TEACHING TEAMWORK TO UNDERGRADUATE PHARMACY STUDENTS – WHAT ARE THE ISSUES?

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ABSTRACT

Poor teamwork skills in healthcare have been found to be a contributing cause of negative incidents in patient care, whilst effective teamwork has been linked to more positive patient outcomes. This programme of work aimed to evaluate how to better prepare undergraduate pharmacy students for their future roles in interprofessional teams.

The programme of work consisted of four qualitative phases. Phases 1 and 2 involved focus group to explore characteristics of an effective interprofessional team from the perspective of 14 patients and informal caregivers, and 19 pharmacy students. Student views on opportunities to develop teamwork characteristics within their Masters of Pharmacy programme were also explored. Phase 3 consisted of semi-structured interviews with ten educators involved in the design and/or delivery of pharmacy curricula, to establish their perceptions on key teamwork characteristics and how undergraduates were prepared for working in interprofessional teams. The final phase triangulated the findings from phases 1-3 to provide a comprehensive account of key teamwork characteristics and to inform recommendations for curriculum development for pharmacy students.

Analyses identified several key teamwork characteristics including communication, understanding their own role and the role of others, leadership, hierarchies and compassion. Communication, role understanding mutual trust and respect and the need for a team leader were considered to be key by all participants. The need for improvements in communication was highlighted by patients. Pharmacy curriculums should clearly identify how teamwork is taught to pharmacy students. Teamwork-focussed learning outcomes and objectives should be explicit for associated teaching, learning and assessments. Interprofessional education, experiential and simulation-based learning were considered beneficial and suitable mechanisms to be better prepare students for future practice in interprofessional teams. Supplemental clinical funding is required to facilitate experiential learning opportunities that would align pharmacy education with other healthcare education degrees.

DECLARATION

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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List of Abbreviations

AHP	Allied Healthcare Professional
CINAHL	Cumulative Index of Nursing and Allied Health Literature
COVID-19	Coronavirus disease 2019
GP	General Practitioner
GPhC	General Pharmaceutical Council
HEI	Higher Education Institute
IPE	Interprofessional Education
MPharm	Masters of Pharmacy
NWHEI	North West Higher Education Institute
NHS	National Health Service
PBL	Problem-based learning
PhD	Doctor of Philosophy
REC	Research and Ethics Committee
RPSGB	Royal Pharmaceutical Society of Great Britain
SBAR	Situation, Background, Assessment, Recommendation
TBL	Team-based learning
WHO	World Health Organization
UK	United Kingdom

Foreward

The researcher graduated from the University of Wales, College of Cardiff, in 1994 and qualified as a pharmacist in 1995. Since then, she has practised as a community pharmacist, a primary care pharmacist and more recently as a part-time academic pharmacist and bank hospital pharmacist within a variety of teams. The opportunity to undertake this PhD arose whilst developing interprofessional education (IPE) as part of the undergraduate Masters in Pharmacy (MPharm) programme at her employing Higher Education Institute (HEI). The researcher continued to practice as an academic pharmacist and a bank hospital pharmacist throughout her part-time PhD.

The researcher has experience of qualitative pedagogic research and the use of focus group methodology as part of her Postgraduate Certificate in Learning and Teaching in Higher Education research project. She has also supervised a number of undergraduate MPharm research projects which have utilised qualitative research.

Chapter 1. Setting the scene

This chapter will provide an overview of the thesis, to set the scene as to why and how the research was undertaken. This thesis represents a programme of work which evaluates how to better prepare undergraduate pharmacy students for their future roles in interprofessional teams. The aim of the programme of work was to explore the development of teamwork characteristics in undergraduate pharmacy students to facilitate and maximise post-registration interprofessional practice. The research took place at the researcher's employing organisation in a North West Higher Education Institute (NWHEI) and involved patients, caregivers, students and educators.

Enhanced collaboration and teamwork between health and social care staff is a key feature of the National Health Service (NHS) Long Term Plan (2019) for healthcare in the United Kingdom (UK) (NHS, 2019). There is recognition of the challenges in the provision of effective care by interprofessional including breaking down traditional barriers between care organisations, teams and funding streams in order to support the increasing number of people with long-term health conditions.

Interprofessional teams have been in existence in hospital settings since the formation of the National Health Service in 1948. In the 1970s and 1980s, there was an expansion of teamwork into primary care and mental health settings as a result of shifting government policies (Reeves et al., 2010). Improving the quality and safety of patient care has been a key driver internationally for the use of, and need for, effective interprofessional teams which comprise a range of health and social care professionals including pharmacists (Institute of Medicine, 2000; World Health Organization, 2018a). Internationally, a number of organisations, promoting interprofessional teamwork and patient safety, have been established over the years including the National Patient Safety Agency, now part of the NHS England (NHS England & Improvements, 2020), the United States Institute for Healthcare Improvement (Institute for Healthcare Improvement, 2020), the Australian Patient Safety Foundation (Agency for

Healthcare Research and Quality, 2005) and the World Health Organization's (WHO) Alliance for Patient Safety (World Alliance for Patient Safety, 2004). In order to ensure patients receive appropriate, high-quality care, patient care needs to be integrated across the health and social care interface. The White Paper, Modernising Social Services (1998) said that "people do not fit into neat service categories, and if partner agencies are not working together it is the user who suffers" (Department of Health, 1998), recognising the need for improvements between care providers. Within the UK, a number of high profile cases have been linked to poor interprofessional teamwork. A high mortality rate in children following cardiac surgery at Bristol Royal Infirmary in the 1990s identified poor teamwork as a contributory factor resulting in unnecessary deaths (The Bristol Royal Infirmary Inquiry, 2001) and recommendations were made to consider teamwork within the education of healthcare professionals (Department of Health, 2001). The lack of teamwork across interprofessional teams (Department for Children, Schools and Families, 2008) was also highlighted following the death of Victoria Climbié in 2003 (The House of Commons Health Committee, 2003) and Baby Peter in 2008 (Department for Children, Schools and Families, 2008). Despite recommendations being made (following the inquiry into Victoria Climbié's death) to improve teamwork, the death of Baby Peter five years later highlighted the lack of change. The Francis report into practices at the Mid Staffordshire hospital trust, which led to the deaths of between 400 and 1,200 people, and the Morecambe Bay Investigation in 2015 again highlighted a failure in interprofessional teamwork (Francis, 2009; Kirkup, 2015). More recently, a review into deaths at Shrewsbury Hospital is expected to raise poor interprofessional working as an area for improvement (Ockenden, 2019).

In order to prepare pharmacy students for their future roles as pharmacists as part of an interprofessional team, there is a need to consider what should form part of the education and training for pharmacists both in the UK and internationally. The training of pharmacists within the UK traditionally begins with a four year Masters of Pharmacy (MPharm) degree programme, followed by a 52 week pre-registration period (General Pharmaceutical Council, 2011). The standards for training and education of pharmacists are defined by the General Pharmaceutical Council (GPhC) and all MPharm degrees need to be accredited by the GPhC, the professions'

regulator. On successful completion of the regulators pre-registration placement and registration exam, students are eligible to register to practice as a pharmacist in the UK. Students have eight years from the commencement of their undergraduate studies to pass the registration exam, allowing time for interruptions from their studies, for example, due to failed modules and illness. Four Higher Education Institutes (HEIs) offer a five year accredited integrated programme whereby students complete their pre-registration training integrated within their MPharm degree. A further two HEIs are offering a five year integrated programme from September 2021 (General Pharmaceutical Council, 2020a). Through an increased understanding of patient expectations of teams, alongside that of health and social care professionals and an awareness of students' understanding of teamwork, key teamwork characteristics that could be developed as part of undergraduate pharmacy student education can be identified. Consideration of current opportunities within curricula, in conjunction with the associated challenges and potential educational developments, should establish recommendations, relating to teamwork, for the education of future pharmacy students in the UK and beyond. This thesis covers the stages involved in this process.

1.1. Aim and objectives of programme of work

The aim of the programme of work is to consider how teamwork can be developed in undergraduate pharmacy students to facilitate and maximise post-registration interprofessional practice and promote effective patient care.

The objectives of the programme of work were to:

1. Explore and define the characteristics of an effective interprofessional team
2. Explore the perceptions of educators on key characteristics in an interprofessional team
3. Identify characteristics of interprofessional teamwork that could be developed within undergraduate students
4. Make recommendations on pharmacy education curriculum standards to facilitate the development of teamwork characteristics

1.2. Thesis overview

The programme of work comprised a multi-perspective approach into teamwork characteristics associated with interprofessional teams utilising a qualitative approach. The perspectives of patients, students and educators were considered. Health and social care professionals' views on characteristics key in effective teamwork ascertained via the literature review provide another perspective. Student and educator views on existing and potential opportunities to develop identified characteristics within undergraduate MPharm programmes were explored. This programme of work consisted of four phases, introduced below and discussed in detail in Chapter 3. The phases were carried out sequentially and findings from earlier phases informed the design of subsequent phases.

Chapter 2 provides a comprehensive review of the background to the programme of work. This begins with consideration of patient care delivered by teams globally, the associated terminology and relevant guidelines and policies. The importance of effective teamwork follows before the characteristics integral to effective teams, as described in published literature, is presented.

Chapter 3 outlines the programme of work in detail, discussing the approaches adopted, the rationale for their choice and an overview of methods undertaken in each of the four phases of the programme of work.

Chapter 4 presents the findings from phase 1 of the programme of work, which involved focus groups comprised of patients and informal caregivers (Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**). This phase looked to identify patients' and informal caregivers' perspectives on teamwork characteristics and their experiences of teamwork in the delivery of their care.

Chapter 5 presents the findings from phase 2, which involved student focus groups (Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**). This phase looked to identify students' awareness of teamwork characteristics and opportunities available to them to develop identified characteristics within their undergraduate studies.

Chapter 6 presents the findings from phase 3 of the programme of work (Phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**). This phase, which involved interviews with educators, considered educators' perspectives on teamwork characteristics, opportunities within their programmes to develop the identified characteristics and potential curriculum developments that would further prepare students for their future practice in interprofessional teams.

Chapter 7 which presents phase 4 of the programme of work (Phase 4: **Recommendations for pharmacy curriculum design**). This fourth phase involved triangulation and discussion of the data findings from phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**; phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective,** and phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, and makes recommendations for the development of pharmacy education curricula to facilitate the development of teamwork characteristics. Limitations of the research and further research are also considered.

This thesis concludes in Chapter 8. This final chapter of this thesis considers the originality, methodological appropriateness and the impact of the programme of work. Proposals for future research are considered and finally the conclusion to the programme of work is presented.

1.3. Significance of the research

This research is of significance as the global landscape of health and social care continues to evolve in increasingly complex and changing environments that require a competent interprofessional workforce approach (World Health Organization, 2018b). In the UK, such an approach is key to the achievement of the long term plans for the NHS (NHS, 2019). As the focus in the provision of high-quality care spreads beyond traditional medical practitioners as the fundamental clinical practitioner, pharmacists across all sectors will become more important in delivering care and supporting patients on their healthcare journey as part of an interprofessional team approach. The recent Coronavirus disease 2019 (COVID-19) pandemic has further highlighted the challenges faced by interprofessional teams in providing a rapid response as the virus spread worldwide and deaths increased approach across organisations and interfaces of care (Liu et al., 2020). The impact of COVID-19 has been far reaching affecting people of all ages and those with various medical conditions emphasising the need for effective and responsive teamwork (Liu et al., 2020; National Institute for Health and Care Excellence, 2020). However there is limited research into preparing pharmacy undergraduate students for their future interprofessional team-based roles.

The terms interprofessional, multidisciplinary and interdisciplinary are frequently used interchangeably are found commonly in the literature, and there is no consensus on the consistent use of these three terms in the healthcare team literature (Flores-Sandoval et al., 2020). The concept of ‘‘interprofessionality’’ arose as a response to fragmented healthcare practices and is defined as ‘‘the development of a cohesive practice between professionals from different disciplines” (D’amour & Oandasan, 2005). Interprofessional teams are considered to consist of professionals from different disciplines working cohesively to address the health needs of populations through integrated care (D’Amour et al., 2005; Wranik et al., 2019). The interdisciplinary approach is interactive and participative, with the healthcare professionals agreeing upon a common treatment goal and adapting their discipline-specific goals to this common goal (Körner, 2010; Thylefors et al., 2005). Multidisciplinary refers to a

process whereby multiple disciplines work on the same project in an independent and parallel fashion, reflecting a lower degree of collaboration on the spectrum (D'amour & Oandasan, 2005; Körner, 2010; Thylefors et al., 2005).

Effective interprofessional practice is an important element of ensuring patient safety and high-quality patient care and it is recognised that effective teamwork would help to promote collaboration and partnership (World Health Organization, 2019) . However, critical issues with communication and collaboration amongst different healthcare professional continue to be reported and impact on the delivery of safe, high-quality patient care (Department for Children, Schools and Families, 2008; Francis, 2009; Ockenden, 2019; The House of Commons Health Committee, 2003). It follows that the development of teamwork characteristics and an enhanced understanding of teamwork in pharmacy undergraduate students would have a significant impact on their preparedness for their future practice as part of a team and their ability to work effectively in new integrated models of care. Pharmacy undergraduate students would have an increased understanding of the roles of health and social care professionals and how all members of an interprofessional team can work together effectively. In doing so, there is potential to improve the delivery of safe, high-quality care to patients and improve the overall patient experience.

Chapter 2. Introduction

Having overviewed the content of the programme of work in the previous chapter, this chapter will focus on a critical review of published papers from peer-reviewed journals, policy documents and grey literature relating to interprofessional teams and teamwork characteristics. The aim of this chapter is to consider the importance of teamwork in the delivery of health and social care, characteristics that are deemed necessary to facilitate effective teamwork and the preparedness of undergraduate pharmacy students to work in an interprofessional team.

2.1. Literature search

A comprehensive literature search was undertaken prior to commencing the programme of work using the HEI's single search tool, DISCOVER, to understand teamwork characteristics, including the perspectives of health and social care staff. This tool gives access to a range of databases including Pubmed, Medline, CINAHL and the Cochrane library. These databases were chosen to ensure that all health and social care related books, eBooks, journal articles, proceedings, conferences, theses and multimedia were included in the search. Other websites were searched separately and included: WHO and NHS England. These websites were chosen to cover all health and social care related grey literature within the UK and internationally. As outlined in Chapter 1, the turn of century was a significant turning point for interprofessional teamwork (Centre for Advanced Interprofesional Education, 2012; Francis, 2009; The House of Commons Health Committee, 2003), therefore, the search focused on literature published between 2000 and 2020.

Key words relating to teamwork to identify teamwork characteristics, published in the English language were used to detect relevant articles. Boolean operators and truncations were used to allow for variability of terms adopted in the literature. The following key words were used in all databases and websites: "interprofessional", "inter-professional", "multidisciplinary",

"interdisciplinary", "team*", "teamwork*, "team work*", "characteristic*", "attribute*", "qualities", "competenc*", "pharmac*", "health", "healthcare", "collaborative practice", "team effectiveness", "team-based care", "non technical skills", "non-technical skills", "work ready"; "work-ready", "prepared for practice", "prepare*", "patient", "caregiver", "care-giver"; "patient safety".

Further details of the literature search are provided in the literature search strategy in Appendix 1.

2.2. A team approach – the global picture

A competent interprofessional workforce approach is globally recognised as a prerequisite in responding to the health and social needs of individuals in response to an ageing population and the rising burden of long-term conditions (World Health Organization, 2018b). Chronic diseases require a holistic approach and long-term management and continuity of care over time (Fiscella & McDaniel, 2018), reinforcing the need for better integration of care between sectors and across providers. The 1978 Declaration of Alma-Ata established that healthcare relies on "health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team and to respond to the expressed health needs of the community" (International Conference on Primary Health Care, 1978). This premise is as relevant today as it was then since demand for healthcare is increasing as a result of demographic, epidemiological, economic and technological changes, alongside population expectations and new models of care in service provision. Achievement of the WHO 2030 Sustainable Development Goals (United Nations DESA, 2015) on ensuring healthy lives and well-being for all, recognises universal health coverage as key to achieving all health targets, which requires an interprofessional workforce (United Nations DESA, 2015) and healthcare services need to be provided by "socially and technically competent and motivated multidisciplinary teams" (World Health Organization, 2018d). Working within a team requires individuals to be

competence in teamwork to ensure evidence-based, coordinated, continuous care (World Health Organization, 2018c). There is also recognition in the literature that “teams require work” (Sargeant et al., 2008). This is described as an ongoing process initially to develop the team but then to maintain the team which requires active, ongoing effort to facilitate integrated patient care (Sargeant et al., 2008).

Maximising disease prevention, health promotion, and successful medical interventions requires a mix of health and social care professionals, caregivers and volunteers, who have the expertise to deliver high-quality care and possess the appropriate skills for tailored, personal interactions and teamwork (World Health Organization, 2018b). An increasing proportion of the UK population have multiple chronic conditions and health and social care services need to adapt in order to cope with more complex cases. A study in Denmark (2015) found that a third of patients presenting at general practices did not lend themselves to a diagnosis, and about one half do not lend themselves to a standard of care pathway, reflecting the complexities of care and the need for individualised care (Rosendal et al., 2015). To be effective, team members require the skills to deal with different aspects of the health and social care plan that can include comorbidities, disease severity, medication, health beliefs and preferences, family environment, and socioeconomic factors (Young et al., 2017).

Adopting approaches based on interprofessional teams with a diverse skills mix and optimal scopes of practice increases workforce productivity and effectiveness, while responding to a wide range of population and community needs, can transform traditional models of service provision (World Health Organization, 2018b). A systematic review of new models of primary care in Canada was associated with reductions in the use of hospital services, including reduced emergency visits and hospitalisations (Wranik et al., 2019). However, whilst a team approach can transform patient care, it can also pose novel threats to patient safety which is recognised as a large and growing global challenge (World Health Organization, 2019).

The coordination of patient care frequently requires multiple teams, which may be embedded in different organisations and who are located in different physical spaces, for example, mental health teams, medical specialty care teams, hospital discharge teams, social services and community-based teams. These teams respond to changes in patient needs, whether preventive, acute, chronic, or end-of-life. The ability to function effectively as a member of a team, that includes providers, patients and family members, requires an awareness to practise in a way that reflects understanding of team dynamics and processes and to build productive working relationships that focus on outcomes for people (World Health Organization, 2018c). Teams need to be fluid, adapting as demand evolves, recognising that some members belong to more than one team and the success of a team hinges on its flexibility and efficiency in managing complex tasks, its adaptation to changes in patient needs, the adoption of new technology and its capacity to integrate information across multiple levels (Fiscella & McDaniel, 2018). However, the necessary level of cooperation and coordination, including exchange of information, varies within and across teams (Fiscella & McDaniel, 2018). Importantly, the need to function as part of a team is a core skill of any healthcare professional alongside and equal to their clinical skills.

2.3. What constitutes a team?

Interprofessional teams often consist of a wide range of people who interact daily with a broad range of health and social care professionals to deliver patient care. These teams may be short-lived with a predefined purpose, such as a cardiac arrest team. Alternatively, interprofessional teams may be less well-defined with broad goals, such as creating a regional institute to support quality improvement.

A team can be defined as “a small number of members with the appropriate mix of expertise to complete a specific task, who are committed to a meaningful purpose and achievable performance goals for which they are held collectively responsible” (Mickan & Rodger, 2005). Historically, members of diverse healthcare professions working together for patient care have

considered themselves a “team” but they may only actually be a group of individuals working beside each other and not as a team (Grumbach & Bodenheimer, 2004). Sargeant et al.(2008) reaffirm that a team is “a group with specific tasks” which “requires the interdependent and collaborative efforts of its members” (Sargeant et al., 2008) Vyt et al. (2008) expands this further by suggesting that teamwork exists when healthcare professionals not only make appropriate referrals to each other when needed but also jointly contribute in setting up care and treatment plans (Vyt, 2008). The WHO describe an effective team as “one where the team members, including the patient, communicate with one another as well as combining their observations, expertise and decision-making responsibilities to optimise patient care (WHO, 2011).

2.4. Interprofessional teams in the UK

In recent years, healthcare in the UK has evolved from just one local family doctor who treated a specified group of patients in a locality, to its current interprofessional, multi-locality form. A shift in patient care designed to facilitate the overall NHS agenda has resulted in healthcare being delivered by interprofessional teams comprising both health and social care workers (NHS, 2019; NHS England, Care Quality Commission, Health Education England, Monitor Public Health England, 2014; NHS England, 2017a). Shorter hospital stays, caring for patients in the community and an increasing focus on prevention of illness has had major implications for the role of different professionals and the complexity of teams in both primary and secondary care and effective interprofessional teamwork is the key to its success (Boaden & Leaviss, 2000; NHS, 2019; NHS England, 2017b; Work, 2013).

The NHS Long Term Plan, published in 2019, outlines the improvements planned to ensure that the NHS is “fit for the future” (NHS, 2019) and teams are a key feature throughout the document. Enhanced collaboration between general practitioners (GPs), their teams and community services as part of primary care networks is considered a mechanism by which improvements outlined in the plan can be delivered. The NHS plan recognised that being

successful requires breaking down traditional barriers between care organisations, teams and funding streams to facilitate the continuity of care and avoid each encounter with the health service being a single, unconnected episode of care. Effective teams and teamwork are key to ensure teams including GPs, allied health professionals (AHPs), district nurses, mental health nurses, therapists and reablement teams, are effective working across primary care and local hospitals, developed to meet local needed (NHS, 2019). Effective interprofessional teamwork continues to be important within the UK in ensuring patients receive quality care.

In response to the redesign of the delivery of primary healthcare in the UK, the pharmacist role has undergone significant changes in recent years (Silvaggi et al., 2017). An ageing population, increased workload, and a greater focus on healthcare being delivered closer to patients' homes, has led to an expanded pharmacist role providing a range of enhanced patient services including screening for chronic disease, providing smoking cessation, treating minor ailments, and supplying medications (Mossialos et al., 2015; NHS England, 2015). Pharmacists can now be seen integrating their expanded roles into general practice settings, providing more patient care and working closely as a member of the healthcare team. Further initiatives, including the Pharmacy Integration Fund have been set up to "drive the greater use of pharmacists in the new, integrated local care models" (NHS England, 2016). Initiatives supported by the Pharmacy Integration Fund include medicines optimisation in care homes, NHS Community Pharmacist Consultation Service and support for the General Practice aims to integrate clinical pharmacists in general practices. Pharmacists need to integrate a team-based approach to patient care and work across a variety of interprofessional teams and curricula need to be reviewed and reformed to ensure pharmacists have the necessary knowledge, skills and competencies to do so.

2.5. Teamwork and patient safety

The delivery of quality care and improving patient safety requires effective interprofessional teamwork (Francis, 2009; The House of Commons Health Committee, 2003). There is significant

evidence within the literature that the quality of teamwork impacts on the quality and safety of healthcare delivery (Rosen et al., 2018). Poor teamwork skills in healthcare have been found to be a contributing cause of negative incidents in patient care, while effective teamwork has been linked to more positive patient outcomes (Grumbach & Bodenheimer, 2004). A study (2015) across 147 acute hospitals (Lyubovnikova et al., 2015) showed that effective teamwork was associated with fewer errors and incidents and lower patient mortality rates. Observational studies of surgical services indicate that approximately 30% of team interactions include a communication failure of some type (Lingard, 2004) and that patients receiving care with poor teamwork are almost five times as likely to experience complications or death (Mazzocco et al., 2009; Symons et al., 2012). In particular, higher mortality and complications have been associated with poor briefing and information-sharing during post-operative handover (Mazzocco et al., 2009).These findings suggest that teamwork skills play an important role in the quality of handover and the development of subsequent adverse events. Positive associations between the quality of teamwork in inpatient facilities and patients' self-reported satisfaction with their care have been established (Lyu et al., 2013) with patients receiving care from higher performing teams being more satisfied.

2.6. Interprofessional team characteristics

A number of characteristics have been identified within the literature that are considered key to achieving effective teamwork. In order to function well, teams need to embody these characteristics on a day-to-day basis and in the longer term. This section outlines the key characteristics as found in published literature.

2.6.1. Communication

Throughout the literature, communication was seen as critical to effective interprofessional teamwork (Institute of Medicine, 2003; Delva, Jamieson and Lemieux, 2008; Sargeant et al., 2008; Vyt, 2008; Bainbridge et al., 2010; Macdonald et al., 2010; Jackson and Bluteau, 2011; Youngwerth and Twaddle, 2011; Nancarrow et al., 2013). Team-based healthcare professionals

referred to communication as “the big thing, the sine qua non, the glue that holds the team together and enabling collaborative work” in a Canadian focus group study (Sargeant et al., 2008). Effective communication was found to assist breaking down professional barriers, resolving inter-team conflict, promoting positive interpersonal relations and improving interprofessional communication (Youngwerth & Twaddle, 2011) thereby facilitating the delivery of patient care and minimising associated risks.

Failures in communication are considered an independent cause of preventable patient harm and a contributing factor to patient harm. Research suggests that between 22%–65% of all severe adverse events are due to or involve communication failures between staff (Knorring et al., 2020). Transitions of care are leading to opportunities for communication failures directly causing patient harm whereby critical information about the patient’s status and plan of care can be miscommunicated, leading to delays in treatment or inappropriate treatment. Within the acute setting, poor communication of medication name, dose, route of delivery, and timing of administration between medics, pharmacists, nurses, and patients can lead to medication errors (Keers et al., 2013). A recent UK study (2020) across 31 hospitals found that inconsistency in communication from staff to patients might be a consequence of a lack of teamwork and suggested that inconsistent communication to patients may potentially also erode patient confidence in healthcare staff (Knorring et al., 2020).

Healthcare professions have described communication as involving both the active exchange of information in both a formal, for example, team meetings, and an informal manner, for example, adhoc conversations (Sargeant et al., 2008; Youngwerth & Twaddle, 2011). Effective communication skills described include listening to team members and appropriate team communication requires using effective skills to offer one’s perspectives respectfully and assertively, or “listening and speaking up” (Sargeant et al., 2008). A focus group study (2008) also highlighted that good relationships among team members facilitates communication (Delva et al., 2008). An observation study (2005) found differences in the way that different

professions interact have been identified in the research (Atwal & Caldwell, 2005). For example, occupational therapists, physiotherapists, social workers and nurses were observed to rarely ask for opinions and orientations whereas consultants tended to have high rates for asking for orientation, giving opinions and giving orientation. However, it is important to note that this study was undertaken in only one healthcare trust in the UK and thus represents the actions of these staff only and may reflect the culture in the specific trust limiting the generalisability of the findings.

Within the published literature it is suggested that practical factors can impact on communication, for example, building layout was a barrier for nurses whilst barriers for medics were due to conflicts in schedules and roles (Delva et al., 2008). Furthermore, healthcare professionals are not always together in the same location at the same time and organising meetings involving all team members involved in patient care can be costly and may not even be possible (Vyt, 2008). Layout design, visibility and accessibility levels are the most cited aspects of design which can affect the level of communication and effective teamwork in healthcare facilities, impacting patient outcomes and efficiency (Gharaveis et al., 2018).

Variations in operational approaches used by different teams were also problematic (Delva et al., 2008). Of notable interest, is a study involving semi-structured interviews with a variety of team-based health and social care professionals in the United States, which found that poor communication was associated with a decreased acceptance of pharmacy roles within primary healthcare teams (Patterson et al., 2015). However, the study was not designed to address pharmacy integration and pharmacists were not interviewed as part of the study. Furthermore, the study was conducted in one region in the United States and this limits the generalisability of the findings.

Whilst it is recognised that information technology can help overcome some of the challenges associated with communication, it was also noted that information technology cannot guarantee efficient collaboration and open communication (Vyt, 2008). In order for regular and effective communication to happen, accessibility to the other members and the ability to use appropriate communication skills were identified as key (Sargeant et al., 2008). It was also recognised within the literature that such skills need to be prioritised and continually reviewed (Institute of Medicine, 2003).

2.6.2. Interpersonal relationships

Relationships between team members including mutual trust, support and recognition were found to impact effective teamwork (Delva et al., 2008; Institute of Medicine, 2003; Jackson & Bluteau, 2011; Youngwerth & Twaddle, 2011). The Institute of Medicine recognised that trust between team members needs to be earned and the existence of this trust creates reciprocity and greater opportunities for shared achievement (Institute of Medicine, 2003). Furthermore, trust and respect within teams is associated with group cohesiveness and team creativity (Mickan & Rodger, 2005; Youngwerth & Twaddle, 2011). Bainbridge et al. (2010) also found that it was important that team members understand the principle of team dynamics and group processes in order to facilitate interprofessional team collaboration (Bainbridge et al., 2010).

Cohesive teams had a unique team spirit and individuals shared enjoyment and pride in their achievement. This results in teams that have a greater longevity and team members who want to continue to work together (Mickan & Rodger, 2005). A systematic review of interprofessional practice within primary care identified that supportive relationships with colleagues were associated with feeling part of the team which in turn generated improved patient outcomes (Mulvale et al., 2016).

Hierarchies and power differences are seen to have a negative impact on team cohesiveness and teamwork. Within the literature, medics were perceived by nurses, nutritionists, social and administrative staff to hold more power than other team members (Delva et al., 2008). This perception was mainly as a result of expectations by medics that work must be adjusted to meet their requirements with little consideration given to the impact this had on other team members (Delva et al., 2008). However, this study was limited to the views of team members in one Canadian primary healthcare team (nurses, nutritionists, social workers and administrative staff) and may not represent the views of other Canadian healthcare team workers or that of those in other countries.

2.6.3. Team structure

These include the size of the team, team composition and location have been identified within the literature as key requirements of effective teams.

Team size is identified as a factor that promotes teamwork (Jackson & Bluteau, 2011) and teams with a greater occupational diversity are associated with higher overall effectiveness (Bainbridge et al., 2010). West & Lyubovnikova (2013) recommend that the team size should be appropriate for the team goal and should not exceed 8-12 members (West & Lyubovnikova, 2013). As teams increase in size beyond this number, team members are less clear about team goals, find information sharing more difficult, interact less and feel they have less influence over decision-making (West, 2012). Larger teams may result in multiple people in the same specialist role; team members may compete for power or withdraw their participation from the team (West & Lyubovnikova, 2013).

Interprofessional teams frequently varied in terms of their composition, which will often depend and be influenced by the needs of the patient and remit of the teams. Teams may include doctors, nurses, pharmacists, physiotherapist, occupational therapist, for example, but many teams also include social care staff, carers and support staff. The inclusion of additional

professions within teams including pharmacists, occupational therapists, physiotherapists, dieticians, podiatrists, and diabetes educators has been found to increase the breadth of services available to patients (Wranik et al., 2019). Nancarrow et al. (2013) expand on the composition of the team and suggest that a balance of personalities and practical aspects of working in a team, for example, having a full complement of staff and timely cover for empty or absent posts are key features in team effectiveness (Nancarrow et al., 2013).

Team structure and team process were identified as factors affecting interprofessional teamwork in primary care teams (Xyrichis & Lowton, 2008). Effective teams need to comprise the relevant healthcare professionals in order for the team to achieve its goal, however determining its membership was considered challenging (Bainbridge et al., 2010; Delva et al., 2008). Vyt (2008) states that a team should consist of "team members who complement each other's discipline and who take up complementary roles in the team" (Vyt, 2008). Team members should have knowledge of and respect for, the competences, roles and contributions of other professionals within a team and the ability to complete the team goal (Vyt, 2008; West & Lyubovnikova, 2013). If this is not the case, decisions-making processes are likely to be dysfunctional and in turn patient care suffers (West & Lyubovnikova, 2013).

The location of teams can also vary considerably. For example, a hospital team will share the care of a patient in a clinic or ward setting whilst in a community or primary care setting, the team may be geographically more widespread, and members of the team will often work with patients on an individual basis. Co-location of providers working in a team was perceived to improve contacts between providers, and increase collaboration, shared goals, and shared decision making in primary care (Wranik et al., 2019) and also offer convenience for patients (O'Neill & Cowman, 2008).

It was also apparent in the literature that there was confusion as to when individuals were a team member. Whilst medics perceived themselves as team members (Doekhie et al., 2017; Vyt, 2008), other individuals did not perceive themselves as a team member. Doekhie et al. (2017) propose three factors that influence individuals' perception of being part of a team and acting accordingly: knowing the people you work with, the necessity for knowledge exchange and sharing a holistic view of caregiving (Doekhie et al., 2017). Delva et al. (2018) report that the frequency of interaction is seen to be crucial as to determining membership for transient members (Delva et al., 2008). There is some reference within the literature proposing that the patient and/or patient representatives are also key members of the team (Jackson & Bluteau, 2011).

2.6.4. Team processes

The function of teams is recognised within the literature as an important factor in team effectiveness. Delva et al. (2008) found that team members perceived themselves as having two main functions: meeting patients' clinical needs and educating future healthcare workers (Delva et al., 2008). Team meetings were seen as an important aspect of teamwork which could be enhanced by factors including the preparation of documents, the presence of key persons, the availability of information and the management of the meeting process (Vyt, 2008). Team meetings facilitated the integration of new team members, review professional expectations and guidelines, review patient progress or problem solve (Delva et al., 2008). However, adequate time needs to be devoted to meetings to allow thorough exploration of a shared problem before constructing an intervention strategy (Vyt, 2008).

Another characteristic of effective primary healthcare teams was having the practical "know-how" for managing a common patient and appropriately communicating patient information (Sargeant et al., 2008). Managing a patient required knowing how to identify and access the right provider; delegate, share, and transfer care; and address policy differences among organisations. Appropriate communication of patient information included activities like

sharing patient records and reports, attending to patient confidentiality, and communicating between institutions and community agencies. Furthermore, the role of the receptionist was also seen as key to team effectiveness (Delva et al., 2008). Secretaries were seen as central to facilitating communication since they interacted with all team members (Delva et al., 2008) and the timeliness of communication was also perceived as an influencing factor in effective communication (Delva et al., 2008). Practical issues also impact on team effectiveness, for example, patient records need to be organised in a way that promotes interprofessional storage and consultation of patient records and data files (Vyt, 2008) – often the role of administrative staff.

West et al. (2000) identified reflexivity on the team as a whole as being a key attribute in effective team (West, 2000). Reflexivity is described as the "extent to which teams regularly take time out to define what it is they are trying to achieve, how well they are working, what they need to change, and then make adjustments accordingly" (West, 2000). Reflexivity enables healthcare professionals to reflect on the sustainability of their objectives to ensure that these are aligned with patient needs and emerging organisational challenges.

2.6.5. Understanding of role

Throughout the literature understanding one's own role and the role of others were a key feature required to facilitate effective teamwork (Bainbridge et al., 2010; Institute of Medicine, 2003; Jackson & Bluteau, 2011; Macdonald et al., 2010; Nancarrow et al., 2013; Sargeant et al., 2008). This knowledge helped team members understand scopes of practice, enhance respect for each other's role and importantly allowed them to understand how the roles of others are complementary to their own (Sargeant et al., 2008). Furthermore, recognition by others as to what a team member brought to the team was also important. Within the literature, it appears that an understanding of the role of others was sometimes "sketchy" (Delva et al., 2008). Some teams seemed unsure about what their colleagues did and linked this to infrequent interaction (Delva et al., 2008). A qualitative study exploring the perspectives and experiences of recently

graduated, currently practicing Australian nurses, pharmacists, and doctors found that how knowing about and valuing the skills and responsibilities of other team members and respecting each person's unique contribution to the work of the team can lead to more effective communication and collaboration in the context of medication safety (Wilson et al., 2016).

Moreover, a lack of understanding of roles has been shown to reinforce power differentials within the interprofessional team, leading to a lack of participation in IPE (defined in Section 2.7 Initial undergraduate education and training) and decreased interprofessional collaboration (Baker et al., 2011; Hickey et al., 2018). Lack of role awareness, poor communication, and insufficient collaboration have been associated with a decreased acceptance of pharmacy roles within primary healthcare teams in the United States and Canada (Patterson et al., 2015; Schindel et al., 2017). Schindel et al. (2017) found that collaboration with other healthcare professionals was essential because the pharmacist role often overlapped with the role of other healthcare professionals, which, at times, led to a conflict between team members (Schindel et al., 2017).

2.6.6. Shared goals

Throughout the literature it is clear that shared goals were seen to bring team members together and in order to be effective, teams should work to establish shared goals that reflect patient priorities which can be articulated, understood and supported by all team members (Institute of Medicine, 2003; Jackson & Bluteau, 2011; Mickan & Rodger, 2005; Mulvale et al., 2016; Schroder et al., 2011; Vyt, 2008; West & Lyubovnikova, 2013). Mickan et al. (2005) described goals as an "intermediary link between the team's purpose and outcomes" (Mickan & Rodger, 2005). Importantly, team members need to agree upon and set goals collaboratively and describe them in measurable terms (Mickan & Rodger, 2005). West & Lyubovnikova (2013) suggest that such goals should be challenging, agreed, measurable and not exceed 8-12 in number (West & Lyubovnikova, 2013) whilst Vyt et al. (2008) suggests that a shared care plan is an important tool that promotes interprofessional teamwork (Vyt, 2008). West (1999) and

Mickan and Rodgers (2005) both found that effective teams were those having a purpose which includes collective interests and demonstrates shared ownership (Mickan & Rodger, 2005; West, 1999).

However, whilst research shows that primary care teams with clear goals perform better on patient-perceived quality and patient satisfaction than those without (Goñi, 1999), it is also common for team members to be unclear about exactly what the objectives of the team are (West & Lyubovnikova, 2013). Achievement of shared goals appears to be more challenging in situations involving multiple agencies (Yerbury, 1997) and that "external" managers are needed to facilitate the objectives, priorities and goals of teams involving multiple agencies.

2.6.7. Leadership and Management

Managing teams requires strong leadership – a theme which reappears throughout the literature (Bainbridge & Wood, 2013; Delva et al., 2008; Jackson & Bluteau, 2011; Macdonald et al., 2010; Nancarrow et al., 2013; Wranik et al., 2019). Clear leadership provides teams with clear team objectives, clear direction and management, high levels of participation, commitment to excellence and support and the development of the team members. Leaders should be based on leadership skills rather than base on hierarchy (Nancarrow et al., 2013) and the traditional assumption of medical leadership has sometimes lead to complications in practice with teams (Boaden & Leaviss, 2000). West et al. (2000) found that where there was poor leadership within teams, both team process and outcomes were negatively affected (West, 2000). Leadership requires decision making, conflict management, sharing of ideas and information, coordination of tasks equally, provision of feedback in relation to the team's activity and the ability to listen, support and trust team members (Mickan & Rodger, 2000) and clear leadership facilitated democratic teams with shared power.

Whilst it is assumed in the literature that leadership is provided by one individual, Bainbridge et al. (2010) refer to collaborative leadership where team members, including the patient, work together to formulate, implement and evaluate care and services to enhance health outcomes (Bainbridge et al., 2010).

2.6.8. Organisational factors

An important consideration is the environment within which different teams operate. In recent years, the NHS has undergone significant changes which all impact on teams as outlined in Chapter 1. A good team climate has been linked to having a common goal, satisfaction with team achievements and having an adequate composition (Thylefors et al., 2005).

Structural problems, for example people working across different organisations and referral of patients between team members has historically led to gaps in service provision or duplication of services (Boaden & Leaviss, 2000). Delva et al. (2008) identified that some organisational rules and regulations inhibited effective teamwork (Delva et al., 2008). This included the lack of communication of organisational updates and a lack of consistency in the application of policies. Sargeant et al. (2008) identified that a common understanding of healthcare in different sectors (primary, secondary or tertiary) and the ability to use a common language provide an important basis for building interprofessional teams across organisations and disciplines (Sargeant et al., 2008).

At an organisational level, support for teams and team-based learning must be in place to ensure a team-based approach, for example, suitable and supportive organisational structures and rewards systems (Mickan & Rodger, 2000; West & Lyubovnikova, 2013). Teams rather than individuals should be acknowledged and recognised through a system that encourages team members to work collaboratively (West & Lyubovnikova, 2013).

2.7. Initial Undergraduate Education and Training

Traditional education of health and social care staff where students are taught within their own discipline does not develop teamwork (Boaden & Leaviss, 2000), and it is assumed that health professionals intuitively know how to work together effectively (Sargeant et al., 2008). Sargeant et al. (2008) describes teamwork as a "sophisticated social activity requiring cognitive (knowledge), technical (skills) and affective (attitudes) competencies" (Sargeant et al., 2008). Future undergraduate education needs to consider the range of teams and context that future healthcare professionals will work in and prepare them with the necessary skills and competencies to become effective team members. Published literature identifies key characteristics that impact on interprofessional teamwork and potential characteristics that could be explored and developed in undergraduate pharmacy students to prepare them for the challenges of teamwork (Bainbridge et al., 2010; Delva et al., 2008; Grumbach & Bodenheimer, 2004; Jackson & Bluteau, 2011; Nancarrow et al., 2013; Vyt, 2008; Youngwerth & Twaddle, 2011). Teamwork does not necessarily occur because professionals are working alongside each other, key characteristics (Section2.6) need to be learnt (Jackson & Bluteau, 2011).

Traditional curricula do not always prepare health workers to work in interprofessional teams. The WHO has noted that in order to better integrate care, strengthen quality and improve patient safety, IPE is necessary and it is recommended that healthcare education, including dentistry, medicine, midwifery, nursing and pharmacy, should include a number of topics related to safety including "being an effective team player" to prepare students for safe practice (World Health Organization, 2010, 2011). IPE is defined as occurring "when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (Centre for Advanced Interprofesional Education, 2012). Francis (2013) highlighted how vital it is that students are exposed to positive experiences of care delivered by interprofessional teams: "Good practical training should only be given where there is good clinical care. Absence of care to that standard will mean that training is deficient" (Francis, 2013). Therefore, there is an inextricable link between the two that no organisation responsible

for the provision, supervision or regulation of education can properly ignore"(Kirkpatrick, 1994).

In order that the future workforce is suitably skilled and competent to work in teams, collaborative education needs to be incorporated into undergraduate and pre-registration training programmes and extend to continuous professional development (World Health Organization, 2018c). IPE is a mechanism through which team-based education can be delivered. Furthermore, the WHO recognise the value of patients and caregivers in the design and delivery of innovative educational approaches (World Health Organization, 2018c).

2.7.1. Preparedness of pharmacy students for practice

Effective healthcare education need to ensure that graduates are prepared and competent for the complexity of practice including working in interprofessional teams (Monrouxe et al., 2017), in addition to possessing the necessary scientific and clinical knowledge. Preparedness for interprofessional practice has been used in medical education to determine the effectiveness of programmes. However, preparedness for practice, is often self-reported and as such can be interpreted in different ways by individuals (Cave et al., 2009; Illing et al., 2013; Leedham-Green et al., 2019; Morrow et al., 2012) which can limit the reliability and generalisability of the findings.

Aside from one study which evaluated the preparedness of graduates from one school of pharmacy after a curricula reform (Parmar et al., 2020), the researcher was unable to find any other published work on preparedness of pharmacy undergraduate students for practice since the most recent reform to the regulator's standards for initial education of pharmacist (General Pharmaceutical Council, 2011). The study evaluated the influence of curricula reform in one UK school of pharmacy and found that overall preparedness increased graduate preparedness following curriculum reform (Parmar et al., 2020). This increase was attributed to course

alignment and application of learning through new opportunities, such as observing other pharmacists in the workplace and undertaking Objective Structured Clinical Examinations (OSCEs) in all four years of the programme (Parmar et al., 2020). A study (2009) exploring the preparedness of pharmacy undergraduate students for practice in the UK of fourth year pharmacy students from 14 schools of pharmacy utilising a questionnaire, found that students felt competent to performing pharmacist tasks including effective communication and to work as a member of a team (Willis et al., 2009). Analysis of demographic data also showed that females and minority groups felt better prepared to work in a team than males, with significant differences being seen between students of different schools of pharmacy (Willis et al., 2009). A participant's ability to recognise their own limitations and problem-solving skills was shown to vary depending on the pharmacy school they attended (Willis et al., 2009). However, it is important to note that this study was conducted at a time when the Royal Pharmaceutical Society of Great Britain (RPSGB) regulated the profession, and before publication of the newest standards for accreditation of pharmacy schools (General Pharmaceutical Council, 2011) and the study measured preparedness against RPSGB standards for course accreditation, which differ significantly to the criteria used today (Willis et al., 2009).

Focus groups, semi-structured interviews and questionnaires have been used in other countries to explore pharmacy students' preparedness for practice. Stakeholders identified deficiencies in teamwork and leadership in a small study of pharmacy graduates from a Caribbean School of Pharmacy (Sealy et al., 2013). A study (2010) exploring the perceptions of recently graduate pharmacy students, newly registered pharmacists and preceptors (pharmacists involved in the training and supervision of newly registered pharmacists), on preparedness in New Zealand, found that graduates and newly registered pharmacists perceived themselves less prepared to be effective team members and effectively communicate with a range of stakeholders than their preceptors (Kairuz et al., 2010). This reinforces the need to engage with a number of key stakeholders as opposed to one group when evaluating preparedness for practice. It is also important to note that more than half of the pharmacy graduates did not speak English as their first language which could limit the generalisability of the findings and influence their self-

reported perceptions. The need to further develop communication skills and interpersonal relationships as part of undergraduate curricula were highlighted as areas that would impact on preparedness for future practice in a study involving pharmacists in Saudi Arabia (Ameer et al., 2018). However, mixed sex environments are challenging in Saudi Arabia and this may impact on the findings of this study.

Studies from a pharmacy perspective exploring potential differences between schools of pharmacy in terms of preparedness, may be an appropriate approach in order to establish curricula differences and the impact of these on teamwork skills; however, this would require large scale participation from graduates from a range of universities.

2.7.2. Preparedness of other health and social care students for practice

The initial training other healthcare students is different to that of pharmacist. The training of medical and nursing students involves a greater portion of time in practice-based learning (General Medical Council, 2015; Nurse and Midwifery Council, 2010). The General Medical Council, that regulates medical programmes, requires students to be given "sufficient practical experiences to achieve the learning outcomes required for graduates" (General Medical Council, 2015). Experience in the clinical setting must grow with complexity in line with the curriculum and an opportunity must be provided to work with other healthcare professionals (General Medical Council, 2015) and therefore exposure to teamwork. Similarly, in nursing education "adequate clinical experience" must be provided, students must gain exposure under the supervision of qualified nursing staff and also obtain experience of working with members of other professions in the healthcare sector (Nurse and Midwifery Council, 2010).

Medical student preparedness for working in teams has been explored through qualitative research including questionnaires (Goldacre et al., 2010; Jones et al., 2002; Matheson & Matheson, 2009; Morrow et al., 2012; Tallentire et al., 2011), interviews and focus groups (Illing

et al., 2013; O'Neill et al., 2003; Watmough et al., 2006, 2009) and reflective essays (Leedham-Green et al., 2019). Researchers have engaged with different stakeholder groups to explore graduate preparedness including medical school graduates themselves (Goldacre et al., 2010; Jones et al., 2002; Leedham-Green et al., 2019; O'Neill et al., 2003; Tallentire et al., 2011; Watmough et al., 2006), educational supervisors of undergraduates (Watmough et al., 2006), supervising ward doctors (Matheson & Matheson, 2009) and others involved in the supervision of medical graduates in the workplace including nurses and pharmacists (Morrow et al., 2012). Different areas of strengths and weaknesses in preparedness have been highlighted such as communication skills and teamwork (Geoghegan et al., 2017; Goldacre et al., 2010; A. Jones et al., 2002; Matheson & Matheson, 2009; Monrouxe et al., 2017; Watmough et al., 2006). This approach may be suitable for assessing the preparedness of pharmacy undergraduate students in order to establish how they perform in a team-based environment however there are limited individuals involved in training of pharmacy undergraduate students especially in some sectors thus limiting the range of stakeholders whose perceptions could be explored. In addition, other colleagues may not be as informed about the structure of the MPharm programme and lack of placement opportunities.

The preparedness of other healthcare professionals such as nurses and dentists have also been explored through qualitative interviewing and questionnaires (Ali et al., 2017; Hörberg et al., 2019; Mohan & Ravindran, 2018). Studies have found that there are areas for improvement in nursing education as students do not always feel prepared for practice and working in a team (Hörberg et al., 2019). Preparedness studies in dental education have highlighted the need for improvements in communication skills and studies (Ali et al., 2017; Mohan & Ravindran, 2018) and other issues such as gender differences (with females being perceived to feel less prepared than males)(Mohan & Ravindran, 2018).

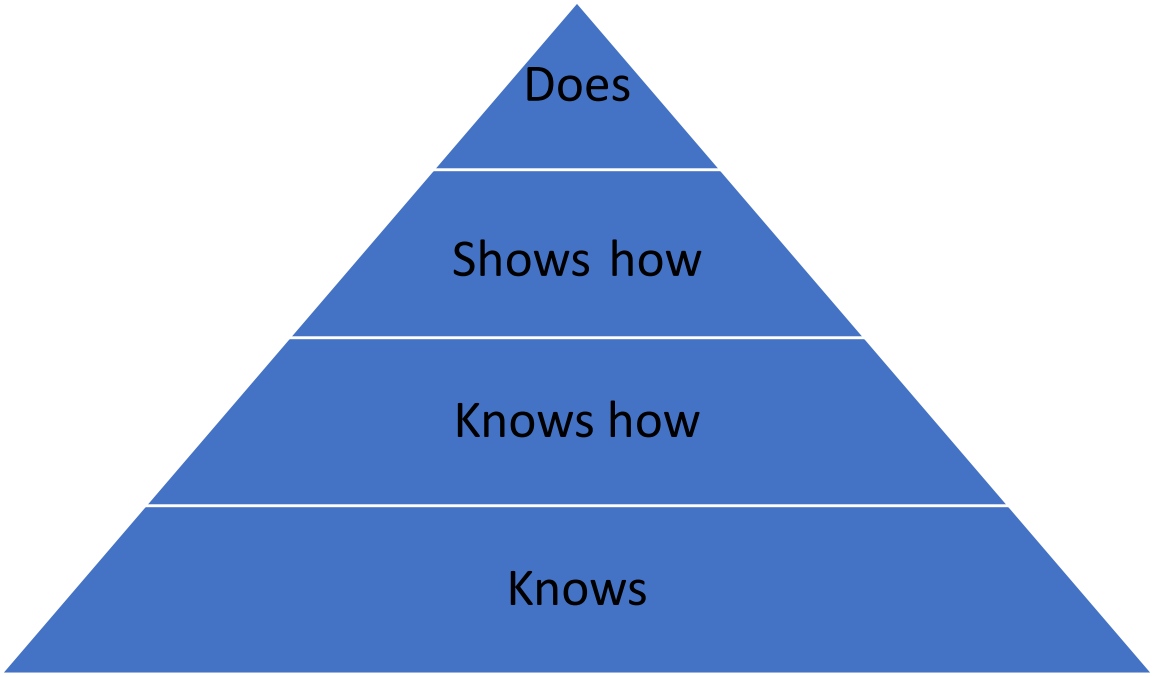
2.7.3. Pharmacy Education

The GPhC sets the standards for training and education that UK schools of pharmacy must comply with when recruiting students, ensuring they meet the appropriate academic standards, English language and numeracy requirements, disclosure and barring service and health checks. Students must also comply with the standards for pharmacy professionals that describe the knowledge, attitudes and behaviours expected of students during their studies.

Standard 10 of the GPhC's education standards identifies the outcomes for the initial education and training of pharmacists (General Pharmaceutical Council, 2011). The standards have been built around Miller's triangle as a pedagogical model (Miller, 1990) as depicted in Figure 2-1, and in order to achieve the higher outcomes, the importance of Bruner's spiral curriculum is recognised (Bruner, 1960). The standards list the tasks and degree to which pharmacy students are expected to perform them and the course-level outcomes (provided by the GPhC) are articulated in terms of Miller's levels of "knows", "knows how", "shows how", and "does". This is broadly based on the work of Bloom (summarised in Figure 2-2) – a framework which is commonly used by educators when developing learning objectives (Austin, 2016).

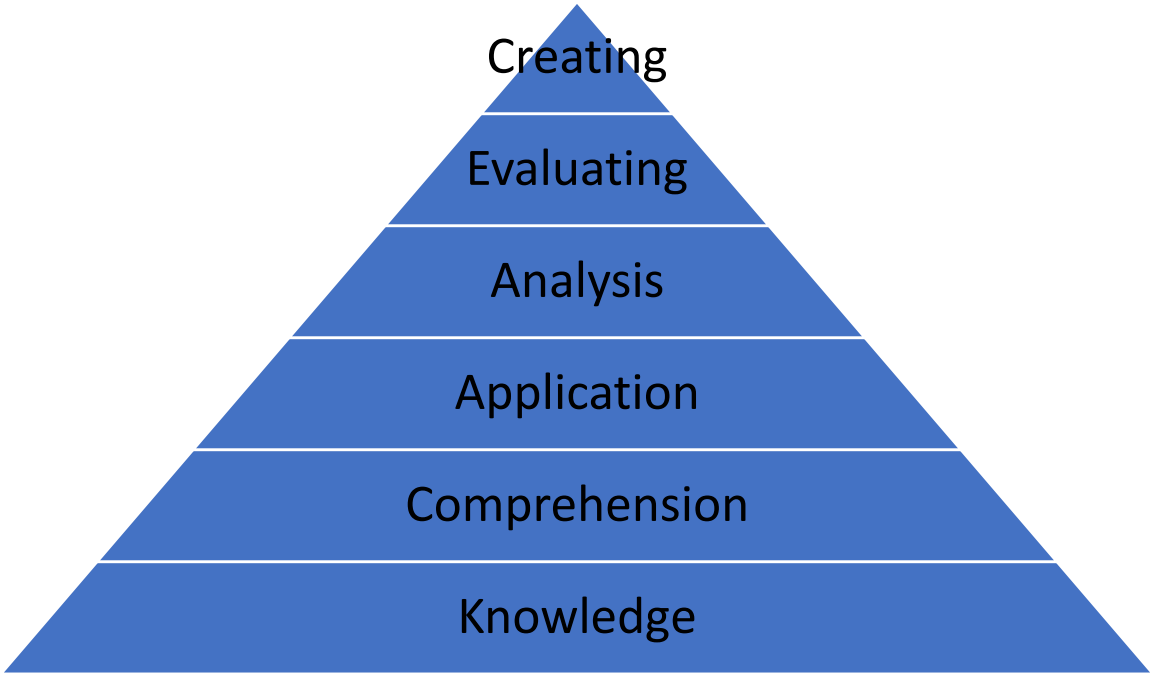
Knowledge forms the base of Bloom's pyramid, a taxonomy frequently used by educators when developing learning objectives, as it is central to everything that learning is built upon. As described by Austin (2016), failure to build upon the foundations of the pyramid (knowledge) leads to "incomplete acquisition of knowledge and skills over time, which may result in performance problems, such as an inability to apply learning in new or different contexts or situations" (Austin, 2016). Therefore, the importance of knowledge acquisition, including teamwork, in the initial education of pharmacists cannot be understated.

Figure 2-1: Miller triangle (Miller, 1990)



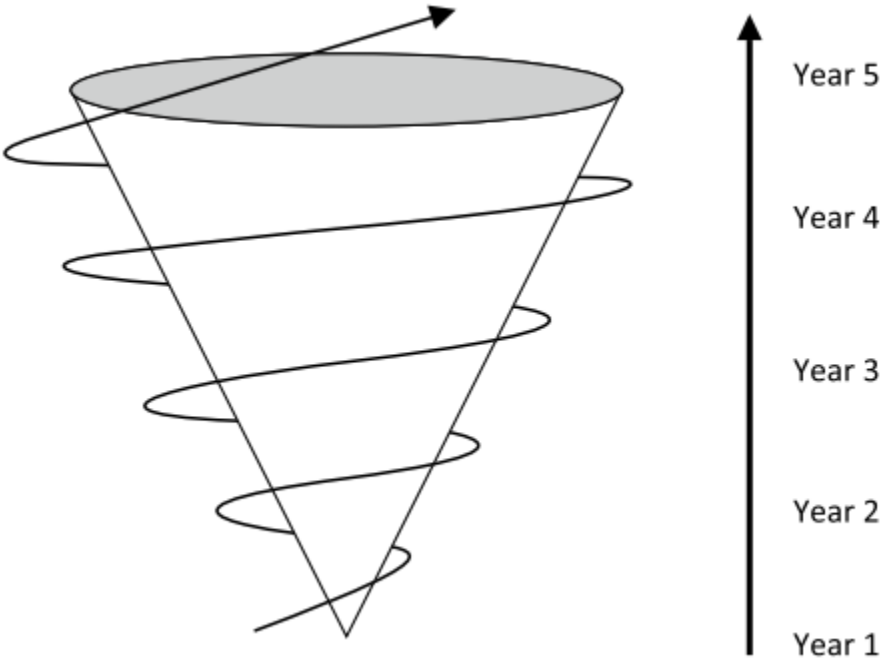
Teaching and learning activities need to support students in demonstrating achievement at the appropriate level. However, there is no specific guidance on which learning activities e.g. lectures and workshops should be included in MPharm programme, however, it is stated that teaching and learning methods should include learning on experiences with interprofessional practices, clinical education, scientific education and research methods. Programmes across schools of pharmacy vary in terms of module structure, content studied, mechanisms of learning delivery and assessments but all programmes must meet the outcomes defined in the standards (General Pharmaceutical Council, 2011).

Figure 2-2: Blooms taxonomy (Adams, 2015)



Schools of Pharmacy are also required to design their programmes in line with a spiral curriculum, building complexity throughout their programmes year-on-year in. Harden and Stamper (1999) define a spiral curriculum as "one in which there is an iterative revisiting of topics, subjects or themes throughout the course". As depicted in Figure 2-3, a curriculum involves iterative revisiting of subjects or themes (Bruner, 1960) where new objectives are presented with each visit (Harden & Stamper, 1999). From the bottom of the 'spiral' where topics are introduced, material is revisited with the aim of increasing proficiency or expertise to the top of the spiral whereby 'eventual mastery' is reached (Bruner, 1960).

Figure -2–3: A spiral curriculum (General Pharmaceutical Council, 2011)



MPharm programmes must include “practical experience of working with patients, carers and other healthcare professionals”, for example, through simulations, placements and the inclusion of patients, carers and other healthcare professional in-class based teaching and learning (General Pharmaceutical Council, 2011). However, the lack of prescriptive guidance is challenging for educators with a lack of clarity as to the type and quantity that is expected by the GPhC. Interviews undertaken with staff from nine schools of pharmacy identified no standard approach for delivering IPE although students did value IPE opportunities notably those involving other healthcare professionals. This mirrors the findings of Jones et al.(2012), who also found that the delivery of IPE was not homogenous across pharmacy education programmes across the United States (Jones et al., 2012). However, the challenges of integrating IPE within curricula and assessment of IPE competencies were highlighted (Patel et al., 2016). The importance of having IPE embedded in the initial education of pharmacists is not just restricted to the UK but has also been included in pharmacy curricula in other countries such as Australia (Australian Pharmacy Council, 2020) and New Zealand, Canada (The Canadian

Council for Accreditation of Pharmacy Programs, 2018), the United States (Accreditation Council for Pharmacy Education, 2016) and Germany (Altin et al., 2014). These curricula are similar in their requirement to provide opportunities to enable graduate to be able to work within interprofessional teams.

2.7.4. Pre-registration training

UK pharmacy students, who graduate from a four year MPharm programme, must complete pre-registration training and be successful in the GPhC registration examination before registering as a pharmacist. The pre-registration training involves students working under the supervision of a pre-registration tutor for a period of 52 weeks. Students are assessed against 76 pre-registration performance outcomes by their tutor four times during the period of training. Following sign off by their tutor that they have successfully met the required performance outcomes, they are then able to undertake registration examination. The performance outcomes are based on personal effectiveness, interpersonal skills and knowledge of medicines and health. Following successful completion of the pre-registration training period and assessment, students are eligible to apply to register as a pharmacist.

The majority of pre-registration training is undertaken in the community or hospital pharmacy settings. However, in recent years there have been a number of opportunities across the UK for multi-sector pre-registration training whereby trainees spend their time in structured placements split between, for example, hospital, community and primary care environments (Pharmacist Support, 2020).

2.7.5. The MPharm student participant

This research involves participants who were studying at the NWHEI so information relating to this individual School of Pharmacy is overviewed here.

Participants involved in the research studied a previous accredited programme. The programme was a four year module-based course comprising 480 credits. Course content was mainly delivered through a variety of teaching and learning mechanisms including lectures, workshops and laboratory classes. Students undertook a community and hospital placement in the third-year and a hospital placement in the fourth-year and there were elements of group work throughout the programme.

Interprofessional learning experiences were undertaken by students in the first-, second- and fourth-year. In the first year of study, students undertook workshops with first year undergraduate nursing students before progressing to workshops with nurse, medics and other AHPs in the second year. In the fourth-year, fourth year students participated in simulated learning with third year nursing and fifth year medical students. Third and fourth year students participated in simulation sessions, held off site at a local simulation centre.

2.7.6. Chapter Summary

As highlighted in this chapter the pharmacy profession is facing significant challenges, as the role of the pharmacist in the UK continues to evolve. Limited studies have been conducted into current graduate preparedness for their roles, especially in the UK. A number of key characteristics can be found within the literature that can facilitate effective interprofessional teams. The transferability of key characteristics that facilitate effective teams across different contexts, such as primary care teams, needs to be explored further.

In order to ensure graduates are adequately prepared for the workplace environment, it is important to understand effective teamwork, how pharmacy students are currently prepared for their role and how educators can facilitate their preparedness for working in interprofessional teams. This study was designed and conducted in response to the lack of research in a pharmacy context.

This chapter has reviewed the current literature relating to characteristics that facilitate teamwork and pharmacy education in the UK. Chapter 3 describes in detail the programme of work. Chapters 4-6 outline and discuss the findings of the phases 1-3 of the study. Chapter 7 brings together the findings from all phases by triangulation (phase 4), discusses the implications of these findings and makes recommendations for pharmacy education curricula. Chapter 8 presents the conclusions.

Chapter 3. Programme of work

Chapter 2 provided a review of the current literature relating to characteristics that facilitate teamwork and pharmacy education in the UK. This chapter addresses the methodology adopted and will discuss the aims and objectives of the programme of work, how they were achieved using a multiphase approach, Recruitment and sampling approaches, ethical and safety issues are then considered. This is followed by an overview of the four phases, their aims and objectives, and a description and rationale for each method used in each phase. The chapter concludes by considering reflexivity within the programme of work.

3.1. Methodology

Quantitative or qualitative methodology can be utilised to undertake research. Quantitative research is used to measure the research problem. It describes, infers, and resolves problems using numbers. The collection of numerical data, the summary of those data, and the drawing of inferences from the data are used to measure the research problem. Qualitative research is generally exploratory and is based on words, feelings, emotions, sounds and other non-numerical and unquantifiable elements collected via in-depth discussions with participants. This subjective approach is not usually about facts, as described in quantitative methodology, but is about understanding peoples' experiences about a particular phenomenon. The methodology chosen will depend upon the research problem and the type of data that would be most appropriate to enable the researcher to generalise the findings across a wider population.

For the current programme of work, a qualitative approach has been adopted. The rationale, strengths and weakness, and appropriateness for selecting a qualitative over a quantitative methodology are summarised in the following paragraphs.

The use of qualitative methodology in the social sciences has developed owing to the richness of data that it is possible to generate through the spoken word, focusing on depth rather than

breadth of data (Miles et al., 2014; Rubin & Rubin, 2012); their use can also be seen in research in health services, nursing and pharmacy (Austin & Sutton, 2018), and specifically in research relating to healthcare teams. Several studies in healthcare have used a single methodology to investigate teamwork. For example, focus groups alone have been used to explore how technology influences interprofessional communications (Bardach et al., 2017), while semi-structured interviews alone have been used to investigate nurses' views on factors influencing teamwork within Canadian primary care (Al Sayah et al., 2014).

A systematic literature review published in 2019 investigated the characteristics of good teamwork from the interprofessional teams' perspective (Wranik et al., 2019). Of the 77 studies identified, 38 were quantitative, 31 were qualitative and eight used a mixed methods approach. Another literature review aimed to gain insight into factors that impact on interprofessional team working (Xyrichis & Lowton, 2008). Of the 10 studies identified, three utilised a focus group approach and three involved semi-structured interviews; the remaining four studies adopted a quantitative approach. A qualitative approach was used to allow a thorough exploration of patients', informal caregivers' and students' views on characteristics that they considered key in the delivery of care from interprofessional teams (Robson, 2011).

The current research required a deeper level of understanding of patients', caregivers', students' and educators' opinions, which may not be adequately gathered through quantitative methodology as the participants "voice" is missing (Austin & Sutton, 2018). The purpose was not to quantify participants' feelings, but to probe deeply into their perceptions about teamwork and pharmacy undergraduate students' preparedness for team-based pharmacy practice. This may not have been achieved if participants were presented with pre-set fields to agree or disagree with, as their true beliefs may not have been covered by such categories. Whilst their views may have been gathered by using open-ended questions in survey instruments, there would have been no opportunity to probe and give participants the opportunity to expand, clarify and explain if needed. Qualitative methods allowed the

researcher to confirm what had been learnt during data collection, so the results accurately represent the participants' perspective. Data were collected with a relatively limited number of individuals and so it is acknowledged that it is not possible to generalise the findings to a larger population, however the findings may be transferrable to other settings, such as other schools of pharmacy.

A research paradigm is defined as a “philosophical framework or set of beliefs that guides action on research” (Guba, 1990). Paradigms provide a basis for understanding the nature of reality and they guide how researchers approach research thereby impacting the research design. A variety of research paradigms are discussed in the literature, each with differing viewpoints.

The primary philosophy on which quantitative research is based is positivism, which assumes that phenomena are measurable and relies heavily on the concepts of validity and reliability (Austin & Sutton, 2018). Quantitative methods include surveys, experiments and randomised controlled trials. However, not all aspects of pharmacy practice are measurable, especially the opinions of people as in this study. Qualitative research has its roots in the constructionist approach to research. This subjective approach is about understanding peoples’ experiences in relation to a particular phenomenon (Austin & Sutton, 2018). As the profession of pharmacy evolves and moves towards a more patient-focused profession, the need for constructivist skills is increasing in order to explore peoples’ views, influenced by their own experiences.

This research was conducted through the constructivist paradigm, which assumes that mental constructions are made by an individual based on their life experience (Austin & Sutton, 2018). An individual’s construction will alter over time in line with their life experiences. Each group interviewed as part of this study had their own construction of reality influenced by their personal experiences. Each were given equal weighting. No single person’s view was treated as

more or less true than another's. In addition, the constructivist paradigm also acknowledges the link between participant and researcher. Rather than trying to minimise the effect of the researcher (as may be desired in a positivist paradigm), it acknowledges that research is value mediated and knowledge is literally co-constructed between the two.

Grounded theory methodology was utilised for the analysis of data collected within the thesis. Developed in 1967 by Glaser and Strauss, grounded theory is a rigorous methodology that supports the generation of theory through the analysis of data collected during the research process and not chosen prior to beginning the research (Glaser & Strauss, 1967). In contrast to other traditional qualitative approaches whereby data are collected before commencing the analysis, grounded theory is an iterative process. The data collection and analysis proceed simultaneously, using the emerging theoretical themes to shape the data collection while doing the research. A grounded theory approach requires the researcher to undertake constant-comparative analysis of the data. Grounded theory relies heavily on the constant comparative method of analysis in which new data is continuously analysed from the perspective of analysed data to continuously reconfirm data codings and emerging themes as additional data becomes available. A grounded theory approach allows a greater understanding of areas and topics and facilitates explanatory links between categories, rather than identifying and quantifying the categories as in content analysis (Austin & Sutton, 2018). A grounded theory approach focusses on privileging the voice of the research participants and raises the researchers' awareness of their own personal biases and preconceptions.

Since Glaser and Strauss (1967) first wrote about their discovery of grounded theory, alternative versions have emerged. In the grounded theory literature, terms traditional, classic or Glaserian describe the approach as Glaser and Strauss, and later Glaser, advocate (Glaser & Strauss, 1967). In addition, two main alternative versions of grounded theory have also developed and been widely adopted; Straussian (Strauss & Corbin, 1990) and Constructivist (Charmaz, 2000; 2006; 2014). Recognisable elements of classic grounded theory exist in all

versions, though versions differ in respect of philosophy and method, including the approaches to coding (Kenny and Fourie, 2015; Timonen, Foley and Conlon, 2018).

While the research methods adopted are anchored in tenets of a constructivist approach, what is reported in this thesis also reflects the influence of other grounded theory research perspectives. The constructivist version of grounded theory recognises that as the researcher is an experienced pharmacist and academic it is unrealistic to eliminate subjectivity. A contextual but not exhaustive literature review conducted ahead of data collection which aligns with a Straussian position and with Charmaz's (2014, 2016) notion of sensitising concepts; tentative ideas which the researcher may question or pursue in relation to the topic. A classic grounded theory coding approach was adopted to generate theory which fits more closely with a discovery (Glaser and Strauss, 1967). The researcher engages first in substantive coding, which includes open and later selective coding, before progressing to theoretical coding (Robson, 2011). This hybrid approach to grounded theory is presented with methodological awareness of research philosophy and the implications for the methods employed. The grounded theory approach finally adopted is consistent with the selection of a variant of grounded theory which has best fit with the ontological and epistemological assumptions of the research, as described by Timonen, Foley and Conlon (2018). Kenny and Fourie (2015) also suggest that "the researcher doesn't necessarily have to adopt a pure form of one tradition, and indeed, within the parameters of consistency, there is freedom to blur the boundaries between Classic, Straussian, or Constructivist Grounded Theory".

A framework approach was not adopted to ensure the researcher was open minded and not constrained within the analysis process. Analysis of patient experiences was informed by narrative analysis, and not the interview schedule, taking into account the limitations of such an approach, including the possibility that the participants narrative may represent only part of the story, and as the narrative can change as it is told to different people and in different situations thus impacting on the reliability of the data (Purcell & Baker, 2017). The researcher being aware

of their own culture and social background, personal and professional assumptions, minimises bias and power relationships, especially with student participants in Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective** (Charmaz, 2014). Discourse and conversational analysis were excluded since the analysis focuses on the language used and social interaction and thus does not link to the research aims and objectives (Robson, 2011).

3.2. Aim and objectives of programme of work

As mentioned earlier in Chapter 1, the aim of the programme of work is to explore how teamwork characteristics can be developed in undergraduate pharmacy students to facilitate and maximise post-registration interprofessional practice and promote effective patient care.

The objectives of the programme of work were to:

1. Explore and define the characteristics of an effective interprofessional team
2. Explore the perceptions of educators on key pharmacy characteristics in an interprofessional team
3. Identify characteristics of interprofessional teamwork that could be developed within undergraduate students
4. Make recommendations on pharmacy education curriculum standards to facilitate the development of teamwork characteristics

3.3. Overview of programme of work

A multiphase approach utilising qualitative methodology was adopted to explore teamwork characteristics within interprofessional teams and consider the development of pharmacy education curriculum to support students' preparedness for practice. The multiphase approach was undertaken to ensure the project captured characteristics that patients and students perceived important, to consider pharmacy students' awareness of characteristics and educators' perspectives on characteristics, and to make recommendations for potential

changes to the education and training standard for pharmacists (General Pharmaceutical Council, 2011) and the enhancement of the pharmacy curriculum. The multiphase approach enabled multiple perspectives to be taken into consideration. Implementation of recommended changes to pharmacy curriculum is beyond the scope of this programme of work. The programme of work comprised four phases and the overview in Figure 3-1 illustrates how the phases link together. The phases were carried out sequentially and findings from earlier phases informed the design of later phases.

Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, aimed to ascertain characteristics of an effective interprofessional team by eliciting the views of patients and informal caregivers on characteristics that they considered key in the delivery of care by interprofessional teams, utilising focus groups. The rationale for the method adopted and a description of the method in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, are described below in Section 3.7, and the findings are presented in Chapter 4.

Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, aimed to explore students' views and opinions regarding teamwork characteristics and their preparedness for future practice in interprofessional teams explored students', utilising focus groups. The rationale for the method adopted and description of the methods adopted in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, are described in Section 3.8, and the findings are presented in Chapter 5.

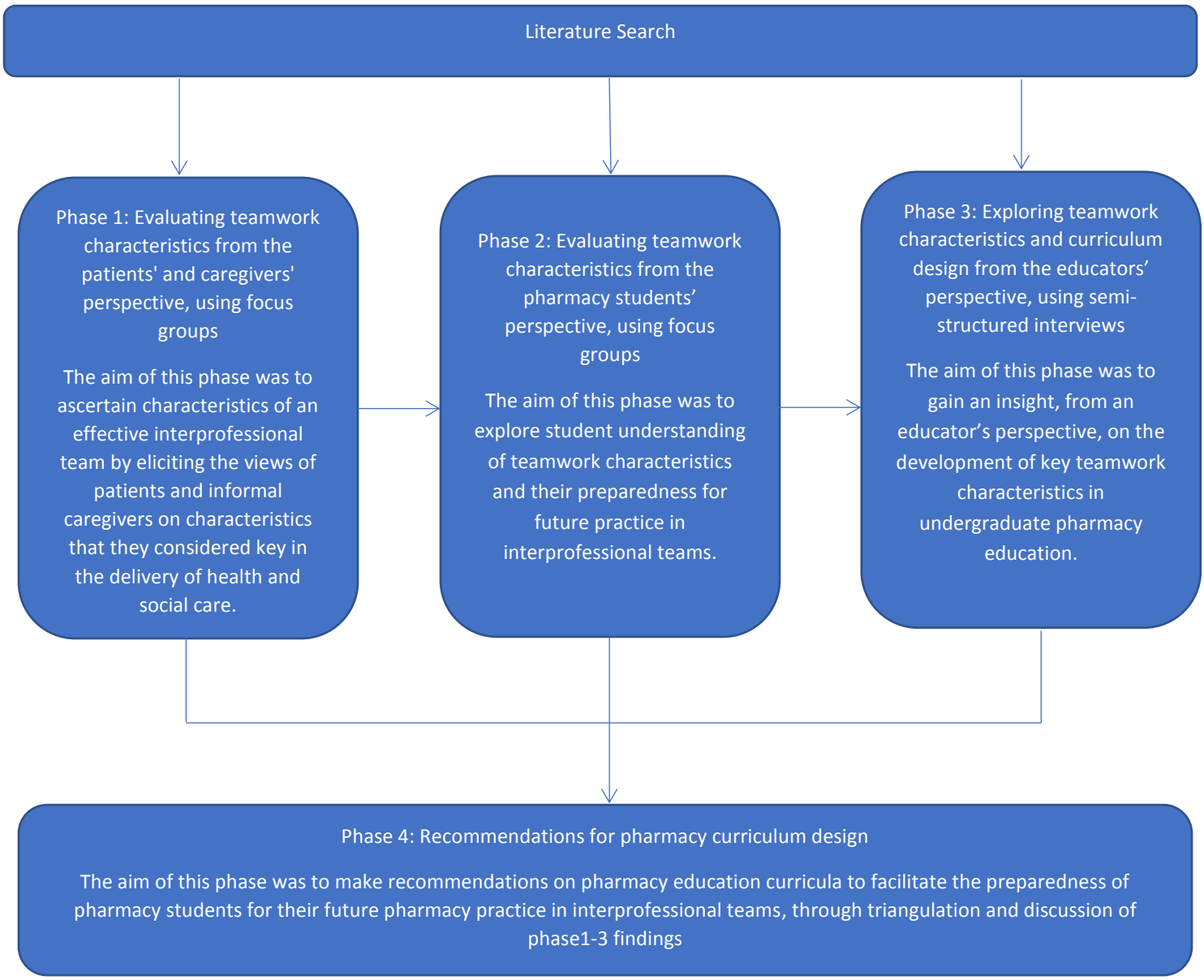
Phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, aimed to gain an insight, from an educator's perspective, on the development of key teamwork characteristics in undergraduate pharmacy education, using interviews (telephone and face-to face). The rationale for the method adopted and a description of the

methods in phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, are described in Section 3.9, and the findings are presented in Chapter 6.

Phase 4: **Recommendations for pharmacy curriculum design**, triangulated the findings of phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, and phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, along with the findings from the literature review was to obtain a rich, robust and comprehensive account of key teamwork characteristics and were used to inform recommendations for curriculum development for pharmacy students. The rationale and a description of the methods adopted in phase 4: **Recommendations for pharmacy curriculum design**, are described in Section 3.10, and the triangulation and discussion of the findings are presented in Chapter 7.

This programme of work comprises qualitative interviews and focus groups. Both methods have strengths and weaknesses will be discussed. By using more than one method within one study the weaknesses of the individual methods are diluted and the robustness of the research is strengthened. Another example of robustness within the programme of work is the inclusion of different participant perspectives on the same research area. Patients were invited to give their perspectives on team characteristics and their experiences in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**. Student perspectives on team characteristics were considered in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective,** alongside current opportunities available to develop the identified characteristics. Finally, the perspectives of educators were considered in phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**.

Figure 3-1 – Overview of programme of work



3.4. Recruitment and sampling

Non-probability sampling methods were used during recruitment including convenience and purposive sampling. However since these sampling methods are not random and as such cannot be assumed to be representative of the target population (Austin & Sutton, 2018) . Convenience sampling enabled the researcher to access participants with ease and limited disruption including associated research costs and geographical location of participants (Robson, 2011). The practical advantages of convenience sampling can impact negatively on the sampling error and cannot be assumed to be representative of the target population (Robson, 2011). Furthermore, certain individuals in the population of interest may be excluded by this sampling method (Robson, 2011). Ensuring that the members of the sample are relevant to the aims of the study is key to the minimising the associated disadvantages.

Purposive sampling produces a sample of participants that can be considered experts in the field, however it is important to note that another researcher is likely to come up with a different sample when identifying important characteristics and selecting typical elements to be in the sample (Robson, 2011). Purposive sampling provides more control over who is selected to be included in a sample than availability sampling and convenience sampling allows the researcher to identify participants who are likely to provide data that are detailed and relevant to the research aim.

Another mechanism of recruitment employed across all phases was snowball sampling (Austin & Sutton, 2018). Participants were asked at the end of focus groups and interviews whether they could identify anyone else who may wish to participate in the study. Interviewees were asked either to provide the researcher with the individual's contact e-mail address (with permission) or to ask the individual themselves to get in touch with the researcher if they were interested in participating. The technique has often been employed in situations where it was desirable to access "hard to reach" populations and individuals, for example patients or educators who may not come forward or may not be known to the researcher.

This programme of work was designed to explore the views of patients and caregivers, students and educators and their interrelatedness, in order to take account of the characteristics of effective teamwork from different perspectives, thereby allowing a more complete understanding of the phenomena to be obtained. The programme of work involved the researcher collecting data and analysing data from different methods. The data from the phases 1-3 were compared and contrasted in phase 4: **Recommendations for pharmacy curriculum design**. This is a valuable approach in providing more robust and valid outcomes and is known as data triangulation (Robson, 2011). Triangulation of the data in phase 4: **Recommendations for pharmacy curriculum design**, adds rigour to the research process (Austin & Sutton, 2018), since triangulation allows the same topic to be viewed through multiple lenses thereby providing different and complementary results that when considered together can come closest to approximating the reality of a situation and facilitates a deeper understanding of teamwork and associated characteristics from different peoples' perspectives.

3.5. Ethical considerations

Research ethics are the moral principles by which areas of research and methodology are determined to be appropriate or inappropriate. Qualitative research provides unique and personal insights into individuals' experiences and views and as such, a researcher needs to be mindful of the associated ethical considerations including anonymity, confidentiality, withdrawal options, data storage and destruction. The programme of work has been designed to ensure that the research was carried out ethically and ethics approval was gained for each phase of the research.

Since this study involved human participants and was carried out by a PhD researcher of a NWHEI, ethical approval was needed for each of the three stages of the study from a North West University Research Ethics committee (REC). An application for phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, and phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, of the

programme of work was submitted in one application and as the study progressed an application for phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, was submitted separately. Any suggestions made by the ethics committee were actioned and resubmissions were made before approvals were granted

All phases were designed in a way to ensure the safety, dignity and rights of research participants. This included recruiting participants in a way that they could choose to participate or not. Informed consent is a voluntary agreement to participate in research and it is an ethical and legal requirement for research involving human participants. It is the process by which an individual is informed about all aspects of the research and the possible consequences, which are important for the participant to make a decision. After studying all aspects of the research, the participant voluntarily confirms his or her willingness to participate. Informed consent was obtained for all phases in the programme of work.

Participant information leaflet (PILs) were provided to assist participants to make an informed choice. Each PIL provided detailed information about the background and purpose of the study, what participation involved, the benefits and risks of participating and their rights. Having reviewed the PIL, a participant could contact the researcher if they had any further questions. In order to confirm that inform consent had taken place, consent forms were provided to all participants throughout the phases. There were completed, signed and returned to the researcher prior to the research taking place. The individual methods used to provide information and obtain informed consent for each phase of the programme of work are detailed in the individual sections for each phase. See Sections 3.7.3.3, 3.8.3.3 and 3.9.3.2 respectively.

Participants were able to withdraw from the focus groups and interviews at any time and could choose not to answer the questions. However, since all data collected was anonymous, if

participants withdrew during a focus group, any information that they have given up to the point of withdrawal could not be deleted and was utilised in the analysis. Consent was obtained from all participants prior to commencement of the focus groups and interviews. No participants withdrew from the research.

Confidentiality of the focus group discussions in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, and phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, could not be guaranteed for those participating in each focus group as other participants knew what had been said and by whom. However, focus group members were asked to respect the confidentiality of other members of the group. Confidentiality was guaranteed between each focus group.

Whilst data was audio-recorded in each phase, all data was anonymised by the researcher when audio recorded interviews were transcribed to maintain participant anonymity. All data collected was treated confidentially by the researcher. Any information obtained in connection to each phase that can identify individuals was removed during transcribing to ensure participants' anonymity. The data collected was digitised and securely stored in password protected electronic files as appropriate so that only the researcher and the supervisory team could gain access. Electronic data was stored on the researcher's personal computer in password protected files in a locked office. The computer was attached to a NWHEI server which provided a secure network and firewall. Paperwork including consent forms were kept in the same locked office in a locked drawer which was only accessible to the researcher. At the end of the project any personal information was securely destroyed. All raw data generated from the study will be retained in secure storage for five years, after which it will be securely destroyed.

As member of staff at the NWHEI, it is acknowledged that the researcher was an insider researcher and was known to students, some staff and other educators. The term 'Insider research' is used to describe projects such as this where the investigator has a direct association with the research setting (Robson 2011). It is important that as an insider researcher there is an awareness of any potential power relationships. Student participants in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, was essential in order to explore students' understanding of interprofessional teamwork and practice which could then inform curriculum proposals. This inevitably introduced some power imbalance since the researcher was also part of the programme team and this may have influenced their motivation to participate. Whilst the power imbalance could not be eliminated, it could be minimised. In order to minimise participant risk and vulnerability, a number of measures were put in place. All participation was voluntary, and no incentives were offered to induce student participation.

3.6. Safety

All focus groups were conducted in a safe environment, in a quiet and accessible room, within a North West School of Pharmacy building. Face-to-face interviews were undertaken in rooms within public building thereby providing a safe environment for both interviewee and interviewer. Telephone interviews allowed the interviewer and the interviewee to be in a safe environment. Neither the researcher nor the participants were put at risk physically or emotionally or put under any duress during data collection.

If the researcher or the participants had found any topics discussed to be sensitive or distressing and required emotional support following the focus groups or interviews, for example in incidents of poor care, they would have been directed to their appropriate university or professional body support group or a general support service.

3.7. Phase 1: Evaluating teamwork characteristics from the patients' and caregivers' perspective

The initial phase of the research was to explore team characteristics that patients and informal caregivers perceived to be important. This involved qualitative focus groups with patients and/or informal caregivers drawn from staff of a NWHEI.

This phase of the research was approved by the North West University REC on 18/12/14, reference number 14/PBS/004. The approval letter can be seen in Appendix 2.

3.7.1. Aim and objectives

The aim of this phase was to ascertain characteristics of an effective interprofessional team by eliciting the views of patients and informal caregivers on characteristics that they considered key in the delivery of care by interprofessional teams.

The objectives of this phase were to:

1. To explore patients' and informal caregivers' experiences and views on teamwork
2. To determine the key characteristics of an effective team from the perspective of patients' and informal caregivers' experiences
3. To explore patients' and informal caregivers' views on key characteristics needed to ensure effective interprofessional teams
4. To explore patients' and informal caregivers' perceptions of enabling the development of future interprofessional teams

3.7.2. Research Rationale

A group approach was considered the best method to explore teamwork from a patient, informal caregiver and student perspective rather than individual face-to-face interviews in order to promote discussion on the topic between participants (Austin & Sutton, 2018; Robson,

2011). The Delphi method was considered, however Delphi is used to generate consensus through a series of rounds rather than the experiences and in-depth information about interprofessional teams and team characteristics. Focus groups promote discussion between participants and provide in-depth information on a specific topic.

Focus groups were the preferred method of data collection since they enabled more in-depth consideration of the topics. Focus groups allowed for the identification of different peoples' view relating to a specific area of interest, without attempting to find a consensus. Since focus groups allow opinions, feelings and beliefs to surface, they are ideal for research topics that participants may have had little time to consider (Robson, 2011), as is the case for the participants in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, of the research. Focus groups replicate familiar social activities such as conversations, discussions and debate which will facilitate participants to feel more comfortable. This is amplified with students in research as focus groups echo discussion groups that are a regular aspect of university-led teaching activities. Furthermore, they promote participants to consider the thoughts and comments of other participants which, in turn, facilitates discussion of the specific areas of interest. Ideas and opinions expressed in discussion may prompt others to talk about issues that they might have felt reluctant discuss in one-to-one situations. Moreover, the different experiences of participants can stimulate and enrich the discussions which can inspire other group members to look at a topic in a different light (Austin & Sutton, 2018; Robson, 2011). Focus group research draws upon the feelings, perspectives, beliefs and experiences of participants. Whilst these may be partially independent of a group or social setting, they are more likely to be revealed via the social gathering and interaction involved in focus groups rather than observation, one-to-one interviews and question-based surveys. The researcher adopts an investigator role in one-to-one interviews, controlling the dynamic of the discussion through questioning. In contrast, the researcher takes a peripheral rather than a central role in focus group discussions.

The size of the focus group is important as it can impact on the discussion. Group size is usually 4-8 people (Kruger & Casey, 2014), allowing all participants to be part of the discussion and share their thoughts, whilst large enough to obtain diverse opinions on the topics. Smaller groups let participants share more ideas but can result in a reduced pool of ideas. Smaller sizes are therefore more suitable where all respondents fully participate.

The role of the researcher as a facilitator is key to ensure that the focus group is successful, without leading the group and influencing the data collected (Robson, 2011). Effective facilitation of focus groups can be challenging and the researcher was aware of potential scenarios that could arise during the focus group discussions. This includes being cognisant of the interpersonal dynamics and the factors that can positively and negatively impact the outcome of the discussions. Having researched known limitations of focus group methodology, the researcher was able to pre-empt possible situations and facilitate the group to ensure all participants had the opportunity to contribute to the discussions. Focus groups rely heavily on discussion to produce results hence facilitation of the discussion is critical and the quality of the discussion depends on the skill of the facilitator. The researcher has previous experience of facilitating focus groups discussions, note-taking for, and observing, other researchers conducting qualitative research including focus groups. The researcher was also able to draw on their experience of facilitation of small group teaching during focus group discussions. Such experiences have allowed for the development of the skills required for effective facilitation.

Since the researcher is heavily involved in the process of data collection and analysis, the interpretation of the findings is often influenced by their view. However, the risk of bias was outweighed by gaining a more detail insight into participants' views. This would not have been achieved through a quantitative approach. The presence of a group of people means that the data is less open to the researcher's influence (Wilkinson, 1999). As a result, focus groups can be particularly useful in research such as this where the power differences between the participants and researchers may skew the data (Morgan & Krueger, 1993). Whatever the

provenance of the group, key individuals can influence the nature of interaction through catalysing or derailing discussions (Austin & Sutton, 2018). The researcher takes on the role of a facilitator of discussion between all group members utilising an interview schedule, prompt materials and techniques to involve all group members (Austin & Sutton, 2018). A number of 'in control' mechanisms for handling the input of self-elected experts, dominant talkers, ramblers and shy participants including the use of targeted questions and even careful challenge can be adopted to manage group discussion (Austin & Sutton, 2018). These are techniques that might be used in undergraduate and postgraduate teaching sessions. The background of the researcher as an educator supports facilitation of focus groups.

3.7.3. Research Method

This section details the research method adopted. It describes the participants, inclusion and exclusion criteria and the recruitment of participants.

3.7.3.1. **Participants**

Participants for the study were drawn from staff of a NWHEI. Participants who had accessed an NHS service within the preceding six months for the treatment and management of a chronic condition(s), or were informal caregivers for a person who had accessed an NHS service within the preceding six months for the treatment and management of chronic conditions, were considered appropriate to participate in the research study. Chronic conditions frequently expose patients to several health and social care professionals over a number of points of contact. This is in contrast to patients with an acute condition which may only result in one point of contact with one health or social care professionals with no requirement for follow up.

3.7.3.2. **Inclusion and exclusion criteria**

The inclusion criteria for the phase were staff employed by a NWHEI and who have accessed an NHS service as a patient, or caregiver for a patient, for a long-term medical condition in the previous six months.

The exclusion criteria for this phase were staff that had not accessed an NHS service as a patient, or caregiver for a patient, for a long-term medical condition in the previous six months. Staff that had subject expertise in relation to health and social care, for example, academics undertaking teaching and research in pharmacy, nursing and social care, were also excluded from participating in the study.

3.7.3.3. **Recruitment of participants**

A convenience sampling approach was undertaken to include a broad and diverse range of participants from staff within a NWHEI, who indicate a willingness to participant and who were not involved in teaching and/or research within the MPharm undergraduate programme or any other health or social care based programme.

Potential participants were initially invited via email to participate in the study. This initial email (Appendix 3) briefly outlined the study and further details were provided by attaching the PIL (Appendix 4) and a copy of the informed consent form (Appendix 5). Sufficient time was given for participants to read through the information and contact the researcher if they had any questions prior to agreeing to participate. Those who responded to the initial email and were willing to undertake the focus groups were asked to sign and return the consent form either electronically or in person prior to participating in any focus group.

A follow-up email (Appendix 6) was sent at least five days after the initial email to identify interested participants. This was considered sufficient time for participants to review the study documents and make an informed decision. The researcher contacted interested participants by email to arrange focus groups at a mutually convenient time.

3.7.4. Data collection

This section details the method for data collection used in phase 1 and covers the interview schedule, the procedure for data collection and ethical considerations.

3.7.4.1. **The interview schedule**

An interview schedule (see Appendix 7), containing the list of questions and prompts, was developed by the researcher taking into account the aim and objectives of the subject and the published literature. Questions and prompts were developed to ensure that they were not leading or biased. The interview schedule was reviewed by the supervisory team to check the appropriateness of the questions. The interview schedule was broadly followed but did not constrain the process. This type of approach makes allowances for alternative wording of questions and the use of probes. Prompts were used to probe participants for further information relating to teamwork characteristics and their experiences of interprofessional teams to facilitate comprehension, depth of meaning and complete responses. Participants were given the opportunity to add anything else they considered relevant at the end of each focus group to avoid any issues that participants considered important being missed.

3.7.4.2. **Procedure**

Focus groups were organised at a mutually convenient time and were conducted in a quiet room within a NWHEI to minimise distractions whilst the focus group took place. Each focus group began with a verbatim introductory script, ensuring that all participants were given the

same information about the study before the commencement of the focus group. This included details on recording the session, withdrawing from the focus groups discussion and the issues around confidentiality. As part of the introduction, the researcher ensured a signed consent form had been completed and returned from each participant. If the researcher had not received this from the participant, the participant could complete the form prior to the commencement of the focus group.

The interview schedule served as a guide during focus group discussions. All questions were asked at some point during each focus group; however, the wording of the questions was modified based on the flow of the discussions. This allowed discussions to develop amongst participants which helped gain a more rounded and richer dataset. Participants were prompted to express their experiences and opinions throughout the discussions. No topics were discussed that any of the participants found distressing. Trustworthiness of the data collected was aided by building rapport, trust and openness within focus groups which allowed participants to freely express their views.

Focus group discussions were recorded using an audio-recording device, which was tested by the researcher, prior to each focus group. A scribe was present at two focus groups and the researcher hand wrote key points and reminders on a printed version of the interview schedule during focus groups to aid data analysis and allow the researcher to recap on certain points during the focus group discussions.

The first focus group was used as a pilot to verify the recruitment procedure, obtaining consent, assess content validity of the schedule and methodology and allow the researcher to develop skills as a qualitative researcher. The pilot demonstrated that the questions were unambiguous, generated appropriate opinions and thought to meet the study objectives. As a result, the findings from the first focus group were included in data analysis.

3.7.5. Transcription and Analysis

Having described patient recruitment and data collection this section goes on to describe the data transcription and analysis used for phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**. Focus groups were undertaken until similar themes emerged from the analysis of the transcripts and the researcher realised that data saturation had been achieved. This was confirmed in discussions with the supervisory team. Data saturation is considered to have been achieved when no new insights emerge from data collection (Robson, 2011). Data saturation helps determine the adequacy of the sample size in qualitative research, since it reflects whether sufficient depth and breadth of data has been collected.

3.7.5.1. **Focus group transcription**

The recorded focus group discussions were transcribed, by the researcher, in Microsoft Word after each interview in order to reduce the risk of transcription errors and memory recall. Any participant identifiable data was removed at during transcription. Long pauses and other non-verbal communication, such as laughter, were included in the transcriptions (in brackets) to ensure the context of the discussion were reflected in the transcripts (Austin & Sutton, 2018). Any field notes taken during the focus groups were added to the transcriptions as comments to avoid confusion with the interview data itself and increase robustness of the data. To increase robustness of this process, the transcripts were thoroughly checked against the audio-recordings to ensure accuracy of the transcription. This was undertaken by randomly checking transcripts against the audio recordings. Peer review of the transcripts was undertaken by an experienced qualitative researcher to increase robustness and trustworthiness of the data for analysis (Austin & Sutton, 2018). Respondent validation of the transcriptions was not a viable option, due to its time consuming nature, the possibility that views and opinions may evolve and change over time, possibly as a result of participating in the research and the risk of introducing social desirability bias so that they do not come across in a negative way (Robson, 2011; Austin & Sutton, 2018). In addition, each participant would need to be provided with a

written transcript of all of the data provided within the focus group discussions since it is difficult to extract an individual's contribution to the discussion (Sim & Waterfield, 2019). As such, consent from all participants would be required.

3.7.5.2. **Coding and analysis**

A grounded theory approach (see Section 3.1 Methodology for further detail) was adopted to analyse the qualitative data collected. NVivo 10 software was used to manage the data.

Each transcript was imported into NVivo and coded line by line to identify emerging themes. The researcher had no preconceived hypothesis and aimed to generate theory through analysis of the data. Coding refers to the identification of topics, issues, similarities and differences that were revealed through the participants' narratives and interpreted by the researcher (Austin & Sutton, 2018). The codes enabled the identification of commonalities and differences in the data and similar key, recurring and relevant points of data were coded with the same node (Austin & Sutton, 2018). A node is a collection of references about a specific theme, place, person or other area of interest (Jackson and Bazeley, 2019). The coding process required detailed consideration of the text and context of the discussion, including consideration of the field notes, thus helping to minimize researcher bias in the analysis (Austin & Sutton, 2018). The nodes were categorized into the final emerging themes following discussions with the research team.

As described in Section 3.1 Methodology, open coding is the first stage of analysis with grounded theory and the first level of substantive coding. During the open coding stage, the data gathered from the research field was fractured as to "produce a set of categories that fit, work and are relevant for the purposes of theory" (Gibson & Hartman, 2013). This involved sentence-by-sentence, and word-by-word analysis, through a process of induction, continuously assigning codes to the emerging concepts from the collected data. Open coding was considered complete when the researcher was able to identify emergent categories that

encompassed all the data and saturation was achieved as mandated by grounded theory's framework (Gibson & Hartman, 2013).

Selective coding is the second level of substantive coding, and started when open coding ended. At this stage, no new concepts were pursued by the researcher beyond what was identified during the open coding process. During selective coding the data was constantly re-evaluated to try and focus the codes and categories into broader themes (Scott & Howell, 2008). Selective coding was considered complete when the researcher was confident that the core category had been clarified and encompassed all the issues, concepts, and subcategories that have emerged during the substantive coding process (open and selective coding).

Theoretical coding, which is a 'second-order' level of coding, is a process whereby theoretical codes are used to "conceptualize how the substantive codes may relate to each other as hypotheses to be integrated into a theory" (Glaser, 1978). By utilising codes developed during the substantive coding stage, after saturation has occurred, the researcher related those codes to each other in order to identify a relationship, whilst significantly relying on the constant comparison of data (Holton & Walsh, 2016).

The findings of this phase are described and discussed in Chapter 4 – Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**.

3.8. Phase 2: Evaluating teamwork characteristics from the pharmacy students' perspective

This phase involved qualitative focus groups with undergraduate pharmacy students drawn from the MPharm course of a NWHEI to explore the opinions and views of students regarding key characteristics of teamwork.

Ethical approval was granted by a NW University REC 18/12/14, reference number 14/PBS/004 (Appendix 2).

3.8.1. Aim and objectives

The aim of this phase was to explore students' views and opinions regarding teamwork characteristics and their preparedness for future practice in interprofessional teams.

The objectives were:

1. To explore students' views on key teamwork characteristics needed to ensure effective interprofessional teams
2. To explore current opportunities within the MPharm programme to develop teamwork characteristics
3. To consider the development teamwork characteristics in undergraduate pharmacy education from a student's perspective

3.8.2. Research Rationale

Focus groups were used to carry out the qualitative data collection in order to give an opportunity for students to discuss in-depth their views on teamwork characteristics and opportunities within the MPharm programme to support students in understanding teamwork and the associated characteristics. The rationale for the use of focus groups is described in Phase 1 research rationale (see Section 3.7.2). The researcher also had a teacher – student

relationship with participants in the phase 2 focus groups, however, in order to ensure impartiality and minimise any possible power imbalances, it was made clear during recruitment and at the start of the focus groups, that the discussions were confidential and had no impact on their studies within the programme.

Group composition in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, was based on a students' year of study. This approach was able to establish some common ground between participants that would act as "social glue" during the discussions (Lehoux et al., 2006) and provide a greater sense of safety enabling more opinion and subsequent discussion. A further weakness inherent to the focus group format is its participant selection system. Participants are self-selected and study results are therefore harder to generalize to the larger population. A limitation for this phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, was that participants were recruited from one pharmacy undergraduate course. There is a risk of bias since whilst curriculum standards are the same for all programmes the delivery of the standards may vary across different programmes which could limit the generalisability of the findings. However, phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective,** attempts to consider the variability in different programmes by considering the educators' perspective and course contents from a range of HEIs.

3.8.3. Research Method

This section details the method adopted along with a rationale for each decision. It describes the participants, inclusion and exclusion criteria and the recruitment of participants.

3.8.3.1. **Participants**

Participants for the study were drawn from students of a NWHEI who were enrolled in the third- and fourth-year of the MPharm degree programme. These groups of students were

chosen because their curricula have provided opportunities for exposure to activities where teamwork skills can be developed. Inviting participants from different years of study would have captured a greater diversity of views across the programme. However, in the first two years of the programme, students focus on the other healthcare professionals who might feature in an interprofessional team and associated roles and responsibilities of others before considering collaborative practice in the third- and fourth-year and undertook limited group work. Therefore, first and second year students were not invited to participate in the study as it was considered that their holistic exposure to teamwork characteristics across the programme was limited.

3.8.3.2. **Inclusion and exclusion criteria**

Participants were included if they were students who were enrolled in the third- and fourth-year of the MPharm degree programme. Students who were not enrolled in these year groups were excluded from the study.

3.8.3.3. **Recruitment of participants**

A similar approach was taken to recruit participants to Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, as that used in Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective,** (see Section 3.7.3.3 Recruitment of participants). The recruitment email, follow up email and PIL can be seen in Appendix 8, Appendix 9 and Appendix 10 respectively. Participants eligible for recruitment in this phase as detailed in Section 3.8.3.2 Inclusion and exclusion criteria, were invited to participate.

3.8.4. Data collection

This section details the method for data collection used in Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective,** and covers the interview schedule and the procedure for data collection.

3.8.4.1. **The interview schedule**

An interview schedule (Appendix 11) was developed by the researcher as described in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective** (see 3.7.4.1). The interview schedule), taking into account the aim and objectives of this phase and the published literature, was reviewed by the supervisory team. The interview schedule containing the list of questions and prompts can be seen in Appendix 11. In addition to questions posed to phase 1 participants, phase 2 participants were also asked to consider curriculum opportunities they had been exposed to. The researcher used prompts to probe participants for further information relating to teamwork characteristics, their experiences of interprofessional teams and educational opportunities. A patient story, developed from the experiences of practitioners (Appendix 13), was used in the focus groups to inspire discussions further. Participants were given an opportunity to add anything else they considered relevant at the end of each focus group to avoid any issues that participants considered important being missed.

3.8.4.2. **Procedure**

Focus groups were organised and undertaken following the approach described in Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective** (see Section 3.7.4.2 Procedure).

Once all questions from the interview schedule had been posed, participants were given a copy of the patient story (Appendix 13). Participants were asked to read the patient story (Appendix 13) and probe by the researcher to consider if there were any additional characteristics and/or views that were they wished to add to the discussions. Participants were prompted to express their experiences and opinions throughout the discussions. No topics were discussed that any of the participants found distressing. Trustworthiness of the data collected was aided by building rapport, trust and openness within focus groups which allowed participants to freely express their views.

A pilot focus group discussion was conducted to consider recruitment, assess content validity of the schedule and methodology. No changes were identified so the data collected was included in the analysis.

3.8.5. Transcription and Analysis

The previous section discussed how data collection took place for phase 2 of the programme of work. Focus group transcription was undertaken as described in Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective** (see Section 3.7.5.1 Focus group transcription). Data analysis was undertaken as described in Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective** (Section 3.7.5.2 Coding and analysis), using a grounded theory approach (see Section 3.1 Methodology for further detail), to analyse the qualitative data collected. NVivo 10 software was used to manage the data.

3.9. Phase 3: Exploring teamwork characteristics and curriculum design from the educators' perspective

This final phase of the programme of work investigated the development of teamwork characteristics in undergraduate education from an educators' perspective. This involved

qualitative either face-to-face or telephone semi-structured interviews with educators involved in pharmacy education from HEIs across the UK.

A North West University REC approved this phase of the research on 16/06/16, reference number **16/PBS/004**. The approval letter can be seen in Appendix 12.

3.9.1. Aim and objectives

The aim of this phase of the programme of work was to gain an insight, from an educator's perspective, on the development of key teamwork characteristics in undergraduate pharmacy education to better prepare pharmacy students for their future careers.

The objectives were:

- To consider the perceptions of healthcare educators on pharmacy teamwork characteristics
- To explore teamwork characteristics developed in other healthcare professionals in undergraduate education
- To identify key teamwork characteristics that could be developed through undergraduate pharmacy education
- To consider how teamwork characteristics could be developed in undergraduate pharmacy education

3.9.2. Research Rationale

Using a qualitative approach in Phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective,** enabled a thorough exploration of the views of educators on teamwork characteristics and associated educational activities within their individual MPharm programmes. It also enabled depth of response around participants' views

and potential opportunities for curriculum development. Qualitative interviews were used to carry out the qualitative data collection for this phase. Qualitative interviews allowed the researcher to probe for more detailed information where appropriate and the participant can articulate their responses in their own words. Qualitative interviews elicit people's thoughts and therefore can be attributed to an individual person. The interviewer and participant can engage in conversation, allowing the exploration of thoughts and ideas. The conversational style of interviewers stimulates both the interviewer and the participant to recall details, make connections and synthesise ideas. They allow participants to elaborate on their perspectives which, in turn, may provoke further thoughts and conversations. Despite qualitative interviews being time-consuming and not having the advantage of multiple perspectives to promote discussion within a group as in focus group, they are still an appropriate method of data collection as they enabled a detailed discussion of teamwork within individual HEI curricula. Furthermore, participants in the study are busy with work commitments and arranging a face-to-face interview at a mutually convenient time or a focus group, when participants are geographically dispersed, would have been difficult. The options of partaking in a telephone interviews eliminates travel time and costs.

A semi-structured approach was adopted to enable the research to maintain some consistency over the topics covered in each interview (Corbin & Strauss, 2015). Telephone interviews and face-to-face interviews were undertaken depending upon the geographical location of the participant, thereby eliminating travel time and associated cost. Telephone and face-to-face interviews also provided a more personal contact to facilitate the building of rapport and facilitate the probing of responses within the interview to explore topics in more depth. A rapport can be more difficult to achieve over the telephone and the absence of non-verbal cues can also be a disadvantage during telephone interviews which could result in bias during data collection (Robson, 2011). In order to minimise this, every opportunity to build a rapport with participants was made in initial contact emails and during the interviews. The rationale for telephone interviews was based upon the need to contact a range of educators across the UK to gain an overview of their perspective in relation to the research.

Similarly, semi-structured interviews rely on the interviewing skills of the researcher. The researcher maximised the social interaction by utilising positive engagement techniques such as establishing rapport, asking thoughtful questions that indicate the researcher is listening carefully to the participant, and knowing when to stay silent and let the participant talk freely. Skills frequently used by the researcher in their teaching role and during contact with patients as part of the hospital pharmacy role.

A self–administered questionnaire-based survey was initially considered for Phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, but these can typically have a low response rate (Robson, 2011). Interviews allow participants to elaborate on points that they perceive valuable whereas, questionnaires may limit opportunities for participants to do this depending on the design of the questionnaire. Participants have no opportunity to clarify questions and ambiguities and misunderstanding of questions may not be identified. Furthermore, a questionnaire approach may introduce a social desirability response bias as participants respond in a manner that will be viewed favourably by others thus inaccurately or incompletely, reporting their beliefs and attitudes (Robson, 2011).

3.9.3. Research Method

The following section details the method adopted and covers who were involved in the research, inclusion and exclusion criteria as well as recruitment of participants.

3.9.3.1. **Participants**

All participants were educators who are involved in teaching and/or curriculum design of MPharm courses across the United Kingdom. The inclusion criteria for this phase required participants to be educators who are involved in teaching and/or curriculum design of MPharm programmes. Educators were excluded if this was not the case.

3.9.3.2. **Recruitment of participants**

HEIs offering accredited MPharm programmes were identified from the General Pharmaceutical Councils website (General Pharmaceutical Council, 2020a). Participants were contacted by the researcher via their Higher Education Institute email address, obtained from the HEI website. The email briefly outlined the study (Appendix 14) and the PIL (Appendix 15) and a copy of the informed consent form (Appendix 16) were attached. The PIL provided information on the study and participants were asked to contact the researcher should they have any questions that might deter them from participating in the research. Other potential reasons for non-response such as confidentiality, time, reason and importance of the study were also addressed within the PIL. A follow up email (Appendix 17) was sent at least 5 days after the initial email. This was considered sufficient time for participants to review the study documents and make an informed decision. Each participant was asked to return a signed consent form via email or post, ideally prior to the interview taking place. In addition, recorded verbal consent was obtained at the beginning of the telephone interview. Mutually convenient interview times were organised either face-to-face or via telephone depending on the geographical location of the educator via email correspondence with the participant.

3.9.4. Data collection

This section details the method for data collection used in phase 3 and covers the interview schedule and the procedure for data collection.

3.9.4.1. **The interview schedule**

An interview schedule (Appendix 18) developed by the researcher taking into account the aims and objectives of the research, the published literature and the findings from phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, and phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**. The questions asked covered the following areas: teamwork characteristics, current and potential

learning opportunities within their programme to facilitate student development of teamwork characteristics. Questions and prompts were developed to ensure that they were not leading or biased. The interview schedule was reviewed by the supervisory team to ensure appropriateness of the data collected.

Each interview began with a verbatim interview script to ensure that all participants were given the same information prior to their interview. The researcher confirmed with all participants that a signed consent form was completed and returned. Individual demographic data was collected through closed questioning including the educators' subject expertise. Where appropriate, closed questions were followed up with open questions for more detailed information. Probing questions were included if the participant gave short, one word answers to allow a conversation to build. The interview schedule served as a guide during the interviews, but the order and the wording of the questions were modified based on the flow of each interview. The researcher aimed to maintain a neutral manner throughout to minimise bias.

With the semi-structured approach to interviews, there was a risk that any issues participants considered important may not be included in the interview as they focused on answering the questions posed by the researcher. To overcome this risk, participants were asked if they would like to add any anything else relevant to the focus of the interview before the end of the interview.

3.9.4.2. **The procedure**

Face-to-face interviews were conducted in a quiet room to minimise distractions and interruptions during the interview. Telephone interviews were conducted in the participant's workplace, which was considered a comfortable setting and provided an opportunity for participants to freely participate. Participants were able to withdraw from the interviews at any

time and could choose not to answer the questions. Trustworthiness of the data was aided by building rapport, trust and openness with the participants during the interview to enable them to freely express their views. Building a good rapport with participants in the study is important to help individuals to feel comfortable with the researcher and enhance the depth and quality of data collected.

All interviews were recorded using a digital voice recorder. Key messages and notes were handwritten on a printed version of the interview schedule during the interviews to aid the researcher to recap on certain points during interview. As the researcher progressed through the data collection and analysis process, it was noted that no new topics or perspectives were emerging. It was clear that data saturation was reached when similar themes emerged from the interviews across very diverse participants. This was confirmed when an additional two interviews had been completed. This was confirmed in discussions with the supervisory team.

The first interview conducted was undertaken as a pilot to determine if the recruitment methods and the interview guide were appropriate to meet the aims and objectives of this phase. The pilot demonstrated that the questions were unambiguous, generated appropriate opinions and thought to meet the study objectives. As a result, the findings from the first interview were included in data analysis.

3.9.5. Transcription and analysis

The previous section discussed how data collection for phase 3 of the programme of work took place. This section describes the data transcription and analysis used for phase 3.

The recorded interviews were transcribed verbatim immediately after each interview In Microsoft Word to minimise the risk of transcription errors and memory recall. To ensure the

context of the discussion remained intact, non-verbal communications, such as long pauses and laughter, were all noted in the transcriptions. All data obtained was made anonymous with names and any identifiable references removed. Following confirmation of accuracy of the transcriptions by a member of the supervisory team to increase robustness and trustworthiness of the data, all copies of audio recordings were securely deleted. Respondent validation of the transcriptions was not undertaken due to the possibility that views and opinions may evolve and change over time, possibly as a result of participating in the research and the risk of introducing social desirability bias so that they do not come across in a negative way (Robson, 2011; Austin & Sutton, 2018).

Analysis of the transcriptions was undertaken as described in Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective** (Section 3.7.5.2 Coding and analysis), using a grounded theory approach (see Section 3.1 Methodology for further detail) to establish any trends, links or key themes highlighted by the subjects. NVivo 10 software was used to manage the data.

Each transcript was imported into NVivo and coded line by line to identify emerging themes. Similar extracts from the data were coded into the same node. A node is a collection of references about a specific theme, place, person or other area of interest. The nodes were then collated into categories relating to the research questions. These categories were re-organised and combined throughout the analysis process and discussed with the supervisory team until agreed themes were identified.

3.10. Phase 4: Recommendations for pharmacy curriculum design

The fourth phase of the programme of work involved making recommendations for the development of pharmacy education curricula to facilitate the preparedness of pharmacy students for future pharmacy practice in teams and was informed by the findings from the

earlier phases of the programme of work, along with data from the literature review (see Chapter 2 – Introduction)

3.10.1. Aim and objectives

The aim of this phase was to make recommendations on pharmacy education curricula to facilitate the preparedness of pharmacy students for their future pharmacy practice in interprofessional teams.

The objectives were to:

- Explore and triangulate the findings from phases 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, and the literature review to determine the key characteristics associated with effective teamwork and examples of teaching, learning and assessment methods
- To make recommendations on the teaching, learning and assessment of teamwork characteristics within undergraduate pharmacy education.

3.10.2. Research Rationale

The findings from phases 1, 2 and 3 provided the evidence to support the overall programme of work by highlighting how teamwork can be developed in undergraduate pharmacy students to facilitate and maximise post-registration interprofessional practice and promote effective patient care.

Triangulation of phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, phase2: **Evaluating teamwork characteristics from the pharmacy students' perspective** and phase 3: **Exploring teamwork characteristics and curriculum design**

from the educators' perspective, findings was undertaken to obtain a rich, robust and comprehensive account of teamwork characteristics (Robson, 2011). This process of combining the findings was undertaken to facilitate a deeper understanding of teamwork characteristics from a range of different perspectives (patients and caregivers, students and educators). This process highlighted the characteristics of an effective interprofessional team that could be developed as part of pharmacy students' education and examples of teaching learning and assessment methods that could be incorporated into recommendations for pharmacy.

There are four types of triangulation proposed by Denzin 1988 (Robson, 2011). These include:

- Data triangulation – The use of more than one method of data collection
- Observer triangulation – Using more than one observer in the study
- Methodological triangulation – Combining quantitative and qualitative approaches
- Theory triangulation – Using multiple theories or perspectives

Triangulation of the data within the discussion (see Chapter 7) was an important aspect of ensuring the robustness of the data. Triangulation is a common practice in pharmacy practice research and it is a useful strategy in overcoming reactivity, researcher bias, and respondent bias (Austin & Sutton, 2018).

3.10.3. Research Method

Initially, the findings from phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, phase2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, and phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective,** were explored. This began with the perceptions of patients and caregivers on key characteristics of effective teams and the perceived impact on their care. In the same way in phase 2 of the programme of work, the characteristics from the students' perspective were considered alongside current opportunities within their pharmacy education

to develop teamwork and the identified characteristics. Phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, of the programme of work explored the educators' perspectives on teamwork characteristics, opportunities they perceived students had within their pharmacy education to develop teamwork characteristics. Triangulation of the findings from phases 1, 2 and 3 enabled a comprehensive understanding of teamwork characteristics and their importance in the delivery of team-based care. Examples of teaching, learning and assessment methods from the findings of phase phase2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, and phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, were taken into consideration for the recommendations for pharmacy education.

As already discussed, key teamwork characteristics highlighted by the patients and caregivers in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, students in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, educators in phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, and identified in the literature (see Chapter 1) were considered together to provide a deeper understanding of the characteristics from different perspectives. When making recommendations for pharmacy education, it was important to consider which teamwork characteristics should be developed as part of undergraduate studies and examples of teaching, learning and assessment methods found in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, and 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, and in the literature.

3.11. Reflexivity

Reflexivity is important in qualitative research as there are numerous ways in which research bias could impact on a study from the development of the data collection resources to collecting, analysing and reporting the data. Reflexivity allows the researcher to "acknowledge their role" as well as "situate" their research, thus increasing transparency to the reader and hence quality of the research (Finlay and Gough, 2003). This was a consideration in this programme of work due to the researchers' experience as a pharmacist, an educator and a patient. It is impossible to eliminate researcher bias; however, researcher bias can be minimised and throughout this chapter, the methods section in each phase has presented the ways in which the researcher has attempted to this. Reflexivity is the process of continual reflection upon the research process by the researcher and self-awareness of the researcher is key to this process. This process of self-reflection and critical appraisal is important to identify the influences that may, unintentionally, have impacted on the research. Reflexivity is considered throughout this research.

A clear distinction may however be drawn with the similar term, reflection. Reflexivity in qualitative research can be described as "thoughtful, self-aware analysis of the inter-subjective dynamics between the researcher and the research" (Finlay and Gough, 2003) on a practical level this involves the researcher reflecting on how their "social background, assumptions, positioning and behaviour" (Finlay and Gough, 2003) affect the research, it involves an "immediate, dynamic and continuing self-awareness". In contrast reflection may be defined simply as "thinking about something after the event" (Finlay and Gough, 2003).

A project diary was also kept in order to record any personal thoughts and feelings, aiding with the process of reflexivity. The diary served as a record of changes made to the interview guide and ideas of developing themes. Diary keeping serves as a means of "reflective commentary" (Shenton, 2004) and is important in ensuring credibility in qualitative research. Initial impressions of the data were noted to monitor the researcher's own constructions (Guba and

Lincoln, 1989). The diary acted as a source of notes about analysis, thoughts, interpretations and questions about the data (Strauss and Corbin, 1998).

It is recommended that the researcher's biographical information is made apparent in the reporting of qualitative research (Maykut and Morehouse, 1994). Acknowledging the insider researcher position enhances dependability of the research (Fleming, 2018). As an insider researcher it is important to recognise and consider the assumptions the researcher will bring to this research including researcher bias if the researchers' personal values and experiences influence the research questions, design and data collection procedures (Chavez, 2008). The researcher maintained a neutral position during data collection to avoid the potential for influencing responses. The researcher was aware that participants may be influenced by how they perceived the researcher and their relationships with the researcher outside of the research context, notably with students (Dwyer & Buckle, 2009). However such familiarity may not be deemed as a negative, rather, the important stage of rapport building in interview and group situations was already achieved. Participants are typically more open so that there may be a greater depth to the data gathered (Dwyer & Buckle, 2009) and may be more willing and comfortable to share detailed or personal information and to discuss issues with someone who 'understands'. However, the converse may occur, where the participant may not share information for fear of being judged, or the impact on their ongoing relationship (Fleming, 2018). As such, the data may look different compared to data generated by another party. Analysis of the finding was discussed with the supervisory team, which comprised of individuals outside the research population who could act as "critical friends", thus minimising premature conclusions being made based on preconceived ideas.

3.12. Chapter summary

This chapter has provided an overview of the programme of work, describing how the individual phases were undertaken and the rationale for the design of the programme of work. This included ethical considerations, generation of the focus group and interview schedules, undertaking the interviews and analysis of the study. The following four chapters will discuss the four phases in further detail, along with the findings. The next chapter (Chapter 4: Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**) will describe in further detail how these focus groups were conducted in patients and caregivers.

Chapter 4. – Phase 1: Evaluating teamwork characteristics from the patients' and caregivers' perspective

An overview of the methods and the rationale for the design of the programme of work was provided in Chapter 3 (see Section 3.7.2 Research rationale and Section 3.7.3 Research method). This next chapter presents the findings for phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, which as previously outlined involves focus group discussions with patients and informal caregivers to identify and evaluate teamwork characteristics. The findings of this phase have been published in a peer reviewed journal (Cutler et al., 2019).

4.1. Introduction

As previously discussed in Chapter 2 – Introduction, poor teamwork skills in health and social care can lead to a variety of problems, which can have a negative impact on patients' experience of interprofessional teams, their care and health outcomes. Despite problems associated with teamwork being well-documented in the literature (see Chapter 2 - Introduction), there continues to be incidents reported that are linked to poor teamwork. As mentioned in the outline for the programme of work (in Section 3.3 Overview of programme of work), it is important to consider teamwork characteristics that patients and caregivers perceive to be necessary alongside the effect of determined characteristics. In recent years, healthcare has moved towards a patient-centred care model that tailors care to patients' needs, values and experiences. An increased understanding of patients' and caregivers' expectations and experiences of interprofessional teams provides an insight into what is important to the patient and caregivers. This can contribute to raise professionals' awareness about the consequences of their actions and facilitate change in teamwork.

This first phase of the programme of work broadens the literature available on this topic, by investigating the characteristics that service users consider important and their experiences of interprofessional teams. This phase adds rigour to the programme of work by exploring the

patient and caregivers' perspective of teamwork and allows their views and experiences to be compared and contrasted with those of other professionals identified the literature review, students in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, and educators in phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective,** during triangulation of data in phase 4: **Recommendations for pharmacy curriculum design**, (see Chapter 7). The findings of this phase are important to the overall programme of work to inform characteristics of an effective interprofessional team.

4.2. Method

As previously discussed in Section 3.7.2 Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective** research rationale, this first phase of the research was an exploration of patients and informal caregivers views on interprofessional team characteristics through focus group discussions with patients and informal caregivers from staff at a NWHEI. The resulting discussions were transcribed and a grounded theory approach was utilised as described in Section 3.7.5 Transcription and analysis; the emerging themes are noted and discussed below. The findings are presented in Section 4.4 and discussed in detail in Chapter 7.

4.3. Aim and Objectives

As discussed in Section 3.6.1 Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, aim and objectives, the aim of this phase of the programme of work was to identify and evaluate patients' and informal caregivers views' on characteristics that they considered key in the delivery of care by interprofessional teams.

The objectives were:

- To explore patients' and informal caregivers' experiences and views on teamwork
- To determine the key characteristics of an effective team from the perspective of patients' and informal caregivers' experiences
- To explore patients' and informal caregivers' views on key characteristics needed to ensure effective interprofessional teams
- To explore patients' and informal caregivers' perceptions of enabling developing of future interprofessional teams

4.4. Findings

The findings are presented within this section including participant demographics and the themes which emerged from the data collected during the data analysis.

4.4.1. Participants

Data collection took place between June 2015 and February 2016; there were 14 participants who met the inclusion and exclusion criteria (see Section 3.7.3.2 Inclusion and exclusion criteria) and took part in three focus groups. The average duration of focus group discussions was 68 minutes (range 52 to 74 minutes). A list of participants and their age demographics can be seen in Table 4-1.

The participants shared their experiences and views on care provided by healthcare teams. After three focus groups, no new topics or perspectives were found to emerge and the aim of identifying patients' and informal caregivers views' on teamwork characteristics was achieved with sufficient detail obtained for qualitative analysis i.e. data saturation was achieved.

Table 4-1 – Phase 1 participant demographics

Demographics		Number of participants
Age	16-30	1
	31-44	9
	45-59	2
	60+	2
Gender	Male	3
	Female	11
Education Level	No qualifications	0
	GCSEs or equivalent	2
	A-levels or equivalent	1
	Degree	5
	Higher degree	6

4.4.2. Themes

Coding of the focus group transcript data, using NVivo, led to a total of 44 nodes being created, which were then combined and categorised into themes and sub themes during the analysis process. The steps taken to ensure robustness of the analysis have been described in Section 3.7.5 Transcription and analysis.

Three main themes emerged during analysis. These themes included: patients' experience of teams, characteristics of teams, and patient expectations of teams. Each theme is described in more detail below including an overview and description of the subtheme. To help illustrate the themes and subthemes, verbatim quotes taken directly from the data have been used. Unprompted scenarios were described by participants and have been included (as Illustrative examples) in the findings. As focus group data is the outcome of a discursive process, no quoted material is attributed to individuals, but the provenance from the specific group is noted as shown in Table 4-2.

Table 4-2 – Focus group profile

Focus group	**No. of participants**	**Focus group reference**	**Gender** Male/Female	**Age range (years)**	**Education Level**
1	5	FG1	Male	31-44	Higher degree
			Female	45-59	Higher degree
			Female	31-44	Higher degree
			Female	31-44	Higher degree
			Male	45-59	GCSEs or equivalent
2	4	FG2	Female	31-44	Degree
			Female	>60	Higher degree
			Female	16-30	Degree
			Male	>60	Professional Qualification
3	5	FG3	Female	31-44	Degree
			Female	31-44	Degree
			Female	31-44	Professional qualification
			Female	31-44	A-Levels or equivalent
			Female	31-44	GCSEs or equivalent

4.4.2.1. **Patients experiences of teams**

The theme, patients' experience of teams, provides an insight into participant's experiences of healthcare teams. This theme comprises the following five subthemes: a team approach, communication, delivery of care, hierarchy and the patient as part of the team.

A team approach

Participants recognised the presence of teams within healthcare and they described their experiences of teams within primary care including interactions with GP practices and secondary care teams. Furthermore, there was recognition of the different roles and specialisms within disciplines especially within nursing.

> *"So you can have lots of different teams that interact; involved in your care. You can have your primary care team in your GP practice but you might also have links with a team in a hospital." (FG2)*

> *"There can be people working in therapy of different kinds. There can be different kinds of nurses - diabetic nurses, midwives." (FG1)*

The complexity of teams was noted in that teams could be present in individual GP practices and care could require input from different teams. The transfer of care across interfaces to a different team was perceived to be a continuation of care and not exiting care delivered by one team and entry into another team.

> *"If you go to a practice, you know, there's a whole range of people in the practice. They work as a team, a very very important team. That's not even like, sort of, you know, when you're referred to a consultant then you interact with another kind of team." (FG2)*

> *"I think especially if there is a referral to secondary care then it's that continuation isn't it. As without it, it would exit. You'd be starting from the beginning, going back." (FG3)*

A team approach was seen as advantageous in effective care bringing together a range of disciplines such as medics, nurses, pharmacists and physiotherapists, facilitating continuity of care and providing the healthcare professionals with peer support.

> *"I think it's important because there will be a different perspective. You know if someone's got different experience or is from slightly different discipline they will have possibly a different view or outlook on a situation. Therefore, I think that can be really helpful because you're not sort of channelled down a sort of very a narrow avenue." (FG2)*

> *"It [a team approach] is invaluable really. Simply because it … it just makes the continuity of care and the quality of care provided all the better." (FG1)*

> *"I think if you look at it from a professional point of view it's also for the practitioner. Because it gives them support and backup and means that decisions that are made can be more informed decisions if they've had chance to discuss them at get different points of views. So, I think there are benefits on both side" (FG1)*

Participants perceived staff working in the same department to be part of the same team and there was an overall consensus within the focus groups that individual healthcare staff within the same department, appear to be working collaboratively. However, there was a feeling amongst participants that they were often unaware of a team approach to their individual care. Healthcare professionals introduced themselves as individuals and not as part of a team and patients described how contact with healthcare professionals lacked a team approach.

> *"The simplest thing of introducing themselves as a team because a lot of people won't know they've got a team." (FG3)*

> *"You just see the random people that come into your room or that are doing these different jobs but you don't actually know who that is or that's the team." (FG1)*

Participants described that if all members were demonstrating and exhibiting a coordinated approach, in particular providing the same information to the patient they believed the team was working well together and that they were understood. In teams where information provided by different team members was different, patients felt *"confused"* and *"neglected".*

> *"I think I think the main thing as well is you need to make sure they are all singing from the same hymn sheet. They're all saying the same thing……That's when things get confusing if ones saying one thing and one's saying another and it's just obviously making sure that they're reading the notes, they're understanding the patient, they're knowing they all feel the same, they all know exactly what is going on with that patient… I think that's when you feel you've got a good team." (FG3)*

As patients had to repeat their "health story" multiple times at each appointment this was considered as poor teamwork between individuals and a lack of trust in the accuracy of patient notes.

> *"No one had obviously recorded notes or had time to read notes so they should have read the notes and going in had been prepared rather than having to listen to the same story again." (FG3)*

All participants perceived teams to be working well unless they were aware of something going wrong. They described how they perceived that achievement of health outcomes reflected teamwork, with satisfactory results implying that a team was working well together. In addition, how a team made patients feel was also considered to influence patients' perceptions of effective teamwork. Feeling *"comfortable with a team"* was seen as a positive indication of a team working well together. Participants described how teams that explained the patients' conditions and treatments particularly influenced their confidence in the care they were receiving and their relationship with teams and team members.

> *"When you feel comfortable and you're getting satisfactory results." (FG1)*

“If you have confidence in the people who are dealing with you, it makes you feel better.” (FG3)

“So, I think it’s that trust that makes you through and if everything’s great then obviously get – you feel supported, you feel there’s progress; you feel cared for.” (FG2)

Participants in one focus group (Focus group 3) felt that their first exposure and impression of the team would influence their view of how well a team worked together and their confidence in their care by that team.

"You can go in and see the vibe and the working nature of a ward sort of immediately can’t you…... I think it’s just the first impression isn’t it?" (FG3)

"It’s just an instant impression isn’t it? That first impression." (FG3)

Patients also described situations where they felt healthcare professionals did not know which other healthcare professionals were involved in their care and this resulted in a lack of confidence in the care they were receiving and their experience.

“There was one lady who just said “oh I don’t actually know who did that. I don’t know”. She was obviously just looking at the initials or the name. She would have to go and look it up so there was no team there and it felt awful.” (FG3)

Communication

Participants described a number of scenarios in which they felt effective communication had been lacking. There was a consensus across all focus groups that information needed to be repeatedly communicated to the same and different members of healthcare staff involved in their care. Participants repeatedly described situations where they were providing a recap of their medical history and condition even though the relevant information was recorded in their patient medical notes. This was experienced across multiple appointments over a period of

time, and also when they saw multiple healthcare professionals as part of extended care, for example, as an inpatient. Not only did participants view this as a lack of a team approach to their care as described above but also poor communication.

> *"It's been 3 or 4 years and at every appointment, it was giving a recap rather than saying "now you've been here…, it's this this and this, is there any change or whatever". You've got to tell them the relevant information." (FG1)*

> *"Because we have never seen the same person so then or they're a locum, so you spend 10-15minutes of the appointment recapping. You know they have the notes in front of them, they know someone else has written, we still have to tell, why we're, basically why we are here they." (FG3)*

Participants found this repetitiveness and lack of efficiency particularly frustrating since in a time limited consultation, a significant proportion of the consultation was allocated to repeating information covered in previous visits.

> *"We repeated our story about what had happened at least, I'd say at least 5 or 6 times, and what was most annoying was that we were in an open ward where we heard everybody else's story 5 or 6 times" (FG3)*

> *"I do think people need to have the ability to communicate and to at least pass on information from one person to another so that you don't have to spend the first 10 minutes of every session with a medic, or with a physiotherapist, or with a phlebotomist or whatever, explaining what the problem is. You need someone to be able to say, yes you told somebody that 10 minutes ago." (FG1)*

This repetitive reiteration of information by patients to healthcare teams was also experienced by participants across care interfaces.

"It was very frustrating ... Different teams within the NHS didn't seem know what anybody else had done. So for example, the doctor at the hospital wouldn't know what the doctor at the GP surgery or the nurses that had seen him the other day. There did seem to be no communication between them … It would have been better had they been able to communicate with each other rather than like you said starting from scratch overtime you seen someone."(FG3)

Participants described situations where their care was disjointed or questioned by other healthcare staff as a result of information documented in patient's notes. Participants perceived that this lack of effective written communication between healthcare professionals resulted in a lack of respect and trust between colleagues.

"You do need that effective communication between them so that somebody comes and checked something's or noted something down and then somebody doesn't come and do that same task ……. This needs doing next so you're like "What's going on? Somebody's just checked it". Are they not talking to each other? Are they not communicating what need to be done or what's been done?" (FG3)

"It's interesting because I have a friend who is a qualified doctor and they just keep complaining about the notes left by the person who was previously …. in charge of the patient. They are illegible. Why have they said this? Why didn't they do this? (FG1)

One participant felt that there was a reluctance to share information between healthcare professionals and this lack of communication directly impacted on patient care. In their experience, this resulted in the patient having to justify why their healthcare professional needed access to results.

"The sharing of information, if you've had an appointment with your GP, being sent for a consultant appointment – MRI, scan or whatever – and you've been seeing a physio on a weekly basis, the GP not wanting to give the physio the scan results and you having to

insist that actually they are the ones treating you. "No they don't need that." "Well they kind of do." (FG1)

One participant (FG3) described a situation (unprompted) in which a relative was admitted to hospital whilst away from home (Illustrative example 1). They experienced a lack of information sharing and communication between two hospitals and the negative impact that this had on their relative's care. The participants described a lack of willingness of healthcare professionals in one hospital to directly contact the patient's usual hospital to ascertain further details on the patient medical history, which could have improved and directed the patient's care at that time, was described as frustrating.

Illustrative example 1:

Nothing was progressing and I think largely they weren't involving anybody who knew her history. Cos she was from a [name] hospital and they didn't communicate with that hospital and they didn't have the records and if they had just involved the family a little bit and involved [hospital name] and tried to get information that way it wouldn't have deteriorated to the extent that it did. I think you should be involved in your care. (FG3)

Patients felt that access to information hindered the communication process. Patients described scenarios where information was recorded on electronic systems but subsequent healthcare professionals involved in their care did not have access to the systems and the stored information. This perpetuated patients' repeating information multiple times.

"Every single one of them wrote down notes, put them into their computer and then nothing happened because the next person I saw 10 minutes later didn't have access to that information." (FG1)

"I think quite a lot of these problems could probably be solved to some extent at least by proper computerised records and access to information like x-rays and ECGS and things like that. Why can't they just go in file then everyone can see them? (FG2)

There was a consensus that computer systems were ineffective and out-of-date and did not facilitate seamless care. Patients recognised that systems existed, but that staff involved in their care could not interrogate the systems to enable them access to data they required which could influence decisions relating to a patients' care.

"There's things like computer systems not linking up with is really frustrating in the NHS. Can't computers talk to each other now? I'm sure we have the internet. Everyone else can link up their iPhone with the whatever, but the doctor's surgery can't tell me what my test results at the hospital are. You know it's just so frustrating." (FG3)

"I mean I see my neurologist at a clinic which is not in the hospital. And every time I go to see him, … he says "Ok. What's been happening medically?" And I say "I've had these blood tests done" or whatever and he says "I'm not actually in my office so I can't access them so do you know what those results were?" (FG1)

The quality of communication with patients was also raised by participants. Participants described situations where they felt the healthcare professional lacked good communication skills. Participants discussed how they were often unaware of why people were as individuals did not introduce themselves and that the style of delivery of information was sometimes poor. The delivered information was not tailored to the patients and failed to recognise them as individuals, their current knowledge and what they may need to know.

"My doctor looking after my mother. When he first told me that she'd got cancer. That was it. He just said that. It was very kind of blank." (FG2)

"She [junior doctor] came and she said "I think there's a problem there" and then went away and I was quite upset and the nurses didn't know she'd said that to me." (FG3)

Participants described their frustration, spontaneously through descriptions of events, on the lack of communication on practical aspects of their care, notably, waiting times for future appointments (Illustrative example 2 and 3). It was felt that if such information was communicated and shared within teams, healthcare professionals would have a more realistic overview of timescales and this would avoid patients' frustration when the reality of a situation does not meet their expectations.

Illustrative example 2:

I think it also comes down to communication to some extent. But I know now I go to my urologist who'll say "I want this test done, it should here within a week". Three weeks later I get an appointment through the post which is for 6 weeks' time and yet the urologist expected apparently that he would have the results of those tests in a couple of weeks, and that sort of leads you to think that the left hand doesn't know what the right hand is doing sometimes. So, I don't feel that the quality of the care is a problem but I get sometimes the fact there's sometimes not the communication within the teams. That they all know what's going on and if there's going to be a waiting list, I'd rather have a realistic knowledge of what the waiting time is than be told one thing and then something else. (FG1)

Illustrative example 3:

The x-ray one, the fracture clinic and I had to deal with the reception at the fracture clinic and there were 4 people on the desk who I think one was getting trained to be fair. But they were all receptionists and they knew nothing. But they should be able to at

least be able to direct you and know what the organisation is on those towards that are obviously completely linked but they acted like "oh, that's just a completely separate building". It's just round the corner and I had no idea. She said "I've got no idea. You've got to wait here and then you'll get called and I don't know how long you'll be in there for". And I was just like - this great. I got to pick up my other child in an hour. (FG3)

The lack of effective communication was confusing and stressful for patients and patient often felt that this led them to perceive that the team as a whole was not effective and that this impacted negatively on the quality of care they received. Patients felt this exposed trust issues within teams and respect for other team members.

"You've got one person saying something and someone saying something else, it's confusing." (FG3)

"I had this thing on my head you know, they were undermining each other, not talking to each other. That's really affected my care because I didn't want to be discharged from the hospital because I now didn't believe the senior doctor because he disagreed with the nurse and the GP. And it does definitely affect your care. Definitely. Well it might affect the treatment of the disorder because if you're not trusting what the doctor are saying then you might not listen to them. You need antibiotics but do you know what I don't actually think I do because the nurse said. So, I'm not going to take them." (FG1)

There was an overall agreement that communication between individuals in whom English was not their first language led to problems in communication. Participants described situations where they struggled to understand information from healthcare professionals, mainly doctors and nurses, where English was not their first language. However, participants also felt that if a patient's first language was not English, the same problems could occur.

"Obviously the main one here is, I think we've all come across this, is foreign doctors or nurses who can't speak English, and that seems to be a common point throughout the

NHS. That goes both ways doesn't it, because you have patients who can't speak the same language as their doctor?" (FG1)

Delivery of care

A lack of consistency of care was described in all focus groups. Participants felt that, in their experience, they often saw different healthcare professionals for their care. Not only did this result in the repeating of key information as described above, but they also felt that the care they received, and their experience differed in the different interactions with different teams. Participants also described differences in their experiences from different teams for the same conditions, for example cancer services, and they appeared shocked and confused at how two teams, who, in their opinion, had similar remits, could be so different.

"He also died of cancer and the response by the team who came out and managed his death with cancer was just so different to my mum's. I just felt as though "how could two teams be so different?" (FG2)

"They are all doing the same job but they are not all consistent with the same thing and that's how I think you get the negative stories and the positive stories when you would think, under one hospital, they would all be the same." (FG2)

Some of the participants had themselves experienced poor care. Participants acknowledge that mistakes and errors were part of life and whilst it did result in some loss of confidence in individuals and or the team in the care they were providing, a transparency around any such errors was preferred.

"But she'd done it wrong and she didn't notice it was down as this ridiculous BP but then my friend then saw it and said "why hasn't no-one picked up on that ". It was wrong. She'd just written it down and thought "oh it's that" and no thought "mmm if it is that, that's a real problem". And then the next person who came to me, the next nurse who did it said "oh yes, that is rubbish" and did voice criticism of her colleague." (FG3)

"Nobody can be an expert in everything but they only need one little mistake, don't they, for you to lose confidence in that individual." (FG1)

Participants felt that compassion was often lacking in teams. They described how they felt they were not seen as individuals but as a "number" and part of a process. However, whilst this was a typical view, some participants had experienced teams who did demonstrate compassion and empathy towards patients in their role. This lack of compassion in teams was seen to be a result of the increased pressure, including time, on the healthcare service.

"You're just treated as a number. The next number – this sort of thing because there's no compassion." (FG1)

"I think that that's why now in palliative care, complementary therapies have increased because they have more time to spend with patients." (FG1)

Hierarchies

There was a general consensus that hierarchies in teams existed. Patients did not perceive this as a negative but they did describe the lack of willingness, by some healthcare professionals lower down the hierarchy, to make decisions as an area for improvement. This seemed to be perceived as a result of a historical culture in healthcare teams as opposed to the ability of the healthcare professionals' skills, knowledge and competency. Furthermore, there was an agreement that participants would prefer to be cared for by healthcare professionals who were actively involved in delivering their care on a day to day basis rather than a more senior healthcare professional e.g. consultant, who they perceived to be more withdrawn in their day to day care.

"*There's definitely a hierarchy within that team of health professionals. The chances are if you're on a ward you don't see the boss man. You see all the soldiers. But they obviously have got to report back to the boss man to say, like to say "he should have an*

appointment in 3 weeks' time, an x-ray, an operation or whatever". No - I'd rather see the soldiers but they've got to be able to make the decisions as well." (FG1)

Within one focus group (FG3), hierarchies were seen to be able to provide accountability and structure to manage complaints.

"And also, someone you can complain to. Its sounds a bit harsh but I got the supervisor of midwives on the phone regarding an issue at [hospital name] because I was, you know, I wasn't happy, and you do need that because you speak to individual. You can speak to individual midwives – they always communicate with each other. I think you need that person at the top where if there's a problem you can't pass it on. You want someone to be accountable. You can sort of say this wasn't good enough. I want to complain to someone." (FG3)

The patient as part of the team

Participants views varied within and between focus groups as to whether the patient was part of the team and if so, the extent to which they should be part of the team.

"It's never even occurred to me to feel like part of a team. I'm the patient and there the team looking after me." (FG3)

"It's interesting that you say that because I've experienced both. I've experience when you feel you've nothing to do with them. (FG1)

Furthermore, patients felt the importance of feeling as if the patient was part of the team could vary depending on the nature of care the patient needed and or was receiving. In particular, participants felt that it was important for patients who required mental health services, midwifery, and physiotherapy or community services to feel part of a team. However, it was felt impractical for patients receiving acute treatment, for example emergency care, to be

integrated within a team. This was due to the speed and intensity of care that may be required in such settings.

> *"I would think in mental health services or physiotherapy or something like that. You'd want to feel part of your own team. Like even midwifery, you even get your birth plan and you try and take ownership of it a little bit. A&E is just so completely different because it's so fast." (FG3)*

> *"I think community care you need to feel part of it." (FG1)*

This section has described the emerging theme: Patients' experience of teams. The emerging subthemes in this section are revisited in Table 4-3.

Table 4-3 – Phase 1 list of subthemes: Patients' experience of teams

Theme	**Subtheme**
Patients experiences of teams	A team approach
	Communication
	Delivery of care
	Hierarchies
	The patient as part of the team

4.4.2.2. **Characteristics of a team**

The theme, characteristics of a team, considers participants' views on the key characteristics they consider necessary in effective teamwork. This theme comprises the following subthemes: communication, perceptions of the composition of the team, knowledge, skills and competence and professionalism.

Communication

Effective communication was seen as key in ensuring a team was functional and organised on a day-to-day basis and facilitated effective transfer of patient information between team members. Focus group discussions concurred that the absence of effective communication (verbal and written) could result in confusion over the care of the patient, suboptimal care and possibly errors. This included communication between healthcare professionals and between healthcare professionals and patients. Effective communication was seen as a facilitator for minimising the need for patients to repeat information.

> *"Improve overall patient care to get the best for the patient because the communication between different healthcare professionals then would help improve the overall patient care." (FG1)*

Communication and the different forms of communication were discussed in focus groups. Communication was seen to be both verbal communication and written communication, such as report writing. Furthermore, whilst communication was seen as key in the transfer of information, its importance in investigating errors and developing services and patient care was also identified.

Participants being able to openly acknowledge errors and mistakes with other healthcare professionals and patients themselves was deemed important. In doing so, patients would be less confused on perceived differences in care and this would impact on their perceived effectiveness of the team. A team approach was considered ideal in minimising errors.

> *"The thing that concerned me was "oh there's been a mistake there. You know stupid doctors. They don't know anything" rather than they say "oh do you think this might just be a difference of opinion. It could have just have been this. It could be this it could be that." (FG3)*

"Yeah cos otherwise if they start and they try and hide something then you lose confidence. You start really panicking and lose confidence all together. You've got to know that a mistake's been made but like exactly like you were saying as long as you do correct that "I'm really sorry. There's actually been a mistake there. It should have been this." There's a way of doing it that's all." (FG3)

Perceptions about the composition of the team

Focus group discussions considered who should be part of teams and patients recognised that individuals involved in their care was wider than solely healthcare professionals. They described the inclusion of social workers and carers and the importance of these individuals in outcomes relating to their health. There was recognition that patients sometimes required support in accessing services or benefits available to them that social care staff could support them with. Counsellors were also identified as valuable professionals who should form part of the team for some patients.

"You need the social care because there's a lot of paperwork to fill in about claiming things." (FG1)

"I think where you have psychologist involved or social workers – people with a better – not necessarily a better skillset – but a different skill set to complement the patient recovery by focussing on something different, which is your psychological well-being being looked after." (FG2)

The makeup of a team was seen to be influenced by the individual patients, as each patient's needs differ and having a mix of team members from different disciplines or professions was seen to promote discussions around care decisions.

"I think it's important because there will be a different perspective. You know if someone's got different experience or is from slightly different discipline they will have

possibly a different view or outlook on a situation. So therefore, I think that can be really helpful because you're not sort of channel down a sort of very a narrow avenue." (FG1)

"If in maternity care you'd expect a team to consist of midwives, doctors, consultants you know the nursing staff even the – what's it called when the first people who see you?" (FG3)

Furthermore, there was acknowledgement that too many team members could actually have a negative impact on care as the overall management of that team becomes more complex. This could result in a need for a team manager as an additional team member. Furthermore, communication within a team was perceived to be more challenging if there were too many individuals. The rate-limiting factor relating to the size of a team was seen as the number of individuals before communication was affected.

"It would be great to have every expert involved but then the complexities of managing that multidisciplinary team become a nightmare. Then you might have to appoint a manager for it." (FG1)

"There probably is you know may be some constraints in terms of size 'cos I know, I don't know, from experience, when we've had staff meeting and there's been like 30 odd people all wanting to speak at the same or with different views, it can be quite complex." (FG2)

Participants felt it was important that team members understood the roles of other team members and it was felt that the role of one professional could be different in different teams.

"To understand that they know what their roles are. I think that's down to an individual because we are all different so you could have a whole set of different pharmacists and a whole different set of doctors and they all interact differently, and expect different things from themselves and other people." (FG1)

One participant raised the issue of costs associated in resourcing teams.

> *"I don't think we can ignore the fact that it costs money so one of the things that's going to happen is a compromise on how much it costs to get different people involved and I think why the question is "who do you expect to be there?" I would say who do expect to be there within reason because the NHS wants to save money." (FG1)*

It was clear from discussions, the value that administration staff had in the overall patient care experience, especially in facilitating communicating between individuals. However, participants did feel that healthcare professionals did not always value them as an integral member of their team.

> *"I think that team should include not only the medical practitioners and the specialist but also the admin people. I think they are an important part of the team, and they are often the ones that everybody looks down on." (FG1)*

> *"I think also important point to raise, is the importance of administrative staff in that..... Because really, they are often central to the communication to the wider community and making sure that everybody is kept informed of any changes and any progress. So, I really think, in any team there needs to be good administrative support. So, a team is wider than just healthcare professionals." (FG2)*

There were mixed views as to whether a patient should feel part of the team were mixed. Some patients felt that there were "patient-practitioner boundaries" that should not be breached. Other felt it was important to perceive that you were part of team even though in reality you were not.

> *"But do you not think there should be some patient - patient practitioner boundaries? You know whereas being part of a team blurs this." (FG1)*

"I don't want someone to be my friend and chat to me. I want them to do their job." (FG3)

However, some participants felt it was important that as patient you were an active team member.

"I think you should be involved. I don't think it should be a perception. I think you should. You have a right to be involved in your own care." (FG3)

One participant felt strongly that, no matter how much a team tried to be inclusive, they would not want and would never feel part of their healthcare team. This reinforces that the needs and requirements of patients differs considerably.

"I don't disagree with anything that's been said. I just wouldn't feel that I was part of that team. I would still give all the credit to that team and not appreciate that I was involved in it. Yeah So I think it's just our individual perception of what that care constitutes." (FG3)

Participants in general felt that hierarchies in healthcare teams were a requirement of effective teams. Participants described hierarchies in teams as teams in which individuals had different levels of accountability, responsibility and decision-making. It was perceived that a hierarchical structure facilitated individuals within teams to understand their role and place within that team and gave confidence to patients in the effectiveness of, and the ability of, a team to manage problems and complaints. As a result, team processes, such as who and when to refer a patient, would be more streamlined.

"But I think people need to know you know, sort of who's in charge and what their things are and not overstep boundaries." (FG1)

"Also, someone you can complain to. Its sounds a bit harsh but I got the supervisor of midwives on the phone regarding an issue at [hospital name] because I was you know. I wasn't happy and you do need that because you speak to an individual. You can speak to individual midwives – they always communicate with each other. I think you need that person at the top where if there's a problem you can't pass it on. You want someone to be accountable. You can sort of say this wasn't good enough. I want to complain to someone." (FG3)

However, several disadvantages to having hierarchal structures were identified. It was felt hierarchies could result in patients speaking to the wrong person and not knowing who they should be "consulting" with. Furthermore, for a hierarchical structure to work, individuals within the structure needed to respect others in the hierarchy. If this respect was absent, the team would not work collaboratively, and decisions made might be undermined, which could be detrimental to patient care.

"So, there's all kind of things where the wrong person can get asked if you have to hierarchical structure." (FG1)

"When you've got members that they can think that they can you know undermine say more senior members and things like that. They need to have that respect. I mean it all goes together doesn't it? The respect, the hierarchies, seniority." (FG3)

Discussions in one focus group considered how hierarchies should be determined for example, experience or knowledge; however no overall decision was reached.

Patients recognised the differences in expertise between healthcare professionals and felt that a mix of experience (years qualified) was important in effective teams. Healthcare professionals who were recently qualified were considered to have up-to-date clinical knowledge and skills

but the practical experience of making patients better could only be achieved though through years of clinical practice and exposure to non-text book cases. Furthermore, it was evident that participants felt that a team approach to care would be more effective than being cared for by one individual. Participants felt that it was not possible for one individual to possess and the knowledge, skills and competence required for the holistic care of a patient.

> *"I've met plenty of medical students who are now qualified who have wonderful communication skills with people, but I wouldn't say they've got the widest knowledge base." (FG1)*

> *"They could have all the knowledge but they might not have the greatest skills with talking with patients or they might not be able to deal with certain types of patients so there is a generational thing." (FG2)*

Furthermore, the overall teams' knowledge, skills and competence was considered a more important factor than an individual's knowledge, skills and competence.

> *"Half the problem in any of those professions is we are all different people, different levels of compassion and insight. You know there's a spectrum for Asperger's, autism and stuff like that and some people are better able to do it." (FG1)*

> *"I don't think everyone can have all qualities. I think the team needs to maybe bring a good quality each to make the team effective for everyone, whoever is dealing with the situation. You do need a good listener, someone who knows what they're talking about not just talking to you about it and like obviously someone to offer you that kind of support and help you go through the challenges that might come. Also, someone who can support the family. Because I think, sometimes it can just be more about the patient and not obviously the family as well who are actually dealing with it as well." (FG3)*

A leader was perceived to enhance a team's effectiveness and discussions. Participants described how the role did not reside with one individual but moved around a team or could be split across more than one individual.

> *"It's like a baton that's passed on." (FG1)*

> *"It could be that the leadership role as such is split you know across. It doesn't necessarily have to reside in one person but I think if there could be a central person. If the case evolves then whoever was leading it to start off with may not be the appropriate person anymore." (FG2)*

The challenges of this fluid role was also acknowledged by participants and the need for trust and respect of others in a team were seen as key to this happening effectively.

> *"It takes a lot for the in-charge person to sort of handover the reigns to someone else. Even if it's only temporary. But if you've got respect for each other within that team then you can enable other people to take that role." (FG2)*

Knowledge, skills and competence

Patients also wanted individuals in teams to recognise and respect the knowledge, skills and competencies of others and signpost them according. This was not perceived by patients as team members acknowledging gaps in their knowledge base or their own individual weaknesses but as a strength of an individual's character and overall team performance. One participant felt knowledge within a team was an underlying building block, which in the absence of, many of the other characteristics identified would be irrelevant. Furthermore, team members need to be able to recognise the skills of others.

> *"You need people that recognise each other's abilities to contribute to needs." (FG1)*

The skill mix within a team was seen to have a "*synergistic*" effect.

> *"They've got completely different skills altogether, but they work together. Synergistic." (FG2)*

Team members' ability to reflect on their own skills and competence was also identified as an attribute. Patients recognised that different team members would have different strengths and weaknesses, and this was not perceived as a concern but the awareness of these by individuals was deemed important.

> *"You've mentioned about knowing their limitations, as to not sort of go beyond their knowledge and know when to refer to someone else." (FG1)*

> *"To be aware of not knowing and not being able to do something like that is not necessarily means that they're a failure. Doesn't necessarily stop them being able to do the job. Just mean that they need to be aware of what their personal strengths and weaknesses." (FG1)*

Peer learning within a team was also highlighted and considered important in developing knowledge, skills and competency.

> *"The oldest can learn from the youngest as well. They're enthusiastic and sometimes a younger doctor or healthcare professional can know more because they've researched it, they've looked in to it, they've got the enthusiasm for it. Just because you're the most qualified, doesn't mean that you can't learn from younger people." (FG3)*

Importantly, participants highlighted the lack of awareness patients often have in relation to the knowledge, skills and expertise of different individuals and how this information needed to be publicised and available to patients otherwise patients perceive that they are being treated by the most appropriate person and a professional who had the expertise to treat them.

"Most GP practices have specialist diabetes nurses that are probably got more unique qualifications for diabetic care and control and are much better and more approachable and more up-to-date with medications and treatment and things. But if a patient isn't aware that that person is probably more specialised and is probably more up to date with recent treatment." (FG3)

Professionalism

Respect for their peers was highlighted by participants in focus group discussions as an important attribute. Individuals should have respect for the knowledge, skills and competencies of others in their team. Furthermore, individuals should ensure the most appropriate member of team undertake tasks or roles and be comfortable and confident in allowing patients to be treated by the most appropriate person. Respect for others was seen as key in facilitating this approach.

"Exactly what I was going to say. Respect for the other person's expertise and their knowledge and what they can bring to the healthcare as well." (FG1)

"You have to take direction from the people who are around to say. And that's where the respect comes in as well. You know, all good consultants shouldn't need to demand respect because people should just respect." (FG3)

Participants were aware that professionals had standards that were expected of their professions and a lack of respect for others was seen as unprofessional. They also felt, that if individuals did not respect others in the team, the patient should not be privy or exposed to evidence that this was indeed the case. If the latter was the case, patients would themselves lose confidence and respect for the team.

"I think it's really unprofessional and I think that as a healthcare professional you have to - it's part of your code of conduct to be professional and you you're breaking that if

you don't aren't shown respect and I really think even if you feel that way about somebody you should deal with it in house and it should never be portrayed to the patient. Because I really think that façade of one unit is really important." (FG3)

"The midwife sorry, relayed the story to her and she went "Don't worry it will be fine. She doesn't really know what she is doing "and I was a bit like "Oh my goodness – she doesn't know what she doing" so I mean, the different health professionals in the same team is great but I think they need to be able to back each other up." (FG3)

Camaraderie and support between team members was also seen to be a team attribute. A supportive environment was seen to promote individual healthcare professionals maximise their roles within teams. In doing so, this allowed the team to fulfil its potential and created team unity. Team members being supportive of each other, was seen important to ensure peoples' individual skills, knowledge and expertise was maximised. Participants felt that this reinforced acceptance in a team of an individual's position.

"I don't know whether you'd call it an attribute that teams are supportive of each other. They have to kind of be supportive of each other to kinda get the best out of the team as a whole, though you know supporting individuals." (FG2)

"It's not just leaving them to kind of struggle with their angle or their position in a team." (FG1)

Professionalism of teams and individuals in teams was seen to impact on a patient's perception of the quality of care that they were receiving. There was a consensus that this perception, if negative, could delay patient recovery as a result of their belief as to the quality of the care they perceived they had received. The extent of this impact and outcome would vary from individual to individual.

"Not necessarily impact on your care but I think it impacts on your perception of your care and therefore it may impact on your speed of recovery for example, because you've really got to believe that what's, there's all this mental aspects of health and emotional ways of looking at it aren't there." (FG1)

"If you don't trust the people treating you, you are less likely to respond to the treatment they give you than if you do." (FG2)

A team's ability to show compassion to patients was identified as a team attribute by participants. Participants felt that this showed a team cared and they felt that they were being looked after as an individual. This resulted in participants perceiving that they were receiving good care and gave them confidence in that team's ability.

"I don't think you want them treating you. You know, you treat everyone with respect if there's no compassion there. It goes back to being wheeled around like a piece of meat on the table and in the bed on the ward. And would you get that perception that you weren't being treated well. Yeah – they're not interested." (FG1)

"I suppose it comes back to having a degree of empathy without being detached for the individual. I think that's really important yeah." (FG2)

Participants felt that disagreement and conflict would always be present in a team and teams needed to have people who were effective in managing conflict or have processes in place to deal with conflict.

"There's always going to be disagreement isn't there? You know I would imagine between nurses and doctors and even nurse to nurse and doctor to doctor, they might disagree on matters but there should be somebody at a senior level that can you know who can resolve it for them and say actually "This is the correct thing. This is what I

would do. Having more years' experience." And also, someone you can complain to. It sounds a bit harsh." (FG3)

Patients believed that any in-team disagreement should be dealt with discreetly and patients should not be aware of any team conflict. Being aware of disagreements or unrest in a team could lead to negativity of patient perceptions of a team.

"That whole thing about misconceptions that I was talking about. If you end up talking to a disgruntled nurse. You know that sort of thing. You know we are all human. There are humans on each side. So you might feel anxiety as a patient if you start hearing someone who's part of this team going "arggh" being upset or angry or for whatever reason so that might deliver misconceptions." (FG1)

This section has described the emerging theme: Characteristics of a team. The emerging subthemes in this section are listed in Table 4-4

Table 4-4 – Phase 1 list of subthemes: Characteristics of a team

Theme	**Subtheme**
Characteristics of a team	Communication
	Team composition
	Knowledge, skills and competence
	Professionalism

4.4.2.3. **Patient expectations of teams**

The theme patient's expectations of teams, provides an insight into what participants expect in relation to health and social care provided to them by interprofessional teams. This theme

comprises the following subthemes: perceived purpose of a team, skills and competence and delivery of care

Perceived purpose of a team

The perceived purpose of a team was considered in focus group discussions and participants described their expectations of teams. The purpose of a team was deemed wider than solely for the provision of medical care; participants believed that a team should provide holistic care to both patients and carers and signpost according to the relevant individuals to facilitate this. There was an expectation that the team worked towards a common goal, with all team members having awareness of this goal and how it would be achieved to ensure continuity of care.

> *"Holistic care is – its different views and different experiences, different expertise can be brought to the same case. So, I think it's that holistic approach to care." (FG2)*

> *"Working towards a common goal and knowing exactly what their objectives are and how they can, how they're all part of, how they all achieve that goal you know, what's required of them." (FG1)*

Participants felt that a team approach would enable team members to openly discuss patient care in a safe and supportive environment. Participants thought this could facilitate better care, a holistic approach, staff development and a team spirit whilst minimising errors.

> *"The whole point of having team is for someone to cast an eye over. So you know with your situation, if someone had done something wrong and someone saw that they had done something wrong. The way to retain confidence as well is to say "well that's why we're here. That's why we're a team. So, you know, we can see things and you know double check and things like that". I think that way you get more assurance and that way the team are working together. What's the point of having a team if you don't work together? That's the whole point of a team." (FG2)*

"I think if you look at it from a professional point of view it's also for the practitioner. Because it gives them support and backup and means that decisions that are made can be more informed decisions if they've had chance to discuss them at get different points of views. So that think there's benefits on both side." (FG1)

Participants felt that small teams that linked together in delivering patient care provided an ideal model for delivering patient care. Larger teams were though to result in additional management requirements and logical issues.

"I think there most certainly needs to be a smaller team which then the remit would be that if certain things are identified, that they will then you know, have sub groups which will then meet. I think that be sometimes as useful but then if there is a fuller discussion required that that subgroup is invited to the main group to present their views and opinions." (FG2)

Skills and competence

Participants felt that individuals within teams would have different qualities and therefore bring something different to the team which results in a holistic approach to care.

"I don't think everyone can have all qualities. I think the team member needs to maybe bring a good quality each to make the team effective for everyone.... Because like that you do need a good listener, someone who knows what they're talking about not just talking to you about it, and like obviously someone to offer you that kind of support and help you go through the challenges that might come. Also, someone who can support the family. Because I think, sometimes it can just be more about the patient and not obviously the family as well who are actually dealing with it as well." (FG2-C)

However, there was a consensus that all individuals need to be able to communicate since all individuals would have to communicate to patients in order to fulfil their role. Participants also described communication as part of team members' "bedside manner" and the cornerstone of integrated effective care.

> *"I think all people should have ways of exploring you know good bedside manner you know. If people don't do that well that's the first line of communication – the bedside manner. The attitude of the person whether it's the nurse of the doctor, the therapist. They've all got to have a good bedside manner and also things have got to be explained to people." (FG2)*

> *"Do you then have support care whatever your condition might be? Are you going to have a support nurse visit you? Are you going to have a psychologist visit? Are you going to have home help because you're now debilitated? It kinda ties into communication- it's also about a well communicated implementation plan. A programme of care. It's a sort of a plan – so it's part of communication but it's like." (FG1)*

As a minimum, healthcare professionals should be introducing themselves.

> *"Possibly the simplest thing of introducing themselves as a team. Because a lot of people won't know they've got a team." (FG3)*

> *"The nurse could come and say "Hi I'm so and so. I specialise in this so I will be taking care of you." (FG3)*

There was a strong expectation amongst participants that healthcare professionals should have an awareness of their own skills. Participants did not expect all team members to demonstrate all of the characteristics described above but they did expect healthcare professionals to be aware of their own weaknesses. Acknowledging one's own weakness was not seen to be an

acceptance that they could not fulfil their role and responsibilities fully, but a strength since they demonstrated self-awareness.

> *"Is that they are self-aware of things that are important to their professional delivery even if they are not the best person for it." (FG1)*

> *"Cos I think the main thing about compassion is, like we said before, we're all different with different levels of ability for that but what you need to be able to do if you're a professional is say "I'm crap at that" but I need to be aware." (FG2)*

Delivery of care

Participants expected teams to be able to assess patient needs – medically and socially. It was felt that this could be achieved talking to patients and in doing so this would allow professionals to understand the extent to which a patient wanted to be involved in decisions about their care. Patients felt this could be achieved by all members of the team and in the absence of this, team members "*were not doing their job properly"* if this was not in place.

> *"It's important for that team to understand who the patient is. Not just in terms of their disease but their background." (FG1)*

Patients felt strongly that individuals had a right to be involved in their care and decision relating to their care, but they felt that different individuals would want different involvement and that teams needed to be able to ascertain the level of involvement a patient required.

> *"There should be an element of patient choice. To what extent do they wish to be involved?" (FG1-B)*

> *"You're the expert that should be you're decisions. You should be able to evaluate that so I think there's also levels which patients need to be involved in the debate and the discussion, and levels which they want to handover." (FG1)*

Patients also discussed how they wanted transparency. They wanted to have confidence in the team treating them and have information that would facilitate them having confidence in. Transparency and open communication were considered to facilitate this process.

> *"I think as well, you want transparency as to like you say, the correct professional because even at the GP surgery, where they have teams now. They have the GP and obviously when you go to the doctors you want to see the doctor. But then they'll have the nurses and things like that and very often they'll say you'll feel like you're being told you've got to go to the nurse. Not because that person is the relevant person and you have confidence in that person just because there's so many people and you're sort of being passed on. So, you want to have that sort of transparency as to that this person is the correct person that your dealing with." (FG3)*

It was evident from focus groups discussions where participants were from an older age group, that a family approach to care was considered valuable to patients. Participants reflected on the GP services prior to 2000, where many GPs were single handed GPs providing their own out of hours cover. Participants felt that this model allowed the GP to get to know each patient both medically and socially and therefore holistic care was provided.

Participants reflected at length on the service provided by GPs in the past. They spoke about how a GP *"knew every single family"* and *"knew every single person who walked in through his door"*. This was considered a strength to the overall care provided. It enabled rapport to be built between the healthcare professionals and the patient and they felt that the healthcare professional would bring previous knowledge relating to families to the consultation which could directly impact on care treatment and prevention. Such an approach was to be seen as a positive and enhanced overall care of families and not just individual patients.

> *"They knew the kind of history and they could kind of converse with you know on that important level – to do with the family. Because lots of things you know do pass down*

through the family. So, the family history is really important, or they jump from your grandparents to your generation." (FG2)

"Because I think as well, it's important for that team to understand who the patient is. Not just in terms of their disease but their background." (FG1)

One participant described the "Peckham Pioneer healthcare" model which existed in the 1920s. This model of care adopted a holistic family approach and participants agreed that the family approach would enhance overall care. There was also a consensus that, especially in relation to cancer care, family support and understanding of a patient condition and prognosis was as valuable as the support given to the patient.

"There's a very famous err in the 1920, there's a thing called the "Peckham Pioneer healthcare" set up in London and as well as building a fantastic new building with a swimming pool in the 1920s and that was radical in the East part of London. They also, if you know, went to see your GP, you didn't go on your own. You went with all your family. And they had these group discussions. So, they have one or two GPs, and you know, then the mother and father, children, grandparents, aunts and uncles and they'd all be there. They believed you know a family was kind of the most important component of people's health really and if they could you know, identify that something wasn't quite right in the family. They would be reviewed by at least two psychiatrists, a social worker, a GP and they can have somebody, a spiritual advisor like their minister. So those five people would police and discuss whatever the issues are with the person and I think that's a team. And they make a very important decision about whether or not the person is safe to go home basically and not stay in hospitals so that's quite a big team of people making decisions about one person who's got serious mental health problems." (FG2)

There was an agreement that patient records should be shared to allow access to patient information. However, there was an understanding that this should already be happening, and

participants did doubt how this would actually be achieved in practice. It was suggested that patient held notes, as with midwifery care, was the solution.

> *"I think quite a lot of these problems could probably be solved to some extent at least by proper computerised records and access to information like x-rays and ECGS and things like that." (FG1)*

> *"I'm at the point now where I think we should probably a copy of our medical records that we possess. Tangibly in our hands." (FG1)*

Some participants described how they received copy of letters and results following medical appointments. There was a consensus that this was good practice but that this did not happen in all areas.

> *"Every time I go for a hospital appointment or any kind of appointment they say "do you want a copy of the data? Do you want a copy of the letters that I send out?" And they just tick the box on the form, and it does come to me through the post. But obviously that varies from place to place." (FG1)*

Participants identified the transfer of care between interfaces as an area which was important to them. They described the expectation that all people involved in their care should have access to information relating to the patient to ensure that their care was continuous and that the experience of care across interfaces and in different setting was "streamlined".

> *"Streamlining handovers 'cos it's not just that you are in hospital necessarily. It's that you start off going to a GP, then you go to hospital, then you are handed over to, once you've left hospital, you're going back to your GP." (FG1)*

There was an expectation that the buildings, environment and surroundings that you visited for your care were "fit for purpose". Participants specifically mentioned the design and layout of

new hospitals, and felt that these modern, bright, welcoming hospitals impacted not only on the patients' experience but also the outcome of care especially in relation to mental healthcare. Furthermore, the latest technology should be available to teams and management system systems in place to support teams.

> *"But I think we now that depression can affect your health, your physical health and I think one of the things the NHS needs to more of, and they 've been trying to do it, is making sure your environment is nice." (FG1)*

> *"At the moment, there's a whole new number of children's hospitals. There one called [name] in London. It's an amazing new build. Nearby you've got [name] due to completed. Then there are buildings called which are to do with cancer care and they are just like drop in centres you know. They are not residential. People can go there. They have books and meeting spaces. Beautiful kind of places to go and kind of speak to people. Pristine." (FG2)*

Participants had a mixed view on whether healthcare professionals should dress in a certain way. It was recognised that the older generation may have expectations relating to dress code, for example, suits and ties, but for the participants, dress code was not considered overly important.

> *"Maybe the older generation expect you to wear a suit and tie. Behave in a certain way and dress in a certain way." (FG1)*

Overall, participants expected professionals to be demonstrating professionalism at all times regardless of circumstances or a situation and that such behaviour was part of their job.

This section has described the emerging theme: Patient expectations of teams. The emerging subthemes in this section are listed in Table 4-5.

Table 4-5 – Phase 1 list of subthemes: Patient expectations of teams

Theme	**Subtheme**
Patient expectations of teams	Perceived purpose of a team
	Skills and competence
	Delivery of care

4.5. Chapter summary

This chapter has presented patients' and informal caregivers' views on characteristics that they considered key in the delivery of care by interprofessional teams. Several key characteristics were identified that are considered important if a team is to be effective, alongside their experiences of interprofessional teams. The findings of this phase highlight characteristics that need to be present in effective interprofessional teams and "learnt" by team members at either pre- or post-registration to improve their experiences and outcomes of care.

The three main emerging themes, along with their subthemes, are listed in Table 4-6. The themes identified were in line with those described in the literature and include communication, leadership and interpersonal relationships. Communication was considered by patient and caregivers to be the most important characteristics in teamwork and appears to be the area where the patient experience can be significantly improved. Patients views' regarding characteristics were influenced by the patient's own experiences (and that of friends and family members). This led to a limited understanding of characteristics relating to internal team processes that were not directly visible to them, such as regular team meetings and the need

for a shared goal. The potential impact on patient care was clearly described by patients reinforcing the impact that teams can have on patients.

The next chapter of the thesis gives an account of the students' understanding of effective team and associated characteristics alongside current opportunities within their undergraduate studies to support the development of identified teamwork characteristics.

Table 4-6 – Phase 1 list of themes and subthemes

Themes	**Subtheme**
Patients experiences of teams	A team approach
	Communication
	Delivery of care
	Hierarchies
	The patient as part of the team
Characteristics of a team	Communication
	Team composition
	Knowledge, skills and competence
	Professionalism
Patient expectations of teams	Perceived purpose of a team
	Skills and competence
	Delivery of care

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Chapter 5. – Phase 2: Evaluating teamwork characteristics from the pharmacy students' perspective

The previous chapter identified the perspectives of patients and caregivers on interprofessional teams and the characteristics they perceived were essential in order for teams to be effective. This next chapter focuses on students' understanding of teamwork characteristics and opportunities within the undergraduate pharmacy programme that they consider helps prepare them to work in interprofessional teams. This is the second of four phases in the programme of work. Having described the rationale in Section 3.8.2 Research rationale, the method in Section 3.8.3 Research method, the data collection in Section 3.8.4 Data collection and the analysis in Section 3.8.5 Transcription and analysis, the findings are presented and summarised below and have been published in a peer-reviewed journal (Cutler et al., 2020).

5.1. Introduction

As previously discussed in Chapter 2 – Introduction, poor teamwork skills can negatively impact on the delivery of safe and high-quality care by interprofessional teams and, despite problems associated with teamwork being well-documented in the literature (see Chapter 2), there continue to be incidents reported linked to poor teamwork. Registered pharmacists need to be suitably skilled to practice in a variety of teams and as described in the outline for the programme of work (in Section 3.3 Overview of programme of work), it is important to consider pharmacy students' preparedness for practice in teams.

This phase of the programme of work attempts to broaden the literature available on this topic by investigating pharmacy students' understanding of teamwork and opportunities for the development of teamwork characteristics within their undergraduate pharmacy curriculum. This phase adds rigour to the programme of work by exploring students' understanding of teamwork and associated characteristics and will allow their perspective to be compared and contrasted with those of professionals from the literature review, patients and caregivers in phase 1 and educators in phase 3 during triangulation of data in Chapter 7. The findings of this

phase are important to the overall programme of work to inform characteristics of an effective interprofessional team and to inform recommendations on pharmacy education curriculum standards to facilitate the development of teamwork in pharmacy undergraduate students.

5.2. Method

This second phase of the research was an exploratory study of students' views on interprofessional team characteristics as described in Section 3.8 Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**. This phase involved focus group discussions with undergraduate pharmacy students from a NWHEI. The resulting discussions were transcribed and analysed utilising a grounded theory approach. This next section of the chapter will discuss the findings in detail.

5.3. Aim and Objectives

As described in Section 3.8.1 Aim and objectives, the aim of this phase was to explore student understanding of teamwork characteristics and their preparedness for future practice in interprofessional teams.

The objectives were:

1. To explore students' views on key teamwork characteristics needed to ensure effective interprofessional teams
2. To explore current opportunities within the MPharm programme to develop teamwork characteristics
3. To consider the development teamwork characteristics in undergraduate pharmacy education from a student's perspective

5.4. Findings

The findings are presented within this section including focus group demographics and the themes which emerged from the data collected during the data analysis.

5.4.1. Focus group demographics

Four focus groups were conducted in January and February 2015 in a room at a NWHEI lasting 60 minutes, 61 minutes, 61 minutes and 66 minutes respectively. The average duration of the focus groups was 62 minutes. Two focus groups comprised nine third-year students and two comprised 10 fourth-year students as shown in Table 5-1. The response rate for third year students was 7% and for fourth year students was 8%. All focus group were level-specific, mixed gender, aged between 18-39 years and based on students who volunteered to participate and their availability to attend the focus group. In third-year focus groups, six (67%) participants were male and three (33%) female. In the fourth-year focus group, seven (70%) participants were female and three (30%) male; one student was a mature student, who had been part of the workforce prior to studying pharmacy, and one student was an international student. The demographic details of the participants can be seen in Table 5-1. As focus group data is the outcome of a discursive process, no quoted material is attributed to individuals.

Table 5-1 – Phase 2 participant demographics

Focus group	**No. of participants**	**Focus group reference**	**Gender**	
			Male	Female
1 (Fourth-year students)	6	FG1	2	5
2 (Fourth-year students)	4	FG2	2	2
3 (Third-year students)	5	FG3	3	2
4 (Third-year students)	4	FG4	3	1

5.4.2. Themes

Coding of the focus group transcript data led to a total of 47 nodes being created, which were then combined and organised into themes and sub themes during the analysis process.

Three main themes emerged during analysis, which are presented below. To help illustrate the themes, verbatim quotes taken directly from the data have been used. The provenance from the specific group is noted as shown in Table 5-1. The steps taken to ensure robustness of the analysis have been described in Section 3.7.5 Transcription and Analysis.

5.4.2.1. **Student understanding of team characteristics**

The theme, student understanding of team characteristics, encompasses the aspects of team characteristics that students perceived necessary to facilitate effective teamwork. This theme consists of the following seven subthemes: communication, clear roles and responsibilities, mutual trust and respect, team dynamics, leadership and a patient-centred approach.

Communication

Students talked at length about the importance of good communication and interaction with patients. They recognised that communication referred to communicating with a range of people including healthcare professionals, patients, carers and other family members. Effective communication was seen as key in ensuring that a team was functional, organised and facilitated effective transfer of patient information between team members.

> *"If there's no communication between members and information is just not going to get passed on." (FG4)*

Students across all focus groups agreed that the absence of effective communication could result in key information not being transferred between team members. This could result in

confusion over patient care, suboptimal care and possibly errors alongside patients being confused if they are given differing information. This could result in non-adherence with medication.

> *"If the team aren't communicating properly it's going to be detrimental to the patient. Things don't get done and there's going to be medication errors." (FG1)*

The need to adapt communication depending on individual patients, such as those with hearing difficulties, was highlighted across all focus groups. Student discussions focussed on verbal communication and were also mindful that the UK is a multicultural society, which could result in challenges if a patient's first language was not English. Students described different ways to overcome some of these for example, communicating via a family member or an interpreter and the use of visible signs in healthcare settings providing key information.

> *"Have what they have at some GP surgeries where the name flashes up when they [the patient] need to go in [to their appointment]." (FG1)*

> *"I suppose an efficient way to pass around information is always important. Like in pharmacies we have like a communication book that people have to check." (FG3)*

The patient story prompted students to consider the importance of communication between members of a team who are not healthcare professionals, for example between receptionists and hospital porters. Communication between such individuals was seen as key to the patient being in the right place at the right time and to the overall patient experience.

There was a mixed view within the focus groups as to whether all the members of a team needed to be "good" communicators or whether this was a skill required of only some team members.

"If you've got one person who's a good communicator and the rest of the team can just follow instructions, then you don't necessarily need everyone in the team to be capable of communicating." (FG1)

Clear roles and responsibilities

Students expressed that it was imperative that team members understood their own roles and responsibilities and those of other team members. In doing so, individuals would know what the expectations of them were, undertake this "agreed" role and ensure that they were suitable competent to fulfil these roles. Furthermore, roles of individuals within the team need to be clearly defined.

"You need to understand each other's roles and responsibilities." (FG1)

"Everyone needs to have defined roles." (FG2)

An understanding of the roles and responsibilities of others would also facilitate the provision of seamless care; processes would be more streamlined, and individuals would know how to refer a patient on without unnecessary delay.

"Knowing your own role is the most important because I think until you understand what your role is, you're never going to be able to do your job properly." (FG1)

"I think for everyone else in the group to do their job they need to know what everyone else knows, what their individual role is." (FG4)

If team members did not have this knowledge and awareness of the roles of others then it was suggested the overall performance of the team would be affected.

"I think that's the glue that binds everything together." (FG2)

A collective purpose was perceived to improve teamwork and patient care. Students described how this would also facilitate team members to fulfil their individual role and minimise confusion.

> *"So everyone knows what the common aim is. So everyone's working together towards that." (FG1)*
>
> *"It's just getting to basically reaching a common ground where you can work with that common ground to reach a common aim." (FG3)*

However, it was suggested by students that even in teams with a common aim, some individuals are not interested in working towards the common aim, but they have their own agenda. It was considered the role of the leader to ensure the team and all team members were working towards the common aim.

Some students felt that the ability of team members to compromise was important in teams agreeing and achieving a common aim. Negotiation and agreement of an aim would minimise disagreements in care and potential conflict in teams.

Clearly defined roles were also considered necessary to enable individual team members to take responsibility for their actions. This would help prevent a "blame" culture and foster relationships between individual team members.

> *"Ultimately all it needs is people to take responsibility for their own actions." (FG2)*
>
> *"It's taking responsibility for your own role in a team." (FG3)*

Some third-year students suggested that an awareness of limitations of their own competence, and *"being willing to ask for help" (FG3),* was key to an effective team.

However, whilst students described the importance of clearly defined roles, a number of students considered the importance of *"flexibility"* of roles and responsibilities within teams Students mainly perceived this as the pharmacist being flexible and able to undertake other roles so that a team's common aim can be achieved, such as the dispensing of prescriptions.

> *"Pharmacists can handle other positions like what a technician can do or what a healthcare technician or a dispenser [can] do. Even some management." (FG1)*

> *"By being flexible we can handle part of the other roles in a pharmacy." (FG1)*

The benefits of such "flexibility" was also considered to facilitate patient-centred care, since patients could potentially be treated or cared for by one individual, thus limiting the need for multiple appointments with different professionals and additional visits.

> *"That [flexibility] would be excellent for the team as a whole and the care of the patient." (FG3)*

Students who did not share this view suggested that it would provide a lower level of specialised care to patient. In addition, individual strengths, skills and competencies would be lost.

> *"Do you not find that that goes against the flexibility thing? If you want to make the best use of people so you can highlight their strengths, as opposed to having someone who can do everything - like your Jack of all trades and master of none." (FG1)*

Mutual trust and respect

Mutual trust and respect was thought to facilitate an open culture where individuals would feel at ease communicating with each other, probing or challenging decisions relating to patient care. Mutual trust and respect were seen to result in a happier workforce where people would feel comfortable working in the team. This would result in "bringing out what's best in each

person" (FG4). Fourth-year students also felt that it was important to respect those roles. This included and an awareness of how individuals' knowledge, skills and competencies contributed to patient care. This would facilitate a team to work more closely together as team members would recognise when to involve them.

> *"Respect because that covers a lot of the like, you said, of respecting the different roles and different people's skill set." (FG2)*

> *"You don't trust them to get on with it …… if you have a lack of trust or lack of respect." (FG2)*

Students in all focus groups spoke about how a lack of trust and mutual respect between team members, and team members and patients, could lead to gaps in service delivery and patient care. Students described how deficiencies in trust and mutual respect could result in a lack of communication between individuals, harmony within a team and working towards a common aim.

> *"I think there's a certain element of trust in teams because if you don't trust your other team members, there's going to be things that fall through and people will be afraid to say stuff." (FG1)*

> *"You need a lot of trust. I think that's a really important thing. There's no point working in a team if there is someone who you are not sure [about]... Your whole team sort of falls apart because you are not going to tell on that person at all. The whole team, the work that the whole team is doing could be jeopardised." (FG3)*

Students felt that individuals who had a lack of respect for others would impact on an individual's performance, for example, students described how a lack of respect for a leader could result in an individual making an active decision to go against the recommendations for treatment. A lack of trust was also perceived to lead to individuals working against guidance,

procedures and agreed decisions. Such actions could impact directly on patient care leading to significant patient harm.

> *"If the team didn't trust the team leader then you could have people going behind, you know, their backs …. You could have people, you know, going doing things they're not meant to be doing." (FG2)*

Fourth year students also felt that it was not just mutual respect of individuals but also mutual respect for the roles of others in the team. If there was an understanding of the roles of others in a team and respect for those roles, for example, understanding how their knowledge, skills and competencies contributed to patient care, the team would work more closely together as team members would be able to know who to involve when.

> *"You want to sort of respect each other's roles as well." (FG2)*

> *"Respect because that covers a lot of the like, you said, of respecting the different roles and different people's skill set" (FG2)*

Team dynamics

Hierarchies, workload and compassion were discussed across all focus groups. Team hierarchies were seen as a positive factor that help members understand who was "in charge" of a team and allowed everyone to know their place and understand their role within the team better.

> *"That's why I was saying hierarchy - then everyone has a status and they know that this is, what I can do with my status." (FG4)*

Compassion for, and an understanding of workload and pressures affecting other team members was perceived to reduce conflict in a team. It provided a better understanding of what might be hindering an individual to effectively fulfil their role. Also, this might facilitate support and changes in the team to help others, which could minimise mistakes.

"I think it's important…finding out when someone maybe isn't doing as well as they could, or helping each other in that sort of way or taking workload off others if someone is struggling." (FG3)

Students felt strongly that the attitude of individuals in a team will affect teamwork and that compassion had its limits. Effort and laziness of team members was highlighted as a main issue. This was not seen as related to knowledge and skill, but to an individual's willingness to work and be part of the team. Students did not have sympathy for poor performance. Furthermore, they suggested that individuals who did not engage had a negative impact on the overall performance of a team, mistakes being missed and possible patient harm.

"Everyone needs to be putting in effort but if someone is lacking then that is obviously going to hold the team behind." (FG4)

"You could be missing things, increasing the risk of error to a patient." (FG2)

However, students also recognised that the perceived lack of effort was not always intentional and good communication could make individuals aware of how they were perceived and facilitate change in individuals.

"I think people sometimes think that they have done enough when maybe others think that they haven't." (FG3)

"It goes back to the communication … it just takes someone to say "look, you know, we kind of need you to step up a little bit and do a bit more." (FG2)

That having been said, some students saw this compassion and sympathy as a weakness that could hinder patient care. Attempting to understand difficulties experienced by others might distract the team from its primary focus in providing patient care.

"I mean for everyone in a team to have that for all people - you're not going to get anything done 'cos you're going to want to try and please everyone at all times." (FG1)

Students felt that it was important that you "were understanding" of your fellow team members and there were mixed views as to whether compassion was a required attribute. Compassion and an understanding of the workload and pressures affecting other team members was perceived to reduce conflict in a team, provide a better understanding of what might be hindering an individual to fulfil their role effectively. If individuals within a team understood others, then support and changes could be made within the team to help others and this in turn could minimise mistakes. Some students, who considered that this was a team attribute, felt it did not need to be an attribute present in all teams and was dependent upon the nature and remit of the team. It was also suggested that if the leader demonstrated compassion that in itself would make a difference in teamwork.

"I think people need to have an awareness of what other people within the team are working on and the pressures that are on them so that everyone can kind of take, can kind of share the load between them really." (FG3)

"I think it's important … finding out when someone maybe isn't doing as well as they could or helping each other in that sort of way or taking workload off others if someone is struggling." (FG3)

Some discussions amongst students built on this citing empathy towards both patients and other team members as a key attribute. However, it was recognised that it was difficult to quantify. Some students felt that this was an inherent quality within people.

"Everyone should just have that" (FG1)

"It's difficult to say in a team that you're not empathetic and um you can't say how empathetic someone needs to be." (FG1)

Focus group discussions suggested that individuals lost empathy as they became "stuck in their roles", forgetting about the bigger picture.

> *"They are sort of stuck in their roles and they've sort of forgotten that they are treating a patient." (FG3)*

There was a consensus across discussions that unity within a team was important. A unified team was seen to achieve targets, have good communication and provide good patient care with individuals working together effectively. A unified team was seen to work collaboratively to achieve a goal or target, whether this is the sharing of workload, problem solving or seeking advice.

> *"So it's sort of judging the situation as well and figuring out as a team what's the best way to tackle it." (FG3)*
>
> *"In every team you need to be sort of unity because if there is dispute amongst members in the team then again you are unable to achieve something." (FG2)*

Conflict within a team was seen as a factor that caused poor communication as there was the potential for individual team members to avoid communicating with others. Furthermore, conflict could lead to a lack of mutual respect and trust which could affect teamwork even if individual team members remained professional.

> *"You're always going to have disputes. You're always going to have a difference of opinion, but it is how you deal with those differences." (FG4)*

Leadership

There was an overall consensus that leadership was fundamental to a team's effectiveness, however, students viewed leadership in terms of a team leader rather than a sense of leadership across a team.

"[The leader] is probably the most valuable sort of person in the team in terms of what they can bring to the team." (FG4)

Students believed the role of the team leader was to "organise and delegate" (FG2), including allocating work, arranging meetings, settling disagreements and making decisions to ensure aims and targets were achieved.

"You need someone who can, you know, pull it together and makes sure deadlines and things like that have been met." (FG2)

"This person basically arranges the meetings, making sure all the work is done by the other members." (FG3)

Of particular note is the view of fourth year students felt that a leader was someone who *"can see the bigger picture"* and *"look at the strengths and weaknesses of each team member and the skills they can bring and use them collectively to complete a goal or task*" thereby bringing *"the best out of everyone" (FG2).*

One fourth-year group deviated from the idea of an overarching team leader and explored the notion of collective leadership. They felt that some teams could be effective in the absence of a single leader if the individuals making up that team were motivated, had a common aim and were part of a cohesive team.

"You can have situations where everyone agrees on the same thing. They all know what they want to do to and they just move forward with it, without a leader." (FG2)

It was suggested by one focus group that the patient should in fact be the leader of the team. As the patient would be the individual who made a final decision on their care, they were seen

to be the one who would lead the team to a shared goal that they were in agreement with. Discussions in a separate focus group, suggested that the leader of a healthcare team did not need to be a healthcare professional.

> *"I mean you could say that the patient is the leader. They're the one who are sort of going to have that final decision at the end of the day on what they want to do." (FG3)*

Discussion amongst students in the focus groups considered how incentivising teams to achieve targets was beneficial to improving patient care and enhancing teamwork. The overall consensus was that this depended on individual team members and whether such initiatives were motivating for individuals.

> *"Some people respond really well to other people, you know, really don't like competition." (FG4)*

> *"Some people say that's [competition] is really good for teamwork or some people say that just a friendly, happy positive working environment will get the best result." (FG4)*

A patient-centred approach

Students felt that it was easy to "overlook" the patient but if a team valued the patient as a team member then this was less likely to occur. In a team where the patient was not seen as a team member, the overall patient experience would be affected and there could be general failings in the delivery of care.

> *"There's no consideration for what's going on with this patient at this point." (FG3)*

> *"They've sort of forgotten they are treating patient almost." (FG3)*

Some students felt strongly that the patient should be part of the team. The patient was seen to be key to successful care. If the patient was not in agreement with decisions relating to their

care, adherence might be an issue which could result in the overall care of the patient being suboptimal and personal patient care failings.

> *"I didn't consider the patient as part of the team so all the things I was thinking that are conducive to the teamworking should have included things like, someone having responsibility for when a patient arrives, explain to them what happens. That would be considered a menial task but that would be the most important person in avoiding a situation like this." (FG4)*

> *"You totally forgot the patient, how the patient is going to factor into the team." (FG1)*

This section has described the emerging theme: Student understanding of teamwork characteristics. The emerging subthemes also described in this section are listed in Table 5-2.

Table 5-2 – Phase 2 list of subthemes: Student understanding of teamwork characteristics

Theme	**Subtheme**
Student understanding of teamwork characteristics	Communication
	Clear roles and responsibilities
	Mutual trust and respect
	Team dynamics
	Leadership
	Patient-centred approach

5.4.2.2. **Perceived impact of characteristics on patient care**

Students believed that ineffective teams and those lacking in key qualities discussed above could affect patient care. They felt that ineffective teams would make more mistakes which could lead to various degrees of harm to patients, ranging from a patient not being able to pick up their prescription when they expected to, to harm that could result in death of patients. Furthermore, even if no direct patient harm occurred, it was felt that the relationship between the patient and the individual healthcare professional or healthcare teams could break down. Patients could be dissatisfied with the care that they receive and potentially avoid seeking healthcare advice or services in the future. Students also suggested that if patients were aware of poor relationships between team members then this would also impact on a patient's future use of NHS services. It was felt that if patients perceived a team worked well together, for example, no disagreement in the care they received, then patients would assume key teamwork characteristics would be present.

> *"If there's like a poor rapport between the GP and a pharmacist say, and there's a mistake somewhere along the line in that prescribing process. Then they're going to be less likely want to communicate with each other and then that can cause patient harm." (FG2)*

> *"I think patients won't feel confident with the treatment they are getting if they can see like the healthcare professionals that they are working, I mean are treating, are not like respectful of each other or the way act towards each." (FG3)*

There was no overall consensus across the focus groups as to whether a team needed to exhibit all of the above characteristics in order to be effective or whether a team could be effective if some characteristics were absent. Some students perceived that if any of the characteristics were omitted, teamwork would inevitably be affected. There was the suggestion in one focus group that a team working across more than one geographical location with staff and patients in different locations, would require all the characteristics, whereas a team based in one location may not need all the characteristics.

"*I wouldn't think necessarily that there are more important ones. I would just say that without one or two of them then sort of, an effective team starts to breakdown." (FG2)*

"I mean I suppose it would be good for the patient's optimal health wouldn't it. If one or two were missing it wouldn't be the end of the world." (FG4)

However, overall there was a general agreement that communication and leadership had to be present. If there was poor communication within a team and a lack of leadership, the effectiveness of the team would be compromised.

"I would say communication is the most important because everything else just builds up on that. That's like the ground. The basis to everything else." (FG3)

"I would say communication, good leadership, and everyone knowing their roles but then I also think the appropriate amount of effort in their roles. They are the core foundations of a team. After that you could have a load of disputes here and there as long as it doesn't sort of over boil." (FG4)

Students also recognised a number of factors that could lead to an ineffective team either due to the absence of characteristics in a team or individual(s) not exhibiting confidence in relation to teamwork characteristics. Whilst a team may have a leader, the leader may not be competent, and this could result in poor teamwork. Poor communication between team member and team members and the patient could lead to *"miscommunication of information"* (FG4) and poor patient care.

It was also raised in discussions that if an individual team member was concerned about their own role and seeking attention, then this could lead to an ineffective team as they become focussed on their own goal and not the goal of team. An overall lack of cohesiveness in a team was perceived as a causative factor in ineffective teams.

The impact in patient care of a team that did not demonstrate the qualities of leadership or communication or other identified characteristics was varied. It was thought that this could range from a loss of trust in the healthcare team by the patient to a physical effect that could cause harm and possible death in a patient for example a drug interaction.

> *"It's just going to reduce the level of care that the patient gets. Patients lose trust in their healthcare team." (FG1)*

> *"It can lead to patients taking the wrong kind of medication, leading to interactions and can lead to death." (FG1)*

This section has described the emerging theme: Perceived impact of characteristics on patient care from a student's perspective.

5.4.2.3. **Current learning opportunities**

Students identified a number of teamwork-focused teaching and summative coursework activities, including university activities, placements and assessments. Furthermore, one student identified extracurricular activities as helping develop team characteristics e.g. sports teams and felt that students should be encourage to recognise such opportunities and associated personal development.

> *"I think we could probably encourage people to do at university and as well be aware that that is an important part of developing and those are skills and that is real valuable use of time." (FG4)*

Curriculum-based activities

There was a consensus that whilst there were lectures and workshops in the first year of the course with a focus on communication, there was no opportunity to practise these skills through simulated scenarios or in the workplace. It was felt that students should be exposed to opportunities to do this in the first year and then build on their skills year-on-year.

"In the first year, we go through this, but we didn't really have a real practice of this. Maybe we can start using these [simulation] a little bit earlier like in the first year. Like repeat in the second year and maybe we can do it well on third year." (FG4)

In general, students did not feel that they were developing teamwork skills. Group work was often aligned to a summative assessment and the group focused on achieving the assessment requirement and paid little attention to how they worked together and teamwork skills.

"Instead of trying to work as a good team they're more worried about the end of this. They need to have a piece of work to show for this and that's how we are assessed." (FG4)

Students' opinions and views on leadership were influenced by their experience of group work within the MPharm programme. It was generally perceived that leaders were not chosen but naturally assumed leadership roles. In their experience this meant that some students studying on the MPharm programme may not get the opportunity to undertake the role of a leader throughout the duration of the programme. As a result of students choosing their own leader within a group for group work activity, there could sometimes be two individuals who wanted to assume this role. The absence of a hierarchy meant that such a situation could exist and this in turn resulted in poor teamwork.

"Within the group there's always going to be that one person who'll kind of, they will take charge." (FG3)

"I think sometimes when you see a team where there are two people who naturally want to take the lead it kind of falls apart because of subconscious rivalry that they want to have the final say and they want to be responsible for it."(FG4)

In particular, students felt that both communication and leadership skills could be developed though group work, lectures and workshops.

> *"Maybe have more formal [teaching] around developing leadership skills." (FG1)*

> *"I think if it was a forced thing … if people were allocated to be the leader of the team when they were given the groups." (FG1)*

There was a consensus that it would be beneficial to include more opportunities for students to participate in more interprofessional team-related learning activities. Students believed that in doing so they develop a greater understanding of the roles of others and develop leadership and communication skills.

> *"In second year, I did the interprofessional learning with the medical students and … we worked as part of a team then and … we had to work alongside them." (FG1)*

> *"So, we're more comfortable communicating with other healthcare professionals because we've had that interaction." (FG1)*

Students felt that participating in lectures or 'question and answer' sessions with other health and social care professionals would improve their knowledge of the roles of others in a team and also help break down barriers between professional groups.

> *"Having some guest lectures from you know – I know they are ridiculously busy but a doctor coming in or a GP coming in and them saying how they feel they can be supported by a pharmacist and how they can support the pharmacist and kind of opening up that dialogue right from the word go."(FG3)*

However, there were certain characteristics that students felt could not be taught or developed at university and one student felt that none of the qualities could be taught.

"I don't think you can sort of sit there and listen to a lecture about how to be empathetic. You just. You can't sort of teach any of them things." (FG3)

"I don't think you can sort of teach any of them qualities. It something that's learnt through practice." (FG3)

Placements and simulated learning

Students also described how placements in community and hospital pharmacies allowed them to see a team in action where they could witness day-to-day experiences of pharmacists.

"Hospital placements help really helped in defining the roles, our future roles as pharmacists especially if it's going to be in hospital." (FG3)

Notably, fourth year students felt that the simulation sessions that they attend in the third and fourth year gave them an insight into healthcare teams and teamwork.

"We work with nurses and medics for the first time, so we get an insight into what it is like to work within an actual healthcare team." (FG1)

Through simulation, students observed how characteristics lacking in team can impact negatively on teamwork and patient care. Students described how simulation gave insights into the negative impact on teamwork and patient care in the absence of key team characteristics.

"We've seen time and time again, especially through simulation this year, if teams aren't communicating properly it's going to be detrimental to the patient. Things don't get done. There's going to be medication errors." (FG2)

"So, because nobody was talking to each other the patient could have been given the wrong dose of adrenaline. Things just seem to fall apart if you're not communicating." (FG1)

Fourth year students also reflected on their own experience at the fourth-year simulation sessions, describing how they felt that communication between healthcare professionals also facilitated an understanding of the roles of others and promoted teamwork that ultimately would impact on patient care.

"When they realised…we could be of help to them, we started like communicating quite a lot between one another and, you know, that I found was quite good and it was good for them as they realised they had to and they don't just have to rely on themselves to make a decision." (FG1)

An opportunity to go on more placements, widen the range of activities undertaken at placements and undertake more interprofessional workshops or simulation were cited in focus group discussions as ways of developing teamwork characteristics in undergraduate students.

"So kind of more interprofessional days like that and that would help us because, you know, what the role of nursing is." (FG1)

The challenges and limitations in organising placements and simulation were recognised by students and whilst students perceived these to be beneficial activities, they also suggested classroom-based activities that could facilitate the development of characteristics.

"We could have done smaller workshop groups maybe with the nurses coming here or even a few of us going out to one place and having a Q&A." (FG3)

"Maybe things like this [referring to patient story in the focus group]. Even then afterwards say like "what did you think? What qualities were useful? What did you do

wrong?" you know. Sort of evaluating each other's performance in the team and as a team." (FG3)

Assessments

The challenges and benefits of teamwork in assessments that involved group work were discussed. The need to work as a team to successfully complete the assessment and gain higher marks was recognised by all students. However, this appeared to be dependent on the individual team members and the relationships between each other.

"I think it taught us how to work with different types of people." (FG1)

A number of students also felt that the Observed Structure Clinical Examinations (OSCEs) did not adequately prepare them for communication in practice as they lacked confidence when they needed to communicate with an actual patient or healthcare professional. Students felt this because OSCEs involved students communicating with other students or academic staff whom they knew and therefore did not necessarily reflect communication in real-life as a pharmacist. It was suggested that observing a pharmacist communicating with patients, for example during a Medicines Use Review, would be beneficial to their development.

"So we do like our OSCEs you know and little things like that but it's not like, it's not the same as when you go out say on placement. You have to go and talk to a patient and we all panic because we don't have that experience of being able to talk to an actual patient." (FG1)

"We don't get the communication of communicating with a complete stranger." (FG1)

In general, there was an agreement that overall, students did not feel like they were developing teamwork skills since students focused on achieving the summative assessment, which did not

award marks for teamwork, and little attention was paid to the teamwork process and potential development of associated skills through a group work activity.

> *"Instead of trying to work conducively as a good team, they're more worried about the end of this they need to have a piece of work to show for this and that's how we are assessed." (FG4)*

This section has described the emerging theme: Curriculum opportunities and curriculum developments. The emerging subthemes in this section are listed in Table 5-3.

Table 5-3 – Phase 2 list of subthemes: Curriculum opportunities and curriculum developments

Theme	**Subtheme**
Curriculum opportunities and curriculum developments	Curriculum-based activities
	Placement and simulated learning
	Assessments

5.5. Chapter summary

This chapter has presented students' understanding of teamwork characteristics, their preparedness for their future roles in integrated healthcare teams and curriculum development suggestions. A summary of the emerging themes, along with their subthemes, are listed in Table 5-4.

Table 5-4 – Phase 2 list of themes and subthemes

Themes	**Subthemes**
Student understanding of teamwork	Communication
	Clear roles and responsibilities
	Mutual trust and respect
	Team dynamics
	Leadership
	Patient impact
Curriculum opportunities and curriculum developments	Curriculum-based activities
	Placement and simulated learning
	Assessments

Students identified a number of key characteristics that are considered important if a team is to be effective in line with those described in the literature. Communication and leadership skills were perceived to be the most important characteristics in teamwork and it was felt that exposure to further opportunities to develop these skills should be incorporated into the undergraduate degree programme in preparation for their future practice. Placements and simulations were recognised as valuable opportunities in which to do this. Changes to the GPhC education standards to support further placement opportunities, alongside appropriate funding will allow students to experience interprofessional teamwork which will ultimately help better prepare students for their future roles.

This second phase of the programme of work has successfully met the study aim by exploring student understanding of teamwork characteristics and considering their preparedness for

future practice in interprofessional teams. Furthermore, this phase met the study objectives by exploring opportunities for students to develop teamwork characteristics as part of the undergraduate pharmacy education and for future curriculum development.

The next chapter of the thesis explores the educators' perspective on opportunities that students are exposed to within their undergraduate studies to develop teamwork characteristics. In addition, educators views and opinions on undergraduate pharmacy curriculum is explored in relation to teamwork.

Publication

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Chapter 6. Phase 3 – Exploring teamwork characteristics and curriculum design from the educators' perspective

Having outlined the findings from phase 2 of the programme of work in the previous chapter, this chapter describes the findings of phase 3 as described in Section 3.9. This is the third phase in the programme of work, involves semi-structured interviews with educators to identify current and potential opportunities for the development of teamwork characteristics in undergraduate pharmacy students.

6.1. Introduction

In order to better prepare students for their future roles within interprofessional teams, as discussed in Chapter 2 – Introduction, it is important to consider how teamwork characteristics are taught and developed within the undergraduate curriculum and consider if undergraduate pharmacy curriculum should be adapted.

This phase of the programme of work attempts to broaden the literature available on this topic, by investigating educators' perspectives on the development of teamwork skills within the undergraduate pharmacy curriculum. This phase is important to the overall programme of work as the findings provide suggestions for potential curriculum development in relation to teamwork practice. This phase adds rigour to the programme of work by exploring the educators' perspective on key teamwork characteristics and will allow their views and opinions to be compared and contrasted with those of professionals from the literature review, patients in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, and students in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, during triangulation of data in phase 4: **Recommendations for pharmacy curriculum design**, (see Chapter 7).

The findings of this phase are important to the overall programme of work to inform characteristics of an effective interprofessional team and those which should be developed as part of a students' undergraduate curriculum to better prepare students for their future practice as part of the health and social care workforce. Furthermore, this phase will consider how characteristics could be developed and inform recommendations for the education and training standards for pharmacy students.

6.2. Method

The method utilised in this phase of the programme of work has been described in Section 3.9.3 Research metho**d.** This phase involved semi-structured interviews with educators involved in the development and delivery of pharmacy undergraduate education within the UK. The resulting discussions were transcribed and analysed using a grounded theory approach as described in Section 3.9.5 Transcription and analysis. This next section of the chapter will describe the findings in detail.

6.3. Aim and Objectives

As noted in Section 3.9.1, the aim of this phase of the programme of work was to gain an insight, from an educator's perspective, on the development of key teamwork characteristics in undergraduate pharmacy education.

The objectives were:

- To consider the perceptions of healthcare educators on pharmacy teamwork characteristics
- To identify key teamwork characteristics that could be developed through undergraduate pharmacy education

- To consider how teamwork characteristics could be developed in undergraduate pharmacy education

6.4. Findings

This section will present and discuss the findings from this phase of the programme of work, including participant demographics and the themes which emerged during the data analysis.

The transcripts were coded into nodes as described in Section 3.7.5. Transcription and analysis. A grounded approach was taken to code the data and 43 nodes were created. Following discussion with the supervisory team these were organised into broader themes and subthemes.

6.4.1. Participants

Nine semi-structured interviews were conducted between July 2016 and August 2017. The average duration of the interviews was of 31 minutes and 54 seconds, with duration ranging from 22 minutes and 3 seconds to 52 minutes and 20 seconds. A purposive sampling approach was adopted that involved inviting potential participants to produce a sample that was representative of the educators involved in the design and delivery of pharmacy education. Thirteen potential participants were invited to participate. A response rate of 77% was achieved.

All participants met the inclusion criteria and none of the exclusion criteria. Participants were recruited from HEIs across the UK and from organisations involved in pharmacy education including the GPhC and the Royal Pharmaceutical Society. All of those that responded were interviewed either face-to face or via telephone depending on their geographical location. A range of educators were invited and those who participated included lecturers, senior lecturers,

programme leads and education leads with differing levels of experience and backgrounds in academia, practice and pharmacy education. All participants were registered pharmacists and had practised in healthcare teams at some stage since registration. To differentiate between interview participants, interview participants are referenced A-I as seen in Table 6-1. No new topics or perspectives were found to emerge after nine interviews therefore data saturation was achieved. All data was anonymised as part of the transcribing process and anonymised quotes taken directly from the data are used to contextualise the findings.

Table 6-1 – Phase 3 participant demographics

Participant	Gender	Age (Years)	Years since registration	Years as an educator	Area of expertise	GPhC affiliations
A	Male	40-59	>20	>20	Pharmacy Practice	No
B	Female	40-59	>20	10-20	Pharmacy Practice	No
C	Female	40-59	>20	<10	Pharmacy Practice	No
D	Male	40-59	>20	>20	Pharmacy Practice	No
E	Male	40-59	>20	>20	Pharmacy Practice	Yes
F	Male	40-59	>20	10-20	Clinical Pharmacy	No
G	Male	18-39	10-20	10-20	Clinical Pharmacy	No
H	Female	40-39	10-20	10-20	Clinical Pharmacy	Yes
I	Male	40-59	>20	10-20	Pharmacy Practice	Yes

6.4.2. Themes

Coding of the focus group transcript data led to a total of 42 nodes being created, which were then combined and organised into themes and sub themes during the analysis process.

Three main themes emerged during analysis. The themes were based around characteristics of teamwork, current curriculum-based activities and potential curriculum developments related to teamwork, highlighted by participants. The steps taken to ensure robustness of the analysis have been described in Section 3.7.5 Transcription and analysis.

6.4.2.1. **Characteristics of a team**

This theme considers characteristics identified by educators as key to effective teamwork. There was a consensus that teamwork was an important feature of everyday practice for pharmacists. Educators identified several characteristics, in addition to clinical knowledge, that they felt pharmacy students should develop as part of their undergraduate education to prepare them for their future roles. These included: adaptability, understanding of roles, team composition, communication and decision making.

Adaptability

The changing and developing role of pharmacists was recognised and educators spoke at length on the need for students to be adaptable. This was described in the context of a student's ability to adapt to different situations and their ability to adapt to the viewpoint and opinions of other individuals.

> *"Increasingly they're going to have to have skills of innovation, adaptability to different settings, different roles. Just like in England, in Scotland we have just had another 60 million put into pharmacists working in GP practice. They'll be doing more prescribing in*

the future. They're going to have to have come out with much more confidence around patient-facing activities." (F)

"They should be sufficiently experienced to be able to cope with different viewpoints, different perspectives." (D)

"I think it depends on the team that you are speaking about because they will jumping out of lots of different teams and I think it is interesting, and I think it probably is in other professionals as well, you might be leading a team within the pharmacy and then you go onto a ward were you are not leading a team so you're changing that dynamic of the role that you've got depending on what team you are working within. I think that adaptability skill is really important." (F)

Furthermore, the diversity of teams in practice was acknowledged by educators. Teams in community and hospital pharmacy were seen to be very different and the roles and responsibilities of pharmacists varied accordingly. Different teams in the same workplace were also perceived to vary considerably, reinforcing the need for individuals to be adaptable to effectively work in teams.

"In terms of your day, you maybe start off in one area. Then you might move somewhere else where that team dynamic is changing and shifting. I suppose if you're not leading the team, the type of leadership that you get might be very different. One might be dictatorial in the morning but the next one might be much more open and relaxed and much more inviting." (F)

"I think that we should prepare them better for working in teams but one of the issues that I have with my colleagues when they try and do that is that they forget that there isn't just one team out there in practice. There are dozens of teams. They keep changing. Some are very small teams; some are very large multiprofessional teams. Some exist just for one patient. Some are wards. Some are other units. So, it's very difficult and I think having an understanding about the roles of teams and the roles in individuals within

teams and how they're roles may change, not only between teams, depending on circumstances of that team, the situation is important." (A)

In particular, one educator highlighted cultural diversity amongst students and the need for students to demonstrate cultural competence during their studies and their future workings in interprofessional teams was highlighted. In order to be culturally competent, a student's ability to adapt was considered necessary. For example, scheduling student-led activities to allow students to attend Friday prayers.

"Within our student cohort we have a very large international population, so we have a lot of cultural language diversity that has be taken into account. We're also no different from any other institution in that we have about 10% of students with disabilities and the ability to cope with things like that. So, we would expect them to be sensitive to those and work effectively." (D)

Understanding of the roles

Students being able to understand their future roles and the roles of other health and social care professionals were highlighted across the interviews. In understanding the roles of others, it was perceived that this would result in a better *"appreciation"* (F) of the various team members. Furthermore, an awareness of knowing the limitations of their competence within their individual roles was important. *(A, C)*

"So they know about the profession and the role, the pharmacist, or, if they're nursing know about their own role and the profession and then they should know about each other's roles and where they can collaborate to improve patient care." (I).

"Knowing when it's your responsibility verses the responsibility of another in the team, if there's any particular decision and that links with accountability and knowing one's limitation." (A)

One educator expanded on this further highlighting that boundaries of practice were an aspect of teamwork that individuals needed to be aware of.

> *"Knowing the boundaries if you like. The boundaries of practice. Or even if those boundaries are negotiated. That's fine. But just having that awareness if that's what needs to happen." (A)*

Team composition

There was a consensus that the knowledge and skills of all team members were key to a team's ability to function. Furthermore, the importance of a range of staff within an interprofessional team was described. A variety of healthcare professionals within a team was seen to allow for a diverse, yet complementary, knowledge and skill set that was required to deliver for patient care.

> *"I guess a good team has a complement of people with different skills set. So, there's no point in having 10 renal pharmacists on a team if it's for patient care. You need to have people with different skills such as a prescriber, a nurse to monitor the patient, a pharmacist with an expertise for example in renal, a dietician. You need to have people who bring in various skills to the team and a unique skill set to kind of try and improve the patient care holistically. So, everyone needs to have different skills really. As I've said, there's no point in all members of the team having the same set of skills." (G)*

> *"I think you need a diverse group of people that play the different roles and have strengths in the different roles and that needs to be recognised I think." (C)*

The ability of the team members to value, respect and trust each other's contribution to the team was highlighted and was seen to facilitate team unity and performance.

> *"How they get on. Accepting of each other. Taking on board what each other has to say. Valuing each other's opinions." (B)*

"For a team to perform well, they have to trust each other, and I think if you don't have that I don't then I don't think you'll actually move forward and work together. And with that mutual respect." (C)

One participant also felt that engagement and reliability of team members was also important. If individuals within a team were not contributing to the overall role of the team, this could cause upset and unrest within a team which in turn could impact on team unity.

"People being reliable, keeping to deadlines being reliable – good engagement of different players." (B)

"What you don't want I guess, is someone feeling that they are doing all of the work. And you don't want them feeling that someone is doing nothing in the team as that creates a bad atmosphere." (A)

Most educators identified the need for a good leader in teams. A good leader was seen to ensure workload was shared appropriately amongst team members and also to manage any conflict that might arise in a team.

"They should be competent and again a good communicator and share the load with the other members of the team so like everyone is kind of contributing equally to the team." (C)

"It's better that you communicate with others, the people concerned and the leader of the team to try and resolve that." (G)

Communication

Holistic communication skills were seen as key and educators were keen to reinforce that this was both verbal and non-verbal communication skills. Pharmacists needed to speak to a range of individuals including other pharmacists, healthcare professionals and patients as part of their

everyday practice and the ability to use appropriate language depending on whom you were communicating with was highlighted.

> *"Excellent communication. And that's the use of appropriate language which may be jargon here which is converse to patients. The terminology that other professions use. Verbal, non-verbal listening. (A)*

Some educators felt that verbal communication facilitated other key characteristics such as agreeing care pans and treatment goals with other healthcare professionals and patients.

> *"The various team members need to speak to each other and agree on what the goal is. Agree on what the goal is. Agree on what the aims and objectives of the team are." (G)*

> *"What the agreed outcomes are for the patient and communicating that at the start is important so that everyone knows what and where and that they're bringing their own skill set to the team." (G)*

> *"Negotiation skills with patients and other healthcare providers and really be able to I suppose make a difference to the patients, the practitioners, the pharmacy team they're working within. I suppose within the team." (F)*

Decision making

It was considered important for students to have awareness that in their future practice they would need to be aware of their responsibilities within their role and be able to make decisions. Furthermore, an awareness of knowing the limitations of their competence.

> *"Decision making and them knowing when it's your responsibility verses the responsibility of another in the team, if there's any particular decision and that links with accountability and knowing one's limitation." (A)*

"Decision making – ethical decision making, and they do that across all four years. They do more generic stuff. They have a specific workshop on decision making. In normal therapeutics they are doing general decision making." (B)

It was clear that this was a skill that needed to be developed over a student's undergraduate training, pre-registration year and initial practice.

"Obviously as an undergrad, you're starting off at much lower base and so your hurdles will be lower, and you expect by the time they come out of their pre-registration year and first couple of years of practice they should be." (A)

This section has described the emerging theme: Characteristics of a team, from an educator's perspective. The emerging subthemes in this section are listed in Table 6-2.

Table 6-2 – Phase 3 list of subthemes: Characteristics of a team

Theme	**Subtheme**
Characteristics of a team	Adaptability
	Understanding of the roles
	Team composition
	Communication
	Decision making

6.4.2.2. **Current curricula activities**

There was a consensus that undergraduate courses should prepare students for their future team-based roles as pharmacists.

> *"It's about putting in systems of work and design those kinds of things so that they're ready and fit for the workplace which I suppose is our ultimate goal for teamwork." (E)*

> *"No matter what sector you go into, whether its hospital, primary care or community, academia, you're ultimately going to be working with other people in a team. There are very few pharmacy careers I can think of when you're not working in a team." (C)*

Team-based activities

Some HEIs described how they actively encouraged students to consider teamwork as part of their studies: its importance, the benefits and challenges of teamwork and spreading the work of a team.

> *"We spend a lot of time trying to get them to work out actually what is a team, what are the benefits of it and what does that do to projects." (D)*

Several curriculum team-based activities were described. Whilst some activities required students to form their own teams, others comprised pre-defined teams.

> *"Within the pharmacy teams we do various things throughout the years. We do deliberately mix up the teams if we are putting them into teams to work within pharmacy." (F)*

> *"We do a lot of workshops and students self-select [teams]. I don't know any member of staff who puts them into groups. They tend to sit with their friends. The emphasis is always on what the objectives are for the session, in terms of what they want to learn, not necessarily the process or the skill of how they are achieving it." (C)*

The formation of teams was considered challenging. Some HEIs allowed students to self-select their own team members whilst in other HEIs, teams were randomly formed by academic staff.

> *"Also how do you set up a team? Does it self-select? Is it prescribed? We have hundreds and hundreds of debates over whether it should be self-selection or not." (D)*

> *"The biggest problem that they have when we put students in teams is when there is not that respect and they don't get on with each other and teams still work. Often, unless it's a specific issue where we see there is a specific problem, we say it's part of real life and you need to learn to deal with it. You need to learn to deal with it and work with people and so you need to sort it out yourselves. Otherwise how are they going to learn? When you go into the workplace, staff will already be there, you have to learn to get along with them and work with them and so that's just part of it." (F)*

Furthermore, if team members expressed problems in their teams or with other team members there was a lack of knowledge on how this should be managed. However, resolving issues linked with teamwork was considered a successful outcome in teamwork.

> *"What should happen if there might be problems in the team? How would we manage it? We were very fortunate that we didn't have many problems but what we had to do was design an escalation process about how we are going to manage it. And the viewpoint was always more like relate counselling." (D)*

> *"Our ultimate aim was getting that team together as one. Actually, a success for us was even if they'd all fallen out, we could get them to work effectively together. It's getting people to engage as well. In life it's that realism." (D)*

One educator described how students naturally define their own teams outside of classroom-based activities and considered how these teams might be formed.

> *"In a way I think students will almost define their own teams. I taught class-based stuff and if they're given stuff to do like directed study or private study, they've almost defined their own teams. I think it's quite interesting how they do that. Do they look for people who are similar to them or people that they like? Or do they look for people with complementary skills?" (F)*

There was some consideration of opportunities where students would consider the different team roles that can facilitate effective teamwork. These included students adopting the role of a leader, organising meetings and communication roles.

> *"When it comes to final year, they do a big piece of work in our Public Health module as a team and we described to them the team make up before team meeting. Like one of them will take on the role of writing an agenda, someone will take the minutes of the meeting and they will rotate those roles and try and have different leaders within it." (D)*

> *"We do quite a lot of problem-based learning and team-based learning as well to try and get them to start thinking about taking responsibility within the team. Assigning tasks within the team and bits like that." (F)*

Two educators described how they incorporated activities to facilitate students to identify people's behavioural strengths and weaknesses.

> *"I encourage the students to play on their strengths and to think carefully and cleverly about how to divide up the various tasks taking into account each person's expertise and skill set. When we think about interprofessional learning we do lots of that." (A)*

> *"We do some work with them on trying to identify different types of people within a team – who's a completer finisher …. We do that initial bit in the first year around team*

roles and getting them to think about. But I'm not actually sure how much we use that to allocate teams but almost to get them aware of what they are. But if at least you're aware of the deficiency in your team you can try and think how we're going to develop people. Usually you've got what you've got. It's very unusual that you've got the choice to go and pick your team and if you do, I bet people don't do it from a psychological team-based role- based perspective."(F)

One HEI described how mentors had been employed to meet with student teams throughout the academic year and facilitate discussions around teamwork. This had identified the different stages of teamwork that was present with the student cohort.

"They have some very intense sessions to try and help them reflect. And for some teams their [mentor] role is to take them [students] from a really good position that they're working at but consider how can you do even better. For others it's "right this is a team". Here are some of the roles you might like to consider. How might you organise yourselves better? We do spend quite a lot of time on the whole teamwork thing." (D)

Simulation–based activities were seen as a tool for improving teamwork and facilitated the development of teamwork skills such as the delegation of tasks. However, participants felt that the success of these activities was dependent upon the design of the learning.

"There's a group of five, six or seven of them and they can divide down the tasks. They can actually be very efficient and can have a significant amount of time to spare." (D)

Activities involving teamwork were considered to allow students to reflect on their own performance and recognise their own strengths.

> *"One thing we notice with some of the teamwork is that they [the students] all try and do everything. Recognise your strengths. Play to them and that critical self-reflection is something that we do a lot of." (D)*

There was recognition across the HEIs, that activities that involved teamwork were generally unpopular with students. Concerns revolved around other students who they had been allocated to work with.

> *"We had a lot of heated feedback at the beginning. You stuck me with this person. I can't get on with them." (D)*

Communication-based activities

It was clear from the interviews that the development of communication skills was a theme throughout all programmes which started in the students' first year of study. A range of activities were described by educators across the HEIs that were currently embedded within their programmes that would help students develop the characteristics of communication. Activities included students undertaking presentations, patient counselling, discussions with prescribers and OSCEs.

> *"We have a full strand in first year that goes from the most basic theory all the way through and then we have communication skills in every year." (B)*

> *"In their dispensing we do proprietary dispensing. In respect of the communication, there will be intentional errors with the prescriptions. They're might be a black dot interaction. There might be an overdose or an underdose. And they have to go back to prescriber, address the prescriber in an appropriate manner and get the problem rectified. We always tell them they have to go to the prescriber with a solution to the problem. Don't*

just go with the problem and communicate that appropriately. They get feedback on that then." (G)

One HEI described how debating topics where ethical considerations were relevant was used to help students develop communication skills. This activity supported students in the development of critical analysis and communication with others to express a view different to theirs.

"They do ethical debates. So, they would be given a topic for example, should it be mandatory for community pharmacist to supply EHC regardless of their beliefs? Or should marijuana be made legal for medicinal purpose? The students are put into teams, so the teams come into play then. There is a for and an against. We assign them into teams, and I guess this is one of the limitations of the exercise is that they are put into a team regardless of whether they are for it or against it. They are told you have to debate for or against the motion because it would be too challenging. Otherwise you might have a case where one for a motion and six against it. So, we just put them into teams of 5 and regardless of your view you have to debate for or against it. It enables them to develop their critical analysis and challenge the other team. There can be discourse between the two teams and they get into it and argue with each other and they are the best of friends at the end of it." (G)

Interprofessional-based activities

The value of interprofessional team-based activities in facilitating the development of teamwork characteristics were recognised across HEIs. It was perceived that well-designed IPE activities could help students develop skills of communication, understanding of each other's knowledge, skills and competencies, negotiating, challenging and making decisions and therefore recognising the value they bring to a team.

Activities, including pharmaceutical calculations and medicines information queries, were described in which pharmacy students were seen to be able to share and demonstrate their knowledge skills and characteristics.

> *"The medics realise that the pharmacy students know more about it at that stage. Because during that process the pharmacy students are helping them use the BNF more effectively and so if, you like, in terms of the power dynamic, this is one of the only few times when it's the other way around." (A)*

> *"In second year, we do one with medical students in pharmacokinetics so again it's calculating very simple drug regiments for things like theophylline and digoxin. Things with a very narrow therapeutic drug window." (G)*

Interprofessional based activities between pharmacy, nursing and medical students were also considered valuable.

> *"In third-year, we do interprofessional learning with trainee GPs. We do a journey of a prescription. So basically, we have model patients. So, these are real patient actors. They might have hypertension and they get the medication prescribed by one of the trainee medical students in a pretend GP office and they go off to the model pharmacy and get them dispensed. And there will be issues with the script and the pharmacist will have to feed that back to the GP." (G)*

> *"We have this great IPE day in the third year. The students go off campus. They meet up with paramedics, speech and language therapists, adult nurses, two or three more professions and they all meet up and they have a whole day together. They are mixed up, told which table to sit on and they have a focus, something they need to work on together and I think they learn about each other. Different professions, different approaches to things as part of those discussions. They all enjoy it. They all get something out of it but it's one day. There's no follow up. It's kind of thrown in." (C)*

However, the challenges of interprofessional activities were identified as a barrier to successful implementation of IPE activities. It was perceived that it was inevitable that students across all programmes have different abilities and this can impact on successful IPE, especially if a team mainly consists of weak students.

> *"The difficulty is introducing weak physio students in the 2nd year to explain to a weak pharmacy student what the role of a physio is and being able to answer the questions." (A)*

Importantly, it was felt that students valued interprofessional-based activities and recognised the value of such opportunities.

> *"Three or four years ago they used to find it uncomfortable. But then they realised the importance of it and even the weaker students, now it's made very clear, why we are doing it." (A)*

Furthermore, it was perceived by one educator that there could be a detrimental aspect of IPE if a student's knowledge was seen as weakness by a peer.

> *"We haven't even thought about looking at how the medics might perceive a fellow professional not knowing where a particular vein is. Do you see where I'm going? That's the unexplored?" (A)*

Individual staffs' background was also thought to influence the success of IPE and teamwork-based activities. It was felt that staff who worked within teams that were process driven and who themselves did not work in effective teams were less able to effectively facilitate the sessions and understanding teamwork was described as a "skill" in itself and the potential need for staff development.

"So perhaps if you've had a very classically driven hospital environment for example. Sometimes there can be "this is the procedure. Do not deviate". It doesn't happen very often. But trying to get people actually having the skill to really understand teamwork is something that we need. I think we could do a lot more around staff development. That's one of our big challenges." (D)

Placements

Placements were seen to expose students to registered pharmacists, other healthcare professionals and team environments. This was seen to help students understand the roles of others and their future roles.

"They also have non-traditional placements whereby the student will observe, for example, going to a care home, or work with a mother and toddler group, or a self-help group alcohol drugs misuse, so that they are watching, if you like, the professional dealing with a patient rather than collaboratively working with them." (A)

"They have placements so you would hope they have observed that would help with that. They have placements in community, and they have placements in hospital in second and third year but I my observation of teaching for 12 years is, things that are obvious to me aren't necessarily observed unless they're pointed out. I suppose you would hope they would pick this up by observing what is going on around them when they are on placements but I think their focus at the beginning is you need to know what it is you are trying to achieve. Their focus when they are on placement would be completing their workbook, getting their case study presentation together and I don't think teams and how teams come into it." (C)

Assessment

Educators perceived that students appeared to be concerned if team-based activities were linked to a summative assessment since they believed other students' engagement and performance could and would affect their individual mark attained.

> *"They're going to pull my degree mark down." (D)*

> *"In our fourth year, 100 out of 120 credit at year four were group work and they were in the same group for all the modules. So, they were with them all the way throughout the year. That did create a little bit of angst amongst the students." (D)*

Across all programmes, communication skills were formatively and summatively assessed through presentations, dispensing and counselling-based activities. Assessments considered both verbal and non-verbal communication skills.

> *"We assess the content of the presentation and also their communication skills and we would give them feedback on their communication skills such as eye contact and body language and not reading from notes." (G)*

> *"When they have labelled and dispensed the prescription they will go out and a member of staff will pretend to be the patient and we will ask them a challenging question. Not even a challenging question but a relevant question to the product. They will generally counsel us, and we will ask them a question as a follow up to see how they deal with answering that question. The first six weeks in semester one are not assessed. They are entirely formative. We mark them in the exact same way. The same level of feedback. The 12 weeks in semester two do contribute towards the module and the marks compose of the communication and the clinical check and the legality of the script. About 25% of the mark is from their counselling and communication." (G)*

In particular, HEIs agreed that OSCEs helped students develop valuable communication skills and provides a mechanism for student assessment of communication skills.

> *"We have OSCE stations that relate to communication with another healthcare professional, a nurse or a medic, and sometimes that medic may use a word and the pharmacist or pharmacy student may not know what that word is. So may mention the name of a vein or something and so what the students are told to say is "look I'm not very good at anatomy so", which goes back to understanding their knowledge and competence." (A)*

> *"They are assessed in communication skills. We do general communication and then a lot of focus is on communicating with patients, but we also give them some scenarios like having to deal with angry patients, difficult doctors and problems with nursing staff on the ward." (B)*

Whilst in some HEIs, students undertook summative assessments linked to group work, this was not widely used as part of assessments across programmes.

> *"They do a SWOT analysis on a CNS drug. They have to produce a group presentation on a tropical disease and its management including pharmacotherapy. They're both summative." (A)*

> *"At the end of six weeks they submit a group piece of work on the group service development bid and then everybody in the group has an individual piece of work to submit as well so we're assessing it at group level and they do really need to assign different tasks to the group and we ask them for a report on how they assigned the tasks." (D)*

Peer marking was used in a number of programmes; however, educators were uncomfortable in this approach being heavily weighted in summative assessment. It was perceived that

students could influence an individual's mark through peer marking and this might always reflect the actual performance of the students.

> *"We've done various things over the years where we've tried to bring if you get a group mark, peer weighting based on effort and on the rest of it. We know the limitations with these things, and we've put them in and taken them out and all the rest of it. Just getting them to think about each other's contribution so we use a lot of it in formative assessment. Where we do have it in summative [assessments] we will rate it quite low. Just because there is the potential for student manipulation of that so I would much rather we focus on things about you know this is your team, this is your team's role." (F)*

There was also a suggestion that assessment of teamwork skills could be pass or fail.

> *"I think it could be formative. I think it could be summative but non-contributory. So, for example, pass/fail. Or it could be one of those elements whereby they have to pass four out of five things and that could be one of them." (A)*

> *"They must be highly communicative and be able to communicate to all sorts of people and it's just a life skill. Should be assessed. I'm sort of personally trying to move away from formative and summative labels of thing. If I was to give it a label it would be assessed in a way that reflects competence. However that is done but link it to competence." (E)*

There was a mixed view as to whether students themselves were aware of characteristics to facilitate effective teamwork.

> *"I don't think so. I think it's the sort of the thing that once they've been working for a few years they might look back." (I)*

> *"I think they do because within the portfolio when we talk about team working, they're the kind of things we get them to reflect on. I think our students when they reflect on it,*

a lot of them reflect on how they get on with people rather than how effectively they work as part of a team. They tend to focus on what's gone wrong or the usual, where someone doesn't do the work and someone else has to carry it." (C)

However, at some HEIs, students on reflection, could appreciate the aim of the activities and the learning achieved, mainly in terms of achieving tasks within a timeframe or in advance of a deadline.

"We got through the year and got to the formal feedback at the end, we started seeing comments like," we can see exactly why you did that", "it made sense immediately", "actually we got to know each other." (D)

However, it was felt that the benefit of teamwork to patient care was not recognised by students, however, educators described this as an "*aspiration"* (D).

It was clear that this was a skill that needed to be developed over a student's undergraduate training, pre-registration year and initial practice.

"We don't within healthcare think about this patient has got eight clinics to go to over four weeks. All maybe saying slightly different things about their medicines, health, lifestyle so where does the patient fit into the team. It's something that we do really try and make them aware of. We do a lot of work with volunteer patients coming in to speak to students about things like that and thinking about maybe the patient is the team leader. Still on wards rounds you'll find that the leader of the ward round is the medical consultant, who is maybe the least skilled person to lead the team and maybe you actually need someone who's good at chairing meeting or organisation or whatever. And should it be the consultant or the nurse who is actually there a lot more. They tend to sort of appear on the ward then everyone will jump and right we now need to start a

ward round. A cultural thing. I don't think that's necessarily models of really effective teamwork." (H)

This section has described the emerging theme: Current curricula activities, from an educators' perspective. The emerging subthemes in this section are listed in Table 6-3.

Table 6-3 – Phase 3 list of subthemes: Current curricula activities

Theme	**Subtheme**
Current curricula activities	Team-based activities
	Communication-based activities
	Interprofessional-based activities
	Placements
	Assessments

6.4.2.3. **Curriculum developments**

This theme considers potential developments to the undergraduate pharmacy programme that could support students in developing teamwork characteristics. It was evident that teamwork as a theme was in development across HEIs curriculum with some HEIs being more advanced.

"We need to think much more holistically about the development of these individuals because we can consider their clinical skills here. We've got to assess clinical skills, patient counselling and all the rest of it but actually thinking about that dynamic as a team. I think there is a lot more that we can do around it." (F)

There was an overall consensus that all healthcare students should be developing similar teamwork skills through their curriculum.

> "*We might have different skills, but we all need the same values and characteristics. (B)*
>
> *I think it's important to everybody isn't. And our students are going to be working in multidisciplinary teams and so you would hope that everybody in that team would benefit from the same top tips. The same skills and so on." (I)*
>
> *"The medics realise now they are doing more IPE the value of working as a team member and the expertise and insight other people can bring is valuable to improve patient care. Medics want more of it and can see how it benefits patient care." (A)*

Development of further IPE involving social care staff and expanding exposure to healthcare professionals, in addition to medical and nursing students, was raised by most educators.

> *"Social care – we don't at the moment, but we have started to work with a group to start to try and develop health and social care IPE –an element or activity that can be done across the university and that will include social workers." (A)*
>
> *IPE should be used so much more. Everything should be integrated." (B)*

In contrast, one educator felt that there was no benefit to exposing students to social care staff as this as considered an aspect of advance practice and not required in early career pharmacists.

> *"It's hard for me to think what possible learning value could come from exposure to some of the social care problems the patients have other than its goin' to be difficult when you're a practitioner. I don't think they'll be any technical learning from this. I don't think they'll be any behavioural learning as such but there could be a recognition of added complexity to it and advance practitioners our advanced practitioners struggle with complexity so what therefore should our response be to young learners. I really*

don't know other than to say recognition of complexity is about the best we could possibly manage. At the moment we don't have pharmacists providing social care directly, but they do need to understand changes to social care and policy development." (E)

One educator felt that whilst collaborative practice featured heavily in everyday practice and therefore ultimately effective teamwork skills were a necessity, the focus on undergraduate education should be on knowledge.

"My big issue out of all of this is it's impossible to have good collaborative practice unless we have demonstrable drug expertise and I think we've still got a long way to go with ensuring that our graduates and our pre-reg trainees and our day one pharmacists are actually sufficiently immersed in drug expertise when they practice. Never mind all this stuff about professional socialisation and how to work with nurses and all the rest of it. Do they know enough about drugs and medicines? And it's impossible to have a collaborative profession working relationship unless you have some idea of what your scope of expertise is. Because otherwise you're just part of a team flapping around doing nothing. A more fundamental question to me is do my day one pharmacists know more about drugs than and medicines than my day one doctors. That I think for me a more fundamental question than do they know how to work in a team." (E)

One educator identified the lack of evidence for IPE within the undergraduate curriculum and how the drive by the regulator was not evidence based although a "sensible" idea. Furthermore, there was no guidance from the regulator on the amount of IPE that should be present within undergraduate curricula.

"Exposure to the environments – yes. Tick it's a good idea. Understanding what doctors and nurses do – yes tick it's a good idea. Having some joint learning with nurses and doctors – yes tick it's a good idea. The evidence to support whether we become better

practitioners though is entirely lacking and those remain good ideas. They remain sensible ideas but there's no evidence in the literature from what I can see that tells us how much IPE we should be doing in initial regulated education and training. I think personally the GPhC have no idea how much is enough or what constitutes a minimum exposure...there's never really an answer as to how much is enough." (E)

"Absolutely – it's a good idea. My sort of evidence beef is we don't know how much that exposure is. Let's put them in hospital one day in their fourth year or 10 days in their fourth year or one day in every year or one whatever. We just don't know how much is enough. If the idea is to expose students to an environment and say to them this is what potentially it's going to look like and feel like, there have it, job done. In theory you only need to do that once to a person. And they would sort of understand what the environment is before they join that environment. So, I'm probably committing some form of GPhC blasphemy with this, but you know I've got no idea how much is enough." (D)

There was a view that IPE should be part of post-registration training and not be integrated within undergraduate education due to the lack of experiential opportunities.

"I'm less agitated by the undergraduate experience I have to say. I think that IPE becomes very much important as a CPD or CE component as careers progress… Because to my mind it's an experiential thing and if you're not experiencing provision of healthcare there's less you can learn about collaborative practice or IPE." (E)

There was recognition, that the current curriculum and limited student exposure to workplace settings did not provide students with an understanding of future working as a pharmacist. Pharmacy teams in community pharmacy and secondary care were seen to be very different and this resulted in students needing to work in different ways and the need to demonstrate different characteristics. For example, a pharmacist working in community pharmacy could, in

theory, on the first day of their registration be expected to manage and lead a pharmacy team. Hospital pharmacy had staffing structures in place which removed this requirement and expectation.

> *"I think it's difficult to say to students exactly how it should work. We can make them aware of the complexity. I think it is difficult for 23/24 year old students going into a community pharmacy as the manager with no managerial experience with staff who are maybe very experienced, and I think that's a really difficult dynamic. You're then expecting this person to lead the team professionally, if not on a day-to day basis with all the individual tasks and I think even with more and more placements how we can help with that. I think hospital is very different – you'll get bigger teams, bigger support team around you but maybe in community you're someone trying to make a final decision on something. That doesn't really happen in hospital to the same degree." (F)*

> *"I think community pharmacy is, particularly if you're not with the big multiple, is very unusual in that you might be put in a very responsible leadership role, quite early on, so being able to read that team, manage that team, response to conflict within that team." (B)*

Furthermore, it was considered necessary to ensure that curricula adapted to future pre-registration selection process. Placements were seen as a tool to expose students to teamwork.

> *"If we mention when it comes to pre-reg selection there more likely to be a greater emphasis on teamworking. So, if we can use that as hook to introduce what the employers are looking for. Not only at pre-reg but placements instead of this is important, this is why, this is some questions you may be asked and the evidence to support that." (I)*

There was recognition that the formation of an effective team took place over time and this was a rate-limiting factor that needed to be considered in any assessment of teamwork.

"The only difficulty for us is that teams take a long time to work together. When I use to work in hospital, I was really very confident in the wards that were mine and they would listen to me because they trusted me. If I have to cover for somebody else, that was much much more difficult and if you're starting to assess somebody who's been somewhere a week that's really difficult to assess their performance because you've got to bed in, get some sort of trust within the team. I guess with longer and longer placements this might be the chance to do that." (F)

The inclusion of personality and team role theory, such as Belbin and Myers Briggs, was suggested by some educators to enable students to recognise potential team roles and characteristics and traits that are associated with individuals. In doing so, students would have a better understanding of other people they were working with as part of group work and this could help with group work activities.

"Myers Briggs - Why don't we do something like that with our student? Because they're going to have to work in teams, multidisciplinary team. It's all about characteristics of the individuals." (C)

"We used to do stuff around different leadership styles and training around leadership. We also do various types of IPE activities so they will be working within interprofessional teams. Now some of those will be face-to-face." (F)

This section has described the emerging theme: Curriculum developments, from an educator's perspective.

6.5. Chapter summary

This chapter has presented educators' understanding of teamwork characteristics, the delivery of these through the undergraduate curriculum and considerations for curriculum development. A summary of the emerging themes, along with their subthemes, are listed in Table 6-4.

The findings of Chapters 4, 5 and 6 are triangulated in Chapter 7 where suggestions for further work and recommendations are outlined.

Table 6-4 – Phase 3 list of themes and subthemes

Themes	Subthemes
Characteristics of a team	Adaptability
	Understanding of the roles
	Team composition
	Communication
	Decision making
Current curricula activities	Team-based activities
	Communication-based activities
	Interprofessional-based activities
	Placements
	Assessments
Curriculum developments	

Chapter 7. – Phase 4: Recommendations for pharmacy curriculum design

This chapter of the thesis considers the programme of work as a whole. It triangulates the findings from each of the phases, discusses the implications of these findings and makes recommendations for pharmacy education curricula both in the UK and internationally. The chapter concludes with proposals for further research.

7.1. Aim and Objectives

The aim of this phase was to make recommendations on pharmacy education curricula to facilitate the preparedness of pharmacy students for their future pharmacy practice in interprofessional teams.

The objectives were to:

- Explore and triangulate the findings from phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective,** and the literature review to determine the key characteristics associated with effective teamwork and examples of teaching, learning and assessment methods
- To make recommendations on the teaching, learning and assessment teamwork characteristics within undergraduate pharmacy education.

7.2. Overview of programme of work

This thesis considers the characteristics of an effective team, the development of teamwork characteristics within undergraduate pharmacy education and informs proposals for curriculum design through qualitative research. Focus groups and semi-structured interviews explored patients' and caregivers', students' and educators' perspectives on teamwork characteristics.

Triangulation of the findings within this chapter informs the proposals for curriculum design for pharmacy education.

7.3. Methodological Limitations

Each of the methods used within the individual phases have their own limitations. The robustness of the research across the programme of work is discussed in section 3.1 Methodology. There is an inherent risk of bias during qualitative interviews or focus groups, and the researcher's role as an educator and a pharmacist inevitably leads to the researcher having preconceptions. Although the bias cannot be eliminated, numerous strategies were employed through the programme of work to minimise the risk of bias. These have been discussed throughout the thesis. One particular strategy to reduce bias was the inclusion of the supervisory team throughout planning and data analysis. The team included a medic, a pharmacist (with a background in psychology) and an academic (involved in the education of other health and social care students with an interest in pedagogic research). This helped to provide differing viewpoints throughout the process.

Focus groups and interviews were conducted in a way to minimise bias from the interviewer. The researcher kept an open manner throughout each interview, setting aside any preconceptions as much as possible. Questions were asked in an impartial manner and properly explained to all participants to avoid being misleading. The researcher's background as a pharmacist and educator was beneficial to assist with understanding of any terminology used by the expert participants during the interviews.

Within research, participants may be reluctant to discuss certain issues because they are concerned about confidentiality, causing problems or distress for themselves or others. Participants may also want to give socially desirable responses to be viewed favourably by others which could lead to misrepresentative data being collected. This was especially pertinent

in phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, where the researcher was involved in the teaching, learning and assessment of students. As such the researcher was known to some participants, who may have responded to invitations in light of this and answered questions in a way that they may not have necessarily done so if the focus groups were conducted by someone else. As opposed to making efforts to negate this potential bias the researcher remained reflexive throughout the project, questioning why the data may look a certain way and accepting that it may look different if the study had been conducted by someone else. During participant recruitment and prior to data collection, the researcher ensured that participants knew information was confidential to minimise socially desirable responses. During all phases, participants were informed how their responses may impact on pharmacy curricula in the future.

The research could have been enhanced by inclusion of a greater number of participants. Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective,** participants were recruited from one NWHEI, and the pharmacy education and training standards have since undergone reform. Whilst this limits generalisability of the findings, the findings are still relevant to guide schools of pharmacy on ways in which students can be better prepared for their future careers in interprofessional teams. The views of other stakeholders such as employers of pharmacists and other health and social care professionals could also have been included and further research with other stakeholders may form the basis of future research.

The researcher's interviewing and analysis skills were developed throughout the research. Regular contact with the supervisory team and checking of transcriptions and coding ensured validity of the data.

7.4. Reflexivity

The concept of reflexivity was introduced in Section 3.11 Reflexivity. Reflexivity was embedded throughout the research process and supported the development of the researcher as a qualitative researcher in addition to helping to improve the robustness of the work.

The researcher had several preconceptions before beginning phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, due to her experience as a pharmacist who had worked as part of a number of different interprofessional teams, including the lack of understanding of the role of a pharmacist and ineffective communication between teams, being the main preconceptions. These issues were highlighted by participants and the researcher strived to remain neutral during data collection so not to lead the discussions towards the researcher's own opinions. These preconceptions were useful during the development of the focus group questions, as it meant that the researcher knew the areas that needed to be investigated. By being aware of her preconceptions, the researcher managed to write the questions and prompts objectively, without leading the respondents. Assistance was also sought from the supervisory team to ensure that questions were suitable. As topics and issues arose throughout the focus groups, the researcher questioned others about the same topics in later interviews to determine a variety of perspectives on the issues. When facilitating the student focus groups, the researcher's background and knowledge of the MPharm course, allowed discussions to flow with minimal interruptions since the educator was familiar with the course content. This minimised interruptions by the researcher to seek clarification from students.

A concern during phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, was that the researcher had been involved in the design of teaching, learning and assessments including IPE and simulation-based teaching which may have influenced the discussions. The reflexive approach used in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, to carry out the research was

again utilised during this phase. The researcher attempted to remain open-minded during the interviews. Although familiar with IPE and simulation-based teaching, the researcher was unsure how other HEIs and educators perceived them and the extent IPE and simulation-based teaching was incorporated in their own MPharm programmes. As topics and issues arose throughout the interviews, the researcher questioned others about the same topics in later interviews to determine a variety of perspectives on the issues. During the telephone interviews with educators, responses included terminology used specifically in pharmacy and education. As a pharmacist and an educator themself, this limited the researcher needing to interrupt the flow of conversation to clarify responses.

7.5. Key findings

Evaluating teamwork characteristics from the patients' and informal caregivers' perspective was undertaken in phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**. Literature around the patient perspective of teamwork was limited. Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, broadens the knowledge from the literature on teamwork characteristics but from a patient viewpoint. Undertaking focus groups with patients and informal caregivers served as a useful starting point for the research, and provided topics for further exploration with other participant groups in the subsequent phases. Focus groups (Phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective and** Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective)** and semi-structured interviews (Phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**) were conducted across a wide time frame, allowing the researcher to undertake significant reflection and iterations to focus group and interview guides. The researcher also learnt the importance of employing pauses in facilitating focus group discussions whereby a question was posed, followed by a period of silence, prompting the researcher to the use their "prompt" questions.

This first phase highlighted several significant findings such as patient experiences and expectations of teams, the characteristics patients perceived to be required for an effective team, and the need for teams to adopt a holistic approach. As individuals, or supporting others, in receipt of health and social care, these are the people who can provide an indication of the effectiveness of teams and the characteristics that they considered to be important. The method employed allowed participants to speak at length about the issues of most importance to them, informed by their experiences.

No major differences were identified between focus groups with regard to team working characteristics. The lack of effective communication, its impact on their overall care and other perceived team working characteristics emerged as being key from across all focus groups. Probing the issue with students and educators (Chapters 5 and 6) enabled exploration of how communication was taught and assessed within pharmacy degrees and consideration of any associated recommendations within pharmacy education curricula (Chapter 6). Team processes such as team meetings and reflexivity, identified in the literature as key in effective team working did not feature in patient focus groups discussions (Delva et al., 2008; Vyt, 2008). This may be since such processes are not visible to patients and/or caregivers and therefore the value of team meetings and reflexivity were not recognised. Patients expected teams to adopt a holistic approach to their care, that is considering the health and social care needs of both themselves and their family. From patients' experiences, many of the characteristics identified through the literature as key for healthcare teams to be effective, were lacking in practice. The trust that patients had in their care was inherent. Patients perceived all teams to be functional and providing optimal care unless their experiences resulted in them feeling differently. Organisational and environmental factors such as culture and co-location of team members, were recognised by patients as influencing their patient care (Section 4.4.2.1) (DiazGranados et al., 2018).

Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, followed on from phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, by exploring teamwork characteristics from the pharmacy students' perspective, opportunities for the development of teamwork characteristics undergraduate pharmacy curriculum, and their preparedness for future practice. As students who are currently exposed to undergraduate pharmacy education, this group was appropriate to comment on ways in which schools of pharmacy may better prepare graduates for teamwork. Current student awareness of team characteristics is important to determine their existing knowledge and to identify if further structured learning needs to be incorporated within curricula to increase their understanding and help prepare them for their future roles. Phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, allows comparison of the students' teamwork knowledge with the patients' and current published literature. Having had contact with pharmacy students from other schools of pharmacy, some participants were able to draw useful comparisons between their own preparedness and the preparedness of others.

This second phase identified that students recognise several key teamwork characteristics, as identified in the literature, and opportunities that they had within their undergraduate studies to support the development of these characteristics. Pharmacy students proved themselves to be an extremely useful resource in providing feedback on the teaching of teamwork within the pharmacy degree. Findings show that whilst there are opportunities within their current undergraduate studies to develop teamwork skills through group work, these are secondary to the learning outcomes of the group work and do not necessarily allow for or were designed to develop this characteristics. Pharmacy students stressed the benefits of exposure to the pharmacy environment to their preparedness for practice in interprofessional teams; however they also recognised the challenges of off-site placements and considered simulations to be a suitable alternative way to provide an opportunity to be exposed to a team environment. This phase highlighted the need for increased opportunities for the development of these skills through placements and simulations that incorporate clear teamwork-related learning outcomes.

Phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**, considers educators' perspectives on the development of teamwork skills within the undergraduate pharmacy curriculum. Interviewing individuals involved in pharmacy education design and/or delivery was beneficial in offering an insight into teamwork characteristics, perceptions of graduate preparedness for teamwork, and how HEIs prepared undergraduates for working in interprofessional teams. Interviewing participants from a range of geographical areas across the UK provided interesting insights into differences across different schools of pharmacy (eight overall). Semi-structured interviews were a particularly useful method of data generation to use with this group. Coordinating focus groups of academic staff would have been practically challenging and therefore interviews provided a pragmatic and flexible option. Interviewees may not have been willing to share some of their opinions or teaching mechanisms and descriptions in a group interview scenario. Face-to-face interviews also offered the opportunity for non-verbal gestures, such as eye rolling, to be noted and taken into account. The method employed allowed participants to speak at length about teamwork characteristics and student exposure to teamwork, informed by their background and other factors. Participants had a range of backgrounds and experiences with varying levels of seniority and experience within the profession. This was important in offering a range of insights that were influenced by a variety of factors, including the subject discipline in which they teach, and their own experiences and opinions. Interviews were conducted across a wide time frame, allowing the researcher to undertake significant reflection and iterations to the interview guide. The purpose of this third phase was not to seek consensus opinion but to canvas a range of opinions, including of those who may have opposing views. The researcher is also an academic and therefore knew some of the interviewees. Being known to some participants meant that the important stage of rapport building was to an extent achieved prior to interviews. Interviewees were familiar with the researcher's role and pre-existing knowledge of the subject at hand and so were able to use acronyms and colloquialisms naturally.

The importance of students having the required characteristics for effective teamwork on qualification was discussed; educators also considered how students are taught or could be

taught. In line with the literature, several characteristics were described by educators as facilitating effective teamwork (Jackson and Bluteau, 2011; MacDonald et al., 2010; Nancarrow et al., 2013). Of particular note was educators' perspectives on the need for students to develop resilience for adapting their role to the needs of teams in which they work and the evolving requirements of pharmacists in the provision of care in the UK. Academic staff were in agreement that students would benefit from greater exposure to pharmacy practice, patients and professionals and interprofessional teams. Several team-based activities were described across programmes that required students to work in either self-selected or pre-defined teams, but it was clear that staff wanted to provide students with greater opportunities for exposure to pharmacy practice and interprofessional teams. Placements, simulations and IPE were considered suitable mechanisms by which students could develop teamwork characteristics. The inclusion of such opportunities varied considerably across HEIs. However, activities whereby students considered their own teamwork skills with a view to developing characteristics to facilitate effective teamwork were limited. Other than communication skills, there was a distinct lack of assessment of teamwork characteristics and effective teamwork across all schools of pharmacy.

7.6. Triangulation and discussion

Focus groups and semi-structured interviews conducted with patients and caregivers, students and educators, were useful in establishing a range of perspectives relating to pharmacy undergraduate students preparedness for working as part of an interprofessional team. The objectives of each phase of the research were met, revealing shared perceptions and those individual to each of the 3 participant groups. This chapter serves to triangulate the findings before recommendations are made for ways in which pharmacy curricula could support the preparedness of pharmacy undergraduate students for their future team-based roles (Chapter 2). The researcher acknowledges that the findings of this research relate to pharmacy education in the UK; however, they can be used to evaluate the education and training standards of pharmacy students further afield.

The input-process-output model of team effectiveness (Cohen and Bailey, 1997) proposes that team inputs (such as team composition, the team task, resources, and organisational support) have an influence on team outputs (such as error rates, quality of care, patient satisfaction, and team member well-being) via the interactions or team processes that take place between team members. It was clear from the findings of this research that patients', caregivers', students' and educators' views aligned with this framework (Section 4.4.2.1, Section 5.4.2.2 and Section 6.4.3.1).

7.6.1. Teamwork characteristics

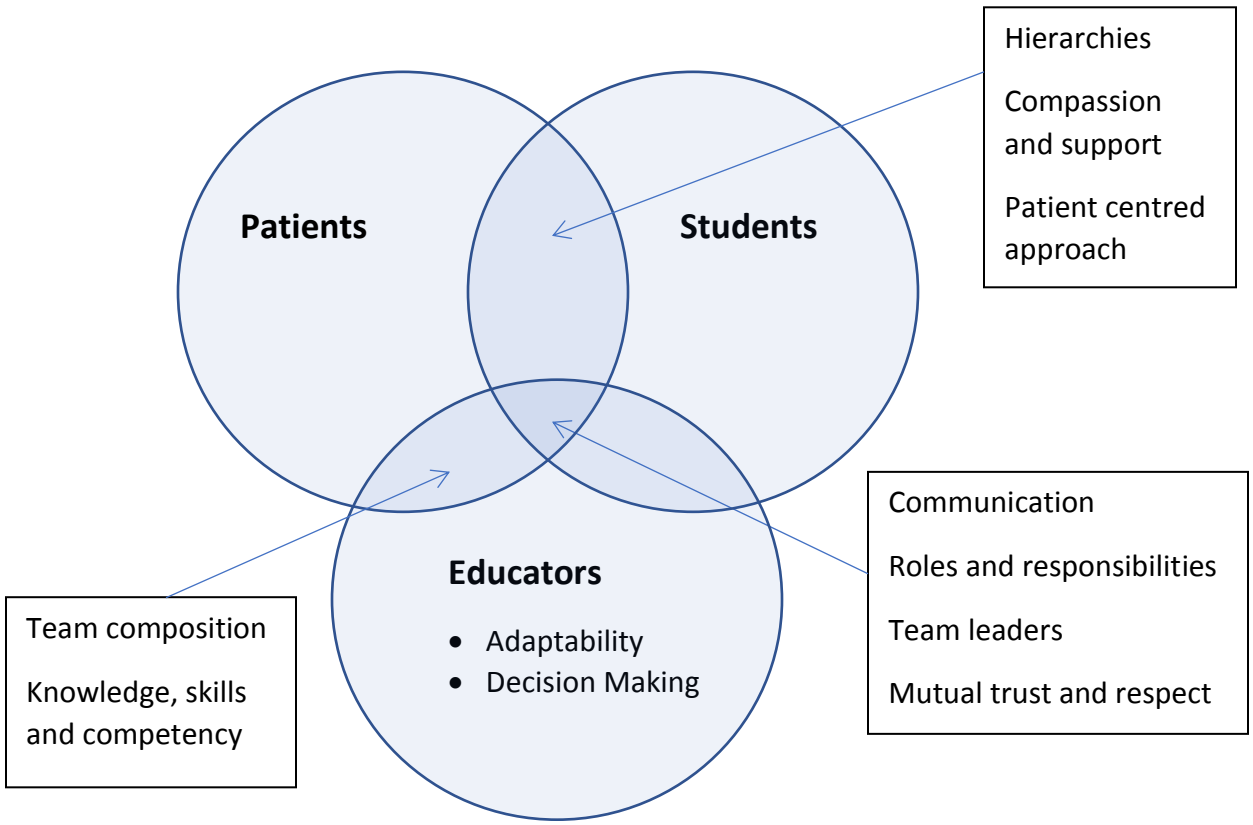
Characteristics that facilitate effective teams and the function of those teams have been well documented in the literature (Bainbridge et al., 2010; Delva et al., 2008; Institute of Medicine, 2000; Macdonald et al., 2010; Nancarrow et al., 2013) and reviewed in detail in chapter 2.

Triangulation of the findings identified patterns of teamwork characteristics that could be divided into different categories (Figure 7-1):

- Characteristics that were common to all participants: communication, understanding of roles and responsibilities, team leader, mutual trust and respect for others;
- Characteristics that were common to students and patients: hierarchies, patient-centred approach, compassion and support;
- Characteristics that were common to patients and educators: team composition, knowledge, skills and competence;
- Characteristics that were only identified by one category of participants.

There were no characteristics only common to students and educators. The commonalities and differences of the findings are presented and discussed below.

Figure 7-1 - Venn diagram of key characteristics from the findings of each phase



7.6.1.1. **Teamwork characteristics common to all participants**

The characteristics that were common to all participants were: communication, understanding of roles and responsibilities, team leaders and mutual trust and respect for others.

Communication

The need for effective communication and the importance of communication skills were identified as key characteristics by patients (Section 4.4.2.2), students (Section 5.4.2.1) and

educators (Section 6.4.3.1) alike and this mirrored findings within published literature (Bainbridge et al., 2010; Jackson & Bluteau, 2011; Nancarrow et al., 2013; Youngwerth & Twaddle, 2011). Of particular note was the patients' and caregivers' understanding of the complexities of communication between patients, carers, family members, healthcare professional and across interfaces. In contrast, students had a narrower perspective, possibly resulting from their lack of exposure to teams and teamwork in the workplace and the associated communication within and between teams. Whilst handwritten communication was highlighted as an area of dissatisfaction for patients (Section 4.4.2.1), students' discussions focused on oral communication with no consideration of the other forms of communicating information (Section 5.4.2.1). This could be explained by the education standards for pharmacy students outcomes that require pharmacy students to be able to "show how" they can "communicate with patients about their prescribed treatment" and "provide accurate written or oral information appropriate to the needs of patients, the public or other healthcare professionals" by completion of the degree programme (General Pharmaceutical Council, 2011). It is only by the end of their pre-registration year that pharmacy students are required to demonstrate that they achieve "does" for the outcomes. MPharm programmes appear to focus on the development and assessment of oral communication skills in pharmacy students (Section 5.4.2.3 and Section 6.4.3.2), resulting in students neglecting to consider other key forms of team-based communication in the discussions. The impact of services such as the Community Pharmacist Consultation Service, NHS Discharge Medicines Service, NHS Urgent Medicine Supply Advanced Service and innovations including the deployment of prescribing pharmacists in Integrated Urgent Care Clinical Assessment Service and the NHS England Medicines Optimisation in Care Homes Programme will no doubt be influenced by both the pharmacists' oral and written communication skills (NHS England, 2016).

Communication as a key attribute, and the associated consequences and outcomes of poor communication, were well documented through patients' stories of their experiences (Section 4.4.2 illustrative examples). Patients, caregivers (section 4.4.2.1) and fourth year students (Section 5.4.2.1) described the interdependence between communication and other team

characteristics including mutual trust, respect and understanding of the role of others. It was seen that without good communication these aspects of effective teams would not be fully developed and overall teamwork would be affected. This notion is in line with findings from published literature (Xyrichis & Lowton, 2008; Youngwerth & Twaddle, 2011). This insight by students may have resulted from participation in an interprofessional simulation-based activity with nursing and medical students in their fourth year, which provided an opportunity to work within an interprofessional team and begin to develop interprofessional and interpersonal relationships. This aligns with the findings of Oxelmark et al. (Oxelmark et al., 2017) where interprofessional simulation-based education enabled students to understand the complexities of communication and teamwork and resulted in an improved understanding of the roles of other healthcare professionals.

Within the literature, the use of technology to support effective teamwork is clearly identified as a key attribute (Vyt, 2008), however, technology appeared to be a source of frustration for patients (Section 4.4.2.1). Patients recounted numerous occasions where either technology (e.g. computers) was in place but individual healthcare professionals were unable to access the electronic patient records through lack of technological skills, or a consultation occurred in a room where there was no computer. These scenarios resulted in a poor consultation for patients as healthcare professionals did not have access to relevant data and the patient had to reiterate their condition and care to date. The use of hand-held technology was seen as a way of ensuring all clinicians had access to technology however, this would not resolve problems of individuals not being able to use the technology effectively. The need for appropriate technology to facilitate the ongoing and seamless provision of patient care has been highlighted in the COVID-19 pandemic. Social distancing has required interprofessional team members to work remotely, emphasising the importance of technology in facilitating effective teamwork.

Roles and responsibilities

The formation, preservation and shared understanding of the roles of each team member is seen as an essential element for effective teamwork by patients (Section 4.4.2.2), students (Section 5.4.2.1), educators (Section 6.4.3.1) and within published literature (West & Markiewicz, 2004). Clear, defined roles allow team members to better understand their tasks, responsibilities and scope of practices. Students highlighted that flexibility and blurring of roles could be beneficial in providing an efficient service and reduce the workload of team members. Role blurring is considered beneficial by some, but opposed by others due to the generation of friction and confusion between team members as they are unclear about their professional boundaries (Booth & Hewison, 2002; Brown et al., 2000; MacNaughton et al., 2013; Stark et al., 2002). Whilst certain team members might feel that their role is being encroached upon and that their sense of professional identity is eroding (Brown et al., 2000; Hall, 2005), others may be overwhelmed because they are trying to do everything and are experiencing uncertainty about the limits of their responsibilities (Bélanger & Rodríguez, 2008; Brown et al., 2000; Hall, 2005). In contrast, some professionals may perceive role blurring as an opportunity to expand their responsibilities or to make the team more flexible and responsive to its patients (Brown et al., 2000). Many community pharmacies rely heavily on flexible working for a number of tasks, such as labelling, dispensing and the sale of medicines, in order to manage the workload in a timely manner. As such, it is not surprising that pharmacy students had seen examples of pharmacists helping with the labelling and dispensing of medication, and dispensers supporting counter assistants during busy periods (Section 5.4.2.1). Pharmacy students may be employed part-time in community pharmacies and as such be familiar with this way of working and the benefits it could bring to service provision and customer satisfaction. Such a generic manner of working has also been seen in remote rural areas where the number of practitioners is limited, resulting irregular working across traditional professional boundaries (Kvarnström, 2008; McNeil et al., 2015; O'Meara et al., 2012). A study on integrating pharmacists into general practice, however, found that pharmacists' 'value-added' services appeared less threatening to doctors than responsibilities that duplicated the role of the doctor (Freeman et al., 2012).

Team leaders

A key team role is that of the team leader (Macdonald et al., 2010; Nancarrow et al., 2013; West & Lyubovnikova, 2013) and the value of a leader in a team was recognised by patients and caregivers (Section 4.4.2.2), students (Section 5.4.2.1) and educators (Section 6.4.2.1). Smith et al. (2018) describes an interprofessional team leader as an individual who can promote transformation and change and encourage creativity and innovation (Smith et al., 2018). However, students perceived a leader to be one who organised meetings and managed workload, which is likely based on their experience of group work activities undertaken as part of their pharmacy studies. Patients felt that the leadership role did not reside with one individual but could move between individuals in a team depending on the priorities of care at that time, a notion that suggests patients believe all team members have the capabilities to be a leader.

Mutual trust and respect

Patients described the interdependence between communication and mutual trust and respect within an interprofessional team (Section 4.4.2.2). The repetition of providing information to different healthcare professionals over multiple appointments or during one hospital admission was frustrating for patients. Patients perceived that this indicated a lack of trust and respect by healthcare professionals for their colleagues, which impacted the quality and timely provision of care they received. Today's litigious climate could make professionals more cautious and drive them to clarify patient histories for themselves, thus giving reassurances that they were providing the best care and minimising patient harm. Furthermore, staff shortages and the increasing reliance on locum/bank staff frequently result in staff working with people whose knowledge, skills or competence are unknown. Current technology was seen to be a contributing factor in the inadequate sharing and transfer of patient information across and within teams, while an increased reliance of locum/bank staff could result in unfamiliarity with technology systems within an organisation, creating an additional barrier to the effective use of technology.

Students described how mutual trust and respect for individual team members, and the different roles, facilitated team cohesiveness and this was perceived to positively impact the delivery of care (Section 5.4.2.1. This view aligned with published literature (Youngwerth and Tweddle, 2011). Students participate in a range of group work activities during their MPharm studies. Their experience of participating in such activities is likely to influence this view.

7.6.1.2. **Teamwork characteristics common to patients and students**

Patients, caregivers and students perceived that hierarchies, compassion and support for others, and a patient-centred approach were necessary for effective teamwork.

Hierarchies

In contrast to published literature, patients, caregivers and students felt that a hierarchical structure was positive (Section 4.4.2.2 and Section 5.4.2.1) (Delva et al., 2008). This view may have been as a result of the reassurances this provided. Patients felt that such a structure allowed a mix of knowledge, skills and ability in a team, while students felt reassured that this structure provided support and guidance. The reasons for this discrepancy are unclear but may, in part, be explained by the finding that participants involved in the earlier research (Delva et al., 2008) had been in practice for a number of years and they may have had negative experiences of hierarchies, including those that stifled practice and team engagement. Students may be considering the positives that a hierarchy would give them in terms of support, responsibility and accountability as newly qualified pharmacists.

Compassion

Whilst both students and patients described compassion as a key attribute, the focus of this compassion differed. Students described how compassion and support for and between team members was necessary for effective teamwork, whilst patients highlighted the importance of patient support and compassion in the delivery of care. The view of undergraduate pharmacy

students, whose experience of teamwork has not yet involved patients, reflected how students drew heavily on the experiences as students, whilst patients, who have typically not been part of an interprofessional team, reflected on their experiences.

A patient centred approach

Both patients and students considered the patient's role as part of the team. Mitchell et al. (2012) described the integration of the patient and their family or caregiver into the team to establish a shared goal. Through integrating a patient into a team, the team could understand more fully the patient and family's need – a view shared by students. However, there was a mixed view from patients on being members of a team. Thus, whilst some patients verbalised that they did not want to be part of the team, in reality, the merits that this would achieve were welcomed and further explanation on what this actually would look like may have resulted in a different outcome. Furthermore, the challenges of integrating patients and their families into teams can be daunting. Patients may feel unprepared, whilst healthcare professionals are often ill-equipped to practise collaboratively due to poor communication and lack of workforce preparation (Mitchell et al., 2012).

7.6.1.3. **Teamwork characteristics common to patients and educators**

The composition of teams and the knowledge, skills and competence of interprofessional teams was perceived by both patients and educators as required characteristics in effective teamwork.

Team composition

Naylor et al. (2010) defined team-based healthcare as "the provision of health services to individuals, families, and/or their communities by at least two health providers who work collaboratively with patients and their caregivers—to the extent preferred by each patient—to

accomplish shared goals within and across settings to achieve coordinated, high-quality care" (Naylor et al., 2010); this definition aligned with the perspectives of patients (Section 4.4.2), and educators (Section 6.4.3). Whilst students did not explicitly discuss the composition of an interprofessional team, such as who should be a team member, focus group discussions implied that students considered interprofessional teams to consist of multiple healthcare professionals with a range of skills and competences (Section 5.4.2). Flexibility across roles was highlighted by some students within service delivery and the provision of care to improve the patient experience by reducing waiting times and multiple appointments. However, there were also a few who felt that such an approach would lead to a reduced level of care as a result of an individual's knowledge, skills and competencies being less than those of individuals in defined roles.

The inclusion of administrative staff within interprofessional teams to facilitate seamless care, and minimise disruptions in their care, was highlighted by patients (Section 4.4.4.2). However, patients and caregivers were often unaware of the team approach and lacked an understanding of who was involved in their care. For patients, the perception of the care they received, and the teams and team members involved, was important to them. If healthcare professionals introduced themselves and listened, patients felt informed about what was going on; moreover, if treated with compassion, patients felt they were receiving good care and that the team was effective. A high-profile campaign to encourage and remind healthcare staff about the importance of introductions in healthcare in the delivery of patient-centred compassionate care launched in 2013, due to the lack of introduction of staff to patients. (Kmietowicz, 2015). Based on this research, it appears that this is still the case and patients felt that the name and role of staff should be communicated to patients to increase patients' awareness of individuals involved in their care.

Patients described how one doctor historically cared for families, visited their homes and looked after all of their health needs; this was perceived as an ideal model of care compared to

the diversity and associated lack of consistency of care experienced today (Section 4.4.2.3). The move from clinicians working in isolation, which was driven by the view that such an approach was heavily dependent on one individual and may put the patient at risk, and the complexity of modern healthcare (Mitchell P et al., 2012) were not identified as concerns for patients. Furthermore, whilst patients perceived a single-doctor model as an ideal model, they also believed a range of knowledge, skills and competence was required within an interprofessional team. This highlights how the overall experience for patients and the relationship with care providers is important to patients and how patients trust that professionals are knowledgeable, skilled and competent.

In particular, a holistic approach to care, whereby a family approach was adopted and both medical and social aspects of care were considered, was important to patients (Section 4.4.2.3). It was evident from patient focus groups that the integration of the social care needs of patients has to improve (Section 4.4.2.3). Patient reflections referred to this approach within mental care teams, but it was felt that in other areas of care there was no or limited social care involvement. There was a positive reaction in focus group discussions to a "family approach" and it was felt that healthcare in general had become clinical in its delivery and lacked a personal approach. Furthermore, there was an overall preference for smaller teams that would work collaboratively when needed, reinforcing patients' preference for a more personalised family approach. Patients, caregivers and educators had a wider view than students of the role of teams in patient care and felt that any care should reflect the wider needs of their families, such as social needs and, as such, teams needed to work across interfaces (Section 4.4.2.3 and Section 6.4.3.1). This aspect of patient care was not considered by students. The MPharm programme studied by third and fourth year students focusses on patients' clinical needs. Whilst the need to consider a patients' non-clinical need and to collaborate with social care is considered through the third year "optimising patient care" lectures and workshop, this forms a minimal contribution to their overall learning. Limited clinical placements and direct contact with patients further hinders students' understanding of patients' needs and what is important to them. It is clear from the discussions that students need to be exposed to learning and

situations relating to the non-clinical needs of patients and their cares or families. The current education and training standards for pharmacy education (GPhC, 2011) require students to know how to obtain a patient's social history and "learning based on experience that provides education in interprofessional practices and procedures with other healthcare professionals". This may result in future third and fourth year students having a greater awareness of a patient's holistic needs and this could be explored through future research. However, it is imperative that students are exposed to situations that provide opportunities for patient contact so students can explore the wider needs of patients.

Knowledge, skills and competence

The value of interprofessional teams, bringing together different expertise and experience, and the overall benefit to patient care as described by patients and caregivers aligned with the literature (Jackson & Bluteau, 2011; Mickan & Rodger, 2005; Vyt, 2008; Xyrichis & Lowton, 2008). A key theme throughout the patient and caregiver focus groups was the perceptions of teams. They believed teams to be working together, comprising the appropriate professionals with the appropriate knowledge, skills and competencies. They believed teams to be working together effectively to give the best care possible. It was only when patients became aware of mistakes, errors or a breakdown in the continuity of care, that they questioned the effectiveness of that team. This suggests that it is the overall patient experience that is important to patients.

Throughout the literature the ability of individuals to be aware of their own competence was identified as a key team attribute and this was a view echoed by patients (Section 4.4.2.3). Furthermore, patients felt that developing others was a key feature for a team to be effective and which facilitated improved patient outcomes. Patients believed that all healthcare professionals should be appropriately skilled and competent and knowledgeable, and the overall composition of the team would be determined by the needs of the patient.

7.6.1.4. **Teamwork characteristics identified by educators only**

Characteristics considered important by educators were the need for students to be flexible and adapt their role to the needs of teams in which they work, and to the evolving requirements of pharmacists in the provision of care in the UK including decision making (Section 6.4.3.1).

The adaptability of the pharmacist has recently been highlighted in the response of pharmacy teams to COVID-19. Pharmacy teams have had to adapt quickly in their role as frontline staff to be able to respond to the challenges posed by COVID-19. Pharmacists globally are providing services amidst the pandemic, including triage services and seeing patients, to help reduce patients burden on healthcare facilities such as hospitals and GP practices (Bukhari et al., 2020). Pharmacists have had to attain new clinical knowledge, work within different interprofessional teams, work with different team members within existing teams due to illness, whilst maintaining and developing new service across all healthcare sectors (General Pharmaceutical Council, 2020b; Royal Pharmaceutical Society, 2020).

As experts in medicines use, pharmacists are often responsible for decisions related to drug therapy. As pharmacy practice evolves, new roles will require a future pharmacy workforce with suitable skills and knowledge to take responsibility for clinical decisions in the face of uncertainty and to handle decisions for complex patients with multiple comorbidities. However, in practice, pharmacists appear to be reluctant to make clinical decisions and lack confidence when faced with situations of uncertainty (Gregory, Whyte and Austin, 2016; Sinopoulou, Summerfield and Rutter, 2017). This was a view shared by educators who recognised the need to develop clinical decision making skills in students for their future practice. Patients also described the need for all team members to be capable of making decisions in line with their roles and responsibilities (Section 4.4.2.1).

7.6.2. Pharmacy curricula

The development of communication skills over the four year degree programmes was evident from the findings and it was clear that students recognised how material and opportunities to develop communication skills were built upon in subsequent years (Section 5.4.3.2). This finding is in line with the theory of 'spirality' put forward by Bruner (Bruner, 1960) which are central to the current standards for the initial education and training of pharmacists, whereby curricula must be "progressive, dealing with issues in an increasingly more complex way until the right level of understanding is reached" (General Pharmaceutical Council, 2011).

However, whilst this 'spirality' was described for communication skills, this was not the case for other teamwork characteristics such as leadership and an understanding of their role and the role of others. Whilst educators could describe the activities that lend themselves to students developing characteristics such as leadership, there was recognition that these were secondary to the activities learning outcomes. Students were generally unaware of the secondary benefits to the activities and the majority of educators felt that students would not recognise said characteristics they should be developing. Educators also need to incorporate robust assessment processes to evidence this. However, it was clear that assessment of teamwork characteristics and teamwork itself, other than communication, was challenging and not widely included in assessments.

The inclusion of appropriate OSCEs at all levels of the programme was proposed by students. The students involved in this research followed a curriculum prior to the latest reform to the regulator's standards for initial education of pharmacist. The described shortcomings have been addressed in the current programme with OSCEs featuring at all levels of the programme. The use of academic staff as actors within OSCEs limited the realism of the OSCEs (Section 5.4.2.3). As such, the use of patient-actors in OSCEs would alleviate students' discomfort and should be considered**.** It was evident from discussions with educators that a spiralling approach to OSCEs was included in current MPharm programmes with simple OSCE scenarios presented in early

years of the programme, building to interactions with more complex patients and other healthcare professions in the latter parts of the MPharm programmes. Such an approach allows pharmacy students to achieve “progressively higher levels of performance on competencies” through “repeated exposure to variations on situations with escalating complexity of the problems to be solved” (Loewen et al., 2016). This supports further exploration and consideration by Schools of Pharmacy designing MPharm curricula of incorporating spirality in relation to other teamwork characteristics.

A particular area of concern for patients and one they perceived needed to improve was communication between health and social care professionals (Section 4.4.2.3). The framework “Situation, Background, Assessment, Recommendation” (SBAR) is used by some healthcare professionals, such as medics and nurses, to facilitate effective oral communication between individual healthcare professionals (Academy ACT, 2018). SBAR facilitates standardised communication and allows parties to have common expectations related to what is to be communicated and how the communication is structured thereby establishing a culture of quality, patient safety and high reliability (Academy ACT, 2018) . However, this framework is not widely used or taught to pharmacists or pharmacy students alike. Inclusion of the SBAR framework in MPharm curricula should be considered as pharmacists become more integrated into interprofessional teams. It is imperative that they also use standardised processes to ensure patient safety is not compromised and trust and respect is present amongst team members.

A common theme across educators and students was the need for pharmacy students to obtain exposure to practice during their undergraduate degree (Section 5.4.2.3 and Section 6.4.3.3). This research did not aim to seek consensus on what exposure to practice should look like, instead the useful elements of placement exposure and simulated learning in preparing students for future working in interprofessional teams were explored. Through exposure to practice through placements, students could benefit from seeing the way in which other

healthcare professionals work within a health and/or social care team. This sentiment was also shared by educators. Students valued opportunities for "on the job" learning and both first-hand experience and simulations of pharmacy practice, be that alongside their undergraduate studies as summer placements, weekend jobs or woven into the curricula (Section 5.4.2.3). There was a strong desire from students for increased time participating in simulation-based activities and spent in the workplace exposed to a variety of sites, sectors, pharmacists and other healthcare professionals. Exposure to practice through hospital and community placements was said to provide benefits to students by allowing them to observe other pharmacists in the workplace and gain an increased understanding of the pharmacist's role while also developing their communication skills with colleagues. Having prior exposure to the workplace environment is supported by the work of Tallentire et al. (2011) who identified that the transition to a foundation doctor is eased by prior workplace exposure also (Tallentire et al., 2011). This is in line with the vision of the pharmacy regulator who states "the MPharm degree curriculum must include practical experience of working with patients, carers and other healthcare professionals. Practical experience should increase year on year. Schools should articulate their strategy for meeting this criterion, which may include off-site placement visits, using patients, carers and other healthcare professionals in-class, and simulations" (General Pharmaceutical Council, 2011). This research has established that both students and educators views align with this principle, outlined as a requirement for reaccreditation of schools of pharmacy.

Other healthcare professionals including medics are also thought to benefit from experiential learning through the ability to develop competence in the specific clinical contexts (Goldacre et al., 2010; Illing et al., 2013; Scicluna et al., 2014; Yardley et al., 2012). The advantages of experiential learning such as placements can be explained by the theory of situated cognition presented first by Brown et al. (1989) who stated that "activity and perception" should be the focus of conceptualisation and learning (Brown et al., 1989). Brown concluded that knowledge is "situated, being in part a product of the activity, context and culture in which it is developed…" (Brown et al., 1989). Research has also shown a significant improvement in

communication skills in a short time during the pre-registration year, reinforcing the need for experiential learning (Jee et al., 2017). This theory supports the findings derived from this research. In the current pharmacy education environment, where exposure to practice is limited, students are not able to situate their learning in the practice setting. Aligning exposure to practice with opportunities for students to become immersed in pharmacy teams will enable students to apply their learning and reflect on their ability to work effectively as part of a team. Material taught out of context and without the opportunity for application leads to "poor retention" (Husband et al., 2014) especially if it is not applied within a reasonable timeframe (Husband et al., 2014). As such, it is recommended that pharmacy curriculum consider closely aligning a targeted period of exposure to practice periodically throughout the MPharm to coincide with the teamwork concepts introduced at university. Adding further evidence to this suggestion is the phenomena that students with a part time evening or weekend pharmacy job or members of "other teams", such as sports teams, alongside their studies recalled times when they were able to work as part of a team and develop team working characteristics with patients, peers and colleagues.

Pharmacy workplace exposure (and subsequent exposure to health and social care professionals) models how pharmacists behave in practice and therefore students can mirror their behaviours accordingly. This concept is known as professional socialisation (Reeves et al., 2010). Professional socialisation can occur prior to individuals entering their chosen profession as a result of external factors, such as the media and family members who may be in certain professions, resulting in pre-existing notions of traditional professional stereotypes and hierarchies which can undermine teamwork (Reeves & Pryce, 1998). Professional socialisation continues throughout students' undergraduate education and pharmacy workplace placements (Hammer, 2006; Schafheutle et al., 2013). Learning is therefore considered to be a social activity, where thinking is affected by the setting in which the learning takes place (Wilson, 1993). This supports the findings of this research whereby students benefit from exposure to other healthcare professionals through periods of practice exposure including the interprofessional teams they will be part of. Whilst both educators and students stated that

they believe having more placements would benefit their preparedness for teamwork and would be viewed as a positive advancement, the quality of the placement is key to maximising the benefits for students. Ultimately, it may be argued that there is no substitute for 'the real thing'.

Pharmacy is accepted as a scientific rather than clinical profession, and UK universities do not receive funding to provide experiential placements (Office for Students, 2020). Furthermore, there is often no formalised training for pharmacist supervisors, particularly in the community sector, leading to variation in student experience and feedback processes (Lucas et al., 2018; Owen & Stupans, 2012). This is in contrast to medical education in which educational and clinical supervision are formalised components of medical education, with most medical trainees being satisfied with their training (Davison et al., 2019; General Medical Council, 2012). Task- and portfolio-based placements have been shown to distract students from the learning experience, and risk becoming a "tick-box" exercise (Brennan & Lennie, 2010; Haggerty & Thompson, 2017; Vance et al., 2017). Replacing placement tasks with the introduction of broader, more practice-focused experiential standards that students can reflect upon whilst on and after placement would allow opportunities for students to practise teamwork characteristics, such as communication and leadership, and would satisfy students' request for less observation on placements and increased "doing". Such an approach would also align undergraduate placements to that utilised in the pre-registration year. A qualitative study exploring student attitudes towards experiential learning found that over half of undergraduate pharmacy students wanted placements to simulate a "working day" in practice (Bullen et al., 2019). Whilst placements lasting a full day would increase exposure to the clinical environment, it is still unlikely to achieve the breadth of experience required.

Experiential learning in a community pharmacy setting frequently relies on the goodwill of community pharmacists to allow students to attend a placement in their workplace due to the lack of funding. Hospital pharmacy placements, under the guide of teacher-practitioners (who

are established members of the pharmacy profession) allow for a more structured placement. However, neither educators nor students noted the value of teacher-practitioners in bridging the theory-practice gap which has been seen as key in 'critical to effective learning' from a student's perspective (Fairbrother & Ford, 1998). Teacher practitioners are essential in enabling students' professional socialisation (Jee et al., 2016). Having a more structured approach to teaching teamwork by setting specific teamwork learning outcomes for student placement exposure that will facilitate students getting the most out of their practice experiences is also recommended. This notion is supported by the work of Quantrill and Tun (2012) who state that assessing learners in the workplace has an influence on learning and allows students to gain a better understanding on their performance, competence and further learning needs (Quantrill & Tun, 2012). Schon (1987) states that as well as requiring opportunities to learn by doing students require coaching by individuals who have already been initiated into the profession (Schön, 1987). As such teacher-practitioners could provide coaching opportunities to MPharm students, in order to better their preparedness for future team working.

Introducing a requirement to provide practice exposure that enables pharmacy students to have an opportunity to work in a healthcare team, with content delivered such that students may apply their learning, is a large undertaking. Such a change would have significant financial and logistical consequences. However, if pharmacy undergraduate students are to be better prepared for their future roles, enhanced teaching and teamwork opportunities need to be incorporated within pharmacy curricula. However, since pharmacy is funded as a science subject, the findings from this research suggests that 'science degree' banded funding is currently insufficient to produce pharmacy undergraduate students with the ability to work in interprofessional teams that is expected in the workplace upon qualification. This necessitates a review of the way in which pharmacy programmes in the UK are funded, as there is currently no 'clinical supplement' in place to provide such changes.

Learning with and from other healthcare students in the classroom environment was also perceived by all students and educators to be of value in preparing for future teamwork (Section 5.4.2.3 and Section 6.4.3.3). IPE "enables two or more professions to learn with, from and about each other to improve collaborative practice and quality of care" (CAIPE, 2002). IPE has been progressively introduced into university-based healthcare curricula to increase teamwork and increase the understanding of roles across health and social care (Chan et al., 2010; World Health Organization, 2010). To produce capable healthcare professionals prepared to participate in interprofessional teams, teamwork training must begin early in health professional students' education. However, limited understanding of health professionals' roles may constrain the effectiveness of IPE interventions delivered early in allied health curricula (Olson & Bialocerkowski, 2014) and as such an IPE strategy embedding a spiral curriculum is recommended.

Effective interprofessional teamwork is a critical component of providing safe healthcare, as it can contribute to improved clinical performance and patient outcomes (Goñi, 1999; Salas et al., 2008). As seen in the findings, effective teamwork can also increase patient satisfaction (Campbell et al., 2001; Meterko et al., 2004). As such, there has been an increased focus on interprofessional teamwork and the incorporation of IPE and the development of healthcare students to be able to effectively work in interprofessional teams is being integrated into undergraduate health professional curricula both in the UK (General Pharmaceutical Council, 2011) and abroad (Accreditation Commission for Education in Nursing, 2017; Accreditation Council for Pharmacy Education, 2015). The literature suggests that healthcare students perceive IPE to foster confidence in teamwork including leadership and an increased understanding of the roles of others (Curran et al., 2005; Hardisty et al., 2014; Hasnain et al., 2012; Horsburgh et al., 2001; Kilminster et al., 2004; Olson & Bialocerkowski, 2014). Students were said to value IPE, "especially interaction with other professionals" (Patel et al., 2016). IPE offers an opportunity for students to gain an appreciation of safe and good practice while learning how to work together "more fully, more efficiently and more economically" (CAIPE, 2017). Professional bodies and regulators recognise IPE as key to strategic policy and for this

reason IPE should be considered as an integral aspect of pharmacy undergraduate curricula. No standard approach for delivering and assessing IPE could be identified from the research due to the lack of rigorous, comparable studies in this area (Fox et al., 2018). Simulation-based teaching was the most common teaching method which may be as a result of the growing body of literature available on this active learning technique that mimics real practice (Fox et al., 2018), regardless of teaching method, most learning activities where interprofessional teams interact result in positive changes in student perceptions and attitudes towards IPE and practice (Fox et al., 2018). However, the lack of longitudinal studies limits evidence relating to how IPE affects their future teamwork.

Social constructivism emphasises that we learn through interactions with others and the environment in which we work and can explain why students view IPE positively. Through IPE students engage actively with the roles, beliefs, values and cultures of other professionals. The concept of communities of practice based on the theory of situated learning is also of relevance. Students undertaking interprofessional activities move first from the periphery of their own profession into a greater understanding of their role within it, and then interact with other professions, first as observers and later as members of the team. Knowledge exchange and knowledge transfer are key components of such activities and fit within the learning 'with, from and about' paradigm. IPE brings people of different professions together in a safe learning environment thus helping overcome prejudice and negative stereotyping. In addition, IPE education forms part of ongoing interprofessional socialisation processes within universities and health systems (Olson & Bialocerkowski, 2014).

Tools to assess teamwork skills and behaviours are limited (Chakraborti et al., 2008; Fox et al., 2018). Fox et al. (2018) suggest that TeamSTEPPS and the Anaesthetist's Non-Technical Skills are the best tools to assess students' ability to work collaboratively as an interprofessional team (Fox et al., 2018). The higher level complexities of teamwork including the process of building a team, developing a consensus in patient care and adapting the team to implement

agreed strategies are unlikely to be developed in a single or short-term team interaction, but can be addressed with teams performing together longitudinally. Whilst the evaluation and recommendation of a suitable tool to assess students' ability to work effectively in a team are beyond the scope of this research, consideration to the assessment of teamwork characteristics should be included in the curricula design process. Further research is needed to examine the best approach to teaching teamwork principles to health profession students, and to measure change in skills and behaviours.

Educators noted the barriers and challenges associated with IPE, which reflected those published in the literature (Fox et al., 2018). Common challenges included timetabling across multiple professional programmes, a lack of educators willing to participate and concerns over equitable distribution of resources, such as time and money. The support of organisations, in additional to the faculty buy-in, moving activities to an elective or extracurricular time slot, organising an IPE planning committee with members from each profession meeting regularly to discuss curricula is considered necessary for the success of IPE activities (Fox et al., 2018; Reeves et al., 2015). Student views on IPE have revealed that they feel unprepared (Anderson et al., 2009; Shelvey et al., 2016). The use of a blended approach to IPE, using online and face-to-face approaches, is advocated in reports (Barr et al., 2014; Cooper et al., 2004) and helped break down barriers between the professions (Barr et al., 2014). Issues such as differences in curricula, scheduling, and intended learning outcomes also need consideration with potential solutions forming part of curriculum design (Hardisty et al., 2014; Odegard et al., 2009).

Simulation-based IPE can be used to teach students' communication and teamwork skills while reinforcing patient safety concepts (Rosen et al., 2008). Students reported simulation-based teaching to be engaging, emulating real-life practice. Practising in an environment that replicates the performance environment increases the likelihood that the trained teamwork skills will transfer to the job (Rosen et al., 2008), whilst providing students a safe environment for learning without the risk of patient harm. Removing the potential for high-stakes errors

during teamwork training has allowed healthcare professionals to experiment and familiarise themselves with the teamwork skills before applying them in clinical practice where the consequences for errors can be high (Rosen et al., 2008). Beaubien and Baker (2004) identified various levels of simulation including case studies, role plays high-fidelity human-patient simulators that can facilitate the development of teamwork skills in healthcare (Beaubien, 2004). Using a simulated environment, interprofessional teams can increase their understanding about the scope of each other's practice and how to effectively share information during the care process (Crea, 2011). Roberts and Goodhand (2018) found that students also perceived that interprofessional simulation facilitated learning relating to each other's professional roles, teamwork, priorities, respect and communication. Furthermore, students identified the need to be adaptable and flexible – an attribute that educators also believed was necessary for effective teamwork. Advances in technology has driven the development of high-fidelity simulators for training teamwork in healthcare, aviation, the military and nuclear power (Beaubien, 2004). High-fidelity simulation is particularly popular among students who assume that because it replicates the "look and feel" of the actual work environment, it will also provide an efficient and valuable learning experience (Vyas et al., 2012). Case studies and role plays have been successfully used to train teamwork in aviation and healthcare. Case studies and role plays can be developed and implemented with minimal resource investment facilitating their use on a larger scale (Beaubien, 2004). However, it was clear from the interviews with educators that developing a learning experience simulating real-life healthcare situations requires significant commitment from staff members as found in the literature (Vyas et al., 2012) . Furthermore, "real life" experiences have been found to have a perceived larger effect on preparedness than simulated experiences (Burford & Vance, 2014). It is recommended that well-designed simulations should supplement, and not replace, experiential "on the job" learning.

Problem-based learning (PBL) is an established teaching method in the UK and further afield, particularly in the education of medical students. It is typically based on the Maastricht "seven step" process whereby students in a group (approximately 10) together with a tutor are

presented with a scenario which is then used to "trigger" their learning (Wood, 2003). Unfamiliar terms are clarified within the group before the problem is defined (step one), "brainstorming" then takes places (step two) where suggestions of possible explanations are made (step three). These are reviewed and arranged into tentative solutions (step four) before learning objectives are formulated amongst the group in step five. Each student participant then has time for private study (step six), before re-joining the rest of the group in step seven to share their learning. This is reviewed and potentially assessed by a tutor (Davis & Harden, 1999). Adopting a PBL approach to learning allows students to identify their own learning needs and the planning, implementation and evaluation of their own work (Levett-Jones, 2005). Small group learning provides an opportunity for students to share, compare and discuss their findings during which they are developing interpersonal relationships and teamwork fostering the development of leadership skills (AlHaqwi, 2014; Biley & Smith, 1999; Burgess et al., 2019) . Student dissatisfaction can arise from an unstructured programme, difficult in collaborative learning and confusion of the role of the tutor (AlHaqwi, 2014). According to Leary et al. (2013), it is the tutor's expertise in the PBL process that positively influences the students' learning (Leary et al., 2013), thus warranting the need for PBL tutors to be mentored in combining content and pedagogical knowledge (McKendree, 2010).

Team-based learning (TBL), a hybrid of PBL, has gained recent popularity in medical education having the advantages of small group learning including the development of teamwork skills (Hrynchak & Batty, 2012) but, in contrast to PBL, large numbers of tutors are not required (Burgess et al., 2017) . TBL has been positively received by medical and pharmacy students in developing teamwork characteristics (de Vries et al., 2018), and preferred as a teaching strategy over PBL (Burgess et al., 2017; de Vries et al., 2018). Greater research of PBL and TBL effectiveness in both a pharmacy education and interprofessional context is needed.

The use of models such as Belbin's role model was suggested as a mechanism to configure student groups. The use of models such as Belbin's role theory are widely used in organisations

based on the theory that balanced groups (in which all nine roles are present) perform better than unbalanced groups, where existing roles might duplicate each other or be absent (Belbin, 1981). Published literature has shown that the simple placement of students into groups does not guarantee the development of teamwork skills (Hansen, 2006). Students described how student groups often experience unclear goals, conflicts or unequal participation (Section 5.4.2.3). Educators described a range of group work activities within their programmes, however, it was assumed that by interacting with their peers and working with curriculum knowledge, students are also expected to develop their teamwork skills (Section 6.4.3.2). Whilst the evidence for group role balance is inconclusive (Meslec & Curşeu, 2015), it would be reasonable to consider such theories when defining student groups.

Treating patients with compassion, dignity and empathy is fundamental to the concept of person-centred care (The Health Foundation, 2016) and, as a result, the NHS both values and expects staff to demonstrate these skills (Allinson, 2019). The importance of compassion was subsequently echoed within the Francis Inquiry Report (Francis, 2009), National Institute for Health and Care Excellence's guideline on patient experiences in adult NHS services (National Institute for Health and Care Excellence, 2012) and the GPhC's 'Standards for pharmacy professionals' (General Pharmaceutical Council, 2017). This sentiment was shared by both patients and students however, whilst patients focussed on compassion and empathy with patients, student discussions focussed on compassion and empathy towards other team members.

Within the literature, the importance of compassion features highly amongst patients and their families with regard to their healthcare needs (Cherlin et al., 2004; Heyland, 2006; Heyland et al., 2010). Studies have shown benefits associated with having an empathetic approach, for example, more favourable patient satisfaction (Heyland et al., 2010) and improved health outcomes, with patients more inclined to follow doctors' recommendations (Heyland, 2006).

Benefits associated with compassionate care include: better treatment adherence, greater satisfaction and wellbeing amongst patients.

Although compassionate care seems intuitive, a view shared by the majority of students, there is evidence that compassion and compassion-reflective behaviours can be taught through reflective learning, learning by experience, professional socialisation, blended teaching or other innovative teaching methods that evoke emotions in healthcare professionals to enhance compassionate care (Lee et al., 2012; Shea et al., 2016). Further research is needed to assess the impact of compassionate care training especially amongst pharmacy students, however, given the importance of the compassion to patients, consideration of ways to enhance students' understanding of compassion should be explored within pharmacy curricula.

Knowledge acquisition, including teamwork, in the initial education of pharmacists is essential. Educators also need to incorporate robust assessment processes to evidence this. However, it was clear that the assessment of teamwork characteristics, and teamwork itself, other than communication, was challenging and not widely included in assessments.

7.7. Recommendations

In an era of change in the pharmacy profession it is important that education stays abreast of emerging roles for pharmacists and transforms in line with this. In order to prepare pharmacy students for their future practice as part of interprofessional teams, the following recommendations are made:

- **Embed social constructivist learning principles throughout undergraduate curricula**

  Opportunities should be provided to students in which they can actively participate in teamwork learning so that students can gain an increased understanding of team-based health and social care the associated characteristics that facilitate effective teams. This should include situated learning in practice environments where possible so that learning can take place in a team-based environment. Recognising the importance of professional socialisation and the benefits of social contexts of learning so that students can learn with and from others, including pharmacist role models, should be highlighted to educators. The use of teacher-practitioners should be reviewed to enable such staff to help students understand interprofessional teams in practice. The provision of IPE and simulation based activities within undergraduate curriculum should be reviewed. Whilst recognising the associated challenges, opportunities for IPE should be sufficient to expose students to a range of interprofessional teams. Consideration should be given to interprofessional situated learning and simulated learning. Educators may wish to refer to published guidelines when planning and refining IPE opportunities such that they are jointly planned between educators from all professions involved, based upon an agreed strategy, underpinned with theory, using a range of learning methods (case-based, problem-based, experiential learning to name but a few) in line with defined outcomes (CAIPE, 2017).

  Spirality within curricula should be enhanced to clearly identify how teamwork is taught to pharmacy students and should consider the range of teams across community, hospital and primary care. Teamwork learning outcomes should be explicit for associated teaching, learning and assessments.

- **Embed teamwork within curricula**

Curricula should explicitly consider teamwork and key teamwork characteristics, and educators and students alike should be aware of where and how teamwork is taught and developed. Curriculum mapping should be undertaken to assist educators in curriculum design and to help increase students awareness of teamwork and the development of key characteristics.

Inclusion of the SBAR framework in MPharm curricula should be considered as pharmacists become more integrated into interprofessional teams. The inclusion of Belbin Team Test (Belbin, 2020) as an activity for students could be useful in aiding educators to form students groups for activities and students to understand their own role within a team, develop their strengths and manage their weaknesses as a team member, and so therefore improve how they can contribute to the team. Consideration, in particular, should be given to the development of compassion as part of patient-centred care. Opportunities to incorporate PBL and TBL approaches to learning should be explored within MPharm programmes with clear links to teamwork characteristics that are developed thought the processes. Assessments for teamwork should be reviewed to consider the formal assessment of students' abilities to work in teams.

- **Collaborate with stakeholders including pharmacy undergraduate students, recent pharmacy graduates, teacher-practitioners, employers of pharmacy graduates and educators of health and social care professionals in course design and delivery**

  The views of stakeholders should feed into course design. Considering the views of undergraduate students, recent graduates and employers of pharmacy graduates provide information of preparedness for team-based practice, thereby the curricula will be informed by pharmacy practice and the way in which pharmacy graduates are expected to perform. In collaborating with employers and teacher-practitioners, students' time spent in the workplace may be enhanced. Incorporating teamwork objectives and tasks within experiential learning opportunities will allow students to

learn by doing in the context where the learning is to be applied and raise the importance of the need for effective teamwork in interprofessional teams. Collaboration with teacher-practitioners and other educators to consider further ways to delivery team-based IPE will inform curriculum design local to schools of pharmacy.

Furthermore, alignment of content related to teamwork can be considered across all programmes, such as the inclusion of SBAR teaching and learning in MPharm curricula. Specific consideration should be given to social care professionals and how they could form part of students' experiential learning. Making specific reference to teamwork, its importance in patient safety and their future practice, and enabling the development of teamwork characteristics through the MPharm curricula could enhance students' and educators' awareness of teamwork and the associated key characteristics. As fee payers it is also important for schools of pharmacy to understand the views of their "service users". In order to satisfy the requirements of the regulator, it is also important that schools of pharmacy are able to demonstrate engagement with stakeholders and how this has influenced course design and review (General Pharmaceutical Council, 2011).

- **Explore the potential for pharmacy education provision in the workplace**

  The findings highlight the value of learning taking place in the workplace and how such opportunities could support the development of teamwork amongst pharmacy students. Introducing further periods of practice exposure during MPharm programmes, and the associated costs, should be explored further. The potential for pharmacy to receive a "clinical supplement" in line with other health and social care programmes should be revisited. MPharm programmes that currently offer an integrated pre-registration year should be evaluated to establish students' preparedness for team working on qualification, alongside potential barriers and limitations

- **Work experience in pharmacy practice or other environments**

  In order to increase the students' preparedness for teamwork, students should be encouraged to spend time in the pharmacy workplace alongside their studies. Alternatively, students seek opportunities to obtain other work experience that involves teamwork.

Chapter 8. Conclusion

This final chapter of this thesis considers the originality, methodological appropriateness and the impact of the programme of work. Proposals for future research are considered and finally the conclusion to the programme of work is presented.

8.1. Originality of the programme of work

Despite the overwhelming evidence that effective teamwork is associated with positive patient outcomes and poor teamwork is associated with negative patient outcomes, there is little published research or guidance on how health and social care professionals, including pharmacists, are prepared to work effectively in interprofessional teams on qualification. This programme of work considers multiple perspectives from patients and caregivers, students and educators relating to key teamwork characteristics and how pharmacy education can facilitate the preparedness of pharmacy students for their future practice as registered pharmacists working in and across interprofessional teams to ensuring patient safety and high-quality patient care. The findings have informed recommendations for curricula reform relevant to the UK and further afield (Section 7.7) and added to published research on teamwork characteristics from patients', caregivers' and students' perspectives and students' preparedness for their future careers in integrated interprofessional teams (Cutler et al., 2019, 2020).

8.2. Methodological appropriateness

As previously discussed, a qualitative approach was taken to conduct the research. This included focus groups, semi-structured interviews and triangulation of the data. The strengths and limitations of each of these methods have been considered throughout the thesis and the methodological limitations were discussed in detail in Section 7.3 Methodological limitations of the programme of work. Despite the limitations, the conclusions drawn from each phase and

the overall conclusion of the research are justified. The generalisability of the findings of the research could be enhanced if a wider sample of participants across a wider geographical area were included in the research. Generalisability of the results could be improved with a larger sample of participants from across the UK and more diversity in participants from HEIs.

8.3. Impact of the programme of work

Reports and published literature (Department for Children, Schools and Families, 2008; Francis, 2009; Mazzocco et al., 2009; Rosen et al., 2018; Symons et al., 2012; The House of Commons Health Committee, 2003) have highlighted the correlation between poor teamwork and negative patient outcomes. Problems with poor teamwork have been evident for some time and whilst the current education and training standards for pharmacy student (GPhC, 2011) recognise the need to develop skills to enable working effectively in teams and know how to work effectively in teams on completion of their pharmacy degree, opportunities to develop key characteristics varies significantly across HEI programmes and in comparison to other healthcare students such as medics and nurses, exposure to teamwork opportunities is limited.

The potential impact of this research is significant. Ensuring that the pharmacists of the future are “fit for purpose” and able to work effectively as part of an interprofessional team could potentially minimise patient safety incidents and lower negative outcomes in patient care whilst enhancing the quality of patient care and the patient experience. The development of teamwork characteristics prior to registration could also equip future pharmacists with the skills and competencies to facilitate the government’s vision for pharmacy, such as enhanced roles, developing new pharmacy services and delivering the new pharmacy contract within an interprofessional healthcare system (NHS, 2019; NHS England, n.d.).

Improving pharmacy students’ understanding around teams and the benefits of effective teamwork will support students to further develop these characteristics within their pre-

registration year. Patients will expect a minimum level of competence and skills and an enhanced understanding of effective teamwork has the potential to translate to improved patient satisfaction and a positive patient experience in the student's pre-registration year and on registration.

The impact of effective teamwork would not just be on the patients. Models of care require health and social care professionals to work collaboratively and pre-registration training can now be undertaken in a range of sectors including hospital, community pharmacy and primary care. Enhanced communication skills and understanding of the purpose and value of teams and challenges associated with teamwork within models of care will facilitate improved collaborative working for pre-registration students and registered pharmacists. This in turn has the potential to reduce workload as delivery of care through collaborative working becomes more efficient and streamlined which will impact on the availability of staff, team dynamics and improve workforce morale.

8.4. Proposals for future research

Future research could include a wider range of stakeholders, including recent graduates, pharmacy employers and employers of the wider health and social care workforce. The assessment of students' ability to work effectively in teams needs to be explored further. Further research that explores the teaching and assessment of teamwork to pharmacy and other health and social care students in the UK and other countries could identify innovations that could be incorporated into UK MPharm programmes.

The benefits of learning with and from others during IPE was highlighted. Future studies could focus on what constitutes as meaningful IPE in order to assist schools of pharmacy when introducing such sessions to their programmes. Longitudinal studies into the effectiveness of IPE for pharmacy student preparedness for teamwork would also be useful.

8.5. Conclusion

This research has successfully met the overall aim of the programme of work which was to consider how teamwork can be developed in undergraduate pharmacy students to facilitate and maximise post-registration interprofessional practice and promote effective patient care.

The objectives of the programme of work were to:

1. Explore and define the characteristics of an effective interprofessional team
2. Explore the perceptions of educators on key pharmacy characteristics in an interprofessional team
3. Identify characteristics of interprofessional teamwork that could be developed within undergraduate students
4. Make recommendations on pharmacy education curriculum standards to facilitate the development of teamwork characteristics

Specific objectives were achieved during the programme of work. The first and second objectives, to explore and define the characteristics an effective interprofessional team was achieved through the literature review and triangulation of the findings of phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective,** and phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective** . The third objective, to identify characteristics of interprofessional teamwork that could be developed through undergraduate education was achieved in phases 2: **Evaluating teamwork characteristics from the pharmacy students' perspective** and 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**. The final objective, to consider pharmacy curriculum design to facilitate development of teamwork characteristics was achieved through triangulation of the findings of phase 1: **Evaluating teamwork characteristics from the patients' and caregivers' perspective**, phase 2: **Evaluating teamwork characteristics from the pharmacy students' perspective**, and phase 3: **Exploring teamwork characteristics and curriculum design from the educators' perspective**.

This research focused how teamwork can be developed in undergraduate pharmacy students to better prepare students for their future practice as part of interprofessional teams from the perspective of patients and caregivers, students and educators of MPharm programmes. The findings presented in this thesis provide an insight into how pharmacy students can be better prepared to work in interprofessional teams as registered pharmacists and the characteristics that they need. The need for HEIs to maintain and enhance spirality throughout curricula while providing significant opportunities to practise interprofessional teamwork has been shown. Learning outcomes relating to teamwork characteristics should be defined in learning and teaching where students are expected to develop teamwork characteristics. The findings of this important research add further weight to the proposal that MPharm programmes should receive supplemental clinical funding to align pharmacy education with other healthcare education degrees.

8.6. Dissemination of research

Work presented in Chapter 5 of this thesis was presented in oral presentation format at the International Social Pharmacy Workshop, University of Reading, April 2016 and subsequently published as:

Cutler, S., Morecroft, C., Carey, P., & Kennedy, T. (2016). A qualitative study of pharmacy students' opinions and experience on team working attributes. *International Journal of Pharmacy Practice 24*(S1):25. Available at https://onlinelibrary.wiley.com/doi/epdf/10.1111/ijpp.12258. [Accessed 15.07.20]

Work presented in Chapter 4 and 5 of this thesis was presented in poster format at the International Social Pharmacy Workshop, University of Aberdeen, July 2016 and subsequently published as:

Cutler, S., Morecroft, C., Carey, P., & Kennedy, T. (2016). People's opinions and experience on healthcare team working attributes: a qualitative study. *International Journal of Pharmacy*

Practice 24(S2):39. Available at https://onlinelibrary.wiley.com/doi/epdf/10.1111/ijpp.12279. [Accessed 15.07.20]

References

Academy ACT. (2018). *SBAR communication tool – situation, background, assessment, recommendation*. Available at https://improvement.nhs.uk/resources/sbar-communication-tool/. [Accessed 24/06/2020]

Accreditation Commission for Education in Nursing. (2017). *2017 Standards and Criteria: Section II*. Available at http://www.acenursing.net/manuals/SC2017.pdf. [Accessed 24/06/2020]

Accreditation Council for Pharmacy Education. (2015). *Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree*. Available at https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf. [Accessed 24/06/2020]

Accreditation Council for Pharmacy Education. (2016). *Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree*. Available at https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf. [Accessed 24/06/2020]

Adams, N. E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association : JMLA*, *103*(3), 152–153. Available at https://doi.org/10.3163/1536-5050.103.3.010. [Accessed 24/06/2020]

Al Sayah, F., Szafran, O., Robertson, S., Bell, N. R., & Williams, B. (2014). Nursing perspectives on factors influencing interdisciplinary teamwork in the Canadian primary care setting. *Journal of Clinical Nursing*, *23*(19–20), 2968–2979. Available at https://doi.org/10.1111/jocn.12547. [Accessed 24/06/2020]

AlHaqwi, A. I. (2014). Learning outcomes and tutoring in problem based-learning : how do undergraduate medical students perceive them? *International Journal of Health Sciences (Qassim)*, *8*(2), 125–132. Available at https://doi.org/10.12816/0006078. [Accessed 24/06/2020]

Ali, K., Slade, A., Kay, E., Zahra, D., & Tredwin, C. (2017). Preparedness of undergraduate dental students in the United Kingdom: a national study. *British Dental Journal*, *222*(6), 472–477. Available at https://www.nature.com/articles/sj.bdj.2017.272. [Accessed 24/06/2020]

Allinson, M. (2019). How to demonstrate empathy and compassion in a pharmacy setting. *The Pharmaceutical Journal*, *302*(7924). Avaialble at https://www.pharmaceutical-journal.com/cpd-and-learning/learning-article/how-to-demonstrate-empathy-and-compassion-in-a-pharmacy-setting/20206124.article?firstPass=false. [Accessed 24/06/2020]

Altin, S. V., Tebest, R., Kautz-Freimuth, S., Redaelli, M., & Stock, S. (2014). Barriers in the implementation of interprofessional continuing education programs – a qualitative study from Germany. *BMC Medical Education*, *14*(1), 227. Available at https://doi.org/10.1186/1472-6920-14-227. [Accessed 24/06/2020]

Ameer, L., Maclure, K., Tonna, A., & Stewart, D. (2018). An initial exploration of the perceptions of preparedness to practise among Saudi Arabian trained hospital pharmacists. *Pharmacy Practice*, *16*(2), 1192. Available at https://www.pharmacypractice.org/journal/index.php/pp/article/view/1192. [Accessed 24/06/2020]

Anderson, E., Thorpe, L., Heney, D., & Petersen, S. (2009). Medical students benefit from learning about patient safety in an interprofessional team. *Medical Education*, *43*(6), 542–552. Available at https://doi.org/10.1111/j.1365-2923.2009.03328.x. [Accessed 24/06/2020]

Association of Directors of Social Work. (2013). *Delivering integrated care and support*. Available at https://www.iriss.org.uk/sites/default/files/2016-07/iriss-delivering-integrated-care-and-support-2013-12.pdf. [Accessed 25/06/2020]

Atwal, A., & Caldwell, K. (2005). Do all health and social care professionals interact equally: a study of interactions in multidisciplinary teams in the United Kingdom. *Scandinavian Journal of Caring Sciences*, *19*(3), 268–273. Available at https://doi.org/10.1111/j.1471-

6712.2005.00338.x. [Accessed 24/06/2020]

Austin, Z. 2016. How to design and use learning objectives in clinical teaching. *The Pharmaceutical Journal. 296*(7885). Available at https://www.pharmaceutical-journal.com/learning/learning-article/how-to-design-and-use-learning-objectives-in-clinical-teaching/20200251.article. [Accessed 01/07/2020]

Austin, Z., & Sutton, J. (2018). *Research Methods in Pharmacy Practice*. Elsevier. Methods and Applications Made Easy (1st ed). Amsterdam; The Netherlands: Elsevier.

Agency for Healthcare Research and Quality. (2005). Available at https://psnet.ahrq.gov/issue/australian-patient-safety-foundation. [Accessed 24/06/2020]

Australian Pharmacy Council. (2020). *Accreditation Standards for Pharmacy Programs in Australia and New Zealand*. Available at: https://www.pharmacycouncil.org.au/standards/accreditation-standards-2020.pdf. [Accessed 24/06/2020]

Bainbridge, L., Nasmith, L., Hon, F., Orchard, C., & Wood, V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education*, *24*(1), 6–11. Available at https://journals.lww.com/jopte/Abstract/2010/10000/Competencies_for_Interprofessional_Collaboration.3.aspx. [Accessed 24/06/2020]

Bainbridge, L., & Wood, V. I. (2013). The power of prepositions: a taxonomy for interprofessional education. *Journal of Interprofessional Care*, *27*(2), 131–136. Available at https://doi.org/10.3109/13561820.2012.725231. [Accessed 24/06/2020]

Baker, L., Egan-Lee, E., Martimianakis, M. A. (Tina), & Reeves, S. (2011). Relationships of power: implications for interprofessional education. *Journal of Interprofessional Care*, *25*(2), 98–104. Available at https://doi.org/10.3109/13561820.2010.505350. [Accessed 24/06/2020]

Bardach, S. H., Real, K., & Bardach, D. R. (2017). Perspectives of healthcare practitioners: An exploration of interprofessional communication using electronic medical records. *Journal*

of Interprofessional Care, *31*(3), 300–306. Available at https://doi.org/10.1080/13561820.2016.1269312. [Accessed 24/06/2020]

Barr, H., Helme, M., & D'Avray, L. (2014). *Review of interprofessional education in the United Kingdom 1997–2013*. Available at https://www.caipe.org/resources/publications/caipe-publications/caipe-2014-review-of-interprofessional-education-in-the-united-kingdom-1997-2013-in-brief-authored-by-barr-h-helme-m-davray-l. [Accessed 25/06/2020]

Beaubien, J. M. (2004). The use of simulation for training teamwork skills in health care: how low can you go? *Quality and Safety in Health Care*, *13*(suppl_1), i51–i56. Available at https://doi.org/10.1136/qshc.2004.009845. [Accessed 24/06/2020]

Bélanger, E., & Rodríguez, C. (2008). More than the sum of its parts? A qualitative research synthesis on multi-disciplinary primary care teams. *Journal of Interprofessional Care*, *22*(6), 587–597. Available at https://doi.org/10.1080/13561820802380035. [Accessed 24/06/2020]

Belbin (n.d.). *Belbin Resource Centre*. Available at https://www.belbin.com/resources/. [Accessed 25/06/2020]

Belbin, R. M. (1981). *Management teams: why they succeed or fail*. London; England: Heinemann.

Biley, F. C., & Smith, K. L. (1999). Making sense of problem-based learning: the perceptions and experiences of undergraduate nursing students. *Journal of Advanced Nursing*, *30*(5), 1205–1212. Available at https://doi.org/10.1046/j.1365-2648.1999.01188.x. [Accessed 24/06/2020]

Boaden, N., & Leaviss, J. (2000). Putting teamwork in context. *Medical Education*, *34*(11), 921–927. Available at http://www.ncbi.nlm.nih.gov/pubmed/11107017. [Accessed 24/06/2020]

Booth, J., & Hewison, A. (2002). Role overlap between occupational therapy and physiotherapy during in-patient stroke rehabilitation: an exploratory study. *Journal of Interprofessional Care*, *16*(1), 31–40. Available at https://doi.org/10.1080/13561820220104140. [Accessed

24/06/2020]

Brennan, K. M., & Lennie, S. C. (2010). Students' experiences and perceptions of the use of portfolios in UK preregistration dietetic placements: a questionnaire-based study. *Journal of Human Nutrition and Dietetics*, *23*(2), 133–143. Available at https://doi.org/10.1111/j.1365-277X.2009.01028.x. [Accessed 24/06/2020]

Brown, B., Crawford, P., & Darongkamas, J. (2000). Blurred roles and permeable boundaries: the experience of multidisciplinary working in community mental health. *Health and Social Care in the Community*, *8*(6), 425–435. Available at https://doi.org/10.1046/j.1365-2524.2000.00268.x. [Accessed 24/06/2020]

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, *18*(1), 32–42. Available at https://journals.sagepub.com/doi/abs/10.3102/0013189x018001032. [Accessed 24/06/2020]

Bruner, J. (1960). *The process of education.* Cambridge; England: Harvard University Press.

Bukhari, N., Rasheed, H., Nayyer, B., & Babar, Z.-U.-D. (2020). Pharmacists at the frontline beating the COVID-19 pandemic. *Journal of Pharmaceutical Policy and Practice*, *13*(1), 8. Available at https://joppp.biomedcentral.com/articles/10.1186/s40545-020-00210-w. [Accessed 24/06/2020]

Bullen, K., Davison, K., & Hardisty, J. (2019). Community pharmacy as an effective teaching and learning environment: Student perspectives from a UK MPharm programme. *Currents in Pharmacy Teaching and Learning*, *11*(9), 902–908. Available at https://doi.org/10.1016/j.cptl.2019.05.007. [Accessed 24/06/2020]

Burford, B., & Vance, G. (2014). When I say … preparedness. *Medical Education*, *48*(9), 849–850. Available at https://doi.org/10.1111/medu.12427. [Accessed 24/06/2020]

Burgess, A., Bleasel, J., Haq, I., Roberts, C., Garsia, R., Robertson, T., & Mellis, C. (2017). Team-based learning (TBL) in the medical curriculum: better than PBL? *BMC Medical Education*,

17(1), 243. Available at https://doi.org/10.1186/s12909-017-1068-z. [Accessed 24/06/2020]

Burgess, A., Haq, I., Bleasel, J., Roberts, C., Garsia, R., Randal, N., & Mellis, C. (2019). Team-based learning (TBL): a community of practice. *BMC Medical Education*, *19*(1), 369. Available at https://doi.org/10.1186/s12909-019-1795-4. [Accessed 24/06/2020]

Centre for the Advancement of Interprofesional Education. (2017). Interprofessional Education guidelines. Available at file:///C:/Users/Suzanne%20Cutler/Downloads/CAIPE-2017-Interprofessional-Education-Guidelines-2.pdf. [Accessed 25/06/2020]

Campbell, S. M., Hann, M., Hacker, J., Burns, C., Oliver, D., Thapar, A., Mead, N., Safran, D. G., & Roland, M. O. (2001). Identifying predictors of high quality care in English general practice: observational study. *BMJ*, *323*(7316), 784–787. Available at https://doi.org/10.1136/bmj.323.7316.784. [Accessed 24/06/2020]

Cave, J., Woolf, K., Jones, A., & Dacre, J. (2009). Easing the transition from student to doctor: How can medical schools help prepare their graduates for starting work? *Medical Teacher*, *31*(5), 403–408. Available at https://doi.org/10.1080/01421590802348127. [Accessed 24/06/2020]

Centre for Advanced Interprofesional Education. (2012). *Interprofessional Education in Pre-registration Courses*. Available at https://www.caipe.org/resources/publications/caipe-publications/caipe-2012-ipe-pre-registration-courses-caipe-guide-commissioners-regulators-eduction-barrh-low-h-howkins-e. [Accessed 24/06/2020]

Chakraborti, C., Boonyasai, R. T., Wright, S. M., & Kern, D. E. (2008). A systematic review of teamwork training interventions in medical student and resident education. *Journal of General Internal Medicine*, *23*(6), 846–853. Available at https://doi.org/10.1007/s11606-008-0600-6. [Accessed 24/06/2020]

Chan, E. A., Chi, S. P. M., Ching, S., & Lam, S. K. (2010). Interprofessional education: the interface of nursing and social work. *Journal of Clinical Nursing*, *19*(1–2), 168–176. Available at https://doi.org/10.1111/j.1365-2702.2009.02854.x. [Accessed 24/06/2020]

Charmaz, K. (2000) .Grounded Theory: objectivist and constructivist methods. In N.K. Denzin, and Y.S. Lincoln, *Handbook of Qualitative Research (2nd Ed.)*. Thousand Oaks, California: Sage.

Charmaz, K. (2006) *Constructing Grounded Theory. A practical guide through qualitative analysis*. London: Sage.

Charmaz, K. (2014). *Constructing grounded theory*. Thousand Oaks, California: Sage.

Chavez, C. (2008). Conceptualizing from the inside: Advantages, complications, and demands on insider positionality. *The Qualitative Report, 13*(3), 474-494. Available from http://www.nova.edu/ssss/QR/QR13-3/chavez.pdf. [Accessed 08/07/2020]

Cherlin, E., Schulman-Green, D., McCorkle, R., Johnson-Hurzeler, R., & Bradley, E. (2004). Family perceptions of clinicians' outstanding practices in end-of-life care. *Journal of Palliative Care*, *20*(2), 113–116. Available at https://doi.org/10.1177/082585970402000208. [Accessed 24/06/2020]

Cooper, H., Braye, S., & Geyer, R. (2004). Complexity and interprofessional education. *Learning in Health and Social Care*, *3*(4), 179–189. Available at https://doi.org/10.1111/j.1473-6861.2004.00076.x. [Accessed 24/06/2020]

Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: techniques and procedures for developing grounded theory* (4th ed.). Thousand Oaks, California: SAGE.

Crea, K. A. (2011). Practice skill development through the use of human patient simulation. *American Journal of Pharmaceutical Education*, *75*(9), 188. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230349/. [Accessed 24/06/2020]

Curran, V., Mugford, J. G., Law, R. M., & MacDonald, S. (2005). Influence of an interprofessional HIV/AIDS education program on role perception, attitudes and teamwork skills of undergraduate health sciences students. *Education for Health (Abingdon)*, *18*(1), 32–44. Available at https://pubmed.ncbi.nlm.nih.gov/15804644/. [Accessed 24/06/2020]

Cutler, S., Morecroft, C., Carey, P., & Kennedy, T. (2019). Are interprofessional healthcare teams

meeting patient expectations? An exploration of the perceptions of patients and informal caregivers. *Journal of Interprofessional Care*, *33*(1), 66–75. Available at https://doi.org/10.1080/13561820.2018.1514373. [Accessed 24/06/2020]

Cutler, S., Morecroft, C., Carey, P., & Kennedy, T. (2020). Are pharmacy students adequately prepared to work in healthcare teams? *Pharmacy Education*, *20*(1), 43–51. Available at https://pharmacyeducation.fip.org/pharmacyeducation/article/view/772/825. [Accessed 04/07/2020]

D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M.-D. (2005). The conceptual basis for interprofessional collaboration: core concepts and theoretical frameworks. *Journal of Interprofessional Care*, *19 Suppl 1*, 116–131. Available at https://doi.org/10.1080/13561820500082529. [Accessed 24/06/2020]

D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *Journal of Interprofessional Care*, *19 Suppl1*, 8–20. Available at https://doi.org/10.1080/13561820500081604. [Accessed 24/06/2020]

Davis, M. H., & Harden, R. M. (1999). AMEE Medical Education Guide No. 15: Problem-based learning: a practical guide. *Medical Teacher*, *21*(2), 130–140. Available at https://doi.org/10.1080/01421599979743. [Accessed 24/06/2020]

Davison, K., Bullen, K., & Ling, J. (2019). Pre-registration pharmacist tutor training: a pilot study. *The Clinical Teacher*, *16*(1), 47–52. Available at https://doi.org/10.1111/tct.12773. [Accessed 24/06/2020].

de Vries, J., Tweddell, S., & McCarter, R. (2018). Team-based Learning: Engaging learners and creating team accountability. *UAS Journal: Journal of Finnish Universities of Applied Sciences*, *EAPRIL Special Edition*. Available at https://uasjournal.fi/in-english/team-based-learning-engaging-learners/. [Accessed 24/06/2020]

Declaration of Alma-Ata. International Conference on Primary Health Care. (1978). *WHO Chronicle, 32*(11), 428 –430. Available at https://pubmed.ncbi.nlm.nih.gov/11643481/.

[Accessed 04/07/2020]

Delva, D., Jamieson, M., & Lemieux, M. (2008). Team effectiveness in academic primary health care teams. *Journal of Interprofessional Care*, *22*(6), 598–611. Available at https://doi.org/10.1080/13561820802201819. [Accessed 24/06/2020]

Department for Children, Schools and Families, H. L. S. C. B. (2008). *Serious case review: "Child A" Executive summary*. Available at https://webarchive.nationalarchives.gov.uk/20120106105916/http://media.education.gov.uk/assets/files/pdf/e/executive%20summary%20-%20first%20serious%20case%20review%20overview%20report%20-%20november%202008.pdf. [Accessed 24/06/2020]

Department of Health. (1998). *Modernising Social Services - White Paper 2018*. Available at https://webarchive.nationalarchives.gov.uk/20080709212033/http://www.integratedcarenetwork.gov.uk/index.cfm?pid=449&catalogueContentID=1307. [Accessed 24/06/2020]

Department of Health. (2001). *Learning from Bristol: The Department of Health's response report of the Public Inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995*. Available at https://webarchive.nationalarchives.gov.uk/20100407202128/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005620. [Accessed 24/06/2020]

DiazGranados, D., Dow, A. W., Appelbaum, N., Mazmanian, P. E., & Retchin, S. M. (2018). Interprofessional practice in different patient care settings: A qualitative exploration. *Journal of Interprofessional Care*, *32*(2), 151–159. Available at https://doi.org/10.1080/13561820.2017.1383886. [Accessed 24/06/2020]

Doekhie, K. D., Buljac-Samardzic, M., Strating, M. M. H., & Paauwe, J. (2017). Who is on the primary care team? Professionals' perceptions of the conceptualization of teams and the underlying factors: a mixed-methods study. *BMC Family Practice*, *18*(1), 111. Available at https://doi.org/10.1186/s12875-017-0685-2. [Accessed 24/06/2020]

Dwyer, C. S., & Buckle, J. L. (2009). The space between: On being an insider-outsider in qualitative research. *International Journal of Qualitative Methods, 8*(1), 54-63. Available at https://journals.sagepub.com/doi/full/10.1177/160940690900800105. [Accessed 08/07/2020]

Fairbrother, P., & Ford, S. (1998). Lecturer practitioners: a literature review. *Journal of Advanced Nursing*, *27*(2), 274–279. Available at https://doi.org/10.1046/j.1365-2648.1998.00525.x. [Accessed 24/06/2020]

Finlay, L. & Gough, B. (2003). Reflexivity: A Practical Guide for Researchers in Health and Social Sciences. Oxford; England: Blackwell Publishing.

Fiscella, K., & McDaniel, S. H. (2018). The complexity, diversity, and science of primary care teams. *American Psychologist*, *73*(4), 451–467. Available at https://doi.org/10.1037/amp0000244. [Accessed 24/06/2020]

Fleming J. (2018). Recognizing and resolving the challenges of being an insider researcher in work-integrated learning. *International Journal of Work-Integrated Learning, Special Issue, 2018, 19*(3), 311-320. Available at https://files.eric.ed.gov/fulltext/EJ1196753.pdf. [Accessed 08/07/2020]

Flores-Sandoval, C., Sibbald, S., Ryan, B. L., & Orange, J. B. (2020). Healthcare teams and patient-related terminology: a review of concepts and uses. *Scandinavian Journal of Caring Sciences*. Available at https://doi.org/10.1111/scs.12843. [Accessed 24/06/2020]

Fox, L., Onders, R., Hermansen-Kobulnicky, C., Nguyen, T., Myran, L., Linn, B., & Hornecker, J. (2018). Teaching interprofessional teamwork skills to health professional students: A scoping review. *Journal of Interprofessional Care*, *32*(2), 127–135. Available at https://doi.org/10.1080/13561820.2017.1399868. [Accessed 24/06/2020]

Francis, R. (2009). *Independent Inquiry into care provided by Mid Staffordshire NHS Foundation Trust January 2005 – March 2009: Vol. I*. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/279109/0375_i.pdf. [Accessed 25/06/2020]

Francis, R. (2013). *Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry: Executive summary*. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/279124/0947.pdf. [Accessed 25/06/2020]

Freeman, C., Cottrell, W. N., Kyle, G., Williams, I., & Nissen, L. (2012). Integrating a pharmacist into the general practice environment: opinions of pharmacist's, general practitioner's, health care consumer's, and practice manager's. *BMC Health Services Research*, *12*(1), 229. Available at https://doi.org/10.1186/1472-6963-12-229. [Accessed 24/06/2020]

General Medical Council. (2012). *Recognising and approving trainers: the implementation plan*. Available at https://www.gmc-uk.org/-/media/documents/Approving_trainers_implementation_plan_Aug_12.pdf_56452109.pdf_72592887.pdf. [Accessed 24/06/2020]

General Medical Council. (2015). *Promoting excellence: standards for medical education and training*. Available at https://www.gmc-uk.org/-/media/documents/promoting-excellence-standards-for-medical-education-and-training-0715_pdf-61939165.pdf. [Accessed 24/06/2020]

General Pharmaceutical Council. (2014). *Analysis of Trainee Dissatisfaction - 2012/13 Pre-registration Trainees*. Available at https://www.pharmacyregulation.org/sites/default/files/analysis_of_trainee_satisfaction_2012_13_pre_registration_trainees.pdf. [Accessed 24/06/2020]

General Pharmaceutical Council. (2011). *Future pharmacists: Standards for the initial education and training of pharmacists*. https://www.pharmacyregulation.org/sites/default/files/document/future_pharmacists_standards_for_the_initial_education_and_training_of_pharmacists.pdf. [Accessed 24/06/2020]

General Pharmaceutical Council. (2017). *Standards for pharmacy professionals*. Available at https://www.pharmacyregulation.org/sites/default/files/standards_for_pharmacy_profess

ionals_may_2017_0.pdf. [Accessed 24/06/2020]

General Pharmaceutical Council. (2020a). *Approved providers of education and training*. Available at https://www.pharmacyregulation.org/approved-providers-education-and-training. [Accessed 24/06/2020]

General Pharmaceutical Council. (2020b). *Latest updates on COVID-19 (coronavirus)*. Available at https://www.pharmacyregulation.org/contact-us/coronavirus-latest-updates. [Accessed 24/06/2020]

Geoghegan, S. E., Clarke, E., Byrne, D., Power, D., Moneley, D., Strawbridge, J., & Williams, D. J. (2017). Preparedness of newly qualified doctors in Ireland for prescribing in clinical practice. *British Journal of Clinical Pharmacology*, *83*(8), 1826–1834. Available at https://doi.org/10.1111/bcp.13273. [Accessed 24/06/2020]

Gharaveis, A., Hamilton, D. K., Pati, D., & Shepley, M. (2018). The impact of visibility on teamwork, collaborative communication, and security in emergency departments: An exploratory study. *HERD: Health Environments Research & Design Journal*, *11*(4), 37–49. Available at https://doi.org/10.1177/1937586717735290. [Accessed 24/06/2020]

Gibson, B. & Hartman, J. (2013) *Rediscovering Grounded Theory*. Thousand Oaks:

Sage Publications.

Glaser, B.G., & Strauss, A.L. (1967). *The discovery of grounded theory: stragtegies for qualitative research*. Chicago: Aldine Publishing.

Glaser, B.(1978). *Theoretical Sensitivity. Advances in the Methodology of Grounded Theory*. Mill Valley, CA: The Sociology Press.

Goldacre, M. J., Taylor, K., & Lambert, T. W. (2010). Views of junior doctors about whether their medical school prepared them well for work: questionnaire surveys. *BMC Medical Education*, *10*(1), 78. Available at https://doi.org/10.1186/1472-6920-10-78. [Accessed 24/06/2020]

Goñi, S. (1999). An analysis of the effectiveness of Spanish primary health care teams. *Health*

Policy, *48*(2), 107–117. Available at https://doi.org/10.1016/S0168-8510(99)00036-6. [Accessed 24/06/2020]

Gregory, P.A.M, Whyte, B & Austin, Z. (2016). How do community pharmacists make decisions? Results of an exploratory qualitative study in Ontario. *Can Pharm J, 149*(2), 90-98. Available at https://journals.sagepub.com/doi/10.1177/1715163515625656. [Accessed 10/11/2020]

Grumbach, K., & Bodenheimer, T. (2004). Can health care teams improve primary care practice? *JAMA*, *291*(10), 1246–1251. Available at https://doi.org/10.1001/jama.291.10.1246. [Accessed 24/06/2020]

Guba, E. G. (1990). *The Paradigm Dialog*. Newbury Park, California: Sage Publications.

Guba, E. G & Lincoln, Y. (1989). *Fourth generation evaluation*. Thousand Oaks, California: Sage Publications.

Haggerty, C., & Thompson, T. (2017). The challenges of incorporating ePortfolio into an undergraduate nursing programme. *Open Praxis*, *9*(2), 245. Available at https://doi.org/10.5944/openpraxis.9.2.554. [Accessed 24/06/2020]

Hall, P. (2005). Interprofessional teamwork: Professional cultures as barriers. *Journal of Interprofessional Care*, *19* Suppl 1, 188–196. Available at https://doi.org/10.1080/13561820500081745. [Accessed 24/06/2020]

Hammer, D. (2006). Improving student professionalism during experiential learning. *American Journal of Pharmaceutical Education*, *70*(3), 59. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1636941/. [Accessed 24/06/2020]

Hansen, R. S. (2006). Benefits and problems with student teams: Suggestions for improving team projects. *Journal of Education for Business*, *82*(1), 11–19. Available at https://doi.org/10.3200/JOEB.82.1.11-19. [Accessed 24/06/2020]

Harden, R. M & Stamper, N. (1999). What is a spiral curriculum? *Medical Teacher*, *21*(2), 141–143. Available at https://doi.org/10.1080/01421599979752. [Accessed 24/06/2020]

Hardisty, J., Scott, L., Chandler, S., Pearson, P., & Powell, S. (2014). Interprofessional learning for medication safety. *The Clinical Teacher*, *11*(4), 290–296. Available at https://doi.org/10.1111/tct.12148. [Accessed 24/06/2020]

Hasnain, M., Koronkowski, M., Kondratowicz, D., & Goliak, K. (2012). Training future health providers to care for the underserved: A pilot interprofessional experience. *Education for Health (Abingdon)*, *25*(3), 204–207. Available at https://doi.org/10.4103/1357-6283.109790. [Accessed 24/06/2020]

Heyland, D. K. (2006). What matters most in end-of-life care: perceptions of seriously ill patients and their family members. *Canadian Medical Association Journal*, *174*(5), 627–633. Available at https://doi.org/10.1503/cmaj.050626. [Accessed 24/06/2020]

Heyland, D. K., Cook, D. J., Rocker, G. M., Dodek, P. M., Kutsogiannis, D. J., Skrobik, Y., Jiang, X., Day, A. G., & Cohen, S. R. (2010). Defining priorities for improving end-of-life care in Canada. *Canadian Medical Association Journal*, *182*(16), E747–E752. Available at https://doi.org/10.1503/cmaj.100131. [Accessed 24/06/2020]

Hickey, E. L., Dumke, E. K., Ballentine, R. L., & Brown, B. L. (2018). Prospective health students' perceptions of the pharmacist role in the interprofessional team. *Journal of Interprofessional Care*, *32*(2), 250–253. Available at https://doi.org/10.1080/13561820.2017.1381671. [Accessed 24/06/2020]

Holton, J. & Walsh, I. (2016). *Classic Grounded Theory: Applications With Qualitative and Quantitative Data*. Thousand Oaks, California: Sage Publications.

Hörberg, A., Lindström, V., Scheja, M., Conte, H., & Kalén, S. (2019). Challenging encounters as experienced by registered nurses new to the emergency medical service: explored by using the theory of communities of practice. *Advances in Health Sciences Education*, *24*(2), 233–249. Available at https://doi.org/10.1007/s10459-018-9862-x. [Accessed 24/06/2020]

Horsburgh, M., Lamdin, R., & Williamson, E. (2001). Multiprofessional learning: the attitudes of medical, nursing and pharmacy students to shared learning. *Medical Education*, *35*(9),

876–883. Available at https://doi.org/10.1046/j.1365-2923.2001.00959.x. [Accessed 24/06/2020]

Hrynchak, P., & Batty, H. (2012). The educational theory basis of team-based learning. *Medical Teacher*, *34*(10), 796–801. Available at https://doi.org/10.3109/0142159X.2012.687120. [Accessed 24/06/2020]

Husband, A. K., Todd, A., & Fulton, J. (2014). Integrating science and practice in pharmacy curricula. *American Journal of Pharmaceutical Education*, *78*(3), 63. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3996395/. [Accessed 24/06/2020]

Illing, J. C., Morrow, G. M., Rothwell nee Kergon, C. R., Burford, B. C., Baldauf, B. K., Davies, C. L., Peile, E. B., Spencer, J. A., Johnson, N., Allen, M., & Morrison, J. (2013). Perceptions of UK medical graduates' preparedness for practice: A multi-centre qualitative study reflecting the importance of learning on the job. *BMC Medical Education*, *13*(1), 34. Available at https://doi.org/10.1186/1472-6920-13-34. [Accessed 24/06/2020]

Institute for Healthcare Improvement. (2020). Available at http://www.ihi.org/. [Accessed 24/06/2020]

Institute of Medicine. (2003). *Health professions education: A bridge to quality*. Washington, DC: National Academies Press.

Jackson, K. & Bazeley, P. (2019). *Qualitative Data Analysis with NVivo*. (3rd Edition). London, England: Sage Publications.

Jackson, A., & Bluteau, P. (2011). Interprofessional education, collaborative practice and primary care. *InnovAiT*, *4*(4), 230–235. Available at https://doi.org/10.1093/innovait/inq166. [Accessed 24/06/2020]

Jee, S. D., Schafheutle, E. I., & Noyce, P. R. (2016). Exploring the process of professional socialisation and development during pharmacy pre-registration training in England. *International Journal of Pharmacy Practice*, *24*(4), 283–293. Available at https://doi.org/10.1111/ijpp.12250. [Accessed 24/06/2020]

Jee, S. D., Schafheutle, E. I., & Noyce, P. R. (2017). Using longitudinal mixed methods to study the development of professional behaviours during pharmacy work-based training. *Health & Social Care in the Community*, *25*(3), 975–986. Available at https://doi.org/10.1111/hsc.12397. [Accessed 24/06/2020]

Jones, A., McArdle, P. J., & O'Neill, P. A. (2002). Perceptions of how well graduates are prepared for the role of pre-registration house officer: a comparison of outcomes from a traditional and an integrated PBL curriculum. *Medical Education*, *36*(1), 16–25. Available at https://doi.org/10.1046/j.1365-2923.2002.01105.x. [Accessed 24/06/2020]

Jones, K. M., Blumenthal, D. K., Burke, J. M., Condren, M., Hansen, R., Holiday-Goodman, M., & Peterson, C. D. (2012). Interprofessional education in introductory pharmacy practice experiences at US colleges and schools of pharmacy. *American Journal of Pharmaceutical Education*, *76*(5), 80. Available at https://pubmed.ncbi.nlm.nih.gov/22761521/. [Accessed 24/06/2020]

Kairuz, T., Noble, C., & Shaw, J. (2010). Preceptors, interns, and newly registered pharmacists' perceptions of New Zealand pharmacy graduates' preparedness to practice. *American Journal of Pharmaceutical Education*, *74*(6), 108. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2933017/. [Accessed 24/06/2020]

Keers, R. N., Williams, S. D., Cooke, J., & Ashcroft, D. M. (2013). Causes of medication administration errors in hospitals: a systematic review of quantitative and qualitative evidence. *Drug Safety*, *36*(11), 1045–1067. Available at https://pubmed.ncbi.nlm.nih.gov/23975331/. [Accessed 24/06/2020]

Kenny, M. and Fourie, R. (2015) Contrasting Classic, Straussian and Constructivist Grounded Theory: Methodological and Philosophical Conflicts. *The Qualitative Report*, 20:8, 1270-1289. Available at https://nsuworks.nova.edu/tqr/vol20/iss8/9. [Accessed 11/10/2020]

Kilminster, S., Hale, C., Lascelles, M., Morris, P., Roberts, T., Stark, P., Sowter, J., & Thistlethwaite, J. (2004). Learning for real life: patient-focused interprofessional workshops offer added value. *Medical Education*, *38*(7), 717–726. Available at

https://doi.org/10.1046/j.1365-2923.2004.01769.x. [Accessed 24/06/2020]

Kirkpatrick, D. (1994). *Evaluating training programes: the four levels*. San Francisco, California: Berrett-Koehler.

Kirkup, B. (2015). *The Report of the Morecambe Bay Investigation: An independent investigation into the management, delivery and outcomes of care provided by the maternity and neonatal services at the University Hospitals of Morecambe Bay NHS Foundation Trust from January 2.* Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408480/47487_MBI_Accessible_v0.1.pdf. [Accessed 24/06/2020]

Kmietowicz, Z. (2015). More than 400,000 NHS staff sign up to "Hello, my name is" campaign. *BMJ*, *350*, h588. Available at https://doi.org/10.1136/bmj.h588. [Accessed 24/06/2020]

Knorring, M., Griffiths, P., Ball, J., Runesdotter, S., & Lindqvist, R. (2020). Patient experience of communication consistency amongst staff is related to nurse–physician teamwork in hospitals. *Nursing Open*, *7*(2), 613–617. Available at https://doi.org/10.1002/nop2.431. [Accessed 24/06/2020]

Kohn, L. T., Corrigan, J., & Donaldson, M. S. (2000). *To err is human*. Washington, DC: National Academies Press.

Körner, M. (2010). Interprofessional teamwork in medical rehabilitation: a comparison of multidisciplinary and interdisciplinary team approach. *Clinical Rehabilitation*, *24*(8), 745–755. Available at https://doi.org/10.1177/0269215510367538. [Accessed 24/06/2020]

Kruger, R. A., & Casey, M. A. (2014). *Focus Groups: A Practical Guide for Applied Research* (Fifth ed.). Los Angeles, California: Sage Publications.

Kvarnström, S. (2008). Difficulties in collaboration: A critical incident study of interprofessional healthcare teamwork. *Journal of Interprofessional Care*, *22*(2), 191–203. Available at https://doi.org/10.1080/13561820701760600. [Accessed 24/06/2020]

Leary, H., Walker, A., Shelton, B. E., & Fitt, M. H. (2013). Exploring the relationships between

tutor background, tutor training, and student learning: A problem-based learning meta-analysis. *Interdisciplinary Journal of Problem-Based Learning*, *7*(1). Available at https://doi.org/10.7771/1541-5015.1331. [Accessed 24/06/2020]

Lee, M., Laurenson, M., & Whitfield, C. (2012). Can compassion be taught to lessen the effects of compassion fatigue? *Journal of Care Services Management*, *6*(3), 121–130. Available at https://doi.org/10.1179/1750168713Y.0000000016. [Accessed 24/06/2020]

Leedham-Green, K. E., Knight, A., & Iedema, R. (2019). Intra- and interprofessional practices through fresh eyes: a qualitative analysis of medical students' early workplace experiences. *BMC Medical Education*, *19*(1), 287. Available at https://doi.org/10.1186/s12909-019-1722-8. [Accessed 24/06/2020]

Lehoux, P., Poland, B., & Daudelin, G. (2006). Focus group research and "the patient's view". *Social Science & Medicine*, *63*(8), 2091–2104. Available at https://doi.org/10.1016/j.socscimed.2006.05.016. [Accessed 24/06/2020]

Levett-Jones, T. L. (2005). Self-directed learning: Implications and limitations for undergraduate nursing education. *Nurse Education Today*, *25*(5), 363–368. Available at https://doi.org/10.1016/j.nedt.2005.03.003. [Accessed 24/06/2020]

Lingard, L. (2004). Communication failures in the operating room: an observational classification of recurrent types and effects. *Quality and Safety in Health Care*, *13*(5), 330–334. Available at https://doi.org/10.1136/qhc.13.5.330. [Accessed 24/06/2020]

Liu, Q., Luo, D., Haase, J. E., Guo, Q., Wang, X. Q., Liu, S., Xia, L., Liu, Z., Yang, J., & Yang, B. X. (2020). The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *The Lancet Global Health*, *8*(6), e790–e798. Available at https://doi.org/10.1016/S2214-109X(20)30204-7. [Accessed 24/06/2020]

Loewen, P. S., Gerber, P., McCormack, J., & MacDonald, G. (2016). Design and implementation of an integrated medication management curriculum in an entry-to-practice Doctor of Pharmacy programme. *Pharmacy Education*, *16*(1), 122–130. Available at https://pharmacyeducation.fip.org/pharmacyeducation/article/view/458. [Accessed

24/06/2020]

Lucas, C., Williams, K., Tudball, J., & Walpola, R. L. (2018). Community, hospital and industry preceptor perceptions of their role in experiential placements- the need for standardization of preceptor responsibilities and evaluations on students. *Currents in Pharmacy Teaching and Learning*, *10*(11), 1447–1455. Available at https://doi.org/10.1016/j.cptl.2018.08.002. [Accessed 24/06/2020]

Lyu, H., Wick, E. C., Housman, M., Freischlag, J. A., & Makary, M. A. (2013). Patient satisfaction as a possible indicator of quality surgical care. *JAMA Surgery*, *148*(4), 362–367. Available at https://doi.org/10.1001/2013.jamasurg.270. [Accessed 24/06/2020]

Lyubovnikova, J., West, M. A., Dawson, J. F., & Carter, M. R. (2015). 24-Karat or fool's gold? Consequences of real team and co-acting group membership in healthcare organizations. *European Journal of Work and Organizational Psychology*, *24*(6), 929–950. Available at https://doi.org/10.1080/1359432X.2014.992421. [Accessed 24/06/2020]

Macdonald, M. B., Bally, J. M., Ferguson, L. M., Lee Murray, B., Fowler-Kerry, S. E., & Anonson, J. M. S. (2010). Knowledge of the professional role of others: a key interprofessional competency. *Nurse Education in Practice*, *10*(4), 238–242. Available at https://doi.org/10.1016/j.nepr.2009.11.012. [Accessed 24/06/2020]

MacNaughton, K., Chreim, S., & Bourgeault, I. L. (2013). Role construction and boundaries in interprofessional primary health care teams: a qualitative study. *BMC Health Services Research*, *13*(1), 486. Available at https://doi.org/10.1186/1472-6963-13-486. [Accessed 24/06/2020]

Matheson, C., & Matheson, D. (2009). How well prepared are medical students for their first year as doctors? The views of consultants and specialist registrars in two teaching hospitals. *Postgraduate Medical Journal*, *85*(1009), 582–589. Available at https://doi.org/10.1136/pgmj.2008.071639. [Accessed 24/06/2020]

Maykut, P. & Morehouse, R. (1994). Beginning qualitative research: a philosophic and practical guide. London, England: Farmers Press.

Mazzocco, K., Petitti, D. B., Fong, K. T., Bonacum, D., Brookey, J., Graham, S., Lasky, R. E., Sexton, J. B., & Thomas, E. J. (2009). Surgical team behaviors and patient outcomes. *The American Journal of Surgery*, *197*(5), 678–685. Available at https://doi.org/10.1016/j.amjsurg.2008.03.002. [Accessed 24/06/2020]

McKendree, J. (2010). Experiences of problem-based learning in the UK. *The Clinical Teacher*, *7*(4), 262–265. Available at https://doi.org/10.1111/j.1743-498X.2010.00385.x. [Accessed 24/06/2020]

McNeil, K., Mitchell, R., & Parker, V. (2015). The paradoxical effects of workforce shortages on rural interprofessional practice. *Scandinavian Journal of Caring Sciences*, *29*(1), 73–82. Available at https://doi.org/10.1111/scs.12129. [Accessed 24/06/2020]

Meslec, N., & Curşeu, P. L. (2015). Are balanced groups better? Belbin roles in collaborative learning groups. *Learning and Individual Differences*, *39*, 81–88. Available at https://doi.org/10.1016/j.lindif.2015.03.020. [Accessed 24/06/2020]

Meterko, M., Mohr, D. C., & Young, G. J. (2004). Teamwork culture and patient satisfaction in hospitals. *Medical Care*, *42*(5), 492–498. Available at https://doi.org/10.1097/01.mlr.0000124389.58422.b2. [Accessed 24/06/2020]

Mickan, S. M., & Rodger, S. A. (2005). Effective health care teams: a model of six characteristics developed from shared perceptions. *Journal of Interprofessional Care*, *19*(4), 358–370. Available at https://doi.org/10.1080/13561820500165142. [Accessed 24/06/2020]

Mickan, S., & Rodger, S. (2000). Characteristics of effective teams: a literature review. *Australian Health Review : A Publication of the Australian Hospital Association*, *23*(3), 201–208. Available at https://doi.org/10.1071/AH000201. [Accessed 24/06/2020]

Miles, M. B., Huberman, M. A., & Saldana, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (3rd ed.). Thousand Oaks, Californinia: Sage Publications.

Miller, G. E. (1990). The assessment of clinical skills/competence/performance. *Academic Medicine*, *65*(9), S63–S67. Available at http://winbev.pbworks.com/f/Assessment.pdf.

[Accessed 24/06/2020]

Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., Rohrbach, V., Von Kohorn, I. (2012). *Core principles and values of effective team-based health care.* Discussion Paper. Washington, DC: Institute of Medicine. Available at https://nam.edu/wp-content/uploads/2015/06/VSRT-Team-Based-Care-Principles-Values.pdf. [Accessed 04/07/2020]

Mohan, M., & Ravindran, T. K. S. (2018). Conceptual framework explaining "preparedness for practice" of dental graduates: A systematic review. *Journal of Dental Education*, *82*(11), 1194–1202. Available at https://doi.org/10.21815/JDE.018.124. [Accessed 24/06/2020]

Monrouxe, L. V., Grundy, L., Mann, M., John, Z., Panagoulas, E., Bullock, A., & Mattick, K. (2017). How prepared are UK medical graduates for practice? A rapid review of the literature 2009–2014. *BMJ Open*, *7*(1), e013656. Available at https://doi.org/10.1136/bmjopen-2016-013656. [Accessed 24/06/2020]

Morgan, D. L., & Krueger, R. A. (1993). *When to Use Focus Groups and Why*. In Morgan, D. L. SAGE Focus Editions: Successful focus groups: Advancing the state of the art (pp. 3-19). Thousand Oaks, California: SAGE Publications, Inc. Available at http://methods.sagepub.com/book/successful-focus-groups/n1.xml. [Accessed 24/06/2020]

Morrow, G., Johnson, N., Burford, B., Rothwell, C., Spencer, J., Peile, E., Davies, C., Allen, M., Baldauf, B., Morrison, J., & Illing, J. (2012). Preparedness for practice: The perceptions of medical graduates and clinical teams. *Medical Teacher*, *34*(2), 123–135. Available at https://doi.org/10.3109/0142159X.2012.643260. [Accessed 24/06/2020]

Mossialos, E., Courtin, E., Naci, H., Benrimoj, S., Bouvy, M., Farris, K., Noyce, P., & Sketris, I. (2015). From "retailers" to health care providers: Transforming the role of community pharmacists in chronic disease management. *Health Policy*, *119*(5), 628–639. Available at https://doi.org/10.1016/j.healthpol.2015.02.007. [Accessed 24/06/2020]

Mulvale, G., Embrett, M., & Razavi, S. D. (2016). 'Gearing Up' to improve interprofessional

collaboration in primary care: a systematic review and conceptual framework. *BMC Family Practice*, *17*, 83. Available at https://doi.org/10.1186/s12875-016-0492-1. [Accessed 24/06/2020]

Nancarrow, S. A., Booth, A., Ariss, S., Smith, T., Enderby, P., & Roots, A. (2013). Ten principles of good interdisciplinary team work. *Human Resources for Health*, *11*, 19. Available at https://doi.org/10.1186/1478-4491-11-19. [Accessed 24/06/2020]

Parcell, E. & Baker, B. (2017). *Narrative analysis*. In M. Allen (Ed.), The sage encyclopedia of communication research methods (Vol. 3, pp. 1069-1072). Thousand Oaks, California: SAGE.

National Institute for Health and Care Excellence. (2012). *Patient experience in adult NHS services: improving the experience of care for people using adult NHS services. Clinical guideline 138*. Available at https://www.nice.org.uk/guidance/Cg138. [Accessed 24/06/2020]

National Institute for Health and Care Excellence. (2020). *Coronavirus (COVID-19)*. Available at https://www.nice.org.uk/covid-19. [Accessed 25/06/2020]

Naylor, M. D., Coburn, K. D., Kurtzman, E. T., Prvu Bettger, J. A., Buck, H., & Van Cleave, J. et al. (2010). Inter-professional team-based primary care for chronically ill adults: State of the science. *Unpublished White Paper Presented at the ABIM Foundation Meeting to Advance Team-Based Care for the Chronically Ill in Ambulatory Settings Philadelphia, PA; March 24–25*.

NHS England, Care Quality Commission, Health Education England, Monitor Public Health England, NHS Trust Development Agency. (2014). *NHS five year forward view* (Issue October). Available at https://www.england.nhs.uk/publication/nhs-five-year-forward-view/. [Accessed 25/06/2020]

NHS England. (2015). *Clinical pharmacists in General Practice pilot: Announcement of successful sites FAQs.* Available at. https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2015/08/clin-pharm-gp-pilot-faqs-0815.pdf [Accessed

07/07/2020]

NHS England. (2016). *Pharmacy Integration Fund of £42 million announced*. Available at https://www.england.nhs.uk/gp/gpfv/, (https://www.england.nhs.uk/primary-care/pharmacy/pharmacy-integration-fund/. [Accessed 24/06/2020]

NHS England. (2017a). *Involving people in their own health and care*. Available at https://www.england.nhs.uk/publication/involving-people-in-their-own-health-and-care-statutory-guidance-for-clinical-commissioning-groups-and-nhs-england/. [Accessed 25/06/2020]

NHS England. (2017b). *Next steps on the NHS Five Year Forward View*. Available at https://www.england.nhs.uk/wp-content/uploads/2017/03/NEXT-STEPS-ON-THE-NHS-FIVE-YEAR-FORWARD-VIEW.pdf. [Accessed 24/06/2020]

NHS England. (2019). *The NHS long term plan*. Available at https://www.longtermplan.nhs.uk/. [Accessed 24/06/2020]

NHS England. (n.d.). *Community Pharmacy Contractual Framework 2019–2024*. Available at https://www.england.nhs.uk/primary-care/pharmacy/community-pharmacy-contractual-framework/. [Accessed 25/06/2020]

NHS Improvements. (2020). *NHS England and NHS Improvements National Patient Safety Alerts*. Available at https://improvement.nhs.uk/resources/patient-safety-alerts/. [Accessed 24/06/2020]

Nurse and Midwifery Council. (2010). *Standards for pre-registration nursing education*. Available at https://www.nmc.org.uk/globalassets/sitedocuments/standards/nmc-standards-for-pre-registration-nursing-education.pdf. [Accessed 24/06/2020]

O'Meara, P., Tourle, V., Stirling, C., Walker, J., & Pedler, D. (2012). Extending the paramedic role in rural Australia: a story of flexibility and innovation. *Rural and Remote Health*, *12*, 1978. Available at https://pubmed.ncbi.nlm.nih.gov/22497586/. [Accessed 06/07/2020]

O'Neill, M., & Cowman, S. (2008). Partners in care: investigating community nurses'

understanding of an interdisciplinary team-based approach to primary care. *Journal of Clinical Nursing*, *17*(22), 3004–3011. Available at https://doi.org/10.1111/j.1365-2702.2008.02068.x. [Accessed 24/06/2020]

O'Neill, P. A., Jones, A., Willis, S. C., & McArdle, P. J. (2003). Does a new undergraduate curriculum based on Tomorrow's Doctors prepare house officers better for their first post? A qualitative study of the views of pre-registration house officers using critical incidents. *Medical Education*, *37*(12), 1100–1108. Available at https://doi.org/10.1046/j.1365-2923.2003.01714.x. [Accessed 24/06/2020]

Ockenden, D. (2019). *Independent Review of Maternity Services at Shrewsbury and Telford Hospital NHS Trust*. Available at https://improvement.nhs.uk/documents/6192/ToR-SaTH-Maternity-Independent-Review-Revised-November-2019.pdf. [Accessed 04/07/2020]

Odegard, P. S., Robins, L., Murphy, N., Belza, B., Brock, D., Gallagher, T. H., Lindhorst, T., Morton, T., Schaad, D., & Mitchell, P. (2009). Interprofessional initiatives at the University of Washington. *American Journal of Pharmaceutical Education*, *73*(4), 63. Available at https://www.researchgate.net/publication/26719656_Interprofessional_Initiatives_at_the_University_of_Washington. [Accessed 24/06/2020]

Office for Students. (2020). *Guide to funding 2020-21 How the Office for Students allocates money to higher education providers*. Available at https://www.officeforstudents.org.uk/media/aa1ad13f-8a96-4559-856d-76151438e5f5/guide-to-funding-2020-21-corrected.pdf. [Accessed 24/06/2020]

Olson, R., & Bialocerkowski, A. (2014). Interprofessional education in allied health: a systematic review. *Medical Education*, *48*(3), 236–246. Available at https://doi.org/10.1111/medu.12290. [Accessed 24/06/2020]

Owen, S., & Stupans, I. (2012). Experiential placements: Dissemination and stakeholder engagement for curriculum planning action to prepare future Pharmacy professionals. *Journal of Learning Design*, *3*(1). Available at https://doi.org/10.5204/jld.v3i1.38. [Accessed 24/06/2020]

Oxelmark, L., Amorøe, T., Carlzon, L., & Rystedt, H. (2017). Students' understanding of teamwork and professional roles after interprofessional simulation—a qualitative analysis. *Advances in Simulation (London)*, *2*(8). Available at https://pubmed.ncbi.nlm.nih.gov/29450009/. [Accessed 24/06/2020]

Parmar, H., Schafheutle, E., Willis, S., & Silkstone, V. (2020). Does curriculum reform influence perceived preparedness for practice of graduates? A comparison of two cohorts. *International Journal of Pharmacy Practice*, *28*(2), 156–164. Available at https://doi.org/10.1111/ijpp.12569. [Accessed 24/06/2020]

Patel, N., Begum, S., & Kayyali, R. (2016). Interprofessional Education (IPE) and Pharmacy in the UK. A study on IPE activities across different schools of pharmacy. *Pharmacy*, *4*(4), 28. Available at https://doi.org/10.3390/pharmacy4040028. [Accessed 24/06/2020]

Patterson, B. J., Solimeo, S. L., Stewart, K. R., Rosenthal, G. E., Kaboli, P. J., & Lund, B. C. (2015). Perceptions of pharmacists' integration into patient-centered medical home teams. *Research in Social and Administrative Pharmacy*, *11*(1), 85–95. Available at https://doi.org/10.1016/j.sapharm.2014.05.005. [Accessed 24/06/2020]

Pharmacist Support. (2020). *Frinding a pre-registration placement*. Available at https://pharmacistsupport.org/fact-sheets/finding-pre-registration-placement/. [Accessed 25/06/2020]

Quantrill, S. J., & Tun, J. K. (2012). Workplace-based assessment as an educational tool. Guide supplement 31.5 – Viewpoint. *Medical Teacher*, *34*(5), 417–418. Available at https://doi.org/10.3109/0142159X.2012.668234. [Accessed 24/06/2020]

Reeves, S., Boet, S., Zierler, B., & Kitto, S. (2015). Interprofessional Education and Practice Guide No. 3: Evaluating interprofessional education. *Journal of Interprofessional Care*, *29*(4), 305–312. Available at https://doi.org/10.3109/13561820.2014.1003637. [Accessed 24/06/2020]

Reeves, S., Lwein, S., Epsin, S., & Zwarenstein, M. (2010). *Interprofessional teamwork for Health and Social Care*. Oxford, England: Wiley-Blackwell.

Reeves, S., & Pryce, A. (1998). Emerging themes: an exploratory research project of an interprofessional education module for medical, dental and nursing students. *Nurse Education Today*, *18*(7), 534–541. Available at https://doi.org/10.1016/S0260-6917(98)80003-8. [Accessed 24/06/2020]

Robson, C. (2011). *Real World Research* (3rd ed.). London, England: John Wiley & Sons Limited.

Rosen, M. A., DiazGranados, D., Dietz, A. S., Benishek, L. E., Thompson, D., Pronovost, P. J., & Weaver, S. J. (2018). Teamwork in healthcare: Key discoveries enabling safer, high-quality care. *American Psychologist*, *73*(4), 433–450. Available at https://doi.org/10.1037/amp0000298. [Accessed 24/06/2020]

Rosen, M. A., Salas, E., Wu, T. S., Silvestri, S., Lazzara, E. H., Lyons, R., Weaver, S. J., & King, H. B. (2008). Promoting teamwork: An event-based approach to simulation-based teamwork training for emergency medicine residents. *Academic Emergency Medicine*, *15*(11), 1190–1198. Available at https://doi.org/10.1111/j.1553-2712.2008.00180.x. [Accessed 24/06/2020]

Rosendal, M., Carlsen, A. H., Rask, M. T., & Moth, G. (2015). Symptoms as the main problem in primary care: A cross-sectional study of frequency and characteristics. *Scandinavian Journal of Primary Health Care*, *33*(2), 91–99. Available at https://doi.org/10.3109/02813432.2015.1030166. [Accessed 24/06/2020]

Royal Pharmaceutical Society. (2020). *Coronavirus (Covid-19): Latest updates, advice and information for pharmacy*. Available at https://www.rpharms.com/coronavirus. [Accessed 24/06/2020]

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative Interviewing: The Art of Hearing Data* (3rd Ed). Thousand Oaks, California: Sage.

Salas, E., DiazGranados, D., Klein, C., Burke, C. S., Stagl, K. C., Goodwin, G. F., & Halpin, S. M. (2008). Does team training improve team performance? A meta-analysis. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *50*(6), 903–933. Available at https://doi.org/10.1518/001872008X375009. [Accessed 24/06/2020]

Sargeant, J., Loney, E., & Murphy, G. (2008). Effective interprofessional teams: "contact is not enough" to build a team. *The Journal of Continuing Education in the Health Professions*, *28*(4), 228–234. Available at https://doi.org/10.1002/chp.189. [Accessed 24/06/2020]

Schafheutle, E. I., Hassell, K., Ashcroft, D. M., & Harrison, S. (2013). Organizational philosophy as a new perspective on understanding the learning of professionalism. *American Journal of Pharmaceutical Education*, *77*(10), 214. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3872933/. [Accessed 24/06/2020]

Schindel, T. J., Yuksel, N., Breault, R., Daniels, J., Varnhagen, S., & Hughes, C. A. (2017). Perceptions of pharmacists' roles in the era of expanding scopes of practice. *Research in Social and Administrative Pharmacy*, *13*(1), 148–161. Available at https://doi.org/10.1016/j.sapharm.2016.02.007. [Accessed 24/06/2020]

Schön, D. A. (1987). *Jossey-Bass higher education series. Educating the reflective practitioner: Toward a new design for teaching and learning in the professions.* San Fransisco, California: Jossey-Bass.

Schroder, C., Medves, J., Paterson, M., Byrnes, V., Chapman, C., O'Riordan, A., Pichora, D., & Kelly, C. (2011). Development and pilot testing of the collaborative practice assessment tool. *Journal of Interprofessional Care*, *25*(3), 189–195. Available at https://doi.org/10.3109/13561820.2010.532620. [Accessed 24/06/2020]

Scicluna, H. A., Grimm, M. C., Jones, P. D., Pilotto, L. S., & McNeil, H. P. (2014). Improving the transition from medical school to internship – evaluation of a preparation for internship course. *BMC Medical Education*, *14*(1), 23. Available at https://doi.org/10.1186/1472-6920-14-23. [Accessed 24/06/2020]

Scott, K. & Howell, D. (2008). Clarifying Analysis and Interpretation in Grounded Theory: Using a Conditional Relationship Guide and Reflective Coding Matrix. *International Journal of Qualitative Methods, 7*(2). Available at https://journals.sagepub.com/doi/full/10.1177/160940690800700201. [Accessed 10/11/2020]

Sealy, P. I., Williams, S., Sa, B., Ignacio, D. N., & Extavour, R. M. (2013). Stakeholder perspectives on outcome expectations of pharmacy graduates from a Caribbean school of pharmacy. *American Journal of Pharmaceutical Education*, *77*(5), 99. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3687132/. [Accessed 24/06/2020]

Shea, S., Samoutis, G., Wynyard, R., Samoutis, A., Lionis, C., Anastasiou, A., Araujo, A., Papageorgiou, A., & Papadopoulos, R. (2016). Encouraging compassion through teaching and learning: a case study in Cyprus. *Journal of Compassionate Health Care*, *3*(1), 10. Available at https://doi.org/10.1186/s40639-016-0027-6. [Accessed 24/06/2020]

Shelvey, B. M., Coulman, S. A., & John, D. N. (2016). Evaluating an undergraduate interprofessional education session for medical and pharmacy undergraduates on therapeutics and prescribing: the medical student perspective. *Advances in Medical Education and Practice*, *7*, 661–670. Available at https://doi.org/10.2147/AMEP.S116618. [Accessed 24/06/2020]

Shenton, A.K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*,.63–75. Available at https://pdfs.semanticscholar.org/cbe6/70d35e449ceed731466c316cd273032b28ca.pdf. [Accessed 04/07/2020]

Silvaggi, A., Nabhani-Gebara, S., & Reeves, S. (2017). Expanding pharmacy roles and the interprofessional experience in primary healthcare: A qualitative study. *Journal of Interprofessional Care*, *31*(1), 110–111. Available at https://doi.org/10.1080/13561820.2016.1249281. [Accessed 24/06/2020]

Sim J. & Waterfield J. (2019) Focus group methodology: some ethical challenges. *Quality & Quantity, 53,* 3003-3022. Available at https://link.springer.com/article/10.1007/s11135-019-00914-5#Sec11. [Accessed 08/07/2020]

Smith, T., Fowler-Davis, S., Nancarrow, S., Ariss, S. M. B., & Enderby, P. (2018). Leadership in interprofessional health and social care teams: a literature review. *Leadership in Health Services*, *31*(4), 452–467. Available at https://doi.org/10.1108/LHS-06-2016-0026.

[Accessed 24/06/2020]

Sinopoulo, V., Summerfield, P., & Rutter P. (2017). A qualitative study on community pharmacists' decision-making process when making a diagnosis. *Journal of Evaluation in Clinical Practice, 23*(6), 1482-1488. Available at https://onlinelibrary.wiley.com/doi/abs/10.1111/jep.12837. [Accessed 10/11/2020]

Stark, S., Stronach, I., & Warne, T. (2002). Teamwork in mental health: rhetoric and reality. *Journal of Psychiatric and Mental Health Nursing*, *9*(4), 411–418. Available at https://doi.org/10.1046/j.1365-2850.2002.00496.x. [Accessed 24/06/2020]

Strauss, A. & Corbin, J. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, California: Sage.

Strauss, A. and Corbin, J (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage.

Symons, N. R. A., Wong, H. W. L., Manser, T., Sevdalis, N., Vincent, C. A., & Moorthy, K. (2012). An observational study of teamwork skills in shift handover. *International Journal of Surgery*, *10*(7), 355–359. Available at https://doi.org/10.1016/j.ijsu.2012.05.010. [Accessed 24/06/2020]

Tallentire, V. R., Smith, S. E., Wylde, K., & Cameron, H. S. (2011). Are medical graduates ready to face the challenges of Foundation training? *Postgraduate Medical Journal*, *87*(1031), 590–595. Available at https://doi.org/10.1136/pgmj.2010.115659. [Accessed 24/06/2020]

The Bristol Royal Infirmary Inquiry. (2001). *The report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995: learning from Bristol*. Available at https://webarchive.nationalarchives.gov.uk/20100407202128/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005620. [Accessed 25/06/2020]

The Canadian Council for Accreditation of Pharmacy Programs. (2018). *Accreditation standards for Canadian First Professional Degree in Pharmacy Programs*. Available at http://ccapp-

accredit.ca/wp-content/uploads/2016/01/Accreditation-Standards-for-Canadian-First-Professional-Degree-in-Pharmacy-Programs.pdf. [Accessed 25/06/2020]

The Health Foundation. (2016). *Person-centred care made simple: what everyone should know about person-centred care*. Available at https://www.health.org.uk/sites/health/files/PersonCentredCareMadeSimple.pdf. [Accessed 24/06/2020]

The House of Commons Health Committee. (2003). *The Victoria Climbié Inquiry Report*. Sixth Report of Session 2002–03. Available at https://publications.parliament.uk/pa/cm200203/cmselect/cmhealth/570/570.pdf. [Accessed 25/06/2020]

Thylefors, I., Persson, O., & Hellström, D. (2005). Team types, perceived efficiency and team climate in Swedish cross-professional teamwork. *Journal of Interprofessional Care*, *19*(2), 102–114. Available at https://doi.org/10.1080/13561820400024159. [Accessed 24/06/2020]

Timonen, V, Foley, G. and Conlon, C. (2018) Challenges When Using Grounded Theory: A Pragmatic Introduction to Doing GT Research. *International Journal of Qualitative Methods* 17:1-10. Available at https://journals.sagepub.com/doi/10.1177/1609406918758086. [Accessed 10/11/2020]

United Nations DESA. (2015). *Transforming our world: the 2030 agenda for sustainable development*. Available at https://sustainabledevelopment.un.org/post2015/transformingourworld/publication. [Accessed 24/06/2020]

Vance, G. H. S., Burford, B., Shapiro, E., & Price, R. (2017). Longitudinal evaluation of a pilot e-portfolio-based supervision programme for final year medical students: views of students, supervisors and new graduates. *BMC Medical Education*, *17*(1), 141. Available at https://doi.org/10.1186/s12909-017-0981-5. [Accessed 24/06/2020]

Vyas, D., McCulloh, R., Dyer, C., Gregory, G., & Higbee, D. (2012). An interprofessional course

using human patient simulation to teach patient safety and teamwork skills. *American Journal of Pharmaceutical Education*, *76*(4), 71. Available at https://pubmed.ncbi.nlm.nih.gov/22611280/. [Accessed 24/06/2020]

Vyt, A. (2008). Interprofessional and transdisciplinary teamwork in health care. *Diabetes/Metabolism Research and Reviews*, *24* Suppl 1, S106–S109. Available at https://doi.org/10.1002/dmrr.835. [Accessed 24/06/2020]

Watmough, S., O'Sullivan, H., & Taylor, D. (2009). Graduates from a traditional medical curriculum evaluate the effectiveness of their medical curriculum through interviews. *BMC Medical Education*, *9*(1), 64. Available at https://doi.org/10.1186/1472-6920-9-64. [Accessed 24/06/2020]

Watmough, S., Taylor, D., & Garden, A. (2006). Educational supervisors evaluate the preparedness of graduates from a reformed UK curriculum to work as pre-registration house officers (PRHOs): a qualitative study. *Medical Education*, *40*(10), 995–1001. Available at https://doi.org/10.1111/j.1365-2929.2006.02563.x. [Accessed 24/06/2020]

West, M. (1999). Communication and teamworking in healthcare. *Journal of Research in Nursing*, *4*(1), 8–17. Available at https://doi.org/10.1177/136140969900400103. [Accessed 24/06/2020]

West, M. A. (2012). *Effective Teamwork: Practical Lessons from Organizational Research* (3rd Ed). Chichester, West Sussex: Wiley-Blackwell.

West, M. A., & Lyubovnikova, J. (2013). Illusions of team working in health care. *Journal of Health Organization and Management*, *27*(1), 134–142. Available at https://doi.org/10.1108/14777261311311843. [Accessed 24/06/2020]

West, M. A., & Markiewicz, L. (Eds.). (2004). *Building Team-Based Working*. Oxford, England: Blackwell Publishing Ltd.

West, M. A. (2000). *Reflexivity, revolution and innovation in work teams.* (Beyerlein, M., Johnson, D., & Beyerlein, S. (Eds.)). Stanford, California; JAI Press.

Wilkinson, S. (1999). Focus groups: A feminist method. *Psychology of Women Quarterly*, *23*(2), 221–244. Available at https://doi.org/10.1111/j.1471-6402.1999.tb00355.x. [Accessed 24/06/2020]

Willis, S. C., Hassell, K., Seston, E. M., & Hann, M. (2009). Using learning outcomes for undergraduate pharmacy education to assess final-year students' perceptions of their preparedness for pharmacy practice. *International Journal of Pharmacy Practice*, *17*(6), 351–358. Available at https://doi.org/10.1211/ijpp/17.06.0006. [Accessed 24/06/2020]

Wilson, A. J., Palmer, L., Levett-Jones, T., Gilligan, C., & Outram, S. (2016). Interprofessional collaborative practice for medication safety: Nursing, pharmacy, and medical graduates' experiences and perspectives. *Journal of Interprofessional Care*, *30*(5), 649–654. Available at https://doi.org/10.1080/13561820.2016.1191450. [Accessed 24/06/2020]

Wilson, A. L. (1993). The promise of situated cognition. *New Directions for Adult and Continuing Education*, *1993*(57), 71–79. Available at https://doi.org/10.1002/ace.36719935709. [Accessed 24/06/2020]

Wood, D. F. (2003). ABC of learning and teaching in medicine: Problem based learning. *BMJ*, *326*(7384), 328–330. Available at https://doi.org/10.1136/bmj.326.7384.328. [Accessed 24/06/2020]

World Health Organization. (2004). *World Alliance for Patient Safety*. Available at https://www.who.int/patientsafety/worldalliance/en/. [Accessed 24/06/2020]

World Health Organization. (2010). *Framework for Action on Interprofessional Education & Collaborative Practice*. Available at https://apps.who.int/iris/bitstream/handle/10665/70185/WHO_HRH_HPN_10.3_eng.pdf;jsessionid=16DABD6BECFE9C5145FA553162F48EFE?sequence=1. [Accessed 04/07/2020]

World Health Organization. (2011). *WHO Multi-professional Patient Safety Curriculum Guide*. Available at https://www.who.int/patientsafety/education/mp_curriculum_guide/en/. [Accessed 25/06/2020]

World Health Organization. (2018a). *Fourth Annual Meeting Report of Integrated Health Services Delivery Focal Points*. Available at https://www.euro.who.int/en/health-topics/Health-systems/health-services-delivery/publications/2018/4th-annual-meeting-report-of-integrated-health-services-delivery-focal-points-2018. [Accessed 25/06/2020]

World Health Organization. (2018b). *Building the Primary Health Care Workforce of the 21st Century*. In *WHO Report*. Available at https://apps.who.int/iris/bitstream/handle/10665/328072/WHO-HIS-SDS-2018.48-eng.pdf?sequence=1&isAllowed=y. [Accessed 24/06/2020]

World Health Organization. (2018c). *Continuity and Coordination of Caree: a Practice Brief to Support Implementation of the WHO Framework on Integrated People-centred Health Services*. Available at https://apps.who.int/iris/handle/10665/274628. [Accessed 24/06/2020]

World Health Organization. (2018d). *Thirteenth General Programme of Work 2019–2023*. Available at https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf. [Accessed 25/06/2020]

World Health Organization. (2019). *Patient Safety: Global Action on Patient Safety*. Available at https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_R6-en.pdf. [Accessed 25/06/2020]

Wranik, W. D., Price, S., Haydt, S. M., Edwards, J., Hatfield, K., Weir, J., & Doria, N. (2019). Implications of interprofessional primary care team characteristics for health services and patient health outcomes: A systematic review with narrative synthesis. *Health Policy*, *123*(6), 550–563. Available at https://doi.org/10.1016/j.healthpol.2019.03.015. [Accessed 24/06/2020]

Xyrichis, A., & Lowton, K. (2008). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies*, *45*(1), 140–153. Available at https://doi.org/10.1016/j.ijnurstu.2007.01.015. [Accessed 24/06/2020]

Yardley, S., Teunissen, P. W., & Dornan, T. (2012). Experiential learning: AMEE Guide No. 63.

Medical Teacher, *34*(2), e102–e115. Available at https://doi.org/10.3109/0142159X.2012.650741. [Accessed 24/06/2020]

Yerbury, M. (1997). Issues in multidisciplinary teamwork for children with disabilities. *Child: Care, Health and Development*, *23*(1), 77–86. Available at https://doi.org/10.1046/j.1365-2214.1997.837837.x. [Accessed 24/06/2020]

Young, R. A., Roberts, R. G., & Holden, R. J. (2017). The challenges of measuring, improving, and reporting quality in primary care. *The Annals of Family Medicine*, *15*(2), 175–182. Available at https://doi.org/10.1370/afm.2014. [Accessed 24/06/2020]

Youngwerth, J., & Twaddle, M. (2011). Cultures of interdisciplinary teams: how to foster good dynamics. *Journal of Palliative Medicine*, *14*(5), 650–654. Available at https://doi.org/10.1089/jpm.2010.0395. [Accessed 24/06/2020]

Appendices

Appendix 1 – Literature search strategy and results

Database	Search terms	Number of hits	Number of abstracts browsed	Number of abstracts saved
DISCOVER	14. Teamwork ; "Team work"	69,854		
2000 to present	15 Teamwork ; "Team work"; Health ; "Healthcare"	390	37	16
	16. Teamwork ; "Team work"; Interprofessional; "inter-professional"	143	10	3
	17. Team; Teamwork ; "Team work"; attribute*	70	2	1
	18. Team; Teamwork ; "Team work"; characteristic*;	120	6	5
	19. Team; Teamwork ; "Team work"; qualities	7	0	0
	20. Teamwork ; "Team work"; competenc*	10	3	2
	21.Teamwork ; "Team work"; pharmac*	To do		
	22. Collaborative practice	23	3	3
	23. Team effectiveness	235	4	3
	24.Team-based care	41	1	0
	25.Interpofessional teamwork	47	6	4
	26.Interprofessional competencies	18	1	0
	27. "non technical skills"; "non-technical skills"; teamwork	15	4	3
	28. Work ready; work-ready	4	1	1
	29.Prepared for practice; team*; teamwork	9	4	3
	30. Preparedness for practice; team*; teamwork	10	4	3
	31.collabor*; competenc*	0	0	0
	32. Interprofessional; inter-professional; competenc*; teamwork OR "team work"	99	45	37
	33.prepare*; team*; "team work"	5958		
	34. patient* OR caregiver OR "care-giver"; team*; "team work"	334	18	4
	35. patient* OR caregiver OR "care-giver"; perception*	113	13	7
	36."interprofessioanl collaborative practice"	33	7	4
	37. interprofessional competenc*	170	7	3
	38. patient safety; team; teamwork	112		
	39. Prepardness; Pharm*	97	10	2
	40. Prepardness; nurs*	33	11	3
	41. Prepardness;dentist	35	5	3
Medline/Pubmed	1.Teamwork ; "Team work"	30,395		
2000 to present	2.Teamwork ; "Team work"; Health ; "Healthcare"	391	57	22
	3.Teamwork ; "Team work"; Interprofessional; "inter-professional"	143	28	16
	4.Team;Teamwork ; "Team work"; characteristic*;attribute*; qualities	46	8	4
	5.Team; characteristic*;attribute*; qualities	238	8	3
	6.Teamwork ; "Team work"; competenc*	270	14	8
	7.Teamwork ; "Team work"; pharmac*	134	11	6
CINAHL	8.Teamwork ; "Team work"	37,470		
2000 to present	9.Teamwork ; "Team work"; Health ; "Healthcare" Subject: teamwork; multidisciplinary care	520	15	4
	10.Teamwork ; "Team work"; Interprofessional;"inter-professional"	395	30	9
	11.Team; Teamwork ; "Team work"; characteristic*;attribute*; qualities	71	10	5
	12. Teamwork ; "Team work"; competenc*	595 (197)	26	11
	13. Teamwork ; "Team work"; pharmac*	78	9	1

Appendix 2 – Liverpool John Moores ethical approval letter for phase 1 and 2

Dear Suzanne

With reference to your application for Ethical approval

14/PBS/004 - Suzanne Cutler (PGR) Developing interprofessional education to facilitate interprofessional practice to promote patient-centred care (Charles Morecroft)

Liverpool John Moores University Research Ethics Committee (REC) has reviewed the above application by proportionate review and I am pleased to inform you that ethical approval has been granted and the study can now commence.

Approval is given on the understanding that:

- any adverse reactions/events which take place during the course of the project are reported to the Committee immediately;
- any unforeseen ethical issues arising during the course of the project will be reported to the Committee immediately;
- the LJMU logo is used for all documentation relating to participant recruitment and participation eg poster, information sheets, consent forms, questionnaires. The LJMU logo can be accessed at http://www.ljmu.ac.uk/corporatecommunications/60486.htm

Where any substantive amendments are proposed to the protocol or study procedures further ethical approval must be sought.

Applicants should note that where relevant appropriate gatekeeper / management permission must be obtained prior to the study commencing at the study site concerned.

For details on how to report adverse events or request ethical approval of major amendments please refer to the information provided at http://www.ljmu.ac.uk/RGSO/93205.htm

Please note that ethical approval is given for a period of five years from the date granted and therefore the expiry date for this project will be December 2019. An application for extension of approval must be submitted if the project continues after this date.

Mandy Williams, Research Support Officer

(Research Ethics and Governance)

Research and Innovation Services

Kingsway House, Hatton Garden, Liverpool L3 2AJ

t: 01519046467 e: a.f.williams@ljmu.ac.uk

Appendix 3 – Participant recruitment email used in phase 1

Dear *(Insert name),*

As part of my PhD research project, I am exploring the opinions and views of patients on the key attributes they believe interprofessional health and social care teams should possess in order to work as a team.

I would like to invite you to participate in a focus group discussion if you have accessed a NHS service as a patient or as a carer for a long term condition e.g. asthma, high blood pressure, arthritis or depression (please note that this list is not exhaustive), that requires ongoing care and management in the previous 6 months.

Focus groups will be arranged at a mutually convenient time and location at Liverpool John Moores University and the focus group discussions will last no more than 60 minutes. Further details of the study and what it entails can be found in the attached participant information sheet. I would be very grateful if you could take a moment to peruse this and, if you are happy to take part, please reply to this email.

The focus group discussions will be recorded and transcribed. Confidentiality of the focus group discussions cannot be guaranteed for those participating in each focus group as other participants will know what has been said and by whom, however, focus group members will be asked to respect the confidentiality of other members of the group. Confidentiality will be guaranteed between each focus group. Any information obtained in connection with this project and that can identify you will be removed during transcribing to ensure participants' anonymity. If you do agree to participate, you will be required to complete a consent form (copy attached).

This research project has received LJMU ethical approval (include date and reference number).

Should you have any additional questions or queries related to this research project, please do not hesitate to contact me.

Kind regards

Suzanne Cutler

Appendix 4 – Participant information leaflet (PIL) for phase 1

LIVERPOOL JOHN MOORES UNIVERSITY

Title of Project: Developing interprofessional education

Name of Researcher and School/Faculty: Suzanne Cutler, School of Pharmacy and Biomolecular Science

You are being invited to take part in a research study. Before you decide it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not.

1. What is the purpose of the study?

The use of teams to deliver health care has become commonplace in the National Health Service and effective teamwork between different healthcare professionals has become increasingly more important in ensuring patients receive quality care. This study aims to explore the views of patients on key qualities that teams require in order to deliver good patient care.

2. Do I have to take part?

No. It is up to you to decide whether or not to take part. If you do you will be given this information sheet and asked to sign a consent form. You are still free to withdraw at any time and without giving a reason. A decision to withdraw will not affect your rights. I will not collect anything that will allow me to identify you. Therefore, once you have taken part in the study, it will not be possible to remove your answers. If you decide to withdraw during the focus group any information that you have given prior to your withdrawal will be used in the study

3. What will happen to me if I take part?

If you agree to take part, you will be invited to take part in a focus group discussion. This will involve being asked questions about your opinions on attributes required for effective teamwork in health and

social care teams. The focus group meeting should take approximately one hour. The conversation will be recorded and subsequently transcribed. If you agree to take part, you will be asked to sign a consent form. By signing the consent form, you are agreeing that your opinions may be anonymised and included in future publications.

4. Are there any risks / benefits involved?

There are no identifiable risk when taking part in this project

5. Will my taking part in the study be kept confidential?

All information that is recorded during the course of this research study will be kept strictly confidential. Confidentiality of the focus group discussions cannot be guaranteed for those participating in each focus groups as other participants will know what has been said and by whom, however, focus group members will be asked to respect the confidentiality of other members of the group. Confidentiality will be guaranteed between each focus group. Any information obtained in connection with this project and that can identify you will be removed during transcribing to ensure participants' anonymity

This study has received ethical approval from LJMU's Research Ethics Committee *(insert REC reference number and date of approval)*

Contact Details of Researcher

Suzanne Cutler

0151 231 2566
S.C.Cutler@ljmu.ac.uk

Contact Details of Academic Supervisor

Charles Morecroft

0151 231 2296

c.w.morecroft@ljmu.ac.uk

If you are unhappy with the way in which this project has been conducted, or wish to raise a concern, you should contact the academic supervisor by emailing c.w.morecroft@ljmu.ac.uk or writing to: *Professor of Pharmacy Education and Professional Practice, School Director, School of Pharmacy and*

Biomolecular Sciences, Liverpool John Moores University, James Parsons Building, Byrom Street, Liverpool, L3 3AF

Appendix 5 – Consent form for phase 1 & 2

LIVERPOOL JOHN MOORES UNIVERSITY

CONSENT FORM

Developing interprofessional education

Suzanne Cutler, School of Pharmacy and Bimolecular Sciences, Faculty of Science

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time before or during the focus group, without giving a reason and that this will not affect my legal rights ☐
3. I understand that I will not be able to withdraw from the study after the focus group has taken place it will not be possible to identify individuals ☐
4. I understand that any personal information collected during the study will be anonymised and remain confidential ☐
5. I understand that the interview/focus group will be audio / video recorded and I am happy to proceed ☐
6. I understand that parts of our conversation may be used verbatim in future publications or presentations but that such quotes will be anonymised ☐
7. I agree to respect the confidentiality of the opinions of other participants participating in the focus group. ☐
8. I agree to take part in the above focus group study ☐

Name of Participant Date Signature

Name of Researcher Date Signature

Note: When completed 1 copy for participant and 1 copy for researcher

Appendix 6 – Participant recruitment follow-up email used in phase 1

Dear *(insert name),*

Further to my previous email sent on (insert date), I am following up to see whether you would be willing to participate in the study exploring the opinions and views of patients on the key attributes they believe interprofessional health and social care teams should possess in order to work.

Further details of the study and what it entails can be found in the attached participant information sheet. I would be very grateful if you could take a moment to peruse this and, if you are happy to take part, please reply to this email. If you do agree to participate, you will be required to complete a consent form (copy attached).

Kind regards

Suzanne Cutler

Appendix 7 – Interview schedule for phase 1

Good morning/afternoon. Thank you for coming along today to participate in this focus group. I am Suzanne Cutler (depends on who is present) and this focus group is being undertaken as part of my research for my PhD.

During the course of the next 60 mins or so I would like to get your explore your views opinions on the key attributes that you consider essential for team working with the NHS. What I need to record today is your opinions – there are no right or wrong or desirable or undesirable answers. You can agree and or disagree with each other, and you can change your mind. I would like you to feel comfortable saying what you really think and how you really feel. I am looking for your opinions.

No one will know who said what. I want this to be a group discussion, so feel free to respond to me and to other members in the group without waiting to be called on. However, I would appreciate it if only one person did talk at a time, you respect the opinions of others and that all discussions are kept confidential within this group. The session will be recorded and transcribed for analysis. All recorded information is confidential and will be anonymised including the removal of names and identifying factors, and will be used only for the purpose of the research

The discussion will last approximately one hour. There is a lot I want to discuss, so at times I may move us along a bit. Your participation is completely voluntary and you can stop taking part in the focus group at any time however, any information that you have given prior to your withdrawal will be used in the study.

Before we start, could I just ask you all to introduce ourselves?

Questions

1. What do you think is the value of teams in patient care?
   Probes: Which professionals are involved in teams?
   Is there a limit to the number of healthcare professionals you think should make up a team?
   Who do you think should be part of this team?

2. How do you know when a team is working well together?
   Probe: are there any specific qualities (attribute) that you think are important?
   Why do you think this (name quality) is important?
   How does this impact on patient care?
   Could this (name attribute) be difficult? Why is this? How would this impact on patient care?

   (repeat for each attributes)

   Are you aware of these features of teams when you have been a patient?

3. Do you feel that any of the attributes are more important than others? Which ones?
   What do you think the impact of this (list attribute) being missing is?

4. From your experiences, what do you think the purpose of the team is?
5. From your experiences, are you aware of the presence/omission of different attributes within teams?
   (Prompt by listing attributes previously discussed)
   How does this make you feel?
   What action, if any, would you take?

6. How do you feel we should be preparing future health and social care professionals to be effective members of teams?
   Should we be incorporating the development of team work attributes in undergraduate degree programmes?

Closure

Though there were many different opinions about _____, it appears that _____. Does anyone see it differently? It seems most of you agree _____, but some think that _____. Does anyone want to add or clarify an opinion on this?

Appendix 8 – Participant recruitment email used in phase 2

Dear *(insert name),*

As part of my PhD research project, I am exploring the opinions and views of students on the key attributes they believe interprofessional health and social care teams should possess in order to work as a team.

I would like to invite you to participate in a focus group discussion if you have accessed a NHS service as a patient or as a carer for a long term condition e.g. asthma, high blood pressure, arthritis or depression (please note that this list is not exhaustive), that requires ongoing care and management in the previous 6 months.

Focus groups will be arranged at a mutually convenient time and location at Liverpool John Moores University and the focus group discussions will last no more than 60 minutes. Further details of the study and what it entails can be found in the attached participant information sheet. I would be very grateful if you could take a moment to peruse this and, if you are happy to take part, please reply to this email.

The focus group discussions will be recorded and transcribed. Confidentiality of the focus group discussions cannot be guaranteed for those participating in each focus group as other participants will know what has been said and by whom, however, focus group members will be asked to respect the confidentiality of other members of the group. Confidentiality will be guaranteed between each focus group. Any information obtained in connection with this project and that can identify you will be removed during transcribing to ensure participants' anonymity. If you do agree to participate, you will be required to complete a consent form (copy attached).

This research project has received LJMU ethical approval (include date and reference number).

Should you have any additional questions or queries related to this research project, please do not hesitate to contact me.

Kind regards

Suzanne Cutler

Appendix 9 – Participant recruitment follow-up email used in phase 2

Dear *(Insert name),*

Further to my previous email sent on (insert date), I am following up to see whether you would be willing to participate in the study exploring the opinions and views of students on the key attributes they believe interprofessional health and social care teams should possess in order to work.

Further details of the study and what it entails can be found in the attached participant information sheet. I would be very grateful if you could take a moment to peruse this and, if you are happy to take part, please reply to this email. If you do agree to participate, you will be required to complete a consent form (copy attached).

Kind regards

Suzanne Cutler

Appendix 10 – Participant information leaflet (PIL) for phase 2

LIVERPOOL JOHN MOORES UNIVERSITY

Title of Project: Developing interprofessional education to facilitate interprofessional practice to promote patient-centred care

Name of Researcher and School/Faculty: Suzanne Cutler, School of Pharmacy and Bimolecular Science

You are being invited to take part in a research study. Before you decide it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not.

6. What is the purpose of the study?

The use of teams to deliver health care has become commonplace in the National Health Service and effective teamwork between different healthcare professionals has become increasingly more important in ensuring patients receive quality care. This study aims to explore the teamwork attributes that are demonstrated by undergraduate healthcare students.

7. Do I have to take part?

No. It is up to you to decide whether or not to take part. If you do you will be given this information sheet and asked to sign a consent form. You are still free to withdraw at any time and without giving a reason. A decision to withdraw will not affect your rights. I will not collect anything that will allow me to identify you. Therefore, once you have taken part in the study, it will not be possible to remove your answers. If you decide to withdraw during the focus group any information that you have given prior to your withdrawal will be used in the study

8. What will happen to me if I take part?

If you agree to take part, you will be invited to take part in a focus group discussion. This will involve being asked questions about your opinions on attributes required for effective teamwork in health and social care teams. The focus group meeting should take approximately one hour. The conversation will be recorded and subsequently transcribed. If you agree to take part, you will be asked to sign a consent form

9. Are there any risks / benefits involved?

There are no identifiable risk when taking part in this project

10. Will my taking part in the study be kept confidential?

All information that is collected during the course of this research study will be kept strictly confidential. Confidentiality of the focus group discussions cannot be guaranteed for those participating in each focus groups as other participants will know what has been said and by whom, however, focus group members will be asked to respect the confidentiality of other members of the group. Confidentiality will be guaranteed between each focus group. Any information obtained in connection with this project and that can identify you will be removed during transcribing to ensure participants' anonymity

This study has received ethical approval from LJMU's Research Ethics Committee *(insert REC reference number and date of approval)*

Contact Details of Researcher

Suzanne Cutler

0151 231 2566
S.C.Cutler@ljmu.ac.uk

Contact Details of Academic Supervisor

Charles Morecroft

0151 231 2296

c.w.morecroft@ljmu.ac.uk

Appendix 11 – Interview schedule for phase 2

Good morning/afternoon. Thank you for coming along today to participate in this focus group. I am Suzanne Cutler *(depends on who is present)* and this focus group is being undertaken as part of my research for my PhD.

During the course of the next 60 minutes or so I would like to get your explore your key attributes that are considered essential for team working with the NHS. The session will involve you reviewing and discussing a case study. What I need to record today is your actions and views – There are no right or wrong or desirable or undesirable answers. You can agree and or disagree with each other, and you can change your mind. I would like you to feel comfortable saying what you really think and how you really feel. I am looking for your opinions.

No one will know who said what. I want this to be a group discussion, so feel free to respond to me and to other members in the group without waiting to be called on. However, I would appreciate it if only one person did talk at a time, you respect the opinions of others and that all discussions are kept confidential within this group. The session will be recorded and transcribed for analysis**.** All recorded information is confidential and will be anonymised, and will be used only for the purpose of the research.

The discussion will last approximately one hour. There is a lot I want to discuss, so at times I may move us along a bit. Your participation is completely voluntary and you can stop taking part in the focus group at any time however, any information that you have given prior to your withdrawal will be used in the study

Questions

Can you give me some example of team working that you have observed or experienced?

What do you think makes a good team?

> Why is that (list point raised)
>
> Do you feel that any of these qualities are more important than others? If so, which ones? Why is that?

What do you think makes a team ineffective (or poor)?

> Why do you think that (list point raised)?
>
> How do you think this could this affect patient care?

Does a team need to demonstrate all the qualities you have mentioned in order to provide good patient care?

> Which ones do they need? Why do say this?

I am now going to give you a patient story. Please take a few minutes to read this.

How do you feel this could be handled differently?

Are there any other team qualities that you can identify here?

Do you think (name attributes not covered in previous discussion) are key to good team working? Why is this? What do you think the risk to patient care could be if teams do not demonstrate (name attribute being discussed)

What opportunities do you feel we currently have within the MPharm programme that could help you feel more prepared for working in a team in the future?

Do you think we should consider looking at other features of good team? If so, which ones?

Closure

Though there were different qualities explored, it appears that _____ are key qualities. Does anyone see it differently? It seems most of you agree _____, but some think that _____. Does anyone want to add or clarify an opinion on this?

Appendix 12 – Patient story for phase 2

Mr Smith is pleased that his appointment with the rheumatology outpatient clinic has finally come around. He has had 2 appointments cancelled and when he rang the department he was reassured the next appointment would not be changed. He waits 12 weeks for the appointment. He drives to the hospital but finds it very difficult to park as there are no free disabled parking spaces by the clinic. He manages to get his wife out of the car; she sometimes uses a wheelchair to get about. He finds the clinic but is admonished for being late. Eventually he is seen in the clinic which is running 50 minutes late. Mr Smith is quite deaf and spends the whole time anxiously listening out for his name. Nobody informs him that the clinic is running late and he needs the toilet. His wife's hearing is a bit better but she is also very anxious and is not managing to hear very well either. Mr Smith is seen by the doctor who organises an x-ray. The X-Ray department is a long way off and to save time, he is taken by wheelchair. As they are leaving the clinic area, he says to the porter that he hopes his wife won't wander off while he is away. On his return his wife is missing. The clinic nurse goes looking for his wife and he is called back into the clinic to see the doctor. Unfortunately he does not remember anything the doctor says. His wife is found near to where they parked the car and they go home feeling it was a wasted visit. He does write to the hospital detailing the events and although he receives a reply he doesn't believe any action will be taken.

Appendix 13 – Liverpool John Moores ethical approval letter for phase 3

Dear Suzanne

With reference to your application for Ethical Approval:

16/PBS/004 - Suzanne Cutler, PGR - Developing interprofessional education to facilitate interprofessional practice to promote patient-centred care (Charles Morecroft)

The University Research Ethics Committee (UREC) has considered the above application by proportionate review and I am pleased to inform you that ethical approval has been granted and the study can now commence.

Approval is given on the understanding that:

- *any adverse reactions/events which take place during the course of the project are reported to the Committee immediately;*
- *any unforeseen ethical issues arising during the course of the project will be reported to the Committee immediately;*
- *the LJMU logo is used for all documentation relating to participant recruitment and participation e.g. poster, information sheets, consent forms, questionnaires. The LJMU logo can be accessed at http://www2.ljmu.ac.uk/corporatecommunications/60486.htm.*

Where any substantive amendments are proposed to the protocol or study procedures further ethical approval must be sought.

Applicants should note that where relevant appropriate gatekeeper / management permission must be obtained prior to the study commencing at the study site concerned.

For details on how to report adverse events or request ethical approval of major amendments please refer to the information provided at http://www2.ljmu.ac.uk/RGSO/93205.htm

Please note that ethical approval is given for a period of five years from the date granted and therefore the expiry date for this project will be June 2021. An application for extension of approval must be submitted if the project continues after this date.

Mandy Williams, Research Support Officer

(Research Ethics and Governance)

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Appendix 14 – Participant recruitment email used in phase 3

Dear *(insert name),*

As part of my PhD research project, I am exploring the opinions and views of educators on the development of key team working characteristics in undergraduate pharmacy education.
Given your current role and experience in this area I would like to interview you, at a mutually convenient time. The interview should take no longer than 45 minutes.
Your participation will contribute to the knowledge and understanding of the development of team working attributes in undergraduate pharmacy education and how these attributes complement the training of other healthcare professionals.
Further details of the study and what it entails can be found in the attached participant information sheet. I would be very grateful if you could take a moment to peruse this and, if you are happy to take part, please reply to this email. If you are happy to take part, I will arrange a mutually convenient time to undertake the interview either face-to-face or via telephone. If you do agree to participate, you will be required to complete a consent form (copy attached).
This research project has received LJMU ethical approval (include date and reference number).
Should you have any additional questions or queries related to this research project, please do not hesitate to contact me.

Kind regards
Suzanne Cutler

Appendix 15 – Participant information leaflet (PIL) for phase 3

LIVERPOOL JOHN MOORES UNIVERSITY
PARTICIPANT INFORMATION SHEET

Title of Project: Developing interprofessional education
Name of Researcher and School/Faculty: Suzanne Cutler, School of Pharmacy and Biomolecular Science
You are being invited to take part in a research study. Before you decide it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not.

1. What is the purpose of the study?

The use of teams to deliver health care has become commonplace in the National Health Service and effective teamwork between different healthcare professionals has become increasingly more important in ensuring patients receive quality care. This study aims to explore the views of views of educators on the development of key team working attributes in undergraduate pharmacy education

2. Do I have to take part?

No. It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet and asked to sign a consent form. You are still free to withdraw at any time and without giving a reason.

3. What will happen to me if I take part?

If you agree to take part, you will be invited to take part in a face-to face- or telephone interview at a mutually convenient time. The interview should last no more than 45 minutes and will be audio recorded. The interview will involve being asked questions about your opinions on the development of team working attributes in pharmacy undergraduate education. If you agree to take part, you will be asked to sign a consent form. By signing the consent form, you are agreeing that your opinions may be anonymised and included in future publications.

4. Are there any risks / benefits involved?

There are no identifiable risk when taking part in this project.

5. Will my taking part in the study be kept confidential?

All information that is recorded during the course of this research study will be kept strictly confidential. I will not tell anyone who took part. Any information obtained in connection with this project and that can identify you will be removed during transcribing to ensure participants' anonymity

This study has received ethical approval from LJMU's Research Ethics Committee *(insert REC reference number and date of approval)* Participant Information Sheet vs 4 October 2014 Page 2 of 2

Contact Details of Researcher

Suzanne Cutler
0151 231 2566
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Contact Details of Academic Supervisor

Charles Morecroft
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If you any concerns regarding your involvement in this research, please discuss these with the researcher in the first instance. If you wish to make a complaint, please contact researchethics@ljmu.ac.uk and your communication will be re-directed to an independent person as appropriate.

Appendix 16 – Consent form for phase 3

LIVERPOOL JOHN MOORES UNIVERSITY
CONSENT FORM

Developing interprofessional education

Suzanne Cutler, School of Pharmacy and Bimolecular Sciences, Faculty of Science
1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and that this will not affect my legal rights.

3. I understand that any personal information collected during the study will be anonymised and remain confidential

4. I agree to take part in the above interview study

5. I understand that the interview will be audio recorded and I am happy to proceed

6. I understand that parts of our conversation may be used verbatim in future publications or presentations but that such quotes will be anonymised.

Name of Participant Date Signature
Name of Researcher Date Signature
Name of Person taking consent Date Signature
(if different from researcher)
Note: When completed 1 copy for participant and 1 copy for researcher

Appendix 17 – Participant recruitment follow-up email used in phase 3

Dear *(Insert name),*

Further to my previous email sent on (insert date), I am following up to see whether you would be willing to participate in the study exploring the opinions and views of educators on the development of key team working characteristics in undergraduate pharmacy education. Further details of the study and what it entails can be found in the attached participant information sheet. I would be very grateful if you could take a moment to peruse this and, if you are happy to take part, please reply to this email. If you do agree to participate, you will be required to complete a consent form (copy attached).

Kind regards

Suzanne Cutler

Appendix 18 – Interview schedule for phase 3

Interview Schedule

Thank you for agreeing to participate in this telephone interview. I am Suzanne Cutler and this telephone interview is being undertaken a part of my research for my PhD.

During the course of the next 45 mins or so I would like to get your explore your views opinions on the key attributes that you consider essential for team working with the NHS. What I need to record today is your opinions – there are no right or wrong or desirable or undesirable answers.

The session will be recorded and transcribed for analysis. All recorded information is confidential and will be anonymised including the removal of names and identifying factors, and will be used only for the purpose of the research.

The discussion will last no longer than 45 minutes. There is a lot I want to discuss, so at times I may move us along a bit. Your participation is completely voluntary and you can stop taking part in the interview.

If not yet received signed consent form, read out consent form and obtain recorded signed consent.
OR: I have received your signed consent form. Thank you.

Do you have any questions or would like any additional details? *[Answer questions.]*

Can I just confirm that you are happy to be interviewed?

Please feel free to interrupt to ask any questions or for clarification throughout the interview.

[If yes, begin the interview.]
[If no, thank the participant for his/her time.]

This will be a semi-structured interview. I will start with some straight forward questions about your role before moving on to a discussion about teamwork attributes and pharmacy education.

Interview Questions

Job title of participant:

Organisation:

Yearly intake size (if applicable)

What attributes do you feel makes a good team?

 Prompt from characteristics identified from patient and student focus groups

Are there any current opportunities with your programme to develop any of these attributes?

 Which ones?

 How are they taught?

 Evaluation of attributes?

 Formative/summative assessments?

 Student feedback or perception of student on the attributes developed?

 Opportunities to work with in teams? Are team working skills assessed or is the assessment different e.g presentation/report

Do you think that students recognise these attributes and the importance of effective team in patient care?

Which qualities do you feel undergraduate pharmacy student should developed as part of their pharmacy degree?

 List attributes identified earlier in interview and form student and focus groups.

 How could these be developed?

 Should they be assessed? If so, how?

 Do you perceive any challenges? If so, what? Could these be overcome?

 How would these attributes impact on students and their future roles as pharmacists?

Do you feel all Health and Social care students should develop the same attributes as pharmacy students?

 If no, can you expand on the differences?

Closure

That brings us to the end of the interview. I'd just like to thank you for giving up your time to participate. Thank you and goodbye

Appendix 19 – Published journal article "Are interprofessional healthcare teams meeting patient expectations? An exploration of the perceptions of patients and informal caregivers."

ORIGINAL ARTICLE

Check for updates

Are interprofessional healthcare teams meeting patient expectations? An exploration of the perceptions of patients and informal caregivers

Suzanne Cutler [a], Charles Morecroft[a], Phil Carey[b], and Tom Kennedy[c]

[a]School of Pharmacy and Bimolecular Sciences, Liverpool, UK; [b]School of Nursing and Allied Health, Liverpool, UK; [c]Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, UK

ABSTRACT

Poor teamwork skills in healthcare have been found to be a contributing cause of negative incidents in patient care, whilst effective teamwork has been linked to more positive patient outcomes. The aim of this research is to explore views of patients and informal caregivers on the key characteristics of effective healthcare teams and their experiences of healthcare teams using a qualitative approach. A focus group schedule was developed from existing literature to explore this. Topics included the purpose and value of teams in patient care, key attributes and their impact on patient care. Patients and informal caregivers were recruited via convenience sampling. Three focus groups were conducted. Thematic analysis identified a number of themes associated with effective teams. These themes included the perceived purpose of teams, perceptions about the structure of a team, team-based communication, the role of patients, delivery of care. Research participants noted the importance of key characteristics in effective teams, but felt that these were not always consistently present. Communication was considered to be the most important attribute in team working and also appeared to be the area in which the patient experience can be significantly improved. It is clear from the findings of this research that further improvements in teamwork skills in healthcare are needed to achieve effective collaborative practice, sustainable service delivery models and optimal patient care.

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Introduction

The use of interprofessional teams to deliver healthcare is a key feature of care management in the United Kingdom (Care Quality Commission, 2010; Reeves, Xyrichis, & Zwarenstein, 2018). Shorter hospital stays, caring for patients in the community and an increasing focus on prevention of illness has had major implications for both health and social care professionals, patients and the delivery of care (Boaden & Leaviss, 2000; NHS England, Care Quality Commission, Health Education England, Monitor Public Health England, 2014). Poor teamwork skills in healthcare have been found to be a contributing cause of negative incidents in patient care, while effective teamwork has been linked to more positive patient outcomes (Chesluk et al., 2015; Department for Children, Schools and Families, 2008; Francis, 2009; Reeves, Lewin, Epsin, & Zwarenstein, 2010). Consequently, effective interprofessional teamwork is perceived as becoming increasingly important in ensuring patients receive quality care.

A competent healthcare team is a key enabler of integrated health services delivery (Grace et al., 2017; Langins & Borgermans, 2015; Reeves, 2012) and teamwork has been identified as a key competency by the World Health Organization (Gilbert, Yan, & Hoffman, 2010). Langins and Borgermans (2015) have described teamwork as the "ability to function effectively as a member of an interprofessional team that includes providers, patients and family members in a way that reflects an understanding of team dynamics and group/team processes in building productive working relationships and is focused on health outcomes" (Langins & Borgermans, 2015, p. 16).

Furthermore, Dow et al. (2017) suggested that interprofessional practice encompasses both interprofessional teams and interprofessional networks. This was a view shared by Reeves et al. (2018) who further proposed that interprofessional collaboration and coordination were also key features of interprofessional work.

Interprofessional teamwork

A review of the literature identified a number of key attributes of effective teams in health and social care. The importance of effective communication in facilitating effective teamwork is clear. Effective communication assists in breaking down professional barriers, resolving inter-team conflict, promoting positive interpersonal relations, and improving interprofessional communication (Kossaify, Hleihel, & Lahoud, 2015; Matziou et al., 2014; Nancarrow et al., 2013; Thomson, Outram, Gilligan, & Levett-Jones, 2015; Wilson, Palmer, Levett-Jones, Gilligan, & Outram, 2016). However, in recent years, there has been a significant shift in patient care designed to facilitate shorter hospital stays and caring for patients in the community. In addition, practical factors, such as the geography of the workplace and work schedule,

can impact the accessibility of team members, which can hinder the teamworking process (Delva, Jamieson, & Lemieux, 2008; Reeves, Lewin, Espin, & Zwarenstein, 2010; Sargeant, Loney, & Murphy, 2008). As face-to-face communication is not always possible, there is then a greater need for effective communication using a range of processes to support information sharing and exchange within a team; central coordinators such as secretaries are seen as central to facilitating communication because they interacted with all team members (Aungst & Belliveau, 2015; Azar et al., 2017; Bardach, Real, & Bardach, 2017; Delva et al., 2008; Kuziemsky & Reeves, 2012; Szafran, Torti, Kennett, & Bell, 2018).

Healthcare teams frequently vary in terms of their composition. This is often influenced by the needs of the patient and remit of the teams and may include doctors, nurses, pharmacists, physiotherapist, occupational therapist, and social care staff such as carers. The size of the team, team composition and skills and competencies within the team are identified in the literature as key requirements for an effective team (Bainbridge, Nasmith, Hon, Orchard, & Wood, 2010; Delva et al., 2008; Vyt, 2008; West & Lyubovnikova, 2013; Xyrichis & Lowton, 2008). Shared goals were seen to bring team members together (Institute of Medicine, 2003; Jackson & Bluteau, 2011; Mickan & Rodger, 2005; Schroder et al., 2011; Vyt, 2008; West & Lyubovnikova, 2013).

However, it is key that individuals' understanding their own roles and the role of others help team members understand scopes of practice, enhance respect for each other's roles, and importantly allowed them to understand how the roles of others are complementary to their own (Bainbridge et al., 2010; Harrod et al., 2016; Nancarrow et al., 2013). Furthermore, recognition by others as to what a team member brought to the team was also important (Institute of Medicine, 2003; Jackson & Bluteau, 2011; Youngwerth & Twaddle, 2011).

Relationships between team members including mutual trust, support, and recognition, were found to improve effective team working and team relationships over time (Harrod et al., 2016; Jackson & Bluteau, 2011; Youngwerth & Twaddle, 2011). Team members should have knowledge of and respect for the competences, roles and contributions of other professionals within a team and the ability to complete the team goal (Vyt, 2008; West & Lyubovnikova, 2013). Delva et al. suggested hierarchies and power differences are seen to have a negative impact on team cohesiveness and team working (Delva et al., 2008), However, this was not a clear theme across the literature, with other research suggesting that hierarchies can provide leadership and direction for teams (Mickan & Rodger, 2005). Notwithstanding, leaders should demonstrate leadership skills rather than be based on hierarchy (Bainbridge & Wood, 2013; Jackson & Bluteau, 2011; Macdonald et al., 2010; Nancarrow et al., 2013).

Clear leadership provides teams with well-defined team objectives, distinct direction and management, high levels of team participation, commitment to excellence and support; moreover team members felt supported, supervised and developed (Jackson & Bluteau, 2011; Kossaify et al., 2015).

An important consideration is the environment within which different teams operate. Structural problems, for example, people working across different organisations and referral of patients between team members, has historically led to gaps in service provision or duplication of services (Boaden & Leaviss, 2000). The lack of communication of organisation news and a lack of consistency in the application of policies are factors that inhibit teamworking (Delva et al., 2008). Practical issues also impact team effectiveness, for example, patient records need to be organised in a way that promotes interprofessional consultation of patient records and data files (Vyt, 2008).

Despite a wealth of literature on the views of healthcare professionals, evidence relating to the attributes that patients consider to be important in effective healthcare teams is limited.

Patient engagement with healthcare teams

Patient engagement is considered important within healthcare with an expectation that patients and family members will engage in their own health (Howe, 2006; Parsons, Winterbottom, Cross, & Redding, 2010). Within the UK, regulatory bodies including the General Pharmaceutical Council and the British Medical Association have recognised the importance of patient engagement. Recognition of the patient or the patient's representative as a key team member has been identified as a quality of a good team and impacts on patient care (Karazivan et al., 2015; Reeves et al., 2015; Royal College of General Practionners, 2016).

Patient-centred care facilitates shared decision-making and patients' engagement in care-related decisions, in turn, leads to enhanced satisfaction with care and improved outcomes (Dunn, Cragg, Graham, Medves, & Gaboury, 2018; Howe, 2006; Sidani et al., 2018; Stacey et al., 2016). Whilst many healthcare professionals describe their approach as being patient centred, what this actually encompasses varies (Fox & Reeves, 2015; Gachoud, Albert, Kuper, Stroud, & Reeves, 2012). Furthermore, there is the assumption patients' wants and are able to take on the responsibilities that come with the role.

Patient involvement has the potential to increase professionals' awareness that their actions have real consequences for individuals, which moderate risk-taking behaviour (Howe, 2006). However, a number of challenges have been identified that impact on patient engagement with healthcare teams and can hinder patient involvement. Also, a patient's lack of knowledge, their illness and mental state can affect their ability to be actively engaged with the healthcare team (Howe, 2006). Ethnicity and language spoken, age, education level, acute pain, and mental capacity can significantly impact on a patient's ability to assume responsibility (Fox & Reeves, 2015; Stacey et al., 2016). The power dynamic between patients and healthcare professionals can be intimidating which in turn can affect negatively patient involvement (Soklaridis et al., 2017). In these situations, it is important to consider how such factors impact on accountability and liability in relation to healthcare decisions. Karazivan et al. (2015) build on the concept of patient engagement suggesting that patients have competencies and limitations like any other team member. They propose

an approach that aims to develop patients' competency in care to overcome some identified challenges.

In order to facilitate patient engagement and work in partnership with patients, there needs to be trust and transparency between healthcare professionals and patients (Soklaridis et al., 2017). Healthcare professionals need to be able to feel comfortable admitting when they lack knowledge without losing the patient's confidence. Whilst Soklaridis et al. (2017) found that there is a growing appreciation of the patient perspective in delivering patient-centred care, it was suggested that there is a risk of "tokenising" (p124) the patient perspective since healthcare professional control healthcare provision. More recently, there is evidence that doctors do not conceptualise patients as members of the primary care team (Szafran et al., 2018) and it has been suggested that proactive discussion with patients regarding their health could have a negative psychological impact on patients (Howe, 2006). In light of this, it appears that a combination of the reluctance of healthcare professional to encourage patients to be active partners and some patient's wariness to speak up can limit patient engagement.

The aim of the research study was to explore the patients and carers perceptions of interprofessional teams in the delivery of effective patient care. This paper aims to broaden the literature on the team attributes that patients believe are key in effective team working and patient experiences of healthcare teams.

Methods

An exploratory case study involving focus groups was conducted with a convenience sample of patients drawn from staff of a North West of England Higher Education Institute (NWHEI).

Data collection

A focus group schedule was developed from existing literature to explore team attributes in healthcare. Focus groups allow the rapid identification of different people's views relating to a specific area of interest, without specifically attempting to find a consensus. Focus groups facilitate the exploration of experiences and in-depth information through the use of open-ended group discussions guided by the researcher. This approach encourages participants to consider the views and opinions of other participants, thereby stimulating the views and opinions of all participants (Robson, 2011). In doing so, focus groups enable collection of data relating to issues that individuals may not consider and expose any shared understanding and common views.

Participants could only partake in one focus group. Topics included the purpose and value of teams in patient care, their key attributes, and their impact on patient care. Participants were asked to describe their experiences of health and social care teams and prompted to express and develop their views and opinions on attributes of teams and impact on patient care. One of the authors (SC) served as the group facilitator adhering to the standardised schedule.

Following review of the analysis of the initial focus group discussions by the research team against the research aim, no major changes were identified and the focus group schedule was deemed robust, and appropriate. Focus groups were utilised to explore the opinions of participants using the focus group schedule.

Data were collected by identifying participants from a NWHEI who had accessed care through a NHS provider for a chronic condition as either as a patient themselves, or as carer for a family member, in the preceding 6 months (see Table 1). Participants who taught or were involved in research within a health- or social care-based programme were excluded to minimise research bias due to participant expertise in the research area. All focus groups were digitally recorded and transcribed verbatim. All data were anonymised at the transcription stage by removing participant identifiable information. Data collection continued until no new themes emerged and data saturation was achieved.

Three focus groups were conducted. The average duration of the focus groups was 68 min, with durations ranging from 52 to 74 min. Two groups of nine participants were of mixed gender and one group of 5 was female only (see Table 2).

Data analysis

To ensure trustworthiness and robustness of the data, accuracy of the transcribing was reviewed. A grounded theory approach (Robson, 2011) was adopted to establish emerging themes using the software NVivo 10. Coding was undertaken by the researcher and all codes were subsequently subjected to peer scrutiny by two colleagues in the research team to ensure appropriateness, consistency, accuracy of codes, and dependability of the findings (Gibbs, 2007). Any divergence in coding was discussed between the research team and an appropriate resolution was identified. The research team discussed the coding which was then organised into a number of themes as detailed in the results.

Ethical considerations

The study obtained favourable ethical approval on 18th December 2014 (14/PBS/004). Written consent was obtained from all participants by the researcher prior to the com-

Table 1. Demographic profile of participants.

Demographics		Number of participants
Age	16–30	1
	31–44	9
	45–59	4
	60+	
Gender	Male	3
	Female	11
Education level	No qualification	
	GCSEs or equivalent	2
	A-levels or equivalent	1
	Degree	4
	Higher degree	7
	Professional qualification	

Table 2. Focus groups profile.

Focus group	Number of participants	Focus group reference
1	5	FG1 A-E
2	4	FG2 A-D
3	5	FG3 A-E

mencement of each focus group. No topics were discussed that any of the participants found distressing during the focus groups. Participants were able to withdraw from the focus group at any time and could choose not to answer the questions. All data collected were treated confidentially by the researcher and any information obtained in connection with this project and which could identify participants was removed during transcribing to ensure anonymity.

Confidentiality of the focus group discussions could not be guaranteed for those participating in each focus group as other participants will know what has been said and by whom. However, focus group members were asked to respect the confidentiality of other members of the group. Confidentiality was guaranteed between each focus group.

Results

Following analysis of the data, the following themes emerged: perceived purpose of teams, perceptions about the structure of a team, team-based communication, the role of patients, delivery of interprofessional care.

Whilst the primary aim was to explore perceptions of healthcare teamwork, some participants may have included their experiences of social care. The themes will now be described with illustrative verbatim quotes and because focus group data is the outcome of a discursive process, no quoted material is attributed to individuals, but the provenance from the specific group is noted.

Perceived purpose of teams

Across all focus groups, participants recognised the presence of teams within healthcare and clearly described their experiences of teams within both primary and secondary care. A team approach was seen as advantageous in effective care, facilitating continuity of care and bringing together a range of healthcare professions such as medics, nurses, pharmacists, and physiotherapists:

> So you can have lots of different teams that interact; involved in your care. You can have your primary care team in your GP (general practitioner) practice but you might also have links with a team in a hospital. (FG2 A)

There was a consensus that the purpose of a team was wider that just providing clinical care; participants believed that a team should provide holistic care to participants, carers, and their families. Participants expected teams to work towards a common goal, with all team members having awareness of this goal and how it will be achieved. Such an approach was considered to facilitate continuity of care and quality assurance of the care provided.

> Working towards a common goal and knowing exactly what their objectives are and how they can, how they're all part of how they all achieve that goal you know, what's required of them…. So there's things like socio-economic class, social welfare issues. All those. And also for their direct people, their cares and families as well. (FG1 A)

However, there was a feeling throughout discussions that they themselves were often unaware of a team approach to their own care. From their experience, healthcare professionals introduced themselves as individuals and not as part of a team. However, there was a general view that they did perceive that staff working in the same department to be part of the same team.

> You just see the random people that come into your room or that are doing these different jobs but you don't actually know who that is or that's the team. (FG3 C)

Perceptions about the structure of a team

The overall makeup of an interprofessional team was seen to be influenced by the individual patients, as each patient's needs differ. Regardless of the professions involved in team, discussions revealed participants felt that each team would be different depending upon individual personality traits, experiences, strengths, and weaknesses.

> So you could have a whole set of different pharmacists and a whole different set of doctors and they all interact differently, and expect different things from themselves and other people. (FG1 A)

Participants described how a mix of experience (years qualified) was important in teams. Healthcare professionals who were more recently qualified were considered to have more up-to-date clinical knowledge and skills but the practical experience of making patients better could only be achieved though through years of clinical practice and exposure to non-textbook cases. Furthermore, the overall teams' knowledge, skills and competence was considered to be more important to patients than knowledge, skills and competence of individuals.

> The oldest can learn from the youngest as well. They're enthusiastic and sometimes a younger doctor or healthcare professional can know more because they've researched it, they've looked into it, they've got the enthusiasm for it…… just because you're the most qualified, doesn't mean that you can't learn from younger people. (FG3 E)

Focus group discussions supported the presence of hierarchies in teams and this was seen as a positive factor in team working and patient care. It was perceived that hierarchies facilitated teams in understanding who was "in charge" of a team, allowing all team member to know their place and understand their role within the team. Participants described hierarchies in teams as teams in which individuals had different levels of accountability, responsibility and decision-making.

> I think it allows everyone to know their place. Everyone has a status and they know that this is what I can do with my status. (FG2 C)

> Like they're all working together but you've got one main person main person whose making the decision, instilling confidence in people. (FG3 D)

> I think people need to know…..sort of who's in charge and what things there are to do and not overstep the boundaries. (FG3 E)

However, some participants did also feel that there were some disadvantages to having hierarchical structures. Hierarchies could result in patients speaking to the wrong person and not knowing who they should be "consulting" with. Furthermore, in order for a hierarchical structure to work,

individuals within the structure needed to respect others in the hierarchy. If respect for others was absent, the team would not work collaboratively and may undermine decisions made in the hierarchies which could be detrimental to patient care.

> So there's all kind of things where the wrong person can get asked if you have a hierarchical structure. (FG1 B)

An area for improvement, identified in the discussion in one focus group, was the lack of willingness of individuals lower down the hierarchy to make decisions. This was perceived to result from institutional culture as opposed to an individual's skill, knowledge and competency. However, participants involved in the discussions favoured being cared for by healthcare professionals who were actively involved in delivering their care on a day to day basis rather than a more senior healthcare professional, e.g. consultant, who was more withdrawn from their day to day care.

> The chances are if you're on a ward you don't see the boss man. You see all the soldiers. (FG1 E)

> But they obviously have got to report back to the boss man to say..... No I'd rather see the soldiers but they've got to be, they've got to be able to make the decisions as well. (FG1 C)

A leader was perceived to enhance a team's effectiveness and discussions. Participants described how the role did not reside with one individual but moved around a team or could be split across more than one individual. The challenges of this fluid role were also acknowledged and the need for trust and respect of others in a team were seen as key to this happening effectively.

> It's like a baton that's passed on. (FG1 A)

Team-based communication

Effective communication in teams was seen as key in ensuring that a team was functional and organised on a day-to-day basis and facilitated effective transfer of patient information between team members. Focus group discussions concurred that the absence of effective communication (verbal and written) could result in confusion over the care of the patient, suboptimal care and possible errors.

> Improve overall patient care to get the best for the patient because the communication between different healthcare professionals would help improve the overall patient care. (FG1 D)

There was a consensus, from their personal experiences, that information needed to be repeatedly given to the same and different healthcare staff. This was experienced across multiple appointments over a period of time, when they saw multiple healthcare professionals on one visit, e.g. in patient stay, and across care interfaces.

> So you spend 10-15minutes of the appointment recapping. You know they have the notes in front of them, they know someone else has written, we still have to tell basically why we are here. (FG1 C)

This repetitiveness was considered particularly frustrating since, in a time-limited consultation, a significant proportion of this time was allocated to repeating information from previous visits.

> So if you're going to spend that 10-15 minutes talking about something you've already delivered and has been noted somewhere, probably improperly. It's so infuriating. (FG1 A)

Access to information was thought to hinder the communication process and there was an overall consensus that IT systems were ineffective. Healthcare professionals were frequently unable to access health records and this perpetuated patients repeating information multiple times.

> Every single one of them wrote down notes, put them into their computer and then nothing happened because the next person I saw 10 minutes later didn't have access to that information. (FG1 C)

> I'm not actually in my office so I can't access them so do you know what those results were? (FG1 B)

The quality of communication was also highlighted in focus group discussions. There was frequently a lack of awareness at who people were, as individuals did not introduce themselves. Furthermore, the style of delivery of information was sometimes poor, with information being delivered as a matter of fact and failing to consider patient as individuals, their current knowledge and what they may need to know which often left patients feeling confused.

> My doctor looking after my mother. When he first told me that she'd got cancer. That was it. He just said that. It was very kind of blank. (FG2 D)

Discussions revealed that a lack of communication and poor communication resulted in patients feeling they were receiving poor care and *"abandoned"*. The lack of effective communication was *"confusing"* and *"stressful"* for patients leading to the perception that the team was not effective and the quality of care they received was being compromised.

The role of patients

There was a mixed view in focus group discussions as to whether the patient should actually be part of the team with some participants considering this to be key to successful care. However, some participants were uncomfortable with this notion, feeling that there would be a breach of "*patient-practitioner boundaries*". Some participants felt it was important to perceive that you were part of the team even though in reality you were not, whilst others felt it was important that as a patient you were an active team member.

> It's just your perception of feeling in part of the team because, this just my view obviously, but they're just the team but it's nice for you to feel involved and be included, be consulted and all the rest of it. (FG3 E)

> I think you should be involved. I don't think it should be a perception. I think you should. You have a right to be involved in your own care. (FG3 B)

Discussions led to the overall consensus that the importance of feeling they were part of the team could vary depending on the nature of care the patient needed and/or was receiving. In particular, it was considered important for patients who required mental health services, midwifery, physiotherapy or community services to feel part of a team. However, it was considered impractical for patients receiving

acute treatment, for example, emergency care, to be integrated within a team. This was due to the speed and intensity of care that may be required in such settings.

> I would think in mental health services or physiotherapy or something like that. You'd want to feel part of your own team. Like even midwifery, I can you even get your birth plan and you try and take ownership of it a little bit. A&E just so completely different because it's so fast. (FG3 B).

Delivery of interprofessional care

It was evident in discussions that participants who were from an older age group (55 years +), considered that a family approach to care was very valuable to patients. These participants reflected on the GP services prior to 2000, where many GP's were single-handedly providing their own out of hours cover. It was felt that this model allowed the GP to get to know each patient both medically and socially, understand individual family medical and social histories and were therefore more able to provide holistic care and enhance patient care. They reminisced about how a GP *"knew every single family"* and *"knew every single person who walked in through his door"* and this was considered a strength to the overall care provided. It enabled rapport to be built between the healthcare professionals and the patient, and they felt that the healthcare professional would bring previous knowledge relating to families to the consultation that could directly impact care treatment and prevention. Such an approach was considered a positive and enhanced overall care of families and not just individual patients.

> Also, someone who can support the family. Because I think, sometimes it can just be more about the patient and …… the family as well who are actually dealing with it as well. (FG2 C)

Discussion

Participants' views and expectations on the purpose and value of teams were in line with the literature (Jackson & Bluteau, 2011; Mickan & Rodger, 2005; Vyt, 2008; Xyrichis & Lowton, 2008). There was an agreement that teams need to consider the patient, carers, and other family members. Furthermore, a holistic approach to care whereby medical and social aspects of care are considered is key. It was evident from focus group discussions that social care needs to be integrated in patient care, and patient reflections referred to this approach in mental care teams. It was felt that in other areas of care, there was no or limited social care involvement.

The value of interprofessional teams, bringing together different expertise and experience, and the overall benefit to patient care as described by participants also aligned with the literature (Jackson & Bluteau, 2011; Mickan & Rodger, 2005; Vyt, 2008; Xyrichis & Lowton, 2008). Participants, however, were often unaware of the team approach and cited being unaware of which team was involved in their care. This reflects the findings of Parsons and colleagues (Parsons, Hughes, & Friedman, 2016). This implies that individuals and teams have not properly introduced themselves or have relied solely on verbal introductions, which patients may not be able to recall. This could result in patients receiving information and medical care from persons with whom they have little or no rapport. Delva et al. found that determining whether a group constituted a team and its membership challenging (Delva et al., 2008) and this could impact on whether healthcare professionals truly saw themselves as part of a team which, in turn, impacts how they present themselves to patients – as an individual or as a team. Within the literature, the manner in which a doctor greets their patient has been shown to be an influential aspect in establishing an effective and supportive rapport and provides the found the foundation of a satisfying patient experience. Such an approach would undoubtedly influence whether patients perceived them as individual healthcare professionals or as part of a team.

The national UK campaign "My name is……" in 2013 (Kmietowicz, 2015), highlighted the lack of introductions by healthcare staff to patients. Whilst the campaign has been widely endorsed by hospitals trust and NHS England (NHS England, 2015), it appears that more work may need to be undertaken. Focus groups were held after this campaign was launched, yet participants involved in this research still described the lack of introductions by healthcare staff, however, participants may be reflecting back on their experiences prior to this initiative. Providing patients with an information sheet or card that defines that defines team members name and role, and wearing a name badge in a visible location could improve patients' ability to recall names and create a greater sense of familiarity with their treating team.

Characteristics and attributes that facilitate effective teams and the function of those teams have been well documented in the literature (Grace et al., 2017; Reeves et al., 2010; Szafran et al., 2018; Nancarrow et al., 2013). A number of team attributes including communication, leadership, and understanding the roles of others were considered key. However, it was clear from focus group discussions that participants' views on teams and the key attributes they identified were heavily linked to their experience. Attributes such as a shared goal, team and team processes did not emerge from focus group discussions; however, these attributes would probably be invisible to patients as they occur behind the scenes and not at the practitioner–patient interface.

From participants experiences, many of the attributes identified through the literature as key for healthcare teams to be effective were lacking in practice. The trust that participants had in their care was inherent. Participants perceived all teams to be functional and providing optimal care unless their experiences resulted in them feeling differently. Participants did however feel there was a lack of trust between different healthcare professionals. This drove the repetition of information that respondents found to be frustrating and time-wasting. Today's litigious climate may make professionals more cautious and clarifying patient stories for themselves may make them as individuals feel reassured that they are providing the best care and minimising patient harm. Furthermore, staff shortages and the increasing reliance on locum/bank staff frequently result in staff working with people where they have no knowledge of that individual's knowledge, skills or competence.

Throughout the literature, communication was identified as critical to effective interprofessional team working (Jackson & Bluteau, 2011; Macdonald et al., 2010; Nancarrow et al., 2013; Youngwerth & Twaddle, 2011) and this view was mirrored by participants. Participants felt that communication was the key feature in effective teamwork, resolving inter-team conflict, promoting positive interpersonal relations, and improving interprofessional communication.

Participants recognised both the verbal and non-verbal aspects of communication, e.g., writing in patient notes. It was clear from focus group discussions that the written communication between healthcare professionals significantly influenced patient care. Participants believed that the limitations they experienced in the transfer of written information were as a result of a lack of trust between team members regarding the accuracy and completeness of the information. This resulted in the need for patient to repeat information leading to frustration and the perception of poor team working which undermined confidence in the team. Interestingly, participants focussed on delays in care and increased waiting times as an outcome of poor communication. They did not acknowledge how poor communication may influence patient concordance and medication errors. In order for regular and effective communication to happen, accessibility to the other members and the ability to use appropriate communication skills were identified as important.

In policy and the literature, the use of technology to support effective teamwork is clearly identified as a key attribute (James, Page, & Sprague, 2016; McLoughlin, Patel, O'Callaghan, & Reeves, 2018; NHS England, 2017). However, this appeared to be a source of frustration for participants. Accessing technology was a barrier and led to delays in care. Participants recounted numerous occasions where, despite technology (e.g. computers) being in place, individual healthcare professionals were unable to access the electronic patient records through lack of technological skills, or consultations occurring in a room where there was no computer. This resulted in a poor consultation for patients as healthcare professionals did not have access to relevant data or the patient having to reiterate their condition and care to date – a situation intensified as car and services are frequently delivered from different physical locations. The use of handheld technology was seen as a way of ensuring all clinicians had access to technology. However, this would not resolve problems of individuals being able to use the technology.

There is evidence within the literature that hierarchies can stifle interprofessional team working (Delva et al., 2008; Soklaridis et al., 2017). However, within the research, hierarchies were seen to be a mechanism for incorporating a range of experience within a team. Team members lower down the hierarchy were considered to have less years of service and more up-to-date knowledge, whilst those classed as being at the top of the hierarchies would have more exposure to a range of non-text book scenarios. This resulted in participants having increased confidence in a team where hierarchies were in place possibly as result of perceiving that they would be a non-textbook case. The ability of all healthcare professionals in a hierarchy having the ability and freedom to make decisions was cited as key to hierarchies being effective and viewed hierarchies as a support mechanism for healthcare professionals. They allowed individuals to discuss treatment with more experienced staff that could result in alternative treatments being suggested, thereby developing staff knowledge and influencing patient carers found by Mahmood-Yousuf et al. (Mahmood-Yousuf, Munday, King, & Dale, 2008).

Participants who had traditional experiences when a single doctor (general practitioner) cared for families, visited their homes and looked after all of their health needs, perceived this as an ideal model of care in primary care compared to the diversity and associated lack of consistency of care experienced today. The move from clinicians working in isolation has been driven by the view that such an approach was heavily dependent on one individual and may put the patient at risk, and the complexity of modern healthcare (NHS England, 2017; World Health Organization, 2016, 2018) was not identified as a concern for participants. This could be because of the view that all practitioners were skilled and competent individuals until something went wrong, coupled with a lack of awareness of the complexity of current healthcare. However, healthcare services differ across geographical locations and if the research had been undertaken elsewhere in the UK, this view may have been different and further research is needed on a wider scale to explore this area. There is a recognition that one care model cannot be used across England due to the diversity in patient populations and current health services (NHS England, Care Quality Commission, Health Education England, Monitor Public Health England, T. D. A, 2014) and perhaps the current model of care in this geographical location needs to be reviewed.

Mitchell et al. (2012) described the integration of the patient and/or family/caregiver into the team to establish a shared goal. Through integrating a patient into a team, the team could understand more fully the patient and family's need. Furthermore, patient safety and care and patient reports of their experiences and of their satisfaction with care could be improved through patient involvement in some form (Howe, 2006). However, challenges are associated with this including the ability of patients to undertake this role due to their illness, e.g., dementia, acute illness, alongside professionals' wariness. Whilst there was a mixed view from participants on being members of a team, they did describe the need for care to wider than just a patient presenting complaint and consider the holistic needs of patients. Thus, whilst some participants verbalised that they did not want to be part of the team, in reality, the merits that this would achieve were welcomed and further explanation on what this actually would look like may have resulted in a different outcome. Furthermore, the challenges of integrating patients and their families into teams can be daunting. Patients may feel unprepared whilst healthcare professionals and are often ill-equipped to practice collaboratively with patients (Mitchell et al., 2012). The government's current direction of facilitating patients gaining a greater control of their own care (NHS England, Care Quality Commission, Health Education England, Monitor Public Health England, T. D. A, 2014) will surely require patients to be part of the team in some manner/capacity.

A key theme throughout the focus group discussions was the patient's perceptions of interprofessional teams. They believed teams to work together and comprised the appropriate professionals with the appropriate knowledge, skills and competencies to give the best care possible. It was only when patient became aware of mistakes, a breakdown in the continuity of care, that they questioned the effective of that team. This suggests that the overall patient experience is important to patients. Such an experience is unsurprising as any team conflict should be behind the scenes and not exposed to patients. However, this may not be the case if patient were actively engaged in healthcare teams and as such the overall patient experience may be adversely affected.

Whilst the findings of this research illustrate ways in which the perceptions of patients and carers relates to the literature on teamwork, there are a number of limitations. The analysis relies on the views of a relatively small number of patients and presents their experiences and perceptions of healthcare teams, which limits the transferability of the findings. Focus groups were heterogeneous in terms of gender, age, social status, and ethnicity and this may have hindered discussions. Furthermore, age and gender may have influenced participants' exposure to different interactions with healthcare teams.

There is also likely to be a response bias in that individuals who volunteer to provide feedback through focus groups may choose to participate because they are particularly opinionated about their experiences of healthcare teams. The views shared may have also been influenced by the dynamics of being with participants who they did not know and therefore felt less comfortable to fully share their views and opinions.

Concluding comments

Key attributes that interprofessional teams should demonstrate to provide effective care have been well documented in the literature and a number of these are expected by patients in their care. Exposure to teams displaying these attributes impacts the patient experience and it is clear these attributes are not consistently present in patient care. This led to a limited understanding of the attributes especially relating to attributes that were not directly visible to them, e.g., team meetings, shared goal. Communication was considered the most important attribute in team working and appears to be the area where the patient experience can be significantly improved. It is clear from the findings of this research that further improvements in teamwork skills in healthcare are needed to achieve the international vision of the effective teamwork and collaborative practice. (NHS England, 2017; World Health Organisation, 2016).

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Declarations of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

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References

Aungst, T. D., & Belliveau, P. (2015). Leveraging mobile smart devices to improve interprofessional communications in inpatient practice setting: A literature review. *Journal of Interprofessional Care*, *29*(6), 570–578. doi:10.3109/13561820.2015.1049339

Azar, J. M., Johnson, C. S., Frame, A. M., Perkins, S. M., Cottingham, A. H., & Litzelman, D. K. (2017). Evaluation of interprofessional relational coordination and patients' perception of care in outpatient oncology teams. *Journal of Interprofessional Care*, *31*(2), 273–276. doi:10.1080/13561820.2016.1248815

Bainbridge, L., Nasmith, L., Hon, F., Orchard, C., & Wood, V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education*, *24*(1), 6–11. doi:10.1097/00001416-201010000-00003

Bainbridge, L., & Wood, V. I. (2013). The power of prepositions: A taxonomy for interprofessional education. *Journal of Interprofessional Care*, *27*(2), 131–136. doi:10.3109/13561820.2012.725231

Bardach, S. H., Real, K., & Bardach, D. R. (2017). Perspectives of healthcare practitioners: An exploration of interprofessional communication using electronic medical records. *Journal of Interprofessional Care*, *31*(3), 300–306. doi:10.1080/13561820.2016.1269312

Boaden, N., & Leaviss, J. (2000). Putting teamwork in context. *Medical Education*, *34*(11), 921–927. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11107017

Care Quality Commission. (2010). *NHS Staff survey 2010*. Retrieved from http://webarchive.nationalarchives.gov.uk/20110718105843/http:/www.cqc.org.uk/aboutcqc/howwedoit/engagingwithproviders/nhsstaffsurveys/staffsurvey2010.cfm

Chesluk, B., Bernabeo, E., Reddy, S., Lynn, L., Hess, B., Odhner, T., & Holmboe, E. (2015). How hospitalists work to pull healthcare teams together. *Journal of Helath Organization and Management*, *29*(7), 933–947. doi:10.1108/JHOM-01-2015-008

Delva, D., Jamieson, M., & Lemieux, M. (2008). Team effectiveness in academic primary health care teams. *Journal of Interprofessional Care*, *22*(6), 598–611. doi:10.1080/13561820802201819

Department for Children, Schools and Families, H. L. S. C. B. (2008). *Serious case review: Baby Peter*. Retrieved from www.haringeylscb.org/executive_summary_peter_final.pdf

Dow, A. W., Zhu, X., Sewell, D., Banas, C. A., Mishra, V., & Tu, S.-P. (2017). Teamwork on the rocks: Rethinking interprofessional practice as networking. *Journal of Interprofessional Care*, *31*(6), 677–678. doi:10.1080/13561820.2017.1344048

Dunn, S. I., Cragg, B., Graham, I. D., Medves, J., & Gaboury, I. (2018). Roles, processes, and outcomes of interprofessional shared decision-making in a neonatal intensive care unit: A qualitative study. *Journal of Interprofessional Care*, *32*(3), 284–294. doi:10.1080/13561820.2018.1428186

Fox, A., & Reeves, S. (2015). Interprofessional collaborative patient-centred care: A critical exploration of two related discourses. *Journal of Interprofessional Care*, *29*(2), 113–118. doi:10.3109/13561820.2014.954284

Francis, R. (2009). *Independent Inquiry into care provided by Mid Staffordshire NHS Foundation Trust January 2005 – March 2009* (Vol. I). London, UK: The Stationery Office. Retrieved from www.midstaffsinquiry.com/assets/docs/Inquiry_Report-Vol1.pdf

Gachoud, D., Albert, M., Kuper, A., Stroud, L., & Reeves, S. (2012). Meanings and perceptions of patient-centeredness in social work, nursing and medicine: A comparative study. *Journal of Interprofessional Care*, *26*(6), 484–490. doi:10.3109/13561820.2012.717553

Gibbs, G. R. (2007). *Analyzing Qualitative Data*. London, UK: SAGE Publications Ltd. http://dx.doi.org/10.4135/9781849208574

Gilbert, J. H. V., Yan, J., & Hoffman, S. (2010). *A WHO report: Framework for Action on Interprofessional Education & Collaborative Practice*. Geneva, Switzerland.

Grace, S., Innes, E., Joffe, B., East, L., Coutts, R., & Nancarrow, S. (2017). Identifying common values among seven health professions: An inter-professional analysis. *Journal of Interprofessional Care*, *31*(3), 325–334. doi:10.1080/13561820.2017.1288091

Harrod, M., Weston, L., Robinson, C., Tremblay, A., Greenstone, C., & Forman, J. (2016). It goes beyond good camaraderie": A qualitative study of the process of becoming an interprofessional healthcare "teamlet. *Journal of Interprofessional Care*, *30*(3), 295–300. doi:10.3109/13561820.2015.1130028

Howe, A. (2006). Can the patient be on our team? An operational approach to patient involvement in interprofessional approaches to safe care. *Journal of Interprofessional Care*, *20*(5), 527–534. doi:10.1080/13561820600936244

Institute of Medicine. (2003). *Health Professions Education: A Bridge to Quality*. Washington, DC: The National Academies Press. doi:10.17226/10681

Jackson, A., & Bluteau, P. (2011). Interprofessional education, collaborative practice and primary care. *InnovAiT*, *4*(4), 230–235. doi:10.1093/innovait/inq166

James, T. A., Page, J. S., & Sprague, J. (2016). Promoting interprofessional collaboration in oncology through a teamwork skills simulation programme. *Journal of Interprofessional Care*, *30*(4), 539–541. doi:10.3109/13561820.2016.1169261

Karazivan, P., Dumez, V., Flora, L., Pomey, M.-P., Del Grande, C., Ghadiri, D. P., … Lebel, P. (2015). The patient-as-partner approach in health care. *Academic Medicine*, *90*(4), 437–441. doi:10.1097/ACM.0000000000000603

Kmietowicz, Z. (2015). More than 400 000 NHS staff sign up to "Hello, my name is" campaign. *BMJ*, *350*(feb0311), h588–h588. doi:10.1136/bmj.h588

Kossaify, A., Hleihel, W., & Lahoud, J.-C. (2015). Team-based efforts to improve quality of care, the fundamental role of ethics, and the responsibility of health managers: Monitoring and management strategies to enhance teamwork. *Public Health*, *153*, 91–98. doi:10.1016/j.puhe.2017.08.007

Kuziemsky, C., & Reeves, S. (2012). The intersection of informatics and interprofessional collaboration. *Journal of Interprofessional Care*, *26*(6), 437–439. doi:10.3109/13561820.2012.728380

Langins, M., & Borgermans, L. (2015). Strengthening a competent health workforce for the provision of coordinated/integrated health services, 1–38.

Macdonald, M. B., Bally, J. M., Ferguson, L. M., Lee Murray, B., Fowler-Kerry, S. E., & Anonson, J. M. S. (2010). Knowledge of the professional role of others: A key interprofessional competency. *Nurse Education in Practice*, *10*(4), 238–242. doi:10.1016/j.nepr.2009.11.012

Mahmood-Yousuf, K., Munday, D., King, N., & Dale, J. (2008). Interprofessional relationships and communication in primary palliative care: Impact of the gold standards framework. *British Journal of General Practice*, *58*(549), 256–263. doi:10.3399/bjgp08X279760

Matziou, V., Vlahioti, E., Perdikaris, P., Matziou, T., Megapanou, E., & Petsios, K. (2014). Physician and nursing perceptions concerning interprofessional communication and collaboration. *Journal of Interprofessional Care*, *28*(6), 526–533. doi:10.3109/13561820.2014.934338

McLoughlin, C., Patel, K. D., O'Callaghan, T., & Reeves, S. (2018). The use of virtual communities of practice to improve interprofessional collaboration and education: Findings from an integrated review. *Journal of Interprofessional Care*, *32*(2), 136–142. doi:10.1080/13561820.2017.1377692

Mickan, S. M., & Rodger, S. A. (2005). Effective health care teams: A model of six characteristics developed from shared perceptions. *Journal of Interprofessional Care*, *19*(4), 358–370. doi:10.1080/13561820500165142

Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., & Rohrbach, V. V. K. I. (2012). *Core principles and values of effective team-based health care*. Washington DC. Retrieved from www.iom.edu/tbc

Nancarrow, S. A., Booth, A., Ariss, S., Smith, T., Enderby, P., & Roots, A. (2013). Ten principles of good interdisciplinary team work. *Human Resources for Health*, *11*(1), 19. doi:10.1186/1478-4491-11-19

NHS England. (2015). Compassion in care campaign hits new milestone. Retrieved June 22, 2016, from https://www.england.nhs.uk/2015/02/hellomynameis/

NHS England. (2017). *Next steps on the NHS Five Year Forward View*. London, UK. Retrieved from https://www.england.nhs.uk/wp-content/uploads/2017/03/NEXT-STEPS-ON-THE-NHS-FIVE-YEAR-FORWARD-VIEW.pdf

NHS England, Care Quality Commission, Health Education England, Monitor Public Health England, T. D. A. (2014). *NHS five year forward view*. London, UK. Retrieved from www.england.nhs.uk/ourwork/futurenhs

Parsons, S., Winterbottom, A., Cross, P., & Redding, D. (2010). *The quality of patient engagement and involvement in primary care*. London, UK: The Kings Fund.

Parsons, S. R., Hughes, A. J., & Friedman, N. D. (2016). 'Please don't call me Mister': Patient preferences of how they are addressed and their knowledge of their treating medical team in an Australian hospital. *BMJ Open*, *6*(1), e008473. doi:10.1136/bmjopen-2015-008473

Reeves, S. (2012). The rise and rise of interprofessional competence. *Journal of Interprofessional Care*, *26*(4), 253–255. doi:10.3109/13561820.2012.695542

Reeves, S., Lewin, S., Espin S., & Zwarenstein M. (2010). *Interprofessional teamwork for health and social care*. Chichester, Sussex: Wiley-Blackwell.

Reeves, S., McMillan, S. E., Kachan, N., Paradis, E., Leslie, M., & Kitto, S. (2015). Interprofessional collaboration and family member involvement in intensive care units: Emerging themes from a multi-sited ethnography. *Journal of Interprofessional Care*, *29*(3), 230–237. doi:10.3109/13561820.2014.955914

Reeves, S., Xyrichis, A., & Zwarenstein, M. (2018). Teamwork, collaboration, coordination, and networking: Why we need to distinguish between different types of interprofessional practice. *Journal of Interprofessional Care*, *32*(1), 1–3. doi:10.1080/13561820.2017.1400150

Robson, C. (2011). *Real World Research* (3rd ed.). Chichester, UK: John Wiley & Sons limited.

Royal College of General Practitioners. (2006). *The RCGP Curriculum: Core Curriculum statement*. London, UK: The Royal College of General Practitioners.

Sargeant, J., Loney, E., & Murphy, G. (2008). Effective interprofessional teams: "contact is not enough" to build a team. *The Journal of Continuing Education in the Health Professions*, *28*(4), 228–234. doi:10.1002/chp.189

Schroder, C., Medves, J., Paterson, M., Byrnes, V., Chapman, C., O'Riordan, A., … Kelly, C. (2011). Development and pilot testing of the collaborative practice assessment tool. *Journal of Interprofessional Care*, *25*(3), 189–195. doi:10.3109/13561820.2010.532620

Sidani, S., Reeves, S., Hurlock-Chorostecki, C., van Soeren, M., Fox, M., & Collins, L. (2018). Exploring differences in patient-centered practices among healthcare professionals in acute care settings. *Health Communication*, *33*(6), 716–723. doi:10.1080/10410236.2017.1306476

Soklaridis, S., Romano, D., Fung, W. L. A., Martimianakis, M. A., Tina, Sargeant, J., Chambers, J., … Silver, I. (2017). Where is the client/patient voice in interprofessional healthcare team assessments? Findings from a one-day forum. *Journal of Interprofessional Care*, *31*(1), 122–124. doi:10.1080/13561820.2016.1233393

Stacey, G., Felton, A., Morgan, A., Stickley, T., Willis, M., Diamond, B., … Dumenya, J. (2016). A critical narrative analysis of shared decision-making in acute inpatient mental health care. *Journal of Interprofessional Care*, *30*(1), 35–41. doi:10.3109/13561820.2015.1064878

Szafran, O., Torti, J. M., Kennett, S. L., & Bell, N. R. (2018). Family physicians' perspectives on interprofessional teamwork: Findings from a qualitative study. *Journal of Interprofessional Care*, *32*(2), 169–177. doi:10.1080/13561820.2017.1395828

Thomson, K., Outram, S., Gilligan, C., & Levett-Jones, T. (2015). Interprofessional experiences of recent healthcare graduates: A social psychology perspective on the barriers to effective communication, teamwork, and patient-centred care. *Journal of Interprofessional Care*, *29*(6), 634–640. doi:10.3109/13561820.2015.1040873

Vyt, A. (2008). Interprofessional and transdisciplinary teamwork in health care. *Diabetes/Metabolism Research and Reviews*, *24*, 106–109. doi:10.1002/dmrr.835

West, M. A., & Lyubovnikova, J. (2013). Illusions of team working in health care. *Journal of Health Organization and Management*, *27*(1), 134–142. doi:10.1108/14777261311311843

Wilson, A. J., Palmer, L., Levett-Jones, T., Gilligan, C., & Outram, S. (2016). Interprofessional collaborative practice for medication safety: Nursing, pharmacy, and medical graduates' experiences and perspectives. *Journal of Interprofessional Care*, *30*(5), 649–654. doi:10.1080/13561820.2016.1191450

World Health Organization. (2016). *Health workforce requirements for universal health coverage and the sustainable development goals. Background paper No. 1 to the Global Strategy on Human Resources for Health*. Geneva, Switzerland.

World Health Organization. (2016). *Integrated Care models: an overview*. Copenhagen, Denmark: WHO.

World Health Organization. (2018). *14th Annual Meeting Report of Integrated Health Services Delivery Focal Points*. Copenhagen, Denmark: WHO.

Xyrichis, A., & Lowton, K. (2008). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies*, *45*(1), 140–153. doi:10.1016/j.ijnurstu.2007.01.015

Youngwerth, J., & Twaddle, M. (2011). Cultures of interdisciplinary teams: How to foster good dynamics. *Journal of Palliative Medicine*, *14*(5), 650–654. doi:10.1089/jpm.2010.0395

Appendix 20 – Published journal article "Are pharmacy students adequately prepared to work in healthcare teams?

RESEARCH ARTICLE

Are pharmacy students adequately prepared to work in healthcare teams?

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Abstract

Collaborative practice and integrated healthcare are a key focus of healthcare provision internationally. Key attributes of healthcare teams are well documented in the literature and team-working skills have been incorporated into education standards for undergraduate pharmacy students in the United Kingdom (UK). The aim of this research is to explore pharmacy students' understanding of team-working attributes and their preparedness for their future careers in integrated healthcare teams.

Participants were recruited via convenience sampling and four focus groups were conducted. Thematic analysis identified a number of team attributes including communication, clear roles and responsibilities, team dynamics and leadership. Communication and leadership skills were perceived to be the most important attributes in team-working and it is clear from the findings of this research that, in preparation for future practice, students would like to develop these skills through further exposure to opportunities that are incorporated into the undergraduate degree programme.

Keywords: *Curriculum, Inter-professional Education, Students, Teamwork*

Introduction

Collaborative practice and integrated healthcare are key priorities for healthcare provision internationally (World Health Organisation [WHO], 2018). Delivery of integrated healthcare has resulted in new models of care being implemented that focus on the integration of various strands of healthcare services (WHO, 2016). Integrated health services, and associated integrated health teams, are key to the success of delivering coordinated and seamless care (Frenk *et al.*, 2010; Reeves, Xyrichis, & Zwarenstein, 2017) reinforcing the need for healthcare teams to have an increased understanding of the complexities of inter-professional practice to provide high-quality patient care (Reeves *et al.*, 2017).

In recent years in the United Kingdom (UK), maximising the role of the pharmacist in the provision of patient care, alongside other healthcare professionals, is considered crucial to optimise medicines usage (NHS England, 2017) and requires pharmacists to be able to work effectively as part of these integrated teams (Public Health England, 2017). Key attributes of healthcare teams are well documented in the literature - these are outlined in Figure 1.

To facilitate the development of inter-professional teams, team-working skills have been incorporated into the General Pharmaceutical Council (GPhC) education standards for undergraduate pharmacy students in the UK. These standards require students to demonstrate they can engage in inter-professional team-working and work effectively within teams (GPhC, 2011) and experience learning associated with inter-professional practice. During their pre-registration training, students should actively engage in multidisciplinary team-working to help

prepare them to work effectively within teams as they embark on their careers as registered pharmacists (GPhC, 2011). Other regulators of healthcare professionals, including medicine and nursing, have similar requirements in their education standards (Nurse and Midwifery Council, 2010; General Medical Council, 2015; Health and Care Professions Council, 2017).

This research aimed to explore pharmacy students' understanding of team-working attributes and their preparedness for their pre-registration year and future careers in integrated healthcare teams. The analysis is was driven by two research questions:

- What are students' understanding of team-working attributes?
- What opportunities exist in their degree programme to facilitate the development of team-working skills?

Figure 1: Team working attributes

- **Communication:** Effective communication assists in improving inter-professional communication and relationships, breaking down professional barriers, resolving any conflict within teams and promoting innovation (Jackson & Bluteau, 2011; Nancarrow *et al.*, 2013; Kossaify *et al.*, 2015; Szafran *et al.*, 2018).
- **Understanding of role:** An understanding of the roles and responsibilities of other team members and their scope of practice allows team members to understand how the roles of others are complementary to their own (Sargeant *et al.*, 2008; Macdonald *et al.*, 2010; Jackson & Bluteau, 2011; Nancarrow *et al.*, 2013; Szafran *et al.*, 2018).
- **Interpersonal relationships:** Mutual trust, support and valuing other team members' roles positively influences team-working (Jackson & Bluteau, 2011; Nancarrow *et al.*, 2013; Szafran *et al.*, 2018). Hierarchies and power differences are seen to have a negative impact on team cohesiveness and team-working (Delva *et al.*, 2008).
- **Team structure:** Healthcare teams frequently vary in terms of their 'make-up'. The size of the team, team composition, skills and competencies within the team are identified in the literature as key requirements for an effective team and are influenced by the needs of the patient and the team's remit (Delva *et al.*, 2008; Xyrichis & Lowton, 2008; West & Lyubovnikova, 2013).
- **Team processes:** Managing a patient requires knowing how to identify and access the right provider; delegate, share, and transfer care; and address policy differences among organisations (Nancarrow *et al.*, 2013; Szafran *et al.*, 2018).
- **Shared goal:** Shared goals are seen to make teams more cohesive. These shared goals should be established, understood and supported by all team members (Vyt, 2008; Jackson & Bluteau, 2011; Schroder *et al.*, 2011; West & Lyubovnikova, 2013). Achievement of shared goals appears to be more challenging in situations involving multiple agencies (Yerbury, 1997).
- **Leadership and management:** Clear leadership provides teams with clear team objectives, clear direction and management, high levels of team engagement, and team members felt supported, supervised and developed (Jackson & Bluteau, 2011; Bainbridge & Wood, 2013; Nancarrow *et al.*, 2013; Kossaify *et al.*, 2015; Vestergaard & Norgaard, 2018).
- **Organisational factors:** The environment within which different teams operate can influence team effectiveness. People working across different organisations and referral of patients between team members can lead to gaps in service provision or duplication of services (Boaden & Leaviss, 2000; Vestergaard & Norgaard, 2018). Practical issues, including access to patient records, also impact on team effectiveness and an inter-professional approach (Vyt, 2008).

Method

Study design

A qualitative study involving focus groups was conducted with a convenience sample of 19 students in their third and fourth year of the Master's of Pharmacy programme at a UK Higher Education Institute (HEI) following university ethical approval (14/PBS/004).

Interview guide and patient story

A focus group guide, based on existing team-working literature, was used to explore this area including the purpose and value of teams in patient care, key attributes and their impact on patient care. A patient story, developed from the experiences of practitioners, was also used in the focus groups to prompt discussions.

Participant selection and recruitment

Students in their third and fourth year of study on the Master's of Pharmacy programme were invited, via email, to participate in the research. All participation was voluntary and students were informed about the objectives and purpose of the study prior to agreeing to participate. Written consent was obtained from each participant prior to the focus groups.

Data collection and analysis

Focus groups were organised in a room within the university, at mutually convenient times for the participants, and were homogenous to the students' year of study (third or fourth year). All focus groups were facilitated by the author and participants were asked to provide responses to the questions on the focus group guide. Towards the end of the focus group, the patient story was distributed to participants so they could consider if they wished to add anything further to the discussions. All focus groups were digitally recorded and transcribed verbatim prior to data analysis. Data were anonymised at the transcription stage and was checked for accuracy by another researcher in the research team. Data collection continued until data saturation was achieved as students started to repeat themselves.

A grounded theory approach (Robson, 2011) was adopted to establish emerging themes using NVivo 10 software. Coding was undertaken by the author and all codes were subsequently subjected to peer scrutiny by two colleagues in the research team to ensure appropriateness, consistency, accuracy of codes and dependability of the findings (Gibbs, 2007). Any divergence in coding was discussed within the research team and an appropriate resolution was identified. The research team collectively categorised specific codes into the key research themes that are detailed below.

Results

Four focus groups were conducted and the average duration of the focus groups was 62 minutes (60-66 minutes). The two third year focus groups comprised five and four students respectively, and both forth year focus groups comprised five students. One third of participants were female; one student was a mature student and one student was an international student (outside Europe). As focus group data are the outcome of a discursive process, no quoted material is attributed to any individual respondent, but the year of study is noted. The results are organised in accordance with the two research questions. The first section presents student understanding of teamwork and professional roles; the second section presents curriculum opportunities and suggested developments.

Student understanding of team characteristics

The four themes that related to the characteristics of integrated teams that emerged from the analysis were: communication, clear roles and responsibilities, team dynamics, and leadership.

Communication

Students recognised that communication referred to communicating with a range of different stakeholders including healthcare professionals, patients, carers and other family members. Effective communication was seen as key in ensuring that a team was functional and organised and, that it facilitated effective transfer of patient information between team members. As one group discussed,

> *If there's no communication between members, information is just not going to get passed on.*
>
> [Third-year focus group]

There was consensus that the absence of effective communication could result in key information not being transferred between team members, which could result in confusion over patient care, suboptimal care and possibly errors.

> *If the team aren't communicating properly, it's going to be detrimental to the patient. Things don't get done and there's going to be medication errors.*
>
> [Fourth-year focus group]

The need to adapt communication depending on individual patients, such as those with hearing difficulties, was highlighted across all focus groups. Student discussions focussed on verbal communication and that the UK is a multicultural society, which could result in challenging communication if a patient's first language was not English.

Clear roles and responsibilities

Students expressed that it was imperative that team members understood their roles and responsibilities, as well as those of other team members. In doing so, individuals would know what the expectations of them are, undertake this "agreed" role and ensure that they are suitably competent to fulfil their role. Overall, a better understanding of roles and responsibilities in a team was seen by participants to help facilitate seamless care and minimise delays in patient care.

Knowing your own role is the most important because I think until you understand what your role is, you're never going to be able to do your job properly. [Third year focus group]

Defining roles and responsibilities was generally considered important to prevent a "blame" culture and to foster relationships between individual team members.

Team dynamics

Hierarchies, workload and compassion were discussed across all focus groups. Team hierarchies were seen as a positive factor that help members understand who was "in charge" of a team and allowed everyone to know their place and better understand their role within the team.

That's why I was saying hierarchy - then everyone has a status and they know that this is, what I can do with my status. [Third year focus group]

Compassion for, and an understanding of, the workload and pressures affecting other team members was perceived to reduce conflict in a team and provided a better understanding of what might be hindering an individual to effectively fulfil their role. Also, an understanding of factors that affect team members might facilitate support and changes in the team to help others, which could minimise mistakes.

I think it's important… finding out when someone maybe isn't doing as well as they could, or helping each other in that sort of way or taking workload off others if someone is struggling. [Third year focus group]

Students felt strongly that the attitude of individuals in a team will affect team-working and that compassion had its limits. In particular, effort and laziness of team members were highlighted as issues. This was not seen as related to knowledge and skill, but to an individual's willingness to work and be part of the team. Students did not have sympathy for poor performance. Furthermore, they suggested that individuals who did not engage had a negative impact on the overall performance of a team.

Everyone needs to be putting in effort but if someone is lacking then that is obviously going to hold the team behind. [Third year focus group]

This might lead to inefficient service, mistakes being missed and possible patient harm.

You could be missing things, increasing the risk of error to a patient [Fourth year focus group]

However, students also recognised that lack of effort was not always intentional and good communication could make individuals aware of this and facilitate a change in their performance.

I think people sometimes think that they have done enough when maybe others think that they haven't. [Third year focus group]

It goes back to the communication…. It just takes someone to say "look, you know, we kind of need you to step up a little bit and do a bit more". [Fourth year focus group]

Leadership

There was an overall consensus that leadership was fundamental to a team's effectiveness, however, students viewed leadership in terms of a team leader rather than a sense of leadership across a team.

[The leader] *is probably the most valuable sort of person in the team in terms of what they can bring to the team.* [Third year focus group]

Students believed the role of the team leader was to *"organise and delegate"* [Fourth year pharmacy student]. They, for example, allocate work, arrange meetings, settle disagreements and make decisions to ensure aims and targets were achieved.

You need someone who can, you know, pull it together and make sure deadlines and things like that have been met. [Fourth year focus group]

This person basically arranges the meetings, making sure all the work is done by the other members. [Third year focus group]

Of particular note is the view of final year students who felt that a leader was someone who "*can see the bigger picture*" and "*look at the strengths and weaknesses or each team member and the skills they can bring forward and use them collectively to complete a goal or task*" thereby bringing "*the best out of everyone*" [Fourth year pharmacy student].

One fourth year group deviated from the idea of an overarching team leader and explored the notion of collective leadership. They felt that some teams could be effective in the absence of a single leader if the individuals making up that team were motivated, had a common aim and were part of a cohesive team.

You can have situations where everyone agrees on the same thing. They all know what they want to do with it and they just move forward with it, without a leader. [Fourth year focus group]

Current opportunities within the curriculum

Students identified a number of teamwork focused teaching and summative coursework activities, including

curriculum-based activities, placements and simulated learning, and assessments.

Curriculum-based activities

In general, students did not feel that they were developing teamwork skills. There was consensus that whilst there were lectures and workshops in the first year of the course with a focus on communication, there was no opportunity to practice these skills through simulated scenarios or in a workplace setting. It was felt that students should be exposed to opportunities to do this in the first year and then build on their skills year on year.

> *In the first year, we go through this, but we didn't really have a real practise of this. Maybe we can start using these* [simulated practice] *a little bit earlier like in the first year. Like repeat in the second year and maybe we can do it well on third year.* [Third year focus group]

Students described how group work was often aligned to a summative assessment and the group focused on achieving the assessment and paid little attention to how they worked together and teamwork skills.

> *Instead of trying to work as a good team they're more worried about the end of this. They need to have a piece of work to show for this and that's how we are assessed.* [Third year focus group]

In particular, students felt that both communication and leadership skills could be developed though curriculum-based activities including lectures, workshops and group work.

> *Maybe have more formal* [teaching] *around developing leadership skills.* [Fourth year focus group]

There was consensus that it would be beneficial to include more opportunities for students to participate in more inter-professional team-related learning activities. Students believed that in doing so, they could develop a greater understanding of the roles of others, and improve their leadership and communication skills.

> *In second year, I did the inter-professional learning with the medical students and… we worked as part of a team then and… we had to work alongside them.* [Fourth year focus group]

> *So we're more comfortable communicating with other healthcare professionals because we've had that interaction.* [Fourth year focus group]

Students suggested that participating in lectures or "question and answer" sessions with other health and social care professionals could improve their knowledge of the roles of others in a team and also help break down barriers between professional groups.

> *Having some guest lectures from you know – I know they are ridiculously busy but a doctor coming in or a GP coming in and them saying how they feel they can be supported by a pharmacist and how they can support the pharmacist and kind of opening up that dialogue right from the word go.* [Third year focus group]

Placements and simulated learning

Students described how placements in community and hospital pharmacies allowed them to see a team in action, where they could witness day-to-day experiences of pharmacists and gain a better understanding of their future role.

> *Hospital placements help, really helped in defining the roles, our future roles as pharmacists especially if it's going to be in hospital.* [Third year focus group]

In particular, final year students felt that the simulated learning sessions that they attend in the third and fourth year gave them an insight into healthcare teams and team-working. Students described how they felt that communication between healthcare professionals also facilitated an understanding of the roles of others and promoted team-working that ultimately would impact on patient care.

> *We work with nurses and medics for the first time so we get an insight into what it is like to work within an actual healthcare team.* [Fourth year focus group]

> *When they realised… we could be of help to them, we started like communicating quite a lot between one another and, you know, that I found was quite good and it was good for them as they realised they had someone else to talk to and they don't just have to rely on themselves to make a decision.* [Fourth year focus group]

Through simulated scenarios, students observed how attributes lacking in a team can impact negatively on team-working and patient care.

> *We've seen time and time again, especially through simulation this year, if teams aren't communicating properly it's going to be detrimental to the patient. Things don't get done. There's going to be medication errors.* [Fourth year focus group]

> *So because nobody was talking to each other the patient could have been given the wrong dose of adrenaline. Things just seem to fall apart if you're not communicating.* [Fourth year focus group]

Increased opportunities to go on more placements, widening the range of activities undertaken at placements, and undertaking more inter-professional workshops or simulated learning were cited in focus group discussions as ways of developing teamwork attributes in undergraduate students.

The challenges and limitations of organising placements and simulated learning were recognised by students and whilst students perceived these to be beneficial activities, they also suggested classroom-based activities that could facilitate the development of attributes.

> *We could have done smaller workshop groups, maybe with one of the nurses coming here or even a few of us going out to one place and having a Q&A.*

[Third year focus group]

Maybe things like this [referring to patient story in the focus group]. *Even then afterwards say like "what did you think? What qualities were useful? What did you do wrong?". Sort of evaluating each others' performance in the team and as a team.*

[Third year focus group]

Assessments

Both the challenges and benefits of teamwork in assessments that involved group work were discussed. The need to work as a team to successfully complete the assessment and gain higher marks was recognised by all students. However, this appeared to be dependent on the individual team members and the relationships between each other.

I think it taught us how to work with different types of people. [Fourth year focus group]

Some students felt that activities requiring effective teamwork gave them an insight into how to manage other team members in the future workplace. The benefits of having a leader in the group to keep the group on track to achieve the aim was seen as key in organising meetings and allocating tasks.

It made us see the importance of having a leader within the team, who kind of needs to take charge. [Fourth year focus group]

Final year students felt that the assessed Observed Structure Clinical Examinations (OSCEs) help them develop communication skills. However, a number of students felt that the OSCEs did not adequately prepare them for communication in practice as they lacked confidence when they needed to communicate with an actual patient or healthcare professionals. Students suggested this was as a result of them communicating with academic staff whom they knew in the OSCEs and therefore did not necessarily reflect communication in real life as a pharmacist. It was suggested that observing a pharmacist communicating with patients, for example during a Medicines Use Review, would be beneficial to their development.

So we do like our OSCEs you know and little things like that but it's not like, it's not the same as when you go out say on placement. You have to talk to a patient and we all panic because we don't have that skill of being able to talk to an actual patient.

[Fourth year focus group]

We don't get the communication of communicating with a complete stranger. [Fourth year focus group]

Discussion

The aim of this study was to explore pharmacy students' understanding of team-working attributes and their preparedness for working in integrated healthcare teams in their future careers. Characteristics and attributes that facilitate effective teams and the function of those teams have been well documented in the literature (Delva, Jamieson, & Lemieux, 2008; Vyt, 2008; Szafran *et al.*, 2018) and students demonstrated an awareness of a number of key attributes.

Throughout the literature, communication has been identified as critical to effective inter-professional team-working (Figure 1) and students had a similar view. Effective communication is part of the indicative syllabus for pharmacy programmes (GPhC, 2011). It is clear from the current research that students see the value of effective communication and want more opportunities to develop this core skill. The overall consensus was that ineffective verbal communication could lead to medication errors, poor clinical care and poor team-working. Communication was seen as the cornerstone to effective team-working.

Furthermore, students did not differentiate between formal and informal communication as described by Youngwerth and Twaddle (2011) and focus group discussions centred on verbal communication. This limited perspective on communication could have been influenced by their education and experiences which may have focused heavily on verbal communication. Exposure to formal communication and information exchange needs to be considered in pharmacy degrees to provide students with a holistic understanding of effective communication. Whilst other healthcare professionals, such as medics and nurses, use the acronym 'SBAR' (Situation, Background, Assessment, Recommendation) to facilitate effective oral communication, this framework is not widely used or taught to pharmacists (ACT Academy, 2018). SBAR facilitates standardised communication and allows parties to have common expectations related to what is to be communicated and how the communication is structured, thereby establishing a culture of quality, patient safety and high reliability. As pharmacists become more integrated into healthcare teams, it is imperative that they also use standardised processes to facilitate collaboration, trust and respect amongst team members and ensure patient safety is not compromised. Incorporation of the SBAR framework into undergraduate training would therefore be advantageous.

Final year students frequently made links between communication and other team attributes including mutual trust, a common aim and understanding of the role of others. In line with previous literature (Xyrichis & Lowton, 2008; Youngwerth & Twaddle, 2011), it was perceived by students that without good communication these aspects of effective teams would not be fully develop and overall team-working would be affected. Final year students could see how communication also allowed them to develop relationships with other team members, with students specifically referring to how communication facilitated team-working and an understanding of the roles and skills of others, both of which are attributes identified in the literature in

association with effective teams (Youngwerth & Twaddle, 2011). Their participation in simulated learning in their final year, whereby students work in inter-professional teams with final year nursing and medical students, provided students with an opportunity to begin to develop inter-professional and interpersonal relationships. This aligns with the findings of Oxelmark and colleagues (Oxelmark *et al*., 2017) who reported that inter-professional simulation-based education enabled students to gain an understanding of the complexities of communication and teamwork, and resulted in an improved understanding of the roles of other healthcare professionals.

Students had a positive perspective on hierarchy. This finding does not appear to be shared by qualified healthcare professionals as research has indicated that hierarchical structures hinder team-working and team cohesiveness (Delva *et al*., 2008). There could be a number of reasons for such a discrepancy. Within the literature, healthcare professionals involved in the research may have been practising for a number of years resulting in a negative experience of hierarchies caused by stifling clinical practice and team development (Delva *et al*., 2008). The support and guidance students perceived hierarchies would provide may not be needed by more experienced healthcare professionals. Whilst there is an increased focus in universities of self-directed learning within universities, students are still learning in a structured and hierarchical environment and, as such, may not consider the possibility that a team may not have a hierarchy and individuals are considered equal.

Published accounts of focus group discussions describe the need for clearly defined roles for team members (Macdonald *et al*., 2010; Schroder *et al*., 2011; Youngwerth & Twaddle, 2011; Bainbridge & Wood, 2013; Nancarrow *et al*., 2013). Role ambiguity and a "purposeful role blurring" is described as "troublesome" by Youngwerth and Twaddle (2011), impeding effective collaboration. Students saw overlapping skills as beneficial in teams as it facilitated a reduction in workload, increased workflow, reduced the patient waiting time, and therefore their overall experience. This work ethos is commonly seen in community pharmacy where pharmacists frequently dispense during busy times to help dispensers manage their workload; most students will have experienced or observed this working practice.

Mutual trust and support has been described in the literature (Institute of Medicine, 2003; Delva *et al*., 2008; Jackson & Bluteau, 2011; Youngwerth & Twaddle, 2011), as key to effective team-working, a view shared by students. However, in contrast to the Institute of Medicines (2003) who describe how trust and respect need to be earned, focus group discussions implied students believed that mutual trust and respect were inherent in teams initially but could be broken by poor team-working (Mitchell *et al*., 2012). This view may be influenced by the group working students undertake. However, students feel they are frequently faced with challenges in the group work including a lack of knowledge and commitment by other team members. It is at this point when problems in the team-working arise that students begin to lose respect and trust in fellow students. This is reflected in the students' views that effort and laziness by other team members affects team-working.

Students recognised that teams contain multiple people with different roles. However, beyond a leader and a hierarchy within a team, they did not recognise the wider aspects of team structures. However, within the literature, the structure of a team, including its size, composition, the skills and competencies of individuals within the team, were identified as key requirements to consider to ensure effective teams (Xyrichis & Lowton, 2008; Bainbridge *et al*., 2010; Jackson & Bluteau, 2011; West & Lyubovnikova, 2013). Students' group work at university takes place generally within small groups of four - six and any practical or real-life experience of team-working is more likely to be a small team working in community pharmacies. Therefore, based on their experiences so far, students may have assumed that teams are generally of a similar size based in one location.

Overall, students felt that university education could facilitate the development of communication, leadership and role understanding. Placement and simulated learning were seen as ideal ways to facilitate this but students felt that classroom-based activities could also help to develop these skills. It is imperative that students are exposed to situations that provide opportunities for patient contact so students can explore the wider needs of patients. A scoping review (Fox *et al*., 2018) supported the inclusion of inter-professional education in the training of healthcare professional students to help them develop the relevant skills to prepare them to participate in inter-professional roles and teams. The inclusion of such opportunities for undergraduate healthcare students is supported by other reports (Thomson *et al*., 2015; Wilson *et al*., 2016).

On completion of the pre-registration year, future pharmacists should demonstrate that they "engage in multidisciplinary team-working" (GPhC, 2011). However, there is little research to date on teamwork curriculum that is currently taught across pharmacy programmes in the UK and how this influences their future roles in inter-professional teams. Further research to explore current team-working syllabi and how this links to the evidence of key team-working attributes is needed.

This study contains a number of limitations. Convenience sampling was used to recruit participants and the small scale of the study limits the generalisability of the findings and may not be representative of a broader cross section of undergraduate pharmacy students.

Conclusion

Students identified a number of key attributes that are considered important if a team is to be effective. Communication and leadership skills were considered the most important attributes in team-working and it was

felt that exposure to further opportunities to develop these skills should be incorporated into the undergraduate degree programme in preparation for their future practice. Placements and simulated learning were recognised as valuable opportunities in which to do this and further placement opportunities will allow students to experience inter-professional team-working that will ultimately help better prepare students for their future roles.

Declarations of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

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References

ACT Academy. (2018). SBAR communication tool - situation, background, assessment, recommendation (online). Available at: https://improvement.nhs.uk/resources/sbar-communication-tool/. Accessed 30th January, 2020

Bainbridge, L., Nasmith, L., Hon, F., Orchard, C., & Wood, V. (2010). Competencies for Interprofessional Collaboration. *Journal of Physical Therapy Education*, **24**(1), 6–11

Bainbridge, L., & Wood, V.I. (2013). The power of prepositions: a taxonomy for interprofessional education. *Journal of Interprofessional Care*, **27**(2), 131–136. doi: https://doi.org/10.3109/13561820.2012.725231

Boaden, N., & Leaviss, J. (2000). Putting teamwork in context. *Medical Education*, **34**(11), 921–927. doi: 10.1046/j.1365-2923.2000.00794.x

Delva, D., Jamieson, M., & Lemieux, M. (2008). Team effectiveness in academic primary health care teams. *Journal of Interprofessional Care*, **22**(6), 598–611. doi: https://doi.org/10.1080/13561820802201819

Fox, L., Onders, R., Hermansen-Kobulnicky, C., Nguyen, T., Myran, L., Linn, B., & Hornecker, J. (2018). Teaching interprofessional teamwork skills to health professional students: A scoping review. *Journal of Interprofessional Care*, **32**(2), 127–135. doi: https://doi.org/10.1080/13561820.2017.1399868

Frenk, J., Chen, L., Bhutta, Z.A, Cohen, J., Crisp, N., Evans, T., *et al* (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*, **376**(9756), 1923–1958. doi: https://doi.org/10.1016/S0140-6736(10)61854-5

General Medical Council. (2015). Promoting excellence: standards for medical education and training, Manchester (online). Available at: https://www.gmc-uk.org/-/media/documents/promoting-excellence-standards-for-medical-education-and-training-0715_pdf-61939165.pdf. Accessed 30th January, 2020

General Pharmaceutical Council [GPhC]. (2011). Future pharmacists: Standards for the initial education and training of pharmacists, (May), 34–35 (online). Available at: http://www.pharmacyregulation.org/initial-training. Accessed 30th January, 2020

Gibbs, G.R. (2007). Analyzing Qualitative Data. London: SAGE Publications Ltd. doi: https://doi.org/http://dx.doi.org/10.4135/9781849208574

Health and Care Professions Council. (2017). Standards of education and training guidance. Available at: https://www.hcpc-uk.org/resources/standards/standards-of-education-and-training/. Accessed 30th January, 2020

Institute of Medicine. (2003). Health Professions Education: A Bridge to Quality. doi: 10.17226/10681

Jackson, A., & Bluteau, P. (2011). Interprofessional education, collaborative practice and primary care. *InnovAiT*, **4**(4), 230–235. doi: https://doi.org/10.1093/innovait/inq166

Kossaify, A., Hleihel, W., & Lahoud, J.-C. (2015). Team-based efforts to improve quality of care, the fundamental role of ethics, and the responsibility of health managers: monitoring and management strategies to enhance teamwork. *Public Health*, **153**, 91–98. doi: https://doi.org/10.1016/j.puhe.2017.08.007

Macdonald, M.B., Bally, J.M., Ferguson, L.M., Lee Murray, B., Fowler-Kerry, S.E., & Anonson, J.M.S. (2010). Knowledge of the professional role of others: a key interprofessional competency. *Nurse Education in Practice*, **10**(4), 238–242. doi: https://doi.org/10.1016/j.nepr.2009.11.012

Marlow, S.L., Lacerenza, C.N., Paoletti, J., Burke, C.S., & Salas, E. (2018). Does team communication represent a one-size-fits-all approach?: A meta-analysis of team communication and performance. *Organizational Behavior and Human Decision Processes*, **144**, 145–170. doi: https://doi.org/10.1016/j.obhdp.2017.08.001

Mickan, S.M., & Rodger, S.A. (2005). Effective health care teams: a model of six characteristics developed from shared perceptions. *Journal of Interprofessional Care*, **19**(4), 358–370. doi: https://doi.org/10.1080/13561820500165142

Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C.E., Rohrbach, V., & Kohorn, I.V. (2012). Core principles and values of effective team-based health care. Discussion Paper, Institute of Medicine, Washington, DC. (online). Available at: https://nam.edu/wp-content/uploads/2015/06/VSRT-Team-Based-Care-Principles-Values.pdf. Accessed 30th January, 2020

Nancarrow, S.A., Booth, A., Ariss, S., Smith, T., Enderby, P., & Roots, A. (2013). Ten principles of good interdisciplinary team work. *Human Resources for Health*, **11**(1), 19. doi: https://doi.org/10.1186/1478-4491-11-19

NHS England. (2017). Next steps on the NHS Five Year Forward View, London (online). Available at: https://www.england.nhs.uk/wp-content/uploads/2017/03/NEXT-STEPS-ON-THE-NHS-FIVE-YEAR-FORWARD-VIEW.pdf. Accessed 30th January, 2020

Nurse and Midwifery Council. (2010). Standards for pre-registration nursing education (online). Available at: https://www.nmc.org.uk/globalassets/sitedocuments/standards/nmc-standards-for-pre-registration-nursing-education.pdf. Accessed 30th January, 2020

Oxelmark, L., Amorøe, T., Carlzon, L., & Rystedt, H. (2017). Students' understanding of teamwork and professional roles after interprofessional simulation - a qualitative analysis. *Advances in Simulation*, **2**(8). doi: https://doi.org/0.1186/s41077-017-0041-6

Public Health England. (2017). Facing the Facts, Shaping the Future: A draft health and care workforce strategy for England to 2027 (online). Available at: https://www.hee.nhs.uk/sites/default/files/documents/Facing%20the%20Facts%2C%20Shaping%20the%20Future%20–%20a%20draft%20health%20and%20care%20workforce%20strategy%20for%20England%20to%202027.pdf. Accessed 30th January, 2020

Reeves, S., Xyrichis, A., & Zwarenstein, M. (2017). Teamwork, collaboration, coordination, and networking: Why we need to distinguish between different types of inter-professional practice. *Journal of Interprofessional Care*, **32**(1), 1–3. doi: https://doi.org/10.1080/13561820.2017.1400150

Robson, C. (2011). Real World Research (3rd ed.). Chichester: John Wiley & Sons Limited

Sargeant, J., Loney, E., & Murphy, G. (2008). Effective interprofessional teams: "contact is not enough" to build a team. *The Journal of Continuing Education in the Health Professions*, **28**(4), 228–234. doi: https://doi.org/10.1002/chp.189

Schroder, C., Medves, J., Paterson, M., Byrnes, V., Chapman, C., O'Riordan, A., Pichora, D., & Kelly, C. (2011). Development and pilot testing of the collaborative practice assessment tool. *Journal of Interprofessional Care*, **25**(3), 189–195. doi: https://doi.org/10.3109/13561820.2010.532620

Szafran, O., Torti, J.M., Kennett, S.L., & Bell, N.R. (2018). Family physicians' perspectives on interprofessional teamwork: Findings from a qualitative study. *Journal of Interprofessional Care*, **32**(2), 169–177. doi: https://doi.org/10.1080/13561820.2017. 1395828

Thomson, K., Outram, S., Gilligan, C., & Levett-Jones, T. (2015). Interprofessional experiences of recent healthcare graduates: A social psychology perspective on the barriers to effective communication, teamwork, and patient-centred care. *Journal of Interprofessional Care*, **29**(6), 634–640. doi: https://doi.org/10.3109/13561820.2015.1040873

Vestergaard, E., & Norgaard, B. (2018). Interprofessional collaboration: An exploration of possible prerequisites for successful implementation. *Journal of Interprofessional Care*, **32**(3), 185–195. doi: https://doi.org/10.1080/13561820.2017.1363725

Vyt, A. (2008). Interprofessional and transdisciplinary teamwork in health care. *Diabetes/Metabolism Research and Reviews*. **24**(S1), 106–109. doi: https://doi.org/10.1002/dmrr.835

West, M. (1999). Communication and teamworking in healthcare. *Journal of Research in Nursing*, **4**(1), 8–17. doi: https://doi.org/10.1177/136140969900400103

West, M.A., & Lyubovnikova, J. (2013). Illusions of team working in health care. *Journal of Health Organization and Management*, **27**(1), 134–142. doi: https://doi.org/10.1108/14777261311311843

Wilson, A.J., Palmer, L., Levett-Jones, T., Gilligan, C., & Outram, S. (2016). Interprofessional collaborative practice for medication safety: Nursing, pharmacy, and medical graduates' experiences and perspectives. *Journal of Interprofessional Care*, **30**(5), 649–654. doi: https://doi.org/10.1080/13561820.2016.1191450

World Health Organization [WHO]. (2016a). Health workforce requirements for universal health coverage and the sustainable development goals. Background paper No. 1 to the Global Strategy on Human Resources for Health. Switzerland (online). Available at: http://apps.who.int/iris/bitstream/handle/10665/250330/9789241511407-eng.pdf;jsessionid=26E91498A840759A7B3894E8D67EDED1?sequence=1. Accessed 30th January, 2020

World Health Organisation [WHO]. (2016b). Integrated Care models: an overview. Copenhagen (online). Available at: http://www.euro.who.int/__data/assets/pdf_file/0005/322475/Integrated-care-models-overview.pdf?ua=1 Accessed 30th January, 2020

World Health Organisation [WHO]. (2018). 4th Annual Meeting Report of Integrated Health Services Delivery Focal Points. Copenhagen (online).Available at: http://www.euro.who.int/en/health-topics/Health-systems/health-services-delivery/publications/2018/4th-annual-meeting-report-of-integrated-health-services-delivery-focal-points-2018. Accessed 30th January, 2020

Xyrichis, A., & Lowton, K. (2008). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies*, **45**(1), 140–153. doi: https://doi.org/10.1016/j.ijnurstu.2007.01.015

Yerbury, M. (1997). Issues in multidisciplinary teamwork for children with disabilities. *Child: Care, Health and Development*, **23**(1), 77–86. doi: https://doi.org/10.1046/j.1365-2214.1997.837837.x

Youngwerth, J., & Twaddle, M. (2011). Cultures of interdisciplinary teams: how to foster good dynamics. *Journal of Palliative Medicine*, **14**(5), 650–654. doi: https://doi.org/10.1089/jpm.2010.0395