An exploration of community pharmacy technician roles in Wales

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DECLARATION

This work is being submitted in partial fulfilment of the requirements for the degree Masters in Education and has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed *R Chamberlain* (Candidate)

Date 4th October 2018

STATEMENT 1

This work is the result of my own work and investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly indicated. Other sources are acknowledged by footnotes giving explicit references. A Reference Page is appended.

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Abstract

Background: Healthcare models in Wales are changing in response to unprecedented pressure on the NHS. In the future, community pharmacies will provide a greater range of clinical services locally. The pharmacy technician profession must be enabled to work at the 'top of their clinical competence' to support these changes.

Objective: The purpose of the research was to gather intelligence on existing community pharmacy technician roles and ascertain the barriers and enablers to role development.

Methods: An online questionnaire was used to obtain quantitative and qualitative data from 213 community pharmacy technicians across Wales. Four semi-structured telephone interviews were undertaken to provide further qualitative data.

Results: Dispensing remains a core function for community pharmacy technicians, as does final accuracy checking. There is some evidence of engagement in leadership and management roles, as well as delivery of enhanced services such as smoking cessation, albeit limited. Enablers to role development include workplace support and access to training. Barriers include staffing, business pressures and inability to access training.

Conclusion: There is scope to enable community pharmacy technicians to further develop their roles in key areas such as processing queries and delivering services. This will require investment in post-registration training and improved use of delegation and skill mix.

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Contents page

Word count: 12,833

List of appendices

List of tables

List of figures

List of acronyms

ACPT or ACT Accredited Checking (Pharmacy) Technician

APTUK Association of Pharmacy Technicians UK

CD Controlled Drug

CPT Community Pharmacy Technician

DMR Discharge Medicines Review

FEC Further Education College

FIP International Pharmaceutical Federation

GPhC General Pharmaceutical Council

IET Initial education and training

MUR Medicines Use Review

NHS National Health Service

NOS National Occupational Standards

NVQ National Vocational Qualification

OTC Over-the-counter

PJ Pharmaceutical Journal

PRPT (previously PTPT) Pre-Registration Pharmacy Technician (previously Pre-Registration Trainee Pharmacy Technician)

PT Pharmacy Technician

RP Responsible Pharmacist

SOP Standard Operating Procedure

SRO Spearman's Rank Order correlation

WG Welsh Government

WCPPE Wales Centre for Pharmacy Professional Education

Chapter 1: Introduction

1.1 Research statement and rationale

Traditionally the community pharmacy technician (CPT) role has focused on the sale and supply of medicines and related administrative functions, with limited scope for further training or role development, beyond a final accuracy checking qualification (Boughen *et al*, 2016). Exceptions to this are generally management roles, rather than advanced practice or clinical roles and Howe & Wilson (2012) note that career structures within community pharmacy are very flat. Historically the CPT role has not been dissimilar to that of a dispensing assistant. Dispensing assistants are non-registered, Level 2 NVQ qualified support staff, whose role is generally limited to selling medicines, dispensing medicines and stock related activities.

The current registration requirements for Pharmacy Technicians (PTs) are a Level 3 NVQ Diploma in Pharmacy Services Skills or equivalent (appendix 1), a Level 3 Diploma Pharmaceutical Science or equivalent (appendix 2) and a minimum of two years work based experience. The General Pharmaceutical Council set minimum standards for the Initial Education and Training (IET) of Pre-Registration Pharmacy Technicians (PRPTs) and accredit or 'recognise' courses. IET standards have been successful in standardising the content of the qualifications, however a commissioned analysis of the IET standards by Rosado *et al* (2015, p.39) found, 'Although current modes of delivery were thought to meet the IET standards, it was reported that there is variability in the education and training programmes delivered and that they may not all efficiently equip PTPTs to take up the role of the pharmacy technician'. This suggests that there could be an issue with the quality of training available.

PTs made the transition from an occupation to profession in 2011, following

introduction of professional regulation.

> 'Compulsory registration of pharmacy technicians was introduced to improve protection for patients by ensuring all pharmacy professionals who play an important role in the provision of pharmacy services throughout Great Britain, are properly trained and under a duty to keep up-to-date and maintain high standards' (Howe & Wilson, 2012, p.49).

Professional regulation had the potential to enable role development, through

recognition of professional accountability and accreditation of Initial Education and

Training (IET). Pharmacy legislation still requires PTs to work under supervision of a

pharmacist, however, the law also recognises that pharmacists have scope to delegate to

appropriately trained and competent PTs.

A recent Pharmacy Workforce summary for Great Britain (Table 1) published by John

and Brown (2017), shows there are considerably fewer PTs, than Pharmacists or

support staff. With just 6.8% of all UK PTs being registered to an address in Wales, this

could indicate a significant underinvestment in, as well as underutilisation of, the PT

profession.

Table 1 – Pharmacy Workforce summary for Great Britain

	Duration of Training	Number in the workforce
Pharmacists	5 years	Approx. 47,000
Pharmacy technicians	2 years	Approx. 21,000
PSW = Pharmacy support workforce Cadre 1 Pharmacy Assistants	12 months or less	Approx. 100,000

The National Health System (NHS) in Wales is currently under immense pressure to deliver quality healthcare with restricted resources and models of healthcare are changing. The Welsh Government (WG) published a 2018 report titled 'A Healthier Wales: our Plan for Health and Social Care' which stated a vision to provide a wider range of professionally led services within local areas. Community pharmacies are pivotal to this model, which was reflected in recent changes to the contractual framework within Wales (Welsh Government, 2017). In addition to essential services such as dispensing, community pharmacies are delivering ever more enhanced and advanced services, e.g. influenza vaccination, to reduce the burden on other areas of the NHS (Schafheutle *et al*, 2017). To sustain these changes, pharmacy professionals need to be enabled to work at the 'top of their clinical competence' (Welsh Government, 2014).

Before defining the 'top of clinical competence' for community pharmacy technicians, we need understand what current roles look like and establish the enablers and barriers to future role developments. To date no such research exists, specifically in relation to CPTs roles in Wales, hence the rationale for this research.

Chapter 2 is an exploration of relevant policy and research literature, concluding with the research questions this dissertation has sought to address.

Chapter 2: Literature Review

2.1 Introduction

The literature selected is mainly contemporary, because PTs became a profession in 2011 and the most relevant research has taken place since then. The pharmacy profession is evolving at a momentous pace, consequently practice-based research may only be considered current for relatively short periods. Some earlier research has been included, to provide background, context and relevant educational theory. PRPTs are referred to as trainee pharmacy technicians in earlier research.

Literature from the USA, Canada and other countries has been included, to provide a wider, global context. PTs are a registered profession in Canada, as they are in the UK. Research from the USA may have limited relevance and could be difficult to extrapolate, as the education and regulation of the PTs varies by state (Mattingly, 2018).

A broad range of literature has been analysed, including research papers, articles from professional journals, government papers and reports published by professional organisations. Having critically analysed the literature, a number of key themes have become apparent and are dealt with under sub-headings below.

2.2 Current roles

Defining the role of a PT is inherently difficult. There are few references to the term 'Pharmacy Technician' within UK pharmacy legislation or policy (GPhC, 2015), the GPhC have not defined the role for the purposes of regulation and there are significant differences between sectors, e.g. hospital and community. Perhaps most fundamentally, perceptions of the PT role vary amongst colleagues within the profession, other healthcare professionals and the public. John and Brown (2017, p.298) note that the PT role is often 'demarcated by its boundaries with the other members of the pharmacy team'. Accordingly, the PT profession must look to research to inform and define the pharmacy technician role.

A recent UK study commissioned by the University of East Anglia, Boughen *et al* (2016) explored current pharmacy technician roles across all sectors. Seventy-one CPTs participated in the questionnaire and one CPT participated in the focus group interviews. The relatively small participant sample was recruited via membership of the Association of Pharmacy Technician UK (APTUK). Approximately 6% of UK pharmacy technicians are APTUK members; hence the sample is unlikely to be representative. This research has been used to inform potential areas of interest.

Boughen *et al* (2016) found that CPT roles include; the sale, dispensing, procurement, stock control, disposal and final accuracy checking of medicines; the provision of information and advice; the administration of patient records, prescription records and financial records; assisting with audits and other quality assurance activities; assisting

with, or providing enhanced and advanced services and supervisory roles, e.g. rota planning and training. The proportion of time spent undertaking each of these roles was not commented on, which may suggest that some CPTs are working to the 'top of their clinical competence', but the extent to which this is the case is unknown. Boughen *et al* (2016) concluded that CPT roles were less expansive and less clinically oriented than hospital PT roles. It is worth noting here, that the IET requirements are the same, regardless of the sector worked in.

These findings are broadly consistent with the case study conclusions of John and Brown (2017) and the findings of the GPhC (2014) Registrant Survey 2013, in that the sale and supply of medicines remains a core role. This could indicate that there has been little role development for a number of years.

Unfortunately, there is very little contemporary research within the UK to draw upon. Looking further afield, Desselle *et al* (2018a) surveyed 5,000 PTs across 8 US states to establish their involvement with specified practice activities. Similarly, they reported significant differences between community and hospital roles and a high degree of involvement with 'prescription acquisition and initial filling' – 'initial filling' is an American phrase for dispensing. Less involvement was reported for roles such as supervising and checking the work of other technicians, despite participants self-reporting a relatively high level of self-efficacy for these roles. This could provide further evidence of underutilisation. Lower levels of self-efficacy and involvement were reported for clinical roles, e.g. discussing effectiveness of treatment plans and providing medicines related advice. This is consistent with Koehler and Brown's (2017, p.275)

global online survey across 67 countries, which found, 'The most supervised competency area is 'patient consultation and diagnosis', while 'procurement and stock ordering' was the least supervised competency area'.

In contrast, another recent study by Desselle *et al* (2108b) found that Danish Pharmaconomists conveyed a strong preference for clinical roles such as assessing prescriptions and providing information on drug interactions. It is noted that Pharmaconomists initial education differs from UK, in that it is a three-year full time college programme.

2.3 Pre-Registration Training

A mixed methods study, by Schafheutle *et al* (2017) into the fitness for purpose of PT education and training included semi-structured interviews with a broad range of stakeholders. Views were sought on education delivery; work based learning and quality assurance. The interview data informed a questionnaire, which was disseminated to 1457, recently, registered PTs. 632 usable responses were recorded, yielding a response rate of 43%. Three quarters of respondents (475; 75.9%) had trained in community pharmacy; hence the data could be considered representative of CPTs perspectives.

Issues arising from the research included whether education standards were at the right level and if they were representative of current practice, e.g. some topics were

considered redundant and other important topics such as professionalism lacking. Opinions varied by sector and CPTs felt the training was more advanced than necessary. These issues are consistent with those described by other researchers (Rosado *et al*, 2015; John & Brown, 2017; Koehler & Brown, 2017).

Another emerging theme was the lack of role clarity, particularly in relation to other groups of staff. Schafheutle *et al* (2017) concluded that role clarity was crucial to enable effective skill mix and inform regulatory standards that meet current and future needs. This is consistent with research by Rosado *et al* (2015) and is further illustrated by Gregory and Austin (2017), whose exploratory research in Canada found that 'role misunderstanding' led to conflict with pharmacy teams and has the potential to impact the provision of quality care.

Since Schafheutle's research, the 2010 IET standards have been revised. The GPhC's (2017) 'Standards for the initial education and training of pharmacy technicians' reflect recent role development to some degree, e.g. the inclusion of 'accuracy checking' that may enable final accuracy checking of prescriptions to become a foundation role in the future. A new qualification for PTs is currently being developed in England, to meet the revised IET standards and the recently revised National Occupational Standards (NOS), though the qualification level is yet to be determined. The results of a recent consultation (Skills for Health, 2018) are as yet unknown, so it is difficult to comment further, suffice to say that some 'out-dated' topics were not included in the consultation.

Schafheutle *et al* (2017b) published a separate article, analysing the impact of the learning environment on trainee PT development. The article found that trainee technicians based in community are:

- Less likely to complete their training within two years, particularly when done via distance learning

- Allocated little or no study time within the workplace

- Less satisfied with their training experience

- Less likely to receive support from employers or colleagues and are less likely to have a Pharmacy Technician role model

Rosado *et al* (2015) also found that access to protected study time was a challenge, however, they report that PRPTs on distance learning programmes relied upon support from employers, which contrasts some of Schafheutle *et al's* findings.

These fundamental differences in training experience have the potential to impact PRPTs knowledge, understanding and application of professional practice. The GPhC recognise that initial training should enable PRPTs to use their judgement, demonstrate resilience and manage ambiguity and complexity in practice (GPhC, 2015). These are skills and behaviours which can not simply be acquired through cognitive learning; they must be experienced in the workplace context and reflected upon to establish cause and effect, before being incorporated into new concepts or ideas and tested in new situations, i.e. those that are non-routine or complex (Kolb, 1984).

PRPTs who do not have access to appropriate professional support to facilitate these crucial development opportunities, may lack core skills and confidence, which could in turn, influence the roles they are willing or able to undertake post-registration. This is

highlighted by Rosado *et al* (2015, p.40) who found that, 'community pharmacy PTPTs going through distance learning programmes were perceived as less educationally capable and required further development of professional confidence and attitude compared with hospital PTPTs attending FECs [*further education colleges*]'.

Similarly, evidence suggests that experiential education supports the adoption of a professional identity, through observations of, and interactions with colleagues and patients (Grealish & Trevitt, 2005; Owen, 2009; Treade *et al*, 2012; Professional Standards Authority, 2016). Developing a strong professional identity and a sense of belonging can result in adoption of the profession's 'norms', rules and regulations and ultimately empowerment of the individual.

Hafferty (2009) suggests that the process of professional socialisation differs from training, in that individuals need to combine their new knowledge and skills with their new self-perception. It could be argued that in the case of workplace learning (rather than HE), this process is a fundamental part of the training, mediated through role modelling and mentorship. Cruess *et al* (2015) recognise that role models and mentors who are existing members of a 'community of practice', can be very influential both explicitly through facilitation of knowledge and skill development and implicitly through modelling behaviours. They also suggest that mentors generally have a longer-term relationship. This is consistent with literature on workplace mentoring, which suggests mentoring can be used to: develop new staff at induction; facilitate a transition; improve workplace learning; maintain a culture and/or to support personal,

professional and career development and is usually the result of an on-going

relationship (Kitchen, 1993; Darwin, 2000; Connor & Pakora, 2012).

Unfortunately, the introduction of IET standards in 2010 does not appear to have

addressed the impact of work-based influences discussed above. This has been

recognised by Rosado *et al* (2015) who recommend that the scope of the IET standards

be widened to include employers, PRPTs and other stakeholders. The revised 2017

'Standards for initial education and training of pharmacy technicians' go some way to

addressing this, with reference to the workplace responsibilities (appendix 7). The

GPhC's (2018) revised 'Guidance on tutoring and supervising pharmacy professionals in

training' provides good practice guidance in relation to a work-based supervisor role,

e.g. delegate appropriately and act as a professional role model. That said, the guidance

is not enforced and to my knowledge here is no available research evaluating the

contribution of the guidance to the training experiences of PRPTs.

2.4 Opportunities and challenges for role development

In 2014 the Minister for Health and Social Services presented a paper to the Welsh

Government titled, 'Delivering Prudent Healthcare in Wales'. The paper set out some

core principles, one of which was to organise the workforce around the 'only do what

you can do' principle. In essence, the government signalled that NHS professionals

should be operating at the 'top of their clinical competence'. The concept of individuals

working 'at the top of their licence' was initially introduced during the Pharmacy

Practice Model Summit a few years earlier (Shane, 2011). It is a potentially challenging

concept for a profession in which the foundation role isn't defined, let alone the 'top of

clinical competence', however it does pave the way politically for CPT roles to be developed.

Bradley *et al* (2016) surveyed a random sample of 1500 Pharmacists and PTs in England, to explore perceptions of risk associated with support staff [*not specifically PTs*] carrying out roles without direct Pharmacist supervision. Respondents categorised twenty-two activities as 'safe' (e.g. dispensing), 'borderline' (e.g. issuing prescriptions and sales of medicines) or 'unsafe' (e.g. clinical activities). In terms of the perception of risk, community pharmacists were the most conservative group. Bradley *et al* (2016, p.744) concluded that, 'those truly clinical skills still sit firmly in the domain of the pharmacist without threat of boundary encroachment from pharmacy support staff'. Evidence exists to refute this conclusion, e.g. evidence of PT involvement in clinical practice in hospital settings (Rosado *et al*, 2015) and evidence of clinical roles within community settings outside the UK (Houle *et al*, 2014; Odukoya *et al*, 2015; Brown *et al*, 2018; Desselle *et al*, 2018b; Fera *et al*, 2018). This could suggest that a shift in attitude is needed, to enable CPT roles to develop. A point, which is further, illustrated by Mattingly & Mattingly (2018, p105) systematic review, which concluded that, 'organizations should consider whether they are underutilizing technicians who are capable of performing more patient care activities'.

Fundamentally, PT roles can only develop within the current legislative framework. By law, community pharmacies are under direct supervision of a Responsible Pharmacist (RP) at all times. The Rebalancing Medicines Legislation and Pharmacy Regulation

Board are currently considering a relaxation of the law around the sale and supply of medicines in a Pharmacists absence. Howe and Wilson (2012, p. 60) note that, 'a shift in the legal framework is required to enable pharmacists, pharmacy technicians and non-registered pharmacy staff to work to their full potential in the interests of patients'. Unfortunately, the outcome of this programme is unlikely to be known in the short term, as any legislative amendments will require Parliamentary review.

Access to relevant post-registration training opportunities is vital to enabling the role development of CPTs. Unfortunately, research has shown that community pharmacy professionals have relatively few opportunities and tend to access informal, self directed learning opportunities, in their own time. Some larger companies provide post-registration training, however the focus is often around business needs and service delivery, rather than staff development. Where development opportunities have been accessed, the individual has pursued it pro-actively (Howe and Wilson, 2012). It is also recognised that the working patterns and workload of community pharmacy professionals can impede access to training and development (Mills *et al*, 2008; Brown *et al*, 2018).

2.5 Differences in pharmacy service provision between devolved nations

The devolution of healthcare has led to significant differences in the way in which community pharmacy services are delivered across Great Britain. The Royal Pharmaceutical Society (2016) document titled, 'Community pharmacy contracts England, Scotland and Wales comparison chart' (appendix 8), shows that essential

service provision is broadly similar, though the same cannot be said of advanced and enhanced services. This divergence is necessary to tackle localised health priorities and reflects differences in funding arrangements. A recent *Pharmaceutical Journal* article by Robinson (2017) provides further evidence of differences in service provision. Although the key themes are similar for all four nations, the success of initiatives within them varies. The article states that within Wales, the focus for community pharmacy will be cost effective and high quality community based clinical services, rather than the supply of medicines. These changes will inevitably impact the future roles and development needs of CPTs in Wales.

Interestingly, Koehler and Brown (2017) reference the International Pharmaceutical Federation (FIP) recommendation that education of pharmacy staff is 'needs-based' and tailored to local service delivery. This is a bold alternative to current national standardised education; however there may be value in investigating this further, to support effective delivery of pharmacy services within devolved nations such as Wales.

2.6 Conclusion

In conclusion, with the exception of final accuracy checking prescriptions, research suggests that there has been limited role development for CPT over recent years. The challenges faced by CPTs appear to be multi-factorial and may include educational, sociological, psychological and/or organisational factors. It is clear that additional research is needed to gain an understanding of current roles and barriers and enablers to future development of the profession within Wales. The following research questions were developed specifically to address these areas.

2.7 Research questions

1. How do community pharmacy technicians describe their current roles?

2. What factors enable the education and development of community pharmacy technician roles?

3. What factors are barriers to the education and development of community pharmacy technician roles?

Chapter 3: Methodology & methods

3.1. Research Methodology

To understand why particular research methods were chosen, it is important to first consider the philosophical, ontological and theoretical standpoint from which the research was approached. As suggested by Bateson (1972), 'The living man is bound with a net of epistemological and ontological premises which - regardless of ultimate truth of falsity – become partially self-validating for him."

My ontological perspective is somewhat conflicting. My profession is scientific, objective and process driven, which is consistent with a positivist approach, in which researchers believe that the rules of natural science can be applied to social studies (Miller & Brewer, 2003). There are elements of this approach, as questionnaires take an objectivist approach. However, the context of this research is educational and the research questions cannot be answered adequately via a positivist approach. Instead I have taken a humanistic and interpretive approach, which asserts that knowledge, is subjective and constructed by individuals, based on their experiences of aspects such as knowledge and emotion. What is particularly important to recognise about this approach, is the impact of the researcher on the research process, through the act of interpretation.

It is important to recognise the potential for 'role conflict' when researchers undertake research within their own profession. With reference to my ethics application (appendix 3), I acknowledged the potential impact of what Freshwater (2008) describes as 'role

power' – that is power attributed to the context of the practitioner. Similarly, Kvale and Brinkmann (2009) recognise the potential for 'power asymmetry', suggesting that qualitative research interviews generally consist of one-way discourse in which the researcher has a specific agenda. This could be true of very structured interviews. To address this issue, I have opted for a semi-structured approach guided by key topics and prompts, which will enable participants to contribute fully.

Finally, I acknowledge that my approach is affected by numerous other factors such as gender, personal beliefs and professional experience. Gender could be considered a relevant factor as, 'women constitute 90% of the pharmacy technician workforce' (Seston & Hassell, 2012). In terms of personal beliefs, I sincerely believe that education and training is an enabler for good professional practice, hence I chose to research this topic. My experiential knowledge of the profession has undoubtedly shaped my approach to the research, e.g. the barriers and enablers I chose to include. I also intend to utilise my professional knowledge, to help provide explanations and insights (Radnor, 2001).

Before carrying out the research, I hypothesised that:

a) The sale and supply of medicines would be a core role for CPTs

b) Respondents would report significant similarities between the roles of CPTs and dispensers (or pharmacy assistants), contributing to a lack of professional identity

c) CPTs would have limited access to education and training opportunities (other than ACPT) to support professional practice and facilitate role development

3.2 Research Methods

I chose a mixed method design for data collection, with the qualitative component being the focus; hence it could be termed QUAL-quan. The term 'mixed methods' remains a hotly debated topic amongst researchers, though some recognise that it is the combination of qualitative and quantitative methods within a single research project (Creswell & Clark, 2007; Tashakkori & Teddlie, 2010). Morse and Cheek (2014) describe 'qualitatively driven mixed methods research', as the concurrent use of qualitative and quantitative methods to address a research aim, where the qualitative component remains at the core. They also suggest that the results of the two components are amalgamated within the discussion and analysis section. This is true of this research project, in which interview data is used to interpret the quantitative questionnaire data.

In terms of mixed method design, I used elements of two variant triangulation designs, described by Creswell and Clark (2007, p.63) and illustrated in Figures 1 and 2. The first is the Validating Quantitative Data Model, which can be used to substantiate quantitative questionnaire responses, by including open-ended qualitative questions in the same questionnaire. The qualitative data adds value in terms of direct quotes and aids interpretation, but may not be considered a 'rigorous' data set. This model is generally used for quantitatively driven research, so doesn't align fully with my research.
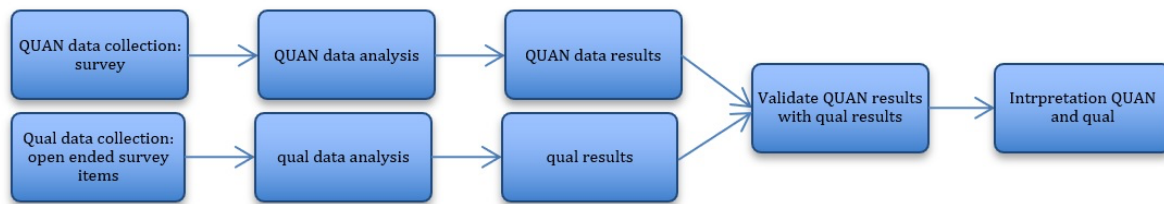
Figure 1 – Validating Quantitative Data Model

The second is the Data Transformation Model, which includes the transformation of qualitative data into quantitative data, or vice versa. I quantitatively analysed the qualitative descriptions of current roles within the questionnaire, to ascertain which roles were undertaken most frequently and could be considered 'core' roles. However, the methods used do not fully align with the Data Transformation Model, as the data were not collected separately.
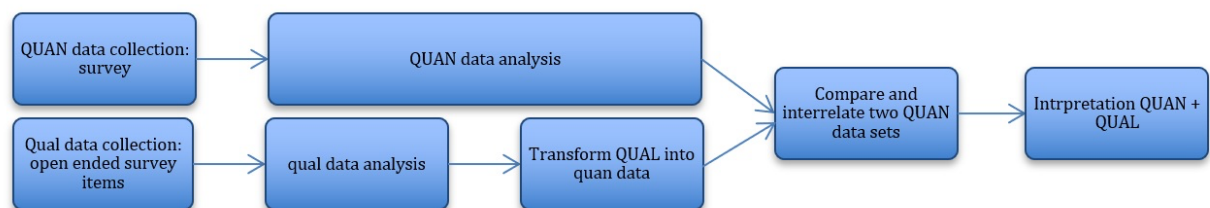
Figure 2 – Data Transformation Model (Transforming QUAL data into QUAN)

The models discussed above are not absolute and neither are they the only examples of mixed method models, they are simply examples of how the methods have been used together in practice. The use of triangulation designs may facilitate detailed analysis of data and enable meaningful conclusions to be reached (Maxwell, 2013). They can also highlight potential areas of bias, for further consideration during the data analysis stage.

I acknowledge that the research methods chosen focus on qualitative data, however I recognise that quantitative methods are equally important. The methods chosen were

best suited to answer my research questions. Gaining insight into current CPT roles is best met via descriptive qualitative data. Conversely, quantifying and comparing enablers and barriers across different categories of pharmacy require quantitative data. I agree with Hall and Howard (2008), who propose that the use of two or more methods might be considered 'synergistic' - that is that their combined contribution is greater than the sum of their individual contributions.

Quantitative Likert scale data from the questionnaire was analysed to identify trends and the Kruskal-Wallis Test was used to investigate any links between questionnaire responses and the category of pharmacy. Qualitative questionnaire comments were coded and grouped to identity themes. Qualitative interview data was analysed and summarised using a process termed 'meaning condensation' (Kvale & Brinkmann, 2009) and then supported using direct quotes to provide context.

3.2.1   Questionnaire

When designing the online questionnaire (appendix 9) I had two main aims. The first was to enable participants to describe their roles in their own words, rather than gathering responses to a pre-determined list, which restricts opportunities to include other roles that are relevant (Bowling, 2005). The secondary was to gather quantitative data relating to enablers and barriers, to identify any trends and themes.

An online questionnaire was chosen as it is simple, rapid and cost-effective to disseminate to large numbers of potential participants (Cook *et al*, 2000; De Vaus, 2002;

Owen, 2017). The questionnaire was designed to gather objective demographic data and subjective data, e.g. experiences and attitudes. To facilitate the quantitative 'measurement' of the subjective data, five-point Likert scale questions were used. Likert scales are generally well understood, easy to analyse and preferable to dichotomous scales which are less detailed (Bowling, 2005).

The limitations of Likert scales include the assumption that subjective data can be quantified and that the intervals on a Likert scale are equally spaced. However, in the absence of other more appropriate methods, they are routinely used. The issue of quantifying subjective data was addressed to some degree, by the inclusion of free text boxes at the end of each set of questions, to enable participants to provide further comment and context (Rattray & Jones, 2007). The qualitative comments were coded and grouped into themes during the analysis stage.

To enable testing of the internal consistency, or reliability of the questionnaire, multiple questions were included on the same topics, (e.g. professional support), one of which was negatively worded, or reverse scored. The use of multiple questions on the same topic also aims to reduce the risk of response bias and misinterpretation (Bowling, 2005). To improve the content validity, I used 'standardised' descriptors where possible, e.g. the category of pharmacy descriptors were aligned with those used in other pharmacy practice research studies (Boughen *et al*, 2016; Schafheutle *et al*, 2017)

Volunteers from my professional network piloted the questionnaire and the feedback is listed in Appendix 10. Questions 8 and 9 were amended to ensure the data from question 7 was pulled through, the typographical error in question 38 was amended, the Likert scales were reviewed to ensure consistency throughout and the following statements were added to the introduction, "*When completing the questionnaire please provide as much detail as you feel is sufficient, to fully answer the question*" and "*The questionnaire is estimated to take 15 minutes*".

Determining a sample frame for this research was inherently difficult. The GPhC is the only organisation that holds data on all registered PTs in Wales. Unfortunately their register data doesn't differentiate registrants by sector, e.g. hospital pharmacy, community pharmacy and so on, hence it is impossible to quantify the sampling frame exactly.

To estimate the sampling frame, I used data from the GPhC (2014) 'Registrant Survey 2013, initial analysis', Seston & Hassell's (2012) Briefing Paper: GPhC Pharmacy Technician Register Analysis 2012 and the GPhC (2017) Annual Report 2016-17. The Registrant Survey report is based on data from a 2013 survey in which 55% of registrants participated – whilst I acknowledge this isn't wholly reliable and is somewhat out of date; it is the only data available to support calculation of an estimate. The report states, '53% of pharmacy technicians and 72% of pharmacists' main jobs are in community pharmacy'. Seston & Hassell's Briefing Paper states that 6.8% of registrants had a Welsh address. The GPhC Annual Report 2016/17 states that as of 31st March 2017, there were 23,318 pharmacy technicians registered.

On this basis, I estimated that as of March 2017 there were 1,586 (6.8% of 23,318) pharmacy technicians working in Wales. Of the estimated 1,586, I then calculated that approximately 840 (53%) worked in community pharmacy in Wales. With the exact figure unknown, the estimate of 840 will be used for the purpose of this report.

The issues discussed above were also problematic when deciding on a sampling strategy. I considered the advantages and disadvantages of three strategies as outlined in Appendix 11. I concluded that the most reliable option was to disseminate an online questionnaire via the GPhC, to all registered PTs in Wales, thus overcoming the issue of selecting a sample with sufficient numbers of community PTs.

Advance notice of the questionnaire was publicised via a flyer on WCPPE, GPhC and APTUK social media accounts. E-mails were also sent to all CPTs registered on the WCPPE database, in an attempt to improve response rates (Cook *et al*, 2000; Owen, 2017)

The GPhC disseminated the questionnaire on 31st January 2018 to 1579 registered PTs in Wales (appendix 12), thus ensuring that all registered PTs with up to date contact details had opportunity to participate. This inevitably meant that PTs working in other sectors, e.g. hospital pharmacy, also received the e-mail. To overcome this, the e-mail was specifically worded to encourage only CPTs to participate and the following filter question was used in the questionnaire, '*Do you work in a community pharmacy in Wales*'. Participants who selected 'no' were redirected to the end of the questionnaire to

prevent any invalid responses. This appeared to be effective in that Qualtrics recorded thirty-two such responses.

A second flyer was posted once the questionnaire went live and subsequent reminders were also posted via WCPPE social media accounts. The GPhC and APTUK publicised the questionnaire during the data collection phase, via their social media accounts. The project was also publicised via an unsolicited *Pharmaceutical Journal* article (appendix 5).

The GPhC sent two follow up e-mails as per agreement (appendix 12). The number of recipients was reduced, as some had 'opted-out' of further e-mails – a phenomenon recognised by Cook *et al* (2000). The first follow up was sent on 20th February 2018, during the half term holiday, which may have affected the response rate. Prior to the second e-mail being sent on 19th March 2018, the GPhC re-tested the web links for the flyer and the participant information form and found that they weren't working. This was found to be the result of website upgrade and the links were subsequently reset. It is impossible to quantify what impact, if any, this had on response rates. Regardless, Tables 2 and 3 clearly illustrate that the follow up e-mails resulted in a temporary surge in participation.

Table 2 – questionnaire response rates before, during and after follow up e-mail on 20th February 2018

Date	Number of questionnaire responses (Includes partial and complete response data)
19th February 2018	2
20th February 2018	**19**
21st February 2018	**13**
22nd February 2018	2
23rd February 2018	3

Table 3 – questionnaire response rates before, during and after follow up e-mail on 19th March 2018

Date	Number of questionnaire responses (Includes partial and complete response data)
18th March 2018	0
19th March 2018	**26**
20th March 2018	**13**
21st March 2018	5
22nd March 2018	2

3.2.2 Interviews

The second research method used was semi-structured, one-to-one telephone interviews. The purpose of the interviews was to gain richer data and further insight into PTs roles, as well as the barriers and enablers they had experienced. As suggested by Kvale & Brinkmann (2009, p.17), 'Interviewing is an active process where interviewer and interviewee through their relationship produce knowledge. Interview knowledge is produced in a conversational relation: it is contextual, linguistic, narrative and pragmatic'.

One-to-one interviews were favoured over focus group interviews, as I felt participants were more likely to be open and honest, based partly on the feedback received during the questionnaire pilot. Telephone interviews were used, to encourage CPTs from across Wales to participate as face-to-face interviews may have only encouraged participation locally. I felt this offset the 'risk' associated with telephone interviewing, namely that it could be difficult to build a rapport (Hughes, 2002).

It is generally considered acceptable to select the same individuals for quantitative and qualitative samples, for ease when converging data (Creswell & Clark, 2007). All questionnaire participants were invited to contact me for a follow up interview (appendix 9). Initially this approach yielded just two participants. Creswell & Clark (2007) recognise that the qualitative sample is usually smaller, whilst also acknowledging that the issue of sample size is particularly relevant to triangulation design. I extended the data collection period and the GPhC disseminated a further 'call to action' e-mail. This yielded two further participants. I acknowledge this is still a relatively small sample; however, it enabled detailed analysis and reporting of participant contributions.

An interview brief (appendix 13) was prepared to provide structure, ensure consistency and identify the main topics to be covered. Open-ended questions were devised to initiate discussions around key topics and a list of prompts was made, to steer the discussion dependent on the participant's response. This approach was chosen to ensure the areas being researched would be covered, whilst also enabling flexibility and

allowing the participant to determine the level of detail provided (Miller & Brewer, 2003).

The secondary purpose of the brief was to set the scene, reiterate the purpose of the research, notify participants of the recording method, explain how the data would be stored and used and provide opportunity for participants to ask any questions (Kvale & Brinkmann, 2009). An interview de-brief (appendix 13) was also prepared, in the event that a participant raised issues beyond the remit of the research. This occurred during one interview and I was able to signpost the participant to the appropriate organisation.

3.3 Ethical considerations

Prior to commencing this research, I reflected on the potential social benefits and the impact on participants (Social Research Association, 2003; Cohen *et al*, 2013). I am confident that the research benefits participants and the wider public, by informing the future development of the profession. When selecting research methods, I considered the effort required to participate, management of potential role conflict, management of participant's expectations and opportunities to signpost participants who raised concerns (appendix 3).

When preparing the Participant Information Sheet (appendix 4), which was embedded in the questionnaire, I referred to the Ethical Guidelines for Educational Research (BERA, 2011) for guidance on informed consent, incentives, confidentiality, anonymity,

right to withdraw and data protection. I did not offer an incentive, preferring a more transparent approach.

Questionnaire participants were asked to disclose only part of their workplace postcode to avoid identification. Participants were invited to contact me regarding an interview, rather than supplying an e-mail address at the end, so their questionnaire responses could not be linked to their e-mail. Interview participants were e-mailed a copy of the Participant Information form and a Consent Form (appendix 4), which had to be signed, dated and returned prior to the interview. An external transcription company transcribed the interview data. I obtained copies of their Service and Confidentiality Agreement and Privacy Policy for assurance.

The *Pharmaceutical Journal* (PJ) is the official monthly journal of the Royal Pharmaceutical Society and reports on international developments in pharmaceutical practice. The PJ published an unsolicited article, which initially misrepresented the purpose of the research, stating that enablers and barriers to 'good performance' were being researched. After liaising with the editor, the wording of the article was amended to reflect the true purpose of the project, i.e. enablers and barriers to role development (appendix 5).

I acknowledge an ethical responsibility towards the WCPPE Director who funded the project, and the GPhC who enabled access to participants (Social Research Association,

2003; BERA, 2011). I entered into a formal written agreement with the GPhC (appendix

6). The outcome of the research will be shared with both parties.

Chapter 4: Results and analysis

4.1 Introduction to results

Questionnaire data

Of the 213 questionnaire responses recorded (response rate of 25% based on estimated sampling frame), 83 were completed fully (39%). Quantitative analysis of data is based on the 83 responses unless otherwise stated. There was a significant drop out rate at question seven, the first qualitative question. This could indicate participants were unwilling to commit the time to describe their role in their own words. On balance I still believe that the qualitative responses have contributed more in terms of understanding roles, than a quantitative tick box approach would have.

Where participants have been quoted, the Qualtrics unique ID, category of pharmacy and year of registration are included for context. Where data has been reported in terms of central tendency, the mean, median and mode have all been stated, to aid interpretation. It is noted that quantitative data derived from Likert scale questions, is most accurately 'measured' via the median (Sullivan & Artino, 2013).

Before discussing my results in detail, I feel it is prudent to comment on the internal reliability of the questionnaire to further inform the interpretation of the results. To estimate the internal reliability I used Spearman's rank order (SRO) correlation to analyse relationships within groups of questions, where one question was negatively scored. SRO indicates the strength and direction of a relationship between two ranked

variables, e.g. a positive or negative correlation (Laerd Statistics, 2018). SRO results are considered to be most significant, the closer to +1 or -1 they are.

Some researchers consider SRO to be less robust than parametric testing, as it does not assess the effects of the correlation, or provide a 'right answer' (Sullivan & Artino, 2013). That said, SRO correlation may be considered more appropriate than Cronbach Alpha for non-parametric ordinal data, derived from attitudinal Likert scale questions, particularly where the data is not normally distributed. Cronbach Alpha is more commonly used to analyse parametric data (Petrie & Sabin, 2009; Sullivan & Artino, 2013; Field, 2018;)

Table 4 details the SRO correlations between question 19 (negatively scored question) and questions 15, 16 and 18 *(note that the questionnaire numbering was incorrect so there is no question 17),* which relate to professional identity. The results highlighted in yellow show that there was a negative correlation between the answers to question 19 and answers to questions 15, 16 and 18. That said, the correlations could be considered weak, as they are closer to 0 than -1.

It is also worth noting the P-Value, highlighted in green. In the case of the correlation between questions 19 and 15, the correlation was found to be statistically significant, i.e. ≤0.05, however the correlation between questions 19 and 16 and 19 and 18 were not found to be statistically significant, i.e. ≥0.05. On this basis, I conclude that the internal consistency for this set of questions was reasonable.

Table 4 – Spearman's Rank Order analysis of questions 15, 16, 18 and 19

Correlation: Q15, Q16, Q18, Q19
Correlations

	Q15	Q16	Q18
Q16	0.340		
	0.002		
Q18	0.506	0.662	
	0.000	0.000	
Q19	-0.213	-0.143	-0.108
	0.054	0.198	0.330

Further analysis was undertaken on another three sets of questions, which related to delegation, development of professional skills during initial training and involvement of colleagues in initial training (appendix 14). Based on this data, I conclude that the internal reliability of the questionnaire could be considered fair.

Interview data

Four PTs were interviewed. The length of the interviews ranged between 29 minutes and 52 minutes, with an average of 37 minutes. All were telephone interviews. The audio was transcribed by Sterling Transcription using Intelligent Verbatim (Standard Style).

4.2 Demographic data

Data was gathered from CPTs across Wales (appendix 15). The majority of responses originated in south Wales, which may simply reflect population density. Figure 3 illustrates that responses were received from CPTs working across all six categories of pharmacy.
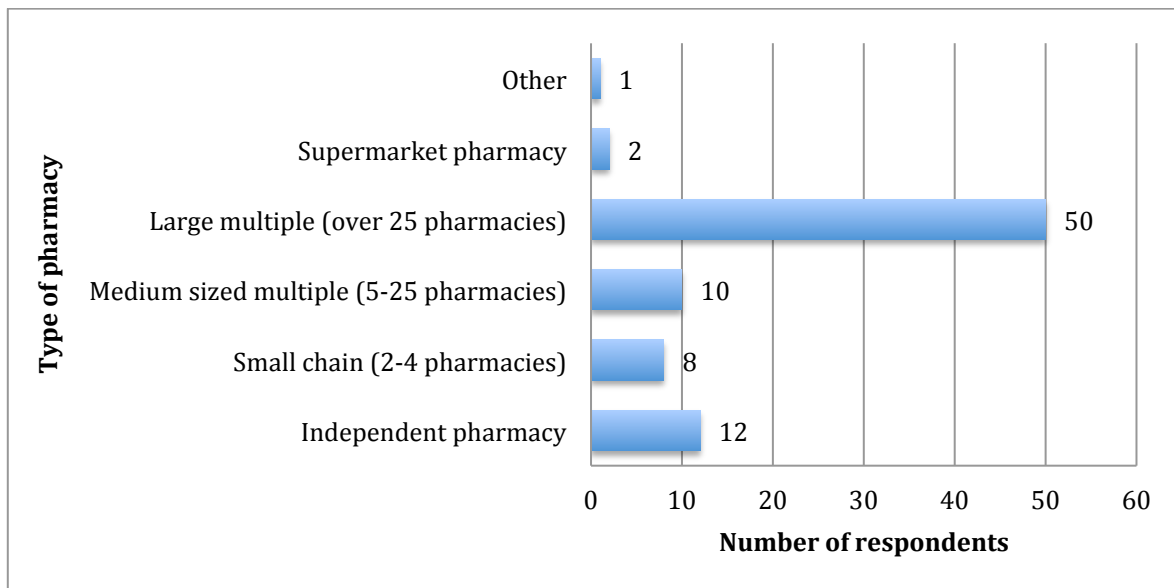
Figure 3 – Number of respondents from each category of community pharmacy

The number of hours worked ranged from 12 hours to 45 hours, with an average of 31.7 hours. [Median 33; Mode 40]. Data for the year of qualification is based on 78 responses, as five erroneous responses were omitted. The year of qualification ranges from 1980 to 2017, with the average year of qualification being 2005 [Median 2006; Mode 2012]. It is noted that 54 (69%) of the 78 participants qualified prior to 2011.

4.3 RQ1: How do community pharmacy technicians describe their current roles?

Quantitative questionnaire data

Qualitative questionnaire responses that described current roles and the estimated time spent on those roles was quantitatively analysed, to gain further insight into which were 'core roles'. Unfortunately, only 40 responses were capable of quantitative analysis, as some participants hadn't assigned a time estimate, and other responses were erroneous, as the time estimates didn't total 100%. I used my professional expertise to categorise responses to facilitate the quantitative analysis described below.

Dispensing

Of the forty participants, the majority (35) indicated that they dispensed medicines. The amount of time spent dispensing ranged from 2% to 100%, with an average of 43%. [Median 40%; Mode 60%].

Final accuracy checking

Just over half of participants (22) indicated that they final accuracy checked dispensed items. The amount of time spent final accuracy checking ranged from 5% to 95%, with an average of 57%. [Median 60%; Mode 80%]

Leadership, management and training

Fifteen participants reported that their role included an element of leadership, management and/or training. The amount of time spent on these roles ranged from 1% to 85%, with an average of 19%. [Median 10%; Mode 10%]

Administrative tasks

Half of the forty participants reported that their role included administrative tasks, e.g. ordering repeat prescriptions, filing prescriptions and answering the telephone to name a few. The amount of time spent on administrative tasks varied from 3% to 20%, with an average of 10% [Median 10%, Mode 10%].

Stock management (excluding Controlled Drugs)

Just under half of participants (18) reported that they ordered, maintained and received stock. The amount of time spent on stock management varied from 1% to 40%, with an average of 12%. [Median 10%; Mode 10%]

Management of Controlled Drug (CD) stock

Seven participants reported that they were involved in the management of CD stocks. The amount of time respondents spent on this role ranged between 1% and 10% with an average of 7%. [Median 5%; Mode 5%]

Over-the-counter (OTC) sales and advice

Seven participants reported that they sold OTC medicines and/or provided healthcare advice. The average amount of time spent on this was 12%. [Median 15%; Mode 20%]. It is worth noting here that a separate category was assigned for responses that referred to simply serving customers and/or responses without direct reference to OTC sales or medicines advice.

Serving customers

Ten participants stated that they serve customers. The amount of time spent serving customers ranged from 1% to 45%, with an average of 11% [Median 7%; Mode 5%]

Dealing with queries

Six participants stated that they were involved in dealing with customer and/or medicine related queries. The amount of time spent on queries varied from 5% to 40%, with the average being 13%. The median was 6% and mode 5%.

Services and health checks

Five participants reported that they were involved in the delivery of smoking cessation services and/or health checks. The average amount of time spent delivering services was 6% [Median 5%; Mode 5%].

Questionnaire participants were asked whether they held an NVQ Level 2 in Pharmacy Services [or equivalent] and whether they had previously worked as a dispenser or pharmacy assistant. The responses are shown in Figures 4 and 5 respectively.
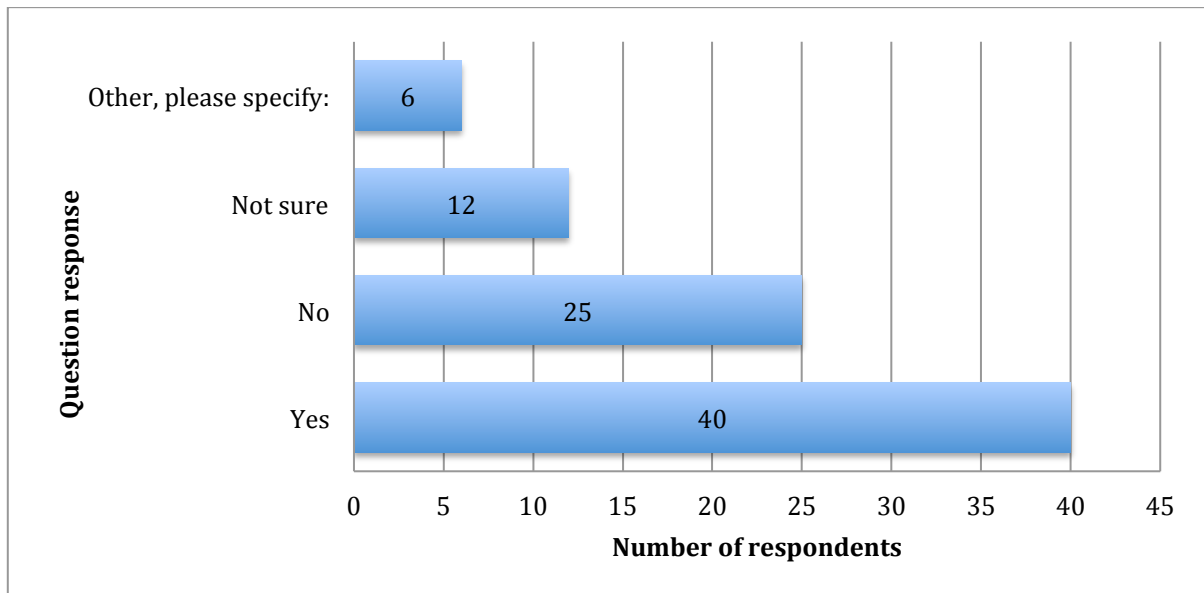
Figure 4 – Responses to Q41: Do you have an NVQ Level 2 in Pharmacy Services, or other Level 2 qualification?
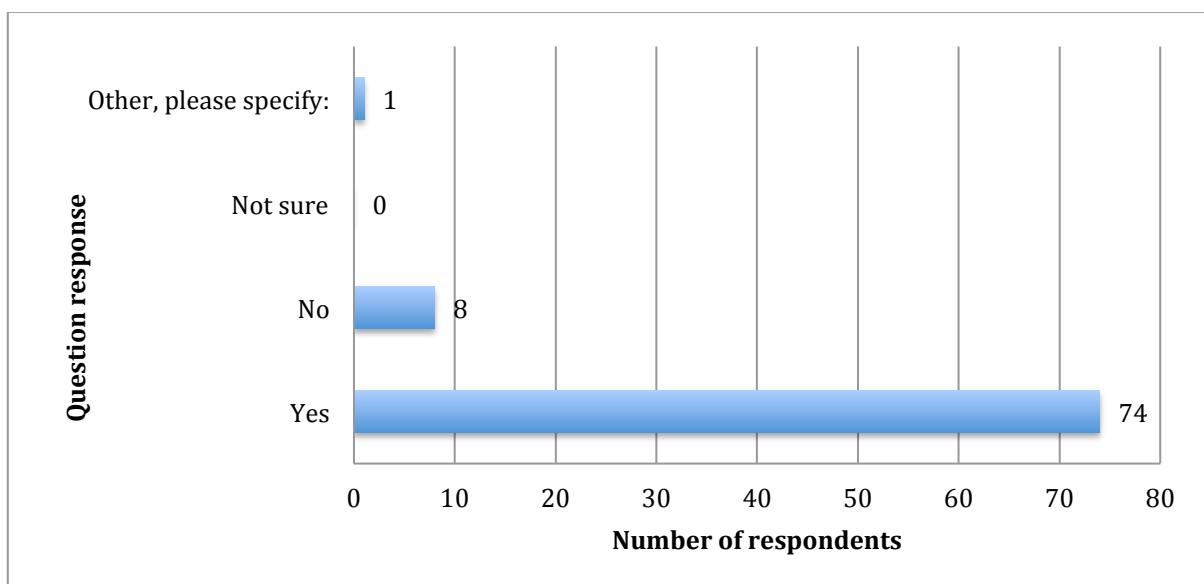
Figure 5 – Responses to Q42: Were you a dispenser or pharmacy assistant prior to training and registering as a Pharmacy Technician?

Qualitative questionnaire data

The 43 responses, which weren't quantitatively analysed, were reviewed to identify any roles that didn't fall into the categories outlined above. The following roles were noted; supervising daily clients with methadone, patient safety reviews monthly, regional support, measuring patients for stockings and other medical aids, see reps for generic ordering, reconciliation of discharge medication, wholesaling and collaborative working consultations. These appear to be idiosyncrasies reported by few CPTs, however they provide further context.

Participants were asked about roles they felt they could do, but didn't currently do. Thirty-one qualitative comments were coded and grouped (appendix 16) into four themes, enhanced services, extended roles, training and development and counselling and advice. The most frequently mentioned roles were enhanced or clinical services, e.g. weight loss service, smoking cessation service, Medicines Use Review (MUR), Discharge Medication Review (DMR) and flu vaccination. Other frequently mentioned roles were extended roles, e.g. final accuracy checking and medicines management.

The reasons given for non-engagement in these roles included; lack of relevant training, lack of time, staff shortages, minimal pay increase not worthwhile, domain of the Pharmacist, demands of repeat dispensing, automation of dispensing process, lapsed accreditation and restrictions of Health Board. One respondent stated,

"More enhanced services, specifically DMR (discharge) and flu jabs. I see no reason why fully qualified technicians can't learn and provide the service. Also, we should be carrying out MURs in the home to the patients who need more assistance. Technicians should some

how be able to assist with that and be able to do the home visits and the medicines management"
(R_2VF6Cobdw726do6, small chain, registered 2008)

Sixty-four participants provided qualitative responses on the differences between their PT role and previous dispenser role. Thirteen participants reported that there was no significant difference. Three reported no difference other than final accuracy checking role. The remaining participants described important differences, which were coded and grouped into multiple themes; more responsibility, final accuracy checking role, greater knowledge to provide advice and deal with queries, involvement in training and leadership and management and role respected and valued. These themes are illustrated below:

"More responsibility and more respected as a team leader"
(R_1j8SEjlyHo16EWm, large multiple, registered 2017)

"As a PT I have the knowledge to answer questions / queries from customers with confidence. Always knowing when to refer to a pharmacist"
(R_sAMKvRKMJ9ATH41, large multiple, registered 2005)

"Able to undertake more detailed tasks, i.e. final check and bagging up of completed dispensed medication"
(R_2qpXDAJpgdXhbJW, independent, 2013)

"More managerial duties involved. Leading the team to ensure the pharmacy operates smoothly"
(R_2TXmxqpt0HnV23g, large multiple, 2013)

Qualitative interview data

Interviewees A, C and D all reported that their core roles included the sale and supply of medicines, e.g. dispensing and stock management, and that their job descriptions accurately reflected their role. None of them are ACPT's, citing concerns around the additional responsibility, lack of support, insufficient financial gain and too late in

career to train. Interviewee A also described a supervisory role, which involved training new employees and the day-to-day running of the pharmacy when locum Pharmacists were covering. Interviewee C reported that they undertake health checks, e.g. blood pressure, albeit infrequently.

In contrast, Interviewee B reported a very different role, split between final accuracy checking and supporting the delivery of enhanced services. When asked how they supported enhanced services, Interviewee B stated,

"That's just the case of we've got systems in place to identify where people need MURs, so our computer system, which is [redacted], when we train the members of staff, we tell them. Everybody here knows that when we're looking at labelling people, we look to see when they last had an MUR. That's our repeatable people and then on the – when we do patients who walk through the door with prescriptions, everybody has to keep on if they're due an MUR, if they're eligible for one, the targeted, all that kind of thing. So we keep an eye on it at that end. We print off – we can print off consent forms before we do the MURs."

The role described above appears to relate to recruitment and administration of the MUR process, rather than the professional or clinical aspects of the service. However, Interviewee B went on to say that following completion of a day course, they were able to provide a Level 3 Smoking Cessation service. Interviewee B appears to be more involved with the professional or clinical aspects of this service, based on the following statement,

"They [patients] just come every week for the first couple of weeks and then every fortnight, up to 11 weeks. We can give them advice and support and provide them with their nicotine replacement therapy basically and hopefully help them to quit"

Finally, Interviewee B mentioned that they had recently undertaken a leadership course, after identifying it as an area for development. Interviewee B recognised that

they were taking the lead for additional roles, rather than just the final accuracy checking role, so the course would support this. Interviewee B did not feel that their job description reflected the full extent of the roles undertaken.

When asked whether they felt that their knowledge and skills were being utilised fully, the responses were mixed. Interviewee A described becoming deskilled having transferred from a smaller independent pharmacy, to a larger retail pharmacy, where many roles were centralised, e.g. ordering medicines. Interviewee B felt that their knowledge and skills were utilised fully at times, e.g. actively involved in DMRs, but that workload and troubleshooting problems meant they were often required elsewhere. Interviewee C felt they were being used to the best of their ability. Interviewee D said they were capable of more, but it wasn't their role.

Interviewees were asked whether they felt their roles had changed since professional registration was introduced and the responses were split. Interviewee A felt that the pace of change was slow and the extent to which roles had changed varied by workplace, however they felt more valued as a professional. Interviewee B also felt roles had changed, but from a different perspective, stating,

"...the GPhC standards have changed to make things more simple and it's a lot more patient focused, which it should be. I'm an avid believer in everything being patient focused and people lose sight of that and that's – so for me, it's good, because there seems to be an attempt to try and get things a lot more patient centred that it was before."

In contrast Interviewees C and D didn't feel their roles had changed since registration, although Interviewee C stated,

"I haven't seen any changes as in what I do because I've been – I've worked in there for 17 years, so I was doing that before I registered, any of that. But it just makes me more aware because I feel accountable."

Analysis and discussion

The findings suggest that the amount of time spent on administration, stock related activities and the sale of medicines is minimal (≤12% on average), which could indicate an appropriate use of skill mix. However, questionnaire and interviewee data suggests that dispensing remains a core function – a task that could be delegated and will not be central to community services in the future (Robinson, 2017). Questionnaire data suggests the final accuracy-checking role is well utilised, which again indicates appropriate use of skill mix, however interview data provides a more conflicting view. There is some evidence that PTs are taking on management, leadership and training roles, however the time spent on these roles appears limited, which may be due to other workload pressures.

Dealing with queries does not appear to be embedded, despite PTs completing a mandatory unit titled 'Process Pharmaceutical Queries' during initial training (appendix 1) - this may be an area where knowledge and skills are being underutilised. There is limited evidence of PTs delivering, or supporting delivery of enhanced services such as smoking cessation, despite interest in these roles – this is consistent with research by Desselle *et al* (2018b) in which Danish Pharmaconomists reported a strong preference for clinical roles. Difficulties in accessing appropriate training and/or being released for training seem to be relevant factors. Interviewee B is an excellent example of how

investment in training has enabled significant role development, which is consistent with Mattingly & Mattingly's (2018) view that pharmacy technicians are capable of performing more patient care activities.

There appears to be an explicit career pathway from NVQ Level 2 to NVQ Level 3, which provides opportunity to build on existing skills, knowledge and understanding of NVQ methodology. One respondent stated, "Becoming a pharm tech and not doing the first bit I would say doesn't give you a full insight into the job. Having a year as a pharmacy assistant gives you more confidence to go further" (R_2zwr5PZHJSOjdJO, independent pharmacy, 2009). Potential disadvantages could include difficulties in making the transition to a registered professional, however this appears unfounded.

The majority of participants reported differences between the dispenser and PT role. This was unexpected, based on anecdotal experience, previous research and these research findings, which suggest that tasks undertaken by PTs have not evolved significantly. On reflection, it is possible that the differences identified were subjective, e.g. more responsibility, rather than specific tasks or roles which could be objectively defined. In hindsight this could be a limitation of the questions posed.

In answer to RQ1, most CPT's describe their roles primarily in relation to the sale and supply of medicines, particularly dispensing. CPT's, who are involved in final accuracy checking prescriptions, describe this as a core role. Some CPT's describe roles such as

delivery of enhanced services, training and management and leadership, however this is limited.

4.4 RQ2: What factors enable the education and development of community pharmacy technician roles? RQ3: What factors are barriers to the education and development of community pharmacy technician roles?

Research questions 2 and 3 are analysed together, as they are closely related.

Quantitative questionnaire data

Responses to Likert scale questions on potential barriers and enablers have been summarised in Tables 5 - 8 below. Bold highlighted numbers have been used to indicate the largest responses. The key used for all tables is as follows:

SD = strongly disagree

D = somewhat disagree

N = neither agree nor disagree

A = agree

SA = strongly agree

NA = not applicable

Table 5 – Responses to Likert scale questions 12 -14 on workplace support

Statements	SD	D	N	A	SA	NA
I receive professional guidance from pharmacy technician colleagues, which supports me to undertake my current role	5	11	14	13	17	**23**
I receive guidance from non-pharmacy colleagues, e.g. non-pharmacy manager, which supports me to undertake my current role	9	12	**20**	15	7	**20**
I receive professional guidance from Pharmacist colleagues, which supports me to undertake my current role	6	9	12	26	**30**	

	SD	D	N	A	SA
I don't have access to guidance or support for my current work role	**27**	25	18	9	4

(n = 83)

Table 6 - Responses to Likert scale questions 15-19 on professional identity

Statements	SD	D	N	A	SA
I consider myself to be a pharmacy professional	2	2	2	20	**57**
I feel part of a professional pharmacy team	0	5	7	28	**43**
I feel my role is valued by professional pharmacy colleagues	7	7	6	31	**32**
Being a pharmacy technician is an occupation rather than a profession	12	18	**22**	20	11

(n = 83)

Table 7 - Responses to Likert scale questions 20-22 on delegation and skill mix

Statements	SD	D	N	A	SA
I feel confident to delegate tasks to other colleagues	3	5	12	**34**	29
I feel colleagues delegate work to the most appropriate team member	9	11	18	**29**	16
I feel that skill mix could be used more effectively in my workplace	3	12	21	**30**	17

(n = 83)

Table 8 – Responses to Likert scale questions 27 – 35 on initial education and training

Statements	SD	D	N	A	SA
My initial training enabled me to undertake the role of a pharmacy technician on 'day one'	3	13	14	**32**	21
My initial training gave me the knowledge and understanding to work as a 'day one' pharmacy technician	2	10	19	**34**	18
My initial training enabled me to develop my problem solving skills	1	6	16	**38**	22
My initial training developed my confidence in communicating with patients	3	6	16	**31**	27

My initial training covered topics which I do not use in my day to day job	4	6	9	30	**34**
I would have liked more opportunity to develop professional skills, e.g. communication and problem solving, during my initial training	7	10	**29**	**29**	8
My colleagues were familiar with the knowledge content of my initial training	13	17	21	**24**	8
My colleagues understood my role as a Pre-Registration Pharmacy Technician	9	16	**26**	25	7
My colleagues were not involved in my initial training	10	14	14	22	**23**

(n = 83)

Further quantitative analysis was undertaken using the Kruskal Wallis-Test to ascertain whether there is a link between the following:

- Category of pharmacy and professional support

- Category of pharmacy and recognition of professional identity

- Category of pharmacy and delegation and skill mix

- Category of IET and the effectiveness of the training

The Kruskal Wallis-Test is based on a null hypothesis, that there will be no difference, i.e. the median response will be equal for all categories of pharmacy or IET. This test may be considered an appropriate alternative to Mann Whitney test, when comparing more than two categories data. For full details of the analysis please refer to Appendix 17. The data shows that there is a non-significant difference between the median Likert responses to the questions analysed, across the six categories of pharmacies. This indicates that responses relating to workplace, professional identity, delegation or skill mix are similar across all categories of pharmacy. Similarly, the responses on the effectiveness of IET are comparable regardless of the format of delivery.

Participants were asked how their initial education and training was delivered and the responses are recorded in Figure 6.
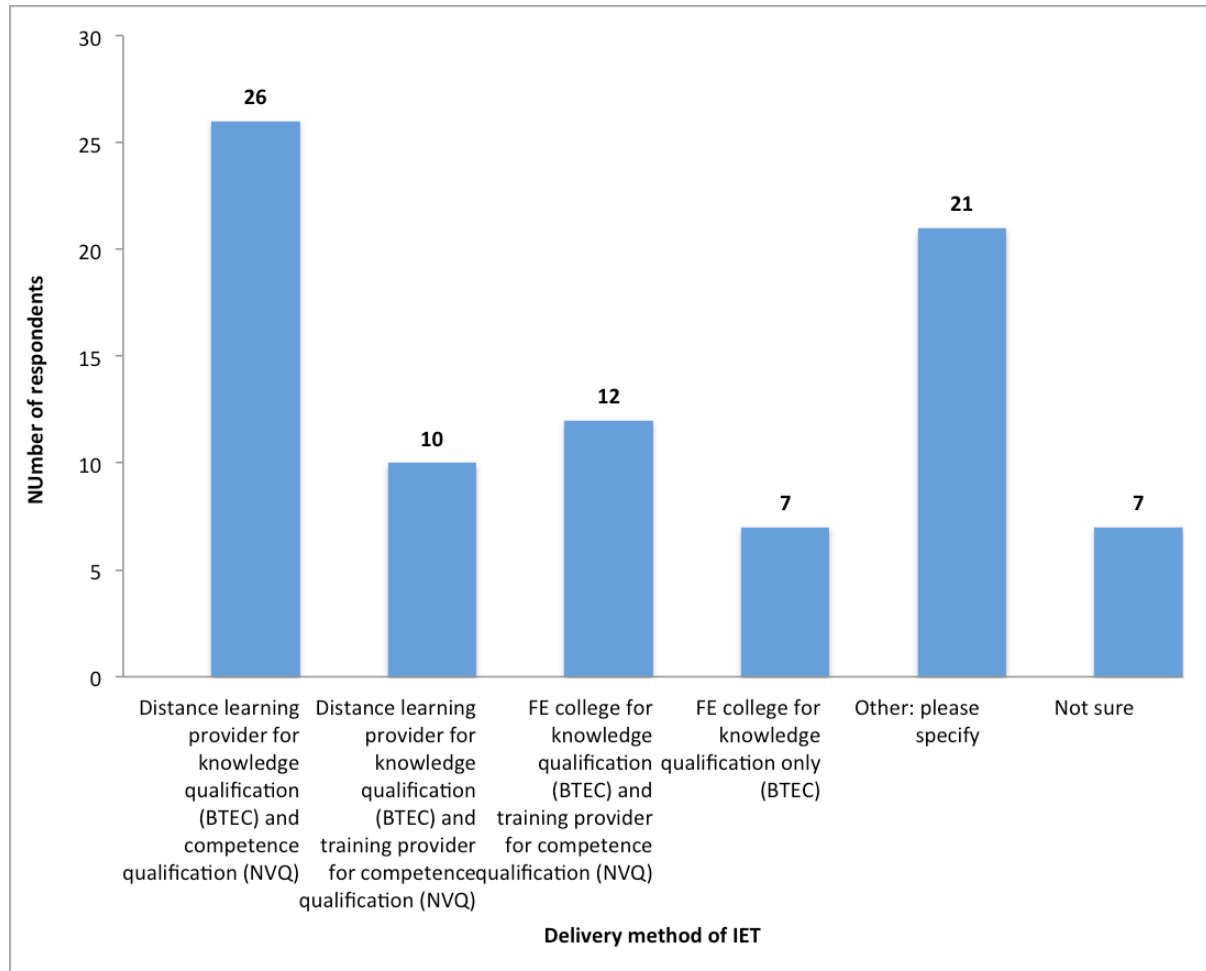
Figure 6 – Responses to multiple-choice question 26 on delivery of initial education and training

Participants were asked whether they had undertaken any additional education or training post-registration and responses are recorded in Figure 7. Participants were able to select as many options as applied; hence the total number exceeds 83.
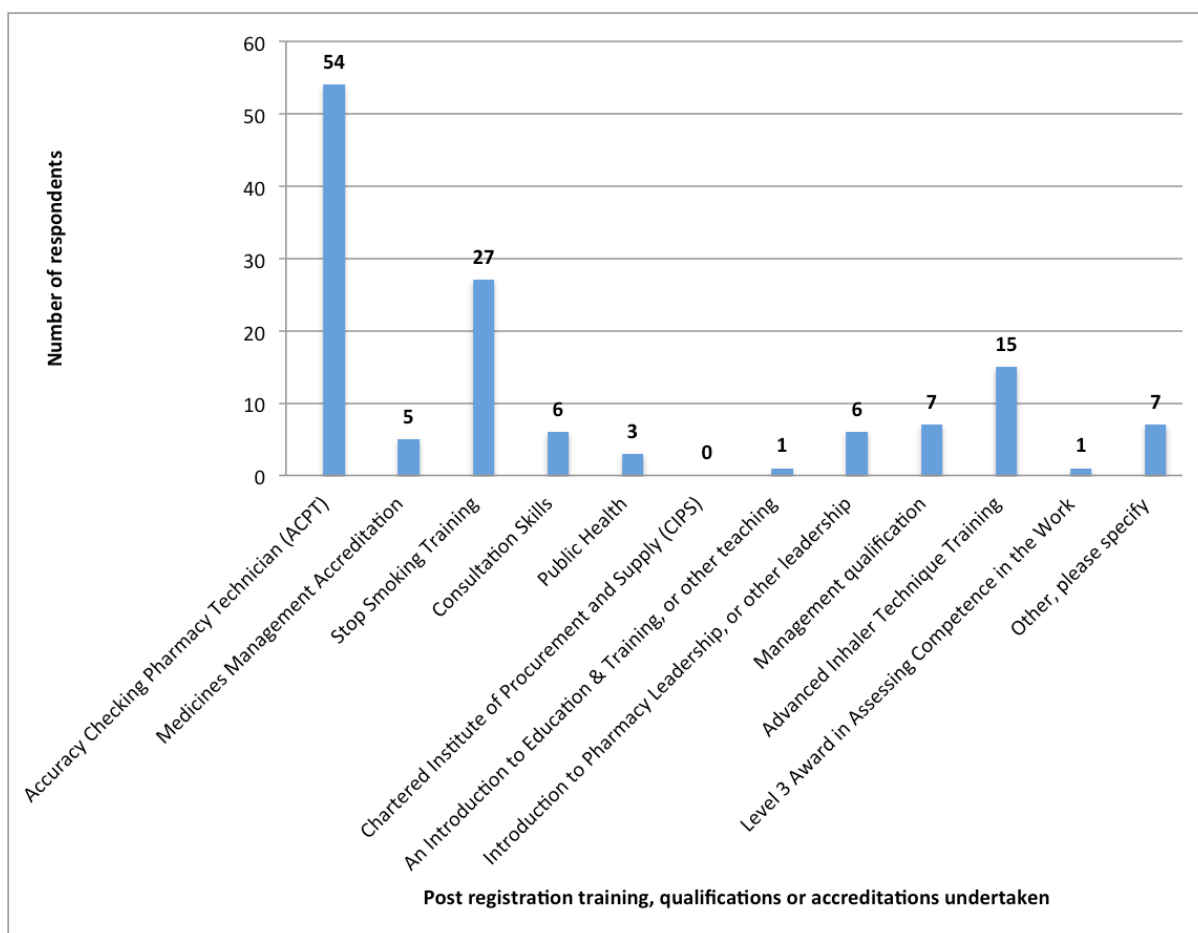
Figure 7 – Responses to multiple-choice question 37 on post-registration training, qualifications and/or accreditations undertaken

Qualitative questionnaire data

Participants were asked to describe any factors, which enabled them to undertake their role effectively. The qualitative comments were coded and the one clear theme that emerged was support. Team working was identified as the most important factor, with Pharmacist support and managerial support also being mentioned frequently. The importance of adequate and on-going training was also referred too. The following factors appear to be idiosyncrasies due to the low numbers of respondents who reported them; staff morale, appropriate use of skill mix, environmental factors, staffing levels and effective Standard Operating Procedures (SOPs).

Similarly, participants were asked to describe any factors, which they felt were barriers to undertaking their role effectively and two key themes emerged. The first was staffing issues, mainly inadequate staffing and lack of qualified or competent staff. The second theme related to business pressures, such as a busy environment, insufficient time and the prioritisation of targets. The following factors appear to be idiosyncrasies due to the low numbers of respondents who reported them; robot dispensing, no access to education and training to develop role, poor communication, lack of respect for PT role or experience and low pay.

With regard to delivery of IET, Figure 6 shows that a quarter of participants (21) selected the 'other' option, which potentially skewed the quantitative data. Having reviewed the qualitative comments associated with the 'other' option, I note that some relate to older qualifications (i.e. pre-NVQ) and some relate to grand-parented qualifications. Prior to 2011, a grand-parenting clause enabled PTs whose qualifications didn't meet the registration requirements, to register, before it became mandatory. A significant number of responses make reference to courses with distance-learning providers; therefore it would be reasonable to conclude that the number of respondents who reported studying via distance learning is an underestimate.

Participants were invited to make any additional comments about their initial education and training. Twenty-three responses were recorded and four key themes emerged:

1. Relevance and application of training – three participants reported lack of opportunity to apply the training, two participants suggested that the training lacked relevance and one participant felt IET potentially alienated mature staff,

or those from non academic background. Conversely, one participant felt that the role required in-depth training. One participant suggested that IET should include communication and leadership.

2. Impact of experiential learning – two participants suggested that IET is a formality and skills are learnt through experience and one participant reflected on value of 'learning from the bottom up'.

3. Support issues – two participants lacked support to enrol for IET and one participant self enrolled. One participant suggested they were left to their own devices and another reported doing all the work in their own time. One participant suggested, "*Would have liked a on site visit to assess my work found the assessment was not portraying my work, instead of paperwork through my course*"(R_2Va8uaAQszly6Pq, independent pharmacy, 2012)

4. Learning environment - one participant suggested that the test conditions were not robust and another participant said they would have preferred a classroom environment.

Participants were then asked which roles their post-registration training had enabled them to undertake. The overwhelming response was the final accuracy checking of prescriptions, reported by 26 participants. Four participants reported inhaler technique counselling and a further four reported smoking cessation services. Three participants reported non-pharmacist branch manager roles and there were individual reports of other management roles such as dispensary manager, regional manager, clinical governance lead and HR manager.

Participants were subsequently asked whether they were qualified or accredited to undertake any roles, which they didn't currently do. Ten respondents reported 'yes' and this generally related to final accuracy checking or smoking cessation services. The reason why was either not stated, or related to lack of opportunity within the current role. Finally participants were invited to make any additional comments about their post-registration training. There were seven usable responses. Two participants reported that they would like more training, where as one participant expressed no desire to enhance their training. One participant reported no access to training the workplace, two participants reported no opportunity to use additional training and one participant felt that the ACPT role lacked recognition.

Qualitative interview data

Interviewees were asked about factors they felt that had enabled their role to develop. Interviewee A explained that they access online learning and local education events, as well as informal support from Pharmacists colleagues. Interviewee B felt that they had gained invaluable experience from working as a locum, as they had to adapt their communication style, learn quickly and work with different personalities in new environments. Both Interviewees B and C reflected on the importance of quality training. In contrast, Interviewee D reported that workload and working practices had changed, but their role had essentially been the same for fifteen years. This may suggest that numerous factors impact role development, including education and training, and career pathways are unique to individuals.

When asked about factors they felt had been barriers to their role development, Interviewee's C and D both cited a lack of workplace support. Interviewee C reported, "*The reason I never went further to be an ACT was one pharmacist who was there who – how can I – what shall I say?" "She was a bit unreliable, I'll say, so one minute she was lovely, one minute she was not*". Similarly, Interviewee D stated, "*Like I say, yes, we went to see about the ACT. So I suppose you could say the barrier was that the pharmacist didn't want an ACT in my shop. The pharmacist, she was happier to check, I think*".

All four interviewees reported that workplace support and/or professional guidance was limited. Interviewees C and D reported that they could access support from specific Pharmacist colleagues with whom they had a good relationship. Interviewee A suggested that they obtained guidance from Standard Operating Procedures (SOPs) and received limited guidance on how the days run. Interviewee B suggested that their annual review was the only real support received, unless they needed to refer a problem they were unable to resolve.

On the issue of delegation, Interviewees A and D reported that only Pharmacists or management staff delegate work within the team. Interviewees B and C suggested that the allocation of work is generally agreed within the team, but they are able to delegate unscheduled tasks etc. This may imply that whilst participants report being confident to delegate, there is limited opportunity to do so.

When asked whether colleagues could carry out interviewees roles as effectively, Interviewees A, B and C all reported that they could, which is consistent with questionnaire data which suggests that skill mix could be improved. Interviewee A stated, "*I feel a lot of times I'm dealing with retail side a little too much and when I say retail I'm talking about selling things that are not pharmacy-only lines*". Interviewee B suggested, "*I think I could probably do less ACT-ing to make way to do more of the services perhaps, because there's plenty of people in that role that can do it – efficiently and probably better than me, because I'm trying to concentrate on doing other things*".

In terms of their initial education and training, all four interviewees reported some knowledge development, albeit to differing extents. Interviewee B felt some of the knowledge was too in-depth and lacked relevance, where as Interviewee C really enjoyed the knowledge element. Interviewee A, who completed IET via distance learning and Interviewee B who attended college for IET, both felt they had opportunity to develop their communication skills. Interviewee A communicated with patients and multidisciplinary teams, and attributed this opportunity to working in a small independent pharmacy. Where as Interviewee B suggested they had developed their communication skills within the classroom environment. Interviewee D felt they already had good communication skills from experience, but acknowledged that their maths skills improved. Overall, Interviewee's A and B valued their initial training, particularly the NVQ element. Interviewee C appreciated the training in hindsight and Interviewee D found it had made little difference.

When asked about any post-registration training, Interviewees C and D reported that they had undertaken informal learning within the workplace. Interviewee C felt that it was too late in their career to pursue the ACT, but was open to the idea of training for the smoking cessation role. In contrast, Interviewee D reported that they had attended an ACT study day, but did not complete the course as their manager was not supportive and they had concerns around the additional responsibility with little additional pay. Interviewee A explained that they had been certified for smoking services with a previous employer, but the accreditation had since lapsed. They had expressed an interest in the Smoking Cessation service with the current employer, but had been unable to access appropriate training, or secure support from the workplace or manager to enable time off for training. Interviewee B had completed the ACT course whilst working in hospital and reflected on how in-depth the training was. They felt that the leadership course was insightful and applicable to practice and the smoking cessation training was extensive and had certainly enabled them to undertake the role effectively. Both Interviewees A and B also reported pro-actively seeking informal learning opportunities to maintain and develop their knowledge.

Analysis and discussion

The questionnaire findings suggest the majority of CPTs receive professional support from pharmacist colleagues, rather than PT colleagues. It is noteworthy that approximately a quarter of participants do not work with another PT. Support from pharmacists, managers and work teams were identified as enablers for role development. Interestingly, the majority of questionnaire participants also reported that pharmacy colleagues valued their role. The interview data provided a conflicting account. Interviewees C & D reported that workplace support was limited and

dependant on specific individuals. Similarly, they reported that poor relationships with pharmacist colleagues and pharmacists who were unwilling to delegate, had been a barrier to role development. This may suggest that the quality of workplace relationships and individual pharmacist attitudes towards the PT role, are key factors in PTs accessing professional support and enabling role development.

The overwhelming majority of participants identified themselves as a 'professional', which suggests that PTs are adopting a professional identity and refutes my initial assumption. The adoption of a professional identity may have contributed to participants understanding of the differences between the Level 2 and Level 3 role, specifically additional responsibilities. What is less clear is how CPTs developed their professional identities – a potential area for further research. Interestingly, fewer participants agreed that PTs are part of a profession rather than an occupation – this may suggest that professional identities have been adopted at an individual level, but are not fully understood in terms of the wider profession. Alternatively, it may be a historical view, as the large proportion of respondents qualified when PTs were an occupation. Regardless of the reason, findings suggest that there is more work to be done in terms of developing CPTs understanding.

The findings suggest that in the main, IET enables participants to undertake the role of a PT effectively at day one, which may contradict Rosado *et als* (2015) findings. In general, participants reported opportunity to develop communication and problem solving skills; the extent to which these opportunities could be considered 'experiential'

as described by Kolb (1984), is unknown. This finding further supports the idea that PTs could routinely deal with patient queries.

In terms of the knowledge element, some topics are clearly considered out dated or irrelevant which is consistent with findings of Rosado *et al*, 2015, John & Brown, 2017 and Koehler & Brown, 2017, although opinions varied with regard to the depth of knowledge. Data relating to the delivery of IET is difficult to conclude, as a third of participants selected 'other' or 'not sure' – on reflection inclusion of one of these options could have been preferable. The data suggests that distance learning is the main method of delivery for CPTs.

Data on post-registration training suggests that the mainstay of role development is around final accuracy checking (ACPT). There is some evidence of CPTs having undertaken further training, which has enabled management and leadership roles, as well as patient facing roles like smoking cessation and advanced inhaler technique counselling. These still appear to be emerging roles for CPTs in Wales, as the numbers are small, however, with improved access to training, this may increase and provide opportunity for improved career pathways.

Post-registration training in Wales has historically centred on delivery of specific roles, e.g. ACPT, rather than generic skill development, e.g. consultation skills. Generic skill development could enable skills to be applied across various aspects of practice, which may be more effective in supporting role development. Similarly, post-registration training has historically been delivered via accreditations, which require renewal. This has lead to situations where accreditations lapse, or aren't transferrable between

sectors or employers, rendering PTs unable to undertake the role without additional training. The need to 'reaccredit' may have been appropriate prior to professional regulation, however, there maybe scope to review this approach in light of professional regulation, which enables PTs to judge their own competence.

Chapter 5: Conclusions and recommendations

5.1 Conclusions and recommendations

This research study has provided valuable insights into the current roles of community pharmacy technicians in Wales to address RQ1. There appears to be a clear career pathway from dispenser to CPT and the majority of CPTs report important differences between the two roles. There is evidence of CPTs engaging in leadership and management roles, as well as delivery of enhanced services such as smoking cessation, however, the extent to which this is the case appears limited and is difficult to quantify. The majority of CPTs remain involved in the supply of medicines, either via dispensing or final accuracy checking, hence there is scope for further role development. I recommend that employers and stakeholders give further consideration to whether CPT skills and knowledge are currently being utilised to best effect, to support the current and future delivery of pharmacy services.

The study has also provided further context and understanding of the barriers and enablers experienced by CPTs, to address RQ2 and RQ3. I acknowledge that there are conflicts within some of the data, which is inevitable in the context of interpretive research, which includes individual qualitative responses. Professional support, teamwork and training were identified as key enablers. Embedding professional support within the community sector could be enabled via mentoring, which could have a tripartite effect of improving support for CPTs, informing pharmacist perceptions of the PT role and consequently improving team relationships. Compelling community employers to implement the GPhC's best practice guidance for the workplace 'tutor' role, could strengthen support for PRPTs.

The main barriers experienced were lack of access to training, staffing issues and business pressures. I recommend that employers and key stakeholders consider investment in improving staffing and reducing workplace pressures, or at least backfilling CPTs, to enable them to be released from the workplace to access post-registration training. I also recommend that best use be made of delegation and skill mix, to enable CPTs to develop their roles and to move away from dispensing, which can be delegated.

In terms of IET, data suggests whilst current standards support CPTs to undertake their role on 'day one', the IET curriculum would benefit from review. The data also reflects the importance of experiential learning. I recommend that stakeholders involved in the development, accreditation and delivery of training, e.g. Awarding Bodies, regulators and training providers, reflect on current research and the recent Skills for Health (2018) consultation, to ensure that the new qualification provides opportunity to develop professional practice skills, an appropriate level of relevant knowledge and generic skills and competencies, which can be applied across a range of roles.

This study has refuted some of my initial assumptions, which has advanced my knowledge and understanding of current CPT roles. I will apply this new knowledge and understanding to future work projects and it is hoped that the GPhC and WCPPE Director will utilise this knowledge for the advancement of the profession.

On reflection, I am confident that the research methodology and methods chosen were appropriate for the research questions. The sample size was sufficient to draw valid conclusions about community pharmacy technician roles across Wales and the enablers and barriers experienced by participants. I acknowledge that these results cannot be extrapolated to reflect the situation outside of Wales. During the analysis stage I identified some limitations in terms of data collection, e.g. subjective changes to CPT roles may not have been captured and the data didn't clarify how professional identities were developed. This could highlight future areas for research, to provide a more in-depth understanding of current roles and intelligence on the development of the profession more widely. It is unlikely that these areas could be fully addressed using the same research methods; hence they are beyond the scope of this research study.

References

Bateson, G. (1972) *Steps to an ecology of mind*. New York: Ballantine

Bowling, A. (2005) 'Quantitative Social Science: the survey', in Bowling, A. and Ebrahim, S. (ed.) Handbook of Health Research Methods. Berkshire: Open University Press

Bradley, F., Willia, S.C., Noyce, P.R. and Schafheutle, E.I. (2016) 'Restructuring supervision and reconfiguration of skill mix in community pharmacy: Classification of perceived safety and risk', *Research in Social and Administrative Pharmacy*, 12 (5), pp. 733-746

British Educational Research Association (2011) *Ethical Guidelines for Educational Research*. Available at: https://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf?noredirect=1 (Accessed: 22 September 2018)

Brown, W.I., Cernusca, D. and Roehrich, L. (2018) 'Evaluation of a Hybrid Training Module for Community Pharmacy Staff Providing Hypertension Medication Therapy Management'. *Journal of Pharmacy Practice*, 31(2), pp.183-189

Cohen, L., Manion, L. and Morrison, K. (2013) *Research Methods in Education*. 7th edn. Oxon: Routledge

Connor, M. and Pakora, J. (2012) *Coaching and Mentoring At Work*. 2nd edn. Maidenhead: Open University Press

Cook, C., Heath, F. and Thompson, R.L. (2000) 'A meta-analysis of response rates in web- or internet-based surveys', *Educational and Psychological Measurement*, 60 (6) pp. 821-836

Creswell, J.W. and Plano Clark, V.L. (2007) *Designing and Conducting Mixed Methods Research*. London: SAGE Publications Ltd

Cruess, R.L., Cruess, S.R., Boudreau, J.D., Snell, L. and Steinert, Y. (2015) 'A schematic representation of the professional identity formation and scoialization of medical students and residents: a guide for medical educators', *Academic Medicine*, 90 (6) pp.718-725

Darwin, A. (2000) 'Critical Reflections on Mentoring in Work Settings', *Adult Education Quarterly*, 50(3), pp. 197-211

Desselle, S.P., Hoh, R., Holmes, E.R., Gill, A. and Zamora, L. (2018a) 'Pharmacy technician self-efficacies: Insight to aid future education, staff development, and workforce planning', *Research in Social and Administrative Pharmacy,* 14 (6) pp. 581-588

Desselle, S.P., Hoh, R., Rossing, C., Holmes, E.R., Gill, A. and Zamora, L. (2018b) 'Work Preferences and General Abilities Among US Pharmacy Technicians and Danish Pharmaconomists', *Journal of Pharmacy Practice*, pp 1-11. doi: 10.1177/0897190018792369

De Vaus, D. (2002) 'Survey Research', in Greenfield, T. (ed.) *Research Methods for Postgraduates.* 2nd edn. London: Arnold, pp.172-182

Fera, T., Kanel, K.T., Bolinger, M.L., Fink, A.E. & Iheasirim, S. (2018) 'Clinical support role for a pharmacy technician within a primary care resource center'. *American Journal of Health-System Pharmacy*, 75 (3), pp. 139 – 144. doi: 10.2146/ajhp160646

Field, A. (2018) *Discovering Statistics Using IBM SPSS Statistics*. 5th edn. London: SAGE Publications Ltd

Freshwater, D. (2008) *Practitioner Based Research: Power, Discourse and Transformation*. Edited by John Lees and Dawn Freshwater. London: Karnac Books Ltd

General Pharmaceutical Council (2014) Registrant Survey 2013, initial analysis. Available from: https://www.pharmacyregulation.org/sites/default/files/gphc_registrant_survey_2013_initial_analysis.pdf (Accessed 4 Jul 2018)

General Pharmaceutical Council (2015) Tomorrow's pharmacy team, Future standards for the initial education and training of pharmacists, pharmacy technicians and pharmacy support staff. Available from: https://www.pharmacyregulation.org/sites/default/files/tomorrows_pharmacy_team_june_2015.pdf (Accessed 1 Oct 2018)

General Pharmaceutical Council (2018) Annual report 2016-2017 By the numbers. Available from: https://www.pharmacyregulation.org/sites/default/files/gphc_annual_report_2016-17_by_numbers.pdf (Accessed 1 Oct 2018)

General Pharmaceutical Council (2017) Standards for the initial education and training of pharmacy technicians. Available from: https://www.pharmacyregulation.org/sites/default/files/standards_for_the_initial_education_and_training_of_pharmacy_technicians_october_2017.pdf (Accessed 1 Oct 2018)

General Pharmaceutical Council (2018) Guidance on tutoring and supervising pharmacy professionals in training. Available from: https://www.pharmacyregulation.org/sites/default/files/document/guidance_on_supervising_pharmacy_professionals_in_training_august_2018.pdf (Accessed 1 Oct 2018)

Grealish, L. and Trevitt, C. (2005) 'Developing a professional identity: student nurses in the workplace', *Contemporary Nurse*, 19 (1-2), pp. 137 -150

Gregory, P.A.M. and Austin, Z. (2017) 'Conflict in community pharmacy practice: The experience of pharmacists, technicians and assistants', *Canadian Pharmacists Journal*, 150 (1), pp. 32 - 41

Hafferty, F.W. (2009) 'Professionalism and the Socialization of Medical Students', in Cruess, R.L, Cruess, S.R. and Steinert, Y. (ed) *Teaching Medical Professionalism*. Cambridge: Cambridge University Press, pp. 53 - 70

Hall, B. & Howard, K. (2008) 'A Synergistic Approach, Conducting Mixed Methods Research With Typological and Systemic Design Considerations', *Journal of Mixed Methods Research*, 2 (3), pp. 248-269 doi: <u>10.1177/1558689808314622</u>

Houle, S.K.D., Rosenthal, M.M. and Tsuyuki, R.T. (2014) 'A case study in mobilizing all pharmacy team members in the community setting: A clinical facilitation role for pharmacy technicians', *Canadian Pharmacists Journal*, 147(2), pp. 85 - 88

Howe, H. and Wilson, K. (2012) Modernising Pharmacy Careers Programme. Review of Post-Registration Career Development of Pharmacists and Pharmacy Technicians, Background paper. Available from <u>http://docplayer.net/3056835-Modernising-pharmacy-careers-programme-review-of-post-registration-career-development-of-pharmacists-and-pharmacy-technicians.html</u> Accessed (11 Sept 2018)

Hughes, M. (2002) 'Interviewing' in Greenfield, T. (ed.) *Research Methods for Postgraduates.* 2nd edn. London: Arnold, pp. 209-217

John, C. and Brown, A. (2017) 'Technicians and other pharmacy support workforce cadres working with pharmacists: United Kingdom Case Study', *Research in Social and Administrative Pharmacy*, 13(2), pp. 297 - 299

Kitchen, S. (1993) 'Preceptorship in Hospitals', in Caldwell, B.J. and Carter, E.M.A. (ed.) *The Return of the Mentor Strategies for Workplace Learning*. London: The Falmer Press, pp. 91-112

Koehler, T. and Brown, A. (2017) 'A global picture of pharmacy technician and other pharmacy support workforce cadres', *Research in Social and Administrative Pharmacy*, 13(2), pp. 271 – 279

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.

Kvale, S. and Brinkmann, S. (2009) *Interviews, Learning the Craft of Qualitative Research Interviewing*. 2nd edn. London: SAGE Publications Ltd

Laerd Statistics (2018) Spearman's Rank-Order Correlation. Available from: <u>https://statistics.laerd.com/statistical-guides/spearmans-rank-order-correlation-statistical-guide-2.php</u> (Accessed 1 Oct 2018)

Mattingly, A.N. (2018) 'Entry-level practice requirements of pharmacy technicians across the United States: A review', *American Journal of Health-System Pharmacy*, 75(14), pp.1057-1063

Mattingly, A.N. and Mattingly, T.J. (2018) 'Advancing the role of the pharmacy technician: A systematic review', *Journal of the American Pharmacists Association*, 58(1), pp. 94 – 108

Maxwell, J.A. (2013) *Qualitative Research Design*. London: SAGE Publications Ltd

Miller, R. L. and Brewer, J. D. (ed) (2007) *The A-Z of Social Research.* London: SAGE Publications Ltd

Mills, E., Bates, I., Farmer, D., Davies, G. and Webb, D.G. (2008) 'The General Level Framework: use in primary care and community pharmacy to support professional development', *International Journal of Pharmacy Practice*, 16(5), pp. 325 - 331

Minitab Express Support (2018) Interpret the key results for Kruskal-Wallis Test. Available at: https://support.minitab.com/en-us/minitab-express/1/help-and-how-to/modeling-statistics/anova/how-to/kruskal-wallis-test/interpret-the-results/key-results/ (Accessed 27 Sept 2018)

Morse, J.M. and Cheek, J. (2014) 'Making Room for Qualitatively-Driven Mixed-Method Research', *Qualitative Health Research*, 24 (1), pp. 3-5

Odukoya, O.K., Schleiden, L. and Chui, M.A. (2015) 'The Hidden Role of Community Pharmacy Technicians in Ensuring Patient Safety with the Use of E-Prescribing', *Pharmacy*, 3(4), pp. 330 - 343

Owen, C. (2017) 'Surveys', in Swain, J. (ed.) *Designing Research in Education.* London: SAGE Publications Ltd, pp. 123-147

Owen, S.M. and Stupans, I. (2009) 'Experiential placements and scaffolding for reflection', *Learning in Health and Social Care*, 8(4), pp. 272 – 281

Petrie, A. and Sabin, C. (2009) *Medical Statistics at a Glance.* 3rd edn. West Sussex: Wiley Blackwell

Professional Standards Authority. (2016) Professional identities and regulation: a Literature Review. Available from https://www.professionalstandards.org.uk/docs/default-source/publications/research-paper/professional-identities-and-regulation-a-literature-review.pdf?sfvrsn=cc7e7120_8 (Accessed 1 Oct 2018)

Radnor, H. (2001) *Researching your professional practice: doing interpretive research*. Philadelphia: Open University Press

Rattray, J. and Jones, M.C. (2007) 'Essential elements of questionnaire design and development', *Journal of Clinical Nursing*, 16(2), pp. 234-243

Robinson, J. (2017) 'Diverging community pharmacy practice across the four UK nations', *The Pharmaceutical Journal,* 299 (7908), doi: 10.1211/PJ.2017.20204041

Rosado, H., John, Christopher, J., Puaar, D. and Bates, I. (2015) An analysis of the initial education and training standards for pharmacy technicians and views on their fitness for purpose, A report to the General Pharmaceutical Council. Available from: https://www.pharmacyregulation.org/sites/default/files/pharmacy_technician_iet_standards_report.pdf Accessed: 1 October 2018

Seston, L. and Hassell, K. (2012) Briefing Paper: GPhC Pharmacy Technician Register Analysis 2012. Available from: https://www.pharmacyregulation.org/sites/default/files/GPhC%20Pharm%20Tech%20Register%20Analysis%202012.pdf (Accessed 1 Oct 2018)

Shane, R. (2011) 'Advancing technician roles: An essential step in pharmacy practice model reform', *American Journal of Health-System Pharmacy*, 68(19), pp. 1834 - 1835

Skills for Health (2018) Consultation on draft qualification units for Pharmacy Technicians. Available from: http://www.skillsforhealth.org.uk/news/latest-news/item/681-consultation-on-draft-qualification-units-for-pharmacy-technicians (Accessed 1 October 2018)

Social Research Association (2003) Ethical Guidelines. Available from: http://the-sra.org.uk/wp-content/uploads/ethics03.pdf (Accessed 1 Oct 2018)

Sullivan, G.M. and Artino, A.R. (2013) 'Analyzing and Interpreting Data From Likert-Type Scales', *Journal of Graduate Medical Education*, 5(4), pp. 541 - 542

Tashakkori, A. and Teddlie, C. (2010) 'Putting the Human Back in ''Human Research Methodology'': The Researcher in Mixed Methods Research', *Journal of Mixed Methods Research*, 4(4), pp. 271 - 277

Trede F., Macklin R., Bridges D. (2012) 'Professional identity development: A review of the higher education literature', *Studies in Higher* Education, 37(3), pp. 365 – 384

Welsh Government (2014) Written Statement – Delivering Prudent Healthcare within Wales [Press Release] 11 July. Available at: https://gov.wales/about/cabinet/cabinetstatements/previous-administration/2014/prudenthealthcare/?lang=en (Accessed 1 Oct 2018)

Welsh Government (2017) Written Statement - Community Pharmacy Funding 2017-18 and beyond [Press Release] 10 April. Available at: https://gov.wales/about/cabinet/cabinetstatements/2017/pharmacyfunding/?lang=en (Accessed 1 Oct 2018)

Welsh Government (2018) A Healthier Wales: our Plan for Health and Social Care. Available from: https://gov.wales/docs/dhss/publications/180608healthier-wales-mainen.pdf (Accessed 1 Oct 2018)

Appendices

Appendix 1: Level 3 NVQ Diploma in Pharmacy Service Skills specification

1 Introduction to the qualification

This document contains the information that centres need to offer the following qualification

Qualification title and level	Level 3 NVQ Diploma in Pharmacy Service Skills
GLH	344
TQT	750
City & Guilds qualification number	5355-03
Qualification accreditation number	500/9576/6
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

This qualification has been designed for those working in a pharmacy setting, either in the community or in a hospital. The qualification meets the needs of the pharmacy sector and related sector regulators and the requirements for endorsement of Skills for Health as the relevant Sector Skills Council for use in England, Wales and Northern Ireland. The qualification is based upon newly developed National Occupational Standards for Pharmacy. To achieve the qualification, candidates must complete fourteen mandatory units. Candidates must also complete a minimum of three optional units from a choice of thirteen.

1.1 Qualification structure

To achieve the **Level 3 NVQ Diploma in Pharmacy Services Skills (5355-03)**, learners must achieve **68** credits from the mandatory units and a minimum of **7** credits from a minimum of 3 of the optional units available, for a minimum of **75** credits.

The table below shows the unit titles and the credit value of each unit.

Unit accreditation number	City & Guilds unit number	Unit Title	Mandatory/ optional for full qualification	Credits
L/601/3461	301	Provide an effective and responsive pharmacy service	Mandatory	4
Y/601/3463	302	Process pharmaceutical queries	Mandatory	5
R/600/9413	202	Ensure your own actions reduce risks to health and safety	Mandatory	2
H/601/3465	304	Reflect on and develop your practice	Mandatory	4
T/601/3468	305	Receive prescription from individuals	Mandatory	3
M/601/3470	306	Confirm prescription validity	Mandatory	14
A6013472	307	Assemble prescribed Items	Mandatory	5
L/601/3475	308	Issue prescribed Items	Mandatory	10
A/600/9373	309	Prepare extemporaneous medicines for individual use	Mandatory	4
F/600/9374	310	Order pharmaceutical stock	Mandatory	3
M/600/9385	311	Receive pharmaceutical stock	Mandatory	3
T/600/9386	312	Maintain pharmaceutical stock	Mandatory	3

Unit accreditation number	City & Guilds unit number	Unit Title	Mandatory/ optional for full qualification	Credits
A/600/9387	313	Issue pharmaceutical stock	Mandatory	4
Y/600/9395	314	Undertake an in-process accuracy check of assembled prescribed items, prior to the final accuracy check	Mandatory	4
M/600/9368	315	Provide advice on symptoms and actions and uses of medicines	Optional	7
M/600/9371	204	Assist in the sale of medicines and products	Optional	8
R/601/3476	317	Manufacture and assembly of medicinal products	Optional	13
D/601/3478	318	Prepare aseptic products and carry out in-process checking	Optional	12
D/601/3481	319	Prepare documentation, materials and other items for manufacture and assembly of medicinal products	Optional	12
H/601/3448	213	Prepare documentation materials, components and other items for the preparation of aseptic products	Optional	6
A/601/3486	321	Check documentation, starting materials, components for the production of aseptic products	Optional	4
F/600/9388	322	Provide an effective service in a setting outside the pharmacy	Optional	2
A/600/9390	323	Assist in the supply of pharmaceutical appliances	Optional	2
J/600/9392	324	Process prescriptions for payment	Optional	5
M/600/9399	325	Prepare to conduct a review of an individual's medicines	Optional	5
M/600/9726	326	Enable learning through demonstrations and instructions	Optional	3
L/601/3430	203	Contribute to the effectiveness of teams	Optional	3
H/600/9397	428	Undertake the final accuracy check of dispensed medicines and products	Additional	12
T/601/3499	429	Take a medication history from an individual	Additional	12
D/601/3500	330	Determine the suitability of an individual's own medicine for use	Additional	5

Appendix 2: BTEC Level 3 Diploma in Pharmaceutical Sciences specification

The Pearson BTEC Level 3 Diploma in Pharmaceutical Science

The Pearson BTEC Level 3 Diploma in Pharmaceutical Science is a 120-credit and 720-guided-learning-hour (GLH) qualification that consists of 19 mandatory units. Learners must achieve all 19 mandatory units in order to achieve a total of 120 credits. There are no optional units in this qualification.

Pearson BTEC Level 3 Diploma in Pharmaceutical Science			
Unit	**Mandatory units**	**Credit**	**Level**
1	Chemical Principles for Pharmacy Technicians	5	3
2	Biological Principles for Pharmacy	5	3
3	Microbiology for Pharmacy	5	3
4	Human Physiology for Pharmacy	10	3
5	Action and Uses of Medicines	10	3
6	Gastrointestinal and Nutritional Medicines	5	3
7	Cardio-Respiratory Medicines	5	3
8	Central Nervous System Medicines and Anaesthesia	5	3
9	Infections, Immunological Products and Vaccines	5	3
10	Endocrine and Genito-Urinary Medicines	5	3
11	Malignant Disease, Immunosuppressive and Musculoskeletal Medicines	5	3
12	Eye, Ear, Nose and Dermatological Medicines	5	3
13	Community Pharmacy Practice	5	3
14	Professional Development in Pharmacy	5	3
15	Communicating in Pharmacy	5	3
16	Dispensing and Supply of Medicines	5	3
17	Pharmaceutics	10	3
18	Pharmacy Law, Ethics and Practice	10	3
19	Making Medicines for Pharmacy	10	3

Appendix 3: Research ethics approval application

CARDIFF METROPOLITAN UNIVERSITY
APPLICATION FOR ETHICS APPROVAL

When undertaking a research or enterprise project, Cardiff Met staff and students are obliged to complete this form in order that the ethics implications of that project may be considered.

If the project requires ethics approval from an external agency (e,g., NHS), you will not need to seek additional ethics approval from Cardiff Met. You should however complete Part One of this form and attach a copy of your ethics letter(s) of approval in order that your School has a record of the project.

The document ***Ethics application guidance notes*** will help you complete this form. It is available from the Cardiff Met website. The School or Unit in which you are based may also have produced some guidance documents, please consult your supervisor or School Ethics Coordinator.

Once you have completed the form, sign the declaration and forward to the appropriate person(s) in your School or Unit.

PLEASE NOTE:
Participant recruitment or data collection MUST NOT commence until ethics approval has been obtained.

PART ONE

Name of applicant:	Rebecca Chamberlain
Supervisor (if student project):	Jan Huyton
School / Unit:	School of Education
Student number (if applicable):	St20109990
Programme enrolled on (if applicable):	Master's in Education
Project Title:	Community Pharmacy Technician Roles in Wales
Expected start date of data collection:	22/01/2018
Approximate duration of data collection:	Three months
Funding Body (if applicable):	Click here to enter text.
Other researcher(s) working on the project:	If your collaborators are external to Cardiff Met, include details of the organisation they represent.
Will the study involve NHS patients or staff?	No
Will the study involve human samples and/or human cell lines?	No

Does your project fall entirely within one of the following categories:	
Paper based, involving only documents in the public domain	No
Laboratory based, not involving human participants or human samples	No

Practice based not involving human participants (eg curatorial, practice audit)	No
Compulsory projects in professional practice (eg Initial Teacher Education)	No
A project for which external approval has been obtained (e.g., NHS)	No
If you have answered YES to any of these questions, expand on your answer in the non-technical summary. No further information regarding your project is required. If you have answered NO to all of these questions, you must complete Part 2 of this form	

In no more than 150 words, give a non-technical summary of the project
This research aims to explore community pharmacy technician (PT) roles in Wales and the influence of associated enablers and barriers. It will be used to inform development opportunities specifically for community PT's, hence it will have an indirectly positive impact. The research methods used will be questionnaire and one-to-one interviews. An online questionnaire will be sent out to participants via e-mail and promoted via social media and professional networks. Participants will be given the option to consent to a follow up interview to explore their answers in more detail. Participants will be recruited using contact details from the General Pharmaceutical Council's (GPhC) database and the questionnaire link will be disseminated to all pharmacy technicians within Wales, with advice that only those working in community pharmacy should complete it. The sample frame will not be known, however it is possible to accurately estimate the number of community pharmacy technicians in Wales, based on GPhC data, to inform whether the final sample size is representative. For further detail please see the sampling section below.

DECLARATION:	
I confirm that this project conforms with the Cardiff Met Research Governance Framework **I confirm that I will abide by the Cardiff Met requirements regarding confidentiality and anonymity when conducting this project.** **STUDENTS: I confirm that I will not disclose any information about this project without the prior approval of my supervisor.**	
Signature of the applicant: *R Chamberlain*	Date: *19th December 2017*
FOR STUDENT PROJECTS ONLY	
Name of supervisor:	Date:
Signature of supervisor:	

Research Ethics Committee use only	
Decision reached:	Project approved ☐
	Project approved in principle ☐

CARDIFF METROPOLITAN UNIVERSITY
APPLICATION FOR ETHICS APPROVAL

	Decision deferred ☐
	Project not approved ☐
	Project rejected ☐

Project reference number: Click here to enter text.	
Name: Click here to enter text.	Date: Click here to enter a date.
Signature:	
Details of any conditions upon which approval is dependant: Click here to enter text.	

PART TWO

A RESEARCH DESIGN	
A1 Will you be using an approved protocol in your project?	No
A2 If yes, please state the name and code of the approved protocol to be used[1]	
Click here to enter text.	
A3 Describe the research design to be used in your project	

Research methods

Initially an online questionnaire will be used to gather quantitative data on community pharmacy technician roles across Wales. The questions will require participants to make judgements using Likert scale responses, as well as giving factual data, e.g. year of registration. A link to the questionnaire will be disseminated via e-mail, with the participant information attached.

Participants will be invited to consent to a follow up one-to-one telephone interview by entering their e-mail address. The purpose of the interview is to discuss answers in more detail and obtain qualitative data, to explain findings from the quantitative arm of the research study. Participants who consent to an interview will be e-mailed a consent form, to be signed and returned prior to the interview. Interviews will be audio recorded and transcribed to identify themes and direct quotes.

Recruitment of participants

The WCPPE database holds contact details for pharmacy professionals who have registered via our website. When professionals register they have the option to select their sector of work. Currently there are 440 pharmacy technicians on the WCPPE database who suggest that they work in community pharmacy. As an employee of WCPPE, I am able to legitimately access contact details of individuals registered with WCPPE, subject to the adherence with Cardiff University policies and the Data Protection Act. The caveat here is that some of this data could be out of date as individuals don't always update their contact details when they move home, jobs, sector, retire etc. There have also been issues with the bulk e-mail system in the past, where e-mails go into spam etc. On this basis I have decided to use these contact details to promote the research only.

I decided that a more reliable method of dissemination would be necessary, to reach as many community pharmacy technicians as possible. This will in turn increase the potential response rate and access individuals who do not engage with WCPPE, which is a more transparent recruitment strategy. Pharmacy Technicians have no option but to engage with the GPhC (regulator) and a requirement of registration is to keep contact details up to date. The GPhC has agreed to disseminate the questionnaire and two reminder e-mails on my behalf. Again the caveat here is that all pharmacy technicians will receive the e-mail, even

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[1] An Approved Protocol is one which has been approved by Cardiff Met to be used under supervision of designated members of staff; a list of approved protocols can be found on the Cardiff Met website here

those who don't work in the community sector. To manage this risk so far as possible, one of the questionnaire questions will be 'do you work in a community pharmacy in Wales?' If the answer is no, the participant will be automatically directed to end the questionnaire and will be unable to access any further questions. These responses will be discarded.

Sample and sampling:
An exact sampling frame cannot be obtained, as no organisation holds data specifically relating to the number, distribution or location of community pharmacy technicians within Wales. The General Pharmaceutical Council is able to provide data from the mandatory register to enable an estimate to be made. As of 20th October 2017 there were 1,630 currently registered pharmacy technicians with registered addresses in Wales. The caveat here is that some registrants could be living in Wales and working in England, nonetheless it is a starting point. In 2013 the GPhC reported that 53% of registered pharmacy technicians worked in the community sector (across the UK). Based on this data, it would be reasonable to estimate that there are 864 pharmacy technicians working in community pharmacy in Wales, so this would be termed the 'population' rather than 'sampling frame'.

A convenience sample will be used. Questionnaires will be sent to all pharmacy technicians with a registered address in Wales.

Analytical techniques
The quantitative questionnaire data will be analysed using following statistical tests:
1. Cronbach's Alpha to test reliability of the questionnaire
2. Chi Square to assess significant relationships between two variables
3. Central tendency to identify trends and themes

The qualitative interview data will be transcribed and coded to identify themes and trends.

A4 Will the project involve deceptive or covert research?	No
A5 If yes, give a rationale for the use of deceptive or covert research	
Click here to enter text.	
A6 Will the project have security sensitive implications?	No
A7 If yes, please explain what they are and the measures that are proposed to address them	
Click here to enter text.	

B PREVIOUS EXPERIENCE
B1 What previous experience of research involving human participants relevant to this project do you have?
NA
B2 **Student project only** What previous experience of research involving human participants relevant to this project does your supervisor have?
NA

C POTENTIAL RISKS
C1 What potential risks do you foresee?
There is a potential for conflict of interest in that a participant could enrol on, or already be enrolled on a

one of the post-registration courses which I deliver, assess or verify. There is also a risk that when discussing further training during the interview, it could be a WCPPE course that participants discuss, which could affect their willingness to fully disclose their opinions.

The subject of the research is such that a participant may use the interview as an opportunity to raise concerns about their workplace, colleagues, the profession etc. This could include concerns of a professional, ethical or employment nature. Such concerns would be beyond the scope of the research.

C2 How will you deal with the potential risks?

In terms of protection for the individual, the questionnaire will be completed anonymously so no conflict would occur at the questionnaire stage. If a participant whom was known to me consented to a follow up interview, I would take care to arrange the interview separately from any other communication with that individual and make clear that participation in the research study had no bearing on other contact they have with WCPPE, or have had in the past. This will addressed as part of the informed consent process, where necessary.

If a participant raises a concern during the interview, I will signpost the participant to the appropriate organisation for further support and guidance as detailed in the Interview Schedule. I will signpost participants with employment concerns to their employer, a trade union and/or the Association of Pharmacy Technicians UK (professional leadership body). I will signpost participants with concerns of a professional and/or ethical nature to the General Pharmaceutical Council (regulator) and/or the Association of Pharmacy Technicians UK (professional leadership body). The appropriate organisation/s will depend on the type and severity of concern raised.

When submitting your application you **MUST** attach a copy of the following:
- All information sheets
- Consent/assent form(s)

An exemplar information sheet and participant consent form are available from the Research section of the Cardiff Met website.

Appendix 4: Participant Information Sheet and Participant Consent Form

Participant Information Sheet

Research Study Title: Community pharmacy technician roles in Wales

I would like to invite you to participate in a research study I am undertaking, to obtain data on the current roles and responsibilities of community pharmacy technicians. This data will be used to inform future education and training developments for community pharmacy technicians within Wales. The research study will be published as a report for use within WCPPE and will be shared with colleagues in the Welsh Assembly Government. A report will also be written up for the purpose of my Master's in Education dissertation module. Anonymised quotes may be used in the reports.

Participation is entirely voluntary. Your involvement will initially be limited to completing an online questionnaire. If you are willing to participate in a short follow up interview to discuss your responses in more detail, please add a contact e-mail address at the end of the questionnaire. Follow up interviews will be led by me and will take place over the phone, at a mutually convenient time.

I would like to assure you that you do not need to disclose your name or any other personal data for the purpose of the questionnaire; hence you retain the right to anonymity in relation to questionnaire data. Once the questionnaire has been submitted, it may not be possible to identify and withdraw your data as it is anonymised. Completion of the online questionnaire will imply voluntary informed consent.

If you consent to participating in a short telephone interview, the data obtained will be audio recorded, partially transcribed and anonymised using a pseudonym, e.g. Participant A. Confidentiality of data is assured subject to usual restrictions around safeguarding. You have the right to withdraw from the interview for any reason and do not need to disclose the reasons. If you are willing to participate in a follow up interview, a written consent form will be e-mailed to you separately and will need to be signed and returned prior to the interview.

All data will be kept securely and will be accessible only by me. Data will be stored securely for ten years.

This research is being undertaken in accordance with the British Educational Research Association (BERA) (2011). For further details, please consult:
https://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf

If you have any queries in relation to this research project please contact me at ChamberlainR@cardiff.ac.uk. If you have any concerns about this research study please contact Jan Huyton at jhuyton@cardiffmet.ac.uk.

Please retain this Participant Information Sheet for your future reference.

Thank you in advance for assisting me with my study.

Rebecca Chamberlain, Education Officer, Wales Centre for Pharmacy Professional Education (WCPPE)

Participant Consent Form (interviews)

I consent to participate in the study titled 'Community pharmacy technician roles in Wales' by Rebecca Chamberlain.

I have been informed of and understand the purposes of the study. I have been given the opportunity to ask questions and I understand that I can withdraw from the study without prejudice. I understand that any information that might potentially identify me will not be used in published material and I consent to anonymised quotes being used.

Signature:

Date:

Appendix 5: Unsolicited Pharmaceutical Journal article

the
PHARMACEUTICAL JOURNAL
A Royal Pharmaceutical Society publication

Feedback sought from Welsh community pharmacy technicians

🌐 **pharmaceutical-journal.com**/sign-in

the
PHARMACEUTICAL JOURNAL
A Royal Pharmaceutical Society publication

The Wales Centre for Pharmacy Professional Education (WCPPE) is launching an online survey into Welsh community pharmacy technician roles.

The aim of the survey, which will go live in the week beginning 29 January 2018, is to increase understanding of the role, including the enablers and barriers to role development. The survey results will be used by WCPPE to inform future programme development for community pharmacy technicians.

Respondents may complete the survey anonymously, but those who wish to take part further can opt in for a follow-up telephone interview.

Rebecca Chamberlain, education officer at WCPPE, said it "would like to encourage all community pharmacy technicians in Wales to respond, to ensure that the results are an accurate representation of roles across Wales.

"This is an important project that has the potential to inform future development of the pharmacy technician profession within Wales," she said.

The survey will be emailed by the General Pharmaceutical Council on WCPPE's behalf. The deadline for completion of the survey is 30 March 2018.

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Powered by **MedicinesComplete**

Appendix 6: Agreement with General Pharmaceutical Council

From: Jenny Clapham <Jenny.Clapham@pharmacyregulation.org>
Sent: 05 December 2017 09:49:08
To: Rebecca Chamberlain
Cc: Darren Hughes
Subject: Research Request - Third party contact with Registrants - Wales PTs

Hi Rebecca

Further to your emails with My Phan, I am pleased to confirm that we are able to support your request to disseminate your questionnaire to all pharmacy technicians with registered addresses in Wales.

Following discussion with our information governance and communication teams, I have drawn up a brief agreement which outlines our responsibilities and what we will need from you.

The GPhC agrees to:
• Send the agreed email to pharmacy technician registrants in Wales with a link to your online questionnaire w/c 8 January 2018 [exact date tbc]*
• Send reminders e-mails w/c 29 January and 19 February 2018 [exact dates tbc]*. These will not be sent to registrants who have unsubscribed from the message.
• Provide standard data on how many recipients viewed the message and clicked the link.
• Tweet a link to your survey.

We will not make a charge for doing this.

You agree to:
• Send us a copy of your research proposal and confirmation that you have received ethical approval and appropriate funding.
• Allow us to preview your questionnaire prior to circulation.
• Provide assurance that the online survey and data analysis will be carried out with sufficient security in place so that registrants' personal data remains confidential.
• Include appropriate privacy notices in the survey so that participants understand how their data will be used.
• Anonymise registrants' responses and share collated findings only. Individual responses will not be shared.
• Make it clear in the research report and any communications that the GPhC has not commissioned this research and has not been directly involved in its development. The GPhC has only agreed to assist with publicising the survey link.
• Share the survey findings and research report with the GPhC in advance of its publication.

* The exact date for the emails will be dependent on other GPhC communications as we need to ensure there are no clashes. We will endeavour to be as close to these agreed dates as possible.

Please can you confirm your acceptance of these terms by return of email.
If you have any queries or would like to discuss further, please do not hesitate to contact me.

I look forward to hearing from you.

Best wishes

Jenny

Jenny Clapham
Research and Insight Manager

General Pharmaceutical Council
25 Canada Square | Canary Wharf | London |E14 5LQ

Direct: 0203 713 7973
Email: Jenny.Clapham@pharmacyregulation.org
www.pharmacyregulation.org

Appendix 7: Examples of statements relating to workplace responsibilities in the 2018 'Standards for the initial education and training of pharmacy technicians'

Statements within the GPhC (2018) 'Standards for initial education and training of pharmacy technicians', which relate to employers

3.3 Each pre-registration trainee pharmacy technician must have a learning agreement covering all the learning and training environments. This must outline roles, responsibilities and lines of accountability, and must say how trainees will be supported during the course. Course providers must explain how they will be reassured that learning agreements will be implemented in full.

3.7 Each pre-registration trainee pharmacy technician must be supported as a learner in Standard 3 Courses must be planned and maintained using transparent processes which must show who is accountable for what at each stage of initial education and training. The education and training facilities, infrastructure, leadership, staffing and staff support must be adequate to deliver the course. Standards for the initial education and training of pharmacy technicians 15 the workplace. There must be systems in place for liaising with course providers regularly about the progress of a preregistration trainee pharmacy technician.

5.10 All course providers and employers must have procedures to deal with concerns. Serious concerns that may affect a preregistration trainee pharmacy technician's suitability for future registration must be reported to the GPhC.

6.6 Agreements must be in place between course providers and the workplace regarding the roles and responsibilities for assessment.

7.1 There must be a range of systems in place to support trainees to achieve the learning outcomes in part 1 of these standards, including: • induction • effective supervision • an appropriate and realistic workload • personal and academic support • time to learn • access to resources

7.2 There must be systems in place for preregistration trainee pharmacy technicians to meet regularly with workplace colleagues to discuss and document their progress as learners.

7.4 Pre-registration trainee pharmacy technicians must have access to pharmacy professionals who are able to act as role models and give professional support and guidance.

7.5 Pre-registration trainee pharmacy technicians must have the opportunity to work in multidisciplinary teams

Appendix 8: Community pharmacy contracts England, Scotland and Wales – comparison chart

Appendix 3: Community pharmacy contracts England, Scotland and Wales – comparison chart

	England	Scotland	Wales
Essential /core services – available from every pharmacy dispensing NHS prescriptions	■ Dispensing ■ Repeat dispensing ■ Waste management ■ Public health (healthy lifestyles advice) ■ Signposting ■ Support for self-care ■ Clinical governance	■ Acute medication service (AMS) ■ Minor ailment service (MAS) (not available to people in care homes) ■ Chronic medication service (CMS) ■ Public health service (PHS)	■ Dispensing ■ Repeat dispensing ■ Disposal of unwanted medicines ■ Promotion of healthy lifestyles ■ Signposting ■ Support for self-care ■ Clinical governance
Advanced services - can be provided by all contractors once accreditation requirements have been met	■ Medicines Use Reviews (MURs)		
Enhanced /additional services	■ Primary Care Trusts are authorised to arrange for the provision of the following: ■ Anticoagulant monitoring service ■ Care home service ■ Disease-specific medicines management service ■ Gluten-free food supply service ■ Home delivery service ■ Language access service ■ Medication review service ■ Medications assessment and compliance support service ■ Minor ailment service ■ Needle and syringe exchange service ■ On-demand availability of specialist drugs service ■ Out-of-hours service ■ Patient Group Directions service ■ Prescriber support service ■ Schools service ■ Screening service	Health Boards have a duty to arrange for the provision of the following: ■ Minor ailment service Provision of patient service elements of PHS: ■ Smoking cessation ■ Sexual health ■ EHC ■ Chlamydia testing	Local Health Boards are authorised to arrange for the provision of the following: ■ Anticoagulant service ■ Care home service ■ Disease-specific management service ■ Gluten-free food supply service ■ Home delivery service ■ Language access service ■ Medication review service ■ Medications assessment and compliance support service ■ Minor ailment service ■ Needle and syringe exchange service ■ On-demand availability of specialist drugs service ■ Out-of-hours service ■ Patient Group Directions service ■ Prescriber support service ■ Schools service ■ Screening service

Appendix 9: Research questionnaire

Community Pharmacy Technician Roles

Please click the following link and read the Participant Information before commencing this questionnaire – http://wcp.pe/participantinfo .
The Participant Information will open in a separate tab on your internet browser or mobile device

For more information on the research project please click the following link - http://wcp.pe/flyer

When completing the questionnaire please provide as much detail as you feel is sufficient, to fully answer the question.

The questionnaire is estimated to take 15 minutes.

If you are unable to complete the questionnaire in one sitting, you can exit the questionnaire and complete it at a later date. If you don't complete it within one month, your partial response will be saved.

Do you work in a community pharmacy in Wales?
Please click to select your answer

○ Yes
○ No

Please state the post code of the pharmacy you work in (first section only, e.g. CF10)

[   ]

Please select which type of pharmacy you work in
Please click to select your answer

○ Independent pharmacy
○ Small chain (2-4 pharmacies)
○ Medium sized multiple (5-25 pharmacies)
○ Large multiple (over 25 pharmacies)
○ Supermarket pharmacy
○ Other

Please state what year you qualified as a pharmacy technician

[   ]

Please state what year you registered as a pharmacy technician

[   ]

Please state how many hours a week you work. If this varies please give an average.

[   ]

Please describe your current roles and responsibilities as a Registered Pharmacy Technician. Please include medicines related roles, service related roles, supervisory and management roles and training roles.

Please describe one role or responsibility per box, in the left hand column, e.g.

83

dispensing repeat medication.

Please estimate the percentage of time you spend doing each role PER WEEK in the box, in the right hand column, e.g. 20%.

Please enter as many roles as you have - you do not need to fill in all twelve rows

% of time spent on this role PER WEEK

Description of role

Description of role

Description of role

Description of role

84

Description of role

Description of role

Description of role

Description of role

Description of role

Description of role

85

Description of role

Description of role

Description of role

Which, if any, of the roles listed could be undertaken by a pharmacy assistant

Please click to select any that apply

☐ ${q://QID7/ChoiceTextEntryValue/1}   ☐ ${q://QID7/ChoiceTextEntryValue/7}

☐ ${q://QID7/ChoiceTextEntryValue/2}   ☐ ${q://QID7/ChoiceTextEntryValue/8}

☐ ${q://QID7/ChoiceTextEntryValue/3}   ☐ ${q://QID7/ChoiceTextEntryValue/9}

☐ ${q://QID7/ChoiceTextEntryValue/4}   ☐ ${q://QID7/ChoiceTextEntryValue/10}

☐ ${q://QID7/ChoiceTextEntryValue/5}   ☐ ${q://QID7/ChoiceTextEntryValue/11}

☐ ${q://QID7/ChoiceTextEntryValue/6}   ☐ ${q://QID7/ChoiceTextEntryValue/12}

Which, if any, of the roles listed could be undertaken by a pharmacist

86

Please click to select any that apply

☐ ${q://QID7/ChoiceTextEntryValue/1}   ☐ ${q://QID7/ChoiceTextEntryValue/7}

☐ ${q://QID7/ChoiceTextEntryValue/2}   ☐ ${q://QID7/ChoiceTextEntryValue/8}

☐ ${q://QID7/ChoiceTextEntryValue/3}   ☐ ${q://QID7/ChoiceTextEntryValue/9}

☐ ${q://QID7/ChoiceTextEntryValue/4}   ☐ ${q://QID7/ChoiceTextEntryValue/10}

☐ ${q://QID7/ChoiceTextEntryValue/5}   ☐ ${q://QID7/ChoiceTextEntryValue/11}

☐ ${q://QID7/ChoiceTextEntryValue/6}   ☐ ${q://QID7/ChoiceTextEntryValue/12}

Are there any roles which you think you could do, which you are not currently doing?

Please click to select your answer

○ Yes, please state which role/s and reason/s why you don't do it

[   ]

○ No

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	Not applicable - no other Pharmacy Technicians at this pharmacy
I receive professional guidance from pharmacy technician colleagues,	○	○	○	○	○	○

87

which
supports
me to
undertake
my current
role

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor diagree	Somewhat agree	Strongly agree	Not applicable - no non-pharmacy colleagues at this pharmacy
I receive guidance from non-pharmacy colleagues, e.g. non-pharmacy manager, which supports me to undertake my current role.	◯	◯	◯	◯	◯	◯

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I receive professional					

88

guidance from pharmacist colleagues, which supports me to undertake my current role.

○ ○ ○ ○ ○

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I don't have access to guidance or support for my current work role	○	○	○	○	○

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I consider myself to be a pharmacy professional	○	○	○	○	○

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I feel part of a professional	○	○	○	○	○

89

pharmacy team

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I feel my role is valued by my professional pharmacy colleagues	○	○	○	○	○

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Being a pharmacy technician is an occupation rather than a profession	○	○	○	○	○

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I feel confident to delegate tasks to other colleagues	○	○	○	○	○

90

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I feel colleagues delegate work to the most appropriate team member	○	○	○	○	○

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I feel that skill mix could be used more effectively in my workplace	○	○	○	○	○

Please describe any factors which enable you to undertake your role effectively.

Please describe any factors which are barriers to you undertaking your role effectively.

Please add any additional comments here:

91

How was your initial education and training (NVQ Level 3 and/or BTEC) delivered?

Please click to select your answer

○ Distance learning provider for knowledge qualification (BTEC) and competence qualification (NVQ)

○ Distance learning provider for knowledge qualification (BTEC) and training provider for competence qualification (NVQ)

○ FE college for knowledge qualification (BTEC) and training provider for competence qualification (NVQ)

○ FE college for knowledge qualification only (BTEC)

○ Other: please specify

○ Not sure

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My initial training enabled me to undertake the role of a pharmacy technician on 'day one'	○	○	○	○	○

To what extent do you agree with the following statement?

Neither

92

	Strongly disagree	Somewhat disagree	agree nor disagree	Somewhat agree	Strongly agree
My initial training gave me the knowledge and understanding to work as a 'day one' pharmacy technician	O	O	O	O	O

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My initial training enabled me to develop my problem solving skills	O	O	O	O	O

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My initial training developed my confidence in communicating with patients	O	O	O	O	O

To what extent do you agree with the following statement?

93

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My initial training covered topics which I do not use in my day to day job	◯	◯	◯	◯	◯

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I would have liked more opportunity to develop professional skills, e.g. communication and problem solving, during my initial training	◯	◯	◯	◯	◯

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My colleagues were familiar with the knowledge content of my initial training	◯	◯	◯	◯	◯

94

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My colleagues understood my role as a Pre-Registration Pharmacy Technician	○	○	○	○	○

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My colleagues were not involved in my initial training	○	○	○	○	○

Please add any additional comments about your initial education and training

Have you undertaken any further training, qualifications or accreditations since your initial training?

Please click to select any that apply.

95

☐ Accuracy Checking Pharmacy Technician (ACPT)

☐ Medicines Management Accreditation

☐ Stop Smoking Training

☐ Consultation Skills

☐ Public Health

☐ Chartered Institute of Procurement and Supply (CIPS)

☐ An Introduction to Education & Training, or other teaching qualification

☐ Introduction to Pharmacy Leadership, or other leadership programme

☐ Management qualification

☐ Advanced Inhaler Technique Training

☐ Level 3 Award in Assessing Competence in the Work Environment (NVQ Assessor)

Other, please specify

[   ]

Which role/s did your further training enable you to undertake?

[   ]

Are you qualified or accredited to undertake any roles which you don't currently do?

Please click to select your answer

○ Yes, please specify:

[   ]

○ No

Please add any additional comments about your further training and education

[   ]

96

Do you have an NVQ Level 2 in Pharmacy Services, or other Level 2 pharmacy qualification?

Please click to select your answer
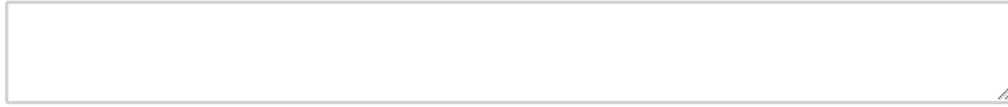
○ Yes

○ No

○ Not sure

○ Other, please specify:

[   ]

Were you a dispenser or pharmacy assistant prior to training and registering as a Pharmacy Technician?

Please click to select your answer

○ Yes

○ No

○ Not sure

○ Other, please specify:

[   ]

Please describe how your Registered Pharmacy Technician role differs from your previous role as a pharmacy assistant / dispenser

[   ]

Please add any additional comments here

97

If you would be willing to discuss your responses further and consent to participating in a short interview over the phone, please e-mail ChamberlainR@cardiff.ac.uk with your contact details. This does not commit you to participating. You will be contacted with further details and have opportunity to consider if you would like to participate.

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98

Appendix 10: Feedback from questionnaire pilot

Pilot question	Feedback comments
Are there any questions, which are unclear?	"I found the questions clear, I just wasn't sure on how much detail to go into"
	"I thought it was clear what you were asking apart from 2 questions that said tick what a pharmacist does and what a technician does but I could not see a list to tick. I have completed the survey on my phone so am unsure if this is what caused the issue or I miss understood the question"
	"Wording of one question did not make sense and as such I did not answer it". "The question was: Which role/s did you further training enable you to undertake? I think it should read 'your'"
Do any of the questions include jargon, which you don't understand?	"I understood what each question was asking"
Are any of the questions too long?	"No. The questions were clear and concise and gave opportunity to explain where needed"
Are the instructions easy to follow?	"Yes"
Is the order of the questions logical?	"Yes"
	"It was confusing that the strongly agree to disagree scale switched from left to right and right to left about halfway through the survey"
Are there any questions, which make you, feel uncomfortable, or which you wouldn't be happy to answer? *It may be useful to know that the questionnaire data will be anonymous*	"The issues about factors that enable you to complete your job role effectively. I probably didn't put down all the issues I really think because it is to do with other staff members and how staff is managed and felt these issues can't be changed by myself. So not sure if you would get a true answer from people if they didn't feel confident enough but nothing wrong with the question itself"
	"Overall it was a user friendly survey but I do feel some people would possibly feel uncomfortable to answer some of the questions regarding support from fellow colleagues" "I think the fact it is anonymous will make a big difference – people are definitely more willing

	to be honest if they don't have to put their name to something"
How long did it take to complete the questionnaire? *If you don't have time to complete it please ignore this question*	"About half an hour. Didn't feel it was too long" "I completed the survey answering most questions and it took me approximately 15 minutes" "It took me approximately 15 minutes to complete which I feel is an appropriate time"

Appendix 11: Sampling strategy options

Comparison of sampling strategy options

Sampling strategy	Advantages	Disadvantages
Option 1 Select a sample of PTs who are registered on the WCPPE website, to receive an online questionnaire	The WCPPE website enables PTs to identify the sector they work in, so the sample could be selected specifically from PTs who identified themselves as community based. The number of PTs who identified themselves as community based was 440 in October 2017 Online questionnaires are easier to analyse that paper based questionnaires	Not all PTs (community based or otherwise) are registered on the WCPPE website and the registrant data drawn down via the data sharing agreement with the GPhC hadn't been updated for approx. 18 months Community based PTs may move sector, work base or location without updating their employment details PTs may not keep their contact e-mail up to date Risk of inherent bias, i.e. sampling PTs who already engage with WCPPE
Option 2 Mail drop of a paper based questionnaire, to a sample of community pharmacies in Wales	This would ensure the sample included only community based PTs Paper based questionnaires generally receive a better response rate	Not all community pharmacies employ a PT The mail drop would be addressed generically to the 'PT' at the pharmacy, rather than specifically to an individual, which could affect the response rate More difficult to analyse paper based questionnaires
Option 3 Select a sample of PTs who are registered with the GPhC, to receive an online questionnaire, disseminated via the GPhC	Contact details should be up to date as it is a regulatory requirement Dissemination of the questionnaire via the GPhC may lend credibility to the research Online questionnaires are easier to analyse that paper based questionnaires No risk of inherent bias	The sample could not specifically target community based PTs Risk that PTs from other sectors complete the questionnaire, thus skewing data

Appendix 12: Data showing the number of Pharmacy Technicians who received the launch e-mail and follow up e-mails from GPhC

Launch e-mail dated 31st January 2018

1,579 Recipients

List: WCPPE research- PTs in Wales

Subject: Are you a community pharmacy technician in Wales? Take WCPPE's survey!

Delivered: Wed, Jan 31, 2018 07:00 pm

View email · Download · Print

0 Orders	$0.00 Average order revenue	$0.00 Total revenue

Open rate	50.4%	Click rate	9.6%
List average	41.1%	List average	6.1%
Industry average (Government)	22.4%	Industry average (Government)	3.4%

748 Opened	142 Clicked	94 Bounced	1 Unsubscribed

Successful deliveries	1,485 94.0%	Clicks per unique opens	19.0%
Total opens	1,628	Total clicks	195
Last opened	3/19/18 10:53AM	Last clicked	3/9/18 11:33AM
Forwarded	0	Abuse reports	1

24-hour performance

Opens ■ Clicks
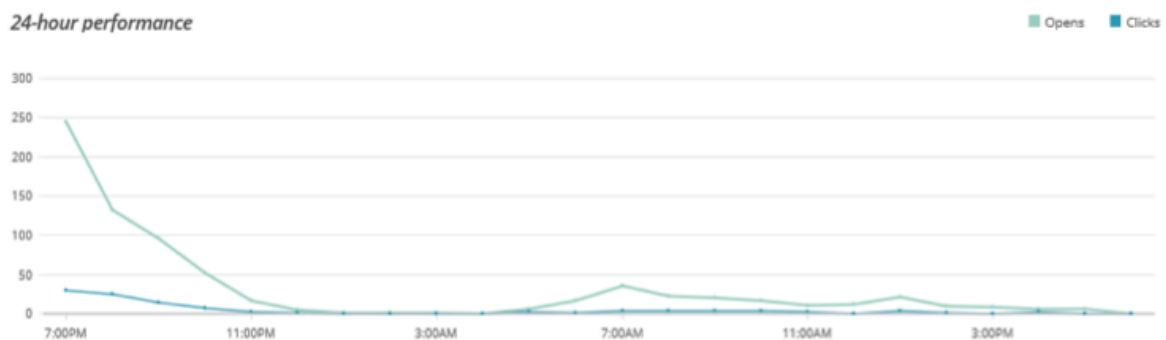
Follow up e-mail dated 20th February 2018

1,494 Recipients

List: WCPPE research- PTs in Wales

Subject: Reminder: survey on community pharmacy technician roles in Wales

Delivered: Tue, Feb 20, 2018 06:00 pm

View email · Download · Print

0 Orders	$0.00 Average order revenue	$0.00 Total revenue

Open rate	46.3%	Click rate	5.7%
List average	41.1%	List average	6.1%
Industry average (Government)	22.4%	Industry average (Government)	3.4%

685 Opened	84 Clicked	15 Bounced	0 Unsubscribed

Successful deliveries	1,479 99.0%	Clicks per unique opens	12.3%
Total opens	1,329	Total clicks	103
Last opened	3/21/18 10:50PM	Last clicked	3/19/18 12:37PM
Forwarded	0	Abuse reports	0

24-hour performance

Opens Clicks

103

Follow up e-mail dated 19th March 2018

1,494 Recipients

List: WCPPE research- PTs in Wales

Subject: Last chance to respond: survey on community pharmacy technician roles in Wales

Delivered: Mon, Mar 19, 2018 06:00 pm

View email · Download · Print

0	$0.00	$0.00
Orders	Average order revenue	Total revenue

Open rate	35.8%	Click rate	4.6%
List average	41.1%	List average	6.1%
Industry average (Government)	22.4%	Industry average (Government)	3.4%

527	67	23	0
Opened	Clicked	Bounced	Unsubscribed

Successful deliveries	1,471 98.5%	Clicks per unique opens	12.7%
Total opens	843	Total clicks	82
Last opened	3/22/18 3:46PM	Last clicked	3/22/18 10:08AM
Forwarded	0	Abuse reports	0

24-hour performance   ▪ Opens ▪ Clicks
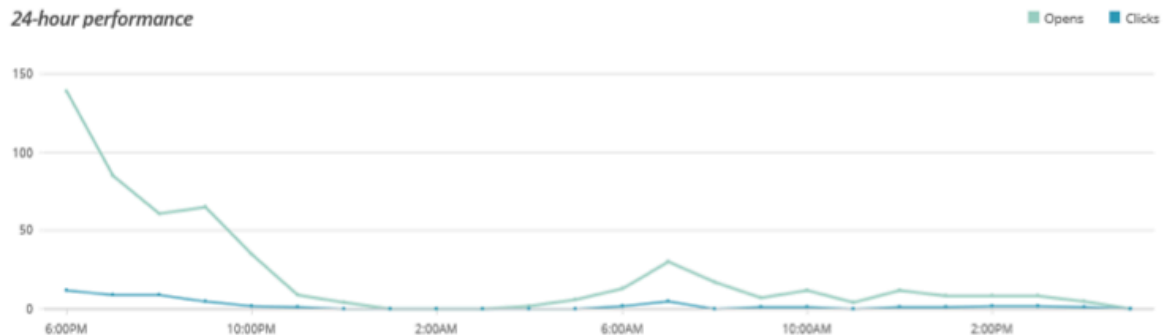
Appendix 13: Participant Interview Schedule

Participant Interview Schedule

Pre-interview brief:

- Re-confirm background to the project
- Confirm participant has read the participant information
- Confirm receipt of written consent via e-mail
- Explain how data will be recorded – audio recorded and associated transcripts
- Explain that data will be anonymised using a unique pseudonym
- Explain that audio data and associated transcripts will be stored in a password protected folder and consent forms will be stored in a separate password protected folder
- Confirm that participant can withdraw their interview data from the study at any time
- Check if participant has any questions about the interview process before we begin

Interview schedule:

Please start by telling me about your current role

- What are the core functions of your role?
- Do you undertake any 'extended' roles, e.g. ACPT?
- Does your job description accurately reflect your actual role?
- Has your role changed since registering with the GPhC?
- Has your view of your role changed since registering with the GPhC?

Please describe how your knowledge and skills are used in the workplace.

- Do you feel that your knowledge and skills are utilised to their full extent?

  If answer is no:
- How else do you think your knowledge and skills could be utilised?
- What are the barriers to you fully utilising your knowledge and skills?

  If answer yes:
- Please could you describe how and/or give an example?
- What has enabled you to utilise your knowledge and skills fully?

- Are you qualified / accredited for any roles which you don't do?

To what extent, do you feel that your initial training (BTEC +/-NVQ) enabled you to undertake your pharmacy technician role effectively at 'day one'?

- Skill development – professional skills (e.g. problem solving), softer skills (e.g. communication)
- Knowledge and understanding – level, relevance to role

Please describe any further training, which you have undertaken.

- Did the further training enable you to undertake your current role effectively, e.g. skill development at higher level or knowledge and understanding at higher level?
- Did the training improve your confidence?
- Did the training help you to understand your professional responsibilities in relation to the role, e.g. ACPT?
- Was training / certification necessary for the job role and/or compliance with company policy?
- Are you qualified / accredited for all roles which you undertake?

Can you tell me about any support or guidance you receive in relation to your Pharmacy Technician role?

- Who supports / guides you when there are problems or complaints?
- Who would you go to for advice on professional issues, e.g. reporting a concern?
- Are you able to share any specific examples?

Can you tell me about any factors which you feel have helped you to develop your role?

Can you tell me about any factors, which have been barriers to you developing your role?

Who else do you work with and what are their roles?

- Can you describe the difference between the Level 2 pharmacy assistant role and Level 3 Pharmacy Technician role in your workplace?
- Do you feel any of your existing roles, could be undertaken by other colleagues as effectively?
- Who is able to delegate work to others?

Participant Interview De-brief

- Would you like to raise any other issues or make any further comments about the topics we have discussed today?
- Do you have any other questions about your participation in the interview?
- Thank you very much for your participation
- *Signpost if necessary

*If a participant discloses any concerns, which fall outside the remit of this study, I will advise them to contact one of the following organisations for further guidance:

Association of Pharmacy Technicians UK (professional body)

Address: Association of Pharmacy Technicians UK, One Victoria Square, Birmingham, B1 1BD

Telephone: 0121 632 2025 (voicemail)

General Pharmaceutical Council (regulator)

Address: General Pharmaceutical Council, 25 Canada Square, London, E14 5LQ

Telephone: 0203 713 8000

E-mail: info@pharmacyregulation.org

Online: direct to online Reporting a Concern form

Unison (trade union)

Address: Unison Cymru/Wales, Unison House, Custom House Street, Cardiff, CF10 1AP

Telephone: 0800 0 857 857

E-mail: cymruwales@unison.co.uk

Appendix 14: Spearman's rank order correlations

Spearman's Rank Order analysis of questions 21 and 22 shows that there was a weak negative correlation, which wasn't statistically significant.

Correlation: Q22, Q21
Correlations

Pearson correlation	-0.139
P-value	0.210

Spearman's Rank Order analysis of questions 27, 29, 30 and 32 shows that there were slightly stronger negative correlations, of which two were statistically significant.

Correlation: Q27, Q29, Q30, Q32
Correlations

	Q27	Q29	Q30
Q29	0.542		
	0.000		
Q30	0.448	0.741	
	0.000	0.000	
Q32	-0.109	-0.274	-0.393
	0.327	0.012	0.000

Spearman's Rank Order analysis of questions 33, 34 and 35 shows relatively weak negative correlations, which were not statistically significant.

Correlation: Q33, Q34, Q35
Correlations

	Q33	Q34
Q34	0.559	
	0.000	
Q35	-0.074	-0.102
	0.504	0.357

Appendix 15: Demographic data: location of respondents

Postcode analysis of questionnaire respondents

Number of responses	Post code	Postal town
14	CF, CF1, CF11, CF14, CF23, CF24, CF3, CF5	Cardiff
1	CF33	Bridgend
3	CF38	Pontypridd
1	CF42	Treorchy
1	CF43	Ferndale
1	CF44	Aberdare
1	CF45	Mountain Ash
2	CF47	Merthyr Tydfil
1	CF61	Llantwit Major
1	CF62	Barry
2	CF64	Penarth/Dinas Powys
2	CF72	Pontyclun
2	CF81	Bargoed
2	CF82	Hengoed
2	CH8	Holywell
3	LD3	Brecon
4	LL11, LL12	Wrexham
1	LL20	Llangollen
2	LL30	Llandudno
1	LL55	Caernarfon
1	LL68	Amlwch
9	NP11, NP18, NP19, NP20	Newport
1	NP13	Abertillery
1	NP22	Tredegar
1	NP23	Ebbw Vale
1	NP26	Caldicott

5	NP4, NP44	Pontypool
1	NP7	Crickhowell
12	SA, SA1, SA3, SA33, SA43, SA5, SA61, SA72	Swansea
3	SA10, SA11	Neath
1	SA18	Ammanford

Appendix 16: Example of coding and thematic analysis

Q10. Are there any other roles which you think you could do, which you are not currently doing?

Yes, please state which role/s and reason/s why you don't do it - Text offering weight loss service (1) and stop smoking device in pharmacy,unable to at present as not undertaken relevant training yet

More service based Counceling but there is so little time and shortage of staff

No (4+)

Yes , m u r s , itâ€™s only done by pharmacists,

(5) ACT ....pharmacist did not really want an ACT is happier checking every script and minimal pay increase not worth the responsibility management of pharmacy and customer facing services. - no time to take on these roles due to work load (6)

Yes I would like myself to do medicines managements burn at the moment community pharmacy pharmacy does not need it as the pharmacist does this role (1) Have more input into pharmacy services i.e. smoking cessation. (4)

More enhanced services, specifically DMR (discharge) and Flu jabs. I see no reason why fully qualified technicians canâ€™t learn and provide the service. Also we should be carrying out MURS in the home to the patients who need more assistance. Technicians should some how be able to assist with that and be able to do the home visits and the medicines management (1)

there are lots of service roles that are aimed at pharmacists - no smoking, weight control etc that both technicians or pharmacists could do but both are hampered by the continuous and increasing demands of repeat dispensing. (2)

(5) Checking prescriptions which I can no longer do due to the introduction on advance dispensing and robot dispensing

(6) Weekly meetings to go over figures and update staff on any changes. No time to get this done due to other responsibilities

Help with MUR s . Smoking cessation, DMR'S (1)

(5) Checking prescriptions/dosset boxes etc. No longer accredited due to maternity leave.

(10) Mentor staff when doing courses. I do this but only in a casual way. The pharmacist does this officially

(5) ACT, cannot take it round with you

(1) health advice for customers and training for other employees

(4) Flu vaccination- not qualified yet. Smoking cessation- not qualified yet, not enough time to do these roles (12)

(8) Entering and checking cd balance, giving advice to patients checking repeat scripts from surgery

Some services I don't do, eg. Certain levels of smoking cessation and MUR as I'm under qualified

More services like blood pressure and glucose checks (16)

Services like smoking (2)

(17) Ordering stock, more of the above, too busy packing boxes.

No

(18) Providing services

(2) Smoking cessation clinic but not been accredited yet. Doing so in April

(2) Smoking cessation - not yet done training due to lhb putting the course on hold

② level 3 smoking cessation - not accredited, unsure if company will pay for enhanced crb

⑭ Supervision of consumption of methadone/ buprenorphine, not done as health board insist on pharmacist to do this

⑭ Spending more time supporting patients in need, never any time as our manager and pharmacist see me as a checking machine and general goffer

⑨ Influenza vaccinations - lack of training and development in this area for technicians.

<u>Coding</u>

1. Weight loss service ||
2. Stop smoking service   𝍸𝍸 𝍸𝍸
3. Some based counselling
4. MURs |||
5. ACPT   𝍸𝍸
6. Management of pharmacy + customer facing service ||
7. Medicine management ||
8. DMR ||
9. Flu vaccination |||
10. Mentoring staff on course (formally)   — change to KET standard will allow the ᴺᴼᵀᴱ⁄⁄
11. Health advice for customers
12. Train other employee
13. Training + checking CD balance
14. Giving advice to patient (unspecified) / supporting patient

15. Blood pressure service
16. Glucose check
17. Ordering stock
18. Providing service (unspecified)
19. Supervision of methadone / buprenorphine consumption

<u>Themes</u>

Enhanced service
Extended role
Training + development
Counselling + advice

Appendix 17: Kruskal-Wallis analysis of data

Category of pharmacy and professional support

Kruskal-Wallis Test: Q11 versus Pharm type

Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	4.5	43.5	0.23
2	8	4.5	47.1	0.62
3	10	4.5	45.8	0.53
4	50	4.0	40.5	-0.72
5	2	5.0	52.0	0.59
6	1	1.0	3.0	-1.63
Overall	83		42.0	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	3.81	0.577
Adjusted for ties	5	3.97	0.553

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted (Minitab Express Support, 2018)

Kruskal-Wallis Test: Q12 versus Pharm type

Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	3	41.5	-0.08
2	8	5	49.4	0.91
3	10	4	48.0	0.83
4	50	3	39.3	-1.28
5	2	4	45.8	0.22
6	1	5	60.0	0.75
Overall	83		42.0	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	2.62	0.758
Adjusted for ties	5	2.73	0.742

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q13 versus Pharm type
Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	4.0	38.7	-0.52
2	8	4.0	39.0	-0.37
3	10	5.0	52.5	1.46
4	50	4.0	41.5	-0.25
5	2	4.5	54.5	0.74
6	1	1.0	3.5	-1.61
Overall	83		42.0	

Test

Null hypothesis H_0: All medians are equal

Alternative hypothesis H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	5.35	0.375
Adjusted for ties	5	5.83	0.323

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q14 versus Pharm type
Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	2.5	43.2	0.19
2	8	1.0	36.0	-0.74
3	10	2.0	39.4	-0.36
4	50	2.0	43.4	0.65
5	2	2.0	37.8	-0.25
6	1	2.0	40.0	-0.08
Overall	83		42.0	

Test

Null hypothesis H_0: All medians are equal

Alternative hypothesis H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	0.88	0.972
Adjusted for ties	5	0.95	0.967

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Category of pharmacy and recognition of professional identity

Kruskal-Wallis Test: Q16_1 versus Pharm type
Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	4.5	40.8	-0.18
2	8	4.0	28.8	-1.63
3	10	5.0	58.5	2.30
4	50	4.0	40.6	-0.65
5	2	5.0	62.0	1.19
6	1	4.0	26.5	-0.65
Overall	83		42.0	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	9.04	0.108
Adjusted for ties	5	11.00	0.051

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q18_1 versus Pharm type
Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	4	42.9	0.14
2	8	4	39.8	-0.27
3	10	5	52.4	1.45
4	50	4	39.2	-1.32
5	2	5	67.5	1.51
6	1	4	36.0	-0.25
Overall	83		42.0	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	4.94	0.424
Adjusted for ties	5	5.55	0.352

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Category of pharmacy and delegation and skill mix

Kruskal-Wallis Test: Q20_1 versus Pharm type
Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	4.0	44.2	0.34
2	8	4.0	46.4	0.55
3	10	4.0	47.8	0.81
4	50	4.0	39.7	-1.07
5	2	3.5	26.0	-0.95
6	1	5.0	69.0	1.13
Overall	83		42.0	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	3.53	0.618
Adjusted for ties	5	3.99	0.551

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q21_1 versus Pharm type
Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	4	43.3	0.21
2	8	4	47.0	0.62
3	10	4	49.7	1.08
4	50	4	39.5	-1.18
5	2	4	52.5	0.62
6	1	2	15.0	-1.13
Overall	83		42.0	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	3.59	0.610
Adjusted for ties	5	3.83	0.574

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q22_1 versus Pharm type

Descriptive Statistics

Pharm type	N	Median	Mean Rank	Z-Value
1	12	3.5	39.9	-0.32
2	8	3.0	33.5	-1.05
3	10	3.5	43.5	0.20
4	50	4.0	44.5	1.16
5	2	3.5	38.8	-0.19
6	1	1.0	2.0	-1.67
Overall	83		42.0	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	4.45	0.487
Adjusted for ties	5	4.81	0.440

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Category of IET and the effectiveness of the training

Kruskal-Wallis Test: Q27_1 versus Initial training
Descriptive Statistics

Initial training	N	Median	Mean Rank	Z-Value
1	26	4	37.3	-1.20
2	10	4	41.3	-0.10
3	12	4	41.7	-0.05
4	7	4	45.1	0.35
5	21	4	44.2	0.49
6	7	4	51.3	1.07
Overall	83		42.0	

Test

Null hypothesis H_0: All medians are equal
Alternative hypothesis H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	2.34	0.801
Adjusted for ties	5	2.55	0.769

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q28_1 versus Initial training
Descriptive Statistics

Initial training	N	Median	Mean Rank	Z-Value
1	26	4	38.3	-0.96
2	10	4	37.6	-0.62
3	12	4	46.0	0.62
4	7	4	44.7	0.31
5	21	4	46.0	0.87
6	7	3	40.8	-0.14
Overall	83		42.0	

Test

Null hypothesis H_0: All medians are equal
Alternative hypothesis H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	1.96	0.854
Adjusted for ties	5	2.16	0.826

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q29_1 versus Initial training

Descriptive Statistics

Initial training	N	Median	Mean Rank	Z-Value
1	26	4	34.7	-1.86
2	10	4	51.5	1.33
3	12	4	46.0	0.62
4	7	4	40.2	-0.20
5	21	4	41.8	-0.05
6	7	4	51.1	1.04
Overall	83		42.0	

Test

Null hypothesis	H₀: All medians are equal

Null hypothesis — H$_0$: All medians are equal

Alternative hypothesis — H$_1$: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	5.28	0.383
Adjusted for ties	5	6.01	0.305

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q30_1 versus Initial training

Descriptive Statistics

Initial training	N	Median	Mean Rank	Z-Value
1	26	4	32.6	-2.41
2	10	4	50.3	1.15
3	12	4	48.3	0.97
4	7	4	36.1	-0.68
5	21	4	47.1	1.12
6	7	4	45.1	0.36
Overall	83		42.0	

Test

Null hypothesis — H$_0$: All medians are equal

Alternative hypothesis — H$_1$: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	7.43	0.190
Adjusted for ties	5	8.20	0.145

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q31_1 versus Initial training
Descriptive Statistics

Initial training	N	Median	Mean Rank	Z-Value
1	26	4.0	39.3	-0.70
2	10	5.0	51.8	1.36
3	12	4.5	47.3	0.82
4	7	5.0	48.2	0.71
5	21	4.0	33.0	-1.98
6	7	5.0	50.0	0.92
Overall	83		42.0	

Test

Null hypothesis H_0: All medians are equal

Alternative hypothesis H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	6.70	0.244
Adjusted for ties	5	7.60	0.180

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted

Kruskal-Wallis Test: Q32_1 versus Initial training
Descriptive Statistics

Initial training	N	Median	Mean Rank	Z-Value
1	26	4.0	53.0	2.81
2	10	3.5	43.6	0.22
3	12	3.0	34.5	-1.17
4	7	3.0	41.5	-0.06
5	21	3.0	34.0	-1.77
6	7	3.0	36.3	-0.66
Overall	83		42.0	

Test

Null hypothesis H_0: All medians are equal

Alternative hypothesis H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	9.38	0.095
Adjusted for ties	5	10.29	0.068

There is a none significant difference between the Likert scale responses, for all six categories of pharmacy and the P value (>0.05%) means the null hypothesis should be accepted.