced practice (education, research and

leadership). Although this thesis predominantly relates to clinical practice, it is important to include how participants felt about those other aspects of their role, as they are interlinked with their clinical practice.

From ACP004's account it appeared that the other aspects of advanced practice were invisible, but it depends how these were viewed. For example, participants noted that their role involved supporting and educating other health professionals, such as DNs, trainee ACPs and FY1 doctors. Although most were not actively conducting research, their interviews mentioned their involvement in auditing of key performance indicators and evidence-based practice. However, if they were not getting clinical support for a role, one described as, *"100% clinical-plus"* (ACP004), it is not surprising that maintaining other aspects of their role challenged them. ACPs primarily operated in clinical capacities and struggled to achieve other elements of advanced practice such as research (Evans et al., 2020; Hooks & Walker, 2020). Organisational recognition that ACPs should be working within the other three pillars of advanced practice was missing as the emphasis of their role was clinical (Fothergill et al., 2022). Yet HEE (2021b) in their recent CPD document highlight the importance of ACPs not deconstructing the four pillars but viewing them as an interlinked map enabling them to work at an advanced practice level. However, fully engaging in the four pillars of advanced practice could be difficult when the clinical emphasis of the community ACP's role appeared to be linked to the pressures of crisis response (discussed later in this section), which meant that seeing patients was the top priority; this is similar to the situation in many other NHS clinical roles. If ACP roles are purely clinical this further strengthens the argument for supporting their clinical development. This is particularly important for ACPs working behind closed doors, where isolation and autonomy are key factors for maintaining their skills.

One participant's insight suggested that providing care in patients' homes was isolating in comparison to hospital-based ACPs who they viewed as being much more clinically supported and could, *"always ask for help"* (ACP001). Community ACPs were the responsible clinicians, they had no immediate medical support to question their diagnostic findings. However, ACPs working on wards were more likely to, *"clerk in patients"* (ACP001) rather than undertake full physical assessments, as doctors took overall patient responsibility. We might also infer from this that they have less opportunity to use and maintain clinical assessment skills, but this cannot be corroborated by my study, which did not involve ward-based ACPs. However, in Hooks & Walker's (2020) study, acute care ACPs were part of junior doctors' rosters and

performed consultants' less complex tasks, showing the level of clinical involvement. In comparison to isolated working, medically supported environments offered more opportunity for observing, practising and maintaining skills. Considering these factors suggests that more focus should be on clinically supporting those working in isolated generic roles.

GPs reported that high-level clinical preparedness was a necessity for accountability in decision-making and that ANPs needed to understand what they were doing and talking about when undertaking a physical examination (Raleigh & Allan, 2016). They viewed physical assessment skills as pointless if practitioners had difficulty making decisions based on their findings, as responsibility would be directed back to them for diagnosis and care (Raleigh & Allan, 2016). Given the level of patient complexity ACPs identified in my study (see Theme 1 Chapter 5), not all diagnostic and decision-making processes in community advanced practice are straightforward.

Participants' vulnerability and fear of getting it wrong was exacerbated by their working in isolated settings lacking 24-hour patient care. You could almost feel the isolation from their reflections on working in these responsible autonomous roles. Isolated working led ACP004 to question the upkeep of their skills when they had no one to clarify what they were hearing, however this practitioner was trying to differentiate complex cardiac heart sounds. Zambas et al.'s (2016) study highlights that accurate interpretation of what a practitioner hears during their assessment within the full context of the patient scenario is critical to diagnosis and patient outcomes, which corroborates ACP004's commitment to wanting to practice to a high standard and provide effective care. From the interviews it was clear that isolated working practices could hinder the maintaining of physical assessment skills, and lack of immediate clinical support resulted in participants questioning their clinical capability. However, isolated practitioners could over-examine, be overcautious to promote patient safety, as one indicated, *"you don't want to miss something"* (ACP004).

It was not surprising that patient 'safety netting' was a top priority to support some of their critical clinical decision-making, "*I sometimes phone the hospital on-call doctors [...] you try and safety net and try to get help from different professionals, including OOHs, GPs"* (ACP001). But emphasis on the word, *"try"* indicated that contacting GPs or hospital-based doctors was not always straightforward, as corroborated by ACP006's account. Furthermore, discussing patient cases with doctors on the telephone as opposed to having on-scene patient support added another layer of stress and responsibility. Safety netting for these ACPs appeared

to be two-fold, not only on occasions did they need to safety net their clinical decisions with other professionals, but also with the patients and their carers. Safety netting with unwell patients being cared for in their own home could pose an even greater level of stress for community ACPs as they had to ensure that advice, such as when to seek urgent review, was fully understood (Jones, Dunn, Watt & Macleod, 2019). ACPs are accountable for their actions and need to be able to justify their decision-making (HCPC, 2016; NMC, 2018), but as they identified in Theme 1 Chapter 5, due to the complexity of the patients there is often a fine line in the balanced decisions they must make.

ACPs accounts suggest that working in isolated settings with high-level autonomy and diagnostic responsibility brings a sense of pressure. ANPs found the expectations of the role challenged them due to increasing responsibility and patient complexity together with working in isolated settings with limited support (Fothergill et al., 2022). General practice ACPs also found their role to be stressful owing to patient expectations, high workloads and short consultation times (Evans et al., 2020). Unlike the current and other studies (Fothergill et al., 2022), GPs were available if there was anything they were unsure about, such as the diagnosis, which further illuminated crisis response ACPs' level of clinical autonomy. Concern about patient and practitioner safety sent strong messages that the need for support to maintain generic physical assessment skills in isolated roles was critical. However, peers were found to provide some support.

Going on joint visits with peers to assess patients offered participants clinical support. Although peers may not always be more clinically advanced, joint visits helped ACPs to identify gaps in their physical assessment skills, areas to develop. Other studies have reported similar findings. NPs have indicated that strong peer support positively influenced their ability to use physical assessment skills (McElhinney, 2010), and ACPs suggested that sharing their clinical experiences enhanced their learning opportunity (Hooks & Walker, 2020). ACP004 summed up the benefits of spending time with peers to support their skills, *"just to get a bit of a feel for what other people would be doing"*, although this account also reinforced the seclusion of their role. Yet it was evident from their previous reflections about isolated working that peer and other forms of clinical support were needed. ACP003's comment that, *"joint visits are rare"* is consistent with the busyness of crisis response work, low numbers of ACPs and time-constrained NHS roles. However, *"just two of us going out together"* (ACP003) suggested that joint visits promoted a secure, supportive learning environment that perhaps

enabled them to ask *'silly questions'*, something ACP004 found difficult in the classroom learning environments discussed earlier in this section.

Peer support was also an important channel for clinical feedback and a form of clinical supervision. Positive feedback confirming that participants were "*doing it right*" really boosted their confidence and was seen as an informal way of getting feedback (ACP001). Other studies of ACPs also identified the need for confirmation that their clinical practice was correct (Reynolds & Mortimer, 2021). ACPs in the current study had to set up opportunities to access feedback themselves and lack of structured processes enabling feedback could result in missed opportunity for self-improvement and, consequently, for improved patient care (Altmiller, 2012). Similarly, this local study assessing the current provision of supervision amongst ACPs found it was ad hoc in 61%, absent in 33% and equated to less than two hours a month in 86% (GMCA, 2022). The findings also reported wide variation in supervision across the four pillars of advanced practice demonstrating a clear lack of clinical supervision standards for ACPs locally (GMCA, 2022). Primary care ACPs (one in five) reported a lack of clinical supervision policy in place (Fothergill et al., 2022), despite acknowledgement six years earlier from HEE (2017) of the need for regular constructive clinical supervision to be part of the ACP organisational workforce structure to support and help them progress. Although findings from the current, and Fothergill et al.'s (2022) study demonstrate the importance of clinical supervision for supporting ACPs clinically, they also highlight that gaps in clinical supervision structures in these roles still exist. Establishing clinical supervision within organisational structures is more critical than ever with rising numbers of ACPs (Evans et al., 2021) to ensure they are supported. Furthermore, it is the formal structure and protected time that facilitates the learning to take place (Simpson et al., 2017). Constructive feedback could allow community ACPs to identify their physical assessment strengths, areas of clinical practice they could share with their peers, as well as those skills requiring rehearsal or improvement. Participants identified being listened to and feeling valued by peers as an important clinical support when they were working in isolation.

Peer support was viewed as, *"one dimensional"* (ACP002) suggesting that ACPs needed other ways to develop and maintain their physical assessment skills. This was corroborated in ACP004's reflection which suggested that their level of competence was similar to their colleague's, making it difficult to progress their skills and indicating that sometimes higher-level clinical support was also needed. Similarly, data in Reynolds & Mortimore's (2021) study

also acknowledged that ACPs may require different supervisors depending on their individual learning needs; one ACP in Lee et al.'s (2023) study felt that their clinical confidence had improved with supervision from both ANPs and doctors.

Although participants in my study greatly valued peer support, they felt that they also needed medical supervision to support their skills. However, medical supervision was difficult to access in the community as they had, *"to scratch around for it and try to maintain it"* (ACP003). Yet having good access to medical mentors was reported to have a huge impact on their clinical development as their learning accelerated (ACP007). Medical supervision is similarly lacking for some ACPs working in general practice; one ACP reported receiving 10 minutes of formal supervision in five months (Evans et al., 2020), making it easier to understand why community ACPs had difficulty accessing GP supervision. It could be argued that in primary care on-site GPs are available to support their ACP colleagues with complex patient cases which in effect could be seen as a form of clinical supervision. The importance of clinical supervision and mentoring from doctors was found to be central to building ACPs' confidence with their advanced skills through clinical support (Kraus & DeBois, 2017). Medical supervision offered ACPs an opportunity to embed their clinical skills as well as receive feedback on their accuracy in applying them (Reynolds & Mortimore, 2021).

ACPs in this study may be reluctant to seek supervision because managers might see it as non-face-to-face activity. However, their level of clinical autonomy and complex patient care (Theme 1 Chapter 5) reinforces the necessity for supervision, although from their accounts it seems these roles were established with little thought for ongoing clinical support.

One ACP compared their access to medical supervision in the community to ward-based ACPs, and they believed they had much easier access to doctors' support through working in the same environment. In contrast to the findings in this study, hospital-based ACPs received regular consultant feedback, which they associated with improving their clinical confidence (Mannix & Jones, 2020). These were trainees learning the role and they were therefore possibly afforded the time. Whereas hospital-based APs in other studies found that physicians' time was more focused on medical students and doctors rather than time supervising them (Lee et al., 2023). Thus, from the findings in the current and ward-based studies it seems that the accessibility of clinical supervision varies in different settings demonstrating inconsistency in provision.

HEE (2020c) stresses the importance of supervision during advanced practice training but suggests that employers, *"will need to be satisfied"* (p. 23) that clinical supervision is sustained after training. When ACPs feel, *"kind of thrown in at the deep end*" (ACP003) the term 'satisfied' appears a soft option to convince managers and organisations of its significance in these complex challenging roles. ACP003's views suggest that having formalised and funded supervision arrangements would give added protection. Implementing medical supervision could be difficult with the current shortage of GPs, the lack of financial incentives and in some health care settings ongoing COVID-19 restrictions. As well as demonstrating participants' difficulty accessing regular medical supervision, findings in this study also suggest that pressurised environments may also be a barrier to clinical supervision and training.

The busyness of crisis response work seemed to challenge the fostering of an environment conducive to learning, and time constraints appeared to influence opportunities to develop and maintain physical assessment skills. Participants found it a key challenge to create time to develop all aspects of their role within the day-to-day demands of a crisis response service. One ACP suggested that the emphasis on paperwork meant there was less time for clinical training which risked deskilling them. However, large volumes of patient documentation also indicated busy caseloads. Unlike the ACPs in this study, who were using their skills, in Douglas et al.'s (2014) research, paperwork was an identified barrier to actually practising skills. These were RNs in hospital settings, where barriers to skill use also included reliance on others and technology. However, high-quality documentation is key to continuity and quality of care (Mathioudakis, Rousalova, Gagnat, Saad & Hardavella, 2016) as is ongoing clinical training to provide safe and effective care (HEE, 2021b).

The workload pressure in crisis response meant that seeing patients was the key priority, and unpredictable daily paramedic referrals and duty rota limitations that participants describe could make it difficult to factor in skill training time. It is almost as if this was accepted as an unchangeable situation through stretched ACP numbers and heavy workloads. High workloads prevented ACPs' uptake of training opportunities (Evans et al., 2021) and time constraints were barriers to the use of physical assessment skills (Aldridge-Bent, 2011; Birks et al., 2013; Douglas et al., 2014; Liyew et al., 2021; McElhinney, 2010; Osborne et al., 2015; Shi et al., 2020) but as the current study shows, infrequently used skills can be hard to maintain.

Working in time-pressured isolated crisis response roles seemed to create an environment for a culture of unsupported learning and tension associated with opportunities for clinical

development. However, from participants' accounts, in effect they were classed as the medic on rota that day. It was a bone of contention that ACPs working on wards had regular dedicated time to meet their training needs in the four pillars of advanced practice, yet participants had difficulty finding time to develop even the first of these, which is fundamental to their role. Ward-based ACPs, on the other hand, have different working practices, and the availability of medical support possibly affords them protected time for their development. It seems that time will always be a challenge for health professionals, particularly those working in isolated crisis response roles with busy referral pathways and high-intensity workloads. Lack of training opportunities could result in low morale and low job satisfaction, so establishing ways of creating protected space to support clinical development is important. Organisational understanding of ACP roles is therefore essential to their development.

Organisational funding was a factor that participants identified as a challenge to physical assessment skill updates, and this caused ACP004 to fund themselves. Self-funding private training clearly highlighted their motivation or concern to keep clinically up to date, rather than muddling along without additional updates. Fear of making mistakes might have directed this approach but accessing ad hoc independent courses could compromise skill quality and consistency. However, it was easy to understand why they took this option. One in four ACPs (26.8%) made personal contributions to fund training (Fothergill et al., 2022).

ACP003 experienced difficulty accessing funding at the time these interviews were conducted and they related this to organisational bureaucracy, although senior management had agreed to funding. Despite moving from a background in chronic disease management to urgent care (acutely unwell patients) they suggested that they had no training for transition into that role. Management of long-term conditions focuses on proactive care involving the prevention and management of exacerbations with multi-agency involvement, as opposed to crisis response's quick thinking rapid approach. It was evident that ACP003 was pursuing training to ensure safe patient care. Discontentment and a sense of feeling undervalued, as other ACPs in primary care had accessible funded training, were evident. The NHS was facing one of its biggest financial difficulties in history owing to changing population health needs and, most recently, acute, and long-term COVID-19. However, ACP roles have been judged to be cost-effective (Evans et al., 2020), so clinically supporting them could in effect improve local NHS economic outcomes as they become even more skilful practitioners. Without ongoing clinical training opportunities, achieving their full potential may not be a reality. Funding for personal CPD,

however, has changed and the government pledged a £1000 training budget over three years for each NHS nurse, midwife, and AHP (such as physiotherapists) in a bid to establish a more sustainable workforce (Welsh, 2022). Since the study interviews were conducted, government plans have been factored into policy in my own trust.

It was not surprising that funding was difficult to obtain as managers did not always understand the ACP role and therefore lacked insight into their training needs. Given ACPs' level of autonomy and diagnostic responsibility managers possibly assumed that they were clinical experts once they qualified. ACP002 suggested it was more difficult for non-nursing managers to understand the role and the need to maintain physical assessment skills. Managers lacked understanding of physical assessment skill use and this together with lack of training opportunities was a barrier to practising their skills (Shi et al., 2020). However, the lack of training opportunities for ACPs in my study could result in them feeling that the role is not valued and appreciated, but crisis response ACPs perform one of the highest-profile non-medical clinical roles in the community. It seems that managers wanted participants to meet service needs but in practice did not really understand what they did. ACP003 described the challenge of securing training, *"the role I am in is a clinical role essentially and that what's been commissioned – there's no allowance whatsoever for any time to be set aside for your own development"* which suggests a lack of role understanding. Some ACP roles were commissioned and introduced without managers fully appreciating their ongoing clinical support and development needs (Jones et al., 2015). With NHS financial constraints due to increasingly complex healthcare needs and hospital admissions, commissioners appeared to be focused on clinical output only. For these roles to flourish and support radical health care shifts, it is vital that organisations and managers recognise the need for ongoing training.

Furthermore, practitioners felt that community ACPs were seen as role models, supporting other professionals, such as DNs, with complex patient management (discussed in Chapter 2) as well as sharing their skills and knowledge across a wide arena of health professionals including doctors. However, they questioned how they could teach others when they were not being supported to clinically progress. If managers and commissioners view ACP roles only as a means of plugging workforce and service gaps, the disconnection from the role as it is conceptualised and the lack of attention paid to overall development could, over time, lead to job dissatisfaction, low levels of personal accomplishment and burnout. High work demands and low supervisory support were associated with burnout as measured on the Maslach Burnout

Inventory (Gibson, Grey & Hastings, 2009). Despite high workloads and lack of developmental support, ACPs in this study remained highly motivated and optimistic about clinically developing their roles.

6.4 Innovative ACP framework for physical assessment skills training

ACPs were keen to provide ideas to create opportunities for advancing clinical practice however first they highlight why this is necessary. ACP002 demonstrates the importance of being generically skilled and the need for ongoing clinical development within their roles which is further strengthened in their reflections about managing patients with unpredictable complex health needs (Theme 1 Chapter 5). Enabling ACPs to practise to their full potential is key to their role (HEE, 2017). Yet ACP003's account clearly highlights that this was also not the case for them, there was a risk of stagnation and assessment skills becoming, *"sufficient to do the job"* (ACP003). ACPs in other studies identified that challenges to training and clinical supervision hindered role progression (Fothergill et al., 2022). The ACPs in the current study already did a lot within their role clinically, but not having the opportunity to advance their skills caused them to feel undervalued and unable to achieve their goals as ACPs. However, their personal and professional motivation to clinically advance to improve patient care demonstrates a sense of pride in their work, clearly overshadowing feelings of frustration. Being, *"shown the basics of each clinical examination"* (ACP004) indicates the need for ongoing support of clinical development (Mallinson, 2021).

At some stage during the interviews, most of the participants reflected worries about maintaining their physical assessment skills, but this correlated with the lack of learning opportunities during and after their initial training and isolated working (discussed in Section 6.3). In introducing advanced clinical practice to the NHS, HEE (2017: p. 1) stated: *"new solutions are required to deliver healthcare to meet the changing needs of the population"*. Findings from this study show that new solutions are also required to support this professional group in maintaining skills within these roles. ACPs identified innovative ideas to support their ongoing clinical development (see Table 14) but felt that they needed multiple clinical training experiences as opposed to a one-off training course (see Theme 3 Chapter 5).

Table 14 Supporting physical assessment skills in advanced practice

Clinical passports
Generic assessment framework
Refresher courses
Rolling programmes
Practical rehearsal
Inter-professional learning
Medical mentor support

From the ACPs' innovative ideas and recommendations within this study, a framework was developed to optimise and support the maintaining of physical assessment skills (see Figure 1). This model draws together evidence from this study and others, where these skills have been identified by practitioners as essential to advanced practice (Mallinson, 2021; Raleigh & Allan, 2016). An important feature of this model is its approach of offering different types of learning opportunities, a key consideration when ACPs in this and other studies were found to have different levels of skill competence (Mallinson, 2021; Raleigh & Allan, 2016; Shin et al., 2009). This model and framework is not meant to be rigid; the value is in its flexibility which allows ACPs to work through the areas that are unique and relevant to them. The model also supports initiatives within the national advanced practice workplace supervision document (HEE, 2020c), the advancing practice signposting for CPD document (HEE, 2021b), and recommendations in a local supervision study (GMCA, 2022) which all focus on advanced practice clinical development. With the advent of the ePortfolio for those ACPs who completed their advanced practice training prior to 2017, this framework and the concepts suggested could be used to support this process (HEE, 2021a). Each key area identified within the framework is now discussed individually apart from organisational understanding of ACP roles and recognition of training needs which are integrated throughout.

Figure 1: Innovative ACP framework for physical assessment skills training

6.4.1 More support in generic community roles and advanced practice training

From ACPs' accounts in Theme 1 Chapter 5 where skills were identified as essential to their practice, their reflections in Theme 2 Chapter 5 show that their advanced practice training did not fully prepare them for this generic role, as some physical assessment skills were not fully

developed (Mallinson, 2021; Raleigh & Allan, 2016). These findings strongly suggest that more thought needs to be given to advanced practice training so that ACPs working in generic community roles are fully supported to develop and embed wide skill sets. However, as well as the challenges identified with training including the disconnect between classroom-based learning and the supported application of skills in real-life practice (discussed in Section 6.3), there is a lack of consensus as to the range of physical assessment skills required in these roles to guide advanced practice training (Nadaf, 2018). A standardised list is clearly needed when variation in skills learnt during training still exists (Mallinson, 2021) and needs to be ACP-led as they are the practitioners using these skills and providing the care. Creating a list of physical assessment skills without the support to transfer them to practice is pointless, thus the theory-practice gap also needs to be addressed. There is however focus on evolving the clinical aspect of advanced practice training (Gloster & Leigh, 2021).

More consideration also needs to be given to building CPD into qualified ACPs' job structures to support them to continue to maintain generic physical assessment skills once they have qualified which is the key principle of this framework.

6.4.2 Clinical passports

The idea of an 'advanced clinical passport' that requires documentation of regular completion of clinical training hours, signed off by senior clinicians, mirrors the IV therapy passport programme. Involving theory, supported clinical practice and assessment, this programme enables clinicians to transfer between organisations without the need for further training (Scott, 2020). Clinical passports are an integral aspect of this framework, and this document could support ACPs in identifying and accessing individualised learning experiences by showing their areas of expertise and those requiring further input to maintain their generic physical assessment skills. Such a passport would need to be purely clinically focused and not become a time-consuming tick box paper exercise. Furthermore, clinical passports could also link in with the e-Portfolio as this also provides opportunity to identify gaps in clinical practice and promote learning opportunities (HEE, 2021a). The e-Portfolio is voluntary and having the option may put ACPs off completing it, however, as it is a supported route organisations may offer protected time (HEE, 2022a).

It was obvious why participant ACP006 wanted some other form of support for their development when they suggested that revalidation was generic across nursing and allied

health professions and did not allow for the complexities in their clinical role. Revalidation was borne out of the Francis Report through public pressure to improve patient safety (Smith, 2015). However, ACPs are a multi-professional group and advanced practice should have one central revalidation process, rather than different processes for each profession (e.g., nursing, physiotherapy). It is questionable who should be confirming the revalidation; would it be appropriate for a line manager without an advanced practice background or for someone chosen by the ACP to act as confirmer (NMC, 2019). Confirmers chosen by the ACP might not challenge them clinically, and confirmers from non-advanced practice backgrounds might not understand the complexity of the role. Doctors have revalidation confirmers who are responsible officers, usually senior doctors, who fully understood their roles (GMC, 2018).

The findings from this study suggest that specifically developed multi-professional advanced practice processes such as those identified within this model are required to understand ACP roles and clinically support their development. An assessment framework was proposed to support these processes.

6.4.3 Generic community clinical capability framework

ACP001 suggested having an assessment framework for different physical examination systems they could work through, and this would be one way of receiving structured formal feedback, something that ACPs identified was missing once they had qualified. The comprehensive core capabilities framework for ACPs working in general practice includes multiple bodily system assessments and core clinical skills and could be adapted to meet crisis response requirements (HEE, 2020a). This framework focuses on clinical capability, on being flexible and able to deal with complex unpredictable situations (HEE, 2020a). This is consistent with the nature of ACP work. Making such a framework could link in with revalidation and appraisal processes, which as previously discussed appear to be more appropriate for those working in clinically stable environments. However, it should be noted that 'capability procedures' are used in nursing to support underperforming staff, so a 'capability framework' might carry negative connotations by implying a monitoring process (RCN, 2021). However, capability refers not only to a blend of ACPs' physical assessment skills and knowledge (HEE, 2017), it also encompasses their self-esteem, values, and beliefs (Cairns & Stephenson, 2009). And this self-esteem can be adversely affected by trying to maintain generic physical assessment skills with the limited training support participants have identified in isolated

settings. However, this capability framework needs to be relevant to community ACP roles and must have achievable objectives they can meet within their busy roles.

6.4.4 Physical assessment skill refresher courses

One of the strongest findings to come out of this research was the clear lack of physical assessment updates after qualifying (discussed in Section 6.3). ACPs were keen to attend skill refreshment courses. Although one participant reported that updates were available for conditions such as COPD and diabetes and were considered essential for up-to-date treatment and management of long-term conditions, from their accounts these did not cover the practical application of physical assessments (ACP005). A refresher course could be one way of helping ACPs to bridge the clinical training gap, which is particularly important as they work in isolated roles. Courses booked in advance (like mandatory training) could also be one way of protecting training time. ACP006's account indicates that skills should be refreshed annually to maintain their advanced practice status, and by having them formally authorised suggested that patient safety was at the forefront of their thoughts given their views on the lack of advanced practice regulation (discussed in Section 6.3) (ICN, 2020). Not having a separate professional registration apart from their original regulatory professional body further supports the need for training to maintain their advanced clinical practice status.

Physical assessment skill refresher courses for ACPS in the UK were virtually non-existent; searching the Web, the only course I found was a five-day online or London-based face-to-face course costing £775 (Practitioner Development UK [PDUK], 2022). This offered physical assessment and history taking techniques and was not specific to advanced practice. Participants' accounts indicate that something medically focused and more advanced would appear to be more suitable. No university refresher courses existed in North West England at the time of the interviews and there are still none to date (January 2023)**.** I was involved in discussions about developing a course but owing to the COVID-19 pandemic this has been temporarily delayed. In establishing refresher courses, it is important to involve all stakeholders, including ACPs, commissioners, university educator leads, community managers and doctors for them to be effectively developed and sustained (NHSE, 2018). Organisations need to understand their roles and training needs (discussed in Section 6.3) before any changes can occur. However, participants' accounts of their role and patient complexity give weight to the argument for recognising and supporting their clinical training needs.

6.4.5 Rolling programmes of physical assessment skills

ACP002 suggested having a *"rolling programme"* of different physical examinations on a monthly basis to support the maintaining of generic skills. Rolling programmes suggest a level of flexibility where they could attend according to their learning needs, and these would allow trainee and newly qualified ACPs ongoing access to clinical support. ACP002's insight also reflected their leadership qualities as they indicated that they should be leading and establishing these initiatives. As well as supporting their clinical development this would also support the other pillars of advanced practice (HEE, 2017), something they found difficult to achieve (discussed in Section 6.3).

ACP004 preferred having, *"doctors demonstrating those skills"* and linked this to their problem-solving expertise. Wanting doctors to teach clinical skills could be linked to ACPs' perceived lack of medical support in community settings (discussed in Section 6.3). As ACPs become more experienced they will equally be in a good position to teach. Studies show that senior ACPs are involved in teaching including medical colleagues (Thompson & McNamara, 2021; Williamson et al., 2012). ACP004 reinforces that underpinning theory and clinical reasoning also need to be an integral part of their learning not just the demonstration of skills (Mallinson, 2021). Funding rolling programmes could be problematic when it is difficult to secure funding even for a one-day urgent care training course (discussed in Section 6.3). However, perhaps it might be negotiated with management and professional medical organisations that FY1 doctors on crisis response placements provide some clinical training sessions. Doctors are becoming more aware of the benefits of ACP roles (Evans et al., 2020; Spence, 2019), so this could be a starting point for changing traditional training processes and breaching boundaries to enable further understanding of this role. Rolling programmes might be difficult to embed, given the heavy workload of ACPs in community crisis response teams. These study findings reinforce that training must meet the needs of individual ACPs, so ways must be found to enable it.

6.4.6 Opportunity for practical experience in varied clinical settings

Although refresher courses and rolling programmes might be ways of helping ACPs to maintain their skills, from their accounts what they really wanted was practical experience in different healthcare settings, which is the next stage of this model.

Many papers, one from as far back as 1987, corroborate these findings that nurses in various roles wanted more opportunities to practise physical assessment skills (Brown et al., 1987; Liyew et al., 2020; Mallinson, 2021; Raleigh & Allan, 2016; Schroyen et al., 2005; Skillen et al., 2001; Sony, 1992; Yamauchi, 2001). It has been shown that the more time health professionals spent practising skills, the more their self-confidence increased (Rahmani, 2020) and clinical skills should be taught and learnt in clinical practice (Mallinson, 2021). Thus, it was not surprising that the ACPs in this study suggested that regular ongoing placements in different clinical settings were needed to support them maintaining their skills. They also emphasised the importance of protecting time which was not surprising when time was an identified barrier to their learning (Fothergill et al., 2022; Hooks & Walker, 2020). However, as mentioned earlier, clinical learning needs are different for each ACP and time may need to be negotiated accordingly. The blending of practical experience in clinical environments, refresher courses and rolling programmes could help them optimise and maintain their skills. A visual framework that acknowledges these training areas is likely to gain more recognition to support ACPs' clinical development than merely embedding them as text within this thesis where they could be overlooked (Bobek & Tversky, 2016; Bonsignore, 2019).

ACP007 reflected, *"I'd find it a challenge if I kind of felt like I was being examined on [skills] without support to maintain them"* and this resonated with participants' accounts of limited rehearsal and training opportunities. However, this research was not undertaken to investigate feelings of anxiety about performing physical assessments, but to explore ACPs' understanding of the factors influencing how they maintain these skills and identify how they can be supported. ACP007 also noted they would realise how much they knew which would support their confidence.

6.4.7 Inter-professional learning across advanced practice and medicine

ACP006's reflection suggests that inter-professional learning across medical and advanced practice might be beneficial to ACPs to support their skills. Inter-professional collaboration is key to safe and effective patient care (Bosch & Mansell, 2015), but medical and advanced practice training take place separately. Training shared by doctors and trainee ANPs was found to improve the anatomy and physiology knowledge of both groups, demonstrating the benefits of shared education across different healthcare professions (Estes et al., 2016). Learning was a two-way process and both groups learnt and bounced ideas off each other. Furthermore, there is current focus on inter-professional learning across medicine and advanced practice to

identify ways of supporting ACPs' clinical development (HEE, 2021b), and recognition of the importance of joint learning within this model could further highlight it. As community ACPs are expected to undertake similar high-level clinical decision-making roles as GPs (Evans et al., 2020), having joint clinical training across these professions could provide more robust foundations for maintaining skills. This might challenge hierarchies and some physicians might prefer separate education systems and the feeling of superiority over non-medical professionals. However, inter-professional learning could break down differences in status and professional protectionism and increase ACPs' opportunities for medical supervision.

6.4.8 Formalised clinical supervision from doctors and peers

The concept of having medical mentors was also strongly valued by participants. Medical mentor support aligns with participants' accounts that learning was accelerated when they had good access to doctors (ACP007), whose skills were described as, *"incredibly impressive"* (ACP003) (discussed in Section 6.3). Although doctors have a vast amount of physical examination skills, and knowledge and experience of pathophysiology, many ACPs are also clinically experienced to provide effective supervision (Lee et al., 2023). Furthermore, some medics believe that ANPs demonstrate high degrees of autonomy and professionalism that clearly does not require medical supervision (Thompson & McNamara, 2021). However, having access to supervision from both doctors and ACPs could offer them a more rounded experience and reduce the risk of it being, *"one dimensional"* (ACP002).

Medical supervision could be difficult to access with the GP workforce crisis (a crisis that makes the ACP role more critical). Clinical support could provide space for ACPs to reflect on their physical examination practice, something ACP003 found difficult. Critical reflection is key to challenging clinical practice and increasing self-awareness (Diamond-Fox & Bone, 2021). Lack of supervision time for reflection can leave practitioners having to figure out clinical complexities for themselves. The importance of supervision was highlighted nationally (HEE, 2020c) and locally (GMCA, 2022). A key recommendation in the GMCA study (2022) was for all ACPs in this locality to have regular supervision which corroborates the recommendations in this model.

6.4.9 Valuing and doing research in this area of practice

Participants were hopeful that the findings from this study would open the door to further research and discussion of clinical support for community ACPs. There was almost a feeling of relief when ACP001 was given time to talk about maintaining physical assessment skills: it appeared that this was almost a taboo subject. They were perhaps afraid to speak about potentially stagnating clinically or about the lack of support maintaining their skills for fear of appearing incompetent or damaging the ACP image; they were, after all, expected to be clinical experts. This ACP told me, *"This interview has helped raise my self-awareness of my physical assessment skills"* (ACP001) by giving them time to reflect. ACP002 was hopeful this research is, *"gonna actually pinpoint the fact that there's a massive gap in the market and that [...] something is needed"*. More research is clearly needed in this area of practice to support the challenges raised by the participants in this study particularly when it is the first study exploring the maintaining of these skills. This framework would not be complete without the consideration of doing research which is one the pillars of advanced practice (HEE, 2017). I hope that this study will raise awareness that community ACPs want and deserve support to maintain their skills to do their job. This research offers hard evidence through the findings and the development of a framework that can be used to negotiate future training developments, enhance management's understanding of the clinical responsibility held by community ACPs and, most importantly, help them to maintain their generic physical assessment skills. As one ACP summed up their role:

"There's a lot of clinical risk associated to our role and I think it's really essential that we do have something formal. There's a lot of risk in terms of patients who are at the centre, of what we do." (ACP003)

6.5 Summary

The framework developed from ACPs' innovative ideas and the study recommendations is a welcome necessity for a crucial body of healthcare professionals working in highly autonomous roles, where access to CPD and supervision was found to be challenging. Its approach offers different types of learning opportunity to ensure it supports ACPs with different levels of skill competence, thus its value is in its flexibility. However, areas identified within the model must not become time-consuming tick-box paper exercises and must have relevant workable goals that ACPs can meet within their busy roles.

With increasing pressure on NHS services, with workforce challenges and patients becoming more complex, new ways of supporting health professionals to clinically develop are needed. Yet first we need to gain organisational recognition and understanding of qualified ACPs' roles and training needs. However, ACPs' reflections of their role and the complex patients that they manage give weight to the argument for organisations to support their training needs. A visual framework that acknowledges ACPs' CPD in physical assessments is more likely to gain recognition to support their development (Bonsignore, 2019), and the areas identified in this model can be used to support their CPD at both a national (HEE, 2020c, 2021a, 2021b) and local (GMCA, 2022) level.

Chapter 7 Conclusion

This is the final chapter which brings together a summary of the key findings and evidence generated and discussed in the thesis to achieve the research aims. A critical review of the study's strengths and limitations is provided. The contribution of the study to the body of knowledge and application in practice is restated and the recommendations from the study's findings concludes this thesis.

Using a qualitative interpretivist case study design to generate both perspectives and context, this research explored the concept and application of community ACPs' roles and identified their understanding related to factors influencing the maintaining of their physical assessment skills (Stake, 1995). Three key themes emerged from the analysis of the findings presented in Chapter 5: advanced clinical autonomy; maintaining physical assessment skills: the clinical picture; and opportunity in an inopportune environment. These are discussed in-depth in Chapter 6. The new knowledge generated in this study contributed deep insights into the topic area, and the development of an innovative framework to promote CPD in physical assessment skills.

Community crisis response ACPs perform highly autonomous clinical roles using physical assessment skills to diagnose and treat complex patients in the patients' homes to prevent hospital admissions. It was clear how ACPs valued their skills to holistically assess, identify, and action multiple health needs, showing their wider appreciation of patients as individuals rather than focusing on a presenting symptom or complaint. Each ACP's initiative and ability to work flexibly with high-level autonomy and diagnostic decision-making capability, mirrored the characteristics of advanced practice (HEE, 2017) and demonstrated how they challenged professional boundaries. Findings from this study suggest that, given their diagnostic responsibility and the unpredictability of patient presentation from the referrals they receive, they require wide-ranging physical assessment skills. Although the key focus of this thesis was physical assessment skills, other clinical skills were viewed as important to their role to support their autonomy and diagnostic decisions; these included history taking and clinical reasoning skills. The shortage of GPs further illustrated the value of community ACP roles. ACPs were a new, government-led solution to help manage NHS workforce gaps and rapidly changing healthcare needs; my findings show that new solutions are now required to support them clinically.

Frequently used physical assessment skills, including cardiovascular, respiratory and abdominal, were easier to maintain than those less frequently used, such as neurological, but ACPs experienced difficulty developing some skills during their advanced practice training. However, this also reflected isolated working practices, which challenged opportunities for skill rehearsal and accessibility to medical support and clinical supervision, unlike medical support for ACPs working in acute and general practice settings, which was viewed as being more readily available.

Clearly the professionals I interviewed wanted to achieve their full clinical potential, but they identified huge training gaps and access to clinical supervision post-qualification. To ensure safe patient care, NHS clinical staff receive mandatory updates on procedures such as hand washing, but the ACPs in this study received no formal updates on physical assessment skills. Previous research exploring skill use also indicates a lack of ongoing training in this area of practice (Cicolini et al., 2015; Shi et al., 2020; Shin et al., 2009). Maintaining these skills is also fundamental to delivering safe patient care. Courses on updating physical assessment skills were generally lacking. Interestingly, findings from this and other studies (Evans et al., 2020; Fothergill et al., 2022; Hooks & Walker, 2020) also suggest that CPD was missing in the three other pillars of advanced practice (education, research and leadership). However, if ACPs were not getting the clinical support for roles they described as *"100%"* clinical (ACP004), it is not surprising that maintaining the other three pillars challenged them.

One of the main supportive mechanisms that participants identified was peer support. They valued this not only for their clinical development but also as a channel for feedback, which boosted their confidence. However, they also expressed a need for support from medical colleagues, but this was difficult to access as no formalised arrangements for clinical supervision were embedded. Indeed, ACPs were expected to mentor and share skills and knowledge with a wide range of health professionals, including FY1 doctors and community health professionals, yet they suggested that they were not being professionally supported themselves.

Despite the lack of CPD and clinical supervision opportunities post-qualification, which was evident locally and nationally, participants were keen to advance their clinical practice. Innovative approaches they proposed to support the maintaining of their physical assessment skills included: clinical passports; a generic assessment framework; refresher courses; rolling programmes of physical assessments; inter-professional learning; and medical mentor support.

A framework incorporating ACPs' ideas and the recommendations of this study was developed to support their CPD in the maintaining of their physical assessment skills including those that were infrequently used. However, their preference was having doctors support them with their skills. Yet, as ACPs become more experienced clinically they are now in good positions to teach and supervise. It is important to highlight that training and education need to be individualised, as multi-professional ACPs have different clinical backgrounds, levels of competence and experiences which this framework supports. This model is important as there is no clear framework on how to maintain these skills and keep innovation and training in this area of practice going. Furthermore, it could be used to enhance appraisal and revalidation processes in advanced practice roles.

The busyness of the crisis response environment, unpredictable patient referrals, time constraints and lack of organisational understanding of the ACP role could challenge developing and implementing their innovative ideas. But investing in clinical development could reduce ACPs' worry by providing the reassurance that they are *"doing it right"* in an already very pressured, high-expectation role. Furthermore, the lack of regulation in highly autonomous ACP roles that practise in isolation further strengthens the argument for supporting their clinical development. It is promising that following a review of advanced practice where a patchwork of education and regulatory oversight was identified that new standards for advanced practice are in the process of being approved (NMC, 2022). From their reflections, lifelong learning was at the forefront of ACPs' minds, as they were keen to develop their clinical practice and continue improving patient care.

For advanced practice to move forward change is needed to current ways of thinking and some of the training focus needs to shift to support the increasing body of ACPs who are already qualified. Since the interviews took place there has been some focus on CPD and clinical supervision to support these roles both locally (GMCA, 2022), and nationally (HEE, 2020c, 2021a, 2021b). Findings from this research demonstrating the huge training and supervision gaps and the development of an innovative framework could go some way to supporting this process. However, a collaborative approach between ACPs, managers, GPs, commissioners and university educators is critical to fully support ACPs in maintaining their physical assessment skills and to the future of advanced clinical practice.

"Community ACPs being the future of care, it's really critical we have something in place, so physical assessment skills are maintained (ACP002)".

7.1 Strengths and limitations

This study exemplified the strengths of using an intrinsic case study and thematic analysis approach to gain deep understanding of factors influencing community ACPs maintaining their physical assessment skills, particularly when no primary research existed in this area of practice. Stake's (1995) case study approach allowed for greater consideration of community contextual factors, important when this professional group worked in isolated roles.

Purposive sampling supported the recruitment of ACP participants with experience of physical examination skills to generate rich detailed views. The sample was unique in that no other studies identified in this area of practice (see Appendix 2) involved purely community-based ACPs. The study was not intended to be generalisable, although the in-depth results are useful in understanding similar situations maintaining skills in other healthcare settings (Stake, 1995). The recruitment of ACPs outside of crisis response including the acute sector and primary care was considered, however this would have diluted the community context which was important in relation to factors influencing the maintaining of these skills in isolated settings. Furthermore, community-based studies were limited and most of the studies exploring skill use were conducted in acute or primary care settings. Information in this thesis acknowledged that I was working as a clinician in the crisis response team. It also highlighted that the service had not long been established when recruitment took place and that the ACPs all worked in different clinical settings to the researcher prior to the establishment of crisis response. It was important to acknowledge my role as an ACP and researcher, thus as part of the research process my positionality was explored and measures taken to reduce potential bias and ensure the data was true to ACPs' views. Detailed accounts of the research processes and transparent reflexivity allowed for the judgement of study credibility.

The findings illuminated numerous challenges to maintaining physical assessment skills, but innovative ideas put forward by the ACPs and the study recommendations contributed to the development of a framework that shows how community ACPs can be optimally supported to maintain these skills.

7.2 Contribution to knowledge and application to practice

This study demonstrates how community ACPs work with high levels of autonomy by using their physical assessment skills to assess, diagnose and deliver full episodes of care to patients with complex health needs to prevent hospital admissions. The study highlighted how ACPs

challenged boundaries by managing acutely unwell patients (referred by paramedics) that would otherwise have been admitted, as well as supporting GPs and other services with the management of complex patients. The importance of the community ACP role was further illuminated in this study by the changing demographics, reducing numbers of GPs and overstretched hospital services. This study identified that their roles were purely clinical and that a wide range of physical assessment skills were essential to undertake this generic role.

This study contributed deep insights into factors influencing community based ACPs maintaining their physical assessment skills due to the qualitative case study approach and a purposive sampling strategy to maximise learning opportunity. Peer support, one of the main supportive mechanisms identified, was valued not only for supporting their skills, but also as an important channel for receiving feedback which linked with ACPs' confidence. The knowledge from this study contributed to the identification of clinical training gaps including reduced opportunity to access CPD and clinical supervision and isolated community working practices with reduced opportunities to rehearse skills. These were major factors that challenged the maintaining of their skills. Organisational factors including lack of role understanding and recognition of training needs were also identified issues. This study also illuminated the difficulty some ACPs experienced in developing their skills during their advanced practice training and identified that more clinical support and skills exposure could benefit those working in generic and isolated roles. ACPs' innovative ideas of how they could be supported to maintain their physical assessment skills significantly contributed to the limited body of knowledge in this practice area.

Generating new knowledge that identified gaps in physical assessment skill training and supervision for qualified ACPs together with their innovative ideas and the recommendations from this study contributed to the development of a unique, innovative framework that can be used to promote the maintaining of these skills. No other study has provided a model for clinical development in this area of practice. This model offers different types of learning opportunities, which is key as ACPs were found to have different levels of skill competence. The model could be used to inform training and development planning at individual, organisational and national level. Although the study explored ACPs' skills it could also inform other NHS clinical roles that are embarking on physical assessment skills training and will subsequently need to maintain their skills.

7.3 Recommendations

More consideration is required in advanced practice training so that ACPs working in isolated community roles are fully supported to develop and embed wide ranges of physical assessment skills to perform their generic roles. More time spent embedding skills during training could support the maintaining of these skills long-term. Formal clinical training mechanisms built into qualified ACPs' roles are recommended in order to support the ongoing clinical development and maintaining of their skills such as those identified within the innovative framework.

More opportunity for ACPs to access physical assessment skill refresher courses and practical experience on a regular basis in varied clinical settings to support their knowledge and skills development is needed. Formalised time-protected supervision of clinical practice from doctors and peers, including supported joint patient visits and opportunities to reflect on and learn from their practice is also proposed. Inter-professional learning for doctors and ACPs where they can share their physical assessment knowledge, skills and experiences to support clinical development is also recommended. Increased organisational understanding of community ACP roles and recognition of their training needs is required to support their clinical development. More research would support the lack of knowledge in this area of practice and could be used to demonstrate to organisations that clinical training is still a requirement after ACPs have qualified to support them to optimise and maintain their physical assessment skills.

References

Aamodt, A. M. (1982). Examining ethnography for nurse researchers. *Western Journal of Nursing Research*, *4*(2), 209–220.

Abrandt Dahlgren, M., Valeskog, K., Johansson K., & Edelbring, S. (2022). Understanding clinical reasoning: a phenomenographic study with entry-level physiotherapy students. *Physiotherapy Theory and Practice, 38*(13), 2817-2826.

Ackley, B. J., Ladwig, G. B., Swan, B. A., & Tucker, S. J. (2008). *Evidence-based nursing care guidelines: medical-surgical interventions*. St. Louis: Mosby Elsevier.

Adib-Hajbagher, M., & Safa, A. (2013). Nurses' evaluation of their use and mastery in health assessment skills: selected Iran's hospitals. *Nursing Midwifery Studies*, *2*(3), 39–43.

Advanced Practice Registered Nurse Joint Dialogue Group. (2008). Consensus model for APRN regulation: licensure, accreditation, certification & education. Retrieved 10 April, 2019, from http://www.ncsbn.org/736.htm

Alamri, M.S., & Almazan, J.U. (2018). Barriers of physical assessment skills among nursing students in Arab Peninsula. *International Journal of Health Sciences, 12*(3), 58-66.

Aldridge-Bent, S. (2011). Advanced physical assessment skills: implementation of a module. *British Journal of Community Nursing*, *16*(2), 84–88.

Alotaibi, T., & Al Anizi, C. A. (2020). The impact of advanced nurse practitioner (ANP) role on adult patients with cancer: a qualitative systematic review. *Applied Nursing Research, 56*, 2–13.

Altmiller, G. (2012). The role of constructive feedback in patient safety and continuous quality improvement. *Nursing Clinics of North America*, *47*(3), 365–374.

American Nurses Association. (2017). The nursing process. Retrieved 10 May, 2019, from http://www.nursingworld.org/practice-policy/workforce/what-is-nursing/the-nursing-process/.

Anikin, A., Bååth, R., & Persson, T. (2018). Human non-linguistic vocal repertoire: call types and their meaning. *Journal of Nonverbal Behaviour, 42*(1), 53-80. http://doi.org/10.1007/s10919-017-0267-y.

Arcury, T. A., & Quandt, S. A. (1999). Participant recruitment for qualitative research: a site-based approach to community research in complex societies. *Human Organisation*, *58*(2), 128–133.

Aronowitz, T., Aronowitz, S., Mardin-Small, J., & Kim, B. (2017). Using objective structured clinical examination (OSCE) as education in advanced practice registered nursing education. *Journal of Professional Nursing, 33*(2), 119-125.

Asif, T., Mohiuddin, A., Hasan, B., & Pauly, R.R. (2017). Importance of thorough physical examination: a lost art. *Cureus, 9*(5), 1212. http://doi.org/10.7759/ cureus.1212.

Baid, H. (2006). The process of conducting a physical assessment: a nursing perspective. *British Journal of Nursing, 15*(13), 710-714.

Baid, H. (2009). The process of conducting a physical assessment: a nursing perspective. *British Journal of Nursing, 15*(13), 710-714.

Baileff, A. (2015). The role of advanced nurse practitioners. Retrieved 1 February, 2023, from http://www.nursinginpractice.com/professional/the-role-of-advanced-nurse-practitioners/.

Bailey, J. (2008). First steps in qualitative data analysis: transcribing. *Family Practice*, *25*(2), 127–131.

Barratt, J. (2018). Developing clinical reasoning and effective communication skills in advanced practice. *Nursing Standard, 34*(2), 37-44. doi: 10.7748/ns.2018.e11109.

Barrett, L., Robinson, E., & Molloy, A. (2018). Role development: community matrons. Retrieved from http://www.research-matters.co.uk/wp-content/uploads/2018/11/Community-Matrons-QIES-Jan-2018.pdf.

Barrow, J. (2015). How AHPs are working differently to support transformation of services in the North West (project report). Retrieved 1 February, 2023, from: http://vdocument.in/how-ahps-are-working-differently-to-support-transformation-how-ahps-are-working.html.

Barrows J. (1985). Factors affecting ED nurses' performance of physical assessment skills. *Journal of Emergency Nursing*, *11*(2), 80–84.

Barton, T. D., & Allan, D. (2015). *Advanced nursing practice: changing healthcare in a changing world*. London: Palgrave.

Barton, T. D., & East, L. (2015). The evolution of advanced nursing practice. In T. D. Barton & D. Allan (Eds.), *Advanced nursing practice: changing healthcare in a changing world* (pp. 1–20). London: Palgrave.

Bazeley, P. (2013). *Qualitative data analysis: practical strategies*. London: Sage.

Beauchamp, T.L., & Childress, J.F. (2019) *Principles of biomedical ethics*. (8th ed.). Oxford: Oxford University Press.

Beech, J., Bottery, S., Charlesworth, A., Evans, H., Gershlick, B., Hemmings, N., … Palmer, B. (2019). Closing the gap: key areas for action on the health and care workforce. Retrieved from http://www.kingsfund.org.uk/sites/default/files/2019-03/closing-the-gap-health-care-workforce-full-report.pdf.

Beeching, N. J., Fletcher, T. E., & Fowler, R. (2020). *BMJ best practice: coronavirus disease 2019 (COVID-19)*. London: British Medical Journal.

Beecroft, C., Booth, A., & Rees, A. (2015). Finding the evidence. In K. Gerrish & A. Lacy (Eds.), *The research process in nursing* (pp. 89–104). Oxford: Wiley Blackwell.

Bell, J., & Waters, S. (2014). *Doing your research project: a guide for first-time researchers* (6th ed.). Maidenhead: Open University Press.

Benner, P. (1982). From novice to expert. *American Journal of Nursing*, *82*(3), 402–407.

Benner, P., Tanner, C., & Chesla, C. (1992). From beginner to expert: gaining a differentiated clinical world in critical care nursing. *Advances in Nursing Science*, *14*(3), 13–28.

Bhardwa, S. (2016). Scotland to increase advanced nurse practitioners by 500. Retrieved 3 March, 2019, from http://www.independentnurse.co.uk/news/scotland-to-increase-advanced-nurse-practitioners-by-500/115232

Bickley, L. (2020). *Bates guide to physical examination and history taking* (12th ed.). Philadelphia: Wolters Kluwer.

Birks, M., Cant, R., James, A., Chung, C., & Davis, J. (2013). The use of physical assessment skills by registered nurses in Australia: issues for nursing education. *Collegian*, *20*(1), 27–33.

Birt, L, Scott, S, Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: a tool to enhance trustworthiness or merry a nod to validation. *Qualitative Health Research*, *26*(3), 1802–1811.

Biscoe, E. (2016). Advanced nurse practitioners (ANPs) in primary care. Retrieved 3 March, 2019, from http://www.medeconomics.co.uk/article/1385435/cqc-essentials-advanced-nurse-practitioners-anps-primary-care

Bobek, E., & Tversky, B. (2016). Creating visual explanations improves learning. *Cognitive Research Principles Implications, 1*(27), 1-14. doi: 10.1186/s41235-016-0031-6.

Bonsignore, M. (2019). Using visual language to create the case for change. Retrieved 1 February, 2023 from http://www.amanet.org/articles/using-visual-language-to-create-the-case-for-change/.

Bosch, B., & Mansell, H. (2015). Inter-professional collaboration in health care. *Canadian Pharmacists Journal, 148*(4), 176-179.

Bostock, N. (2017). Exclusive: high numbers of patients over 65 put pressure on under doctored areas. Retrieved 10 January, 2021, from http://www.gponline.com/exclusive-high-numbers-patients-65-put-pressure-underdoctored-areas/article/1421363

Bowling, A. (2014). *Research methods in health: investigating health and health services*. (4th ed.). Maidenhead: Open University Press.

Boyatzis, R. E. (1998). *Transforming qualitative information: thematic analysis and code development*. London: Sage Publications.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Braun, V., & Clarke, V. (2013). *Successful qualitative research: a practical guide for beginners*. London: Sage Publications Ltd.

Bregger, J., Nystad, W., Cappelen, I., & Bakke, P. (2007). No increase in response rate by adding a web response option to a postal population survey: a randomised trial. *Journal of Medical Internet Research*, *9*(5), 40–53.

Brinkmann, S., & Kvale, S. (2014). *Interviews: learning the craft of qualitative research interviewing* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Brown, M. C., Brown, J. D., & Bayaer, M. M. (1987). Changing nursing practice through continuing education in physical assessment: perceived barriers to implementation. *The Journal of Continuing Education in Nursing*, *18*(4), 111–115.

Buchan, J., Charlesworth, A., Gershlick, B., & Seccombe, I. (2019). *A critical moment: NHS staffing trends, retention and attrition.* London: The Health Foundation.

Burns, E., Fenwick, J., Schmied, V., & Sheehan, A. (2012). Reflexivity in midwifery research: the insider/outsider debate. *Midwifery*, *28*(2012), 52–60.

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity International Journal of Methodology, 56*(3),1391-1412. http://doi.org/10.1007/s11135-021-01182-y.

Caine, R., & Wynne, C. (2016). Advanced practitioner physiotherapists in primary care: a new era. *Physiotherapy, 102*(1), 142.

Cairns, L., & Stephenson, J. (2009). *Capable workplace learning.* Rotterdam: Sense Publishers.

Canadian Nurses Association (CNA) (2023). Nurse Practitioners. Retrieved 1 February 2023, from http://cna-aiic.ca/en/professional-development/advanced-nursing-practice/nurse-practitioners.

Carfì, A., Bernabei, R., & Landi, F. (2020). Persistent symptoms in patients after acute COVID-19. *Journal of the American Medical Association, 324*(6): 603–605.

Chadwick, A., & Murphy, N. (2019). An exploration of providing mental health skills in a generic advanced clinical practice programme. *British Journal or Nursing*, *28*(13), 842–847.

Chen, N., Zhou, M., Dong, X., Jieming, Q., Gong, F., Han, Y., … Zhang, I. (2020). Epidemiological and clinical characteristics of 99 case of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *The Lancet*, *395*(10223), 507–13.

Chong, Y., Han, S. J., Rhee, Y. J., Kang, S. K., Yu, J. H., & Na, H. M. (2016). Classic periphery signs of subacute bacterial endocarditis. *The Korean Journal of Thoracic & Cardiovascular Surgery*, *49*(5), 408–412.

Cicolini, G., Tomietto, M., Simonettis, V., Comparcini, D., Flacco, ME., Carvel, M., & Manzoni, L. (2015). Physical assessment techniques performed by Italian registered nurses: a quantitative survey. *Journal of Clinical Nursing*, *24*(23), 3700–3706.

CNO Directorate, Scottish Government. (2008). *Supporting the development of advanced nursing practice: a toolkit approach*. Retrieved from http://www.advancedpractice.scot.nhs.uk/media/1371/supporting%20the%20development%20of%20advanced%20nursing%20practice.pdf

College of Paramedics. (2019). Paramedic specialist in primary and urgent are core capabilities framework. Retrieved from http://www.hee.nhs.uk/sites/default/files/documents/Paramedic%20Specialist%20in%20Primary%20and%20Urgent%20Care%20Core%20Capabilities%20Framework.pdf

College of Paramedics. (2021). HEE announce new road map to advanced practice in primary care. Retrieved 1 February, 2022, from http://collegeofparamedics.co.uk/COP/Blog_Content/HEE_announce_new_road_map_to_advanced_practice_in_primary_care.aspx

Colwell, C. B., & Smith, J. (1985). Determining the use of physical assessment skills in the clinical setting. *Journal of Nursing Education, 24*(8), 333–339.

Coombes, R. (2008). Dr Nurse will see you now. *British Medical Journal, 307*(7669), 660-662.

Coombes, M. A., & Moorse, S.E. (2002). Physical assessment skills: a developing dimension of clinical nursing practice. *Intensive and Critical Care Nursing, 18*, 200–210.

Coronaviridae Study Group of the International Committee on Taxonomy of Viruses. (2020). The species severe acute respiratory syndrome-related coronavirus: classifying 2019-nCoV and naming it SARS-CoV-2. *Nature Microbiology*, *5*(4), 536–44.

Cottrell, L., Holland, J., & Nicol, B. (2019). *Red refusal pathway: crisis response service central Manchester*. Manchester: Manchester Local Care Organisation.

Creswell, J. W. (2017). *Qualitative inquiry & design: choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Creta, M., Sagnelli, C., Celentano, G, Napolitano, L., La Rocca, R., Capece, M., … Longo, N. (2021). SARS-CoV-2 infection affects the lower urinary tract and male genital system: a systematic review. *Journal Medical Virology*, *93*(5), 3133–3342.

Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. London: Sage Publications.

Cullinane, M., Finally, G., Hargraves, C., & Lucas, S. (2005). *An acute problem.* London: National Confidential Enquiry into Patient Outcome and Death.

Dadds, M. (2008). Empathetic validity in practitioner research. *Educational Action Research, 16*(2), 279–290.

Dannetun, E., Tegnell, A., & Giesecke, J. (2007). Parents' attitudes towards hepatitis B vaccination for their children: a survey comparing paper and web questionnaires. *BMC Public Health*, *7*(86), 1–7. doi:10.1186/1471-2458-7-86

DeJonckheere, M., & Vaughn, L.M. (2019). Semi-structured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine Community Health*, *7*(2), 1-8. doi:10.1136/ fmch-2018-000057.

Department of Health. (2004). *The NHS improvement plan.* London: Department of Health.

Department of Health. (2005a). *Supporting people with long-term conditions: an NHS and social care model to support local innovation and integration*. London: Department of Health.

Department of Health. (2005b). *Supporting people with long-term conditions: liberating the talents of nurse who care for people with long term conditions*. London: Department of Health.

Department of Health. (2009). *Transforming community services: ambition, action, achievement*. London: Department of Health.

Department of Health. (2010). *Advanced level nursing: a position statement.* Leeds: Department of Health.

Department of Health. (2011). *Enabling excellence: autonomy and accountability for healthcare workers, social workers and social care workers*. London: Department of Health.

Department of Health. (2019). *The NHS Long Term Plan.* Retrieved from http://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf.

Diamond-Fox, S., & Bone, H. (2021). Advanced practice: critical thinking and clinical reasoning. *British Journal of Nursing*, *30*(9), 526–532.

Dillman, D. A. (2000). *Mail and internet surveys: the tailored design method*. New York: John Wiley & Sons.

Douglas, C., Osborne, S., Reid, C., Batch, M., Hollingdrake, O., & Gardner, G. (2014). What factors influence nurses' assessment practices? Development of the Barriers to Nurses' Use of Physical Assessment Scale. *Journal of Advanced Nursing*, *70*(11), 2683–2694.

Downes, C., & Pemberton, J. (2009). Developing a community matron service: a neighbourhood model. *Nursing Standard*, *23*(44), 35–38.

Dreyer, K., Parry, W., Jayatunga, W., & Deeny, S. (2019). A descriptive analysis of health care use by high cost, high need patients in England. Retrieved 1 February, 2023, from http://www.health.org.uk/publications/a-descriptive-analysis-of-health-care-use-by-high-cost-high-need-patients-in-england.

Duke, N. (2012). Exploring advanced nursing practice: past, present and future. *British Journal of Nursing*, *21*(17), 1026–1030.

East, L., Knowles, K., Pettman, M., & Fisher, L. (2015). Advanced level nursing in England: organisational challenges and opportunities. *Journal of Nursing Management*, *23*(8), 1011–1019.

Edmunds, L., Ward, S., & Barnes, R. (2010). The use of advanced physical assessment skills by cardiac nurses. *British Journal of Nursing*, *19*(5), 282–287.

Elkind, D. (2004). The problem with constructivism. *The Educational Forum 68*(4), 306–312.

Estes, K. R., Robinson, M. V., & Madigosky, W. (2016). Advanced practice nursing students' perspectives of an interprofessional advanced physical assessment learning experience. *The Journal for Nurse Practitioners*, *12*(5), e219–e224.

Eva, KW. (2005). What every teacher needs to know about clinical reasoning. *Medical Education 39*(1), 98-106.

Evans, N. (2016). Close to the tipping point. *Emergency Nurse*, *24*(7), 8–9.

Evans, C., Pearce, R., Greaves, S., & Blake, H. (2020). Advanced clinical practitioners in primary care in the UK: a qualitative study of workforce transformation. *International Journal of Environmental Research and Public Health*, *17*(12), 4500.

Evans, C., Poku, B., Pearce, R., Eldridge, J., Hendrick, P., Knaggs, R. … Collier, R. (2021). Characterising the outcomes, impacts and implementation challenges of advanced clinical practice roles in the UK: a scoping review. *British Medical Journal, 11*(8), 1-18. doi:10.1136/ bmjopen-2020-048171.

Executive Agency for Health Consumers. (2013). Study concerning the review and mapping of continuous professional development and lifelong learning for health professionals in the European Union. Retrieved from http://ec.europa.eu/health//sites/health/files/workforce/docs/cpd_mapping_ report_en.pdf.

Fennessey, G. (2016). The relationship of burnout, work environment, and knowledge to self-reported performance of physical assessment by registered nurses. *MedSurg Nursing*, *25*(5), 346–350.

Fennessey, A., & Wittmann-Price, A. (2011). Physical assessment: a continuing need for clarification. Nursing *Forum*, *46*(1), 45-50.

Fink, A. (2010). *Conducting research literature reviews: from the internet to paper* (3rd ed.). Los Angeles: Sage Publications.

Fink, A. (2019). *Conducting research literature reviews: from the internet to paper* (5th ed.). Los Angeles: Sage Publications.

Fitzpatrick, J. (2007). Finding the research for evidence-based practice – part two: selecting credible evidence. *Nursing Times*, *103(*17), 32–33.

Fontenot, N.M., Hamlin, S.K., Hooker, S.J., Vazquez, T., & Chen, H.M. (2022). Physical assessment competencies for nurses: a quality improvement initiative. *Nursing Forum, 57*(4), 710-716. doi: 10.1111/nuf.12725.

Ford, S. (2016). Nurse practitioners facing 'rise in claims and complaints'. Retrieved 6 January, 2019, from http://www.nursingtimes.net/news/primary-care/nurse-practitioners-facing-rise-in-claims-and-complaints/7002464.article.

Fothergill, L.J., Al-Oraibi, A., Houdmont, J., Conway, J., Evans, C., Timmons, S. … Blake, H. (2022). Nationwide evaluation of the advanced clinical practitioner role in England: a cross-sectional survey. *British Medical Journal, 12*(1), 1-10. doi:10.1136/bmjopen-2021-055475.

Friebel, R. (2018). Trends in the number of English NHS hospital admission, 2006-2016. Retrieved 3 June, 2019, from http://www.health.org.uk/chart/chart-trends-in-the-number-of-english-nhs-hospital-admissions-2006-to-2016

Gardner, G., Duffield, C., Doubrovsky, A., & Adams, M. (2016). Identifying advanced practice: a national survey of a nursing workforce. *International Journal of Nursing Studies*, *55*, 60–70.

Garibaldi, B.T., & Elder, A. (2021). Seven reasons why the physical examination remains important. *The Journal of the Royal College of Physicians of Edinburgh, 51*(3), 211-214. doi: 10.4997/JRCPE.2021.301.

Garton, S., & Copland, F. (2010). I like this interview, I get cakes and cats!: the effect of prior relationships or interview talk. *Qualitative Research*, *10*(5), 533–551.

Gaskell, L., Beaton, S., & Neville, L. (2015). Advanced nursing practice: education for competence. In T. D. Barton & D. Allan (Eds.), *Advanced nursing practice: changing healthcare in a changing world* (pp. 50–86). London: Palgrave.

Gassas, R. (2021). Sources of the knowledge-practice gap in nursing: lessons from an integrative review. *Nurse Education Today, 106*, 1-9. http://doi.org/10.1016/j.nedt.2021.105095.

General Medical Council. (2018). *Guidance for doctors: requirements for revalidation and maintaining your licence*. Manchester: General Medical Council.

General Medical Council. (2023). Becoming a doctor in the UK. Retrieved 1 February, 2023, from http://www.gmc-uk.org/education/becoming-a-doctor-in-the-uk.

Gibson, J.A., Grey, I.M., & Hastings, R.P. (2009). Supervisor support as a predictor of burnout and therapeutic self-efficacy in therapists working in ABA schools. *Journal of Autism & Developmental Disorders*, *39*(7), 1024–1030.

Giddens, J. (2006). Comparing the frequency of physical examination techniques performed by associate and baccalaureate degree prepared nurses in clinical practice: does education make a difference? *Journal of Nursing Education*, *45*(3), 136–139.

Giddens, J. (2007). A survey of physical assessment techniques performed by RNs: lessons for nursing education. *Journal of Nursing Education*, *46*(2), 83–87.

Glendinning, A., & Walker, D. (2019). Advanced nurse practitioners: what do the team think? *Future Healthcare Journal, 6*(2), 1. doi: https://doi.org/10.7861/futurehealth.6-2-s1.

Gloster, A., & Leigh, J. (2021). The knowledge and skills required of advanced level practitioners for accreditation and safe practice. *British Journal of Nursing, 30*(3), 168-171.

Gloster, A.S., Tomlins, L., & Murphy, N. (2020). Experiences of advanced clinical practitioners in training and their supervisors in primary care using a hub and spoke model. Retrieved 29 August, 20020, from http://usir.salford.ac.uk/id/eprint/57906/.

Goemaes, R., Beeckman, D., Goossens, J., Shawe, J., Verhaeghe, S., & Van Hecke, A. (2016). Advanced midwifery practice: an evolutionary concept analysis. *Midwifery*, *42*, 29–37.

Goodwin, N., & Smith, J. (2011). The evidence base for integrated care. Retrieved from http://www.kingsfund.org.uk/sites/default/files/Evidence-base-integrated-care2.pdf

Grant, M. C., Geoghegan, L., Arbyn, M., Mohammed, Z., McGuinness, L., Clarke, E. L., & Wade, R. G. (2020).The prevalence of symptoms in 24,410 adults infected by the novel coronavirus (SARS-CoV-2; COVID-19): a systematic review and meta-analysis of 148 studies from 9 countries. *PLoS One*, *15*(6), e0234765.

Gray, D. E. (2017). *Doing research in the real world* (4th ed.). London: Sage Publications Ltd.

Gray, J. R., Grove, S. K., & Sutherland, S. (2016). *The practice of nursing research: appraisal, synthesis and generation of evidence* (8th ed.). St Louis: Elsevier.

Grbich, C. (1999). *Qualitative research in health: an introduction*. London: Sage Publications.

Greater Manchester Combined Authority. (2015). Taking charge of our health and social care in Greater Manchester: the plan. Retrieved from http://www.greatermanchester-ca.gov.uk/media/1120/taking-charge-of-our-health-and-social-care-plan.pdf.

Greater Manchester Combined Authority. (2022). *Advanced clinical practice supervision project report.* Manchester: Greater Manchester Combined Authority.

Greater Manchester Training Hub. (2021). Continuing professional development. Retrieved 1 February, 2023, from http://www.gmthub.co.uk/offers/cpd.

Greenhalgh, T. (2019). *How to read a paper: the basics of evidenced-based medicine and healthcare*. (6th ed.). Oxford: Wiley Blackwell.

Greenhalgh, T., & Peacock, R. (2005). Effectiveness and efficiency of search methods in systematic review of complex evidence: audit of primary sources. *British Medical Journal*, *3331*(1064), 1054–1065.

Griffiths, F. (2009). *Research methods for health care practice*. London: Sage Publications Ltd.

Guba, E.G. (1981). Criteria for assessing the trustworthiness of naturalistic inquires. *Educational Communications and Technology*, *29*(2), 75–91.

Guba, E. G., & Lincoln, Y. (1989). *Fourth generation evaluation.* Newbury Park, CA: Sage.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (3rd ed.) (pp. 105–117). Thousand Oaks, CA: Sage Publications.

Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (3rd ed.) (pp. 191–215). Thousand Oaks, CA: Sage Publications.

Hardy, M. (2021). Advanced practice: research report. Retrieved from http://www.hcpc-uk.org/globalassets/resources/policy/independent-research-report-advanced-practice-27th-january-2021.pdf

Hawthorne, K. (2023). General practice reduces pressures across NHS - but must be resourced and staffed to fulfils this function. Retrieved 1 February, 2023, from http://www.rcgp.org.uk/News/General-practice-reduces-pressures.

Head, A., Fleming, K., Kypridemos, C., Schofield, P., & Pearson-Stuttard, J., (2021). Inequalities in incidentt and prevalent multi-morbidity in England, 2004-19: a population-based descriptive study. *The Lancet, 2*(8), E489-E497. http://doi.org/10.1016/S2666-7568(21)00146-X.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidenced Based Nursing*, *18*(3), 66–67.

Health & Care Professionals Council. (2016). Standards of conduct, performance and ethics. Retrieved from *http://www.hcpc-uk.org/globalassets/resources/standards/standards-of-conduct-performance-and-ethics.pdf*

Health Education England. (2017). Multi-professional framework for advanced clinical practice in England. Retrieved http://www.hee.nhs.uk/sites/default/files/documents/multi-professionalframeworkforadvancedclinicalpracticeinengland.pdf.

Health Education England. (2018). Musculoskeletal core capabilities framework for first point of contact practitioners. Retrieved from http://www.csp.org.uk/system/files/musculoskeletal_framework2.pdf.

Health Education England. (2019). Advancing pharmacy education and training: a review. Retrieved from http://www.hee.nhs.uk/sites/default/files/documents/Advancing%20Pharmacy%20Education%20and%20Training%20Review.pdf.

Health Education England. (2020a). Core capabilities framework for ACP (nurses) working in general practice / primary care in England. Retrieved from http://www.hee.nhs.uk/sites/default/files/documents/ACP%20Primary%20Care%20Nurse%20Fwk%202020.pdf

Health Education England. (2020b). The Centre for Advancing Practice: standards of education and training (SET) for advanced practice programmes learning to programme recognition with the centre for advancing practice. Retrieved from http://www.hee.nhs.uk/sites/default/files/documents/June%202020%20SET%20Existing%20programmes%20%282%29.pdf

Health Education England. (2020c). The Centre for Advancing Practice: workplace supervision for advanced clinical practice: an integrated multi-professional approach for practitioner development. Retrieved from http://www.hee.nhs.uk/sites/default/files/documents/Workplace%20Supervision%20for%20ACPs.pdf.

Health Education England. (2021a). A new e-Portfolio for advanced practitioners launched today. Retrieved 1 February 2023, from http://www.hee.nhs.uk/news-blogs-events/news/new-e-portfolio-advanced-practitioners-launched-today.

Health Education England. (2021b). Advancing practice: signpost for continuing professional development. Retrieved 1 February, 2023, from http://advanced-practice.hee.nhs.uk/signpost-for-continuing-professional-development/.

Health Education England. (2022a). e-Portfolio (supported) route: advanced practitioners applicants' guidance. Retrieved 1 February, 2023, from http://healtheducationengland.sharepoint.com/sites/APWC/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FAPWC%2FShared%20Documents%2FePortfolio%20%28supported%29%20Route%2FAdvanced%20Practitioner%20Applicants'%20Guidance%2Epdf&parent=%2Fsites%2FAPWC%2FShared%20Documents%2FePortfolio%20%28supported%29%20Route&p=true&ga=1.

Health Education England. (2022b). Advanced clinical practice programme handbook 2022/2023. Retrieved from http://advanced-practice.hee.nhs.uk/wp-content/uploads/sites/28/2022/03/Handbook-2022-23-1.pdf.

Heeyoung, O., Jiyeon, L., & Kyung, K. E. (2012). Perceived competency, frequency, training needs in physical assessment among registered nurses. *Korean Journal of Adult Nursing*, *24*(6), 627–634.

Heidegger, M. (1962). *Being and time*. New York: Harper.

Hill, B., & Diamond-Fox, S. (2022). *Advanced clinical practice at a glance*. Oxford: Wiley Blackwell.

Ho, G.J., Liew, S.M., Ng, C.K., Shunmugam, R.H., & Glasziou, P. (2016). Development of a search strategy for an evidence-based retrieval service. *PLoS One, 11*(12), 1-14. doi: 10.1371/journal.pone.0167170

Holloway, I. (1997). *Basic concepts for qualitative research*. Oxford: Blackwell Publishing Company.

Holmes, A. G. D. (2020). Researcher positionality: a consideration of its influence and place in qualitative research: a new researcher guide. *International Journal of Education, 8*(4), 1–10.

Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS Medicine, 7*(7), e1000316.

Hooks, C., & Walker, S. (2020). An exploration of the role of advanced clinical practitioners in the East of England. *British Journal of Nursing, 29*(15), 864–869.

Hunt, L. (2016). Advanced practitioners may have general surgery role. *Emergency Nurse, 24*(2), 8–9.

Hunter, S. (2005). Negotiating professional and social voices in research principles and practice. *Journal of Social Work Practice, 19*(2), 149–162.

Imison, C., Castle-Clarke, S., & Watson, R. (2016). *Reshaping the workforce to deliver the care patients need.* London: Nuffield Trust.

International Council of Nurses. (2008). *The scope of practice, standards and competencies of the advanced practice nurse*. Geneva: International Council of Nurses.

International Council of Nurses. (2020). Guidelines on advanced practice nursing 2020. Retrieved from http://www.icn.ch/system/files/documents/2020-04/ICN_APN%20Report_EN_WEB.pdf.

Jackson, E. (2013). Choosing a methodology: philosophical underpinning. *Practitioner Research in Higher Education Journal, 7*(1), 49–62.

Jacob, E., Duffield, C., & Jacob, D. (2017). A protocol for the development of a critical thinking assessment tool for nurses using a Delphi technique. *Journal of Advanced Nursing, 73*(8), 1982-1988. http://doi.org/10.1111/jan.13306.

Jain, B. (2017). The key role of differential diagnosis in diagnosis. *Diagnosis, 27*(4), 239-240. doi: 10.1515/dx-2017-0005.

Jain, R., & Jain, Y. (2021). The importance of physical examination in primary health care provided by non-physician heath workers is being treated in COVID19 times. *Journal of Family Medicine and Primary Care, 10*(1), 19-21.

Jarvis, C. (2003). *Physical examination and health assessment* (4th ed.). Philadelphia: Saunders.

Jarvis, C., & Eckhardt, A. (2023). *Physical examination and health assessment* (9th ed.). Toronto: Elsevier.

Joint Formulary Committee. (2021). *BNF 81: March – September 2021*. London: Pharmaceutical Press.

Jones, A., Powell, T., Watkins, D., & Kelly, D. (2015). Realising their potential? Exploring interprofessional perceptions and potential of the advanced practitioner role: a qualitative analysis. *British Medical Journal, 5*(12), e009740.

Jones, D., Dunn, L., Watt, I., & Macleod, U. (2019) Safety netting for primary care: evidence from a literature review. *British Journal of General Practice, 69*(678), 70-70. http://doi.org/10.3399/bjgp18X700193.

Kang, J.S., & Min, H.Y. (2019). Psychological safety in nursing simulation. *Nurse Education, 44*(2), 6–9.

Kicklighter, T., Barnum, M., Geisler, E., & Martin, M. (2016). Validation of the quantitative diagnostic thinking inventory for athletic training: a pilot study. *Athletic Training Educational Journal, 11*(1), 58-67. http://dio.org/10/4085/110158.

Kilty, C., Wiese, A., Bergin, C., Flood, P., Fu, N., Horgan, M., … Bennett, D. (2017). A national stakeholder consensus study of challenges and priorities for clinical learning environments in postgraduate medical education. *BMC Medical Education, 17*(1): 226.

King, N., Horrocks, C., & Brooks, J. (2019). *Interviews in qualitative research* (2nd ed.). London: Sage Publications Ltd.

King, R., Tod, A., & Sanders, T. (2017). Development and regulation of advanced nurse practitioners in the UK and internationally. *Nursing Standard*, *32*(14), 43–50.

Kinley, H., Czoski-Murray, C., George, S., McCabe, C., Primrose, J., Reilly, C., … Thomas, E. (2002). Effectiveness of appropriately trained nurses in preoperative assessment: randomised controlled equivalence/non-inferiority trial. *British Medical Journal*, *325*(7376), 1323.

Kivunja, C., & Kuyini, A.B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education, 6*(5), 26-41.

Koch, T. (1994). Establishing rigour in qualitative research: the decision trail. *Journal of Advanced Nursing, 19*(5), 976–986.

Koch, T. (2006). Establishing rigour in qualitative research: the decision trail. *Journal of Advanced Nursing, 53*(1), 91–100.

Kohtz, C., Brown, S. C., Williams, R., & O'Connor, A. (2017). Physical assessment techniques in nursing education: a replicated study. *Journal of Nursing Education*, *56*(5), 287–291.

Kraus, E., & DuBois, J.M. (2017). Knowing your limits: a qualitative study of physician and nurse practitioner perspectives on NP independence in primary care. *Journal of General Internal Medicine, 32*(3), 284-290.

Kreeftenberg, H. G., Aarts, J. T., Bindels, A. J. G. H., van der Meer, N. J. M., & van der Voort, P. H. J. (2020). Procedures performed by advanced practice providers compared with medical residents in the ICU: a prospective observational study. *Critical Care Explorations*, *2*(4), e0101.

Krueger, R.A., & Casey, M.A. (2015). *Focus groups: a practical guide for applied research*. (5th ed.). Thousand Oaks: Sage Publications Ltd.

Lai, J.H., Cheng K.H., Wu, Y.J., & Lin, C.C. (2022). Assessing clinical reasoning ability in fourth-year medical students. *BMC Medical Education, 573*, 1-7. http://doi.org/10.1186/s12909-022-03649-4.

Launder, M. (2022a). NMC to consider regulating advanced practice this year. Retrieved 31 January 2023, from http://www.nursinginpractice.com/latest-news/nmc-to-consider-regulating-advanced-practice-this-year/.

Launder, M. (2022b). Nurse practitioners face similar legal investigation to doctors, say indemnity experts. Retrieved 1 February, 2023, from http://www.nursinginpractice.com/latest-news/nurse-practitioners-face-similar-legal-investigations-to-doctors-say-indemnity-experts/.

Laurant, M., van der Biezen, M., Wijers, N., Watananirun, K., Kontopantelis, E., & van Vught, A. J. (2018). Nurses as substitutes for doctors in primary care. *Cochrane Database of Systematic Reviews, 7*(7), 1-108. http:// doi.org/10.1002/14651858.CD001271.pub3.

Lavery, J. (2022). Observed structured clinical examination as a means of assessing clinical skills competencies of ANPs. *British Journal of Nursing, 31*(4), 214-220. http://doi.org/10.12968/bjon.2022.31.4.214.

Lawler, J., Maclaine, K., & Leary, A. (2020). Workforce experience of the implementation of an advanced clinical practice framework in England: a mixed methods evaluation. *Human Resources for Health*, *18*(96), 2–11.

Leary, A., Maclaine, K., Trevatt, P., Radford, M., & Punshon, G. (2017). Variation in job titles within the nursing workforce. *Journal of Clinical Nursing, 26*(23–24), 4945–4950.

Lee, G.A., Baker, E.E., Stewart, C., & Raleigh, M. (2023). Advanced practice and clinical supervision: an exploration of perceived facilitators and barriers in practice. *Journal of Clinical Nursing, 32*(5), 780-788.

Li, Y., Li, N., Han, Q., He, S., Bae, R.S., Liu, Z., … Shi, B. (2014). Performance of physical examination skills in medical students during diagnostic medicine course in a university hospital of Northwest China. *PLoS One, 9*(10), 1-7. doi: 10.1371/journal.pone.0109294.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalist Inquiry*. California: Sage Publications.

Liyew, B., Tilahun, A.D., & Kassew, T. (2020). Knowledge, attitude and associated factors towards physical assessment among nurses working in intensive care units: a multicenter cross-sectional study. *Critical Care Research and Practice, 2020*, 9145105.

Liyew, B., Tilahun, A.D., & Kassew, T. (2021). Practices and barriers towards physical assessment among nurses working in intensive care units: multicenter cross-sectional study. *BioMed Research International, 2021*, 5524676.

Long, A. F., Godfrey, M., Randall, T., Brettle, A. J., & Grant, M. J. (2002). *Developing evidence based social care policy and practice: feasibility of undertaking systematic reviews in social care*. Leeds: Nuffield Institute for Health.

Long, H.A., French, D.P., & Brooks, J.M. (2020). Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods in Medicine & Health Sciences, 1*(1), 31-42.

Lont, K. L. (1992). Physical assessment by nurses: a study of nurses' use of chest auscultation as an indicator of their assessment practices. *Contemporary Nurse*, *1*(2), 93–97.

Looi, M.K. (2023). How are covid-19 symptoms changing? *British Medical Journal, 380*(3), 1-2. http://dx.doi.org/10.1136/bmj.p3.

Lyhne, C., Bjerrum, M., & Jorgensen, M.J. (2022). Person-centred care to prevent hospitalisations: a focus group study addressing the views of healthcare providers. *BMC Health Services Research, 22*(1), 1-11. doi: 10.1186/s12913-022-08198-6.

MacLean, L. M., Meyer, M., & Estable, A. (2004) Improving accuracy of transcripts in qualitative research. *Qualitative Health Research*, *14*, 113–123.

McBride, A., Collins, C., Osborne, B., & McVeigh, H. (2022). Does continuing professional development enhance patient care? a survey of Irish based general practitioners. *BMC Medical Education, 22*(220), 1-9. http://doi.org/10.1186/s12909-022-03292-z.

McCrae, N., & Murray, J. (2018). When to delete recorded qualitative research data. *Research Ethics*, *4*(2), 76–77.

McDonnell, A., Goodwin, E., Kennedy, F., Hawley, K., Gerrish, K., & Smith, C. (2015). An evaluation of the implementation of advanced nurse practitioner roles in an acute hospital setting. *Journal of Advanced Nursing*, *7*(4), 789–799.

McElhinney, E. (2010). Factors which influence nurse practitioners ability to carry out physical examination skills in the clinical area after a degree level module – an electronic Delphi study. *Journal of Clinical Nursing*, *19*(22), 3177–3187.

McGee, P., & Inman, C. (2021). *Advanced practice in healthcare: dynamic developments in nursing and allied health professions*. Oxford: Wiley Blackwell.

McLeod, S. (2022). Positivism in the study of sociology: simply sociology. Retrieved 1 February, 2023, from http://simplysociology.com/positivist-approach.html.

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: a practical, step-by-step guide for learning and teaching scholars. *All Ireland Society for Learning in Higher Education*, *8*(3), 3351–3364.

Maier, C. B., & Aiken, L. H. (2016). Task shifting from physicians to nurses in primary care in 39 countries: a cross-country comparative study. *European Journal of Public Health*, *26*(6), 927–934.

Mallinson, T. (2021). An exploratory study into the teaching of clinical examination skills in advanced practice. *British Journal of Nursing, 30*(12), 712-720.

Manchester Health & Care Commissioning. (2016a). *One team neighbourhood profile Ardwick & Longsight locality*. Manchester: Manchester Health & Care Commissioning.

Manchester Health & Care Commissioning. (2016b). *One team neighbourhood profile Chorlton, Fallowfield & Whalley Range locality*. Manchester: Manchester Health & Care Commissioning.

Manchester Health & Care Commissioning. (2016c). *One team neighbourhood profile Gorton & Levenshulme locality*. Manchester: Manchester Health & Care Commissioning.

Manchester Health & Care Commissioning. (2016d). *One team neighbourhood profile Hulme, Moss Side & Rusholme locality*. Manchester: Manchester Health & Care Commissioning.

Manchester Health & Care Commissioning. (2019a). *Ardwick & Longsight neighbourhood heath & social care profile*. Manchester: Manchester Health & Care Commissioning.

Manchester Health & Care Commissioning. (2019b). *Chorlton, Fallowfield & Whalley Range neighbourhood heath & social care profile.* Manchester: Manchester Health & Care Commissioning.

Manchester Health & Care Commissioning. (2019c). *Gorton & Levenshulme neighbourhood health & social care profile.* Manchester: Manchester Health & Care Commissioning.

Manchester Health & Care Commissioning. (2019d). *Moss Side, Hulme & Rusholme neighbourhood health & social care profile.* Manchester: Manchester Health & Care Commissioning.

Manchester Population Health Knowledge and Intelligence Team. (2018). *Manchester population health plan: compendium of population health statistics*. June 2018. Retrieved from https://secure.manchester.gov.uk/downloads/download/5724/compendium_of_statistics-manchester

Mannix, K., & Jones, C. (2020). Nurses' experiences of transitioning into advanced practice roles. *Nursing Times*, *116*(3), 35–38.

Massey, D., Aitken, L.M., & Chaboyer, W. (2009). What factors influence suboptimal ward care in the acutely ill ward patient? *Intensive and Critical Care Nursing*, *25*(4), 169–180.

Mathioudakis, A., Rousalova, I., Gagnat, A.A., Saad, N., & Hardavella, G. (2016). How to keep good clinical records. *Breathe, 12*(4), 371–375.

Matthews-King, A. (2015). More than 90% of GPs think 10-minute consultations are inadequate. Retrieved 8 March, 2018, from http://www.pulsetoday.co.uk/news/politics/more-than-90-of-gps-think-10-minute-consultations-are-inadequate/

Mertens, D. (2009). *Transformative research and evaluation.* New York: The Guilford Press.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis.* Thousand Oaks, CA: Sage Publications.

Miles, M. B., Huberman, A. M., & Saldana, J. (2019). *Qualitative data analysis – international student edition: a methods sourcebook*. Thousand Oaks, CA: Sage Publications.

Millar, L., Cox., A., & Williams, J. (2009). *Evaluation of advanced practitioner roles.* Brighton: Institute for Employment Studies.

Mohammadi-Shahboulaghi, F., Khankeh, H., & HosseinZadeh, T. (2021). Clinical reasoning in nursing students: a concept analysis. *Nursing Forum, 56*(4), 1008-1004. doi: 10.1111/nuf.12628

Monegro, A. F., Muppidi, V., & Regunath, H. (2020). Hospital acquired infections. Retrieved 3 August, 2020, from http://www.ncbi.nlm.nih.gov/books/NBK441857/.

Morciano, M., Checkland, K., Billings, J., Coleman, A., Stokes, J., Tallack, C., … Sutton, M. (2020). New integrated care models in England associated with small reduction in hospital admission in longer-term: a difference-in-differences analysis. *Health Policy*, *124*(8), 826-833.

Morse, J. M. (2015). Critical analysis of strategies for determining rigor in qualitative inquiry. *Qualitative Health Research*, *25*(9), 1212–1222.

Moustakas, C. (1994). *Phenomenology research methods*. Thousand Oaks, CA: Sage Publications.

Mulrow, C. (1994). Rationale for systematic reviews. *British Medical Journal, 309*(6954), 597–599.

Nadaf, C. (2018). Perspectives: reflections on a debate: when does advanced clinical practice stop being nursing? *Journal of Research in Nursing*, *23*(1), 91–97.

NHS Central Manchester CCG (2017). Commissioning for value: where to look pack. Retrieved from http://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2017/02/cfv-central-manchester-jan17.pdf

NHS England. (2015). Transforming urgent and emergency care services in England: a guide for local health and social care communities. Retrieved from http://www.england.nhs.uk/wp-content/uploads/2015/06/trans-uec.pdf

NHS England. (2018). The change model guide. Retrieved from http://www.england.nhs.uk/wp-content/uploads/2018/04/change-model-guide-v5.pdf.

NHS England. (2020). Supporting mentors scheme. Retrieved 1 February, 2023, from http://www.england.nhs.uk/gp/the-best-place-to-work/supporting-mentors-scheme/.

NHS Improvement. (2018). *Guide to reducing long hospital stays.* London: NHS Improvement.

NHS Networks. (2017). Cuts to district nursing threaten elderly care. Retrieved 10 December, 2019, from http://www.networks.nhs.uk/news/cuts-to-district-nursing-threaten-elderly-care.

NHS Resolution. (2023). Sepsis in primary care: online webinar. Retrieved 1 February, 2023, from http://resolution.nhs.uk/events/sepsis-in-primary-care/.

National Institute for Health & Care Excellence. (2021). Sepsis overview. Retrieved from http://pathways.nice.org.uk/pathways/sepsis/sepsis-overview.pdf.

National Institute for Health Research. (2021). Long COVID. Retrieved 1 February, 2022, from http://www.nihr.ac.uk/news/nihr-publishes-second-themed-review-on-long-covid/27232

National Institute on Aging. (2019). Social isolation, loneliness in older people pose health risks. Retrieved 21 January, 2021, from http://www.nia.nih.gov/news/social-isolation-loneliness-older-people-pose-health-risks

National Leadership & Innovation Agency for Healthcare. (2010a). *All Wales guidelines for advanced practice.* Llanharan: National Leadership and Innovation Agency for Health.

National Leadership & Innovation Agency for Healthcare. (2010b). Advanced practice: the portfolio. Retrieved from http://www.wales.nhs.uk/sitesplus/documents/829/nliah%20advanced%20practice_the%20portfolio%20report_final.pdf.

Ness, V., Currie, K., Reilly, J., McAloney-Kocaman, K., & Price, L. (2021). Factors associated with independent nurse prescribers' antibiotic prescribing practice: a mixed-methods study using the reasoned action approach. *Journal of Hospital Infection, 113*, 22-29. doi: 10.1016/j.jhin.2021.04.008.

Ness, V., Malcolm, W., McGivern, G., & Reilly, J. (2015). Growth in nurse prescribing of antibiotics: the Scottish experience 2007–13. *Journal of Antimicrobial Chemotherapy*, *70*(12), 3384–3389.

Neville, S., Dillon, D., & Milligan, K. (2011). New Zealand registered nurses' use of physical assessment skills: a pilot study. *Vision: A Journal of Nursing*, *14*(1), 13–19.

Ng, R., Sutradhar, R., Yao, Z., Wodchis, W.P., & Rosella, L.C. (2020). Smoking, drinking, diet and physical activity – modifiable lifestyle risk factors and their associations with age to first chronic disease. *International Journal of Epidemiology*, *49*(1), 113–130.

Nicholl, D. J., Yap, C. P., Cahill, V., Appleton, J., Willetts, E., & Sturman, S. (2012). The TOS study: can we use our patients to help improve clinical assessment? *Journal of Royal College of Physicians*, *42*(4), 306–10.

Northway, R. (2000). Disability, nursing research and the importance of reflexivity. *Journal of Advanced Nursing*, *32*(2), 391–397.

North West Ambulance Service NHS Trust. (2020). Urgent and emergency care strategy 2019-2024. Retrieved from http://www.nwas.nhs.uk/content/uploads/2019/09/NWAS-Urgent-and-Emergency-Care-Strategy-2019-24-new.pdf

Nursing & Midwifery Council. (2018). The code: professional standards of practice and behaviour for nurses, midwives and nursing associates. Retrieved from *http://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/revised-new-nmc-code.pdf.*

Nursing & Midwifery Council. (2019). Revalidation: how to revalidate with the NMC: requirements for renewing your registration. Retrieved from http://www.nmc.org.uk/globalassets/sitedocuments/revalidation/how-to-revalidate-booklet.pdf.

Nursing & Midwifery Council. (2022). Meeting 30 March 2022. Retrieved from http://www.nmc.org.uk/globalassets/sitedocuments/councilpapersanddocuments/council-2022/open-council-papers-30-march-2022.pdf.

Nyumba, T.O., Wilson, K., Derrick C.J., & Mukherjee, N. (2018). The use of focus group discussion methodology: insights from two decades of application in conservation. *Methods in Ecology and Evolution, 9*(1), 20-32. http://doi.org/ 10.1111/2041-210X.12860.

Oakley, M. (2018). *Manchester Local Care Organisation consultation document.* Manchester: Manchester Local Care Organisation.

Odell, M. (2010). Are early warning scores the only way to rapidly detect and manage deterioration? *Nursing Times*, *106*(8), 24–26.

Odell, M., Victor, C., & Oliver, D. (2009). Nurses' role in detecting deterioration in ward patients: systematic literature review. *Journal of Advanced Nursing*, *65*(10), 1992–2006.

Office for National Statistics. (2011). *Population of pensioners living alone.* London: Crown Copyright.

Office for National Statistics. (2018). Living longer how our population is changing and why it matters. Retrieved 30 July, 2019, from http://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/ageing/articles/livinglongerhowourpopulationischangingandwhyitmatters/2018-08-13

Oliver, E. (2017). Advanced practitioners improve efficiency and patient satisfaction. Retrieved 3 March, 2019, from http://www.independentnurse.co.uk/professional-article/advanced-practitioners-improve-efficiency-and-patient-satisfaction/159765/

Oliver, P. (2010). T*he student's guide to research ethics* (2nd ed.). Maidenhead: Open University Press.

Oliver, C. M., Hunter, S. A., Ikeda, T., & Galletly, D. C. (2013). Junior doctor skill in the art of physical examination: a retrospective study of the medical admission note over four decades. *BMJ Open*, *3*(4), e002257.

Olson, K. (2011). *Essentials of qualitative interviewing*. Oxon: Routledge.

Osborne, S., Douglas, C., Reid, C., Jones, L., & Gardner, G. (2015). The primacy of vital signs – acute care nurses' and midwives' use of physical assessment skills: a cross sectional study. *International Journal of Nursing Studies*, *52*(5), 951–962.

Oxford Population Health. (2021). Hospital or 'hospital at home' – what's best for older people? Retrieved 1 February, 2022, from http://www.ndph.ox.ac.uk/longer-reads/hospital-or-2018hospital-at-home2019-2013-what2019s-best-for-older-people.

Paparini, S., Green, J., Papoutsi, C., Murdoch, J., Petticrew, M., Greenhalgh, T., … Shaw, S. (2020). Case study research for better evaluations of complex interventions: rationale and challenges. *BMC Medicine*, *18*(30), 2–6.

Park, W. B., Kang, S. H., Myung, S. J., Lee, Y. S. (2015). Does objective structured clinical examinations score reflect the clinical reasoning ability of medical students? *The American Journal of the Medical Sciences, 350*(1), 64–67.

Parlett, M., & Hamilton, D. (1972). *Evaluation as illumination: a new approach to the study of innovatory programs*. Edinburgh: Centre for Research in the Educational Sciences.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications.

Patton, M. Q. (2015). *Qualitative research & evaluation methods: integrating theory & practice* (4th ed.). London: Sage Publications.

Petticrew, M., & Roberts, H. (2006). *Systematic reviews in the social sciences: a practical guide*. Oxford: Blackwell Publishing.

Pickett, L. (2017). Professional regulation in health and social care. Retrieved from http://researchbriefings.files.parliament.uk/documents/CBP-8094/CBP-8094.pdf.

Pines, J., Uscher-Pines, L., Hall, A., Hunter, J., Srinivasan, R., & Ghaemmaghami, C. (2005). The interrater variation of ED abdominal examination findings in patients with acute abdominal pain. *The American Journal of Emergency Medicine*, *23*(4), 483–487.

Poghosyan, L., Norful, A.A., & Martsolf, G.R. (2017). Primary care nurse practitioner practice characteristics: barriers and opportunities for inter-professional team work. *Journal of Ambulatory Care Management, 40*(1), 77-86.

Poland, B. D. (1995). Transcription quality as an aspect of rigor in qualitative research. *Qualitative Inquiry*, *1*(3), 290–310.

Polit, D. F., & Beck, C. T. (2018). *Essentials of nursing research: appraising evidence for nursing practice.* (9th ed.). Philadelphia: Wolters Kluwer.

Por, J. (2008). A critical engagement with the concept of advancing nursing practice. *Journal of Nursing Management*, *16*(1), 84–90.

Practitioner Development UK. (2022). Five-day patient assessment skills workshop: face to Face. Retrieved 1 February, 2022, from http://www.pduk.net/courses/13/Fiveday-patient-assessment-skills-workshop

Preston, W., & Irvine, H. (2019). Advanced practice: where are we now and where are we going? *Practice Nurse, 49*(1), 28–32.

Purbrick, R. M. J., & Chong, N. V. (2015). Direct ophthalmoscopy should be taught to undergraduate medical students – no. *Eye*, *29*(8), 990–991.

Rahmani, M. (2020). Medical trainees and the Dunning-kruger effect: when they don't now what they don't know. *Journal of Graduate Medical Education, 12*(5), 532-534. doi: http://dx.doi.org/10.43000/JGME-D-20-00134.1.

Raleigh, M., & Allan, H. (2016). A qualitative study of advanced nurse practitioners' use of physical assessment skills in the community: shifting skills across professional boundaries. *Journal of Clinical Nursing*, *26*(13), 2025–2035.

Reaby, L. L. (1990). The effectiveness of an education program to teach Australian nurses comprehensive physical assessment skills. *Nurse Education Today*, *10*(3), 206–214.

Redsell, S., Stokes, T., Jackson, C., Hastings, A., & Baker, R. (2006). Patients' accounts of the differences in nurses' and general practitioners' roles in primary care. *Journal of Advanced Nursing, 57*(2) 172-180.

Rencie, J.J., Lambert, W.T., Schuwirth, L., & Durning, S.J. (2020). Clinical reasoning performance assessment: using situated cognition theory as a conceptual framework. *Diagnosis*, *7*(3), 177-179. doi:org/10.1515/dx-2019-0051.

Reynolds, J., & Mortimore, G. (2021). Clinical supervision for advanced practitioners. *British Journal of Nursing, 30(*7), 422-424.

Rischel, V., Larsen, K., & Jackson, K. (2007). Embodied dispositions or experience? Identifying new patterns of professional competence. *Journal of Advanced Nursing*, *61*(5), 512–521.

Ritchie, J., Spencer, L., & O'Connor, W. (2003). Carrying out qualitative analysis. In J. Richie & J. Lewis (Eds.), *Qualitative research practice: a guide for social science students and researchers* (pp. 219–262). London: Sage Publications.

Robson, C., & McCartan, K. (2016). *Real world research* (4th ed.). Chichester: John Wiley & Sons.

Rogers, M. (2019). NMC to reconsider its roles in regulation advanced practice. Retrieved 1 February 2023, from http://www.nursinginpractice.com/latest-news/nmc-to-reconsider-its-role-in-regulating-advanced-practice/.

Rogers, M., & Steinke, M. (2022). An examination of student nurse practitioners' diagnostic reasoning skills. *International Journal of Nursing Practice*, *28*(2), e13043. http://doi.org10.1111/ijn.13043.

Rolfe, G., & Fulbrook, P. (1998). *Advanced nursing practice.* Oxford: Butterworth Heinemann.

Rothwell, C., Kehoe, A., Farook S.F., Illing J. (2021). Enablers and barriers to effective clinical supervision in the workplace: a rapid evidence review. *British Medical Journal, 11*(9), 1-10. doi:10.1136/ bmjopen-2021-052929

Rousseau, M., Könings, K. D., & Touchie, C. (2018). Overcoming the barriers of teaching physical examination at the bedside: more than just curriculum design. *BMC Medical Education*, *18*(1), 302.

Rowe, W. E. (2014). Positionality. In D. Coghlan & M. Brydon-Miller (Eds.), *The SAGE encyclopaedia of action research* (pp. 627–628). London: Sage.

Royal College of Emergency Medicine. (2022). Advanced clinical practice past, present and further: a brief overview and RCEM position. Retrieved 10 February, 2023, from http://president.rcem.ac.uk/index.php/2022/08/30/advanced-clinical-practice-past-present-future-a-brief-overview-rcem-position/.

Royal College of General Practitioners. (2015). *Advanced nurse practitioner competencies.* London: Royal College General Practitioners.

Royal College of Nursing. (2011). *Research ethics: RCN guidance for nurses.* London: Royal College of Nursing.

Royal College of Nursing. (2013). *Moving care to the community: an international perspective.* London: Royal College of Nursing.

Royal College of Nursing. (2015). *Leading the way for mental health.* Edinburgh: Royal College of Nursing.

Royal College of Nursing. (2017a). *Safe and effective staffing: nursing against the odds*. London: Royal College of Nursing.

Royal College of Nursing. (2017b). *Specialist and advanced children's and young people's nursing practice in contemporary health care: guidance for nurses and commissioners*. London: Royal College of Nursing.

Royal College of Nursing. (2018a). *RCN credentialing for advanced level nursing practice: handbook for applicants*. London: Royal College of Nursing.

Royal College of Nursing. (2018b). *Improving mandatory training: how reps can play their part*. London: Royal College of Nursing.

Royal College of Nursing. (2019). Urgent need for more investment in the district nursing service, nursing bodies warn. Retrieved 29 August, 2020, from http://www.rcn.org.uk/news-and-events/press-releases/district-nursing.

Royal College of Nursing. (2020). *RCN credentialing for advanced level nursing practice: handbook for applicants*. London: Royal College of Nursing.

Royal College of Nursing. (2021). Capability and performance reviews. Retrieved 1 February, 2022, from http://www.rcn.org.uk/get-help/rcn-advice/capability-and-performance-standards-and-reviews

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: the art of hearing data*. (3rd ed.). Thousand Oaks, CA: Sage Publications.

Rushford, H. (2006). Nurse-led paediatric pre operative assessment: an equivalence study. *Paediatric Nursing, 18*(3), 23–29.

Rushford, H., Bliss, A., & Burge, D. (2000). A pilot randomised controlled trail of medical versus nurse clerking for minor surgery. *Archives of Disease in Childhood, 83*(3), 223–225.

Salford University. (2023). Advanced clinical practice. Retrieved from http://www.salford.ac.uk/sites/default/files/2020-04/Advanced%20Clinical%20Practice.pdf.

Salisbury, H. (2019). The 10-minute appointment. *British Medical Journal, 365*, 1. doi: 10.1136/bmj.l2389. PMID: 31164335.

Sandelowski, M. (1993). Rigor or rigor mortis: the problem of rigor in qualitative research revisited. *Advances in Nursing Science, 16*(2), 1–8.

Schroyen, B., George, N., Hylton, J., & Scobie, N. (2005). A small pilot study in Tai Tokerau/Northland has revealed why nurses don't use the full range of physical assessment skills in their practice. *Education, 11*(10), 14–15.

Scott, S. (2020). IV therapy passport: implementation guide v1.2. Retrieved from http://www.hee.nhs.uk/sites/default/files/documents/IV%20Therapy%20Passport%20Implementation%20Guide%20v1.2%20JP%20comments.pdf

Secrest, J. A., Norwood, B. R., & DuMont, P. M. (2005). Physical assessment skills: a descriptive study of what is taught and what is practiced. *Journal of Professional Nursing, 21*(2), 114–118.

Seidman, I. (2019). *Interviewing as qualitative research.* New York, NY: Teachers College Press.

Shi, G., He, G. F., Zhang, L. L., Morrow, M. R., & Zhao, Y. (2020). Barriers to physical assessment: registered nurses in mainland China. *Nursing Science Quarterly, 33*(1), 65–72.

Shin, H., Kim, B. J., & Kang, H. S. (2009). Use of physical assessment skills and education needs of advanced practice nurses and nurse specialists. *Journal of Korean Academy of Nursing, 39*(5), 709–719.

Shinozaki, E., & Yamauchi, T. (2009). Nursing competencies for physical assessment of respiratory system in Japan. *Nursing and Health Sciences, 11*(3), 285–292.

Silverman, D. (2017). *Doing qualitative research* (5th ed.). London: Sage Publications.

Simpson, S., Sparkes, C., Harding, D., Leoni, D., Moffatt, C., Parlaka, AJ., … Stokes, J. (2017). Information on supervision. Retrieved from http://www.rcslt.org/wp-content/uploads/media/docs/delivering-quality-services/infomation-on-supervision.pdf.

Skillen, D., Anderson, M. C., & Knight, K. L. (2001). The created environment for physical assessment by case managers. *Western Journal of Nursing Research, 23*(1), 72–79.

Smith, J. (2015). Francis Report: our position. Retrieved 6 January, 2021, from http://www.nmc.org.uk/about-us/policy/position-statements/francis-report/

Smith, N. J. (2009). *Achieving your professional doctorate.* Maidenhead: Open University Press.

Solomon, J. (1990). Physical assessment skills in undergraduate curricula. *Nursing Outlook, 38*(4), 194–195.

Sony, S.D. (1992). Baccalaureate nurse graduates' perception of barriers to the use of physical assessment skills in the clinical setting. *Journal of Continuing Education in Nursing, 23*(2), 83–87.

Spence, D. (2019). Bad medicine: advanced practitioners versus doctors. *British Journal of General Practice, 69*(681), 199.

Squires, A. (2017). Evidence-based approaches to breaking down language barriers. *Nursing*, 47(9), 34–40.

Stake, R. E. (1995). *The art of case study research.* Thousand Oaks, CA: Sage Publications.

Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (12th ed.) (pp. 443–466). Thousand Oaks, CA: Sage.

Stake, R. (2006). *Multiple case study analysis*. London: Sage Publications.

Stake, R. E. (2008). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry* (3rd ed.) (pp. 119–150). Thousand Oaks, CA: Sage.

Standing, M. (2023). *Clinical judgement and decision making in nursing*. London: Sage Publishing.

Stepinska, J., Lettino, M. Ahresn, I., Bueno, H., Garcia-Castrillo, L., Khoury, A. … Vrints, C.J.M. (2020). Diagnosis and risk stratification of chest pain in the emergency department: focus on acute coronary syndromes: a position paper of the Acute Cardiovascular Care Association. *European Heart Journal, 9*(1), 76-79. doi: 10.1177/22048872619885346.

Steventon, A., Deeny, S., Fribel, R., Gardner, T., & Thorlby, R. (2018). Briefing emergency hospital admissions in England: which may be avoidable and how? Retrieved from http://www.health.org.uk/sites/default/files/Briefing_Emergency%2520admissions_web_final.pdf.

Stewart, M., & Dajani, S. (2022). Bumetanide tablets and liquid medicine. Retrieved 1 February, 2023, from http://patient.info/medicine/bumetanide-tablets-and-liquid-medicine.

Stewart-Lord, A., Beanlands, C., Khine, R., Shamah, S., Sinclair, N., Woods, S., … Baille, L. (2020). The role and development of advanced clinical practice within allied health professions: a mixed method study. *Journal Multidisciplinary Health*, *13*, 1705–1715.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.

Sutcliffe, A. (2022a). NMC may consider viability of protecting ANP title, says Andrea Sutcliffe. Retrieved 10 February, 2023, from http://www.nursinginpractice.com/latest-news/nmc-may-consider-viability-of-protecting-anp-title-says-andrea-sutcliffe/.

Sutcliffe, A. (2022b). The Queen's nursing institute annual conference: NMC regulation of advanced practice. Retrieved from http://qni.org.uk/wp-content/uploads/2022/06/Agenda-QNI-Conference-2022.pdf

Tan, M.W., Lim, F.P., Siew, A.L., Levett-Jones, T., Chua, W.L., & Liaw, S.Y. (2021). Why are physical assessment skills not practiced? a systematic review with implications for nursing education. *Nurse Education Today, 99*, 1-10. doi: 10.1016/j.nedt.2021.104759.

Taylor, G. W., & Ussher, J. M. (2001). Making sense of S&M: a discourse analytic account. *Sexualities*, *4*(3), 293–314.

Tessier, S. (2012). From field notes, to transcripts, to tape recordings: evolution or combination? *International Journal of Qualitative Methods*, *11*(4), 446–460.

The King's Fund. (2011). *Improving the quality of care in general practice: report of an independent inquiry commissioned by The King's Fund*. London: The King's Fund.

The Queen's Nursing Institute. (2019). *District nursing today: the view of district nurse team leaders in the UK*. London: The Queen's Nursing Institute.

Thomas, S.L., Heaton, J., & Makaryus, A.N. (2022). Physiology, cardiovascular murmurs. Retrieved 10 February, 2023, from http://www.ncbi.nlm.nih.gov/books/NBK525958/.

Thompson, W., & McNamara, M. (2021). Constructing the advanced nurse practitioner identity in the healthcare system: a discourse analysis. *Journal of Advanced Nursing 78*(3), 834-846. doi: 10.1111/jan.15068.

Thorn, S. E. (2017). Does advanced practice in radiography benefit the healthcare systems? A literature review. *International Journal of Diagnostic Imaging and Radiation Therapy*, *24*(1), 84–89.

Tilley, S. A. (2003). Challenging research practices: turning a critical lens on the work of transcription. *Qualitative Inquiry*, *9*(5), 750–773.

Timmons, S., Mann, C., Evans, C., Pearce, R., Overton, C., & Hinsliff-Smith, K. (2023). The advanced clinical practitioner (ACP) in UK healthcare: dichotomies in a new 'multi-professional' profession. *Qualitative Research in Health, 3,* 1-8. http://doi.org/10.1016/j.ssmqr.2022.100211.

Tobin, G.A., & Begley, C.M. (2004). Methodological rigour within a qualitative framework. *Journal of Advanced Nursing 48*(4), 388–396.

Toney-Butler, T. J., & Martin, R.L. (2023). Florida nurse practice act laws and rules. Retrieved 1 February, 2023, from http://www.ncbi.nlm.nih.gov/books/NBK532859/

Toney-Butler, T. J., & Unison-Pace, W.J. (2022). Nursing admission assessment and examination. Retrieved 1 February, 2023, from http://www.ncbi.nlm.nih.gov/books/NBK493211/.

Tong, J. Y., Wong, A., Zhu, D., Fastenberg, J. H., & Tham, T. (2020). The prevalence of olfactory and gustatory dysfunction in COVID-19 patients: a systematic review and meta-analysis. *Otolaryngology Head & Neck Surgery*, *163*(1), 3–11.

Torjesen, I. (2018). Almost 1.5m emergency hospital admissions could have been avoided last year. *British Medical Journal, 361,* k2542.

Torrens, C., Campbell, P., Hoskins, G., Strachan, H., Wells, M., Cunningham, M., … Maxwell, M. (2020). Barriers and facilitators to the implementation of the advanced nurse practitioner role in primary care settings: a scoping review. *International of Nursing Studies, 104,* 1-21. http://doi.org/10.1016/j.ijnurstu.2019.103443.

Tsiachristas, A., Waldenburg, I., Bond, C. M., Elliot, R.F., Busse, R., van Excel, J., … de Bont, A. (2015). Costs of effects of new professional roles: evidence from a literature review. *Health Policy*, *119*(9), 1176–1187.

Uddin, K.N. (2019). The lost art of clinical skills. *Bangladesh Institute of Research and Rehabilitation of Diabetes, Endocrine and Metabolic Disorders Medical Journal, 9*(2), 102–105. http://doi.org/10.3329/birdem.v9i2.41271.

User Research Community. (2018). Managing user research data and participant privacy. Retrieved 6 January, 2021, from http://www.gov.uk/service-manual/user-research/managing-user-research-data-participant-privacy.

Van der Broek, S., Heiwegen, N., Verhofstad, M., Akkermans, R., van Westerop, L., Schoon., … Hesselink, G. (2020). Preventable emergency admissions of older adults: an observational mixed-method study of rates, associative factors and underlying causes in two Dutch hospitals. *British Medical Journal, 10*(11), 1-9. doi:10.1136/ bmjopen-2020-040431.

Verghese, A, Charlton, B., Kassirer, J.P., Ramsey, M., & Ioannidis J. P. (2015). Inadequacies of physical examination as a cause of medical errors and adverse events: a collection of vignettes. *American Journal of Medicine*, *128*(12), 1322–1324.

Vine, S. J., Chaytor, R.J., McGrath, J. S., Masters, R. S. W., & Wilson, M. R. (2013). Gaze training improves the retention and transfer of laparoscopic technical skills in novices. *Surgical Endoscopy*, *27*(9), 3205–3214.

Wagner, J. (1993). Ignorance in educational research: or, how can you "not" know that? *Educational Researcher*, *22*(5), 15–23.

Watkins, S. (2020). Effective decision-making: applying the theories to nursing practice. *British Journal of Nursing*, *29*(2), 98-101.

Wears, R.L. (2009). What makes diagnosis hard? *Advanced in Health Sciences Education*, *14*(1), 19–25.

Weick, K.E. (1995). *Sense making in organizations.* Thousand Oaks, CA: Sage Publications.

Welsh, K. (2022). Accessing CPD funding. Retrieved 1 February, 2023, from http://www.rcn.org.uk/magazines/Career/2022/Jan/Accessing-CPD-funding.

West, S. L. (2003). The assessment of the respiratory status of patients by nurses in a cardiothoracic surgical unit and how this assessment is used in their clinical decision making. (Unpublished MSc thesis), Imperial College School of Medicine, London.

West, S. L. (2006). Physical assessment: whose role is it anyway? *Nursing in Critical Care, 11*(4), 161–167.

Weston, M. J. (2008). Defining control over nursing practice and autonomy. *Journal of Nursing Administration, 38*(9), 404-408. http://doi.org/10.1097/01.NNA.0000323960.29544.e5.

Wickens, C. (2022). Why do diagnostics matter? maximising the potential of diagnostics services. Retrieved from http://www.kingsfund.org.uk/sites/default/files/2022-10/Why%20do%20diagnostics%20matter%20online%20version_0.pdf.

Williamson, S., Twelvetree, T., Thompson, J., & Beaver, K. (2012). An ethnographic study exploring the role of the ward-based advanced nurse practitioners in an acute medical setting. *Journal of Advanced Nursing, 68*(7), 1579–1588.

Wilson, A., Pearson, D., & Hassey, A. (2002). Barriers to developing the nurse practitioner role in primary care – the GP perspective. *Family Practice*, *19*(6), 641–646.

Wilson, S.F., & Giddens, J.F. (2000). *Health assessment for nursing practice* (2nd ed.). St. Louis, MO: Mosby.

Windsor, C., Douglas, C., & Harvey, T. (2012). Nursing and competencies a natural fit: the politics of skill/competency formation in nursing. *Nursing Inquiry*, *19*(3), 213–222.

Wolcott, H.F. (2008). *Ethnography: a way of seeing.* (2nd ed). California: AltaMira.

Wollack, J. A., & Fremer, J. J. (2013). *Handbook for test security.* New York: Routledge Taylor Francis Group.

Woo, B.F.Y., Lee, J.X.Y., & Wilson, W.S. (2017). The impact of the advanced practice nursing role on quality of care, clinical outcomes, patient satisfactions, and cost in the emergency and critical care settings: a systematic review. *Human Resources for Health, 15*(63), 1-22. doi: 10.1186/s12960-017-0237-9.

Woods, L.P. (2000). *The enigma of advanced nursing practice.* Wiltshire: Mark Allen Publishing Limited.

World Health Organization. (2020). Naming the coronavirus disease (COVID-19) and the virus that causes it. Retrieved 6 July, 2020, from http://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it

World Health Organisation. (2022). Post COVID-19 condition (long COVID). Retrieved 1 February, 2023, from http://www.who.int/europe/news-room/fact-sheets/item/post-covid-19-condition.

Yadegarfar, M. H., Jagger, C., Duncan, R., Fouweather, T., Hanratty, B., Parker, S., … Robinson, L. (2018). Use of primary care and other healthcare services between age 85 and 90 years: longitudinal analysis of a single-year birth, cohort, the Newcastle 85+study. *BMJ Open, 8*(1), e019218.

Yamauchi, T. (2001). Correlation between work experiences and physical assessment in Japan. *Nursing and Health Sciences*, *3*(4), 213–224.

Yildirim, B., & Ozkahraman, S. (2011). Critical thinking in nursing process and education. *International Journal of Humanities and Social Science, 1*(13), 257–262.

Yin, R.K. (2018). *Case study research and applications: design and methods* (6th ed.). Thousand Oaks, CA: Sage Publications.

Yura, H. P., & Walsh, M. B. (1967). *The nursing process: assessing, planning, implementing and evaluating.* Washington: Catholic University of America Press.

Zainal, Z. (2007). Case study as a research method. *Journal of Kemanusiaan, 5*(1), 1–6.

Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alayi-Maid, H., & Nikanfar, A. R. (2015). Design and implementation content validity study: development of an instrument for measuring patient-centred communication. *Journal of Caring Sciences*, *4*(2), 165–178.

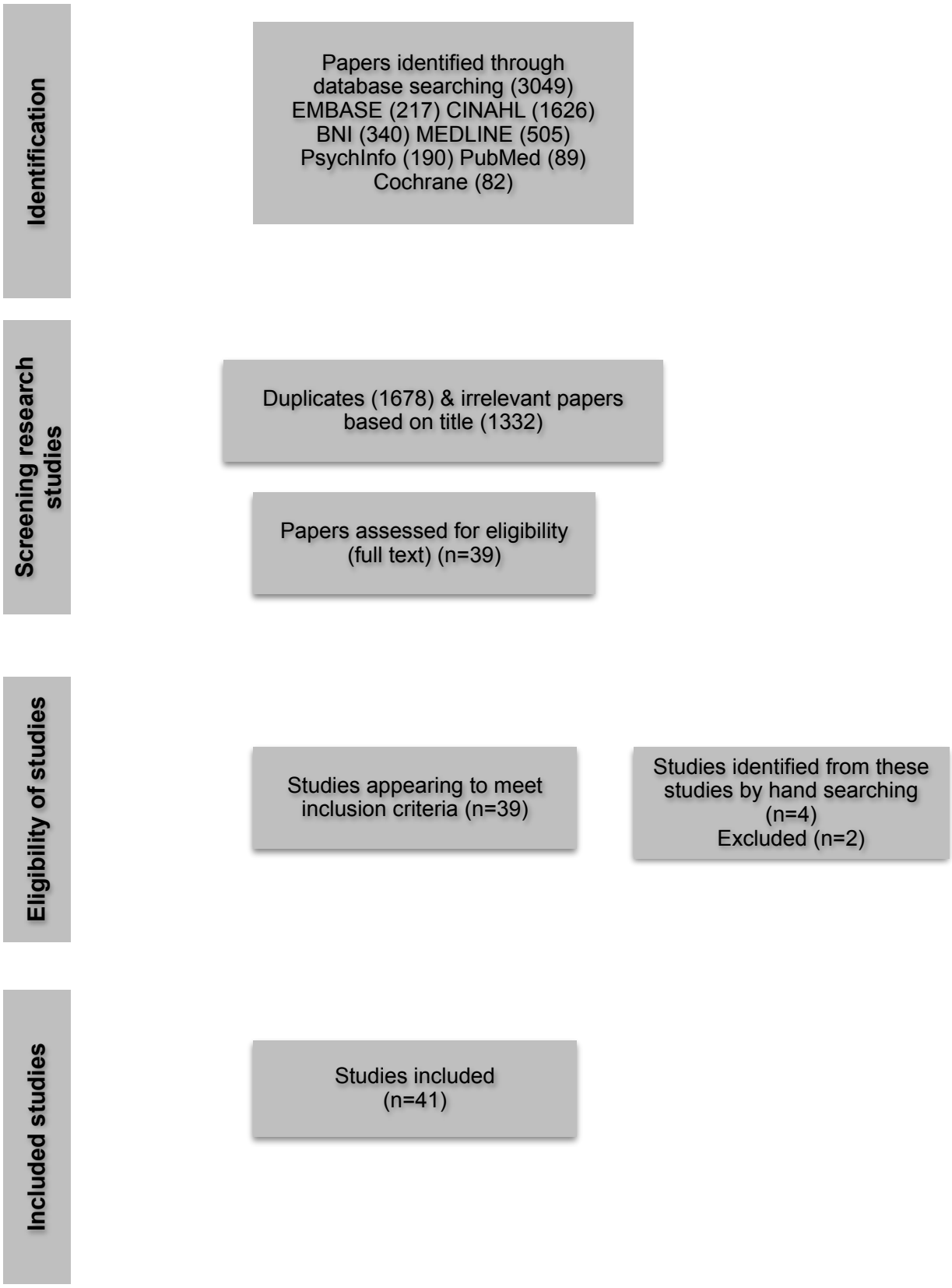
Zambas, S. I., Smythe, E. A., & Koziol-McLain, J. (2016). The consequences of using advanced physical assessment skills in medical and surgical nursing: a hermeneutic pragmatic study. *International Journal of Qualitative Studies on Health and Well-being*, *11*(1), 32090.

Zuin, M., Rigatelli, G., Andreotti, A.N., Fogato, L., & Roncon, L. (2017). Is abdominal auscultation a still relevant part of the physical examination? *European Journal of Internal Medicine*, *43*, 24-25. doi: http://doi.org/10.1016/j.ejim.2017.04.013.

Appendices (clinical terminology changes) / appendices

Appendices 1–28 use the term ‘medical physical assessment skills’ (MPAS), whereas Appendices 29–32 use ‘physical assessment skills’ (PA skills), reflecting the minor change in terminology highlighted in chapter 1.

Appendix 1
Research identification, screening and inclusion processes



Appendix 2
Summary of key studies in the literature review

Author & Year	Research purpose / origin	Methodology	Key findings	Limitations & strengths
Adib-Hajbagher & Safa (2013) Nurses evaluation of there use and mastery in health assessment skills: selected Irans Hospitals	To evaluate nurses opinions on their mastery & use in assessment skills. Country Iran	Random sample. Registered nurses (RNs) (n=146). Hospital medical, surgical, critical care, A&E settings. **Quantitative** Cross sectional study Questionnaire Likert scale 120 item.	Lack of MPAS use. Most participants lacked MPAS competence, less proficient nervous (34.58%) & urogenital (16.37%) MPAS systems. A&E nurses = more competent with MPAS. No increase in skill use & experience. Education importance highlighted.	Results based on nurses self reports, open to bias. Tool based on previous literature, piloted & content validity reviewed by panel prior to use.
Aldridge-Bent (2011) Advanced physical assessment skills: implementation of a module	Exploring & examining MPAS & how RNs (student district nurses) implement skills learnt following completion of a MPAS module. Country UK	Purposive sample. RNs (student district nurses) (n=10). Community setting **Qualitative** Exploratory study Focus groups / interviews.	MPAS beneficial in district nursing work. Nurses felt MPAS not their responsibility but GPs for diagnosis. Clearer nursing MPAS definition needed. Time constraints inhibited MPAS & competency concerns. Required more physical health science knowledge to interpret MPAS findings.	Qualitative in depth data. Findings not generalisable. Structured data analysis method. Highlighted MPAS educational deficits & the need to marry up theory & practice.
Barrows (1985) Factors affecting ED nurses' performance of physical assessment skills	To establish factors affecting nurses performance of MPAS. Country USA	Convenience sample. RNs (n=112) between 1979 - 1982 completed emergency department (ED) course (200 hours involving HT, MPAS & documentation). RNs (n=90) followed up post course. (26 EDs in different hospitals) **Qualitative** Interviews minimal methodology details.	Post course 50% used minimal or no MPAS. MPAS use barriers: lack of nursing supervisors & ED physicians. Not viewed nursing responsibility. Threat to nurses & ED physicians. Colleagues untrained in MPAS unsupportive, negative attitudes & uncomfortable atmosphere. RNs reverted back to not using MPAS. Unwilling to change practice. Confidence, time, knowledge lack. Factors for successful MPAS implementation clear role definition Confident, assertive, knowledgable nurses essential. MPAS programmes planning by key individuals vital.	Methodology details incomplete. EDs in different hospitals increased generalisability. Historic MPAS study highlighted similar MPAS use issues today. Result reflected MPAS in 1985 a new phenomena in nursing. Highlighted continuing MPAS education importance.
Birks et al (2013) The use of physical assessment skills by registered nurses in Australia: Issues for nursing education	To evaluate MPAS in RNs to inform education. Country Australia	Convenience sample. RNs (n=1220). Hospital & educational institution settings from one state. **Quantitative** Survey - online Likert scale questionnaire 121 item with comments box.	Majority MPAS taught not used, 34% used routinely, 35.5% not used at all, 31% rarely. Time, medical support absence & clinical environment determined MPAS use. MPAS atrophied with lack of MPAS use. Findings raised questions about extensive MPAS teaching in the context of health care suggesting evaluation was needed.	Large scale study wide range of nurses. Unknown response rate. Questionnaire used previously, increasing tool reliability. Self-reported questions, answers may not be truthful, open to nurse collusion & subject bias. Median response used representing MPAS nursing practices, an applied statistic with limitations.

Appendix 2
Summary of key studies in the literature review

Author & Year	Research purpose / origin	Methodology	Key findings	Limitations & strengths
Brown et al (1987) Changing nursing practice through continuing education in physical assessment: Perceived barriers to implementation	Evaluating MPAS use following MPAS education. Country USA	Purposive sample. RNs (n=359). Surgical, community, medical settings Response rate 41% (n=145). **Quantitative** Design not stated Likert survey 47 item questionnaire.	RNs MPAS use identified barriers competence (24%) & confidence. Less significant barriers patient acceptance 2.77%), supervisor (5%), employer, work colleague (4%) & doctor (4.1%) support. Battle over turf between nurses & doctors rarely occurred. Questioned why nurses lacked MPAS use self confidence & competence in their ability & why so many participants saw potential MPAS use barriers. MPAS increased nursing practice confidence doctors notes & physical examinations better understood	Added to limited body of MPAS research. MPAS in its infancy at this time. Questionnaire pilot tested increasing content validity. Low response rate. No new findings established from previous research studies. MPAS rehearsal, supervision & education to integrate MPAS in practice. Recognised MPAS importance in stretching non medical role boundaries to enhance role autonomy.
Cicolini et al (2015) Physical assessment techniques performed by Italian registered nurses: a quantitative survey	Establishing core elements of MPAS used regularly. Country Italy	Convenience sample. RNs (n=1182). Hospital settings medical, surgical, intensive care. **Quantitative** Cross sectional, on-line survey Likert scale 30 item questionnaire based on previous questionnaires.	MPAS found to be suboptimal to perform patient assessments. 20 out of 30 skills learnt, routinely used, 6 rarely, 4 never (heart, bowels, lung auscultation & spine inspection). More attention MPAS education & training required.	Large scale survey. Multiple regions increased study generalisability. Unknown response rate. On line survey cheap and easily distributed / open to potential bias. Validated tool increasing reliability. Potential information bias nurses responded may be more interested in the topic area. Identified MPAS requiring more focus in educational programmes & health settings & research identifying factors influencing maintaining MPAS.
Colwell & Smith (1985) Determining the use of physical assessment skills in the clinical setting	Investigating RNs MPAS use in multiple clinical environments. Country USA	Convenience sample. RNs paediatric (n=59) medical, surgical, community & social health settings.Specific setting numbers not stated. Response rate (100%) **Quantitative** Design not stated Survey Likert scale 36 item questionnaire.	Only 1/3 of the listed MPAS used regularly by 74% of the nurses. Respiratory, cardiac & abdominal most frequently used. MPAS use barriers included time, lack of equipment & familiarity. Educators need to establish MPAS most relevant to practice settings.	Promising research conducted in tMPAS nursing practice in the 1980s. Pilot study. Good response rate. Findings limited paediatric nurses who may use MPAS differently. Data collection tool validity unestablished questioning tool reliability.

Appendix 2
Summary of key studies in the literature review

Author & Year	Research purpose / origin	Methodology	Key findings	Limitations & strengths
Coombs & Moorse (2002) Physical assessments skills: a developing dimension of clinical nursing practice	Examining skill use within critical care nursing practice. Country UK	Convenience sample. RNs (n=2) **Case studies** Patient case studies 2 patients admitted to ICU with emergency presentations.	Demonstrates how a more developed physical assessment knowledge base can be used in everyday clinical practice to support patient management.	Unclear how cases were selected. No research approaches used. Only two cases used. Findings related to specialised practice ICU
Douglas et al (2014) What factors influence nurses' assessment practices : development of the barriers to nurses' use of physical assessment scale	To develop and psycho-metrically test the barriers to nurses use of MPAS scale. Country USA	Convenience sample. RNs (n=1591) Hospital settings, surgical, medical, women's health, cancer care, mental health. Critical care areas excluded. Response rate (n=434) 30.8%. **Quantitative** Survey Psychometric scale 38 item, based on previous scales.	Barriers identified most significant to MPAS use: reliance on others, ward culture, technology, Interruptions, time constraints, speciality area, lack of nursing role models & confidence.	Low response rate MPAS scale developed / used within this study. Tool unvalidated. Other barriers in different settings may exist not included in this tool. Tool adaptable for use in other research & clinical settings assessing MPAS use. Included barriers only Including critical care RNs would have potentially impacted on barriers identified (less) due to expected MPAS use in this setting.
Edmunds et al (2010) The use of advanced physical assessment skills by cardiac nurses	Establishing cardiac nurses MPAS use after MPAS module completion & explored factors affecting MPAS use in practice. Country UK	Convenience sample. RNs (n=14). Hospital settings ICU, nurse-led clinics. Response rate 50% (n=7) **Qualitative** Longitudinal descriptive Semi-structured interviews, non participatory observations.	Respiratory & cardiovascular main MPAS used as expected in this sample. MPAS use & development linked to personal traits confidence, role boundaries including medics permission & environmental factors including lack of support.	Qualitative in-depth data. Small sample limited research generalisability. Non participatory observation could influence participant performance. Researcher bias acknowledged, nurses known to the researcher. Incomplete data sets & reduced amount of data for analysis reported but no details provided. Established positive factors affecting MPAS use & development not just use.
Estes et al (2016) APN students perspective of an inter-professional advanced physical assessment learning experience	Examining inter-professional learning between doctors and medical students. Country USA	Mixed sampling approach Doctors (n=42) random sample (n=42) Nurses (n=41) convenience sample Likert scale & focus groups	Potential to enhance education & experience & team collaboration. Bounced ideas off each other. ANPs anatomy & physiology knowledge improved. Scores did not increase for MPAS.	Very difficult to read due to the multiple abbreviations. Shows the benefits of joined up education between ANPs & doctors. Single site.

Appendix 2
Summary of key studies in the literature review

Author & Year	Research purpose / origin	Methodology	Key findings	Limitations & strengths
Fennessey (2016) The relationship of burnout, work environment & knowledge to self reported performance of physical assessment by registered nurses	Exploring the relationship of burnout, MPAS knowledge & work environments to self reported MPAS performance. Country USA	Convenience non probability sample RNs (n=1,100) with more than 2 years experience. Medical, surgical, critical care & other (paediatric, neurology, oncology & geriatric). Response rate (n=115) 11% **Quantitative** Cross sectional survey 28 item Likert scale.	No statistical significance found between frequency of MPAS performance, work environment, MPAS knowledge or burnout. MPAS consistency depended on clinical setting. Used more in ICU than neurology, paediatric, oncology and geriatric settings. Only 7 MPAS used more than 80% daily	Self-reported data open to bias. Demographical table participant information table incomplete. Sample selection potential bias. Identified inequality in MPAS use, dependent on clinical setting. Qualitative research needed to validate factors affecting MPAS performance in nursing practice.
Giddens (2006) Comparing the frequency of physical examination techniques performed by associate and baccalaureate degree prepared nurses in clinical practice: does education make a difference?	To establish if differences existed in the frequency of MPAS used by baccalaureate & associate nurses. Country USA	Purposive sample (n=96) Adult nurses (OPD, surgical, ICU, medicine), Paediatric (OPD, in patient & ICU) peri operative unit. Teaching hospital setting. **Quantitative** Cross sectional exploratory survey using descriptive approach. Likert questionnaire (124 item).	Only a small MPAS set used routinely in practice. MPAS not influenced by education or experience. Nurses may have had additional training affecting MPAS use. MPAS relevance in non advanced roles. Educational focus needs to reflect clinical practice. MPAS findings in non teaching hospitals may be different.	One hospital different settings, a large sample proportion worked in ICU reducing data generalisability. Response rate unknown. Pilot study. On line survey easily distributed & cheaper to conduct / potential bias. Tool, content validity established. Demonstrated practice theory disconnection.
Giddens (2007) A survey of physical assessment techniques performed by RNs: Lessons for nursing education	To determine use of MPAS in practice to establish competencies required. Country USA	Random sample. RNs (n=250). Hospital settings surgical, medical & community Response rate (n=193) **Quantitative** Descriptive survey Likert scale 126 item	Only 30/126 MPAS used in practice routinely, mostly inspection. 1/3 respiratory & cardiovascular MPAS. Suggested MPAS education needs reassessing to reflect MPAS in clinical practice.	Survey tool developed by researcher, not validated thus tool reliability unestablished acknowledged by the researcher. Tool included items recognised by researcher unlikely to be used by nurses. Highlighted MPAS practice & theory gap.
Heeyoung et al, (2012) Perceived competency, frequency, training needs in physical assessment among registered nurses	To explore perceived competency, frequency of MPAS use & training requirements. Country Korea	Convenience sample. RNs (n=104). Two sites. **Quantitative** Exploratory survey design Likert scale 30 item.	Lack of competence reduced MPAS use in cardiac & respiratory auscultation & spinal inspection. Neurological MPAS nurses most competent using. Respiratory & abdominal system identified requiring more education. Continuing education needed / focusing on areas where deficits in knowledge.	Specialist nurses not defined. Convenience sample reduces study generalisability. Results correspond previous research reporting close relationships between MPAS frequency of use & competence. Results did not add new information to body of MPAS research knowledge in nursing. Highlighted ongoing MPAS education was needed.

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Kinley et al (2002) Effectiveness of appropriately trained nurses in preoperative assessment: randomised controlled equivalence/non-inferiority trial	To determine if preoperative assessments by suitably trained paediatric nurses are lower in standard than preregistration house officers. Country UK	Purposive / randomised sample Patients (n=1907) Response rate (n=1874) **Quantitative** Randomised control equivalence / non inferiority study Intervention: pre-operative assessment by one of several pre-reg house officers or one of three nurses. Nurses (n=948) & pre-reg house officers (n=926) assessments.	Nurses judged less inferior in pre-operative assessments to pre-reg house officers. Both groups underperformed. Performance variation similar in both groups, equal number of problems missed. Pre-reg house officers identified more cardiac whilst nurses more respiratory problems. Doctors ordered more unnecessary investigations. Future predictions were lack of pre-reg house officers to undertake pre-operative assessment role. Nurses should continue this role but need to receive appropriate training	Survey tool reliability & validity not discussed. Views by specialist registrars on patients categorised as under assessed (affecting pre-operative management) also consultant panel on decision fairness. All patients were also examined by specialist registrars in anaesthesia and assessments compared. Demonstrated with suitable clinical training, nurses ability performing MPAS on par with pre-reg house officers.
Liyew et al (2020) Knowledge, attitude and associated factors towards physical assessment among nurses working in intensive care units: a multi-centre cross sectional study	Assessing knowledge, attitude and associated factors towards physical assessments on critically ill patients. Country Ethiopia	Convenient sample RNs (n=299) Intensive care settings. Response rate (95.6%) **Quantitative** Multi-centre cross sectional study Questionnaires.	40% felt head to toe physical assessment was an important skill in critically ill patients. 41% identified normal & abnormal breath sounds. 59% could not identify the location. 31% agreed daily assessment can results in new diagnosis & treatment. 9% felt it was not a nursing role. Training & experience positively associated with skill use.	Self reported questionnaires - potential for information bias. Finding limited to specialised area of nursing practice in ICU.
Liyew et al (2021) Practices and barriers towards physical assessment among nursing working in intensive care units: multi-centre criss sectional study	Nurses practices and barriers to physical assessments. Country Ethiopia	Convenient sample RNs (n=299) Intensive care settings. **Quantitative** Multi-centre cross sectional study Likert scale 30 item physical assessment practice & 36 item barriers to nurses' use of physical assessment.	Reliance on technology & others, time constraints, confidence, ward culture & speciality area were barriers to physical assessment use.	Questionnaires were based on tools used reliability. Also piloted before use. Self reported questionnaires potential for information bias. Research approach limited deeper insight. Finding limited to a specialised area of practice.
Lont (1992) Physical assessment by nurses: a study of nurses use of chest auscultation as an indicator of their assessment practices	Exploring the use of chest auscultation in nurses as an indicator of their MPAS practices. Country Australia	Purposive sample. RNs (n=150). **Quantitative** Non experimental survey Questionnaire.	Chest auscultation not used regularly. Barriers to MPAS use included lack of time, trained staff & supervision. Nurses with less years experience more keen learning chest auscultation than those more experienced.	Self-reported results may be open to bias. Response rate details omitted. Added to a very limited body of knowledge.

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McElhinney (2010) Factors which influence nurse practitioners ability to carry out physical examination skills in the clinical area after a degree level module - an electronic Delphi study	To identify factors influencing nurse practitioners ability to use MPAS in practice post MPAS degree level module. Country UK	Purposive sample. Nurse practitioners (n=47). Settings medical, surgical, A&E, cardiology, hospital at night, critical care outreach. Response rate (n=21) **Quantitative** Questionnaires devised using Delphi technique. consensus.	Factors preventing MPAS use confidence, workload, time, lack of staff, medical support & supervision. Factors iInfluencing MPAS improving patient care, self motivation, senior staff trust, continued self study, protocols, time, medical supervision & peer support.	Small sample / low response rate may be linked to Delphi technique which brings experts together to gain consensus, time & commitment was required. Construct validity, face, content & internal consistency achieved by group. Finding difficult to generalise. Generated new information, views focused on positive factors not just barriers influencing MPAS use in nurse practitioner roles.
Neville et al (2011) Pilot study New Zealand RNs' Use of MPAS	To establish use of selected MPAS pre & post health assessment course. Country New Zealand	Convenience sample. RNs (n=223) Educational settings unclear Response rate part I 92.4% (n=206) Response rate part II 70.4% (n=145) **Quantitative** Survey Pre & post course questionnaire 38 item Likert scale.	4-6 weeks after education course RNs used MPAS learnt more frequently than before. Developed MPAS confidence / motivated to learn MPAS.	One educational site, results not generalisable. Pilot study Questionnaire based on previous tools, increasing validity & reliability. Unable to match responses pre & post education limited extent causal inferences could be made. Only study showing increased MPAS use. Previous studies used 128 item Likert scales. It would have been interesting reviewing MPAS 6 months post course to see if MPAS had atrophied.
Nicoll et al (2012) Junior doctor skill in the art of physical examination: a retrospective study of the medical admission note over four decades	Examining MPAS used in patients to help skill improvement in neurological patients. Country UK	Convenience sample (n=93) patients Two teaching hospitals. Prospective study over 4 months. 2 phase study examining if MPAS equipment use had increased.	48% of patients could not recall neurological examinations using ophthalmoscope, 33% a tendon hammer. 95.7% of patients remembered stethoscopes use. Barriers confidence, equipment & guideline knowledge lack. 71% had used an ophthalmoscope less than10 times in last 6 months. Only one in 5 doctors felt confident recognising papilloedema.	Relied on patient memory recall potential for recall bias. Insufficient data to assess if equipment use improved in the second phase due to insufficient data through less patient referrals. Data suggested patients with neurological issues were not being assessed properly.

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Oliver et al, (2013) Junior doctor skill in the art of physical examination: a retrospective study of the medical admission note over four decades	Investigating if junior doctors MPAS were deteriorating. Country UK	Patient admission records (n=266) from 1975-2011 One hospital setting. **Quantitative** Retrospective study.	MPAS atrophying, number of bodily systems examined declining. Less MPAS in apex beat location, cardiac murmurs & character, liver & spleen palpation. Barriers time constraints, reduced confidence. Highlighted ways to improve MPAS, increased senior supervision, formative feedback & reflection.	Conducted on one site limiting generalisability. Data extracted by one researcher, valuable information could have been missed / open to researcher bias. Records could be inaccurate but difficult clarifying in retrospective studies. Findings demonstrated deterioration in MPAS.
Osborne et al (2015) The primacy of vital signs - Acute care nurses and midwives use of physical assessment skills: a cross sectional study	Determining minimum core MPAS set used in nursing assessments and workplace predictors of MPAS use detecting patient deterioration. Country Australia	Purposive sample RNs, midwives (n=1591). Hospital settings surgical, medical, mental health, oncology & maternity. Response rate (n=434) (30.8%) **Quantitative** Cross sectional survey design. 2 Questionnaires Likert scale 133 item physical assessment skills inventory & 58 item barriers to use of physical assessment scale.	Nurses & midwives used small core MPAS sets (10/133) regularly, mainly monitoring patients vital signs. 12 skills rarely included lung auscultation, abdomen palpation, JVP assessment. Increased clinical experience MPAS use decreased. Significant predictors of MPAS use confidence & time lack, reliance on others & technology, clinical setting & role, lack of time & interruptions.	Survey poor response rate. Self-report questionnaires open to bias. The hospital was undergoing radical cost saving governmental measures including nursing workforce cuts which could have affected their clinical practice perceptions, reasons for low numbers of MPAS used and accounted for the poor response rate. MPAS not used may not be application to setting.
Pines et al (2005) The interrater variation of ED abdominal examination findings in patients with acute abdominal pain	To establish if variations exist in resident & attending physicians abdominal examination Country USA	Convenience sample patients (n=122) with abdominal pain presentation. One hospital setting **Quantitative** Prospective observational survey. Each patient examined by resident & attending physician & questionnaire completed.	Examination inconsistency ie rebound tenderness & guarding. Treatment received varied depending on physician examining patient. Consistency needed to promote equitable consistent care & determine correct diagnosis. Recognition that some abdominal examination findings are more variable than others.	Response rate unclear. Questionnaire appeared to be filled ad hoc depending on availability of physician & research co-ordinator. Data points in study separated in time = MPAS findings may differ as patient presentation of abdominal pain may have changed (improved or worsened).

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Raleigh & Allan (2016) A qualitative study of advanced nurse practitioners use of physical assessment skills in the community.	Exploring multiple views on the use of MPAS in community ANPs. Country UK	Purposive sample GPs (n=7) ANPs (n=14) Community setting. **Qualitative** Interpretative single-embedded case study Focus groups / semi-structured interviews	In-depth MPAS supported cross boundary working. MPAS supported diagnosing & treating complex patient with multiple health issues effectively. Barriers using skills service demands, lack of support, time to learn, knowledge deficits & technical competence during training. Recommends undergraduate nurse programmes to facilitate foundations to develop MPAS in post graduates.	Multiple health professionals opinions enhanced the understanding of skill use in practice. One site reducing study generalisability. Discussed the benefits of MPAS for patients but no patients included in this study sample. Adds to a limited body of MPAS community evidence.
Reaby (1990) The effectiveness of an education program to teach Austraian nurses comprehensive MPAS	Evaluating the effectiveness of a MPAS education module & skill use. Country Australia	Purposive sample RNs (n=22). Surgical & medical (10), ICU (4), nursing homes (2), community (6) settings. Response rate (n=17). **Quantitative** Survey quasi experimental pre-post test design. Likert scale questionnaire (36 item).	63% post intervention used over 50% of MPAS taught. Lack of confidence identified. Community nurses used a wider range of skills compared to ward based nurses due to working in isolated environments and autonomous decision-making. Education highlighted as important.	Data collection tool validity & reliability not established. Small sample size / pilot study affecting generalisability. Data demonstrates that community nurses need generic MPAS in their roles.
Rousseau et al (2018) Overcoming the barriers of teaching physical examination at the bedside: more than just curriculum design	Understanding facilitators and barriers in physical examination teaching in relation to a new bedside curriculum. Country Canada	Convenience sample Medicine residents (n=86) Physicians (n=34) One site. Response rate (n=9 /12) **Qualitative** Thematic analysis Interviews & focus groups.	Variation in MPAS & knowledge. Barriers included dependence on technology (diagnostic imaging), anxiety performing skills in front of peers, poor insight into own skills. Time constraints, busy environment, increased documentation, lack of equipment. Identified rehearsal opportunities & coaching needed.	Good insight into the topic area using a qualitative research approach. Highlighted doctors experienced similar barriers to skill use as in the nursing & ACP studies.
Rushford et al (2000) Nurse led paediatric pre operative assessment: an equivalence study	To assess the safety of nurses clerking in patients in minor surgery & day case. Country UK	Sample (n=60) children randomly assigned to SHO or nurse for clerking in. **Quantitative** RCT. All participants re-assessed by an anaesthetic registrar (gold standard) & nurses & SHO's performance measured.	Nurses took longer completing assessments than SHO but were just as safe in their clerking and pre operative assessments.	Pilot study. Small sample, one setting reducing generalisability.

Appendix 2
Summary of key studies in the literature review

Author & Year	Research purpose / origin	Methodology	Key findings	Limitations & strengths
Rushford (2006) Nurse led paediatric pre operative assessment an equivalence study	To determine if registered nurses MPAS in pre operative assessment are equivalent to SHOs in safety. Country UK	Random sample (n=595) children Hospital paediatric pre operative unit. **Quantitative** RCT using an equivalence methodology. Each child assessed by either a nurse n=288) (experimental group) or SHO (n=307) (control group). Blinded expert verification by experienced anaesthetist.	PA skill equivalence between nurses & SHO uncertain. Findings similar to Kinley et al (2002) (study examined same outcomes). Detecting minor heart murmurs was difficult for both nurses & SHO.	Found similarities between nurses & SHOs in pre operative assessments. No room in RCT to allow for whether nurses leading pre operative clinics impact on quality of service, cancellations or peri operative complications. Sample selection bias due to random sequence generation.
Schroyen et al (2005) Encouraging nurses physical assessment skills	Investigating PA skill activity amongst nurses. Country New Zealand	Purposive sample RNs (n=60). Various hospital departments & community settings. Response rate (n=33) **Quantitative** Likert scale questionnaire (36 item).	Community nurses use a wider range of MPAS due to isolated environments & lack of GP support. Only 50% used MPAS when a problem was suspected. Barriers to MPAS use lack of time, peer support, equipment & rehearsal opportunity, not seen as a nursing role. All the sample identified the importance of improving skills, skill importance & the need for continuing education.	Adds to limited body of information on MPAS in the community. Small sample size. Pilot study - limited information provided on survey tool development. Pilot studies can establish potential problems before the main research is conducted.
Secrest et al (2005) Physical assessment skills: a descriptive study of what is taught and what is practiced	Investigating MPAS taught in undergraduate degree nursing programmes & MPAS used in practice. Country USA	Purposive sample Nurse educators (n=12), RNs (n=51). Various settings surgical, medical, ICU, home health, paediatric. **Quantitative** Exploratory descriptive survey Likert scale questionnaire 120 item.	Only a small percentage (29%) of MPAS were used daily / weekly, 37% never used & the rest used occasionally. The main MPAS used on hospital wards were cardiovascular & respiratory. A wider range of skills needed in community for diagnostics as opposed to assessment purposes on wards. Findings indicate that MPAS education needs re evaluating and programmes need to focus on what nurses need to practice.	Involved educators & nurses providing multiple opinions on what MPAS are required in practice. Small sample. The sample lacked homogeneity, more nurses were recruited from ICU than the other settings.
Shi et al (2021) Barriers to physical assessment: registered nurses in Mainland China	Exploring the barriers to physical assessments skill use in RNs Country China	Convenience sample RNs (n=1298) Medical, surgical, gynaecological & obstetric settings. Response rate (n=1115) **Quantitative** Cross sectional survey Likert scale 171 item.	15% of MPAS were used regularly. Common skills used BP, pulse, respiratory rate, BP & skin condition assessment. Dichotomy between skills taught & used in practice. Barriers lack of training, time, support & encouragement - linked to managers giving skills insufficient attention. Highlighted the need for ongoing education.	Good response rate Self reported questionnaires - potential for information bias. Lengthy questionnaire could put busy nurses off responding.

Appendix 2
Summary of key studies in the literature review

Author & Year	Research purpose / origin	Methodology	Key findings	Limitations & strengths
Shin et al (2009) Use of physical assessment skills and education needs of advanced practice nurses and specialist nurses	Investigating MPAS used & educational requirements. Country Korean	Purposive sample. APNs & nurse specialists (n=123). Hospital settings. **Quantitative** Likert scale questionnaire 126 item.	Only 14/126 MPAS performed regularly. Observation the most frequently used skill. Lack of confidence was the main barrier to skill use. Increased educational opportunities in MPAS was needed based on nurses needs and skill levels.	Quantitative data. Likert scale restricts deeper understanding of MPAS use in practice. Adds to a very limited body of research involving APNs & MPAS activity.
Shinozaki & Yamauchi (2009) Nursing competencies for physical assessment of the respiratory systems in Japan	To establish the minimal essential competencies needed in respiratory MPAS in basic nursing education. Country Japan	Convenience sample Clinical nurses (n=210), clinical nurse educators (n=76). Response rate (n=156) final **Quantitative** Descriptive study Questionnaire Delphi technique.	29 competency items needed in respiratory assessments. Anatomy & physiology regarded as competencies. Nurses need MPAS to detect respiratory function abnormalities. Findings could help support educational development.	MPAS new in Japan which could question the expert status of sample. Response rates reduced as the study progressed. Multiple rounds of questionnaires may be off putting for busy nurses. Response rates decreased more in the practising nurses than the educators, possibility due to nurses workload.
Skillen et al (2001) The created environment for physical assessment by case managers	Exploring RNs perceived learning needs for MPAS & factors influencing MPAS use in care homes. Country Canada	Purposive sample Case managers (n=150) & staff development (n=39) officers Care home settings. **Quantitative** Exploratory descriptive survey Likert scale questionnaires 31 item for case managers / 19 item for staff development officers.	MPAS needed in case managers' roles as they were first point of patient contact & no doctors on site. Many of the patients had illnesses related to LTCs. MPAS needed to identify altered physiological state, co-ordinate & evaluate care. Factors inhibiting MPAS use included lack of time & equipments, peer & organisational support & opportunities to improve confidence & competence. Facilitators included economic climate, self-motivation, confidence attitude to learning.	Incorporated a small number of open ended questions enhancing topic insight. Findings reinforce that individual & organisational commitment to create conducive environments to MPAS practice is essential. Validity of survey tools = not established. Study identified both factors, inhibiting and facilitating MPAS in practice.
Sony (1992) Baccalaureate nurse graduates perception of barriers to the use of physical assessment skills in the clinical setting	Examining perceived barriers of MPAS in clinical practice. Country USA	Purposive sample RNs (n=148). Various settings surgical, medical, ICU, A&E, obstetric, psychiatric & community. Response rate (n=114) **Quantitative** Survey Likert scale questionnaire 42 item.	Only 50% of MPAS taught used regularly. Abdominal, cardiac & respiratory most frequently used. Nurses completing MPAS updates used skills more frequently. Barriers to skill use included time through heavy workloads, lack of equipment, opportunity to practice, colleague support & not seen as a nursing responsibility.	Content validity of data collection tool = not established. Pilot study. Compared MPAS in those attending updates. Highlights that future research is needed.

Appendix 2
Summary of key studies in the literature review

Author & Year	Research purpose / origin	Methodology	Key findings	Limitations & strengths
Verghese et al (2015) Inadequacies of physical examination as a cause of medical errors and adverse events: a collection of vignettes	Examining physical assessment inaccuracies in order to show the diversity of their characteristics & consequences. Country USA	Convenience sample Physicians full details missing. Settings not provided. Response rate (n=263) **Qualitative survey** Cross sectional Email distribution.	63% medical errors & adverse events were from not performing assessment, misinterpreted signs. Patient consequences included missed, delayed & incorrect diagnosis & delayed treatment. Demonstrates the importance of maintaining MPAS.	Recruitment details missing but reported inviting thousands. Possibly low response rate related to acknowledging clinical error. Based on vignettes relying on recall & lacked contextual information about doctors speciality. Email questionnaires = difficult to verify who completes the questions.
Williamson et al (2012) An ethnographic study exploring the role of ward-based advanced nurse practitioners in an acute medical setting.	An exploration of the ANP role on nursing practice and patient care. Country UK	Purposive sample ANPs (n=5), nurses (n=14), patients (n=5) Hospital ward setting **Qualitative** Ethnographic design Observation & interviews.	ANPs were viewed as experts, good communicators & roles models. Facilitates holistic care involving medical & nursing practice. Not seen as doctor substitutes. Advanced practice training was deemed as not clinically preparing them for practice.	In-depth data from multiple perspectives including patient views. Small sample & one site restricts generalisability. Adds to the body of advanced practice knowledge. Reinforces that more education & training is needed post ANP qualification.
Yamauchi (2001) Correlation between work experiences & physical assessment in Japan	Evaluating the correlation between work experience & MPAS. Nurses skills, knowledge and attitude of MPAS. Country Japan	Convenience sample RNs (n=357). Hospital settings, medical, surgical, paediatric, psychiatric, obstetric, ICU, theatre, rehab. Response rate (94%) **Quantitative** Descriptive correlation survey design Questionnaire Likert scale 28 item.	Examined frequency & use of MPAS. More experienced nurses had more knowledge of MPAS. Cardiovascular & respiratory MPAS were used more on hospital wards. Abdominal MPAS less frequently used. Barriers to MPAS use lack of knowledge, time & support to rehearse skills, heavy caseloads, doctors presence, lack of colleagues support, clinical settings, not viewed as a nursing responsibility.	Study conducted on one site reducing generalisability. The author acknowledges that the number of questionnaire items were limited. Difficult to gain deeper insight with this type of data collection tool.
Zambas et al (2016) The consequences of using advanced physical assessment skills in medical and surgical nursing: a hermeneutic pragmatic study	Exploring the consequences of nurses' use of MPAS in practice. Country New Zealand	Purposive sample. RNs (n=5). Hospital settings medical & surgical. **Qualitative** Hermeneutic pragmatic study design. Unstructured interviews to obtain narratives on MPAS practice.	Use of MPAS affects what the nurse looks for, interprets & their actions. The advanced skill is interpreting what is heard, seen & palpated within the context of patient situations. MPAS enables nurses to contribute to the diagnosis process.	Small sample but appropriate to the methodology. A limitation of the data relates to storytelling, retrospective reviews make it difficult to reconstruct the context that decisions were made & actions taken by the nurses. Memory could blur accounts which may affect data quality.

Appendix 3
HRA approval letter

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Ms Glenys Oates
The Vallance Health Centre
Brunswick Street
Brunswick, Manchester
M13 9UJ

Email: hra.approval@nhs.net
HCRW.approvals@wales.nhs.uk

13 August 2019

Dear Ms Oates

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).**
IRAS project ID:	**262228**
Protocol number:	**N/A**
REC reference:	**19/HRA/3177**
Sponsor	**University of Salford**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?

The attached document *"After HRA Approval – guidance for sponsors and investigators"* gives detailed guidance on reporting expectations for studies with HRA and HCRW Approval, including:

- Registration of Research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics and is updated in the light of changes in reporting expectations or procedures.

Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **262228**. Please quote this on all correspondence.

Yours sincerely,
Sadie McKeown-Keegan

Approvals Specialist

Email: hra.approval@nhs.net

Copy to: *Professor Margaret Rowe*

Appendix 4
University ethical approval letter

University of Salford MANCHESTER

Research, Enterprise and Engagement
Ethical Approval Panel

Doctoral & Research Support
Research and Knowledge Exchange,
Room 827, Maxwell Building,
University of Salford,
Manchester
M5 4WT

T +44(0)161 295 2280

www.salford.ac.uk

15 March 2019

Dear Glenys,

RE: ETHICS APPLICATION HSR1819-038 – 'Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).'

Based on the information that you have provided, I am pleased to inform you that your application HSR1819-038 has been approved to go forward to NRES (HRA).

Once you have received it, please submit a copy of the NRES (HRA) approval letter to Health-ResearchEthics@salford.ac.uk so that it can be placed on your application file.

If there are any changes to the project and/or its methodology, then please inform the Health Research Ethics Support team as soon as possible.

Yours sincerely,

Professor Sue McAndrew
Chair of the Research Ethics Panel

Appendix 5
Trust chief medical officer approval letter

Manchester Local Care Organisation

Leading local care, improving lives in Manchester, with you

5th Floor, Barnett House
53 Fountain Street
Manchester M2 2AN

Tel: 07768565002
sohail.munshi@nhs.net

4 March 2019

Re: Glen Oates, Advanced Nurses Practitioner
Community Integrated Team Ardwick and Longsight Locality
Manchester Community Response
Central Crisis Response Team
The Vallance Centre
Brunswick Street
Manchester M13 9UJ
email: glen.oates@mft.nhs.uk

Study title: Factors influencing community-based advanced practitioners maintaining their medical physical assessment skills (MPAS).

The above member of staff is currently doing her clinical doctorate at the University of Salford. I understand that the research project will involve face-to-face interviews with members of staff and will not need to be submitted for NHS ethics. The HRA approval and confirmation of capacity & capability will be organised through the following department:

Research Office
Manchester University NHS Foundation Trust
1st floor, The Nowgen Centre
29 Grafton Street
Manchester
M13 9WU

Yours sincerely

Dr Sohail Munshi BEM
Chief Medical Officer

Powered by:

NHS Manchester University NHS Foundation Trust
NHS Greater Manchester Mental Health NHS Foundation Trust
Manchester City Council
Manchester Health & Care Commissioning
The Manchester Primary Care Partnership

Appendix 6
Trust Line manager approval letter

NHS
Manchester University
NHS Foundation Trust

Gorton South Neighbourhood Office
128 Mount Road
Manchester M18 7GS

Date : 07/03/2018

Private and Confidential
University of Salford
Frederick Road
Salford
Manchester

To Whom It May Concern,

Glen Oates research project

A meeting was held to discuss the vision of Glen's research project. The benefits of looking at what enables or challenges community based Advanced Nurse Practitioners (ANP) maintaining their medical physical assessment skills (MPAS) were identified and discussed.

An agreement was made for Glen to complete the study within Manchester Foundation Trust (MFT) once ethical approval has been attained from the University of Salford and subsequently within MFT.

If you require additional information please do not hesitate to contact me.

Yours Faithfully

Sarah Lake
Community Integrated Team Manager

Appendix 7
Trust study access site approval letter

From: **Cannon Chelsie (R0A) Manchester University NHS FT** Chelsie.Cannon@mft.nhs.uk
Subject: (IRAS: 262228 MFT PIN: B0055) Factors influencing community based APs maintaining their MPAS
Date: 4 September 2019 at 11:03
To: Oates Glen (R0A) Manchester University NHS FT Glen.Oates@mft.nhs.uk, goates193@btinternet.com
Cc: M.E.Rowe@salford.ac.uk, Weaver Emily (R0A) Manchester University NHS FT Emily.Weaver@mft.nhs.uk, Murray Lindsay (R0A) Manchester University NHS FT Lindsay.Murray2@mft.nhs.uk

IRAS: 262228
MFT PIN: B00551
TITE: Factors influencing community based APs maintaining their MPAS

Dear Ms Oates,

The 'Factors influencing community based APs maintaining their MPAS' study has been registered with R&D at Manchester University NHS Foundation Trust, you may commence research activity at site.

Please ensure you notify R&D when the study is complete.

If you wish to discuss further, please do not hesitate to contact me.

Kind Regards,
Chelsie

Chelsie Cannon, BSc (Hons)
Research Support Officer

NHS
Manchester University
NHS Foundation Trust

Little things big difference:
putting sustainability at the heart of everything we do

Research Office
Manchester University NHS Foundation Trust
1st floor, The Nowgen Centre
29 Grafton Street
Manchester
M13 9WU
Tel: 0161 276 5787 (EXT : 65787)
E-mail: chelsie.cannon@mft.nhs.uk

Manchester University NHS Foundation Trust (MFT) incorporates Altrincham Hospital, Manchester Royal Eye Hospital, Manchester Royal Infirmary, Royal Manchester Children's Hospital, St Mary's Hospital, Trafford General Hospital, University Dental Hospital of Manchester, Withington Community Hospital and Wythenshawe Hospital.

Appendix 8
Email flyer

University of Salford MANCHESTER

NHS Manchester University NHS Foundation Trust

Are you a qualified community Advanced Practitioner (AP)?

Would you like to take part in a study that explores the use of medical physical assessment skills (MPAS) in advanced practice? The aim of this study is to explore your views into factors influencing community based APs maintaining their MPAS. As an AP within the trust, your views are important to this study. Your insight will help gain more understanding about maintaining MPAS in community advanced practice roles. This information can be used to show best practice and support maintaining MPAS in these roles. An understanding of support, supervision and educational opportunities in MPAS will also be explored.

If you are interested in taking part in this study please contact the researcher to discuss further on the email or mobile number provided.

Thank you for your interest.

Researcher Name: xxxxxxxxxx
Email address: xxxxxxxxxxxx
Contact number: xxxxxxxxxxx

Appendix 9
Participant invitation letter

Name: xxxxx
Address: xxxxx
Date: xxxxx

Study title: Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).

Dear {Name},

Following your recent interest in this study I am writing to invite you to take part. This piece of research will be conducted within Manchester Foundation Trust exploring MPAS in community advanced nursing practice. Whilst I am an AP working in this Trust, this is a student study at the University of Salford which forms part of a professional doctorate in the School of Health and Society.

The aim of this study is to explore your views into factors influencing community based APs maintaining their MPAS. As an AP within the trust, your perceptions are important to this study. Your insight will help gain more understanding about maintaining MPAS in community advanced practice roles. This information can be used to show best practice and support maintaining MPAS in these roles. An understanding of support, supervision and educational opportunities in MPAS will also be explored.

I am aware that you may have questions about this study and your involvement. Please read the participation information document enclosed aimed at answering any questions you may have. However, if you prefer to discuss any areas further, please do not hesitate to contact me on the contact details provided in this letter.

Thank you for considering being involved in this research project.

Yours Sincerely

xxxx xxxxx

Student - Professional Doctorate in the School of Health and Society
University of Salford

University of Salford MANCHESTER

NHS Manchester University NHS Foundation Trust

Title of study:
Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).

Name of Researcher: xxxxxxx

1. Invitation paragraph
I would like to invite you to take part in a research study which will be conducted within Manchester Foundation Trust. This is a student study at the University of Salford which forms part of a professional doctorate. Prior to your agreement to take part in this study it is important that I provide the appropriate information to enable you to understand the reasoning for the research and what your involvement will entail. Please read the following information which will make things clearer. However, if you would like to discuss any aspect of the study or require any other information please contact me. My contact details and my supervisors contact details are provided on page two of this information sheet.

2. What is the purpose of the study?
The aim of this study is to explore your views into factors influencing community based APs maintaining their MPAS. As an AP within the trust, your perceptions are important to this study. Your insight will help gain more understanding about maintaining MPAS in community advanced practice roles. This information can be used to show best practice and support maintaining MPAS in these roles. An understanding of support, supervision and educational opportunities in MPAS will also be explored.

3. Why have I been invited to take part?
You have been invited to participate in this study because you are a qualified AP with experience of MPAS activity in clinical practice.

4. Do I have to take part?
No, participation is completely voluntary. There is no obligation to take part.

5. What will happen to me if I take part?
Being involved means participating in an interview. However, prior to the interview you will be asked to complete the enclosed consent form to advocate that you are happy to engage and verify your understanding of the study from this information sheet. You will be invited to participate in a one-to-one interview which will last approximately 60 minutes. The interview will take place at a location convenient for you (such as your work setting). A time suited to you will be provided for the interview. The Trust has allowed for this interview to take place as protected time out of work. Interviews will audio recorded and then transcribed. Confidentiality at all times will be maintained with this data. If for some reason you do not want audio recording to be used the information will be recorded in note format.

6. Expenses and payments?
There is no payment for involvement in this study however, tea and coffee will be provided.

7. What are the possible disadvantages and risks of taking part?
As an AP you may not feel comfortable discussing issues relating to your views and the environment you work in. If there are any questions you are uncomfortable answering you can decline to answer. At any point during the interview you can ask for it to be stopped. If the interview is stopped the data obtained to that point will be used in the study.

8. What are the possible benefits of taking part?
As an AP you may find the research interesting as it will give you some time to reflect on the factors that influence maintaining MPAS in advanced clinical practice. As a body of APs it will be a good opportunity to share the findings and recommendations to strengthen, improve and maintain MPAS within community AP roles.

9. What if there is a problem?
If you have a concern about any aspect of this study, you should ask to speak to the researcher (contact details are provided in section 14) who will do their best to answer your questions. If you remain unhappy and wish to complain formally you can do this by contacting the Research Supervisor (contact details are provided in section 14). If the matter is still not resolved, please forward your concerns to Professor Susan McAndrew, Chair of the Health Research Ethical Approval Panel, Room MS1.91, Mary Seacole Building, Frederick Road Campus, University of Salford, Salford, M6 6PU. Tel: 0161 295 2778. E: s.mcandrew@salford.ac.uk

10. Will my taking part in the study be kept confidential?
If you consent to participate in this study your identity and all the information you provide will not be disclosed to other parties and confidentiality will be maintained (unless information is revealed that is harmful to yourself or others or relates to criminal activity or poor practice the researcher must disclose that information to appropriate personnel and an incident report form completed. Although very unlikely, if there are any safeguarding issues raised trust safeguarding processes will be followed).

All confidential information including consent forms, audio recordings, transcripts and field notes will be kept in an NHS site in a secured locked drawer (the researcher only will have a key) in a secure office. Data recorded from the interviews on an audio encrypted device will be transcribed by the researcher onto a password protected document. To protect participants anonymity names will be substituted by codes in the transcribing process. Following data analysis completion, all data will be deleted. The interview data encrypted audio device, hard copies of notes and documents will be transported in a locked bag. Any data presented from this study will be done so collectively to ensure participant confidentiality and anonymity is protected.

11. What will happen if I don't carry on with the study?
Your involvement in the study is voluntary it is not mandatory for you to be involved. A twenty-four hour cooling off period will be offered between agreeing to be involved in the study and consent. However, if you participate you can withdraw at any time, without

having to provide a reason or affect your rights. If you choose not to participate it will not be reported or written within this thesis. If you decide to withdraw your involvement from the study, information that you have provided up to the point of withdrawal will be used for analysis.

12. What will happen to the results of the research study?

The findings and recommendations will be:-

- provided in a presentation at a Trust site for all APs who participated in the study
- used to inform future development and learning in MPAS in advanced practice within the trust
- presented at conferences, staff meetings and AP forums
- published in academic journals
- used in the researcher's doctoral thesis at the University of Salford

13. Who is organising or sponsoring the research?

The study is being organised by the researcher student at the University of Salford as part of the Professional Doctoral Programme.

14. Further information and contact details:

Researcher contact details

Name: xxxxxxxxxxx
Address: xxxxxxxxxx
Tel: xxxxxxxxxxxx
Email: xxxxxxxxxx

Supervisor contact details:

Name: xxxxxxxxxxx
Address: xxxxxxxxxx
Tel: xxxxxxxxxxxx
Email: xxxxxxxxxx

Appendix 11
Consent form

Title: Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).

Name of Researcher: xxxxxxxxx

Please complete and sign this consent form after you have fully read and understood the study participant information sheet. Please read the statements in the boxes below and circle Yes or No to indicate your response.

1	I verify that I have read and understand the participation information sheet (dated 08/03/2019 version 2) for the study. I have been given time and opportunity to consider the information and ask questions.	YES	NO
2	I understand that my involvement in the study is voluntary and I can withdraw from the study at any time, without having to provide a reason or without my rights affected.	YES	NO
3	I am fully aware that if I do decide to withdraw my involvement from the study, information that has been provided up to the point of my withdrawal will be used in the study.	YES	NO
4	I agree to participate in a one-to-one interview lasting approximately 60 minutes.	YES	NO
5	I agree to audio recording during the interview.	YES	NO
6	I fully understand that details personal to me will remain confidential to only the researcher. I am aware that if I reveal information that is harmful to myself or others or relates to criminal activity or poor practice the researcher must disclose that information to appropriate personnel and an incident report form will be completed.	YES	NO
7	I understand and agree that the anonymised data I provide will be used in the researchers thesis and will also be used in academic journal publications, trust and conference presentations.	YES	NO
8	I agree that my direct quotes will be anonymised and used when reporting findings from this study.	YES	NO
9	I agree to take part in this study.	YES	NO
10	I am interested to receive a summary of the findings on completion of this study.	YES	NO

Name of participant	Date	Signature
Name of person taking consent	Date	Signature

University of Salford MANCHESTER

NHS Manchester University NHS Foundation Trust

Researcher: xxxxxxx

Title:
Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).

Proposed Interview Questions
This is an interview guide and questions may change to allow for concept analysis.

1	First could I ask how long you have been qualified as an AP?
2	Could you explain why you think MPAS are important in AP roles within the Crisis Response Team?
3	Can you describe how MPAS are used in your clinical practice? *Please can you elaborate by providing some examples?*
4	Thinking about MPAS generically, would you say that you use some skills more than others? *If yes, why do you think that is? Can you provide examples?*
5	Can you give me any examples of any challenges either you or your colleagues have experienced maintaining MPAS in practice? *Please can you explain them in more detail?*
6	Can you offer me any examples of what has supported you or your colleagues maintaining MPAS in your practice? *Do you have any examples you can explain in more detail?*
7	Thinking about isolated working would you say this impacts on your MPAS use? *If yes, please can you elaborate?*
8	Do you receive either informal or formal feedback relating to your clinical practice? *If yes, can you provide more detail? if no, why is that?*
9	Do you feel clinical mentor support / supervision available post advanced practice qualification is sufficient to maintaining MPAS in practice? *If yes, can you provide examples? If no why do you think that is?*
10	Are there opportunities for you to attend medically focused clinical updates post advanced practice qualification to support your learning needs? *Please can you explain by providing some examples?*
11	How do you think MPAS can be maintained in AP roles in community settings? *Please can you elaborate why you think that is?*

Appendix 13

Reflective journal

Introduction

Reflective journalling portrayed the intellectual and motivational effort that was required of me leading this research inquiry. My journal offered a confidential, safe place to document and explore my experiences, feelings, actions, values and beliefs. It helped me to reflect on the challenges as well as the successes as they occurred and acknowledge my personal growth and development. For example, my research knowledge, experience and confidence developed with the different aspects of my research including navigating the complex processes of ethics, interviewing, coding and interpreting the data. However, reflecting on my decision-making processes highlighted that there was never one answer or way of reaching conclusions; instead, many questions evolved which supported my knowledge acquisition. 'Below I document some of the insights gleaned about this research process through reflective journalling.'

Literature review

The literature review was challenging, I had to learn how to conduct a review where research in the topic was lacking. The studies were predominantly quantitative and focused on physical assessment skill use where the findings show skills taught were not being used. These findings made me question, if skills were not being used, how were they being maintained? The identified gap in knowledge suggested a study exploring factors influencing the maintaining of physical assessment skills. This was an exciting topic area to explore and in which to gain more understanding, particularly when research in this area of practice was missing.

Aim & Objectives

I encountered a dilemma with my aims and objectives and went round in circles; one minute I had finalised these but the next I began rethinking them. Initially I was planning to explore maintaining physical assessment skills. My supervisors were unsure about my topic area "maintaining physical assessment skills" and suggested "sustaining quality in physical assessment skills". Although this would be an interesting and important area to explore, it did not provide insight into the maintaining

of skills or address the research gaps I had identified. The second topic area was more in keeping with measuring skills. I had also decided to base my study within a constructivist paradigm due to a lack of research and in-depth knowledge and understanding in my preferred topic area. Although it would have been easier to follow the methodological pathway of the existing studies (quantitative), I did not want to produce only cursory data. Secondly, from a personal view physical assessment is about focusing on the whole person thus I felt that a qualitative approach was more suited to the research study.

After further discussion with my supervisors, my research aim reverted back to my original idea of exploring "maintaining of physical assessment skills" and with some modifications to my aim and objectives my research plans were finalised. It soon became apparent that I owned my thesis and must take personal responsibility for research decisions which are demonstrated throughout my reflective journal.

Methodology

Although on the surface an interpretivist case study design appeared more simplistic than other research designs such as phenomenology and ethnography, it involved complex research processes that required a lot of thought and in-depth reading. However, I felt my decision to base my study within the constructivist arena allowed me to embrace the interrelationship between context and phenomena and provide depth to data collection and analysis to gain insight and understand this area of practice.

Ethical approval

I found completing ethics forms a challenge. As a neophyte researcher, navigating complex ethical processes involving three different organisations with individual ethical policies and guidelines was complex. Ethical approval was slow and laborious which provoked some anxiety. I spent months on attention to detail, ethics documents going back and forth to supervisors in a cyclical process: planning; actioning; and evaluating before I could submit them. I felt I was putting more effort into this aspect of my research than writing my actual thesis which resulted in some frustration and demotivation. On reflection this demonstrated my ignorance and lack of knowledge in important

research processes as strict ethical considerations were critical to protecting not only the participants in my study, but also me the researcher and the organisation. Listening to my supervisor's advice meant sound ethical processes were followed and ethical approval was gained with minimal corrections. I felt this was a major achievement which gave me the motivation and excitement to proceed to the next phase of my study, recruiting the participants. Learning from the ethical aspect of my journey I now confidently support other practitioners who are going through similar processes.

Interviewing

Although I was excited that the date had arrived for the first interview, I was also slightly nervous. My anxiety related to my fear of the audio recording equipment not working or losing the data. These thoughts surprised me as technology appeared more important than my ability to articulate the interview questions and communicate effectively. I trialled the equipment several times which helped alleviate some of my worries. Despite my concerns I completed my first interview with no technical issues. Going forward and managing technology phobia for the next interviews I learnt that planning and being prepared supported my confidence.

I very much enjoyed collecting the data and listening to ACPs' accounts of the patients referred to them. The way they described how they used and valued their physical assessment skills really stood out and provided me with deep insight into the impact of their role and commitment to patient care. Hearing their stories made me feel proud to be an ACP and opened my eyes to the enormity of their role responsibility, which as a clinician did not fully appreciate due to being so immersed in clinical work. Taking a step back, writing my reflective journal and completing this study significantly enhanced my awareness of my own ACP role.

Reflexivity, the recognition and analysis of implicit and explicit influences on my research processes meant me having to not only critically examine my direct shaping of the research data, but also consciously consider the impact of my beliefs and values as an ACP working in the crisis response team using and maintaining physical assessment skills. Thus, exploring my positionality as an ACP / researcher and understanding the interrelationship between my two roles was paramount.

It was initially a challenge to define my role as a researcher whilst working in a role as an experienced front-line clinician, however as I progressed through the various research processes, I realised the importance of self-awareness. Being in tune with my feelings, thoughts and actions helped me to understand these roles and be fully aware of the potential for researcher bias and recognise ways to reduce it. Being a more reflexive listener by hearing and understanding what ACPs were saying and not offering my perspective was also a crucial aspect of my role as a researcher.

Data management

The volume of data generated during the interviews was overwhelming and I did not know where to start in handling the data. Reading how other qualitative studies managed data enhanced my knowledge of suitable analysis frameworks to use during this process. The task of breaking down the data into manageable chunks became easier when I adopted a six-phase thematic analysis framework (Braun & Clarke, 2008). The first phase (transcribing the data), proved to be time consuming as it required me to go through the interview data multiple times and type it up. But independent transcribing and putting the groundwork in at this stage enabled me to get to know the transcripts and participants' views.

Coding was a complex process which I dedicated a vast amount of time to understand. Once I understood the process of coding, I really started to enjoy interpreting ACPs' views. I made sure I did not lose sight of their key messages, and my numerous appendices showing transparency in how the interpretations were reached supports this. As themes developed, I became more inspired and felt a great sense of pride as I could envisage how my research could be used to support the maintaining of physical assessment skills in ACP and other health care professional roles in the future. However, these feelings of excitement were short-lived.

COVID-19

The COVID-19 pandemic was announced and as a front-line worker it was initially quite frightening. As senior clinicians, ACPs were confronted with huge challenges, including heightened

working anxieties, increased patient referrals, and constantly changing government information on COVID-19.

Patient referrals increased from GPs and paramedics. Twenty-four-hour COVID-19 media coverage further exacerbated patients' fear and anxiety and escalated 999 calls (although fear and anxiety were unsurprising as lists of COVID-19 symptoms extended, lockdowns were enforced and people shielding were becoming frightened and isolated).

Being an ACP and knowing the potential outcomes and debilitating effects of long COVID-19 exacerbated my feelings. Yet as I reflected on the patients I visited I considered how frightened they must be seeing me in full PPE. With such varied symptoms and diagnostic risk factors, however, it was critical to treat all patients as potentially being COVID-19-positive in terms of physical assessment, PPE and transmission risk. Donning PPE to reduce viral transmission (full gown, face mask, visor, gloves and shoe protectors) outdoors in the community before going into the patient's house was not easy, especially in the wind and rain. Social distancing proved difficult in limited home environments and history taking through a face mask to establish symptoms and guide physical assessment felt impersonal.

Working in isolation in community settings with potential patients with COVID-19 was challenging. Although I was accompanied on my visits (i.e., one ACP and a therapist or nurse), as the ACP, I made the clinical decisions. Critical input from my peers or doctors to support my clinical findings was reliant on telephone contact or discussion back at base. Being able to keep COVID-19 patients at home who would otherwise have been admitted and moreover feared being admitted, was important as well as rewarding. However, vaccines have since been developed and case numbers have significantly reduced.

Autonomous working during the COVID-19 pandemic reinforced the importance of physical assessment skills and completing this piece of research. Dealing with the pandemic whilst trying to complete my research proved challenging both mentally and physically, which was recognised by the university who supported me by providing study interruption.

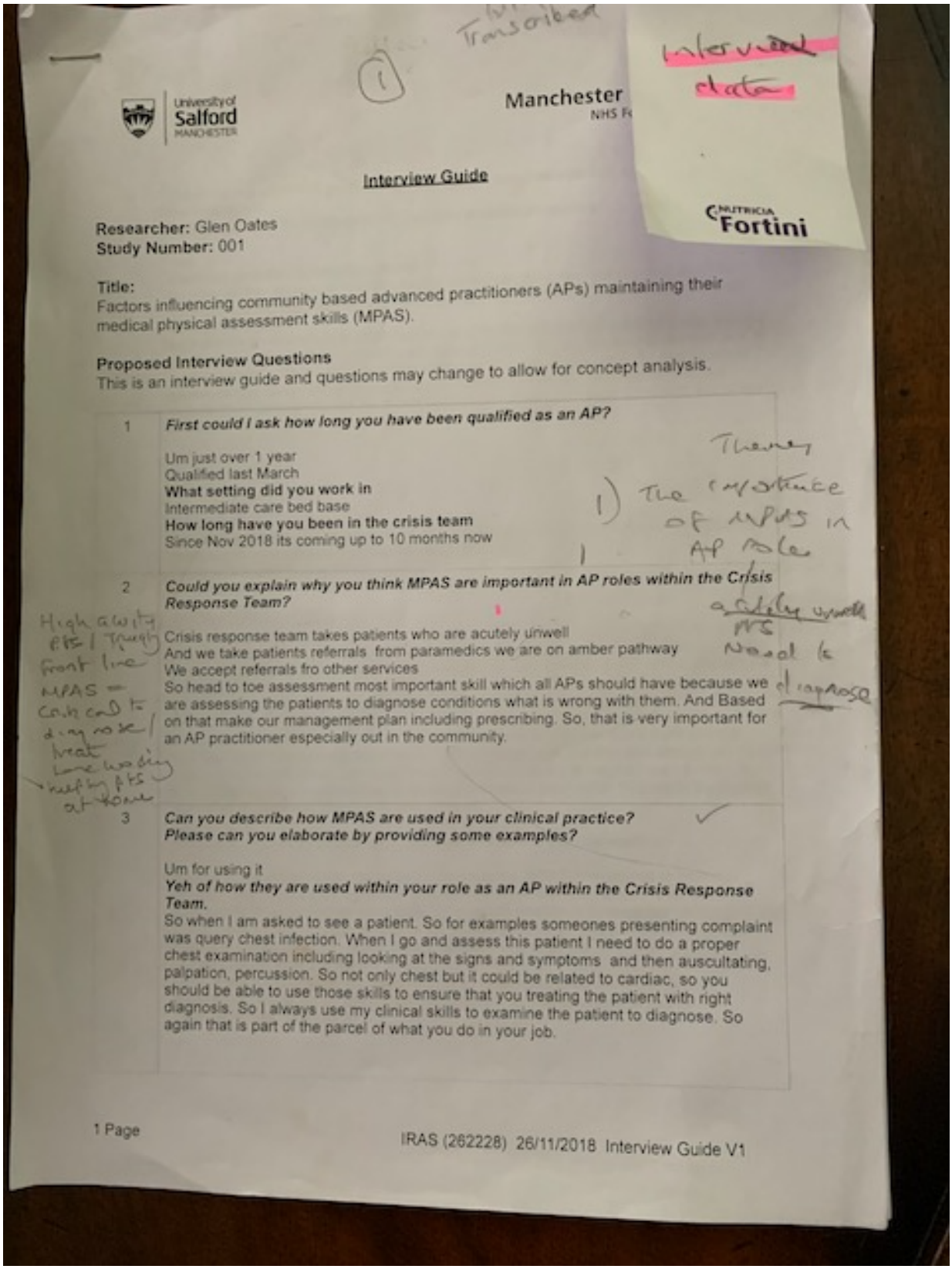
Supervision

On reflection this study would have been difficult to achieve without the support, guidance and expertise from both of my supervisors. They both offered research advice and experiences in unique ways, often challenging my assumptions which made me question and explore areas of discussion to extend my knowledge. Conducting this research was a challenge, but on reflection I truly understood my supervisor's regular phrases: 'kick the can down the road' and 'suck the orange dry' to get the most out of my research project and findings.

Finally

This research project was undertaken part-time over several years. During this period my resilience in the face of many challenges including navigating complex research processes, COVID-19, bereavement and ill-health has significantly developed. This has enabled me to address competing priorities as a researcher, clinician, patient and human being. However, one of the main priorities whilst completing this research was being true to the views of the ACPs who participated in this study.

Appendix 14
Example of transcribed verbatim audio recording (version 1)



University of Salford MANCHESTER

Manchester NHS F

Transcribed

1

Interview data

Patricia Fortini

Interview Guide

Researcher: Glen Oates
Study Number: 001

Title:
Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).

Proposed Interview Questions
This is an interview guide and questions may change to allow for concept analysis.

1 ***First could I ask how long you have been qualified as an AP?***

Um just over 1 year
Qualified last March
What setting did you work in
Intermediate care bed base
How long have you been in the crisis team
Since Nov 2018 its coming up to 10 months now

Theme 1) The importance of MPAS in AP role

2 ***Could you explain why you think MPAS are important in AP roles within the Crisis Response Team?***

Crisis response team takes patients who are acutely unwell
And we take patients referrals from paramedics we are on amber pathway
We accept referrals fro other services
So head to toe assessment most important skill which all APs should have because we are assessing the patients to diagnose conditions what is wrong with them. And Based on that make our management plan including prescribing. So, that is very important for an AP practitioner especially out in the community.

High acuity pts / Tough front line MPAS = confident to diagnose / treat / prescribing pts at home

acutely unwell pts Need to diagnose

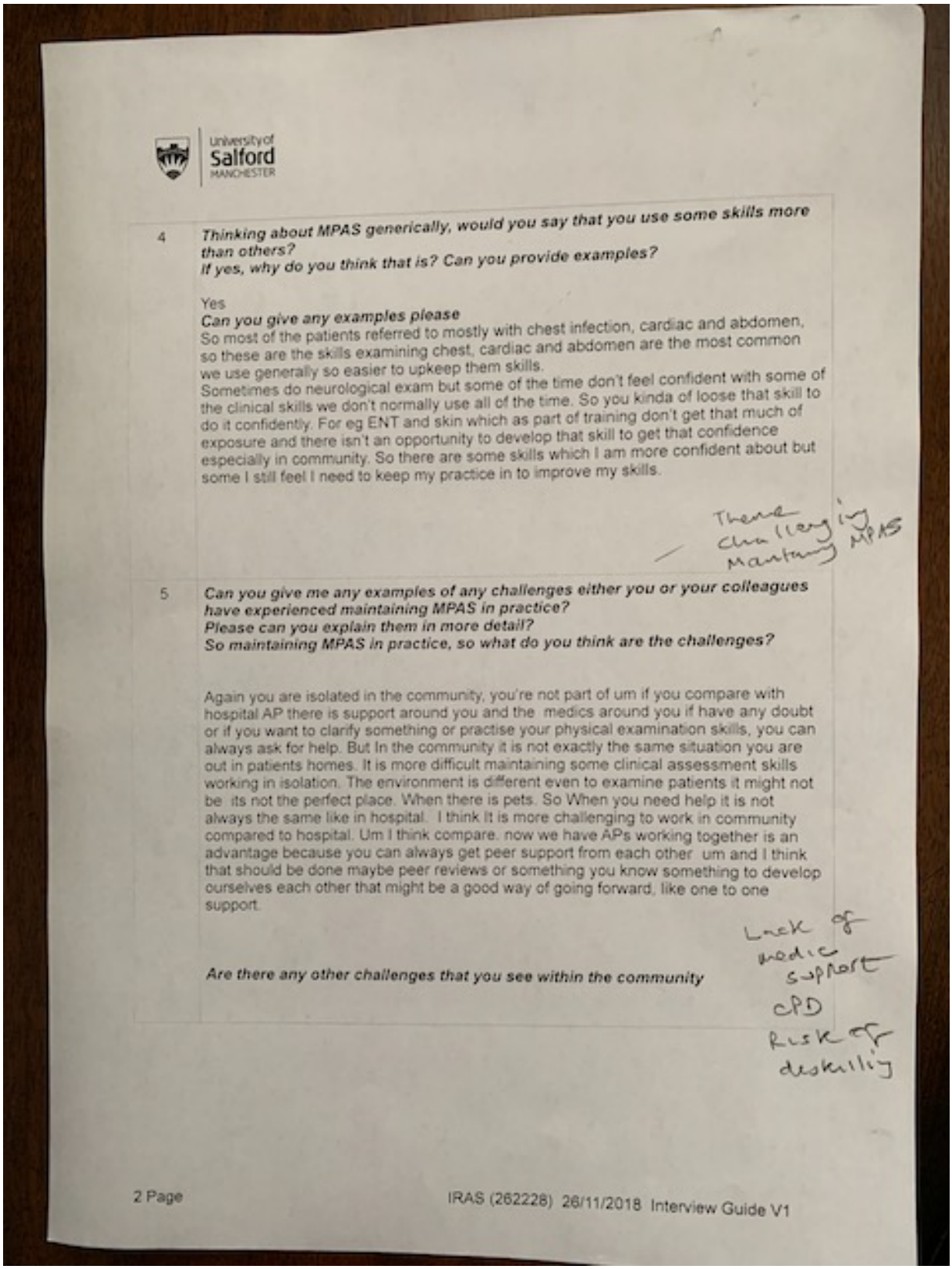
3 ***Can you describe how MPAS are used in your clinical practice? Please can you elaborate by providing some examples?***

Um for using it
Yeh of how they are used within your role as an AP within the Crisis Response Team.
So when I am asked to see a patient. So for examples someones presenting complaint was query chest infection. When I go and assess this patient I need to do a proper chest examination including looking at the signs and symptoms and then auscultating, palpation, percussion. So not only chest but it could be related to cardiac, so you should be able to use those skills to ensure that you treating the patient with right diagnosis. So I always use my clinical skills to examine the patient to diagnose. So again that is part of the parcel of what you do in your job.

1 Page

IRAS (262228) 26/11/2018 Interview Guide V1

Appendix 14
Example of transcribed verbatim audio recording (version 1)



University of Salford MANCHESTER

4 ***Thinking about MPAS generically, would you say that you use some skills more than others?***
If yes, why do you think that is? Can you provide examples?

Yes
Can you give any examples please
So most of the patients referred to mostly with chest infection, cardiac and abdomen, so these are the skills examining chest, cardiac and abdomen are the most common we use generally so easier to upkeep them skills.
Sometimes do neurological exam but some of the time don't feel confident with some of the clinical skills we don't normally use all of the time. So you kinda of loose that skill to do it confidently. For eg ENT and skin which as part of training don't get that much of exposure and there isn't an opportunity to develop that skill to get that confidence especially in community. So there are some skills which I am more confident about but some I still feel I need to keep my practice in to improve my skills.

There challenging MPAS Maintaining

5 ***Can you give me any examples of any challenges either you or your colleagues have experienced maintaining MPAS in practice?***
Please can you explain them in more detail?
So maintaining MPAS in practice, so what do you think are the challenges?

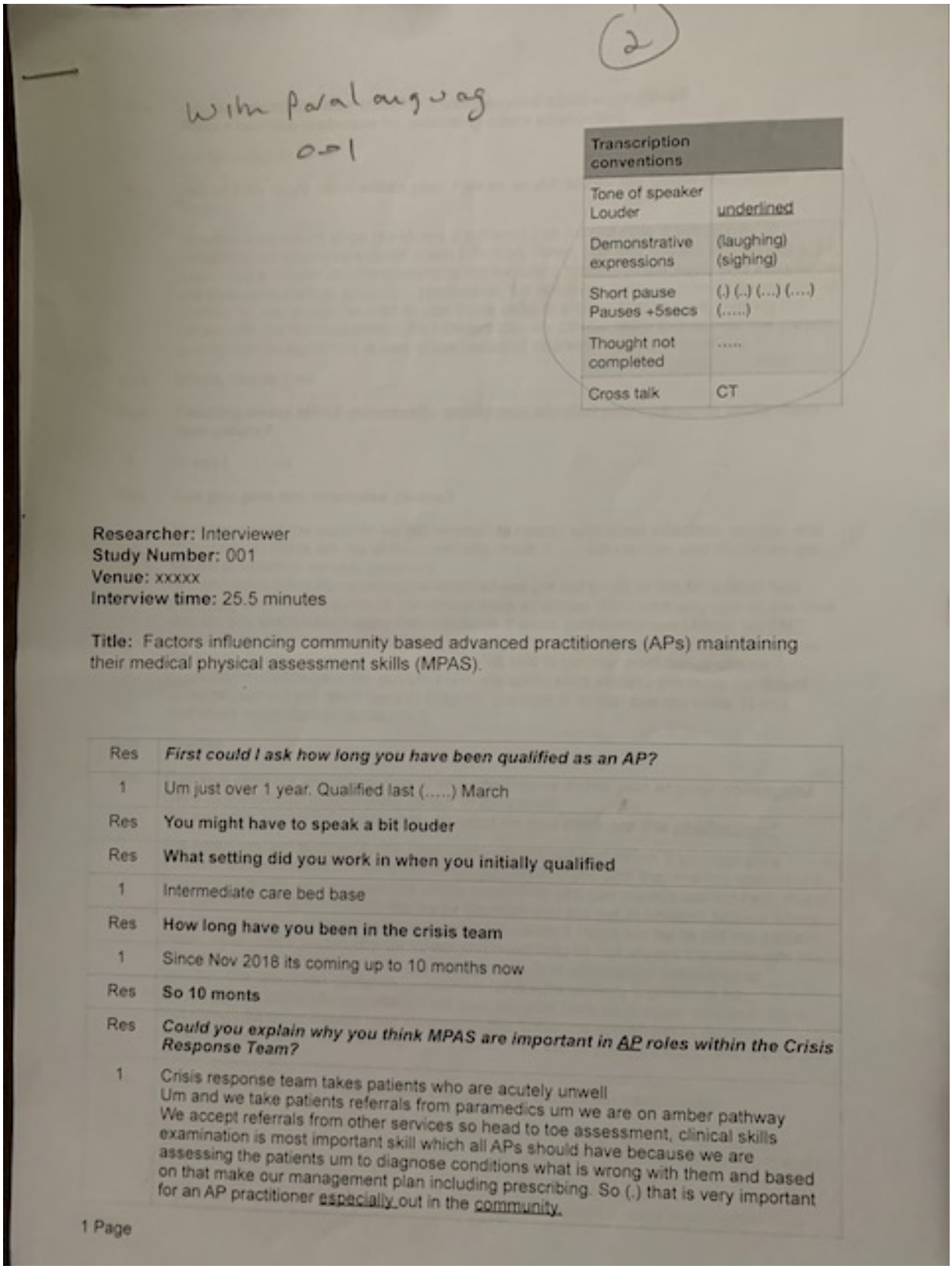
Again you are isolated in the community, you're not part of um if you compare with hospital AP there is support around you and the medics around you if have any doubt or if you want to clarify something or practise your physical examination skills, you can always ask for help. But In the community it is not exactly the same situation you are out in patients homes. It is more difficult maintaining some clinical assessment skills working in isolation. The environment is different even to examine patients it might not be its not the perfect place. When there is pets. So When you need help it is not always the same like in hospital. I think It is more challenging to work in community compared to hospital. Um I think compare. now we have APs working together is an advantage because you can always get peer support from each other um and I think that should be done maybe peer reviews or something you know something to develop ourselves each other that might be a good way of going forward, like one to one support.

Lack of medic support
CPD
Risk of deskilling

Are there any other challenges that you see within the community

2 Page IRAS (262228) 26/11/2018 Interview Guide V1

Appendix 15
Example of transcribed verbatim audio recording (version 2)



(2)

With paralanguag

001

Transcription conventions	
Tone of speaker Louder	underlined
Demonstrative expressions	(laughing) (sighing)
Short pause Pauses +5secs	(.) (..) (...) (....) (.....)
Thought not completed	.....
Cross talk	CT

Researcher: Interviewer
Study Number: 001
Venue: xxxxx
Interview time: 25.5 minutes

Title: Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).

Res	***First could I ask how long you have been qualified as an AP?***
1	Um just over 1 year. Qualified last (.....) March
Res	**You might have to speak a bit louder**
Res	**What setting did you work in when you initially qualified**
1	Intermediate care bed base
Res	**How long have you been in the crisis team**
1	Since Nov 2018 its coming up to 10 months now
Res	**So 10 monts**
Res	***Could you explain why you think MPAS are important in AP roles within the Crisis Response Team?***
1	Crisis response team takes patients who are acutely unwell Um and we take patients referrals from paramedics um we are on amber pathway We accept referrals from other services so head to toe assessment, clinical skills examination is most important skill which all APs should have because we are assessing the patients um to diagnose conditions what is wrong with them and based on that make our management plan including prescribing. So (.) that is very important for an AP practitioner especially out in the community.

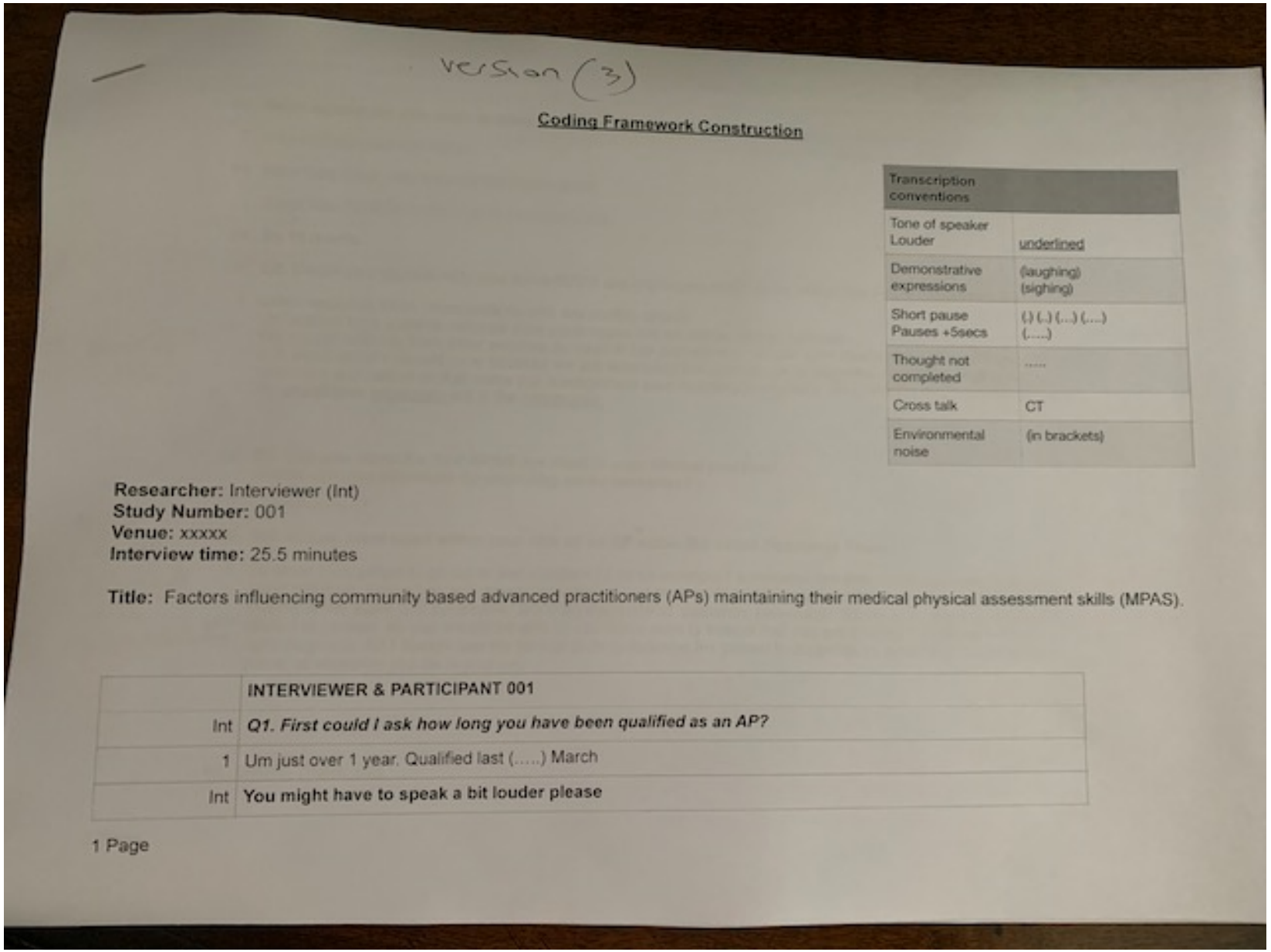
1 Page

Appendix 15
Example of transcribed verbatim audio recording (version 2)

Int	***Q3. Can you describe how MPAS are used in your clinical practice? Please can you elaborate by providing some examples?***
1	Um for using it?
Int	***Yeh of how there used within your role as an AP within the Crisis Response Team.***
1	So when I am asked to go out to see a patient (.) so for example if someones um presenting complaint was query chest infection. When I go and assess this patient (..) I need to do a proper um chest examination including looking at the signs and symptoms and then auscultating, palpation, percussion. So not only chest but it could be related to cardiac, so you should be able to use those skills to ensure that you are treating the patient with the right diagnosis. So I always use my clinical skills to examine the patient to diagnose so again that is part of the parcel of whatever you do in your job.
Int	**Uhum, Thank you**
Int	***Q4. Thinking about MPAS generically, would you say that you use some skills more than others?***
1	Er yes (.....) Um
Int	**Can you give any examples please?**
	So with most of the patients we get referred to mostly with chest infection, cardiac and abdomen, so these are the skills examining chest, (.....) um cardiac and abdomen are the most common we use, generally so easier to upkeep them skills. Um and sometimes do neurological exam **uhum** um but some of the time don't feel confident **um** um with some of the clinical skills which we don't normally use all the time **um.** So you **um** kinda of loose that skill to do it **umm** confidently **um** Um for eg ENT **um** and skin which as part of training as well you don't get that much of exposure and there isn't an opportunity such to develop that skill to get that confidence **um** so especially in community. So yeh um there are some skills which I am more confident about but some I still feel I need to keep my practice in to improve my skills. (Loud motorbike noise during transaction)(pause)
Int	**Thanks**
Int	***Q5. Can you give me any examples of any challenges either you or your colleagues have experienced maintaining MPAS in practice? So maintaining MPAS in practice, so what do you think are the challenges?***
1	Um again you are isolated in the community, you're not part of um if you compare yourself with a hospital AP um there is support around you and the medics around you if have any doubt or if you want to clarify something or practise your physical examination skills, you can always ask for help. But In the community it is not exactly the same situation you are out in patients homes. It is more difficult maintaining some clinical assessment skills working in isolation. The environment is different even to examine patients it might not be its not the perfect place. When there is pets.**Um** So When you need help its not always the same **um** like in hospital. Um I think It is more challenging to work in community compared to hospital. Um um I think compare.... now we have APs working together is an advantage because you can always get peer support from each other um and I think that should be done maybe peer reviews or you know um something to develop ourselves each other um that might be a good way **um** of going forward, like one to one support.
Int	***Is, are there any other challenges that you see within the community***

2 Page

Appendix 16 Coding framework construction - initial observations



version (3)

Coding Framework Construction

Transcription conventions	
Tone of speaker Louder	underlined
Demonstrative expressions	(laughing) (sighing)
Short pause Pauses +5secs	(.) (..) (...) (....) (.....)
Thought not completed	.....
Cross talk	CT
Environmental noise	(in brackets)

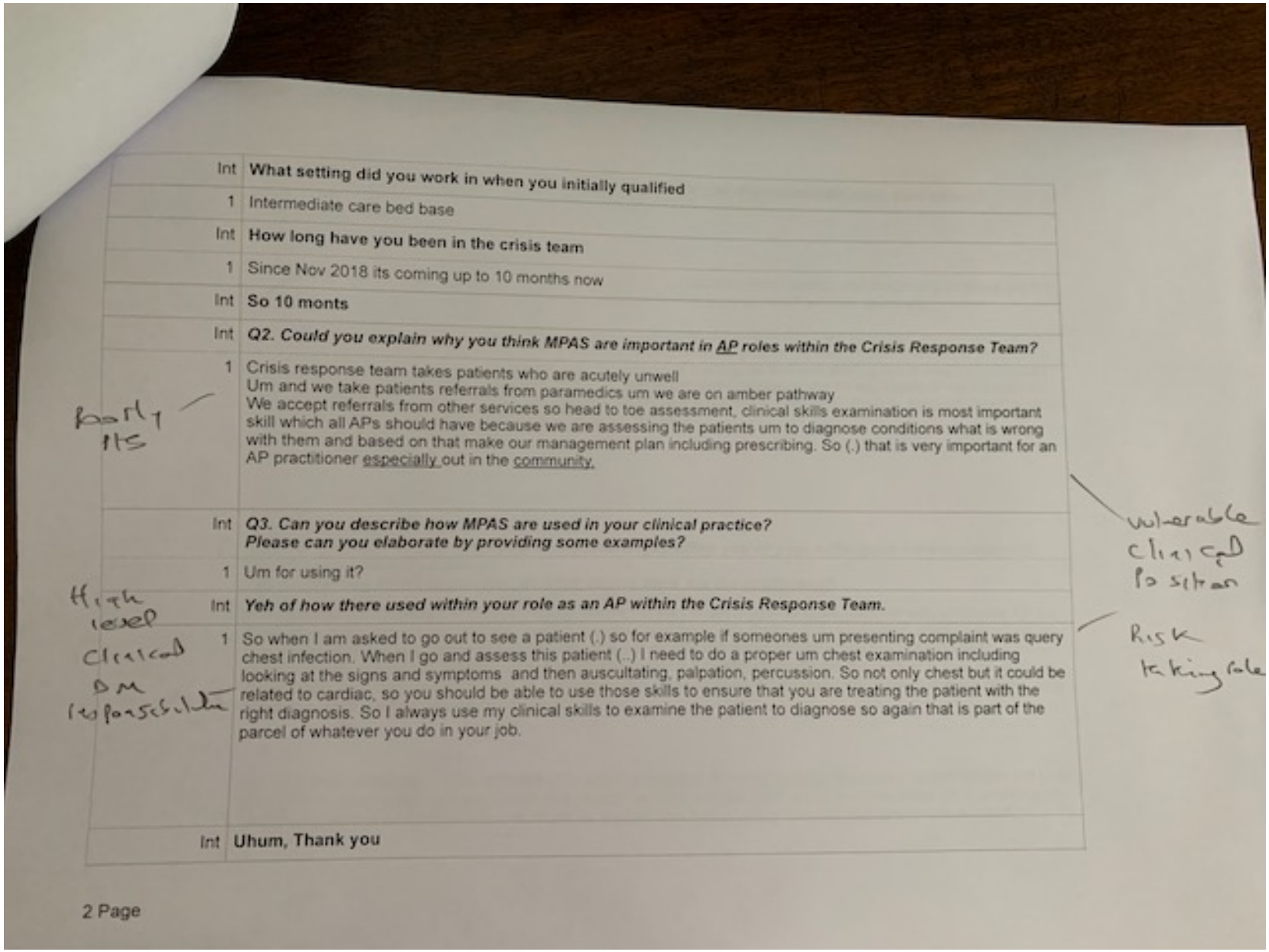
Researcher: Interviewer (Int)
Study Number: 001
Venue: xxxxx
Interview time: 25.5 minutes

Title: Factors influencing community based advanced practitioners (APs) maintaining their medical physical assessment skills (MPAS).

	INTERVIEWER & PARTICIPANT 001
Int	***Q1. First could I ask how long you have been qualified as an AP?***
1	Um just over 1 year. Qualified last (.....) March
Int	**You might have to speak a bit louder please**

1 Page

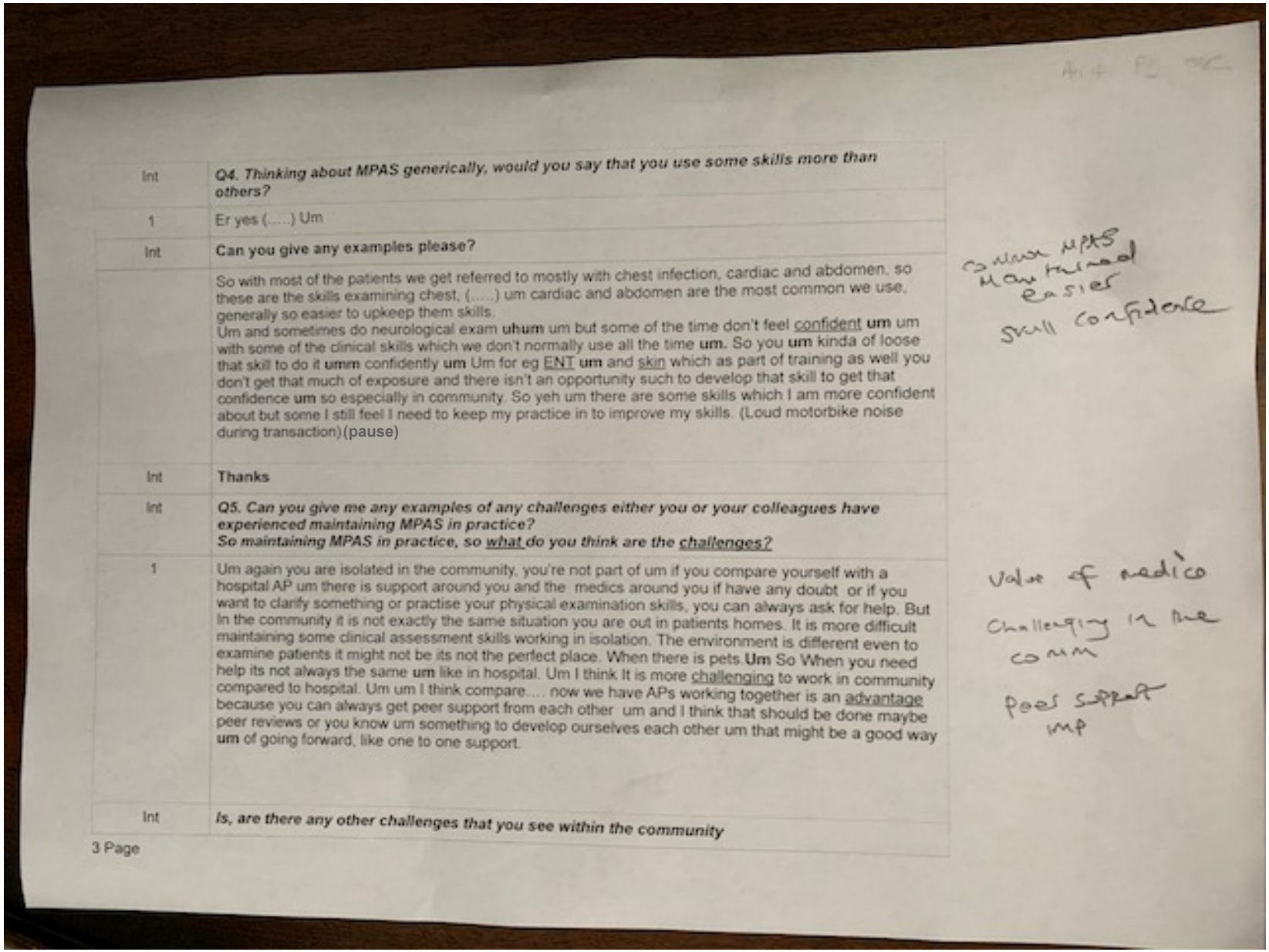
Appendix 16 Coding framework construction - initial observations



Int	**What setting did you work in when you initially qualified**
1	Intermediate care bed base
Int	**How long have you been in the crisis team**
1	Since Nov 2018 its coming up to 10 months now
Int	**So 10 monts**
Int	***Q2. Could you explain why you think MPAS are important in AP roles within the Crisis Response Team?***
1	Crisis response team takes patients who are acutely unwell Um and we take patients referrals from paramedics um we are on amber pathway We accept referrals from other services so head to toe assessment, clinical skills examination is most important skill which all APs should have because we are assessing the patients um to diagnose conditions what is wrong with them and based on that make our management plan including prescribing. So (.) that is very important for an AP practitioner especially out in the community.
Int	***Q3. Can you describe how MPAS are used in your clinical practice?*** ***Please can you elaborate by providing some examples?***
1	Um for using it?
Int	***Yeh of how there used within your role as an AP within the Crisis Response Team.***
1	So when I am asked to go out to see a patient (.) so for example if someones um presenting complaint was query chest infection. When I go and assess this patient (..) I need to do a proper um chest examination including looking at the signs and symptoms and then auscultating, palpation, percussion. So not only chest but it could be related to cardiac, so you should be able to use those skills to ensure that you are treating the patient with the right diagnosis. So I always use my clinical skills to examine the patient to diagnose so again that is part of the parcel of whatever you do in your job.
Int	**Uhum, Thank you**

2 Page

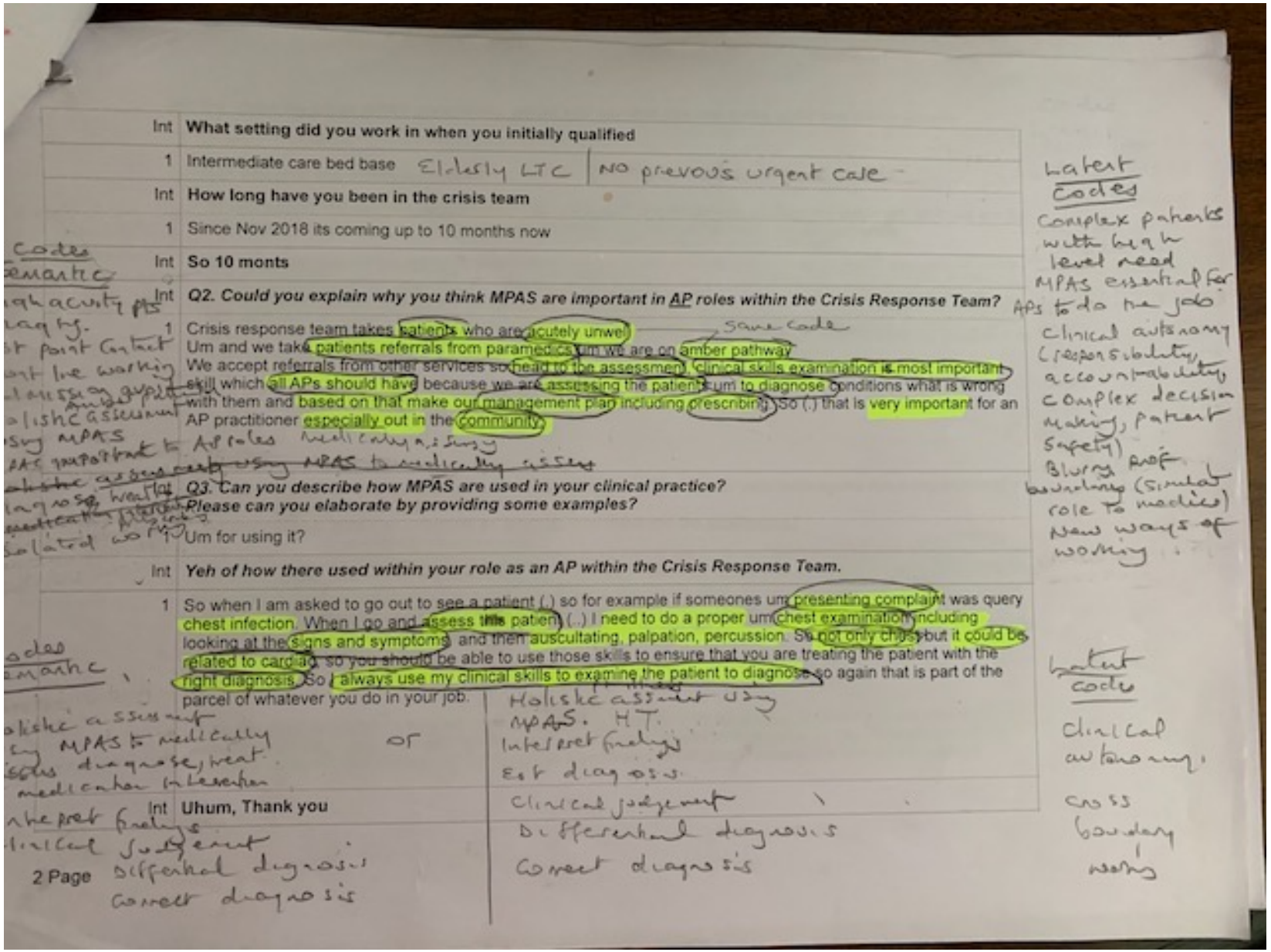
Appendix 16 Coding framework construction - initial observations



Int	***Q4. Thinking about MPAS generically, would you say that you use some skills more than others?***
1	Er yes (.....) Um
Int	**Can you give any examples please?**
	So with most of the patients we get referred to mostly with chest infection, cardiac and abdomen, so these are the skills examining chest, (.....) um cardiac and abdomen are the most common we use, generally so easier to upkeep them skills. Um and sometimes do neurological exam **uhum** um but some of the time don't feel confident **um** um with some of the clinical skills which we don't normally use all the time **um.** So you **um** kinda of loose that skill to do it **umm** confidently **um** Um for eg ENT **um** and skin which as part of training as well you don't get that much of exposure and there isn't an opportunity such to develop that skill to get that confidence **um** so especially in community. So yeh um there are some skills which I am more confident about but some I still feel I need to keep my practice in to improve my skills. (Loud motorbike noise during transaction)(pause)
Int	**Thanks**
Int	***Q5. Can you give me any examples of any challenges either you or your colleagues have experienced maintaining MPAS in practice?*** ***So maintaining MPAS in practice, so what do you think are the challenges?***
1	Um again you are isolated in the community, you're not part of um if you compare yourself with a hospital AP um there is support around you and the medics around you if have any doubt or if you want to clarify something or practise your physical examination skills, you can always ask for help. But In the community it is not exactly the same situation you are out in patients homes. It is more difficult maintaining some clinical assessment skills working in isolation. The environment is different even to examine patients it might not be its not the perfect place. When there is pets.**Um** So When you need help its not always the same **um** like in hospital. Um I think It is more challenging to work in community compared to hospital. Um um I think compare.... now we have APs working together is an advantage because you can always get peer support from each other um and I think that should be done maybe peer reviews or you know um something to develop ourselves each other um that might be a good way **um** of going forward, like one to one support.
Int	***Is, are there any other challenges that you see within the community***

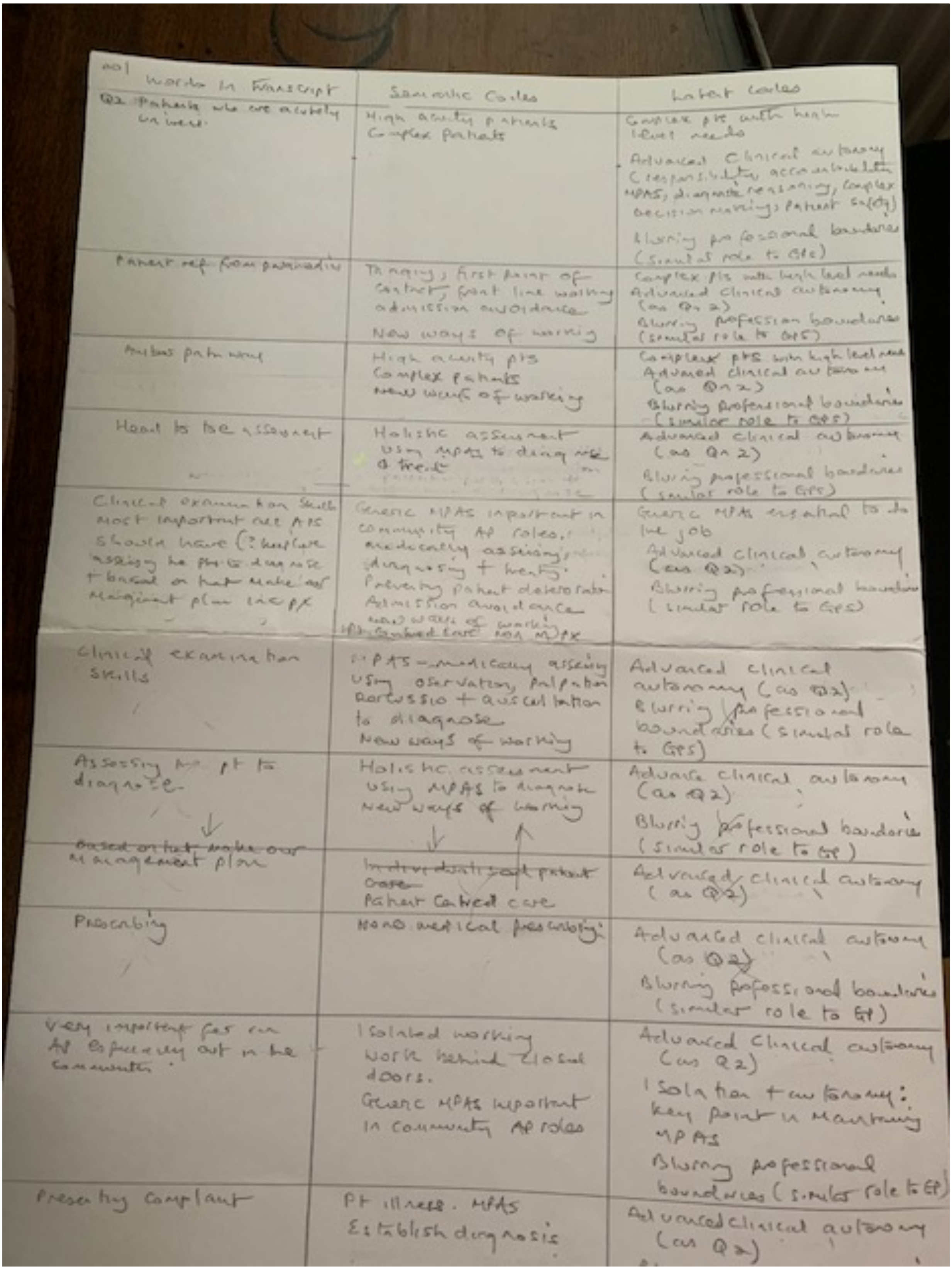
3 Page

Appendix 17 Emerging codes



Int	**What setting did you work in when you initially qualified**
1	Intermediate care bed base Elderly LTC | NO previous urgent care
Int	**How long have you been in the crisis team**
1	Since Nov 2018 its coming up to 10 months now
Int	**So 10 monts**
Int	***Q2. Could you explain why you think MPAS are important in AP roles within the Crisis Response Team?***
1	Crisis response team takes patients who are acutely unwell Um and we take patients referrals from paramedics um we are on amber pathway We accept referrals from other services so head to the assessment clinical skills examination is most important skill which all APs should have because we are assessing the patient um to diagnose conditions what is wrong with them and based on that make our management plan including prescribing so (.) that is very important for an AP practitioner especially out in the community
Int	***Q3. Can you describe how MPAS are used in your clinical practice? Please can you elaborate by providing some examples?***
1	Um for using it?
Int	***Yeh of how there used within your role as an AP within the Crisis Response Team.***
1	So when I am asked to go out to see a patient (.) so for example if someones um presenting complaint was query chest infection. When I go and assess this patient (.) I need to do a proper um chest examination including looking at the signs and symptoms and then auscultating, palpation, percussion. So not only chest but it could be related to cardiac so you should be able to use those skills to ensure that you are treating the patient with the right diagnosis. So I always use my clinical skills to examine the patient to diagnose so again that is part of the parcel of whatever you do in your job.
Int	**Uhum, Thank you**

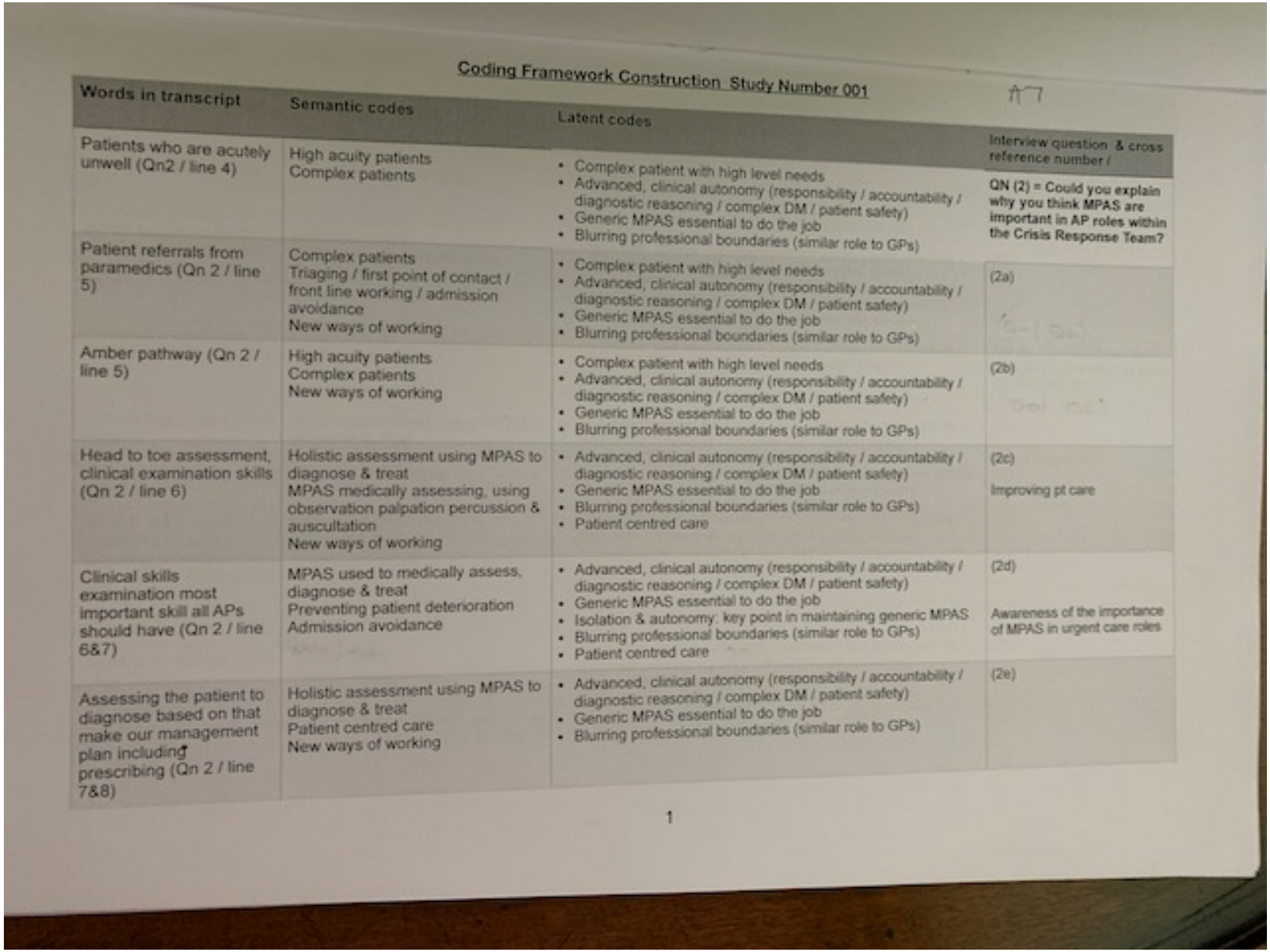
Appendix 18
Semantic & latent codes transferred onto large sheet of paper



001

Words in Transcript	Semantic Codes	Latent Codes
Q2 Patients who are acutely unwell	High acuity patients Complex patients	Complex pts with high level needs Advanced clinical autonomy (responsibility, accountability, MPAS, diagnostic reasoning, complex decision making, patient safety) Blurring professional boundaries (similar role to GPs)
Patient ref from paramedic	Triaging, first point of contact, front line working, admission avoidance New ways of working	Complex pts with high level needs Advanced clinical autonomy (as Q2) Blurring professional boundaries (similar role to GPS)
Ambulance pathway	High acuity pts Complex patients New ways of working	Complex pts with high level needs Advanced clinical autonomy (as Q2) Blurring professional boundaries (similar role to GPS)
Head to toe assessment	Holistic assessment using MPAS to diagnose & treat	Advanced clinical autonomy (as Q2) Blurring professional boundaries (similar role to GPS)
Clinical examination skills most important one APs should have (? because assessing the pt to diagnose + based on that make our management plan for the px)	Generic MPAS important in community AP roles medically assessing, diagnosing + treating Preventing patient deterioration Admission avoidance New ways of working Pt centred care for px	Generic MPAS essential to do the job Advanced clinical autonomy (as Q2) Blurring professional boundaries (similar role to GPs)
Clinical examination skills	MPAS – medically assessing using observation, palpation, percussion + auscultation to diagnose New ways of working	Advanced clinical autonomy (as Q2) Blurring professional boundaries (similar role to GPs)
Assessing the pt to diagnose	Holistic assessment using MPAS to diagnose New ways of working	Advanced clinical autonomy (as Q2) Blurring professional boundaries (similar role to GP)
~~based on that make our~~ management plan	~~Individualised patient care~~ Patient centred care	Advanced clinical autonomy (as Q2)
Prescribing	Non medical prescribing	Advanced clinical autonomy (as Q2) Blurring professional boundaries (similar role to GP)
Very important for an AP especially out in the community	Isolated working Work behind closed doors Generic MPAS important in community AP roles	Advanced clinical autonomy (as Q2) Isolation + autonomy: key point in maintaining MPAS Blurring professional boundaries (similar role to GP)
Presenting complaint	Pt illness. MPAS Establish diagnosis	Advanced clinical autonomy (as Q2)

Appendix 19 Computer coding table showing transcript excerpts & codes



Coding Framework Construction Study Number 001

Words in transcript	Semantic codes	Latent codes	Interview question & cross reference number /
Patients who are acutely unwell (Qn2 / line 4)	High acuity patients Complex patients	• Complex patient with high level needs • Advanced, clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety) • Generic MPAS essential to do the job • Blurring professional boundaries (similar role to GPs)	QN (2) = Could you explain why you think MPAS are important in AP roles within the Crisis Response Team?
Patient referrals from paramedics (Qn 2 / line 5)	Complex patients Triaging / first point of contact / front line working / admission avoidance New ways of working	• Complex patient with high level needs • Advanced, clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety) • Generic MPAS essential to do the job • Blurring professional boundaries (similar role to GPs)	(2a)
Amber pathway (Qn 2 / line 5)	High acuity patients Complex patients New ways of working	• Complex patient with high level needs • Advanced, clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety) • Generic MPAS essential to do the job • Blurring professional boundaries (similar role to GPs)	(2b)
Head to toe assessment, clinical examination skills (Qn 2 / line 6)	Holistic assessment using MPAS to diagnose & treat MPAS medically assessing, using observation palpation percussion & auscultation New ways of working	• Advanced, clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety) • Generic MPAS essential to do the job • Blurring professional boundaries (similar role to GPs) • Patient centred care	(2c) Improving pt care
Clinical skills examination most important skill all APs should have (Qn 2 / line 6&7)	MPAS used to medically assess, diagnose & treat Preventing patient deterioration Admission avoidance	• Advanced, clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety) • Generic MPAS essential to do the job • Isolation & autonomy: key point in maintaining generic MPAS • Blurring professional boundaries (similar role to GPs) • Patient centred care	(2d) Awareness of the importance of MPAS in urgent care roles
Assessing the patient to diagnose based on that make our management plan including prescribing (Qn 2 / line 7&8)	Holistic assessment using MPAS to diagnose & treat Patient centred care New ways of working	• Advanced, clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety) • Generic MPAS essential to do the job • Blurring professional boundaries (similar role to GPs)	(2e)

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Appendix 20
Collated semantic codes from constructed coding frameworks for all participants (identical duplicated codes removed)

Semantic codes	Semantic codes	Semantic codes	Semantic codes
High acuity patients /001	Establish diagnosis	Personal & profession motivation	Taking diagnostic responsibility in challenging situations
Complex patients	MPAS use patient presentation	Maintaining generic MPAS standards	Safety netting
Triaging	MPAS confidence	Training challenges maintaining MPAS	Keen to maintain MPAS
First point of contact	MPAS used daily to assess diagnose & treat	Value of medics	The value of others / peer support
Front line working	MPAS confidence & competence varies	Challenging learning environments	Risk of deskilling
Admission avoidance	MPAS deskilling	Unprotected time	Patient safety
New ways of working	Difficulty maintaining MPAS	Unpredictable nature of crisis work	Supportive environment increases MPAS confidence
Holistic assessment using MPAS	Training / support / skill rehearsal issues	Increased workload	Innovations maintaining MPAS
MPAS medically assessing, using observation palpation, percussion & auscultation	Risk of fragmented care	Under pressure	Training challenges maintaining MPAS
MPAS important in community AP role	Isolated working	NHS overstretched	Transferrable skills
MPAS used to medically assess diagnose & treat	Lack of generic MPAS exposure during AP training	Prioritising patient care	Interprofessional learning
Preventing patient deterioration	Experiential knowledge	Acceptance of barriers to maintaining MPAS	Expert knowledge & skills
Patient centred care	The value of others	Expectations in AP role	AP led service / 002
None medical prescribing	Working behind closed door	Challenging autonomous working environments	Difficulty maintaining AP status (4 pillars)
Safe practice	Support lacking	Unsupported environment decreases MPAS confidence	Legal requirements / Regulation
Patient illness	Challenging patient home environments	Taking diagnostic responsibility	Valued & appreciated
History taking	The value of peer / colleague	Risk taking	Lack of AP role understanding
MPAS use	Team working	Red refusal patients (acutely unwell)	
Pattern recognition	Keen to maintain MPAS		

Appendix 20
Collated semantic codes from constructed coding frameworks for all participants (identical duplicated codes removed)

Semantic codes	Semantic codes		
Lack of MPAS research in AP roles	/ 005		
Evidence	Hopefulness / 006		
New knowledge	Dedicated time		
The importance of reflective practice / critical analysis / 003	Generic MPAS important to community AP roles medical assessing to diagnose & treat		
Medic incentives	Gathering information supporting MPAS use / 007		
Missed learning opportunities / 004	Advanced practitioner course evolving		
MPAS use dependent on patient physical ability	Perceived AP image		
Simulated clinical environment			

Appendix 21
Collated latent codes from constructed coding frameworks for all participants (identical duplicated codes removed)

Latent codes	Latent codes
Complex patients with high levels needs	The importance of feedback or clarification you are doing it right
Advanced clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety)	Isolated working practices hinders MPAS rehearsal support
Generic MPAS essential to do the job	Unmet clinical medial support in isolated working
Blurring professional boundaries (similar role to GPs)	Challenging autonomous working environments
Patient centred care	The value of team working & peer support
Clinical expectations in AP role	Home environmental factors influence MPAS use
MPAS (clinical quality, continuity & consistency)	The value of AP peer / colleague support
Isolation & autonomy: key point in maintaining generic MPAS	The importance of feedback
Individualised patient care	Personal & professional motivation
Professional confidence and competence in MPAS	Risk of clinically stagnating
Expert knowledge & MPAS skills	Future directions maintaining MPAS in community isolated roles
Isolated working practices hinders MPAS rehearsal support	Time constraints & work commitments hinder maintaining MPAS
Organisational understanding of community AP roles & importance of maintaining MPAS	Risk of clinically deskilling / stagnating
Assumed clinical experts once qualified	The importance of inter professional working
MPAS deskilling / fear of getting it wrong / community APs vulnerability	The importance of team working
Gap in university / trust MPAS support post AP qualification	Organisational understanding of community AP roles & importance of maintaining MPAS - assumed clinical experts once qualified
Gap in generic MPAS rehearsal in isolated setting post AP training	Feared of loosing MPAS & getting it wrong / community APs vulnerability
Generic MPAS community competency framework	The value of feedback
Gap in generic MPAS exposure / rehearsal during AP training	Sharing skills / Inter profofessional learning
Fear of getting it wrong	Generic MPAS community competency framework lacking
Community APs vulnerability	Organisational understanding of community AP roles / 002
Supporting professional confidence and competence in MPAS	Challenging administration work

Appendix 21
Collated latent codes from constructed coding frameworks for all participants (identical duplicated codes removed)

Latent codes	Latent codes
Gap in trust training / support post AP qualification	Revalidation generic - advanced practice more complex / 006
Missed learning opportunities	The value of electronic information / 007
Lack of incentives for medics to support APs / 001	Pre planning MPAS use & potential differentials
Improving patient care	Challenges of OSCE if no support to maintain MPAS post examination
Patient centred individualised care / 002	Evolving & improving Advanced Practitioner Programme
005 = 0	Supportive learning environment increases MPAS confidence
	Asking for help; devaluing the Advanced Practice image

Appendix 22 Making semantic coding thematic connections

Collated semantic codes from coding frameworks for all participants (identical duplicated codes omitted)

Semantic codes			
High acuity patients /001	Establish diagnosis	Personal & profession motivation	Taking diagnostic responsibility in challenging situations
Complex patients	MPAS use patient presentation	Maintaining generic MPAS standards	Safety netting
Triaging	MPAS confidence	Training challenges maintaining MPAS	Keen to maintain MPAS
First point of contact	MPAS used daily to assess diagnose & treat	Value of medics	The value of others / peer support
Front line working	MPAS confidence & competence varies	Challenging learning environments	Risk of deskilling
Admission avoidance	MPAS deskilling	Unprotected time	Patient safety
New ways of working	Difficulty maintaining MPAS	Unpredictable nature of crisis work	Supportive environment increases MPAS confidence
Holistic assessment using MPAS	Training / support / skill rehearsal issues	Increased workload	Innovations maintaining MPAS
MPAS medically assessing, using observation palpation, percussion & auscultation	Risk of fragmented care	Under pressure	Training challenges maintaining MPAS
MPAS important in community AP role	Isolated working	NHS overstretched	Transferrable skills
MPAS used to medically assess diagnose & treat	Lack of generic MPAS exposure during AP training	Prioritising patient care	Interprofessional learning
Preventing patient deterioration	Experiential knowledge	Acceptance of barriers to maintaining MPAS	Expert knowledge & skills
Patient centred care	The value of others	Expectations in AP role	AP led service / 002
None medical prescribing	Working behind closed door	Challenging autonomous working environments	Difficulty maintaining AP status (4 pillars)
Safe practice	Support lacking	Unsupported environment decreases MPAS confidence	Legal requirements/Regulation
Patient illness	Challenging patient home environments	Taking diagnostic responsibility	Valued & appreciated
History taking	The value of peer / colleague	Risk taking	Lack of AP role understanding
MPAS use	Team working	Red refusal patients (acutely unwell)	
Pattern recognition	Keen to maintain MPAS		

Appendix 22 Making semantic coding thematic connections

Collated semantic codes from coding frameworks for all participants
(identical duplicated codes omitted)

Semantic codes			
Lack of MPAS research in AP roles	/ 005		
Evidence	Hopefulness / 006		
New knowledge	Dedicated time		
The importance of reflective practice / critical analysis / 003	Generic MPAS important to community AP roles medical assessing to diagnose & treat		
Medic incentives △	Gathering information supporting MPAS use / 007		
Missed learning opportunities / 004	Advanced practitioner course evolving		
MPAS use dependent on patient physical ability	Perceived AP image		
Simulated clinical environment			

moved to new ways of working here NO leave!

Appendix 23 Making latent coding thematic connections

Version (1)

T4-

Collated latent codes from coding frameworks for all participants (identical duplicated codes omitted)

Latent codes	Latent codes
Complex patients with high levels needs	The importance of feedback or clarification you are doing it right
Advanced clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety)	Isolated working practices hinders MPAS rehearsal support
Generic MPAS essential to do the job	Unmet clinical medial support in isolated working
Blurring professional boundaries (similar role to GPs)	Challenging autonomous working environments
Patient centred care	The value of team working & peer support
Clinical expectations in AP role	Home environmental factors influence MPAS use
MPAS (clinical quality, continuity & consistency)	The value of AP peer / colleague support
Isolation & autonomy: key point in maintaining generic MPAS	The importance of feedback
Individualised patient care	Personal & professional motivation
Professional confidence and competence in MPAS	Risk of clinically stagnating
Expert knowledge & MPAS skills	Future directions maintaining MPAS in community isolated roles
Isolated working practices hinders MPAS rehearsal support	Time constraints & work commitments hinder maintaining MPAS
Organisational understanding of community AP roles & importance of maintaining MPAS	Risk of clinically deskilling / stagnating
Assumed clinical experts once qualified	The importance of inter professional working
MPAS deskilling / fear of getting it wrong / community APs vulnerability	The importance of team working
Gap in university / trust MPAS support post AP qualification	Organisational understanding of community AP roles & importance of maintaining MPAS - assumed clinical experts once qualified
Gap in generic MPAS rehearsal in isolated setting post AP training	Feared of loosing MPAS & getting it wrong / community APs vulnerability
Unmet clinical medial support in isolated working	The value of feedback
Generic MPAS community competency framework	Generic MPAS community competency framework lacking
Gap in generic MPAS exposure / rehearsal during AP training	Sharing skills / Inter profofessional learning
Fear of getting it wrong	Generic MPAS community competency framework lacking
Community APs vulnerability	Organisational understanding of community AP roles / 002
Supporting professional confidence and competence in MPAS	Challenging administration work

Codes: Colour Coded into themes = see version (2)

Appendix 23 Making latent coding thematic connections

Collated latent codes from coding frameworks for all participants (identical duplicated codes omitted)

Latent codes	Latent codes
Gap in trust training / support post AP qualification	Revalidation generic - advanced practice more complex / 006
Missed learning opportunities	The value of electronic information / 007
Lack of incentives for medics to support APs / 001	Pre planning MPAS use & potential differentials
Improving patient care	Challenges of OSCE if no support to maintain MPAS post examination
Patient centred individualised care / 002	Evolving & improving Advanced Practitioner Programme
005 = 0	Supportive learning environment increases MPAS confidence
	Asking for help; devaluing the Advanced Practice image

(collapsed see previous page)

→ various theme

Moved to Semantic

Appendix 24
Semantic codes sorted into preliminary themes

New ways of working	MPAS important in community AP roles	MPAS confidence & competence varies	Training challenges maintaining MPAS
High acuity patients	Holistic assessment using MPAS	MPAS confidence	MPAS deskilling
Complex patients	MPAS medically assessing, using observation palpation, percussion & auscultation	Risk of fragmented care	Difficulty maintaining MPAS
Triaging	MPAS used to medically assess diagnose & treat	Maintaining generic MPAS standards	Training / support / skill rehearsal issues
First point of contact	MPAS use patient presentation	Unsupportive environment decreases MPAS confidence	Lack of generic MPAS exposure during AP training
Front line working	MPAS used daily to assess diagnose & treat	Supportive environment increases MPAS confidence	Experiential knowledge
Admission avoidance	MPAS use dependent on patient physical ability	Expert knowledge & skills	Unprotected time
Patient illness	Generic MPAS important to community AP roles medical assessing to diagnose & treat		Unpredictable nature of crisis work
Preventing patient deterioration	Gathering information supporting MPAS use		Increased workload
Patient centred care			Under pressure
Non medical prescribing			NHS overstretched
Safe practice			Acceptance of barriers to maintaining MPAS
History taking			Risk of deskilling
Pattern recognition			Legal requirement / Regulation
Prioritising patient care			The importance of reflective practice / critical analysis
Risk taking			Missed learning opportunities
Red refusal patients			Simulated clinical environment
Taking diagnostic responsibility in challenging situations			Dedicated time
Safety netting			Medic incentives
Patient safety			AP course evolving

Appendix 24
Semantic codes sorted into preliminary themes

Working behind closed doors	The value of others	Expectations in AP role	Personal & professional motivation
Isolated working	The value of peer / colleagues	AP led service	Keen to maintain MPAS
Support lacking	Team working	Difficulty maintaining AP status (4 pillars)	Innovations maintaining MPAS
Challenging patient home environments	Value of medics	Valued & appreciated	Transferrable skills
Challenging autonomous working environments		Lack of role understanding	Interprofessional learning
		Perceived AP image	Lack of MPAS research into AP roles
			Evidence
			New knowledge
			Hopefulness

Appendix 25
Latent codes sorted into preliminary themes (version 2)

Theme 1) Advanced clinical autonomy	Theme 2) MPAS clinical quality, continuity & consistency (this theme about confidence & competence)
Complex patients with high levels needs	Professional confidence and competence in MPAS
Advanced clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety)	Expert knowledge & MPAS skills
Generic MPAS essential to do the job	Assumed clinical experts once qualified
Blurring professional boundaries (similar role to GPs)	Gap in university / trust MPAS support post AP qualification
Patient centred individualised care	Gap in generic MPAS rehearsal in isolated setting post AP training
Clinical expectations in AP role	The importance of feedback clarification you are doing it right
Improving patient care	Unmet clinical medical support in isolated working
	The value of AP peer / colleague support
	The importance of inter professional working
	The importance of team working
	Gap in trust training / support post AP qualification
	Missed learning opportunities
	Lack of incentives for medics to support APs / 003
	Challenges of OSCE if no support to maintain MPAS post examination
	Evolving & improving Advanced Practitioner Programme
	Supportive learning environment increases MPAS confidence
	Time constraints & work commitments hinder maintaining MPAS / challenging administration work
	Asking for help; devaluing the Advanced Practice image

Appendix 25
Latent codes sorted into preliminary themes (version 2)

Theme 3) Advancing advanced practice: dynamic not static	Theme 4) Community APs vulnerability & fear of getting it wrong
Supporting professional confidence and competence in MPAS	Isolated working practices hinders MPAS rehearsal support
Personal & professional motivation	MPAS deskilling / fear of getting it wrong / community APs vulnerability
Future directions maintaining MPAS in community isolated roles	Unmet clinical medial support in isolated working
Organisational understanding of community AP roles & importance of maintaining MPAS - assumed clinical experts once qualified	Isolated working practices hinders MPAS rehearsal support
Sharing skills / Inter profofessional learning	Challenging autonomous working environments
Revalidation generic - advanced practice more complex / 006	Home environmental factors influence MPAS use
	Risk of clinically deskilling / stagnating
	Generic MPAS community competency framework lacking
	Feared of loosing MPAS & getting it wrong / community APs vulnerability
	Generic MPAS community competency framework lacking
Various code	
The value of electronic information	

Appendix 26

Semantic preliminary themes & codes reviewed, collapsed & defined

New ways of working	MPAS important in community AP roles	MPAS confidence & competence varies	Training challenges maintaining MPAS
High acuity patients	Holistic assessment using MPAS	MPAS confidence	MPAS deskilling
Complex patients	MPAS medically assessing, using observation palpation, percussion & auscultation	Risk of fragmented care	Difficulty maintaining MPAS
Triaging	MPAS used to medically assess diagnose & treat	Maintaining generic MPAS standards	Training / support / skill rehearsal issues
First point of contact	MPAS use patient presentation	Unsupportive environment decreases MPAS confidence	Lack of generic MPAS exposure during AP training
Front line working	MPAS used daily to assess diagnose & treat	Supportive environment increases MPAS confidence	Experiential knowledge
Admission avoidance	MPAS use dependent on patient physical ability	Expert knowledge & skills	Unprotected time
Patient illness	Generic MPAS important to community AP roles ~~medical assessing to diagnose & treat~~		Unpredictable nature of crisis work
Preventing patient deterioration	Gathering information supporting MPAS use		Increased workload
Patient centred care			Under pressure
Non medical prescribing			NHS overstretched
Safe practice			Acceptance of barriers to maintaining MPAS
History taking			Risk of deskilling
Pattern recognition			Legal requirement
Prioritising patient care			.Regulation
Risk taking			The importance of reflective practice / critical analysis
Red refusal patients			Missed learning opportunities
Taking diagnostic responsibility in challenging situations			Simulated clinical environment
Safety netting			Dedicated time
Patient safety			Medic incentives
			Advanced Practitioner course evolving

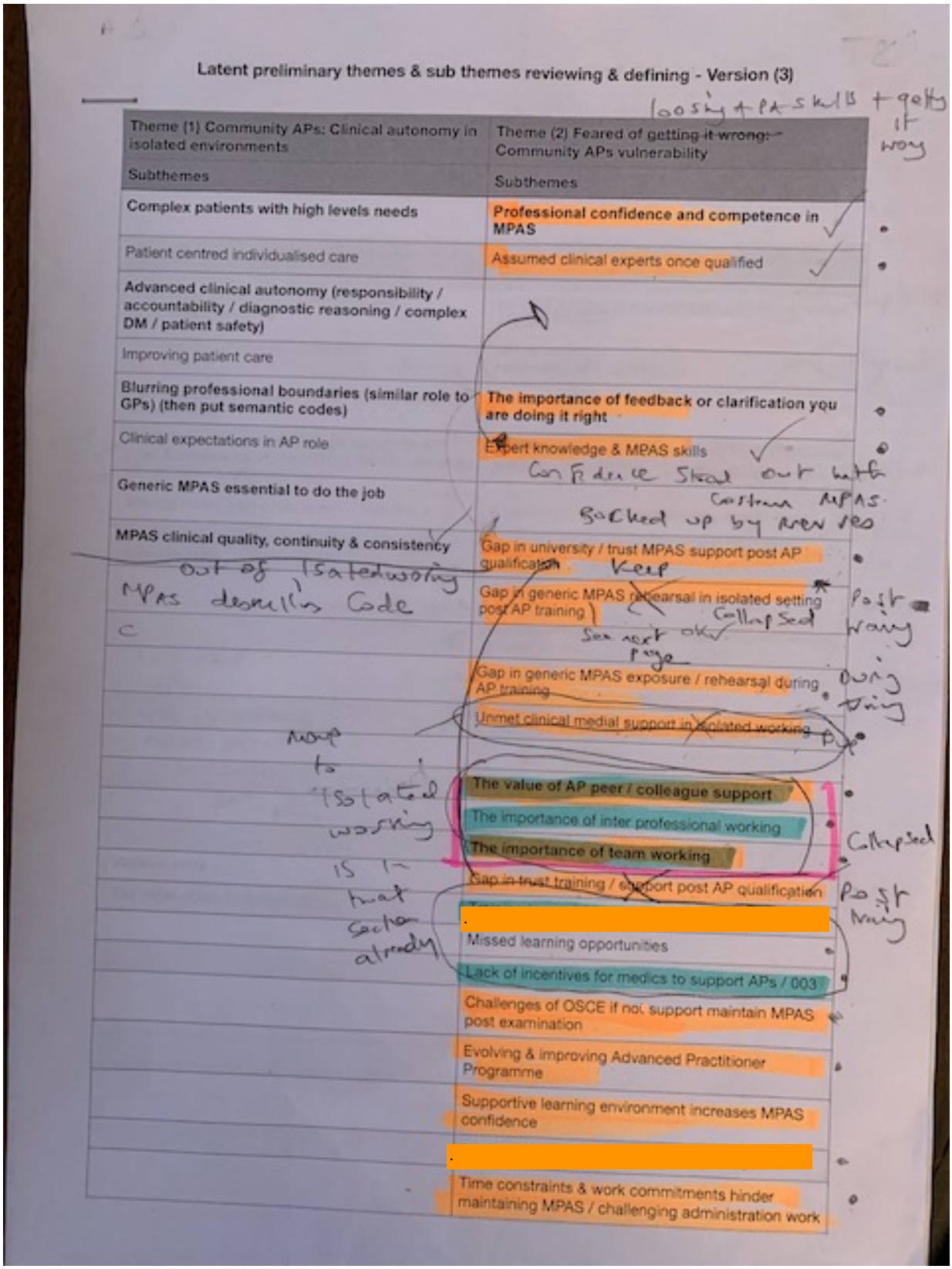
Appendix 26

Semantic preliminary themes & codes reviewed, collapsed & defined

Working behind closed doors	The value of others	Expectations in AP role	Personal & professional motivation
Isolated working	The value of peer / colleagues	AP led service	Keen to maintain MPAS
Support lacking	Team working	Difficulty maintaining AP status (4 pillars)	Innovations maintaining MPAS
Challenging patient home environments	Value of medics	Valued & appreciated	Transferrable skills
Challenging autonomous working environments		Lack of role understanding	interprofessional learning
		Perceived AP image	Lack of MPAS research into AP roles
			Evidence
			New knowledge
			Hopefulness

Collapse highlighted codes

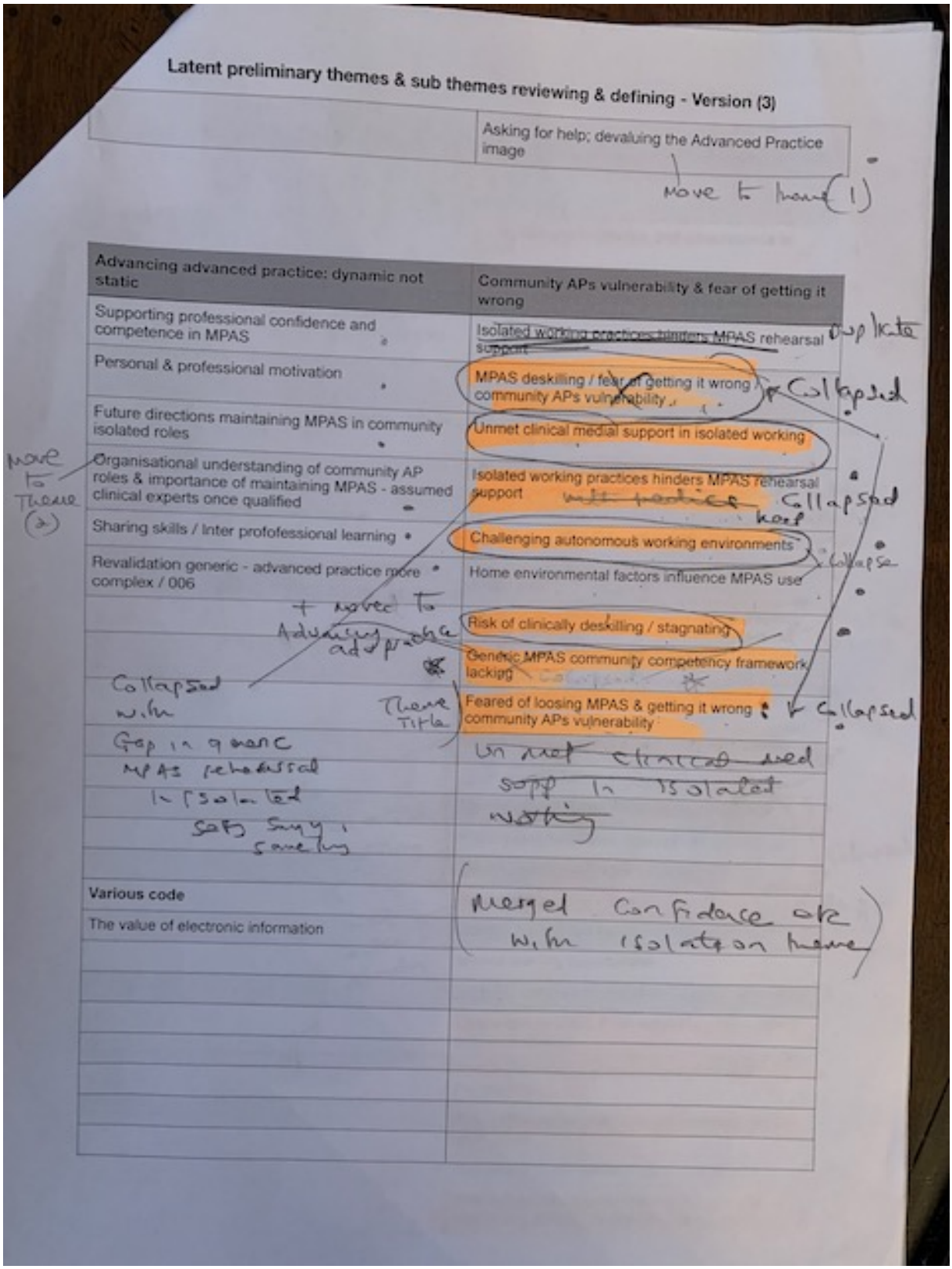
Appendix 27
Latent preliminary themes, sub-themes & codes reviewing & defining (version 3)



Latent preliminary themes & sub themes reviewing & defining - Version (3)

Theme (1) Community APs: Clinical autonomy in isolated environments	Theme (2) Feared of getting it wrong:- Community APs vulnerability
Subthemes	Subthemes
Complex patients with high levels needs	Professional confidence and competence in MPAS
Patient centred individualised care	Assumed clinical experts once qualified
Advanced clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety)	
Improving patient care	
Blurring professional boundaries (similar role to GPs) (then put semantic codes)	The importance of feedback or clarification you are doing it right
Clinical expectations in AP role	Expert knowledge & MPAS skills
Generic MPAS essential to do the job	
MPAS clinical quality, continuity & consistency	Gap in university / trust MPAS support post AP qualification
	Gap in generic MPAS rehearsal in isolated setting post AP training
	Gap in generic MPAS exposure / rehearsal during AP training
	Unmet clinical medial support in isolated working
	The value of AP peer / colleague support
	The importance of inter professional working
	The importance of team working
	Gap in trust training / support post AP qualification
	.
	Missed learning opportunities
	Lack of incentives for medics to support APs / 003
	Challenges of OSCE if not support maintain MPAS post examination
	Evolving & improving Advanced Practitioner Programme
	Supportive learning environment increases MPAS confidence
	.
	Time constraints & work commitments hinder maintaining MPAS / challenging administration work

Appendix 27
Latent preliminary themes, sub-themes & codes reviewing & defining (version 3)



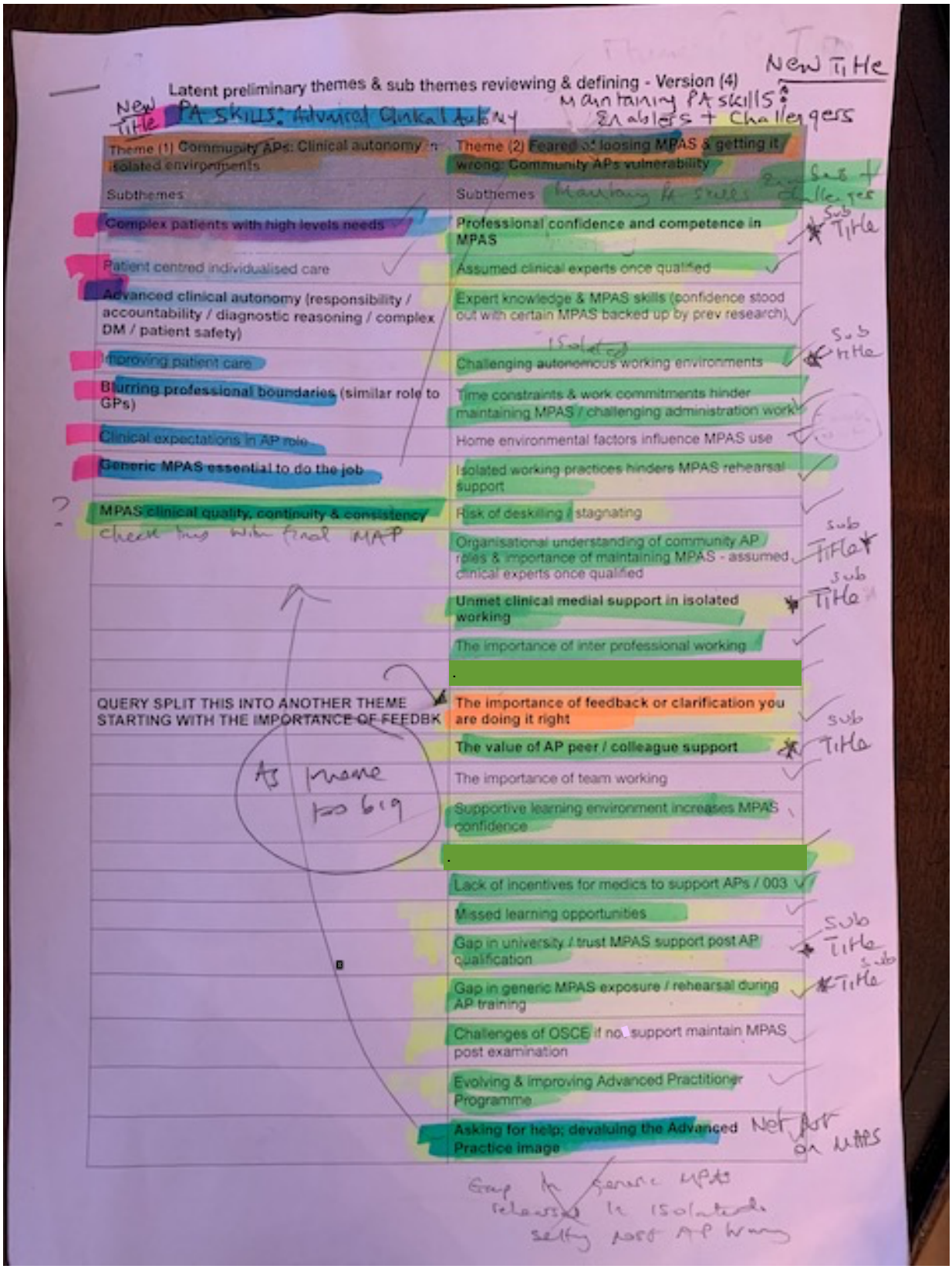
Latent preliminary themes & sub themes reviewing & defining - Version (3)

	Asking for help; devaluing the Advanced Practice image

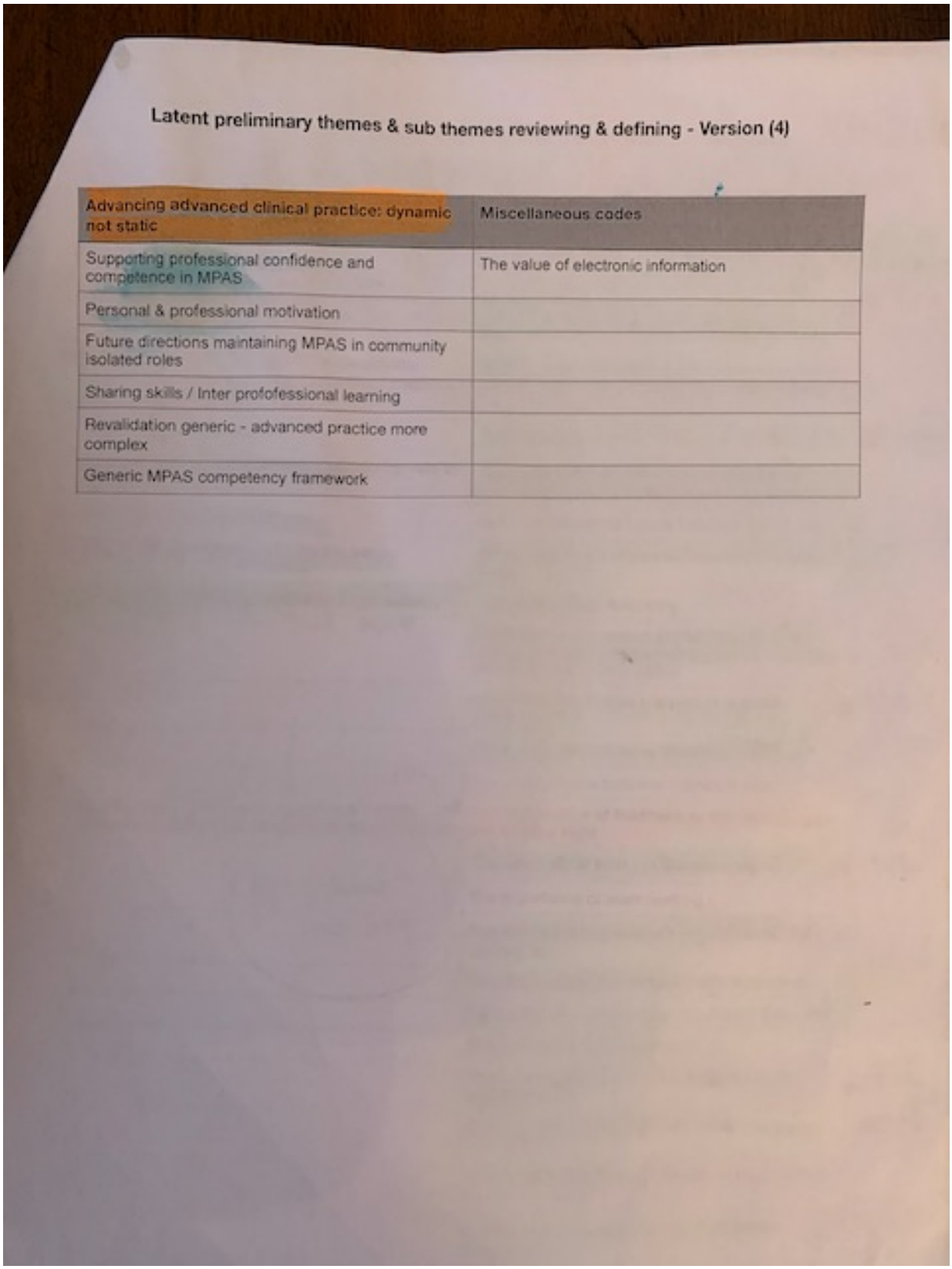
move to theme (1)

Advancing advanced practice: dynamic not static	Community APs vulnerability & fear of getting it wrong
Supporting professional confidence and competence in MPAS	Isolated working practices hinders MPAS rehearsal support
Personal & professional motivation	MPAS deskilling / fear of getting it wrong / community APs vulnerability
Future directions maintaining MPAS in community isolated roles	Unmet clinical medial support in isolated working
Organisational understanding of community AP roles & importance of maintaining MPAS - assumed clinical experts once qualified	Isolated working practices hinders MPAS rehearsal support
Sharing skills / Inter profofessional learning	Challenging autonomous working environments
Revalidation generic - advanced practice more complex / 006	Home environmental factors influence MPAS use
	Risk of clinically deskilling / stagnating
	Generic MPAS community competency framework lacking
	Feared of loosing MPAS & getting it wrong / community APs vulnerability
Various code	
The value of electronic information	

Appendix 28
Latent preliminary themes, sub-themes & codes reviewing & defining (version 4)



Appendix 28
Latent preliminary themes, sub-themes & codes reviewing & defining (version 4)



Latent preliminary themes & sub themes reviewing & defining - Version (4)

Advancing advanced clinical practice: dynamic not static	Miscellaneous codes
Supporting professional confidence and competence in MPAS	The value of electronic information
Personal & professional motivation	
Future directions maintaining MPAS in community isolated roles	
Sharing skills / Inter profofessional learning	
Revalidation generic - advanced practice more complex	
Generic MPAS competency framework	

Appendix 29
Final semantic codes & main themes

New ways of working (Theme 1)	Maintaining PA skills (Theme 2)	Maintaining PA skills (Theme 2)	Maintaining PA skills (Theme 2)
High acuity patients Complex patients Patient illness Red refusal patients (acutely unwell)	**PA skill confidence & competence varies**	Isolated working Support lacking	Valued & appreciated
Triaging Prioritising patient care	PA skill confidence	Challenging patient environments	Lack of role understanding
AP led service First point of contact Front line working Admission avoidance	Risk of fragmented care	Challenging autonomous working environments	
History taking Pattern recognition	Maintaining generic PA skill standards	**The value of others**	
Holistic assessment using PA skills	Unsupportive environment decreases PA skill confidence	The value of peer / colleagues Team working	
PA skills medically assessing using observation, palpation, percussion & auscultation to diagnose & treat	Supportive environment increases PA skills confidence	**The value of medics**	
Generic PA skills important in community AP roles	Expert knowledge & skills	Missed learning opportunities	
PA skill use dependent on patient presentation & physical ability	Difficulty maintaining PA skills Risk of deskilling	Medic incentives	
Taking diagnostic responsibility in challenging situations	**Training challenges maintaining PA skills**	**Underpressure**	
Preventing patient deterioration	Training / support / skill rehearsal issues	Unprotected time	
Non medical prescribing	Lack of generic PA skill exposure during AP training	Dedicated time	
Patient centred care	Advanced practice course evolving	Difficulty maintaining AP status (4 pillars)	
Patient safety Safety netting Risk taking	Experiential knowledge	Unpredictable nature of crisis work	
Expectations in AP role	Simulated clinical environment	Increased workload	
Perceived AP image	Legal requirements / Regulation	NHS overstretched	
	Working behind closed doors	Acceptance of barriers to maintaining PA skills	

Appendix 29
Final semantic codes & main themes

Going forward (Theme 3)			
Personal & professional motivation			
Keen to maintain PA skills			
Innovations maintaining PA skills			
Transferrable skills			
Interprofessional learning			
The importance of reflective practice / critical analysis			
Lack of PA skill research in AP roles			
Evidence			
New knowledge			
Hopefulness			

Appendix 30
Final latent codes & main themes

Theme 1) **Advanced clinical autonomy**	**Theme 2)** **Maintaining PA skills: the clinical picture**
Advanced clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety)	PA skills: professional confidence & competence
Complex patients with high levels needs	Clinical quality, continuity & consistency
Patient centred individualised care	Expert knowledge & PA skills
Improving patient care	Assumed clinical experts once qualified
Blurring professional boundaries (similar role to GPs)	Risk of deskilling / stagnating
Clinical expectations in AP role	Gap in generic PA skill exposure / rehearsal during AP training (in theme I have put generic PC skills exposure / AP training rehearsal gaps)
Generic PA skills essential to do the job	Challenges of OSCE
Asking for help: devaluing the AP image	Evolving & improving advanced practitioner program
	Gap in university / trust PA skills support post AP qualification
	Missed learning opportunities
	Challenging isolated working environment
	Isolated working practices hinders PA skills rehearsal support
	Feared of loosing PA skills & getting it wrong: community APs vulnerability
	Isolation & autonomy: key points in maintaining generic PA skills
	The value of AP peer / colleague support
	Supportive learning environment increases PA skill confidence
	The importance of feedback or clarification you are doing it right
	Unmet clinical medical support in isolated working
	Lack of incentives for medics to support APs
	Time constraints & work commitments hinder maintaining PA skills
	Challenging administration work
	Organisational understanding of community AP roles & importance of maintaining PA skills

Appendix 30
Final latent codes & main themes

Theme 3) Opportunity in an inopportune environment	
Personal & professional motivation	
Supporting professional PA skill confidence and capability	
Future directions maintaining PA skills in community isolated roles	
Revalidation generic advanced practice more complex	
Generic PA skill community capability framework	
Sharing skills / inter professional learning	
Valuing advanced practice research	
Valuing research to promote PA skill training opportunity	
Various codes	
The value of electronic information	

Appendix 31
Final themes, sub-themes and codes (latent & semantic)
Theme (1) Advanced clinical autonomy

Sub-themes (in bold) & latent codes (within the sub-themes)
Diagnostic responsibility
Advanced clinical autonomy (responsibility / accountability / diagnostic reasoning / complex DM / patient safety)
Complex patients with high levels needs
Patient centred individualised care
Improving patient care
Blurring professional boundaries
Clinical expectations in AP role
Generic PA skills essential to do the job
Asking for help: devaluing the AP image
Semantic codes **New ways of working** • High acuity patients • Complex patients • Patient illness • Red refusal patients (acutely unwell) • Triaging • Prioritising patient care • AP led service • First point of contact • Front line working • Admission avoidance • History taking • Pattern recognition • Holistic assessment using PA skills • PA skills medically assessing using observation, palpation, percussion & auscultation to diagnose & treat • Generic PA skills important in community AP roles • PA skill use dependent on patient presentation & physical ability • Taking diagnostic responsibility in challenging situations • Preventing patient deterioration • Non medical prescribing • Patient centred care • Patient safety • Safety netting • Risk taking • Expectations in AP role • Perceived AP image

Appendix 31
Final themes, sub-themes and codes (latent & semantic)
Theme (2) Maintaining physical assessment skills: the clinical picture

Sub-themes (in bold) & latent codes (within the sub-themes)	
Professional confidence & competence	
PA skills: professional confidence & competence	
Clinical quality, continuity & consistency	
Expert knowledge & PA skills	
Assumed clinical experts once qualified	
Risk of deskilling / stagnating	
Lack of rehearsal and training opportunities	
Gap in generic PA skill exposure / rehearsal during AP training	
Challenges of OSCE	
Evolving & improving advanced practitioner program	
Gap in university / trust PA skills support post AP qualification	
Missed learning opportunities	
Working in seclusion	
Challenging isolated working environment	
Isolated working practices hinders PA skills rehearsal support	
Feared of loosing PA skills & getting it wrong: community APs vulnerability	
Isolation & autonomy: key points in maintaining generic PA skills	
Valuing peer support	
The value of AP peer / colleague support	
Supportive learning environment increases PA skill confidence	
The importance of feedback or clarification you are doing it right	
Medical support in isolated working	
Unmet clinical medical support in isolated working	
Lack of incentives for medics to support APs	
Pressurised environments	
Time constraints & work commitments hinder maintaining PA skills	
Challenging administration work	
Organisational understanding	
Organisational understanding of community AP roles & importance of maintaining PA skills	
Semantic codes **Maintaining PA skills** PA skill confidence & competence varies PA skill confidence Risk of fragmented care Maintaining generic PA skill standards Unsupportive environment decreases PA skill confidence Supportive environment increases PA skills confidence Expert knowledge & skills Difficulty maintaining PA skills Risk of deskilling **Training challenges maintaining PA skills** Training / support / skill rehearsal issues Lack of generic PA skills exposure during AP training Advanced practice course evolving Experiential knowledge Legal requirements / Regulation Simulated clinical environments **Working behind closed doors** Isolated working Support lacking Challenging patient environments Challenging autonomous working environments	**Semantic codes** **The value of others** The value of peer / colleagues Team working **Value of medics** Missed learning opportunities Medic incentives **Under pressure** Unprotected time Dedicated time Difficulty maintaining AP status (4 pillars) Unpredictable nature of crisis work Increased workload NHS overstretched Acceptance of barriers to maintaining PA skills Valued & appreciated **Lack of role understanding**

Appendix 31
Final themes, sub-themes and codes (latent & semantic)
Theme (3) Opportunity in an inopportune environment

Sub-themes (in bold) & latent codes (within sub-themes)
Motivation to advance in clinical practice
Personal & professional motivation
Supporting professional confidence and capability in PA skills
Future directions: clinical training innovations
Future directions maintaining PA skills in community isolated roles
Revalidation generic advanced practice more complex
Generic PA skill community capability framework
Skill rehearsal opportunity
Sharing skills / inter professional learning
Valuing advanced practice research
Valuing research to promote PA skill training opportunity
Semantic codes **Going forward** Personal & professional motivation Keen to maintain PA skills Innovations maintaining PA skills Transferrable skills Inter-professional learning The importance of reflective practice / critical analysis Lack of PA skill research in AP roles Evidence New knowledge Hopefulness

Appendix 32 Thematic connections