

**Medicines optimisation:
A pharmacist's contribution to delivery and
education**

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**This thesis is submitted in partial fulfilment of the requirements
of Kingston University for the degree of Doctor of Philosophy by
Publication**

July 2019

Electronic version minus publications

This work was funded by Pharmacy Research UK

(Grant reference PRUK-2018-TB-L1-1-BJ)

The views expressed are those of the author and not necessarily that of Pharmacy Research UK.

Word count (excluding abstract, acknowledgements, contents list, references and appendices) = 29,980

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Abstract

This thesis describes the author's publication history from 2001 to 2019, and relates this to their key career milestones from registration as a pharmacist in 1991. From a career output of over 80 items published in a variety of media, eleven key publications form the basis of four publication themes, which the author has related to the concept of medicines optimisation. An exemplar case is used to illustrate these publication themes, arranged into four chapters: a) improving the patient experience and supporting medication adherence b) providing safe care: medication review, polypharmacy and deprescribing c) making medicines optimisation part of routine practice through clinical education, and d) supporting safe practice through professional and personal development of healthcare staff.

Following Chapter 1 (introduction), the second chapter discusses the author's contribution to the medication adherence agenda which closely relates to their outputs encouraging the development of pharmacists' consultation skills, particularly with patients who have a learning disability. The third chapter discusses the author's published outputs in the areas of medication review, polypharmacy and deprescribing, the success of which they outline as contingent on the improved communication skills and person-centred approach described in Chapter 2.

Chapters four and five discuss the author's wide-ranging contribution as a clinical educator with a focus on developing others, which the author contends is an essential underpinning of the mission to deliver the benefits of medicines optimisation. The exemplar case from the introduction is briefly revisited to illustrate that the author's publications directly relate to the challenges of the patient's medication regime which in turn relate to three of the four Royal Pharmaceutical Society principles of medicines optimisation.

The conclusion of this thesis includes a summary of the methodologies used in the key publications, and summarises the author's belief that their career activity, leading to their publications, broadly align to the concept of medicines optimisation. Moreover, a recommendation can be made that education of all stakeholders should be explicitly mentioned in any future refinements of its definition.

PhD by Publication – Barry Jubraj

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Acknowledgements

It is with pleasure that I include a substantial number of heartfelt acknowledgements at the start of my PhD thesis. One of the tangible blessings of undertaking a PhD by publication is the requirement to look back. This has allowed me to remember colleagues and friends, past and present, who have supported me throughout my journey.

First of all, I wish to offer my heartfelt thanks to my PhD supervisor, Professor Chris Cairns. Our morning coffees to discuss PhD and rugby have included immeasurable guidance and wisdom. Chris was a great support when my dad died suddenly during this process, leaving me as a double-carer for my mum and my son. It has been a pleasure getting to know you Chris.

Equal thanks go to my dear friend Dr Nina Barnett, who became a pharmaceutical hero of mine in the early 1990s at St Mary's hospital in London. Not only did Nina blaze a trail in pharmacy by undertaking this type of PhD, but she has been 'for' me throughout my career, looking out for me and demonstrating real empathy for my role as a carer. Being her peer-mentor has been a privilege. Shalom Aleichem my friend.

Dr Sue Jones has been a tower of strength throughout my teaching career. A precious friend, an excellent co-author, it was Sue who first encouraged me to consider this PhD route. Your pre mock-viva for me has been fundamental to me succeeding, and demonstrates your commitment and generosity towards your friends. We have shared much life experience together and it's been a privilege to walk some of your path with you Sue – thanks for walking with me on mine.

Cathy Mooney has been a boss, friend, confidante and guide throughout my career, starting from pre-reg at St Mary's to guiding me into my current strategic NHS role. Always there, Cathy has been my 'go-to' person when I've needed advice.

Deirdre Linnard at the Chelsea & Westminster Hospital has my thanks and admiration for combining a wonderfully competent and ethical approach to pharmacy practice with a kindness and empathy that few have matched in my experience. Her kindness to our family over many years will not be forgotten. Alongside her at the Chelsea & Westminster, Dr Vanessa Marvin modelled a high standard of practice-research to me and gave me an opportunity to join NIHR CLAHRC for northwest London. Vanessa allowed me to flourish in that environment as well as demonstrating so clearly what is good about pharmacy, in what she does and the person that she is. Without the publications from that secondment, there probably wouldn't be this PhD.

Professor Graham Davies and Professor Ian Bates gave me my significant opportunity to operate at a regional and national level in pharmacy education at the Joint Programmes Board (JPB), and they have my enduring thanks and admiration for their tenacity and sticking to the right path in the face of politics and adversity. At King's College London, Dr Bahijja Raimi-Abraham gave me some wonderful insights on how to portray 'the journey' in my PhD, and Dr Arcadia Woods guided me through Endnote with great patience.

I thank Pharmacy Research UK for funding this project, and Desh Mofidi for his support with my funding application and being so approachable.

My Christian faith is the source of all my motivation and drives my actions and hopes in my life. Many friends and church family at All Souls, Langham Place, and Emmanuel Wimbledon, have supported me spiritually during times so tough that I could have gone under as a parent and carer. I remember particularly my prayer partner of over twenty years, Paul Stamper-Iveson, and his wife Sue who are also Godparents to Alexander.

Finally, and most importantly I must extend heartfelt thanks to my wife Rosemary for three things. Firstly, as an excellent clinician and reviewer, Rosemary unlocked the potential of my PhD through her Easter review, by identifying how I should develop it and draw it together. It would not be the piece of work that it is without you. Secondly, for permission to use Alexander's name throughout this thesis. And finally, I could not have wished for a better friend, partner in the Gospel, and partner in caring for our son Alexander - we are 'Team J' with Jesus as our captain. You have contended with and loved much.

Dedication

For Alexander, whose needs God has used to demonstrate His compassion
for us:

*“The Lord bless you and keep you;
the Lord make his face shine on you
and be gracious to you;
the Lord turn his face towards you
and give you peace.”*

Numbers 6:24-26

‘Apart from me you can do nothing’ (John Chapter 15 v5). But ‘I can do all
things through Him who gives me strength’ (Philippians 4:13).

These words of and about Jesus have been true in my own life, and underpin
who I am and what I have tried to do.

Chapter 1: Introduction

1.1 Prologue

This thesis summarises a collection of published outputs from a 30 year pharmacy career, during which the author also trained as a teacher and counsellor. Through the process of recording the career and life journey for this thesis, the author has been humbled by the many opportunities received, the patient partnerships built, and the students and qualified staff supported throughout their journey. The author has made it their mission to interact and consult with everyone in a caring, empathic way, to develop students, juniors and colleagues to do the same, and to help patients get the most out of their medicines by maximising the benefits and minimising the risk of harm.

The author has also reflected deeply on their own development throughout key elements of their career journey. Firstly, this thesis has served as a 'mirror' to reflect back to the author what they have contributed to and achieved for the profession, the influence received and given, and the way that they have developed professionally. The resulting publications in this thesis are directly linked to the career journey outlined in Figure 5. Professionally, the author has become a practitioner with expertise in a number of different areas that are reflected in the diversity of the thesis chapters. It has been an encouragement that these areas of expertise broadly cohere with the concept of 'medicines optimisation', the importance of which will be explained in Chapter 1.2.

The publications in this thesis also reflect the author's personal journey. Training as a teacher and counsellor, as well as a pharmacist, has led others say that the author has accumulated a lot of wisdom and has a compassionate, caring approach towards those that they encounter. The mention in Figure 5 of the author becoming a parent to a disabled child is an important part of their journey because of the published outputs that have directly resulted from this experience.

The author's achievements are outlined in their curriculum vitae (Appendix 1) and publication list (Appendix 2), with author verifications recorded in Appendix 3. These achievements have culminated in the award of three fellowships. These include Fellowship of the Faculty of the Royal Pharmaceutical Society. This required the author to submit evidence of attainment against six competency clusters in the pharmacy

professional development framework for advanced practice, the 'Advanced Pharmacy Framework' (1). The author achieved the highest staging of each cluster, namely 'mastery' (see Appendix 4 for a summary).

1.2 Medicines Optimisation: why is it important?

Medicines optimisation is the latest iteration of how pharmacists (and other professionals) can improve the prescribing, dispensing and administration of medicines (2). The key challenges outlined by NICE and illustrated by the exemplar case in Chapter 1.9 have been drivers for health systems across the world to increase the effectiveness and quality of medicines use as well as reducing risk and expenditure. Alongside this, there has been an increasing drive to ensure that patients are involved in clinical decisions that are made about them, meaning that patients need to be at the centre of their own care (3). From these principles has emerged the concept of 'medicines optimisation' in England.

1.3 Definitions of 'medicines optimisation'

Several definitions of 'medicines optimisation' have been offered, which mainly describe the concept and are not universally agreed, although the sentiments appear to be similar:

1. Medicines optimisation is an approach that seeks to maximise the beneficial clinical outcomes for patients from medicines with an emphasis on safety, governance, professional collaboration and patient engagement (4)
2. Medicines optimisation is defined as a person-centred approach to safe and effective medicines use, to ensure that people obtain the best possible outcomes from their medicines (5)
3. A definition of medicines optimisation, quoted in the influential King's Fund publication about polypharmacy and medicines optimisation (6), is that it *"requires evidence-informed decision making about medicines, involving effective patient engagement and professional collaboration to provide an individualised, person-centred approach to medicines use, within the available resources"*
4. Medicines optimisation looks at the value which medicines deliver, making sure they are clinically effective and cost-effective. It is about ensuring people get the right choice of medicines, at the right time, and are engaged in the process by their clinical team (7).

The first definition has been used in Figure 4, which is taken from the author's PhD prima facie statement (Appendix 5). This was the definition that the author was most familiar with at that time.

1.4 'Medicines Optimisation': a concept now central to health policy, particularly in England

The Royal Pharmaceutical Society's (RPS) good practice guidance on medicines optimisation describes it as emerging from a recognition that medicines use is too often sub-optimal and requires a 'step change' in the way that patients are supported to get the best out of their medicines (8). The guidance goes on to describe goals to improve the use of medicines, which have been concisely described by NHS England as follows (7):

- Improve their outcomes
- Take their medicines correctly
- Avoid taking unnecessary medicines
- Reduce wastage of medicines
- Improve medicines safety

The RPS guidance also describes four principles of medicines optimisation that have been widely supported and cited (see Figure 1 in the original thesis – removed from this submission copy of the thesis and replaced with text versions of the principles as follows):

1. Principle 1: Aim to understand the patient's experience
2. Principle 2: Evidence based choice of medicines
3. Principle 3: Ensure medicines use is as safe as possible
4. Make medicines optimisation part of routine practice

The author's longstanding engagement with the principles of medicines optimisation has included peer discussions with colleagues regarding their concerns about the RPS's explanation of principle 4. This states that: "Health professionals routinely discuss with each other and with patients and/or their carers how to get the best outcomes from medicines throughout the patient's care". The RPS guidance lists outcomes that principle 4 is intended to influence, including patients receiving consistent messages about medicines through improved liaison between the healthcare team, reducing waste and the NHS achieving greater value for medicines expenditure. The author has long

contended that few, if any of these outcomes meaningfully reflect the title of this principle. Whilst not disagreeing with the list of outcomes, the author has written and spoken about education being a vital component in making medicines optimisation part of routine practice, beginning with undergraduates and continuing as part of lifelong learning. This is explored in more detail in Chapter 3, with respect to medication review.

1.5 An evidence-base for medicines optimisation

In order to explore the evidence to support medicines optimisation, it is important to articulate what it is. In Chapters 1.3 and 1.4 medicines optimisation is described as follows:

- A process (3)
- An approach (2)
- Something which 'looks at' (6)

The Royal Pharmaceutical Society's Principles of Medicines Optimisation (8) illustrated in Figure 1 seek to concretise such descriptions. There is no primary literature that supports the overall 'process' or 'approach' of medicines optimisation and no attempts in the literature to achieve this have been found, probably because it is a 'process' or an 'approach' or a 'concept'. Instead, the evidence for medicines optimisation is more indirect; and is most likely to be found in primary literature that demonstrates, for example, the need to understand the patient experience (principle 1), improve outcomes in evidence-based use of medicines (principle 2) and medication safety (principle 3). The author believes that these combine to provide evidence supporting the variety of definitions of medicines optimisation such as those outlined in Chapter 1.3. The relevant primary literature outlined above was evaluated by the author throughout this thesis, particularly in Chapters 2 and 3. Moreover, the focus of their publications was strategic and targeted at providing the profession with the skills needed to optimise medicines use in the population as a whole.

1.6 The broader context of medicines optimisation

Published literature compares 'Medicines Optimisation' with previously-developed concepts such as 'pharmaceutical care' and 'medicines management' (3). In 1990, Hepler and Strand published the term 'Pharmaceutical care' and described the responsibility that pharmacists should assume for developing a therapeutic relationship with the patient (9). In 1993, the author wrote a short dissertation on this for a postgraduate degree, focusing

on comparing the interpretation of the concept in the United States and the United Kingdom (10). The author's literature search at the time revealed an emphasis on the need to improve patient care and for pharmacists to take greater responsibility for that care. Hepler and Strand were clear about pharmacists' 'social responsibility' to reduce preventable drug-related morbidity and mortality, and the need to practice a patient-centred approach. This aligns with the second RPS principle of medicines optimisation concerning safe medicines use (8). 'Taking responsibility' as outlined by Hepler and Strand also links to the medicines optimisation imperatives of "effective patient engagement" (6). The author believes that the link between pharmaceutical care and medicines optimisation as defined in England is clear.

Medicines management was described as a "system of processes and behaviours that determines how medicines are used by patients and healthcare services" (3). A more comprehensive definition was offered by the Audit Commission in 2001 (11):

'Medicines management in hospitals encompasses the entire way that medicines are selected, procured, delivered, prescribed, administered and reviewed to optimise the contribution that medicines make to producing informed and desired outcomes of patient care.'

This definition contained an early mention of the word 'optimise' and the report goes on to describe the need to reduce medication errors, to link medicines management with clinical governance, and to ensure that pharmacy is a patient-centred service with pharmacists as a key member of the clinical team. This represented an important shift from pharmacy being a technical profession to assuming greater clinical responsibility, with a specific mandate to contribute to the reduction of medicines-related risk and the delivery of improved health outcomes. Medicines management became fully enshrined in official government documents (12).

The definitions of medicines optimisation outlined in Chapter 1.3 contain aspects that can be clearly seen in the original concepts of pharmaceutical care (USA) and medicines management (UK), including:

- Clinical governance
- Patient (person) centeredness
- Medication safety
- Pharmacists building relationships with patients

There is no literature that directly links together the concepts of medicines management, pharmaceutical care and medicines optimisation, although in 2001 the Royal Pharmaceutical Society described medicines management as ‘a strategy that has many components’, one of which is pharmaceutical care, which ‘effectively...is medicines management for individuals at a clinical level.... it is all that clinical pharmacy practice represents’ (13). The author believes that the concept of ‘medicines optimisation’ is a culmination of medicines management and pharmaceutical care, particularly in England.

1.7 Medicines Optimisation: Scotland, Wales and Northern Ireland

A survey of policy documents in these UK countries demonstrates that the priorities of patient safety, person-centred care and optimal use of medicines are very similar to the concept of medicines optimisation in England. Two key policy documents in Scotland: “Prescription for Excellence - the future of pharmaceutical care: vision and plan” (14), followed by “Achieving Excellence in Pharmaceutical Care: A Strategy for Scotland” (15), demonstrate a preference for the use of the term ‘pharmaceutical care’, with language similar to that of Hepler and Strand (9) and ambitions similar to those of medicines optimisation as outlined in England. There are contextual differences, for example recognising that 20% of the Scottish population live in rural communities. However the desired outcomes are the same.

In Wales, ‘medicines optimisation’ is not a formal term used by the Welsh Government or NHS Wales and is not referred to in written policy. The term ‘optimise’ in terms of optimising therapeutic outcomes was mentioned in a recent 10 year vision for pharmacy in Wales (16). It was not a document produced by the Welsh assembly but has been adopted and agreed by them. The terms used formally in Wales are ‘medicines management’ (17) and ‘prudent prescribing’ (18). Some of the principles associated with these terms are similar to those of medicines optimisation, including medication safety and working in partnership with patients.

The term ‘medicines optimisation’ is widely used in Northern Ireland and is supported by the Department of Health ‘medicines optimisation quality framework’ (19). This identifies the shift to medicines optimisation beginning with the implementation, for example, of NICE guideline NG5 on medicines optimisation (5). The term ‘medicines optimisation’ is viewed as broader than medicines management and includes a regional medicines

optimisation model, quality standards and a regional innovation plan. The deliverables outlined by the framework are similar to medicines optimisation. They include better outcomes, medicines safety and the involvement of patients in decisions about their care.

1.8 Medicines Optimisation in overseas countries

In 2006, the International Pharmaceutical Federation (FIP), stated that ‘Increasingly, the pharmacist’s task is to ensure that a patient’s drug therapy is appropriately indicated, the most effective available, the safest possible, and convenient for the patient’ (20); imperatives that align with the RPS four principles of medicines optimisation. The report goes on to promote the philosophy of ‘pharmaceutical care’ as defined by Hepler & Strand (9).

In North America, at least one ‘Center for Medication Optimization’ exists in the United States (21) describing medication optimization as a ‘patient-centred, collaborative approach to managing medication therapy that is applied consistently and holistically across care settings to improve patient care and reduce overall healthcare costs’. This is important to stakeholders including government, health insurers, clinicians and patients, because if medication is optimised, costs are reduced, particularly if complications are avoided. Canada does not have an equivalent term but recognises the term ‘pharmaceutical care’ and seeks to promote ‘appropriate prescribing’ (22).

Australian clinicians and researchers have been at the forefront of the deprescribing movement (see Chapter 3) and an important report from 2018 describes the goal of quality use of medicines to optimise ageing in older Australians (23). The Australian National Medicines Policy is being updated in order to improve, for example, its patient-centred focus, medication safety, and the focus on outcomes (24), all of which align with the imperatives of the RPS four principles of medicines optimisation. The NICE definition of medicines optimisation is recognised and used by the Pharmaceutical Society of New Zealand (25); and their National Pharmacy Action Plan 2016-20 has drawn on initiatives from around the world, including developing pharmacist prescribers, pharmacists in GP surgeries and minor ailment schemes as seen in the United Kingdom (26). ‘Medicines Management’ as used in this report encompasses services such as medicines optimisation and medicines adherence, the former of which covers patient concerns about safety and efficacy of their medicines and complex medication regimes. Like Australia, there is a

focus on outcomes, particularly for their ageing population and those with long-term conditions.

Finally, as an example of a low-resource setting, Namibia is a country developing its pharmacy workforce having launched their first pharmacy school in 2011 (27). A focus on medicines optimisation (based on the NHS term), has been emerging through undergraduate, pre-registration and postgraduate pharmacy training (28), with an ambition to develop pharmacists' ability and increase the numbers needed to deliver on this agenda.

In summary, across the world, the principles of person-centred care, reduction of risk and tackling polypharmacy, particularly in older people, are common goals. Health systems in the UK and other countries share the same ambitions; and the use of the word 'optimise' is common. Differences in language exist, for example in the use of terms such as 'pharmaceutical care' and 'medicines management'. However a number of countries acknowledge the UK use of the term 'medicines optimisation' and have developed their own local terminology, strategy and desired outcomes to meet their own health system needs.

1.9 Medicines Optimisation: a typical medication regime encountered by the author

During their professional career, the author regularly encountered patients experiencing medicines-related problems, many of which are listed A-F at the end of this section and feature throughout this thesis. Many such patients were seen in the author's local elderly care rehabilitation unit (see Chapter 3.1). The author's work with one such patient was shortlisted as a finalist for a National Patient Safety Award in 2014 (see Chapter 3.3.3).

Figures 2 and 3 below are copies of the author's slides using an exemplar case in teaching and discussion with undergraduates and postgraduates. Points 1-4 at the top of each slide contain questions posed to students as part of an educational workshop. Figure 2 contains the example medication list before a collaborative review by the author and their medical colleagues, and Figure 3 outlines typical changes made as a result of the author and geriatrician reviewing the medicines in partnership with their patients. The changes made to the medication were chosen to represent common interventions made by the author during their medication reviews.

Figure 2: Medication list before review

1. Which medications would you stop and why?
2. What would you continue?
3. What information would they have to discuss with the patient?
4. What else would they want to know/do?

Alendronate 70mg weekly	Aspirin soluble 150mg od
Calcichew D3 Forte 1 bd	Sertraline 100mg od
GTN spray prn	Lansoprazole EC 15mg od
Ramipril 5mg od	Macrogol sachets 1 bd
Levothyroxine 25mcg od	Nicorandil 10mg bd
Atorvastatin 20mg nocte	Zopiclone 3.75mg nocte
Betahistine 8mg tds	Prochlorperazine 5mg tds
Cyclizine 50mg tds	Sodium bicarbonate ear drops

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Figure 3: Medication list following review by the author, geriatrician and patient

1. Which medications would you stop and why?
2. What would you continue?
3. What information would they have to discuss with the patient?
4. What else would they want to know/do?

Alendronate 70mg weekly	Aspirin soluble 150mg od
Calcichew D3 Forte 1 bd	Sertraline 100mg od
GTN spray prn	Lansoprazole EC 15mg od
Ramipril 5mg od	Macrogol sachets 1 bd
Levothyroxine 25mcg od	Nicorandil 10mg bd
Atorvastatin 20mg nocte	Zopiclone 3.75mg nocte
Betahistine 8mg tds	Prochlorperazine 5mg tds
Cyclizine 50mg tds	Sodium bicarbonate ear drops

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Figure 3 identifies the medicines stopped in the exemplar case, ranging from alendronate which has complicated administration instructions (29) that may be challenging for older patients, to antiemetics that may have been mistakenly continued following an acute

hospital stay for surgery. In the author's clinical setting, they would typically verify the medication history, discuss how the patient felt about managing their medicines, contribute this on the ward round with members of the multi-disciplinary team, and explain the process of decision-making to students and junior doctors who were in attendance, in order to maximise the educational value of the consultation.

The exemplar case illustrates many of the key medicines-related challenges summarised by the 2015 National Institute for Health and Care Excellence (NICE) guideline: 'The safe and effective use of medicines to enable the best possible outcomes' (5). These challenges are listed below (A-F). For each medicines-related challenge, it can be seen which medicines in the exemplar case relate to which NICE challenge. The reader is signposted to the relevant chapter of this PhD thesis where details will be given of the author's contribution to the literature in these areas:

- A. Medicines not being taken by patients as described ('non-adherence'). For example, sertraline not being taken if the patient was not aware that they were taking an antidepressant or did not think that they needed it. *See Chapter 2 of this thesis*
- B. An increasing number of people within an ageing population living with at least one long-term condition. For example, hypothyroidism, ischaemic heart disease and chronic constipation. *See Chapter 3*
- C. An increasing number of patients taking multiple medicines ('polypharmacy'). The exemplar patient was taking sixteen medicines. *See Chapter 3*
- D. The need for greater patient involvement in decisions about their care in different ways, and putting the patient first at all times. An example in this case would be the risks and benefits of statins in later years, discussed within the context of what is important to the patient. *See Chapter 2*
- E. Deficiencies in the safety of medicines, for example leading to avoidable admission to hospital for medicines-related reasons. The complicated alendronate administration instructions referenced under Figure 2 may lead to a serious risk of oesophageal ulceration. *See Chapter 3*
- F. The need to consider education and training needs of staff. The author consistently took opportunities to explain decisions and their rationale to students and juniors who were present. *See Chapters 4 and 5*

The last point (F) was only mentioned tangentially in the NICE guidance, which the author believed should have been more prominent. The workshop questions for undergraduate and postgraduate students at the top of Figures 2 and 3 are an example of the author's mission to define and engage with the educational imperatives associated with medicines-related challenges. The goal has been to equip students and registered clinicians to deliver appropriate clinical outcomes related to safe and effective medicines use.

Finally, the World Health Organisation (WHO) has prioritised transitions of care as an area of medicines-related risk (see details in Chapter 3.1). The exemplar case was used by the author in their teaching and speaking to illustrate that medicines may continue to be prescribed in new clinical settings even though they are no longer needed (the antiemetics). This is something that the author was consistently and often uniquely able to identify and resolve.

1.10 Aims of this thesis

In this thesis, the author will aim to:

1. Demonstrate that their body of published work:
 - a. Coheres with and, in some cases, predates the definitions and goals of medicines optimisation found in Chapter 1.4 and 1.5
 - b. Broadly aligns to the Royal Pharmaceutical Society principles of medicines optimisation 1 and 3 (shown in Figure 1)
2. Has positively impacted clinical and educational practice that relates to principles of medicines optimisation
3. Develop the scope of medicines optimisation principle 4 to demonstrate that making "medicines optimisation part of routine practice" should include appropriate education and training approaches, which the author has championed through their publications
4. Reflect on whether a more unifying definition of medicines optimisation can be recommended (see Appendix 5 where the author stated this as an intention)

1.11 Method, literature used and rationale for key publications used in this thesis

This thesis describes the author's career journey that led to publications in the areas covered by each of the four main chapters of the thesis. Figures 4 and 5 below will be used to illustrate the career journey. Chapter 6, including Table 4, contains a summary description and critical evaluation of the methods used in the author's key publications. There was one personal element that has been included, which was the arrival of the author's severely disabled son in 2006. Parenting a disabled child has profoundly influenced the author's approach to their own clinical and educational practice because of the medicines-related challenges that the author has experienced as a parent and carer.

Figure 4 outlines the author's key publication themes that have led to each thesis chapter. It has been adapted from an original version contained in the author's prima facie statement that was submitted as an application requirement for this thesis (see Appendix 5). It begins the process of illustrating the coherence of the author's publications with the goals of medicines optimisation (see Chapter 1.4), and the inter-relationships between the publication themes. Figure 5 is a timeline that relates the key publications in this thesis to the author's career and personal journey, highlighting the activities at the time of these publications. These publications have their own reference list that reflects the methodology used for each. The author has reviewed the contemporary literature to compare with their publications and confirm the relevance and impact of their own work.

1.12 Summary

In this introduction, the author has described the term, concept and importance of 'medicines optimisation'. The author will build on the intentions stated within their PhD prima facie statement (Appendix 5), and outline throughout the thesis how the author's thinking has evolved with respect to those intentions. In Chapters 2-5 of this thesis the author will outline their body of work, focusing on eleven key publications (see Appendices 6-16) that reflect and represent the author's other published work (see publication list in Appendix 2). Reference will be made to the author's exemplar case throughout. Finally, in Chapter 6, the author will revisit the stated aims of this thesis, return to the exemplar case, consider the future and summarise with a case vignette written about the author.

Figure 4: Key publication themes (taken from prima facie statement):

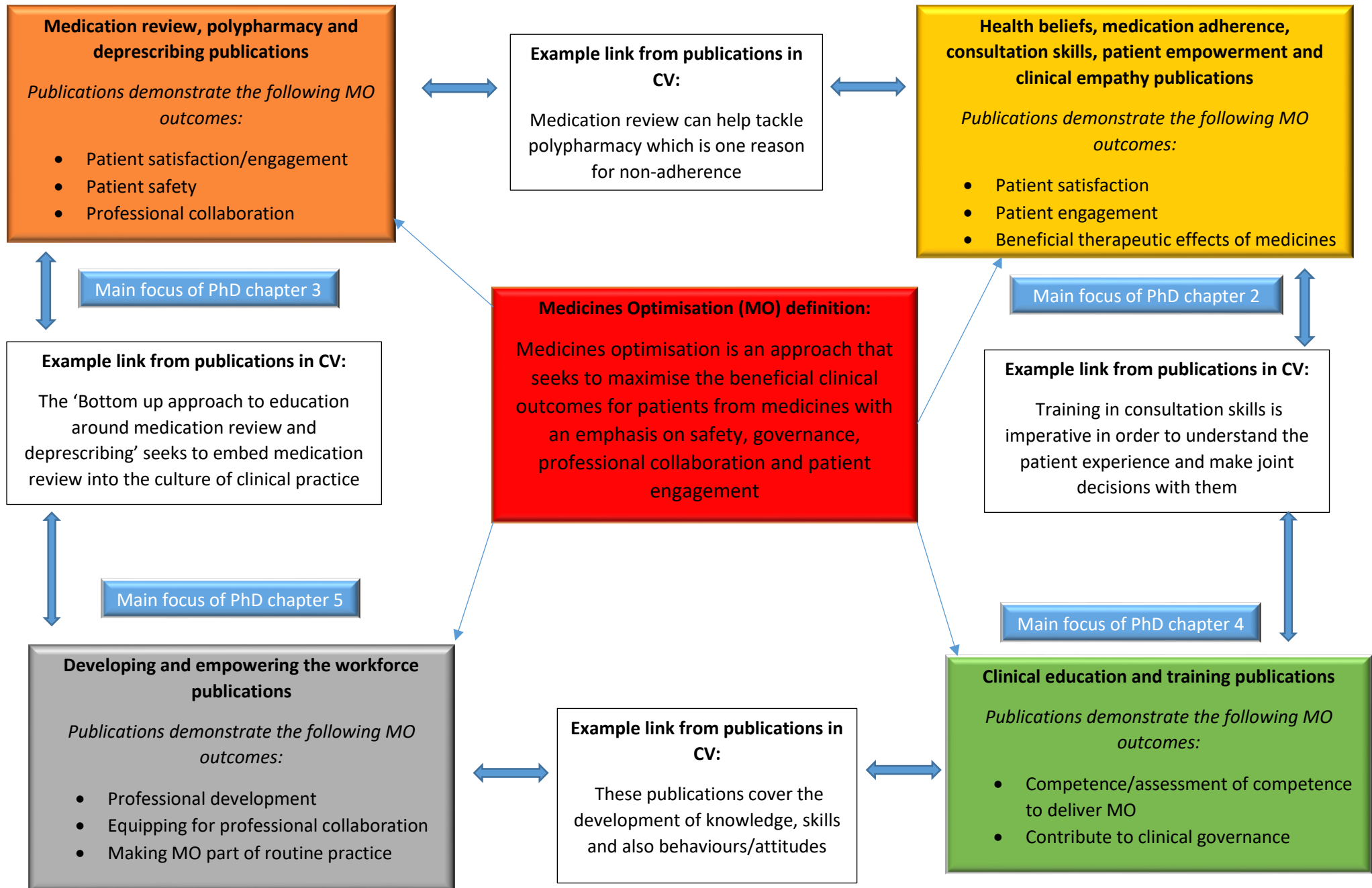
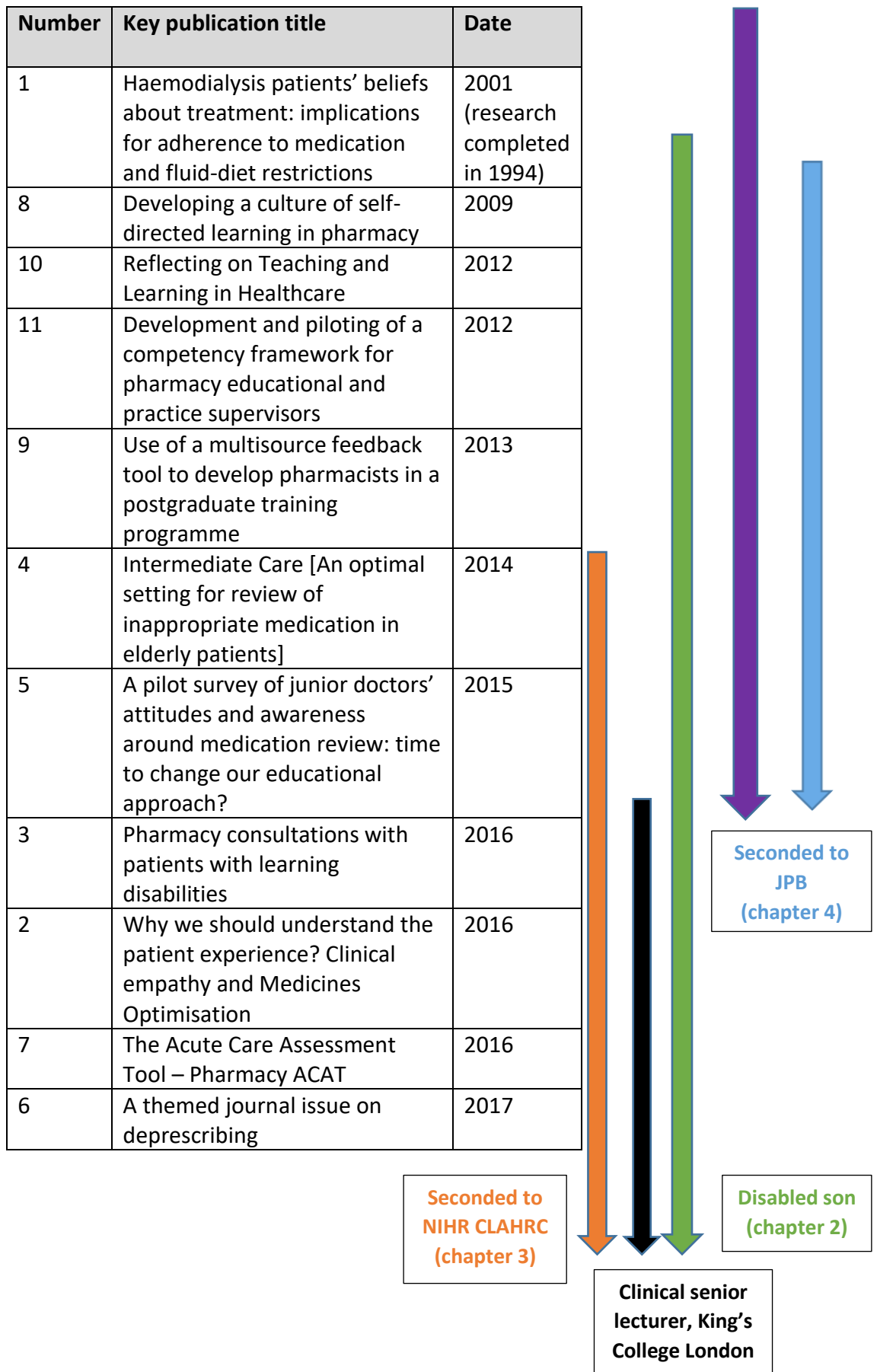


Figure 5: Career and personal timeline with key publications



Chapter 2: Medicines Optimisation: Improving the patient experience and supporting medication adherence

What this chapter is about

In Chapter 2 the author will describe their work in the areas of adherence to medication and how pharmacists should relate to patients, including those with a learning disability. The author's experience in consulting with patients included identifying non-adherence. The exemplar case in Chapter 1, where non-adherence to an antidepressant was identified leading to a decision to stop that medicine, is typical of the author's encouragement of patients to take an active role in making decisions about their medicines. The author will outline how personal experience led to national influence in how pharmacists can support patients with a learning disability.

2.1 Introduction

Throughout the author's clinical and academic career, improving the patient experience has become an increasingly prominent driver within the health service agenda in the UK. The Kennedy report published in 2002 in response to what became known as the Bristol heart surgery scandal recommended that health professionals should treat patients as partners, with equal but different expertise (30). Some of the professional development implications of this are discussed in Chapter 4 of this thesis. Moreover, the Health Foundation also describes ethical and practical drivers for the change towards what is known as 'person-centred care', including the need to treat patients with respect, compassion and dignity; and the potential for this approach to improve clinical outcomes and adherence to treatment plans (31). The WHO recognised that health was impacted by a variety of factors including social, economic and environmental, meaning that caring for the whole person is necessary (32).

The author's peer mentor, Professor Nina Barnett, stated that 'Pharmacists are in a unique position to add value to medicines-related consultations using a person-centred approach to evidence-based medicine' (33). Pharmacists have been encouraged to move from a 'product-centred' to a 'patient-centred' approach to consulting with patients (34), which recognises that patients have a right to be involved in decisions about medicines

(35). The author has experienced over their career that many pharmacists do not demonstrate a person-centred approach. Many appear to struggle to make clinical decisions or suggestions that improve quality or lead to even greater benefit, instead focusing on identifying problems or mistakes. The view that pharmacists should change their decision-making from predominantly non-maleficence to a greater focus on beneficence (36) was therefore to be welcomed. Moreover, patient and public perceptions around how involved they are in decisions about their care have not changed significantly over recent years (37); and therefore more work needs to be done, for example around medication adherence (see Chapter 2.2.1) and shared decision-making. The latter is about health professionals and patients working together to put people at the centre of decisions about their own treatment and care (38). The expectations of government, policy-makers and professional leaders are that pharmacists will embrace the concept of person-centred care and deliver a quality of care that is congruent with the Royal Pharmaceutical Society's four principles of medicines optimisation (8), the first of which is to 'understand the patient experience'. By doing this effectively, pharmacists have a key role in helping patients to get the most out of their medicines. Examples include improving adherence to prescribed treatment, and overcoming barriers to medicines-taking, including where communication difficulties exist. One such difficulty is a learning disability, which is discussed in Chapter 2.4.

2.2 Key publication 1: Haemodialysis patients' beliefs about treatment: implications for adherence to medication and fluid-diet restrictions (39) (see Appendix 6)

2.2.1 Background

Adherence to a medication regimen has been defined as "the extent to which patients take their medications as prescribed by their healthcare providers." (40) Over the last 40 years, non-adherence to treatment recommendations in general, and medication non-adherence in particular has been increasingly recognised. For example, in 1996 a key study in *The Lancet* (41) acknowledged that low adherence to treatment recommendations limits the benefits of medical care.

An internationally renowned health psychologist, Professor John Weinman (JW), and a pharmacist, now Professor of Behavioural Medicine, Robert Horne (RH), have together contributed extensively to the medication non-adherence literature. They have published evidence confirming that patients have beliefs and concerns about illness and treatment.

They have contributed to the understanding of the concepts of 'intentional' and 'unintentional' non-adherence, which has been defined as follows (42):

Unintentional – when patients intentions to take the medication as advised are thwarted by barriers that are essentially beyond their control, such as forgetfulness, poor comprehension language barriers, or physical inability to manage the medication (e.g. difficulties opening containers or using administration devices).

Intentional – a conscious decision by the patient to take the medication in a way which differs from instructions, or not to take it all. This often takes the form of patients reducing the frequency of dosing or the number of medications down to a level that they (and not their doctor) feel is appropriate, or premature discontinuation of therapy.

Their work has also explored how patients' beliefs and concerns about medication lead to active decisions about whether or not to adhere to treatment. With other experts, they have also challenged the use of an older term 'non-compliance', arguing that this term suggests that not following treatment recommendations is the patient's fault, for example through ignorance or forgetfulness (43). National guidance now exists to support clinicians in tackling non-adherence (35), and the concept is routinely taught in many healthcare training curricula. The pharmaceutical industry also funds programmes to support patients who are prescribed their treatments. In spite of these initiatives, a recent report by the Organisation for Economic Co-operation and Development (OECD) states that "Despite mounting evidence, amassed for more than four decades, poor adherence to medications still affects approximately half of the population that receives prescriptions" (44).

2.2.2 The author's MSc adherence research

In 1993, two years after qualifying as a pharmacist, the author undertook an MSc programme in clinical pharmacy, 50% of which contained a research element. The research study explored adherence to treatment recommendations in haemodialysis patients, under the co-supervision of JW and RH. The author's research took place at their base hospital in London, on a haemodialysis unit, and involved recruiting eighty haemodialysis patients to complete a questionnaire exploring beliefs about their illness and treatment. The questions were taken from three sources: the 'Illness Perception Questionnaire' (45), the 'Medicines Representations Questionnaire' (46); and self-report

questions about adherence and health. The chosen questions were compiled into a specific questionnaire for the purposes of the study. The majority of questions consisted of a series of statements with a five point Likert scale (47) to allow responses ranging, for example, from 'never' to 'often' and 'strongly agree' to 'strongly disagree'. Statistical analysis was undertaken of the 47 returned questionnaires. A key finding was that patients' own beliefs about their treatment were related to adherence to medication and fluid-diet restrictions in a coherent way. An example of this was that negative views about medicines, such as fear of side effects, predicted for self-reported non-adherence. One of the main contributions of this study was to quantify the prevalence of certain beliefs (including about illness and treatment) and to identify which beliefs were related to intentional non-adherence. The study also demonstrated that adherence issues are not restricted to medicines, but can also affect diet and fluid restrictions which can be burdensome for patients with kidney disease.

2.2.3 The subsequent publication and impact of the research

Data from this research contributed directly to the development of Horne & Weinman's 'Beliefs About Medicines' Questionnaire (BMQ) (48), a flexible instrument that can be adapted to assess beliefs about all medicines for a particular condition or for individual components of a regimen. The author's work in haemodialysis patients was acknowledged in this publication, as well as in the supervisors' own key paper on patient beliefs and adherence (49). Both of the supervisors' papers are cited in the author's key publication 1, since it was published some years after the original research was undertaken and after the supervisors' own work was published. Over forty citations have been found and it continues to be read via the author's Researchgate® profile. Professor Weinman recently told the author that this publication in his view is a 'minor publication classic'. This positive feedback was highly valued because the author's research contributed to what is one of JW's most cited publications to date (48).

Post MSc., the author's professional journey in the field of medication adherence continued both directly in patient care as well as through teaching undergraduates and junior pharmacists. In 2003, the author began undergraduate training as a counsellor, which led to personal reflections on the appropriate overlap between counselling clients and patient consultations, including adherence-related conversations. This led to the author publishing a discussion article exploring how pharmacists could learn from the

skills that counsellors develop (50). The author applied learning around rapport, empathy and good listening skills to the clinical consultation, and made an early reference to the haemodialysis research outlined above. The author has continued to use this article in teaching, particularly for postgraduate foundation pharmacists who are beginning to apply these skills in their practice. The author's training as a counsellor has profoundly impacted their approach to patient care and being a tutor (Chapter 5.4.3), mentor and supervisor (see Chapter 5.5 which describes the author's activity in mentoring and supervision). The importance and value of empathy are core to the author's beliefs about professional as well as personal relationships.

In 2015, the author was appointed as Clinical Senior Lecturer in Medicines Optimisation at King's College London, where Professor Weinman was based. The author's background in adherence research and wide-ranging practice experience in tackling adherence-related patient problems, led to a request to contribute to a King's College Massive Open Online Course (MOOC) on adherence (51). A MOOC is an online course aimed at large-scale participation and free access via the internet. MOOCs are similar to university courses, but typically do not offer academic credit. The author contributed real-life examples of consulting with patients and suggesting practical strategies to improve adherence. Since the launch, approximately 25,000 learners from a multi-professional and international audience have registered for the MOOC. The potential for influencing attitudes and approaches to non-adherence was therefore significant. The author's practical and down-to-earth contribution, such as inviting patients with dexterity problems to manage their medicines on a tray on their lap to avoid dropping tablets on the floor, was hopefully helpful to many.

The author has recently assumed the role of Associate Director for the Medicines Use and Safety Network of NHS England's Specialist Pharmacy Service (SPS) (52) and has initiated a collaboration to explore links between non-adherence and medication safety. The author's initiative resulted from attending the launch of the King's College London Centre for Adherence Research and Education (CARE) (53) in the autumn of 2018. A peer discussion with Professor Barnett around the patient safety agenda led to a realisation that medication non-adherence can be a safety issue. The author therefore ran an SPS workshop in March 2019 to explore the link and to get feedback from participants. Overwhelmingly, pharmacist participants reported that they had not previously considered adherence in safety terms (54). The clinical director for the south London

Health Innovation Network (55) attended the workshop event and has invited future collaboration to explore the links further. This proposed link supports recent research published around the same time, stating that “Harm from non-adherence to medications may explain the relationship between polypharmacy and mortality” (56).

2.3 Key publication 2: Why we should understand the patient experience? Clinical empathy and Medicines Optimisation (57) (see Appendix 7)

2.3.1 Background

The relationships between patient experience in medical consultations and their outcomes have been explored over many decades. For example, in 1982, Ley surveyed the literature and concluded that patients’ compliance with medical advice (see Chapter 2.2.1 for comparison with the term ‘adherence’), correlates with patients’ satisfaction with the consultation, communication and care received (58). A general practice study from 2004 demonstrated a positive relationship between doctor-patient concordance (defined as agreement between the two about, for example, the reasons for the consultation and patient involvement with decisions) and medication adherence (59). Wolf *et al.* reported that studies demonstrated that ‘patients expect to have a comfortable and warm interaction with a physician’ as well as clinical competence; and they suggest a scale to measure the satisfaction of patients in their consultations (60). The term ‘clinical empathy’ has been used in the medical literature and seeks to apply the importance of empathy to clinical practice, for example stating that “empathy facilitates trust and disclosure and can be directly therapeutic” (61).

As pharmacists have developed their role to undertake clinical consultations with patients, little has been written about the quality of their interactions. In 2012, the Chief Pharmaceutical Officer for England said that pharmacists “should reflect on how much in their practice they are engaging with patients and the public” (62). As described in Chapter 1, the Royal Pharmaceutical Society published four principles of medicines optimisation in 2013 (8), the first of which is to ‘understand the patient experience’. At around the same time the NHS, including pharmacy stakeholders, were examining the report from the scandal surrounding the standards of care at Mid-Staffordshire hospital in England (63), which stated unequivocally that services needed to be provided by caring and compassionate staff.

In response to these developments, the Centre for Pharmacy Postgraduate Education (CPPE) developed a consultation skills learning package for pharmacy (64) that was published in England in 2014 (65) and sent to all 65,000 pharmacists and pharmacy technicians registered in England. The author was invited to be part of the working group and a reviewer of the package, and contributed a video clip for the associated online version (66). The clip emphasised the importance of effective consultation skills as well as the need to educate juniors about this (see Chapter 4.4). The author and one of the lead writers of the package, Professor Nina Barnett (NB), were also invited by CPPE to film a consultation example (67) and associated debrief (68) to model good consultation skills for inclusion.

The author's experience as a counsellor and having become both a carer and patient in the 2000s, profoundly reinforced their belief that 'understanding the patient experience' requires the building of a rapport with individual patients, however short the consultation. The author's 2007 article (see Chapter 2.2.3) outlining what pharmacists might learn from mainstream counselling, stated that "consultation and guidance are best delivered through a healthy and manageable professional relationship". The author approached NB to discuss the lack of literature around the need for pharmacists to develop empathy as a key element of their consultation skills, particularly with respect to adherence. This led to a publication for the *Pharmaceutical Journal* (34) that encouraged pharmacists to move from a product-centric approach to a more patient-centric approach, which is consistent with other published opinions (69). The author and NB then decided to explore the application of 'clinical empathy' to pharmacy consultations.

2.3.2 Article development

The author and NB approached colleagues from the publications outlined above to collaborate. A lead writer of the CPPE consultation skills package, Lesley Grimes (LG), agreed to contribute, as did Sneha Varia, who co-wrote the above *Pharmaceutical Journal* article with us. The author had worked with two clinical psychologists at University College and King's College in London, both with expertise in medicines use, who agreed to join the writing team. The author took the lead in planning and editing this publication, which was structured around the published literature related to empathy, clinical consultations and current pharmacy practice. The pharmacist co-authors applied these concepts to current practice in clinical consultation. The article included examples of key

consultation questions and recommendations for pharmacy practice and undergraduate education.

2.3.3 Impact and associated outputs

The clinical empathy article has eight citations, where the concept has been applied to clinical situations such as smoking cessation, diabetes, obesity and learning disability (LD). In Chapter 2.4.1, the author describes the need for patients with LD to be given time (including process time) and a patient/compassionate approach during consultations. LG invited NB and the author to publish a blog in the Pharmaceutical Journal entitled “Making our patients feel cared for” (70) which picked up on the theme of compassion and caring. A recent citation in the Pharmaceutical Journal recommended that a focus on empathy and compassion should be included in undergraduate teaching (71). This has been a feature of the author’s teaching of undergraduate and postgraduates since their teacher-practitioner role began in 1998.

The author also embedded the concept of clinical empathy in their undergraduate education role, in particular linking it to an annual workshop for second year pharmacy students at King’s College London about the four principles of medicines optimisation. The author then drew heavily on the concept of clinical empathy to guide the placement co-ordinator with the development of a novel ‘socialisation internship’ for undergraduate pharmacy students at King’s College London (72), adapted from the first model of its kind in the UK (73). This involved undergraduates volunteering and reflecting on their experiences in settings ranging from care homes, to coaching underprivileged teenagers, as well as exploring their own ability to empathise in a real-life setting. Analysis of written feedback from students for a 2018 final year pharmacy student project demonstrated that many students reported intentions to be ‘more empathic’ and ‘more understanding’ in their practice (74). The importance of this feedback was the potential impact of these students on individual patients and their colleagues as they become role models, although there appears to be little evidence that clinical placements in of themselves have a lasting impact on attitudes to patients. The author plans to co-produce a publication of the findings of this analysis in 2019. The socialisation internship was verbally commended during an interim MPharm accreditation visit to King’s College London by the General Pharmaceutical Council (GPhC), the regulator who accredits pharmacy degrees in Great Britain. The internship was also mentioned in the written

report (75). This is important because the GPhC are currently emphasising placements in their accreditation visits to schools of pharmacy, and will often cite examples of good practice from one school to another.

The author's consultation skills videos for the CPPE consultation skills package have been used in consultation skills training across England and have been linked to a national declaration of competence developed by CPPE for community pharmacists to demonstrate readiness to provide professional services (76). XXXX has said the following about the video clips:

"We know that these videos are well used and we have used them to support our learning delivery in our clinical pharmacy in general practice learning pathway and will use them in our Medicines Optimisation in Care Homes pathway as well. Including these in a range of learning programmes across the country.... People often comment to us that these videos are highly relevant and speak directly to the services that people offer and the way in which they routinely work".

(XXXX, personal communication. Reproduced with permission)

In 2019, the author was invited to join a national working group, hosted by CPPE, to work with NHS England/Improvement to develop training on shared decision-making.

The author also published an online journal article about consultation skills and personal experience as a carer (77), in which the consultation skills video links were embedded. The author has been told by some readers that this was a helpful way to combine messages from two types of media into one publication. These activities have led directly to a number of invitations to speak at strategic learning events, conferences and webinars about clinical empathy and being a carer (see Appendix 2 full publication list: sections entitled 'Conference abstracts/posters; and learning event/webinar presentations', and 'Other media')

2.4 Key publication 3: Pharmacy consultations with patients with learning disabilities (see Appendix 8) (78); (and associated publications, including those related to 'My Medication Passport')

2.4.1 Background

The author's work around clinical empathy and consultation led to further opportunities because of their role as a carer. The author's disabled son, Alexander (name and initials – AJ - disclosed with both parents' permission), has Down's syndrome (DS), complex

medical needs and an associated severe learning disability (LD). The author was aware of national guidance encouraging consideration of impairments such as LD when undertaking a clinical consultation (35). They had also experienced both good and poor consultations with AJ, including relatively few good consultations with pharmacists. In 2014 the author was seconded by their hospital to work with the National Institute of Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care for north-west London (CLAHRC NWL) (79) (hereafter abbreviated to CLAHRC NWL). CLAHRC NWL established a medicines optimisation work stream in 2009 and outputs included a co-created patient-held tool for recording medication records with patients. The tool is called 'My Medication Passport' (MMP) (80) and was developed by and for older adults. However, the author decided to pilot the MMP in their son AJ to explore its utility. The author found that the tool 'took the pressure off' recalling medicines-related information at consultations, such as the complete medication list and how medicines are practically administered at home. As a pharmacist, the author was mindful that for a reliable drug history, ideally two sources of information should be consulted (81). The senior CLAHRC NWL team connected the author with a professor of paediatrics associated with CLAHRC NWL and the Royal College of Paediatrics & Child Health, who was keen to publish this experience. This led to a case study about AJ being published in *BMJ Case Reports* (82), which to date has been cited six times. One citation was in a published literature review in 2017 that identified and evaluated studies that have investigated the implementation, sustainability and/or evaluation of patient-held information about medicines. The author's work was also one of only eleven publications identified (83) (see Chapter 2.4.3 where that work is described). CLAHRC NWL also wrote a blog with MMP testimonials including 'Alexander's story,' which outlines details of the case report (84). Moreover, Alexander's story was expanded as a case vignette (85) which is discussed in chapter 6 of this thesis.

This work inspired the author to contact the Down's Syndrome Association (DSA) to explore opportunities to work together; because the author believed that others with Down's Syndrome and/or a learning disability are likely to struggle with the same challenges that the author had encountered. The DSA invited the author to host a focus group afternoon with adults with DS entitled 'Visiting the Pharmacist' (86). Participants stated that they would like to have their own conversations with pharmacists, had questions that they wished to ask, and knew little about how pharmacists could help

them with their medicines. Throughout the afternoon, the author was personally impacted and convinced that these individuals needed process time in consultations and to be treated with compassion and empathy. This had been raised by an information officer at the DSA in conversation prior to the focus group. Participants were shown a copy of MMP and generally liked the tool, stating that it could provide a useful record when going to medical appointments. Following the focus group, the author approached the Pharmaceutical Journal with a request to write a learning article about appropriate communication for all pharmacists (78). This is key publication 3.

2.4.2 Article development

The author invited Lesley Grimes, LG (see Chapter 2.3.2) from CPPE to contribute her expertise in pharmacy consultations to the article. A meeting between the author and DSA staff elucidated their experience around the challenges that people with LD may face when communicating with others in all walks of life, for example financial or other health-related conversations. DSA staff were keen to co-produce the article and raise the profile of the DSA, which the author was keen to support. The DSA provide valuable background on the health challenges that those with LD may face via their website (87). The author then used the focus group findings (see above) and the discussions with DSA staff to make appropriate reference in the article to the CPPE consultation skills package (65) with the help of LG. Key clinical consultation challenges that patients with LD may face were included. The author concluded by outlining communication approaches for pharmacists to incorporate into their practice, for example allowing process time.

2.4.3 Impacts and associated outputs, including MMP publications

This publication regarding consultations with people with LD has been cited in other work and agrees with their key messages. Firstly, those with LD are not getting enough information about their medicines from doctors or pharmacists (88). Moreover, patients may not realise that they can ask pharmacists questions, who may in turn have a tendency to address parents and carers rather than the patient with LD. This issue in the author's publication was subsequently cited (89) and the point made that long consultations are not necessarily needed and pharmacists do not need to worry about getting the consultation 'wrong'.

XXXX has told the author that this publication was included in the CPPE learning disability training package because *“it is a well written paper that was directly relevant to our learners....and encourages people to explore...and start to plan a change to their practice...written from a changing practice perspective”*. (XXX, personal communication. Reproduced with permission)

Following the focus group and in discussion with the DSA, ‘My Medication Passport’ was recommended as a consultation tool by the DSA, and the author wrote an article for the DSA journal introducing MMP for those with DS and their carers to consider using in medicines-related consultations (90). The findings from the focus group also led to the DSA co-producing, publishing and promoting an online leaflet by the same name ‘Going to the Chemist’ (91). The co-production approach to ‘Going to the Chemist’, whereby service users are equal partners in development, is an important feature and supports the views of others when producing information to support patients (88). The author was invited to review the leaflet and then wrote an article about it in the DSA Journal (92). Since the launch, ‘Going to the Chemist’ has had 138 downloads as well as online views. The DSA have told the author that they anticipate the leaflet will continue to be helpful to readers. It should also provide benefits particularly when they visit pharmacists who have read the author’s article on consultation with patients with LD in the Pharmaceutical Journal.

The Royal Pharmaceutical Society (RPS) invited the author to participate in a national group producing a summary guidance card for pharmacists caring for patients with LD (93). This card was sent with the Pharmaceutical Journal to every pharmacist that is a member of the RPS, and it is part of a ‘Medicines Optimisation Hub’ hosted by them, which also refers to the author’s learning disability publication (94). The author was also invited by CPPE to contribute to a new national learning package on LD, which cited the Pharmaceutical Journal article, the author’s work with the DSA, and led to a national webinar (95) on the topic of pharmacy and LD. The author also co-wrote the foreword to the CPPE learning package, contributed to a national campaign to raise awareness of LD; including participating in a national Facebook event (96) and contributing a video with their son (97). Moreover, all of their LD publications were accepted onto CPPE’s national repository of resources for LD (98). Positive feedback was received on the author’s contribution to the learning package from the director of CPPE (See Table 1, Chapter 2.5).

Subsequently, the author supervised an undergraduate project evaluating views on the CPPE learning package which was presented at the Clinical Pharmacy Congress in 2018

(99). A key finding was that pharmacists faced communication challenges with patients with LD. The author was also interviewed for a summary online article about how pharmacists can advise and support patients with LD (100). This article also reported an encouraging development known as the 'Making Time' project (101), where pharmacists seek to give the time to patients with LD that they need. This also reflects the DSA Information Officer and author's experience of interacting with individuals with LD. 'Making time' is the type of initiative that the author would like to see promoted as an example of the RPS's medicines optimisation principle 1 (8).

The author also participated locally by representing their hospital pharmacy on a Trust-wide LD steering group and contributed their caring experience for someone with LD. The author contributed to the design and evaluation of a medicines information leaflet for patients with LD and their carers, which has been presented at conference and submitted to the CPPE repository of LD resources (102) [Please note, author was mistakenly omitted from the authorship list].

As introduced in Chapter 2.4.1, the author's BMJ case report about the use of My Medication Passport led to an invitation in 2017 to act as an expert panel group member for 'PhiMED' ('Patient-held information about medicines) (103), a large mixed-methods descriptive scheme of research with a number of work-packages, to explore the use and perception of patient-held information, given their experience with MMP. Since then, the author has contributed to group work on interpreting study findings, advising on aspects of study recruitment, and participating in the research itself. PhiMED ended in March 2019 and it has been confirmed that the author will participate as a collaborator in subsequent publications, once the key findings are confirmed. The author is responsible for NHS England's Specialist Pharmacy Services' national monthly webinars that attract over 100 listeners and many more subsequent downloads via the SPS website. The author arranged a webinar in 2019 to disseminate the PhiMED findings. Key findings are that in general, patient experience with PhiMED was positive; but no one example met the needs of all users (104). This supports with the author's BMJ case study findings (82). A key PhiMED study output was a video to encourage patients and carers to consider carrying a record of their medicines, which the author believes will be another contribution to the medication safety agenda (105).

2.5 Summary

The themes of medication adherence, patient experience and pharmacist consultations have been central to the author's clinical and educational practice, with regular publication and speaking, particularly over the past ten years. This has coincided and is similar to the drivers behind the development of person-centred care that have been outlined at the start of this chapter, and latterly the publication of the four principles of medicines optimisation by the RPS. One of the author's publications contains an interview conducted with the writer of the RPS's Medicines Optimisation guidance, Catherine Picton (CP), discussing the four key principles of medicines optimisation (106). The author asked CP about her view on the most important principle. Principle 1, 'understanding the patient experience', was stated as arguably the most important, partly because of pharmacy's traditional weakness in this area. The author believes that this supports the key messages in their own publications, academic teaching to undergraduates/postgraduates, and at conferences and meetings. All of these aim to encourage the pharmacy profession to change. It is important to note that the author's work in the areas of medication review, polypharmacy and deprescribing (Chapter 3 of this thesis) have drawn significantly on the author's expertise and experience in clinical consultation outlined in this chapter. A key example is that consultations with patients about polypharmacy and stopping medicines require elucidating patients' views and concerns about their medicines in ways that are patient-centred and empathic. This agrees with literature stating that the 'patient voice' needs to be heard in these conversations (107).

In terms of learning disability and MMP, the author has also supervised undergraduate research reviewing uptake of MMP by pharmacists across England. The Pharmaceutical Journal has in principle agreed to publish the findings, which outline how MMP has been used in situations such as LD and with older people in medicines-related consultations (108). This is important because of the wide coverage of pharmacists that this journal potentially reaches. Another recent proof-of-concept student project was the first to trial the use of MMP in special schools (109). A special school in Britain is an educational establishment that caters for the needs of children of school age with a physical or mental impairment; and the author's son currently attends one of the special schools used in the MMP study. Although small numbers were involved, the findings highlighted medicines reconciliation challenges and a lack of familiarity of school staff with the way in which

parents and carers administer medicines to their children at home. The British Association for Community Child Health have asked to see details of the project with a view to publishing the findings, which the author will aim to do in 2019.

The author has also reviewed recent national coverage of a key LD report exploring mortality in those with LD (110). The national profile around care for those with LD is increasing but the report mentions nothing about the significant risks that medicines can present in this cohort. The Pharmaceutical Journal has agreed in principle to publish an informed response to this report written by the author and their colleague who co-wrote the foreword for the CPPE national learning package on LD. This colleague has also invited the author to co-write a book chapter in 2019 covering medication and learning disability.

The author has a unique combination of experience in being both a carer for someone with Down's Syndrome-associated LD and also a pharmacist. They have sought to make a substantial contribution to initiatives to help the profession improve their standard of care for these patients and their families. Table 1 includes examples of feedback on the author's contribution to the medicines agenda with respect to LD.

Table 1: Feedback examples on the author’s contribution to the learning disability agenda with respect to medicines

Organisation	Project	Feedback
Centre for Pharmacy Postgraduate Education (CPPE)	Learning disabilities training package	“You brought two essential elements to this learning programme for us. Firstly, you brought your status. You are a well-known and highly respected professional who is part of a high level network and is recognised for excellence in consultation skills. Secondly you brought the honesty of your lived experiences. This second part was the one that really made a difference for me personally. When I watched your video in which you talked about trying to find the right ways to help Alexander take his medicines, it really stopped me in my tracks and made me ask myself how many times I may have failed to help one of my customers simply because I never stopped to check that they were ok.” (XXXX, personal communication. Reproduced with permission)
Specialist pharmacist in mental health	Forthcoming book chapter on medicines in learning disability	I have approached you as Alexander's Dad and all the expertise you have as a parent rather than in your capacity as a healthcare professional in order that that the 'voice' of people with learning disabilities is heard . The fact that you just happen to be so skilled in writing and a successful academic pharmacist is for me a wonderful added bonus. I have not asked anyone else as I thought that you would be the ideal person (XXXX, personal communication. Reproduced with permission)
Down’s Syndrome Association (DSA)	Medicines leaflet for patients with LD admitted to hospital and articles for the DSA journal	The leaflet is excellent. I think an article for the Down’s Syndrome Journal about the work you have done, the process and outcomes is a very good idea - we could use the information in a variety of ways and so can the world of pharmacy. Please let me know if or when I can show the leaflet to others (Down’s Syndrome Association)

Finally, the author has identified a potential gap in an initiative by Down’s Syndrome International to develop international health guidelines for people with Down’s Syndrome (111)(112). There appears to be little mention of the challenges that may face such patients with medicines administration and adherence and the author recommends including this as part of guideline development. The author contacted Down’s Syndrome International with examples of their own work in this area, and has now been invited to review and contribute to the international guideline with respect to medicines. The international co-ordinator commented on the author’s “extremely valuable work and insights”.

Chapter 3: Medicines Optimisation: Providing safe care: Medication review, polypharmacy and deprescribing

What this chapter is about

Chapter 2 outlined the author's work related to medication adherence and how pharmacists should interact with patients given their developing roles. Chapter 2.3.1 indicated that successful consultations with patients (which may, according to health professionals, be partly defined by improved adherence to medication) will depend on the quality of the interaction between them. In this chapter, the challenge of polypharmacy (defined below) is explored and is linked with Chapter 2 as research indicates that medication adherence can be negatively impacted by polypharmacy (113) (114). As such the author contends that the work described in this chapter can only be successful if the principles in Chapter 2 are practised, including clinicians recognising the need to explore the potential or existence of 'intentional' and 'unintentional' non-adherence (Chapter 2.2.1). The author made every effort to make patients feel comfortable in disclosing if they were not taking all of their medicines as prescribed, partly due to the burden of polypharmacy. The author will describe their work chiefly undertaken during their secondment to, and honorary post with, a National Institute for Health Research body, CLAHRC NWL (see Chapter 2.4.1). Examples of this work were shortlisted for a national award, won a local award, led to a strategic educational approach; and the opportunity to co-edit an international journal themed issue on deprescribing.

3.1. Background

An ageing population in Western societies has led to many older people living with more than one long-term health condition, which is known as 'multimorbidity'. Such patients are more likely to be prescribed a number of medicines, which is described as 'polypharmacy' and has been defined as the use of multiple medications or the use of a medication that is not indicated (115). The number of medicines taken by an individual patient that constitutes polypharmacy is not universally agreed, but the author and others in the field commonly agree with a figure of six medicines (116). Polypharmacy has been categorised as either 'appropriate', or 'problematic'. 'Appropriate' polypharmacy

recognises that the prescribing of ‘many’ medicines can be entirely appropriate in patients with several chronic conditions (117), and care is needed to ensure that such patients receive the treatment that they need. ‘Problematic polypharmacy’ is by contrast described as “the prescribing of multiple medicines inappropriately, or where the intended benefit of the medicine is not realised”. (118). In the UK, the National Institute for Health and Care Excellence (NICE) acknowledges that multimorbidity is common and is often associated with polypharmacy (118). Internationally, polypharmacy was prioritised by the World Health Organisation (WHO) in 2017 by including it as one of three priorities to be addressed as part of its ‘Medication without Harm’ challenge (119). Another priority was ‘transitions of care’ (briefly discussed in Chapter 1.9).

In order to identify patients contending with potential problematic polypharmacy alongside other medicines-related challenges, the concept of ‘medication review’ has become established in both the literature and clinical practice. This has been described as “a structured, critical examination of a patient’s medicines with the objective of reaching an agreement with the patient about treatment, optimising the impact of medicines, minimising the number of medication related problems and reducing waste” (120). Literature and guidance, developed since 2002, involve defining ‘levels’ of medication review (121) according to how in-depth a review is; and identifying outcomes. The author’s work with NIHR CLAHRC colleagues also yielded locally-accepted definitions of levels of medication review (116). Outcomes include understanding the patient experience, facilitating improved adherence, or stopping medicines. Stopping medicines has become known as ‘deprescribing’, with a variety of definitions in the literature (122). A recent definition published by the English Deprescribing Network (123) is as follows:

Deprescribing is a collaborative process, with the patient and/or their carer, to ensure the safe and effective withdrawal of medicines that are no longer appropriate, beneficial or wanted, guided by a person-centred approach and shared decision-making.

This definition matches the patient (or person)-centred imperatives outlined in Chapter 2, in terms of the need for collaboration and person-centred care. The author presents different definitions of deprescribing in their teaching of both undergraduates and postgraduates (see Chapter 3.4.2) to encourage students to critique them by evaluating whether the patient is mentioned or not. The author has found this to be an effective way of engaging students to critically consider and discuss what person-centred care actually means.

The history and development of medication review has been described (124), and for older patients, medication review is an acknowledged essential element of the 'Comprehensive Geriatric Assessment' (125). Between 2008-2015, the author developed significant clinical experience in undertaking medication reviews in their role as a senior pharmacist for older persons' rehabilitation at the Chelsea & Westminster Hospital. This included identifying problematic polypharmacy and prompting appropriate deprescribing, for example in patients similar to the exemplar case in Chapter 1.

3.2. Introduction to author involvement

Prior to 2008, the author drew on their research and publication experience in medication adherence and patient consultation (outlined in Chapter 2), to review and rationalise medication regimes for patients. This was undertaken in their role as a generalist ward pharmacist and subsequently as a specialist pharmacist for elderly medicine. The author's frequent observation was that complex medication regimes contributed to the non-adherence that patients reported during many consultations. In 2008, the author assumed responsibility for the Chelsea & Westminster (C&W) Hospital's pharmacy service to the elderly care rehabilitation unit mentioned above. Patients were admitted from a variety of settings, including acute care and referrals from GPs. The author's experience outlined above was deployed in consultations with this cohort of patients.

In 2009, C&W became host to the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Northwest London (see Chapter 2.4.1). CLAHRCs were established in England in the 2000s to foster collaboration between academia and health services to undertake applied research and translate this into clinical practice in a timely and effective manner. A 'medicines optimisation' work stream was established by CLAHRC NWL to improve prescribing for the elderly, which included tackling the challenge of problematic polypharmacy. Following the roll-out of a number of projects, including 'My Medication Passport' (see Chapter 2.4.1) and the development of a medication review tool known as STOPIT (see Appendix 17), the author volunteered to test this tool in the rehabilitation unit. This project led directly to the author's secondment to CLAHRC NWL from the Chelsea & Westminster Hospital that began in 2014 and continued until 2019.

3.3 Key publication 4: Intermediate Care [An optimal setting for review of inappropriate medication in elderly patients] (126) (see Appendix 9)

3.3.1 Background

Approaches to tackling medicines-related risk such as polypharmacy have included the development of methods and instruments to assist in the assessment of medication appropriateness (127). As part of this, a number of lists of potentially inappropriate medicines were published. An early example was 'Beers Criteria', which are guidelines developed by an American geriatrician in 1991 to try and improve the safety of prescribing medications in older people (128). A more recent European contribution was the 'STOPP' criteria (129) which may better reflect UK acute hospital prescribing patterns. The author supported a CLAHRC NWL team who used the STOPP criteria to develop their own local 'potentially inappropriate prescriptions' (PIP) list (130).

3.3.2 The elderly care rehabilitation STOPIT study

The author wanted to test whether the STOPIT tool demonstrated utility in an elderly care rehabilitation setting. Given that rehabilitation patients are often 'stepped down' from acute care settings including the adjacent hospital, or referred directly from general practitioners (GPs), the author hypothesised that these patients' medication regimes were likely to have been reviewed and not require significant further review. With support from CLAHRC NWL, the author led a five month proof-of-concept study, during which the STOPIT tool was used as part of the medication review process, undertaken during the weekly ward round involving the consultant geriatrician, registrar, foundation doctors, the pharmacist (the author) and a nurse. Five months was chosen in order to maximise the number of patients in the study. This was challenging because a typical patient stay for rehabilitation was six weeks or longer, meaning that the turnover of patients was comparatively low. The multi-disciplinary team reviewed each patient up to twice a week, using the STOPIT tool to decide whether a medication review was necessary, and utilised the author's adherence conversations with patients to guide the review and record the recommendations.

The results showed that 15/36 (42%) of patients had at least one medication stopped during their stay on the rehabilitation unit. The findings surprised the team and CLAHRC NWL because the hypothesis that these patients will have been adequately reviewed

before admission was not supported. This raised questions about the role of medication review for acutely unwell patients, and was one consideration that contributed to the development of the subsequent 'ReMAC' project (see Chapter 3.3.4).

3.3.3 Subsequent publications and impact of the research

Following publication, one patient's case from this proof-of-concept study was shortlisted as a finalist in the 'Preventing Avoidable Harm category' for the National Patient Safety and Care Awards 2014. During the presentation, the judges told the author and consultant geriatrician of their interest in the finding that rehabilitation patients benefitted from a medication review following an acute hospital stay, as was the case with most of the patients in the study. They discussed not being aware of other work that focused on medication reviews in the rehabilitation setting. Two hospitals in England asked to replicate the use of the STOPIT tool. During one enquiry the author's work was commented on as 'practical' and the STOPIT tool being more applicable than the 'more academic' STOPP/START tool that is widely cited (129).

The study team was then invited by to write an e-book of case studies based on CLAHRC NWL's medicines optimisation outputs, which included and cited the above study. The author co-led the development of the e-book which was published in 2015 (131). The publisher wanted practical case examples that the author and colleagues had encountered and clinically managed, along with learning points and principles for practice that could be utilised by readers. The author contributed three cases to the following list:

1. An elderly patient wanting to take fewer medicines (National Patient Safety and Care Awards finalist)
2. A patient with dementia taking potentially inappropriate medication
3. Stopping all but one medicine in a patient with anxiety and memory problems
4. Medication review in an outpatient clinic

Subsequently, the author led the team in considering other settings where the STOPIT tool had not been tested at the local hospital. The outpatient setting was chosen because of a lack of literature in this area. For this proof of concept study, senior medical staff collected data about medication reviews prospectively and consecutively for their older outpatients seen in clinic over a four month period. STOPIT data was recorded, including details of each patient's current medication, how the list was confirmed, and what was

stopped or altered during the consultation. Eighty-seven medication reviews were undertaken in 77 patients. In 24/101 (24%) of these reviews, a change was made to the 538 medicines recorded, and 7% of medicines were stopped. Importantly, the doctors reported that the tool was helpful in a busy outpatient setting without slowing down their activity. The author led the publication of this study (132).

In network discussions with doctors and pharmacists about these projects, the author became increasingly aware of some barriers to stopping medicines, including fears about potential clinical consequences, patient reluctance to stopping a medicine, financial incentives to dispense, or a belief that stopping a medicine initiated by someone else should not be their responsibility. This is similar to other findings about barriers in the literature (133) (134). The author experienced amongst pharmacist colleagues a more general reluctance to suggest stopping medicines, particularly guideline-recommended therapies, which has also been explored in the literature (135). The author attributes this to a lack of confidence and observations that pharmacy students and juniors are very reluctant to deviate from guidelines and sometimes lack the ability to 'think outside the box' appropriately. This led the author to publish a commentary article and blogs encouraging 'being brave' in suggesting stopping medicines where appropriate (136) (137). The author reasoned to the CLAHRC team that education of undergraduates and novice practitioners may be one way to change the culture, and the blog referenced above was co-written with a junior pharmacist and pharmacy student. This was important to the author's mission to equip pharmacists as part of the Modernising Pharmacy Careers programme described in Chapter 4.1. CLAHRC encouraged the author to explore this hypothesis and the author's work is described in Chapter 3.4. This work has led directly to the author influencing strategic changes in pharmacist postgraduate education, including the first national pharmacy postgraduate foundation programme which is described in Chapter 4.1.

The author has received a number of invitations to present their work around medication review and deprescribing, including for NHS England's Specialist Pharmacy Service (138). The WHO 'Medication without harm challenge' mentioned in Chapter 3.1 has led to NHS England establishing a 'Medicines Safety Programme' (139). An element of this is establishing a repository of good practice examples, hosted by the NHS Specialist Pharmacy Service (140). The author and CLAHRC NWL colleague Dr Vanessa Marvin,

recently submitted the STOPIT example for review and inclusion, and this has now been accepted (141). The submission specifically stated that the original and widely-cited STOPP/START criteria (129) is very long and the aim of STOPIT (Appendix 17) was to be more concise and user friendly by using major headings of medicines to review, such as those causing falls or bleeding. The tool has also been abbreviated into a handy card that fits into security badge lanyards. Inclusion in the repository is an important national affirmation of the quality of this work that has the potential to impact users nationally and beyond.

3.3.4 Review of Medication in Acute Care – the ReMAC project

Research has shown that acutely unwell patients may be admitted to hospital because of their medicines. It has been estimated that at least 5% of all hospital admissions are linked to medicines with almost half being preventable (142) (143). Work has been undertaken to mitigate this, including identifying the most likely medicines to cause admission (144), and developing tools to identify patients at risk, such as PREVENT (145) (146).

A significant CLAHRC NWL project at the Chelsea & Westminster Hospital entitled 'Review of Medication in Acute Care ('ReMAC') began in 2015, with the aim of embedding patient-centred medication reviews into routine practice in acute care across north-west London (147) (148). This was a quality improvement project using a 'breakthrough collaborative approach'. This can be described as a multi-organisational effort, using expert knowledge from different disciplines, to design and promote adoption of a quality improvement package. It encourages participation and generates energy and enthusiasm to effect change (149). The author's findings from the earlier rehabilitation study (see Chapter 3.3.2), that medication reviews may not have occurred during recent hospital stays, reinforced the need for this work to the CLAHRC medicines optimisation team. Whilst the author was not a core member of the ReMAC project described next, they contributed to the CLAHRC development of definitions of medication review in acute care and supervised the medical student project element of ReMAC that is outlined below.

The key ReMAC interventions included multidisciplinary medication reviews with patients in acute care, making deprescribing decisions where appropriate, and clearly documenting changes prior to discharge, in order to improve communication with general

practitioners and community pharmacists. An early analysis of the hospital's performance included 200 discharges of patients aged 70 or over within a three month period. Twenty-eight per cent of patients had a medication review whilst they were inpatients, and within this group and 47% had a medicine deprescribed (148).

A further development of ReMAC was the author co-supervising a medical student to collect data about medication reviews undertaken at the Chelsea & Westminster Hospital, and deprescribing information for 126 patients admitted because of a fall. The results showed that 112/679 (16.5%) of the medicines recorded on admission could have increased the risk of falls; and 30/112 (26.7%) of these falls-risk medicines were reduced or stopped through medication review. Moreover, in all cases where medication review led to the deprescribing of falls-risk medicines for a patient, a pharmacist was involved in the decision. The resulting publication is currently one of the author's most read and cited papers with nearly 140 reads on Researchgate® (116) and 23 citations to date. This study was important because few published interventions had occurred in the hospital setting (150), and citations of this work reinforce the value of pharmacist involvement in suggesting possible medications to deprescribe in general (151) and particularly falls-risk-inducing drugs (152). This work also supports other literature in recognising that older people are more prone to falls and there is a need for clinicians to know more about medicines that may induce falls, such as anticholinergic medications (153). In summary, this work has the potential for wide-ranging impact as those who read and cite it are likely to be like-minded professionals seeking to improve the management of falls-related medication reviews in acute hospital settings.

3.4 Key publication 5: A pilot survey of junior doctors' attitudes and awareness around medication review: time to change our educational approach? (154) (see Appendix 10)

3.4.1 Background

The author's secondment to CLAHRC NWL and substantive academic role provided project supervision opportunities for final year pharmacy undergraduates in the area of medication review, polypharmacy and deprescribing. The author reflected on their previous STOPIT work (see Chapters 3.3.2 and 3.3.3) in the context of the wider literature, and concluded that polypharmacy was a common problem which was not yet tackled consistently as part of routine clinical practice (133). An initial literature search by the author's first pharmacy student revealed that most of the research and publications

appeared to be aimed at senior doctors and pharmacists, with little aimed at clinical students or novices. This was a key moment in the author's thinking and reinforced their emerging view about educating juniors (see Chapter 3.3.3). This was particularly relevant since the author's other role at the time involved revising elements of the postgraduate foundation training programme for junior hospital pharmacists in London and across south-east England (see Chapter 4.3). Others have suggested that existing medical training was not adequate to equip medical students to prescribe appropriately for patients on multiple medications (155), reinforcing the author's view that culture change was needed to include educating these and other critical stakeholders such as pharmacists, and preparing them to support the mission to tackle problematic polypharmacy as they become competent to do so. Through an action-effect quality improvement method (156), CLAHRC NWL agreed with the author that research was needed into the role of junior doctors in medication review. The author therefore proposed, developed and supervised a project undertaken by a year 4 pharmacy undergraduate to survey junior doctors on their awareness of medication review and review tools. The aim was to use the findings to suggest educational approaches to improve the skills, confidence and awareness of junior doctors to contribute appropriately to the medication review process.

3.4.2 Article methodology and results

The author led a CLAHRC NWL project team in developing a questionnaire that explored self-reported awareness and views around medication review and deprescribing amongst all junior doctors in one London teaching hospital, the Chelsea & Westminster Hospital NHS Foundation Trust. A focus group consisting of senior doctors, other pharmacists, the pharmacy student and the author identified topics around which to ask questions. Topics included how junior doctors felt about reviewing medicines, who they believed should review medicines and make subsequent decisions; and awareness of medication review tools. After piloting, the questionnaire was sent to all 42 junior doctors within the hospital, with a 48% response rate. Among the findings of this preliminary study, 16/20 had never heard of medication review tools, and whilst the same proportion (16/20) stated that they were comfortable prescribing within their speciality, they were also uncomfortable in stopping medicines without consulting a senior doctor. This supports other findings, for example hospital doctors' prescribing decisions were influenced by

relationships with other team members, including senior doctors (157). Chapter 3.3.3 mentions other barriers to deprescribing. Whilst it is appropriate that junior doctors consult before stopping medicines because of a lack of experience, confidence and expertise, the findings of this work reinforced to the author the need to question how to prepare and develop undergraduates and novice clinicians to appropriately prompt a medication review from their early days of practice. The author postulated that this would make them more likely to routinely consider undertaking medication reviews when they are more senior and experienced clinicians. The author therefore developed a unique 'bottom up approach to education around medication review and deprescribing', which CLAHRC NWL adopted and supported a launch by the author at a CLAHRC NWL event in 2015 (158). This approach involved educational initiatives to raise awareness and suggesting the inclusion of relevant learning outcomes and teaching about medication review, polypharmacy and deprescribing for undergraduate and junior clinician curricula. Legitimate concerns have been raised about the use of the term 'bottom up', which may suggest that junior clinicians are 'at the bottom' of a real or imagined hierarchy. The author does not seek for the term to be applied pejoratively, but rather practically, given the earlier observation that literature appeared to be aimed at senior clinicians. The use of this phrase is not without precedent: and has been used in at least one other published educational intervention aimed at patients, rather than clinicians (159). Moreover, the necessity of education of undergraduate clinicians about medication review and deprescribing has been mentioned elsewhere in the literature at around the same time as the author's work (134) (160).

3.4.3 Impacts and associated outputs

Following the publication of this study, and the author preparing to change jobs, the author's colleagues developed training in the use of the STOPIT tool for junior doctors and pharmacists at the Chelsea & Westminster Hospital. They shared their resources to enable other hospitals in North West London to routinely train their junior doctors and pharmacists to use the STOPIT tool. This publication has so far achieved 28 citations (some of which are self-citations within related work), which the author is encouraged by given that this was a pilot study in one hospital. Citations commonly draw attention to the reluctance of juniors to stop medicines that have been started by others, which is understandable and, as stated above, often appropriate. The study was also cited by

drawing attention to junior doctors not believing it to be their responsibility to undertake medication review or deprescribing activities (161). The survey questions from this and similar studies have been used internationally, for example in Singapore (162).

As part of the 'bottom up' strategy, the author began to approach educational institutions to promote teaching around medication review and deprescribing, including each of the three university schools of pharmacy in London, the London postgraduate pharmacy Foundation School, a school of nursing and two medical schools. The author was asked for undergraduate teaching ideas and learning outcomes by a number of institutions, including Southampton Medical School and the Older Adults nursing fellowship at King's College London. Medway School of Pharmacy invited the author to rewrite their postgraduate module on deprescribing in 2017 and this work is under review by the university. King's College London runs the largest inter-professional learning programme in Europe and the author was asked in 2019 to contribute deprescribing teaching material for a novel workshop on medication review. CLAHRC NWL runs learning events three times a year and the author is regularly invited to reinforce the key points of the 'bottom up' initiative through presentation, such as CLAHRC's conviction that momentum should be maintained. The results of this engagement strategy were published in an article that formed part of key publication 6 (see Chapter 3.5) (163).

The author then took the initiative to make a case for including a competency around deprescribing within a new single competency framework for prescribers, which was led by the Royal Pharmaceutical Society (164). The author was one of two individuals who provided a deprescribing-related literature review used in the development of the framework, in which 'deprescribing' was specifically mentioned (165). The author was subsequently invited to establish regular teaching about deprescribing at King's College London's non-medical prescribing programme and a number of other postgraduate and undergraduate programmes (see the end of Chapter 4.3). An example of feedback from students was that the teaching was highly influential and will impact their outlook on deprescribing in the future.

The junior doctor study and subsequent 'bottom up' approach led to invitations from Health Education England (HEE) and NHS England (NHSE) to advise on their initiatives to educate clinicians about medication review, polypharmacy and deprescribing. In 2017, the author was asked to review a forthcoming HEE-commissioned e-learning programme on deprescribing for health professionals (166). In 2018, NHSE invited the author to join a

working group to develop a national approach to developing learning outcomes around medication review and deprescribing. The author suggested scoping existing teaching material amongst pharmacy schools and has been invited to submit the results of this work for publication in a forthcoming themed journal issue on deprescribing. This has been submitted for publication (167), and the findings suggest that polypharmacy and deprescribing are not always explicitly and universally embedded in curricula, although helpful mention has been found in teaching about the care of older people. Therefore, the author's current work is relevant and likely to influence country-wide recommendations that influence the teaching of undergraduate and novice clinicians in the future.

Finally, in December 2018, the Secretary of State for Health and Social Care requested a review into overprescribing in the NHS (168). Lines of enquiry will include addressing problematic polypharmacy, equipping GPs to challenge hospital prescribing, and empowering patients to ask more about their medicines. The author approached the review team to outline the educational imperatives for this work, and was invited to submit a summary of their work for consideration. Following this, the author was invited to join a team of facilitators for a national event in May 2019, where a large number of national stakeholders and experts reviewed the challenge of overprescribing with a view to making recommendations to the Secretary of State. The scope of this event and the presence of key decision-makers means that the outputs are likely (at the time of writing) to have far-reaching impact on future policy in the area of polypharmacy and deprescribing. Feedback from participants to the author at the event suggested that some outputs are likely to align with the author's work that has aimed to equip future clinicians in their ability and motivation to review medicines; and influence culture change so that problematic polypharmacy is less likely to occur. When polypharmacy does occur, the author's vision is that a new generation of clinicians will, as juniors, prompt the team to review medicines; and feel confident in making appropriate decisions as seniors with or without medication review tools.

3.5 Key publication 6: A themed journal issue on deprescribing (169)(170) (see table of contents in Appendix 11)

3.5.1 Background

The author's work in the area of medication review and deprescribing coincided with the polypharmacy and adherence work undertaken by Professor Nina Barnett (NB) (171) (172). Together the author and NB reflected on the opportunity to contribute to culture change that empowers pharmacists to make an increasing contribution to the medication review process, and to critically evaluate their role in the area of deprescribing. The author and NB therefore approached the European Journal of Hospital Pharmacy (EJHP) in 2015, to suggest a dedicated themed journal issue on the topic of deprescribing. The proposal was accepted, and through our co-editorship it was published in January 2017.

3.5.2 Themed issue content selection and process

With support from the EJHP editor-in-chief and their team, the author and NB identified topics for publication and potential authors. This was done through peer discussion and reflecting on the literature as well as pooling insights from conversations with stakeholders around areas of concern and gaps in knowledge. The aim was to support the publication of deprescribing issues hitherto under-represented in the literature, for example nursing perspectives on deprescribing. Barriers to deprescribing include fears on the legal position around deprescribing (173) so the author sought a pharmacist who subsequently trained as a lawyer to investigate this. Other examples of commissioned work included case studies and the opportunity for deprescribing research groups across the world to contribute their work. The guest editors were keen to gain as wide an international perspective as possible, covering different care settings, ranging from acute hospital settings to nursing homes. The editors also wished to introduce readers to as many existing medication review and deprescribing tools/approaches as possible. The themed issue contents page (Appendix 11) lists what was included.

In terms of identifying authors, active and esteemed individuals and research groups were based, for example, in Ireland, Australia, Israel, Canada and the UK. The author and NB successfully secured at least one contribution from each of these leading groups for the themed issue, all of whom encouraged the development of the issue. A Professor of Primary Care at Imperial College, who partners with NIHR CLAHRC NWL, stated that *"The themed issue is particularly noteworthy due to the international contributorship, including*

key thinkers on this topic from Australia, Ireland, Israel, and UK” (174). The author took the lead on article commissioning and manuscript revision, whilst NB led on the initial review of submitted manuscripts.

3.5.3 Outcomes and Impacts

The journal editor reported strong interest in the themed issue, which led to the author and NB being invited by the journal to record a podcast to publicise it further (175). Letters and other messages to the editor were positive and the themed issue achieved an Altmetric Attention Score in November 2017 of 15. This was a High Attention Score compared to outputs of the same age at that time, cohering with the journal’s editor-in-chief advising the author that the issues of polypharmacy, medication review and deprescribing were important.

The themed issue is also on the reading list for the non-medical prescribing programme for postgraduate pharmacists and nurses at King’s College London. In addition, it was publicised as a news item amongst King’s Health Partners shortly after publication (176), bringing this issue to the attention of one of only six academic health science centres in England.

3.5.4 Subsequent work resulting from the themed issue

The themed issue has led to a number of invitations to collaborate and contribute further work. See Table 2.

Table 2: Summary of work resulting from the author’s themed journal issue on deprescribing

Invitation from	Output	Key findings	Publication status
Professor Doron Garfinkel, contributor to our themed issue, via NB	A follow up project and publication adapting the junior doctor survey (Chapter 2.4) to compare awareness of medication review and deprescribing between medical and pharmacy students	Mixed understanding of the term ‘medication review’ and perceptions of roles that differ from practice. More taught information received on starting rather than stopping medicines	Accepted for publication in progress for Professor Garfinkel’s themed journal issue on deprescribing (177) anticipated 2020
Author’s own suggestion in collaboration with lecturer in nursing, King’s College London	Repeating the above survey adapted for nursing students at King’s College London and suggesting educational interventions	Relative lack of awareness of the concepts and the need to develop teaching on these topics	Nursing journal identified and write up planned for 2019
Age UK via colleague who co-wrote our junior doctor survey publication	Summarised the work of NIHR CLAHRC NWL on medication review and deprescribing in older adults in hospital	A UK hospital has undertaken work around reviewing medicines in a variety of clinical situations involving older people including surgery, initiating medicines and on discharge	Peer reviewed article for journal ‘Public Policy and Aging Report’ Published in 2018 (178)
NIHR CLAHRC NWL	A national conference for CLAHRCs in England to present medicines-related work	Themed issue presented as a keynote via peer presentation with NB	Conference notes published in 2017: (179)(179)
Collaborator in junior doctor survey publication	Development of consensus statements to guide actions and escalations following medication review of newly-admitted unwell older adults	Acutely unwell older adults admitted to hospital may face delay in decision-making around possible causative medicines. Agreement between doctors and pharmacists may help guide decisions	Peer reviewed article published in 2018 (180). Follow up PJ article published in 2019 (181). WHO repository submission published in 2019 (182)

The outputs outlined in Table 2 demonstrate how the author's themed journal issue has led to other outputs in the area of medication review and deprescribing; and contributing to other work that attempts to tackle research gaps or coheres with other literature. The author has also reflected positively on the interest that can result from relatively small-scale pilot and student projects. For example, the author's surveys of medical, pharmacy and nursing students were conducted by final year pharmacy students and led to discussions with peers across the country and positive feedback about how there appears to be little in the literature exploring these topics.

The consensus statement publication was cited as an example of how pharmacists can identify medications for deprescribing (183). This complimentary review described the work in detail, stating that *"This type of research is challenging, time-consuming, but extremely valuable for grey, subtle, nuanced areas of clinical practice"*. This was certainly the case for the lead writer of this publication and the author, given that achieving consensus required a significant commitment of time from the doctors and pharmacists involved (the author was a member of the expert panel). Recent work suggests the method of communication and the medium through which [medication review] recommendations are made may have a significant impact on whether or not they are implemented (184).

3.6 Summary

The author's writing, speaking and research into medication review, polypharmacy and deprescribing has raised awareness nationally and internationally of the associated educational imperatives, including the need to develop learning outcomes, teaching and other resources for students, novice clinicians and prescribers. This work agreed with the views of others, as outlined in this chapter. The author's work in this area also linked with the imperative to understand the patient experience that is discussed in Chapter 2 of this thesis. For example, Reeve *et al* emphasise the importance of patient involvement in deprescribing, stating that patient-centred care is associated with improved outcomes such as medication adherence (161). This was supported by Anderson *et al* who concurred with the findings from Reeve *et al*, and affirmed the need for a 'patient-centred deprescribing process' (134). Moreover, Vasilevskis *et al* also stated that few polypharmacy interventions consider patient-centred factors, such as convenience and cost (150). When asked about convenience around medicines taking, the author was

often told that the number of tablets to take was highly inconvenient. The number of tablets prescribed in the author's exemplar case is discussed further in Chapter 6.

Previously under-explored settings for medication review, such as rehabilitation and outpatients, as well as views from nursing have been investigated. The author is also extensively networked with national and international practitioners and researchers concerned with the global challenge of polypharmacy. This included reviewing funding applications for research into deprescribing, maintaining an honorary post with CLAHRC NWL until 2019 as part of its medicines optimisation work stream, and contributing expertise and experience to the Specialist Pharmacy Service (SPS) work stream on polypharmacy. The above-mentioned consensus statement work was accepted for inclusion in the World Health Organisation repository of good practice for medicines safety as part of a new National Medicines Safety Programme, as described in Chapter 3.5.4 and Table 2. Finally, the author's collaboration with colleagues outlined in Chapter 2.2.3 linking adherence with medication safety has the potential to strengthen and further develop the health system's understanding about the interaction between adherence, polypharmacy, deprescribing and safety.

Chapter 4: Medicines Optimisation: Making it part of routine practice through clinical education

What chapters 4 and 5 are about

In Chapters 4 and 5, the author will outline their local, regional and national contribution to clinical education and professional development within pharmacy. The author completed their Postgraduate Certificate in Education for Adults (PGCEA) in 1998 which provided the confidence and foundation to influence pharmacy education both regionally and nationally. This contribution was recognised through nominations and awards for teaching and mentoring (see curriculum vitae, Appendix 1); and most notably the national 2013 Royal Pharmaceutical Society's 'Excellence in Education' award (185) (see testimonial and other student feedback in Appendix 18). A common thread in the feedback the author has received is 'going the extra mile' for students. This is why, in Chapter 1, the author outlined how they would always seek to explain clinical decisions to the junior doctors and medical students who were present. The author always sought to find the educational value and opportunity in all of their activities, resulting in, for example the King's College London 'Socialisation Internship' (Chapter 2.3.3); and 'the bottom up approach to education around medication review and deprescribing' (Chapter 3.4.2). Moreover, in 2012 the author was appointed by the UCL School of Pharmacy as an honorary associate professor in recognition of their teaching, learning, supervision and research activity. This was linked to the author's educational role with the Joint Programmes Board (see below), and undergraduate/postgraduate roles at University College London.

4.1 Introduction

For all health professions, learning and development post-qualification is essential for keeping up-to-date and practising safely. The author has written that pharmacy is no different from the other clinical professions and pharmacists commonly undertake post-registration certificates, diplomas and higher degrees, particularly in the hospital sector (186). The purpose of these qualifications has been to expand knowledge and skills to allow pharmacists to deal with more complex cases throughout their career, as well as

providing opportunities to apply for higher grade roles. Traditionally, postgraduate pharmacy programmes were mainly classroom-based.

In the 1990s and 2000s, performance and competence issues such as the Bristol heart surgery scandal (30) (also see Chapter 2.1) gained media attention and led to introspection within the health professions around accountability and fitness to practice. Professor Ian Kennedy's resulting report (187) emphasised the need to maintain competence, performance appraisal and continuing professional development (CPD) as part of a commitment to improving the quality of healthcare. Importantly, it stated that "CPD must be part of a process of lifelong learning for all healthcare professionals". Moreover, the patient experience and involvement of patients in providing feedback on and planning services was emphasised. The author believed that this was a key milestone for the development of person-centred care and shared decision-making, which is briefly described in Chapter 2.1. The importance of lifelong learning was previously emphasised in the Secretary of State for Health's 1998 consultation document 'A first class service: Quality in the new NHS' (188).

A subsequent development within medicine was the 'Modernising Medical Careers' programme (189). This began with the introduction of a Foundation Programme, which, for the first time, required newly-qualified doctors to demonstrate their abilities and competence against set standards (190). Pharmacy published its own 'Modernising Pharmacy Careers' (MPC) programme (191), which emphasised the need for pharmacists to practice as 'clinical professionals,' ready to, for example, consult with patients (discussed in Chapter 2); and care for patients with more than one long-term condition that may involve the prescribing of a number of medicines (discussed in Chapter 3). Explicitly, MPC stated that "Medicines optimisation from registration will be a key new skill which relies on enhanced communication, influencing and motivating skills to support medicines adherence and wellbeing". The author's work was cited in the MPC document (see Chapter 5.4 which outlines their work in a regional group entitled 'Developing Educational and Practice Supervisors' - DEPS).

Leaders in pharmacy education from London believed that competency-based training was a right response to Kennedy (192), using the newly-developed 'General Level Framework' (GLF) post registration; and active demonstration of fitness to practice, particularly as part of a career development strategy (193) (194). Out of this emerged the Joint Programmes Board (JPB) for south-east England (195), a partnership between

university schools of pharmacy and NHS hospitals, who launched the first post-registration foundation programme for hospital pharmacists in the UK in the mid-2000s. The programme was given academic credits to postgraduate diploma level, and made use of the principles of work-based learning (WBL) and workplace-based assessment (WPBA) that mapped to the GLF. These concepts are outlined in the next section, 4.2. Existing WPBA tools from medicine were adapted for use in the programme.

4.2 The context of WPBA in pharmacy

The assessment of medical trainees in the twentieth century was mainly based on written assessments of knowledge, with a gradual shift towards assessing skills and competence over the last 20-30 years (196). This was in recognition that factual knowledge alone cannot be an adequate demonstration of good clinical practice (197). Medical education recognises and values practitioner development along the paradigm of Miller's Pyramid which describes awareness levels ranging from 'heard of' and 'knows about' to 'shows how' and 'does' (198). This was used by the General Pharmaceutical Council in 'standard 10' of its 2011 standards for the initial education and training of pharmacists (199); and the JPB drew heavily on these principles and medical literature to make the case for competency-based assessment in the workplace for pharmacy (193). However, competency-based assessment was controversial, with concerns that competencies were socially constructed, difficult to measure (196), and may lead to a reduction in educational content (200). One way of assessing individual clinicians against competency statements is the use of a WPBA, and this became a routine assessment paradigm in UK medical education over the last 20 years, on the understanding that WPBA should be formative rather than summative (201). The author's experience of managing WPBA in a pharmacy programme since 2008 echoes a finding within medicine that they "are not being reified as the formative assessments originally intended" (202). As in medicine, the author has encountered negative views including that WPBA are "an unnecessary set of hoops to jump through;" "difficult to achieve because of workload pressures"; and "cumbersome to use". Moreover, educational concerns around criteria such as validity, reliability and acceptability apply to WPBA use in pharmacy, just as in medicine (203); and the author also encountered persistent confusion around the difference between formative and summative assessment. Although WPBA still exists in Health Education England-funded foundation training for pharmacists (204), it remains to be seen whether it will be retained in the longer term. From years of experience using WPBA tools, the

author contends that with a comprehensive explanation, including the difference between formative and summative assessment, as well as training in the assessment tools and management of expectations, WPBA can be a powerful aid to professional development. WPBA can have a beneficial impact by allowing real-life assessment of trainees' ability to practice the key elements of medicines optimisation, including those outlined in this thesis, such as understanding the patient experience. The author has coined the phrase that "competency frameworks should be aspirational and not impositional", as a response to juniors and their tutors who felt that competencies were burdensome and 'tick box'. The author's view has been that a competency framework can identify successes and accomplishments, as well as what should be tackled next by identifying competences that have not already been covered. This view was shared with a JPB professor who agreed and encouraged the author to write it up and publish.

4.3 Summary of the author's role in foundation training

In 2008, the author was recruited via secondment part-time from the Chelsea & Westminster Hospital to the Joint Programmes Board, as the Lead for Work-based Learning Support, focusing on tutor training. This followed an invitation to join the JPB implementation steering group in 2005, having led the implementation of the foundation training programme in the author's own hospital, which was completed in 2006. As described at the end of Chapter 4.2, the senior JPB team had identified that hospitals were encountering challenges with the culture change from traditional postgraduate university-based models, to making use of the principles of WBL, WPBA and competency-based training at work. It became clear that hospital pharmacy departments needed adequate tutor training and the establishment of educational infrastructures to support this new approach, so the author was tasked with 'winning hearts and minds' of trainees, supervisors and hospital pharmacy managers as discussed earlier. Many pharmacy staff were suspicious of competency-based training and WBL/WPBA, which reflects similar concerns raised in the medical literature, such as this approach being 'reductionist' or a 'tick-box' exercise (205) (200). The author rose to the challenge of overcoming these barriers, starting with leading one of four major discussion groups (206); and beginning to write/ co-write a number of publications in the areas of WPBA (201) and self-directed learning (see Chapter 4.5) and the need for educational infrastructures (207). The author was asked to speak about educational infrastructure at a national conference (208),

which was important because for the first time, hospital pharmacy departments needed to consider what needed to be in place to support WBL and WPBA, in terms of tutors, resources of time, and appropriate practice experience for trainees.

The author led work to delineate workplace supervisory roles and responsibilities in order to bring clarity to the educational infrastructures that hospitals were trying to establish and maintain (209). The author also designed tutor training, visited hospitals across south-east England, taught learning sets, and was responsible for upskilling the pharmacy workforce to meet the requirements of pharmacy foundation training across south-east England. The author alone trained in excess of 500 supervisors and educational programme directors, many of whom are still in post to date. The author also incorporated some basic training on education into trainee learning sets to introduce them to a future role as educators in general and supervisors in particular. The author was keen to develop current trainees who were supervised by senior staff new to a revised method of supervision, into those who were comfortable with a new type of role in the workplace. The author's work had the potential to significantly impact the development of pharmacy workplace supervision, with a Professor of Education at UCL and the Joint Programmes Board describing the author as "the leading authority in workplace pharmacy education in the country". Moreover, a member of the English Pharmacy Board of the Royal Pharmaceutical Society who co-wrote the educational infrastructure paper (207) told the author that "the paper where we introduced the term 'educational infrastructure' is a seminal piece for pharmacy and was used within hospitals (a part of the Lord Carter Hospital Pharmacy Transformation Plan) and by HEE (even though they may not explicitly use our definition) in the work that they do around educational quality".

In the second half of the author's secondment from 2012, a major focus was managing the revision of the second (higher) stage of foundation training. The author engaged stakeholders in a number of hospitals to elucidate how NHS policy should inform changes to foundation training. A key finding was that trainees (hereafter referred to as 'practitioners') expressed the desire to develop an awareness of the competency clusters in the RPS Advanced Pharmacy Framework (1) such as quality, medicines safety, innovation and education, in order to secure jobs at the next grade in the hospital service. The author felt that this was appropriate (not least from a practice perspective) and they therefore led the development of learning outcome clusters entitled 'quality and safety',

‘individual & department performance’ and ‘leadership & innovation’, as a ‘bridge’ between foundation and advanced pharmacy practice. A key area included by the author was a learning outcome around medication review and deprescribing which aligned with the increasing importance of these within NHS policy; and is outlined in Chapter 3.4.3.

4.4 Key publication 7: The Acute Care Assessment Tool – Pharmacy ACAT (210) (see Appendix 12)

4.4.1 Background

Fundamental to the competency-based foundation programmes in medicine and pharmacy are the formative workplace based assessment (WPBA) tools, including the prospective mini clinical evaluation exercise (mini-CEX) and the retrospective case-based discussion (CbD) (see Appendix 19). These were originally developed in medicine and are ‘snapshot’ assessments that allow an assessor to observe performance in real time (mini-CEX) or discuss a recent case into which the practitioner has had input (CbD). Assessments typically last 15-20 minutes with five minutes of feedback provided, recorded on a short checklist proforma, based on GLF competencies, and free-text comments, all of which are discussed with the practitioner. A specified number of these WPBA are required throughout the foundation programme and are collected in a portfolio, which is subject to a summative portfolio review for the assessment requirements of the programme (see Chapter 4.4.3). See Table 3 for examples of scenarios suitable for WPBA in the pharmacy foundation programme, with a list of the assessment tools.

Table 3: Example scenarios suitable for workplace-based assessments (WPBA) in pharmacy (tools reproduced in Appendix 19)

Pharmacy WPBA type	Practice example/s or description
'Mini-CEX' (mini clinical evaluation exercise)	<ul style="list-style-type: none"> • Observe medication history taking • Observe discharge medication 'counselling' • Observe interactions with other professionals
'CbD' (case-based discussion)	<ul style="list-style-type: none"> • Retrospectively discuss a case dealt with by the practitioner, e.g. <ul style="list-style-type: none"> ○ Prescription review ○ Identification of a medicines-related problem
'DOPS' (direct observation of practical skills)	<ul style="list-style-type: none"> • Like mini-CEX but observing practical skills, e.g. <ul style="list-style-type: none"> ○ Extemporaneous manufacture ○ Dispensing ○ Accuracy-checking complex items such as medication compliance aids
'mini-PAT' (peer assessment)	<ul style="list-style-type: none"> • 360 degree feedback from colleagues and supervisors • See Chapter 4.6
'MRCF' (medication-related consultation framework)	<ul style="list-style-type: none"> • Like mini-CEX but used exclusively to assess consultation skills with patients
'Extended intervention'	<ul style="list-style-type: none"> • Written account of a care contribution for a specific clinical case

The author regularly undertook summative portfolio reviews for practitioners as a member of the JPB core team, and became concerned that whilst the use of snapshot tools was invaluable, there was no method to explore performance over a period of time that was longer than a snapshot clinical encounter. A tool, if it existed, would begin to support a judgement that medicines optimisation was being embedded in daily practice, with behaviours being observed and trends identified. The author reasoned that a new type of assessment tool could explore skills such as time management and dealing with stress and prioritisation, for example on a ward pharmacy visit. The author drew up a diagrammatic representation of the foundation pharmacy programme assessments using a 'wagon wheel' (210) (reproduced in Appendix 20), and used it to approach local hospital pharmacy Educational Programme Directors (EPDs) for comment. They agreed that although snapshot assessments were useful, observations over a longer time (e.g. 30 minutes) would be helpful, for example, where a practitioner was operating in a section such as the dispensary, or on a hospital ward. The author asked their local hospital medical director for advice, who highlighted a published assessment tool in medicine

known as the Acute Care Assessment Tool (ACAT) (211). This has been used by, for example, consultant anaesthetists to observe their registrars running an anaesthetic list, or by medical registrars to observe their juniors manage an acute medical 'take'. With this information, the author decided to develop a pharmacy equivalent and approached EPDs, some of whom agreed to collaborate with testing a pharmacy ACAT, the first known of its kind in the literature (shown in Appendix 19).

4.4.2 Study outline

With permission from the Joint Royal Colleges of Physicians, the author used the original ACAT and existing pharmacy WPBAs as templates for drafting a pharmacy ACAT. The medical scoring system was replaced with pharmacy GLF competencies, some of which featured in existing snapshot assessments, along with others included that would be relevant for an observation over a longer time period. Pharmacy ACAT was piloted in a small number of trainees employed by three London hospitals with a feedback form developed for practitioners and their supervisors to complete as part of the pilot. A second version of pharmacy ACAT was developed for more senior pharmacists and was piloted in the author's own hospital, as part of a local continuing professional development initiative.

Feedback from trainees and their supervisors about appropriateness and utility suggested that pharmacy ACAT added value to the existing assessments by observing practitioners over a longer time period. The developmental feedback provided by supervisors after each ACAT observation was reported as being applicable in practice by practitioners. The pilot was also helpful for identifying an optimal observation period (15-20 minutes), which was helpful for managing the expectations of assessors who have their own clinical priorities to balance with their educational obligations.

4.4.3 Impacts and associated outputs

An unintended benefit of this article was the wider dissemination of the 'wagon wheel' of WPBA tools (Appendix 20), which was reported by supervisors to be helpful in clarifying the following: the differences between summative and formative assessment; that the subjectivity of formative assessment is acceptable if there is a range of assessors and a range of assessments; and how a complex assessment scheme such as the JPB programme, set across academia and the workplace, can fit together. However, a

common question that the author consistently encountered, was how formative WPBA can be included in a summative portfolio of practice. This tension was acknowledged elsewhere (203), where formative WPBA is described as having a 'summative influence'. In a sense this might be perceived as an irreconcilable tension, but enquirers often reported being helped by the author's explanation and wagon wheel, which sets each element of assessment in its place; and illustrated that the tools were formative but the portfolio review discussion was summative. Importantly, the author always emphasised in tutor training that the core value of WPBA was the discussion between assessor and trainee about the clinical encounter discussed. This agreed with other views, for example that *"the value of directly observed student-patient interaction lies not in (the inherently flawed) scores but rather in the rich narrative feedback that stimulates a meaningful discussion between students and clinical supervisors"* (212). The author wholeheartedly agreed with this assertion and consistently taught this to supervisors and practitioners at every available opportunity.

NHS Education Scotland is currently interested in adopting pharmacy ACAT, and although indirect, a recent American development of a prospective workplace-based assessment tool in medicine (the 'e-CEX') cites the pharmacy ACAT article as demonstrating the value of the mini-CEX tool within pharmacy (213). The JPB itself now recommends Pharmacy ACAT as a WPBA tool for their entire foundation programme. Hospital pharmacists have accepted it as an optional, rather than mandatory tool, which was disappointing for the author; although feedback suggested that it is still a well-used tool within pharmacy departments. The lower-than-expected uptake suggested that whilst the tool is useful in theory to observe practice over time, in practice, such is the pressure on time for training in the health service, the workplace environment has perhaps reached its resource limits for training and assessment.

4.5 Key publication 8: Developing a culture of self-directed learning in pharmacy (214) (see Appendix 13)

4.5.1 Background

During the author's first year on secondment to the JPB, workplace supervisors in the local NHS became more vocal in their concerns about the philosophy of self-directed learning (SDL) that was promulgated as key to the pharmacy foundation programme. In many conversations, the author was warned by supervisors that there is no assurance of

learning unless teaching from more experienced colleagues occurs and that the foundation programme was fundamentally flawed. Negative sentiments like this began to filter down from trainers to practitioners, which risked undermining the integrity of the programme. The author decided that a response was necessary by surveying the literature, exploring similar challenges faced by medicine, and publishing an article that could be used for reference that could also be used for tutor training. The author reflected that with hindsight, the JPB may have been better served by identifying and acknowledging potential misconceptions about SDL from the outset of the programme.

4.5.2 Prioritising the contents of this publication

The author consulted medical colleagues at a medical foundation training conference who confirmed that similar concerns have been raised by trainers in that profession. Highlighting published work in the *British Medical Journal* (215), the author was encouraged by colleagues to remember the value of learning in the workplace and how SDL relates to that. By drawing on Malcolm Knowles' assumption that adult learners are independent and self-directed (215), the author initiated and chaired a small working group to discuss the relevant issues, with the aim of establishing a pharmacy-specific definition of SDL. The group were able to review some of the literature around SDL and to challenge some existing definitions. One description was that SDL is about the learner engaging in learning activities identified by themselves, requiring motivation and skilled behaviour (216), the latter of which foundation trainees have not yet developed due to inexperience. It became clear to the author that a definition of SDL that can be used to train stakeholders in the foundation programme needed to relate to the 'how' learning should occur, rather than 'what' should be learned, the latter of which is set by the university in partnership with the NHS. 'How' learning can occur can take many forms, ranging from lectures and workshops, to work-shadowing, reading and peer review. The author's view supported other work which stated that the 'what' to learn should be non-negotiable (217). Following this, the author then identified that JPB programme documentation did not make it clear that SDL was about the 'how'. Whilst this was unintentional, it became clear to the JPB team that earlier identification and communication of this distinction would have been helpful to stakeholders. Feedback on the author's tutor training incorporating this explanation was positive. Many supervisors and practitioners have told the author that this has been a 'eureka' moment. The author's resulting article was then published in 2009.

4.5.3 Impacts and associated outputs

The published article was immediately cited in a JPB update report to the Higher Education Funding Council for England (HEFCE) who had provided seeding funding for development of the foundation programme. The author also incorporated a specific 40-minute training session within a one-day tutor training programme, based on the article. This training was delivered in hospitals across the south-east of England between 2009-2015, serving many hundreds of tutors. Feedback forms were completed for this tutor training. These consistently indicated that considering the 'how' rather than the 'what' is to be learned definition of SDL was helpful to them. The author's peers were also reassured that self-directed learning required partnership with the hospital by providing a supporting infrastructure, the author's notion being cited by Gammie (218). The author was subsequently invited to contribute the SDL teaching and publication to a Master's level programme in advanced pharmacy practice at University College London, where educational theories were included in a module on education, training and development. The author still assesses MSc assignments and this publication is regularly discussed and cited in candidates' assignments. Finally, a PhD student who was evaluating elements of the foundation programme approached the author for informal support and has been mentored by the author since 2018, with the agreement of the PhD supervisor (see Chapter 5.5 for further details). Feedback from the student and their supervisor suggested that the author had been very helpful in providing the history around decision-making in the foundation programme and in particular being able to explain many of the political and philosophical challenges.

4.6 Key publication 9: Use of a multisource feedback tool to develop pharmacists in a postgraduate training programme (219) (see Appendix 14)

4.6.1 Background

Peer assessment was described as a process where participants of a similar status or experience evaluate the performance of their peers and give quantitative and/or qualitative feedback (220). Research has shown that it can help to improve clinical performance and has been widely used within medicine. For example, peer assessment was originally used in medicine to assess practising physicians' oral communication skills, teamwork, and problem-solving abilities from the perspective of others. The use of peer assessment from multiple sources for junior doctors in the UK (defined here as 'mini-PAT' as it is an abbreviated version of an original tool (221)) was established through

Modernising Medical Careers. Mini-PAT was evaluated (222) (223) with conclusions that in medicine, this approach can be practical, valid and reliable. The author was familiar with the concepts having led their local pharmacy department's response to the introduction of medical mini-PAT, by training pharmacists to contribute to the process for the doctors they work with, and publishing a national article to help other pharmacy departments (224). The JPB programme adapted mini-PAT for use in pharmacy foundation training from the outset (see item 5, Appendix 19). Practitioners nominated several assessors who confidentially complete a 10 minute online assessment, commenting on competencies that they should have met, as well as writing free text comments. A self-assessment was also included. Following evaluations of the pharmacy mini-PAT (225) (226), the retrospective study outlined below was designed by the author's colleagues to be the first to review use of the pharmacy mini-PAT on a larger scale in assessing performance over time.

The author became aware of the study during a team meeting and suggested to their colleagues how the findings could be used to engage with hospital staff that complete these assessments. At times, practitioners had reported difficulty in getting agreement from their tutors to complete them. The author was therefore invited to participate in the project group and assisted in the write up of this publication by drafting the context and background sections and interpreting the results and their application to practice.

4.6.2 Article methodology and key findings

Electronically-submitted mini-PAT data was collected during the time period 2007-2010. Data included assessors' assessment ratings of practitioners, practitioners' own self-assessment ratings, professional details of assessors and dates of assessments. The data was then analysed by the lead researchers. Particular note was made of the sequence of mini-PATs so that trends over time for each practitioner could be observed. Coding of assessor roles in terms of profession and seniority allowed for analysis of trends between different professions and their grade. The data was also categorised according to the different competency clusters used in the mini-PAT, in order to compare performance between them.

The results yielded nearly 10,000 assessments and 146,000 ratings by assessors. There was an overall significant improvement in junior pharmacist performance over the length of the foundation programme as rated by both assessors and practitioners, whilst junior

pharmacists tended to rate their performance significantly lower than their assessors (see Figure 1 in Appendix 14). The strongest competency performance was in areas such as communication, professionalism, and teamwork, with lower scores for clinical knowledge and handling information. Pharmacy assessors tended to rate practitioners significantly lower than other professionals did. This matches the findings from an earlier cohort of pharmacy foundation trainees (226). In discussion with supervisors, the author postulated that practitioners tended to rate themselves as just 'meeting expectations' for each competency, in order not to 'lose face' if an assessor score was lower. Supervisors in conversation invariably agreed with the author, who incorporated these discussions into interactions with and teaching for practitioners, some of whom confirmed that they did not want to be seen to rate themselves higher than their assessors. Research also suggested that self-assessment accuracy amongst junior doctors may be unreliable, with internal conflicts between wishing to understand how their performance was rated by seniors, whilst wanting to portray themselves as knowledgeable and confident (227). Other work suggests that junior doctors rate themselves lower than their seniors (228). As such, self-assessment may be strategic and influenced by social contexts and interactions with the teacher (212).

4.6.3 Impacts and associated outputs

The author was able to use the results and this publication to update the tutor training provided by JPB, in order to assure workplace supervisors of the value of mini-PAT to both the employer and practitioner. The author was empowered to encourage practitioners to avoid trying to manipulate their self-assessment in order not to 'lose face'; and to develop tips to share on the interpretation and feedback provided by supervisors. The tool remains central to the foundation programme. This study was cited by others, including by the General Dental Council as they explored potential supporting evidence for assurance of practice in that profession (229). Little has been written about peer assessment (sometimes known as 'multi-source feedback' (MSF) within nursing, but one study suggested that there was value in the role of self-assessment as part of the professional development process (230).

During the author's secondment to the JPB, the Royal Pharmaceutical Society (RPS) assumed responsibility nationally for foundation training and mandated the use of mini-PAT within foundation programmes. The author acted in an advisory capacity to the RPS

as part of the decision-making for the structure of foundation training, and this key publication was submitted to them as part of the evidence for the use of mini-PAT and how it works. Mini-PAT became a mandated part of foundation training accredited by the RPS (231).

4.7 Summary

The author's seven-year secondment to the Joint Programmes Board allowed a significant contribution to be made to the culture of post-registration pharmacy foundation training in south-east England, with influences extending nationally and internationally. The author played a leading role in changing the culture around WBL and WPBA, taking the lead in areas including SDL, educational infrastructure, tutor terminology and the understanding of workplace based assessment. An example of international influence was the author's tutor training being adapted for delivery in Iceland in a programme modelled on that developed by the JPB. The author's contributions around mini-PAT and acute care assessments continue to be used and ten years on from the start of the secondment, change has been embedded and taken forward nationally by the Royal Pharmaceutical Society, who used the author as a consultant, for example in media around the appropriate use of WPBA (232) (233) (234). A Department of Health White Paper in 2008, two years after implementation of the JPB programme, stated that pharmacy training needed to change so that pharmacists are competent to develop their role. The JPB model provided an opportunity for practitioners to make medicines optimisation part of routine practice through the demonstration and assessment of safe medicines use and understanding the patient experience. In Chapters 2 and 3 of this thesis, the author outlined their contribution to some of the beneficial outcomes of medicines optimisation such as medication adherence and tackling polypharmacy. Many of these contributions happened concurrently with the author's educational roles, which allowed them to positively influence the JPB curriculum by ensuring that some of these outcomes were included. An example is the inclusion of a practice-based deprescribing learning outcome in the latter part of the JPB programme, which was popular with students and workplaces alike. The author was encouraged that in some ways and in spite of political and philosophical challenges, the JPB approach was ahead of its time with respect to WBL, WPBA and the development of workplace supervisors.

Chapter 5: Medicines Optimisation: Supporting safe practice through professional and personal development of healthcare staff

5.1. Introduction

In Chapter 4 of this thesis, the author outlined background information to the developing requirement for health professionals to keep up-to-date in order to practise safely. Reference was made to the Kennedy report into the Bristol heart surgery scandal (187) and his emphasis on the need to maintain competence, engage with performance appraisal and continuing professional development (CPD) (188). This was part of the notion of ‘fitness to practise’ within an emerging patient safety and revalidation agenda. The author then outlined their own contribution to the competence and work-based learning imperatives in pharmacy arising from outputs such as the Kennedy report.

Over time, ministries of Health, healthcare regulators, and professional bodies across the world have been advocating CPD as a strategy that leads to better health outcomes (235). Moreover, the ability to reflect effectively has been described as an important attribute of competent health care professionals (236), and over time this has become a requirement for CPD and revalidation within the health professions, including pharmacy. A consequence of this has been to encourage the use of reflective practice in health education. Proponents of this suggest that reflective practice encourages learning from experiences and may support the integration of knowledge with the “ambiguities of practice” (237). Mandatory CPD was made a requirement of pharmacy’s code of ethics in 2009, with a subsequent statutory requirement made in 2010 (238). This was broadly supported by the profession (239) and the author has acted as a CPD facilitator for pharmacy staff both locally and regionally over many years, as well as volunteering for national pilots for mandatory CPD recording. Revalidation for pharmacists was implemented in 2018 (240).

The author qualified as a pharmacist in 1991 as the move towards implementation of CPD recording gathered pace within pharmacy. The author also trained as a teacher in the mid-1990s and was impacted positively by learning about the value of ‘significant incident’ analysis in teaching. David Tripp’s well-known textbook on critical incidents in teaching (241), studied during the author’s Postgraduate Certificate in Education, prompted the author to extend this learning about reflection from education to their own

clinical practice and encouraging their trainees to do the same. This led directly to the author becoming the first accredited clinical supervisor in their hospital who was a pharmacist (242). This is a common practice in nursing where clinical staff can discuss and 'unpack' incidents in their practice as part of professional development and in order to restore and debrief. The author, during their counselling training, also received frequent (clinical) supervision for their client base. In this chapter, the author will outline their contribution to the CPD agenda within pharmacy, including publications around their work in developing healthcare staff in the areas of reflective practice, CPD training and developing senior pharmacy staff capable of educating and developing their juniors and students.

5.2 Summary of the author's work in reflective practice and continuing professional development

5.2.1 Contribution between 1998-2007

The author was working as a joint appointee between the NHS and academia in 1998 when the regional body for pharmacy education and training in London at the time (London Pharmacy Education & Training – LPET; reference no longer available) invited lead pharmacists for education in London to train their staff locally in reflective practice and CPD. The author developed reflective practice teaching and workshops in their own hospital and was subsequently invited to contribute this to LPET's regional training. The author's expertise in CPD was then used by their hospital to support the implementation of the national 'Knowledge and Skills Framework' (KSF) (243). This professional development framework was implemented for all NHS staff except doctors and senior managers across the NHS, and consisted of competency elements known as 'core dimensions' and 'specific dimensions', each of which contained a number of indicators. The KSF was intended to provide a facilitative framework for personal and professional development of NHS staff that could identify learning and development needs specific for a particular job role. KSF was also intended to be used at appraisal to evaluate performance against the dimensions contained within the outline. Producing KSF outlines required a detailed understanding of job roles by local leads for implementation across Great Britain. The author produced KSF outlines for their local pharmacy department that pharmacy managers confirmed were accurate and demonstrated appropriate selection of dimensions for each job role. This resulted in the author being invited to undertake a hospital-wide advisory role to other departments in writing their own outlines, which

involved discussions with departmental KSF leads in order to help them to identify which dimensions should be included in their KSF outlines. This activity led to the author initiating and managing the publication of the local experience and advice for other NHS organisations using the KSF (244). The KSF is now used less within the NHS but the author deems the experience invaluable because of the opportunity to critically evaluate job roles and the knowledge and skills required to undertake them.

5.2.2 Contribution between 2006-2015 – The Joint Programmes Board

In Chapter 4, the author outlined their role in making fundamental contributions to the structural development of the first postgraduate hospital pharmacy foundation programme in Great Britain. The author's core role included developing local educational infrastructures to support work-based learning and assessment in hospitals in south-east England. This included championing the link between workplace development and CPD, since the author had experienced a perception that staff saw a dichotomy between the two. When being asked for advice on completing CPD records for the regulator, it often didn't occur to staff to use their workplace development experience. The author therefore co-wrote a publication about CPD, concluding that "CPD in the form of lifelong, self-directed, work-based learning, leading to a transparent demonstration of competence, is important for practitioners to embrace at an early stage of one's career" (245). This reflects previous key government imperatives acknowledging in particular the role of work-based learning in CPD (246). Following the publication of this article and the publication on self-directed learning (see Chapter 4), the author was invited to contribute to a discussion piece in a widely-read pharmacy journal encouraging pharmacists to make use of reflective practice (247). This provided the opportunity to encourage senior pharmacists to model reflective practice to juniors, which was a key element of CPD within foundation pharmacy training. The author's substantial contribution to the development of foundation training led to invitations to collaborate on projects leading to the key publications and outputs in this chapter.

5.3 Key publication 10: Book chapter: Reflecting on Teaching and Learning in Healthcare (248) (see Appendix 15)

5.3.1 Background

An invitation in 2010 to co-produce a book chapter recognised the author's increasing influence in the area of pharmacy workplace education, supervision and facilitation. The Pharmaceutical Press contacted the JPB and commissioned an international group of leading pharmacy educators to write a book aimed at healthcare staff from non-teaching backgrounds who are expected to facilitate the learning process in healthcare disciplines. Chapters covering topics such as teaching and assessment strategies and designing course material were written to help readers understand common educational concepts, and to reflect and improve upon their own teaching practice. As well as supporting the editor in managing the development and review of chapters, the author was asked to co-write a chapter with Dr Sue Jones (SJ), a pharmacy colleague holding a PhD in CPD. The chapter brief was to support new clinical educators, who may be experienced clinicians, in applying material from previous book chapters and also to reflect on their dual identity as clinicians and teachers.

5.3.2 Chapter rationale and key elements

It was recognised in the literature that hospital consultants who teach should strive to improve their teaching skills, acknowledging the importance of relevant training for hospital teachers (249). The author and SJ agreed that this was imperative to help readers of our book to recognise the challenge of being an expert clinician whilst at the same time needing to develop as a novice teacher and gain relevant training. It was also recognised that many clinicians who educate have never been taught to teach, supervise or assess students (250). A particular emphasis in this book chapter was made on how clinician's views of their own educational competence could impact their teaching. The author and SJ shared their own experience of being new clinical educators and what it was like trying to train students and juniors to be competent clinicians, whilst sometimes feeling insufficiently competent at teaching. These reflections prompted the author to ensure that some basic concepts around reflection and reflective practice were included, and that practical tips and appropriate references were provided. In order to support readers' reflections, the author included the 'confidence vs. competence' model (original reference from book chapter no longer available), which suggested that there is a relationship between the two. In addition, the author had previously sought to apply

Donald Winnicott's notion of being a 'good enough' parent (251) (252) to being a 'good enough' practitioner (253), the point being to encourage novice clinical educators not to set an unrealistic self-standard of perfection in their teaching, but to allow themselves to learn and develop as teachers, just as they had previously done as clinicians. This principle was applied to clinical teaching in the book chapter.

5.3.3 Impacts and associated outputs

Soon after the release of the book, a national pharmacy journal unexpectedly published an abridged version of this book chapter in a journal article (254). Dr Jones and the author were unaware of this until publication, and upon contacting the journal editor to thank them, the author was told that the driver for publication was to share more widely the need to avoid an 'identity crisis' when assuming the dual role of clinician and educator. Subsequent reviews of the book itself were positive and feedback included commendations around the helpful use of self-disclosure in sharing personal reflections about our own journeys to becoming clinical educators.

A significant output from this work was the author's pioneering work with SJ and others in leading the development of a nationally accredited recognition programme for pharmacy educators. The driver for this was an existing non-pharmacy 'Statement of Teaching Proficiency' (STP) at King's College London (reference no longer available). This was a programme offered to university teachers to develop their role through a combination of face-to-face teaching and the development of a portfolio. One of the author's JPB managers was also a professor at King's. Having recruited the author in 2008 to the JPB in order to ensure that the development of a robust postgraduate foundation pharmacy programme was matched by appropriate tutor training (see Chapter 4.3), a tutor recognition scheme was seen as the next logical step. In 2013 the author and SJ, based on their experience from a 'Developing Educational and Practice Supervisors (DEPS) working group (see Chapter 5.4.1) and other work such as this book chapter, developed a pharmacy-specific STP programme. This was under the auspices of King's College London. With SJ, the author led an expert panel to develop the programme, which included face-to-face training over one day and the development of a short portfolio based on competencies from the education competency cluster of the RPS Advanced Pharmacy Framework (1). The one-day face-to-face event allowed an introduction to some key educational theories, work-based learning and assessment principles, role-modelling and

peer-observation of teaching. The author led on the development of the aims of the programme, which were derived and adapted from a similar programme developed for doctors (255). The STP team agreed with the author that time should be given to reflect on the importance of good quality tutoring and mentoring, which was influenced by the author's counselling training and experience (see Chapter 2.2.3).

The STP was launched by the author and colleagues in 2014 and became the first nationally accredited recognition programme of its kind by the Royal Pharmaceutical Society in 2016 (256). The JPB evolved into the 'Joint Pharmacy Foundation School of King's College and University College London', accredited by the Royal Pharmaceutical Society; and the STP became an official offering of the joint foundation school. To date the STP has supported several hundred pharmacy educators through the initial stages of the programme, mainly but not exclusively from London and the south-east of England. The potential impact of this programme is significant judging by the quality of written reflections that the author has seen during portfolio assessments. These reflections commonly describe candidates thinking critically about their role modelling, and valuing peer observations of teaching as part of receiving feedback on their teaching and assessment. The programme could reach many hundreds of pharmacy tutors in the future.

5.4 Key publication 11: Development and piloting of a competency framework for pharmacy educational and practice supervisors (257) (see Appendix 16)

5.4.1 Background

The author's work in the field of foundation training came to the attention of one of the JPB partners, the Head of the NHS Pharmacy Deanery for Kent, Surrey and Sussex, Gail Fleming (GF). The author and GF reflected that there was little in the literature concerning the ideal skills, attributes and knowledge for a pharmacy tutor. This led the author and GF to establish a working group known as 'Developing Educational and Practice Supervisors' (DEPS) in 2009. DEPS' principal task was to design an accreditation and quality assurance framework for pharmacy trainers and tutors and seek to influence the Royal Pharmaceutical Society in its new leadership role in pharmacy foundation training. The following sections outline the streams of work that emerged from the DEPS project. DEPS was specifically cited in the landmark 'Modernising Pharmacy Careers' programme document of 2011 (see Chapter 4) as a practice example of focusing on the importance of workplace tutors.

Firstly, the author took the lead in an early project to standardise tutor terminology, with a migration towards the term 'supervisor' instead of 'tutor' (209). The author recognised that pharmacy development programmes used different terms such as 'tutor' or 'facilitator', without clear justification for the use of different terms. Moreover, the author reasoned that aligning pharmacy workplace terminology with medicine, the JPB having emulated that profession's use of workplace-based assessment tools, could support doctors and pharmacists assessing each other's trainees, as suggested by the author's earlier publication encouraging pharmacists to undertake mini-PAT assessments for junior doctors (224). See Chapter 4.6.2.

This work stream on terminology facilitated the delineation of roles and responsibilities for different types of pharmacy supervisor. This allowed the DEPS group to start work on developing a competency framework for the different types of pharmacy supervisors, which could be used alongside other existing pharmacy frameworks such as the Advanced Pharmacy Framework (1).

5.4.2 Framework development

Following the author publishing the DEPS pharmacy tutor terminology paper, roles and responsibilities were defined in consultation with DEPS stakeholders and with reference to published roles in other professions, including nursing and medicine. Existing pharmacy frameworks were examined by the group for alignment and it became clear that none of them had the necessary level of detail to assess competence in specific tutor roles, including one emerging pharmacy educator framework (258). This convinced DEPS of the merits of a dedicated tutor framework and the author was tasked with co-opting expertise to develop one. The co-writer of the reflection book chapter described in Chapter 5.3 (SJ) joined DEPS and secured expert input from an academic with expertise in concept mapping, which was a tool that the author had no prior experience of. A concept map is a diagram containing different concepts and the links connecting them represent the relationships between these concepts (259). The author organised and collated DEPS members' views on what they believed to be appropriate competencies for different aspects of pharmacy tutoring. The external expert, with SJ, developed the framework for pharmacy supervisors. The author then arranged the piloting of the framework and the collation of feedback. Feedback was mixed, with some expressions of what the author

described as 'framework fatigue' with respondents expressing the sentiment 'not another framework!' However, the content was not disputed.

5.4.3 Impacts and associated outputs from the author's DEPS work

The author's suggested tutor terminology was adopted by the JPB and subsequently the UCL School of Pharmacy (260). Health Education England (HEE) for London and the south-east of England have also followed suit (261). As a result of this work, the term 'supervisor' was acknowledged as an alternative term to 'tutor' in the Royal Pharmaceutical Society (RPS) draft standards for tutors (262). This led to the author being invited to provide advice on behalf of the DEPS group and JPB to advise the RPS for their national establishment of pharmacy foundation schools, as part of their advisory role described at the end of Chapter 4.6.3. The author advised on the development of accreditation standards for foundation schools and guidance on training for tutors/supervisors. The influential 'Modernising Pharmacy Careers' programme was mentioned in Chapter 4.1 (191) and the DEPS work was specifically outlined with mention made of the efforts made to support and further develop the pharmacy tutor workforce. It also reproduced the tutor terminology outlined in the publication described in Chapter 5.4.1 that was led by the author.

Below is a testimonial from spring 2019 by a leading pharmacy educator who has been working with XXXX:

"Currently HEE (London & South-East - LaSE) is working on revising both the Practice Supervisor and Education Supervisor (ES) frameworks and I have been tasked to map our KHP STP with the DEPS and HEE multi-professional framework (MPF). My observations about the HEE DEPS in particular is that it was filling a gap in the educational infrastructure where we, as a profession, had nothing in place to ensure a standardised approach to the development of pharmacy education supervisors. HEE KSS always required their ES's to be trained according to the DEPS and HEE LaSE commissioned a company to deliver online training based on the DEPS framework as they had nothing else to go on. The feedback from the profession in London in particular was the training was too detailed and took too long to complete (up to 6 months) and HEE are now revising the framework.

My personal view is that the content of the framework is really good although the language needs to be reviewed to make it in line with other professions' frameworks (such as the HEE MPF and the Association of Medical Educators - AoME) so that it is less pharmacy-centred. There are some clusters which have too many competencies which could be moved into a curriculum section so that the framework itself remains high level with the detail elsewhere.

There is an opportunity here to line up Educational Supervisor frameworks into one framework which could be taken up by both HEE and the RPS which is where our Statement of Teaching Proficiency [see Chapter 5.3.3] comes in. Our ultimate goal should be to use the DEPS, STP, MPF and others to have one framework which is recognised by HEE, RPS and all of the pharmacy schools for when we have 'learning in practice' supervisors, as part of the revised process for registering pharmacists (GPhC initial education standards for Pharmacists) which are recognised by all. Your initial work laid the foundations for this by developing the DEPS framework”.

(XXXX personal communication. Reproduced with permission)

The author also participated in a mapping exercise of the DEPS competency framework to the pharmacy Advanced Level Pharmacy Framework, which was subsequently published (263). This exercise demonstrated transferability to different geographies and sectors of pharmacy, and led to the framework being used to accredit both pharmacists and pharmacy technicians in a wide range of specialist roles within the Kent, Surrey and Sussex region.

Finally, in 2015 the author was asked to co-supervise a Masters-level student project exploring the necessary qualities of a pharmacy workplace tutor. The author contributed the history of workplace pharmacy tutoring over the last ten years to inform the project and potential experts to contribute to a Delphi-style exercise (264) to elucidate the qualities. Sixteen national experts agreed on 20 important qualities, which support the literature from other professions. Examples of coherence include good communication and also knowledge (medicine) (265); character, competence and communication (dentistry) (266); and communication and role-modelling (nursing) (267). This work has been presented at a 2019 pharmacy education conference (268).

5.5 Mentoring and PhD supervision

Over the course of the author's educational practice, many requests for mentoring have been received, typically at study days where the author has been a speaker. Due to workload the author has been unable to proactively offer themselves as a mentor but typically endeavoured to follow up requests with at least one telephone conversation. Requesters typically affirm the author's reputation in this area. The author has also benefitted from a long-term peer-mentoring relationship with Professor Nina Barnett (NB), which led to the publication of their key experiences in 2011 (269). This in turn led to an invitation from the Royal Pharmaceutical Society (RPS) in 2012 to perform a conference 'live play' of a typical peer mentoring session (270). Feedback received

focused on the openness, authenticity and honesty that was displayed by the peer-mentors, along with modelling what the audience felt were helpful mentoring behaviours, such as reflecting back, asking questions; and largely being non-directive (271). The RPS were not aware of any previous 'live' work similar to the author/NB's having been presented in such detail before. Subsequently, the RPS asked to film further peer-mentoring sessions that are now hosted on their website as examples of good practice (272). The author had ideal experience to teach pharmacy educators about mentoring in the 'Statement of Teaching Proficiency' programme (Chapter 5.3.3), linking the importance of mentoring with recognition through the Royal Pharmaceutical Society using the Advanced Pharmacy Framework (273).

Finally, the author was asked in 2017 by their immediate superior, a Professor of Clinical Pharmacy, to be a lead supervisor for a PhD in the area of clinical decision-making, an under-researched area within the pharmacy profession. The PhD student was also a colleague and clinical lecturer at King's College London. At the time of the request, the author reminded the professor that they did not currently hold a PhD. The author was reassured that, in the opinion of King's College London, the author's credentials were sufficient and the author had previously stated an ambition to be a PhD supervisor. The PhD in 2019 reached the transfer viva stage, and at the time of writing remains in progress. The author was also approached in 2017 to support a PhD candidate exploring the results of assessments in the JPB foundation programme (assessments are outlined in Chapter 4.5.3). This support was instrumental in ensuring that the context of foundation training and the history of assessment is included in the write up. The lead PhD supervisor was keen for the author to assume a formal co-supervisor role.

5.6 Summary

The author's passion for developing people in the workplace and the classroom over 25 years has provided the opportunity to suggest and share good practice through publications in the areas of CPD, reflective practice, mentoring, tutoring/supervision and professional recognition. Key outputs were adopted by the Royal Pharmaceutical Society and the Joint Programmes Board, and continue to be used nationally. For example, the resources section of the current RPS tutor guidance (274) contains seven of the author's publications as additional reading.

The responsibility and privilege of developing professionals included the author's work outlined in Chapters 2, 3 and 4. A common theme was the author's desire to change culture by educating 'bottom up' and to equip students and trainees to gain experience of future imperatives in medicines optimisation, such as medication review and adherence support. In the exemplar case described in Chapter 1.9, the author outlined how they would explain the relevant decision-making to the junior doctors and medical students on the ward round. On one occasion, two junior doctors expressed their motivation to the author to explore this further, culminating in them contributing to and co-presenting a poster presentation about the junior doctor survey described in Chapter 3.4 at a national conference (275). The RPS national 'excellence in education' award nomination in 2013 specifically mentioned the author's desire to develop others. The author believes that their training as a teacher and counsellor and their life experience have contributed to their skills, qualities and ethos that have led to local and national recognition. It was encouraging to be recognised for educating directly, and influencing indirectly, the education of many healthcare staff to care well for their patients and to develop themselves at the same time.

Chapter 6: Summary of research methods; evaluation of thesis aims; and conclusion

The title of this thesis is ‘Medicines optimisation: a pharmacist’s contribution to delivery and education’. The author’s original working title of “Equipping stakeholders to deliver Medicines Optimisation using a collaborative approach” (see Appendix 5) was a helpful starting point, but the themes of delivery and education have become more prominent this process. Therefore, this thesis describes in detail key publications as well as other published outputs, resulting from a professional journey of delivery and education in areas of pharmacy practice that are now located within the concept of medicines optimisation.

6.1 Summary of research methods represented within the key publications in this thesis.

A range of research methods have been applied to the key publications in this thesis. For each research study the method was selected to align with the circumstances of the relevant work. For example, observational quantitative research was undertaken in key publication 1 (39), whilst the author used dialogic and collaborative methods to produce key publications 8 (214) and 10 (248). Some publications were developed in collaboration with academic partners and leaders in the field, which allowed the author to engage in deeper learning about the principles of research and publication.

It is important to note that the key publications in this thesis were not undertaken sequentially. This sometimes limited the opportunity for the learning from some publications to be applied to subsequent outputs, particularly where the genre was different. However the author has focused on building expertise in multiple methodologies and is now confident in using a range of tools.

Table 4 outlines the methods used for the key publications contained in this thesis. Barriers and/or limitations, with suggestions for improvement, are indicated in the final column (italicised) and discussed further in Chapter 6.1.1. The author’s contribution to each publication is summarised in the author verification descriptions in Appendix 3.

Table 4: Methods, rationale and comments for key publications in this thesis

Key Publication	Summary of methods used	Outputs obtained	Rationale and barriers or limitations
<p>Horne R., Sumner S., Jubraj B., Weinman J., Frost S. 2001. Haemodialysis patients' beliefs about treatment: implications for adherence to medication and fluid-diet restrictions. <i>International Journal of Pharmacy Practice</i>, 9 (3), pp.169-175 (Appendix 6) (39)</p>	<p>Observational quantitative research. Consecutive sampling. Beliefs about Medicines Questionnaire (BMQ) (4 and 5-point scales) Questions about adherence on consecutive sample (5-point Likert scale),</p>	<p>Tabulated scores with standard deviation, comparison using Spearman's rank correlation</p>	<p>Appropriate for identifying data without affecting outcome. Patients could complete the questionnaires during treatment a session. BMQ is a validated tool. <i>Limitations: self-report is a limited measure of adherence; this was a small sample size</i></p>
<p>Jubraj B., Barnett N.L., Grimes L., Varia S., Chater A. and Auyeung V. 2016. Why we should understand the patient experience: clinical empathy and medicines optimisation. <i>International Journal of Pharmacy Practice</i>, 24(5), pp.367-370 (Appendix 7) (57)</p>	<p>Dialogic and collaborative Document analysis</p>	<p>Narrative from conversations between colleagues combined with literature review to create a thought paper</p>	<p>Method of documenting the synergy between health professionals' conversations as concepts develop in their application to pharmacy. <i>Limitation: Could be developed and expanded through a survey of patients and professionals</i></p>
<p>Jubraj B., Deakin A., Mills S., Grimes L., January 2016. Pharmacy consultations with patients with learning disabilities. <i>The Pharmaceutical Journal</i>, 296, No 7885 (Appendix 8) (78)</p>	<p>Document analysis; focus groups; brief literature review; collaborative qualitative research</p>	<p>Narrative combining dialogue between peers and insights from focus group</p>	<p>Utilising existing Down's Syndrome Association resources to identify key issues for families in pharmacy consultations. Brief literature review used to develop collaborative research piece. <i>Limitation: A larger focus group would strengthen the reliability of the initial findings</i></p>

Key Publication	Summary of methods used	Outputs obtained	Rationale and barriers or limitations
Saheb M.A., Jubraj B., Bovill I., Kuo S. and Marvin V. 2014. Intermediate Care. <i>Geriatric Medicine</i> , 44, pp.13-17 (Appendix 9) (126)	Mixed-methods observational and quantitative research using consecutive sampling over 5 months. Rehabilitation facility- based	Numbers of medicines stopped and number of times STOPIT medication review tool used in medication reviews in this cohort	Exploration of utility of STOPIT tool in practice. <i>Limitations: The small sample precluded more detailed data collection or analysis. Qualitative analysis of free text comments could have been undertaken using coding to establish themes for a larger dataset</i>
Jubraj B., Marvin V., Poots A.J., Patel S., Bovill I., Barnett N., Issen L. and Bell D. 2015. A pilot survey of junior doctors' attitudes and awareness around medication review: time to change our educational approach? <i>European Journal of Hospital Pharmacy</i> , 22(4), pp.243-248 (Appendix 10) (154)	Observational quantitative survey research using online tool. Questions created from focus group themes	Descriptive statistics, Ordinal data (responses to questions) presented graphically	Allowed collation of views from a variety of health professionals in a short space of time. <i>Limitations: Qualitative analysis of free text comments could have been undertaken using coding to establish themes if more time had been available (student project)</i>
Jubraj B., Barnett N.L. (guest eds). 2017 Themed issue on Deprescribing. <i>European Journal of Hospital Pharmacy</i> . January 2017, Volume 24 Issue 1 (Appendix 11) (170)	Case studies, literature reviews, observational quantitative studies and dialogic collaborative narrative texts from a number of worldwide researchers in the issue	A themed issue presenting literature and data to develop the readers understanding of the deprescribing agenda	To share current practice and thinking internationally between communities involved in aspects of medicines optimisation. <i>Limitations: Selections of topics and authors based on known contacts rather than inviting interest or randomly selecting</i>

Key Publication	Summary of methods used	Outputs obtained	Rationale and barriers or limitations
<p>Jubraj B., Patel S., Naseem I., Copp S. and Karagkounis D. 2017. The acute care assessment tool: 'Pharmacy ACAT'. <i>The Clinical Teacher</i>, 14(3), pp.184-188 (Appendix 12) (210)</p>	<p>Descriptive quantitative method, Qualitative data collected not interpreted.</p>	<p>Number of respondents agreeing to statements, examples of free text response statements</p>	<p>To discover whether the ACAT tool could be used in practice. <i>Limitations: Further analysis could have included qualitative analysis of free text comments interpreted using coding to establish themes. Gaining consent from other participants would have increased the sample size for analysis</i></p>
<p>Jubraj B. 2009. Developing a culture of self-directed workplace learning in pharmacy. <i>The Pharmaceutical Journal</i>, 283:47-48 (Appendix 13) (214)</p>	<p>Dialogic and collaborative; brief literature review; document analysis</p>	<p>Narrative from conversations between colleagues combined with literature review to create a thought paper</p>	<p>Method of documenting the synergy between health professionals' conversations as concepts develop in their application to pharmacy. <i>Limitations: for a similar publication in future could widen the pool of expertise</i></p>
<p>Davies J.G., Ciantar J., Jubraj B. and Bates I.P. 2013. Use of a multisource feedback tool to develop pharmacists in a post-graduate training program. <i>American Journal of Pharmaceutical Education</i>, 77 (3), Article 52 (Appendix 14) (219)</p>	<p>Retrospective quantitative observational cohort research, using descriptive statistics</p>	<p>Comparison of pharmacist performance over time; assessor and pharmacist scores; inter-professional ratings</p>	<p>Data used to identify statistically significant differences in performance over time and assessments between professional groups. <i>Limitations: A repeat study could help to overcome risks of bias in student mis-selection of raters and misinterpretation of competency statements</i></p>

Key Publication	Summary of methods used	Outputs obtained	Rationale and barriers or limitations
<p>Jones S.C., Jubraj B. <i>Reflecting on teaching and learning</i>. 2012 (book chapter (see references for details) (Appendix 15) (248))</p>	<p>Dialogic collaborative research leading to narrative which includes extracts from qualitative interviews</p>	<p>Book chapter with examples and reflection questions</p>	<p>To educate readers on the benefits of reflection, using short explanatory narrative and examples from nurses and pharmacists in practice. <i>Limitation: Could widen the use of experts and supporting literature</i></p>
<p>Jones S.C., Fleming G., Hay D., Ibrahim M., Pettit M., Wright E. and Jubraj B., 2012. Development and piloting of a competency framework for pharmacy educational and practice supervisors. <i>Pharmacy Education</i>, 12 (1):14-19 (Appendix 16) (257)</p>	<p>Action research: Qualitative analysis of output from focus group using concept mapping and thematic analysis. Quantitative analysis of questionnaire developed from concepts.</p>	<p>Concept maps and resulting themes with illustrative quotations. Descriptive statistics from questionnaire</p>	<p>Mixed methods approach allowed use of qualitative data to inform development of questionnaire with quantitative output. <i>Limitation: Should validate the framework, preferably with national cohorts of supervisors</i></p>

6.1.1 Reflections on methods, barriers and limitations outlined in Table 4

Table 4 allowed the author to reflect on the methods, barriers and limitations in their key publications over the course of their professional and personal journey throughout nearly 30 years of pharmacy practice. For example, key publication 1 (39) enabled the author to learn how to develop and deliver questionnaire studies, which was invaluable experience deployed in, for example, key publication 5 (154) and other research examples (177) (268). A powerful example of how the author's research and career journey culminated in a particular output is key publication 6, an international themed journal issue on deprescribing (170). In the author's role as joint editor, they used the knowledge and experience of research methods gained throughout their career to appropriately evaluate the worldwide submissions for inclusion, which included providing feedback on the limitations and areas for development. Indeed, Table 4 contains examples of the author's research experience which match the different types of submissions for the themed journal issue.

Table 4 also allowed the author to reflect on some of the limitations of their publications and barriers to making further progress with individual pieces of work. For example, key publications 1 and 5, with associated outputs (177) (257) involved undergraduate or postgraduate projects where students were available for a finite time period, limiting, for example the amount of data that could be collected. This barrier has taught the author that student projects, whilst invaluable, will frequently act as pilot studies that should be explored further and on a larger scale with more time and greater data collection. Moreover, key publication 4 (126) illustrated the challenge of data collection in environments where there is low patient turnover, which limits the potential for data collection. Key publication 3 (78) showed that undertaking research with vulnerable individuals, in this case learning disability, may involve communication barriers that need to be accounted for when designing data collection tools. The author has developed their skills to overcome these challenges to produce their key publications that continue to be cited by others in the wider literature.

6.1.2 Plans for personal development related to Table 4

The author's personal development with respect to Table 4 relates to their ambition to implement their learning in future research and other publications. For example, an undergraduate student study was supervised by the author with nursing students as

subjects. The aim was to follow up the author's survey with medical and pharmacy students about their knowledge and awareness of medication review and polypharmacy (177). The author's project supervision for the nursing project demonstrated improved direction provided to the student and team in a number of areas:

- Improving the standard of questionnaire items, including coding (see limitations in Table 4, key publication 5)
- Anticipating issues around consent (see limitations in Table 4, key publication 7)
- Greater awareness of bias in self-report type responses (see limitations in Table 4, key publications 1 and 9)

Chapter 6.1.3 outlines the next work streams that the author is planning for. With respect to shared decision-making (SDM), a recent essay outlined some barriers that have slowed the progress of embedding this in doctors' practice (276). The author has informally surveyed pharmacists about this at a national network event. A substantial follow-up piece of research to explore whether the barriers are similar for pharmacists would be an invaluable addition to the primary literature; and an opportunity for the author to lead and develop this work which would be their most substantial yet. It will be able to draw on all the learning outlined in Table 4.

6.1.3 Plans for future work

The World Health Organisation's 'medication without harm challenge' (119) will remain an important driver for improvements in medication safety into the 2020s. NHS England's Specialist Pharmacy Services (SPS) (52) are hosting some of this work in that country and the author's work in medication adherence, medication review, polypharmacy and deprescribing continues to attract attention within SPS and its partners. As discussed in Chapter 2.2.3, the author has discovered an opportunity to link non-adherence with medicines-related risk, and will shortly be leading the writing of a paper on this link. This will require the use of literature review skills and the development of robust survey instruments.

The Secretary of State for Health's mission, initiated in 2019, to reduce overprescribing (Chapter 3.4.3) demonstrates the government's commitment to tackling polypharmacy, with NICE and CPPE beginning national work streams in the area of SDM. The links are becoming clearer between SDM, medicines-related risk and the responsibility of

pharmacists to actively engage with these person-centred principles. The author is beginning to support primary care network pharmacists nationally in their NHS work and is emphasising that pharmacists are largely not used to SDM and need to see it in medicines-related consultations as their responsibility and not leave it to someone else. A lack of SDM can lead to the risk of patient dissatisfaction which can, for example, increase the risk of intentional medication non-adherence. This thesis will provide key reflections to inform the author's future work in these areas.

With respect to education, the pharmacy regulator, the General Pharmaceutical Council, has been consulting on revising their standards for the initial education and training for pharmacists. Their proposals include greater integration of academic study and workplace experience, and the need to improve communication skills (277). This thesis demonstrates that the author has been engaged in all of these topics and has the opportunity to use their work to further influence change, for example through their teaching, speaking and writing.

6.2 Aims of the thesis revisited

The aims of this thesis, outlined in Chapter 1.10, will now be revisited. The author's contribution to the medicines optimisation agenda over their career will be summarised, and a published case vignette written about the author will conclude this thesis as it summarises their philosophy and approach to the delivery of care, associated education, and expressing this through publication.

Aim 1: Demonstrate that the author's body of published work:

- a. Coheres with, and in some cases predates the definitions and goals of medicines optimisation found in Chapter 1.3 and 1.4
- b. Broadly aligns to the Royal Pharmaceutical Society principles of medicines optimisations 1 and 3 (see Figure 1)

Table 5 summarises how Chapter 2 of this thesis describes the author's publications that predate and particularly match RPS medicines optimisation in principle 1. It also summarises how the author's work in Chapter 3 aligns with RPS principle 3.

Table 5: Some of the publications and publication themes in this thesis mapped with the goals, challenges and principles of medicines optimisation described in Chapter 1

<p style="text-align: center;">Medicines optimisation:</p> <ul style="list-style-type: none"> • Goals (Chapter 1.4) • Challenges (Chapter 1.9) • Principles (Figure 1) 	<p style="text-align: center;">Publications or themes</p>
<ul style="list-style-type: none"> • Goal: <ul style="list-style-type: none"> ○ Avoid taking unnecessary medicines • Challenges: <ul style="list-style-type: none"> ○ Non-adherence ○ Polypharmacy ○ Need for patient involvement in decisions • Medicines optimisation principle: <ul style="list-style-type: none"> ○ No 1: Understand the patient experience 	<p>In Chapter 2, the author’s published work on medication adherence and clinical empathy highlighted the importance of acknowledging patients’ beliefs about medicines and the need to build relationships with them in order to have better consultations. Some of this work predates the term ‘medicines optimisation’. Factors that can lead to non-adherence include polypharmacy, which the author outlined in Chapter 3. Vulnerable patients, such as those with a learning disability, and older patients can be helped through a tailored approach to consultations and tools like ‘My Medication Passport’. The written articles, blogs and videos demonstrated the author’s vision for all pharmacists to recognise these imperatives.</p>
<ul style="list-style-type: none"> • Goals: <ul style="list-style-type: none"> ○ Avoid taking unnecessary medicines ○ Improve medicines safety • Challenges: <ul style="list-style-type: none"> ○ More older people living with >1 long term condition ○ Polypharmacy ○ Deficiencies in the safety of medicines • Medicines optimisation principle: <ul style="list-style-type: none"> ○ No 3: Ensure medicines use is as safe as possible 	<p>In Chapter 3, the author described their published work in identifying and supporting particularly older people at risk of problematic polypharmacy and falls. The use of medication review tools was described and other publications highlighted that these risks can be increased during transitions of care between settings, such as on admission to hospital.</p>

Much of the author's work outlined in Table 5 is seen in their approach to managing cases such as the exemplar patient outlined in Chapter 1.9, where the author mapped the thesis chapters to the medicines-related challenges described in the relevant NICE guidance (5). The NICE challenges overlap with the goals and principles of medicines optimisation and the author consistently sought to resolve these types of medicines-related problem with their patients. It was not uncommon, following the author's person-centred consultations, for patients to disclose that they were feeling much happier, pleased to be taking fewer medicines, "seeing the point" of taking those that remained; and feeling much more in control. In the National Patient Safety Award presentation described in Chapter 1.9, the judging panel were also interested in the fact that we had reduced the relevant patient's pill burden by almost 3000 tablets per year at an annual cost of £100. If extrapolated to many thousands of patients, this is likely to have a significant economic impact; and the author used this example to illustrate the importance of cost-benefit aspects of medication review in their teaching.

The author has reflected through this thesis that their thinking around adherence and the need for pharmacists to develop their consultation skills predated the published descriptions of medicines optimisation. This was in common with other writers, who believed that RPS medicines optimisation principle one (understand the patient experience) is arguably the most important for the pharmacy profession at this time. This encouraged the author primarily because it demonstrated that medicines optimisation was an evolving concept and that it was possible to develop it further, as outlined in the author's proposed definition outlined in aim 4 below.

Finally, through the author's research into the views of juniors and students about medication review and deprescribing (see Chapter 3), they were able to suggest educational approaches to support these aspects of medication safety.

Aim 2: Develop the scope of principle 4, to demonstrate that making 'medicines optimisation part of routine practice' should include appropriate education and training approaches, which the author has championed through their publications

In Chapter 1.4, the author stated reservations about the RPS explanation of medicines optimisation principle 4 (8). No direct mention was made of the need for educating staff, students or patients as part of making medicines optimisation part of routine practice. The author's 'bottom up approach to education around medication review and

deprescribing' (see Chapter 3.4.2) was an example of how the author initiated an educational change intended to influence the delivery of a key aspect of medicines optimisation. This was achieved by key publication 5 (154) which led to a number of other publication outputs including papers, posters and conference abstracts (158) (163)(167)(177).

Aim 3: Demonstrate that their body of published work has positively impacted clinical and educational practice that relates to principles of medicines optimisation

As well as the 'bottom up approach' outlined above, the author described their approach to caring for patients like the exemplar case in Chapter 1. The rehabilitation unit consultant ward round typically included the author, nursing staff, junior doctors and medical students. The author, as with all of their clinical activity, routinely made a point of explaining their rationale and decision-making to these stakeholders, highlighting the need for them to consider the NICE challenges (5) when dealing with similar patients in the future. In Chapters 4 and 5 of this thesis, the author described their work in developing staff and students with the intention of equipping them to deliver the goals, principles and challenges related to medicines optimisation in their future practice. For example, the author used their educational influence to include relevant learning outcomes on medication review in foundation training for pharmacists, described in two publications (163) (167) (Chapter 4.3). Chapter 4.7 also described how workplace-based assessment (WPBA) allowed practitioners to demonstrate safe practice, in real time, with their patients. The author's publication describing the importance of WPBA (201) led to their involvement in the development of key Royal Pharmaceutical Society resources.

Chapter 5 outlines how the author worked to support more established practitioners with their own professional growth, for example in a publication describing key aspects of continuing professional development (245). Additional publications were aimed at senior staff who develop others, for example tutors (214) (209) (224) (248). It has been said that "the education of junior doctors is vital to ensure the safe management of our patients in the future" (249), and that "a poor surgeon hurts one person at a time but a poor teacher hurts 130" (265). The author's contribution in this area is summarised by their belief that education and development underpins the fitness-to-practice and competence agendas, as described in their publication that took the form of an opinion piece (207). As such, in order to understand the patient experience (see medicines optimisation principle 1 and

Chapter 2 of this thesis) and to make medicines use as safe as possible (see principle 3 and elements of Chapter 3), the education of students and juniors (see Chapter 4) together with equipping of their seniors and tutors (see Chapter 5), is essential in the author's view.

Aim 4: Reflect on whether a more unifying definition of medicines optimisation can be recommended (see Appendix 5 where the author stated this as an intention)

At the outset of this thesis, the author aimed to explore the possibility of developing a more unifying definition of medicines optimisation, to address concerns about RPS principle 4, whilst maintaining an awareness of existing descriptions in Chapter 1.3. The concept has generally been described rather than being tightly defined, and the descriptions vary according to different writers. Through the writing of this thesis, the author has concluded that a modified version of the definition offered by NICE (5) could be offered as follows [modifications in brackets]:

“Medicines optimisation is defined as a person-centred approach to safe and effective medicines use, [supported by appropriate education of all stakeholders], to ensure people obtain the best possible outcomes from their medicines”.

Aims 2 and 3 above are key to the author's rationale, because of their belief that principle 4 should be more clearly defined and include educational imperatives. These views have been published and delivered at conferences (154) (158) (163) (167) .

Educational imperatives should then be added to an existing clear and concise definition that includes the essential elements of person-centeredness, safety, effectiveness and best outcomes. In discussion with a pharmacy Professor XXXX, the author received the following feedback on this recommendation:

“..frame it as a recommendation though, rather than being ‘proved’ [for what it's worth it has massive face validity with me and I can't imagine anyone disagreeing!]”.

(XXXX, personal communication. Reproduced with permission)

The author agrees with this view, based on some representative examples from this thesis describing the need to underpin improvements in practice with education:

1. The professional development implications of the Bristol heart surgery scandal as part of clinicians maintaining their competence (Chapters 1 and 4)

2. The educational responses to the Francis enquiry into poor standards of care at mid-Staffordshire hospitals (Chapter 2)
3. Junior clinicians not being aware of medication review tools that can support deprescribing decisions until they were taught about them (Chapter 3)

6.3 Conclusion

The author's principle career focus has been to provide direct patient care and educate the workforce in order to care well for their patients and to develop themselves. Although the author's focus towards the start of their career was not originally education, research or publication, they began to publish their work in the 2000s in order to share good practice and out of personal interest. Such was the feedback received and the author's motivation, they increased and accelerated their publication outputs according to their roles and secondments at different stages of their career journey (see timelines in Figure 5).

The author has achieved over 150 citations of their work (not including self-citations) and many of these are for small-scale research projects or practice-based publications. This encourages the author to share the message with the pharmacy profession that publication of smaller projects can achieve a positive impact on students, colleagues and ultimately patients, at a time when pharmacists struggle to engage with this important research role that they should have as clinicians, as mandated by the existence of the research cluster of the RPS Advanced Pharmacy Framework (1).

Finally, the following vignette from a recent publication (85) was an example of how others perceive the author's approach to identifying, communicating and disseminating ideas to improve care. The vignette is written by the author's colleagues at CLAHRC NWL (see Chapter 2.4.1) and relates to the use of 'My Medication Passport' (which was described below as 'the innovation') that was outlined in Chapter 2.4. These colleagues have observed at first-hand how the author has sought to build working relationships and actively identify ideas that may improve the delivery of medicines optimisation. The author was said to have identified "at least" two different sorts of peer community. Another community influenced by the author is undoubtedly educational stakeholders.

Vignette: Advocates for patients who live with learning disabilities

This vignette is based on publications highlighting the role and experiences that one person who described himself as “carer, parent, patient and health - care professional (pharmacist)” and the influence he had on others. He was an advocate for the use of the innovation and he published a case study about his own use of MMP to support the care of his son who has multiple disabilities including a learning disability.

By publishing the case study and outlining the context in which the innovation was useful and through the publication of an additional article written for a broader audience with learning disabilities, at least two different sorts of peer community were influenced via peer and third sector networks.

First, professional networking between the author of the publication and colleagues within his own workplace influenced pharmacists and paediatric staff. Second, peer - peer influence engaged paediatric services for patients with learning disabilities in a London hospital where MMP was extensively used. A poster about that service's use of the innovation was shown at a conference attended by peers in 2016.

Third, through personal experience of a third sector advocacy and support network, the author of the papers referred to above communicated effectively with the wider learning disability community. This was, demonstrated by a nationally recognized organization which endorsed the use of the innovation and made it available via their website to its users.

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This vignette, the sentiments of which could be applied to many of the key publications in this thesis, epitomises the author’s core career philosophy, which has been to identify and publish opportunities for improving patient care, the education that underpins it, professional development for those who deliver it, and to do this in a way that is supportive, encouraging, compassionate and empathic.

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Appendix 1: Curriculum Vitae updated to June 2019

Minus publication list (see appendix 2)

Please note:

In sections 3-5, where attainment against the Royal Pharmaceutical Society Advanced Pharmacy Framework (APF) is mentioned, please see appendix 3 for further details.

Curriculum Vitae:
Barry Jubraj, BPharm (Hons), MSc, DipHe, PGCEA, MCPP, FHEA, FFRPS, FRPharmS

1. Personal details

- Date of birth: 19th December 1967
- Contact details: 78 Norbiton Avenue, Kingston-Upon-Thames, Surrey, KT1 3QP
- Home telephone: 020 3673 2881. Mobile: 07968 786052
- Next of kin: Rosemary Jubraj (wife)

2. Career summary

In a career spanning 29 years, I am uniquely trained as a pharmacist, teacher and counsellor. I am a highly experienced clinician and clinical educator who is well-respected and recognised as a leader in pharmacy education. My achievements have been recognised and rewarded through Fellowship of the Royal Pharmaceutical Society, the RPS Faculty and the Higher Education Academy. I have won awards and published widely in the fields of pharmacy practice, education and practice-based research.

3. Clinical experience

- Mastery (Consultant) level expert professional practice (RPS Advanced Pharmacy Framework, APF) in elderly care rehabilitation pharmacy and patient consultation
- Specialist clinical experience: Adult intensive care/renal pharmacy
- General clinical experience: General medicine, general surgery, day surgery, care of the elderly, HIV/GUM, liver disease
- Clinical services manager, leading a team of ward pharmacists

4. Educational experience

- Mastery level in cluster 5 (education) of the APF
- Undergraduate pharmacy education as a lecturer, tutor, facilitator and MPharm programme director
- Postgraduate pharmacy education: co-developer of foundation training, tutor accreditation, tutor development and MSc teaching
- A highly experienced mentor, facilitator and provider of pastoral care
- Wide ranging experience of educating other health professionals at undergraduate and postgraduate levels
- Leading an education and training pharmacy team

5. Research and publication experience (see below for publication list)

- Mastery level in cluster 6 (research) of the APF
- Adherence and health beliefs
- Medication review, medicines optimisation and 'deprescribing'
- Educational supervision
- Work-based learning and workplace-based assessment in the clinical setting
- Consultation skills and empathy

6. My 'firsts'

- Co-developer of the first known competency framework for pharmacy supervisors
- First to co-author a definition of 'self-directed learning' in the pharmacy context
- One of the first wave of RPS Faculty Fellows
- Co-developer of the first RPS-accredited accreditation/recognition scheme for pharmacy tutors
- First to articulate and publish a strategy to educate undergraduate and foundation doctors and pharmacists about medication review and de-prescribing
- First to co-edit an entire journal themed issue on deprescribing

7. Professional Qualifications

1990: B Pharm (Hons), King's College, University of London

1992: Certificate in Pharmacy Practice, School of Pharmacy, University of London

1994: MSc Clinical Pharmacy, School of Pharmacy, University of London

1995: Teaching & Learning Module, University of London

1997: City & Guilds Further & Adult Education Teachers' Certificate, City Literary Institute

1997: City & Guilds NVQ D32 Award, City Literary Institute

1998: Postgraduate Certificate in Education (Adults), University of Greenwich

2008: Dip HE in Theology & Counselling, London School of Theology, Middlesex University

8. Registration, accreditations, memberships, and fellowships

1991: Member of the Royal Pharmaceutical Society of Great Britain (Membership no: 85271)

1994: Member of the Renal Pharmacy Group (until 2007)

1997: Accreditation by the Staff and Educational Development Association

2000: Member by Practice, College of Pharmacy Practice

2000: Fellow of the Higher Education Academy

2001: Honorary Lecturer, King's College London

2010: Member of the Royal Pharmaceutical Society (post RPSGB)

2010: Registered with the General Pharmaceutical Council (Registration no: 2038921 – post-RPSGB)

2012: Honorary Associate Professor, School of Pharmacy, University of London

2012: Fellowship of the Royal Pharmaceutical Society

2013: Fellow of the Faculty of the Royal Pharmaceutical Society

2015: Visiting Senior Lecturer, King's College London

2016: Visiting Senior Lecturer, University College London

2018: Visiting Fellow, Kingston University

9. Awards and shortlistings

2012: Inaugural winner of Chelsea & Westminster Hospital 'Educator/Mentor of the year' award

2013: Royal Pharmaceutical Society 'Excellence in Education' Award winner

2013: Chelsea & Westminster Hospital Council of Governors Quality Award winner

2014: Developing a medication STOPIT tool, with a focus on the elderly rehabilitation setting

(Jubraj B, Bovill I, Abdul-Saheb S, Kuo S, Marvin V. Patient Safety and Care Awards:

Preventing Avoidable Harm. Finalist www.patientsafetyandcareawards.com)

10. Current Posts

From December 2018:

1. Associate Director, Medicines Use & Safety Division, Specialist Pharmacy Services (www.sps.nhs.uk) (0.4 WTE)

Key responsibilities include:

- Responsible for network events (face-to-face and webinars), particularly related to the WHO medication without harm challenge, see: <https://www.who.int/patientsafety/medication-safety/en/>
- Strategic vision and leadership to deliver service improvements, wide dissemination of innovation, implementation support, and the development of indicators which support the monitoring of performance improvement
- Facilitate and encourage collaboration on medicines optimisation and pharmacy services across England.

2. Clinical Senior Lecturer (Medicines Optimisation), King's College London (0.3WTE) until end July 2019

Key responsibilities:

- Professional lead for MPharm (Master of Pharmacy) year 1
- Module lead for 'Principles of Clinical Care' module
- Undergraduate and postgraduate teaching, including MPharm and independent prescribing
- Assessment for all programmes
- Personal tutor

11. Previous posts

November 2015 – December 2018: Clinical Senior Lecturer in Medicines Optimisation, King’s College London (0.8WTE), and Honorary Pharmacist for Medicines Optimisation, NIHR CLAHRC NW London

Key responsibilities (King’s College London) – as above as well as the following:

- MPharm programme director
- Marketing and outreach
- Admissions tutor
- Acting senior tutor
- Module lead for MPharm 2 nervous system module

2003-2015: Chelsea & Westminster Hospital NHS Foundation Trust, with secondments:

Primary employer: Chelsea & Westminster Hospital NHS Foundation Trust

Core role	Secondment 1	Secondment 2
Lead Pharmacist for Academic studies (0.2 WTE)	Lead for Work-based Learning support, UCL School of Pharmacy (0.4WTE)	NIHR CLAHRC for NW London Pharmacist for Education and Research (0.2WTE)
<ul style="list-style-type: none"> • Educational Programme director (diploma) • Learning disability group • Weekly consultant ward round (supporting discharge) 	<ul style="list-style-type: none"> • Provision of training and other resources to develop supervisors and educational infrastructure associated with postgraduate foundation training • Development of accreditation of postgraduate pharmacy supervisors • Associate Director for a number of hospital Training Centres • Programme contribution: assessment, support of hospitals, curriculum and assessment design • Publication of good practice relating to work-based learning (WBL), workplace-based assessment (WPBA) and the development of WBL supervisors • External representation and publication 	<ul style="list-style-type: none"> • Focus on medicines optimisation • Research into stopping potentially inappropriate medicines in elderly patients • Development of educational strategies around medication review and de-prescribing for novice practitioners • Engaging universities, NHS bodies and Royal Colleges around education in medication review

2001-2003: Principal Pharmacist for Education & Training, Chelsea & Westminster Hospital (0.8WTE):

- Clinical commitment, elderly care
- Management of Certificate/Diploma/International MSc courses
- Co-ordination of medicines-related training to Trust staff, including doctors, nurses, allied health professionals and patients
- Management of rotational pharmacist training scheme
- CPD facilitation

1998-2001: Teacher/Practitioner, King's College London/Chelsea & Westminster Hospital

Key responsibilities – King's College (0.5 WTE):

- Undergraduate module leadership
- Lecturing and formative/summative assessment provision
- Personal tutoring
- Clinical group placement tutor
- Postgraduate teaching at diploma/MSc level

Key responsibilities – Chelsea & Westminster Hospital (0.5 WTE):

- Certificate/Diploma course management
- Rotational pharmacist training scheme innovation and management
- Pre-registration tutor and manager
- Strategic planning of educational activities

1994-1998: Deputy Clinical Services Manager/Clinical Specialist (Grade C), St Mary's Hospital

1991-1993: Basic Grade Pharmacist (rotational), St Mary's Hospital

1990-1991: Pre-registration Graduate, St Mary's Hospital

12. National profile, collaborations, achievements and advocacy

Organisation	Role/s	Date/s
<i>Royal Pharmaceutical Society (RPS):</i>	<ul style="list-style-type: none"> • Advocacy and supporting the development of assessment methodology for RPS Faculty • Faculty Assessor • Faculty Champion • Foundation Champion • Advocacy, publicity and publication to develop RPS mentoring • Key role in development of national RPS Foundation Training programme • See http://blog.rpharms.com/blog/2015/02/02/rps-fellowship-valuable-career-milestone/ 	2010 onwards
<i>School of Pharmacy/ University College London</i>	<ul style="list-style-type: none"> • Hospital supervision of undergraduate pharmacy students • Contribution to the pharmacy degree curriculum • Teaching on home and international MSc programmes 	2013 onwards 2014 onwards 2000 onwards
<i>Centre for Pharmacy Postgraduate Education (CPPE)</i>	<ul style="list-style-type: none"> • Review of Consultation Skills package • Contribution to Learning disability package 	2014-2015 2016-17
<i>Department of Health/Modernising Pharmacy Careers</i>	<ul style="list-style-type: none"> • Consultation skills work stream and training package development 	2013 onwards
<i>Kent, Surrey, Sussex Deanery Pharmacy</i>	<ul style="list-style-type: none"> • Co-development of the first pharmacy competency framework for supervisors • Mapping competencies to the Advanced Level Framework • Redesign of terminology for pharmacy tutors 	2010-2013
<i>Peer-reviewed journals</i>	<ul style="list-style-type: none"> • Peer reviewer for research papers and other publications 	2011 onwards
<i>National Clinical Assessment Service (2011)</i>	<ul style="list-style-type: none"> • Hospital Pharmacy working Group and development of pharmacy assessment strategy 	2011

13. Outside pharmacy

- I am married to Rosemary and together we care for our disabled son Alexander:
 - We love swimming, fast rides at theme parks and spending time lounging on the bean bag together
 - I have worked hard to learn Makaton sign language to communicate with Alexander
 - I have used my parent and carer experience professionally as a clinician and a teacher
- Alexander attends a special school and I have been a trustee of the school charity, the 'Friends of Dysart School'
- I continue to use my counselling skills training in pastoral care in a church setting
- I co-lead a ministry to families with special needs at our church
- I watch sport when I can particularly, rugby, cricket and football

Appendix 2: Full publication list updated to June 2019

**With key publications for this thesis discussed in chapters 2-5
highlighted**

Journal articles

1. **Jubraj B.**, Marvin V., Ward E. *Developing a doctor–pharmacist consensus on medicine-related problems in older adults*. *Clinical Pharmacist*. April 2019 Volume 11 No 4: 99-100
2. Marvin V., **Jubraj B.** *Polypharmacy and Older People in the Hospital Environment*. *Public Policy & Aging Report*. Volume 28, Issue 4, 8 November 2018, 150–155, <https://doi.org/10.1093/ppar/pry029>
3. Waghorn J., **Jubraj B.** *Undergraduate Education for Medicines Optimisation Principle 1: The ‘Socialisation Internship’ and views from Mosaic Clubhouse, one of the partner organisations*. *Journal of Medicines Optimisation*. September 2018 Volume 4 No 2: 54-77
4. Marvin V., Ward E., **Jubraj B.**, Bower M., Bovill I. *Improving Pharmacists’ Targeting of Patients for Medication Review and Deprescription*. *Pharmacy*. April 2018: 6: 32
doi:10.3390/pharmacy6020032
5. Barber S., **Jubraj B.** *Medicines Optimisation and Patient Safety NIHR CLAHRC Learning Event, held 16th January 2017*. *Journal of Medicines Optimisation*. June 2017; Volume 3 No 2: 30-33
6. **Jubraj B.** *Going to the Chemist*. *Down’s Syndrome Association Journal Spring/Summer 2017*; 135: 26
7. Barnett N., **Jubraj B.** *A themed journal issue on ‘Deprescribing’*. *European Journal of Hospital Pharmacy*. January 2017; Volume 24 No 1: 1-2
8. Poots AJ., **Jubraj B.**, Barnett N. *Education around deprescribing: ‘spread and embed’ the story so far*. *European Journal of Hospital Pharmacy* January 2017 Volume 24 No 1: 7-9
9. Marvin V., Ward E., Poots AJ., Heard K., Rajagopalan A., **Jubraj B.** *Deprescribing medicines in the acute setting to reduce the risk of falls*. *European Journal of Hospital Pharmacy* 2017; 24:10-15. Doi:10.1136/ejhpharm-2016-001003.
10. **Jubraj B.**, Barnett N., Grimes L., Varia S., Chater A., Auyeung V. *Why we should understand the patient experience? Clinical empathy and Medicines Optimisation*.

11. Picton C., **Jubraj B.** *Royal Pharmaceutical Society Principles of Medicines Optimisation – Interview with Catherine Picton.* Journal of Medicines Optimisation June 2016 Volume 2 No 2: 25-27
12. **Jubraj B.** *A carer's perspective on medicines optimisation.* Journal of Medicines Optimisation March 2016 Volume 2 No 1: 3-4
13. **Jubraj B.,** Deakin A., Mills S., Grimes L. *Pharmacy Consultations with people with learning disabilities.* The Pharmaceutical Journal. Vol 296, No 7885, online | DOI: 10.1211/PJ.2016.20200330
14. **Jubraj B.,** Patel S., Naseem I., Copp S., Karagkounis D. *The Acute Care Assessment Tool: 'Pharmacy ACAT'.* The Clinical Teacher 2016; 13:1-5
15. **Jubraj B.,** Barber S., Ward E., Husson F., Turley M.. *Patient perspectives on the use of 'My Medication Passport'.* Geriatric Medicine. August 2016; Volume 12 no 8: 25-28
16. **Jubraj B.,** Thakkar K., *My Medication Passport.* Down's Syndrome Association Journal Autumn/Winter 2015; 132: 23
17. **Jubraj B.,** Marvin V., Poots AJ., Patel S., Bovill I., Barnett N., Issen L., Bell D. *A pilot survey of junior doctors' attitudes and awareness around medication review: time to change our educational approach?* European Journal of Hospital Pharmacy 22: 243-248. Doi:10.1136/ejhpharm-2015-000664
18. Duraisingham S., **Jubraj B.,** Marvin V., Kuo S., Bovill I., Poots AJ. *Stopping Inappropriate Medicines in the Outpatient Setting.* Geriatric Medicine 2015; May: 37-41
19. **Jubraj B.,** Blair M. *Use of a medication passport in a disabled child seen across many care settings.* BMJ Case Reports 2015. Doi:10.1136/bcr-2014-208033
20. **Jubraj B.** *'Dragon's Den': an entrepreneurial method to develop innovation among junior pharmacists.* European Journal of Hospital Pharmacy 2015; 22: 64-65.

21. Duraisingham S., **Jubraj B.** *Time to stop.* Clinical Pharmacist 2014; 6: 162
22. Saheb MA., **Jubraj B.**, Bovill I., Kuo S., Marvin V, *Intermediate Care.* [An optimal setting for review of inappropriate medication in elderly patients]. Geriatric Medicine February 2014. 13-17
23. Barnett N., **Jubraj B.** *How peer-mentoring helps pharmacists prepare for RPS Faculty admission* The Pharmaceutical Journal 2013; 291: 500
24. Barnett N., Varia S., **Jubraj B.** *Adherence: are you asking the right questions and taking the best approach?* The Pharmaceutical Journal 2013; 291: 153
25. Fleming G., **Jubraj B.**, Wright E., Pettit M., Jones S.C. *Mapping education competencies to demonstrate advanced level practice.* The Pharmaceutical Journal 2013; 290: 648
26. Davies JG., Ciantar J., **Jubraj B.**, Bates I.P. *Use of a Multisource Feedback Tool to Develop Pharmacists in a Postgraduate Training Program.* American Journal of Pharmaceutical Education 2013; 77 Issue 3, Article 52.
27. Jones S.C, Fleming G., Hay D., Ibrahim M., Pettit M., Wright E., **Jubraj B.** *Development and piloting of a competency framework for pharmacy educational and practice supervisors.* Pharmacy Education, 2012; 12 (1): 14 – 19
28. Jones S.C., **Jubraj B.** *Ways to avoid an identity crisis when you take on a teaching role.* Clinical Pharmacist 2012; 4: 30–1.
29. **Jubraj B.** *Back to basics – medicines expertise is vital but is not always complicated.* The Pharmaceutical Journal 2011; 287: 548
30. **Jubraj B.**, Barnett N. *Keys to peer mentoring: similar experience, trust, honesty and a willingness to change.* The Pharmaceutical Journal 2011; 287: 500-501
31. **Jubraj B.**, Innes I., Kavanagh R. *Dispel the myths and see the benefits of workplace-based assessments.* The Pharmaceutical Journal 2011; 287: 467-468

32. Morris K., Safdar A., Jones S.C., **Jubraj B.** *Make reflection part of your daily practice.* Clinical Pharmacist 2010; 2: 397-399
33. Chung C., **Jubraj B.** *Training junior doctors to prepare and administer injectable drugs.* British Journal of Clinical Pharmacy 2010; 2 (10): 309-311
34. **Jubraj B.**, Henry D., Hardy I., McCall-Peat N. *Training doctors to use electronic prescribing information sources.* British Journal of Clinical Pharmacy 2010; 2 (1): 21-22
35. **Jubraj B.**, Fleming G., Wright E., Jones S., Cook S., Morris K. *Say goodbye to clinical tutors: standardising the terminology in education.* The Pharmaceutical Journal 2010; 285: 191-192
36. Jones S., Safdar A., **Jubraj B.** *Educational Infrastructure: teach a man to fish and you feed him for life.* The Pharmaceutical Journal 2010; 284: 45
37. **Jubraj B.** *Developing a culture of self-directed workplace learning in pharmacy.* The Pharmaceutical Journal 2009; 283:47-8.
38. Bruno A., Jones S.C., **Jubraj B.** *Continuing Professional Development (CPD) in Pharmacy Practice: Is it really about learning to learn or legislating learning?* International Pharmacy Journal 2009; 25 (2): 20-25
39. **Jubraj B.**, Karemo K., Morris K., Pullinger W., Safdar A., Hatton K. *Make the most of the time you spend tutoring diploma students.* Clinical Pharmacist 2009; 1: 141-143
40. **Jubraj B.** *A new diploma.* Tomorrow's Pharmacist 2008; 20
41. Safdar A., Pullinger W., Karemo K., **Jubraj B.** *Workforce development – rising to current challenges.* Hospital Pharmacist 2007; 14: 267
42. **Jubraj B.** *Patient counselling and medication adherence: What can we learn from mainstream counselling.* Pharmacy in Practice 2007; 17 (1): 8

43. Tisley T., **Jubraj B.** *Evolution of Rotational Pharmacy Technician Training at Chelsea & Westminster following the implementation of Agenda for Change and the Knowledge & Skills Framework.* Pharmacy Technician Journal Winter edition. 2006
44. **Jubraj B.**, Karemo K., Pullinger W., Safdar A. *Have you considered a career as an education and training pharmacist?* Hospital Pharmacist 2006; 13: 403
45. **Jubraj B.** *Assessing Junior Doctors – How Pharmacists can be Prepared.* Hospital Pharmacist 2006;13: 291
46. Hewitt K, **Jubraj B.**, Cox D, Ankrah S. *KSF implementation – producing outlines for pharmacy staff.* Hospital Pharmacist 2006; 13:169
47. **Jubraj B.**, Chantler., S., Mycroft, J., Wilkins, K. *Do pre-registration trainees benefit from cross-sector training?* Pharmaceutical Journal 2002; 269: 682
48. Horne R., Sumner S., **Jubraj B.**, Weinman J., Frost S. *Haemodialysis patients' beliefs about treatment: implications for adherence to medication and fluid-diet restrictions.* International Journal of Pharmacy Practice 2001; 9:169
49. Farrington P., Buddell K., **Jubraj B.** *Recruitment and retention initiatives and competence-based training for junior pharmacists.* The Pharmaceutical Journal 2001; 267: 55

Books/e-books (Pharmacy and Counselling related)/Journal editor activity

1. Barnett N., **Jubraj B.** Themed guest editors (2017) *Themed issue on 'Deprescribing'*. European Journal of Hospital Pharmacy <https://ejhp.bmj.com/content/24/1> (accessed 7.6.19)
2. Kuo S., **Jubraj B.**, Bovill I., Marvin V. *Case Studies of innovation in Medicines Optimisation during Admission, Discharge and Medication Review, at the Chelsea & Westminster Hospital*. 2eqipp Chichester: Kingsham Press December 2014. ISBN : 1-904235-978
3. Jones S.C., **Jubraj B.** *Reflecting on teaching and learning*. In Carter S., Editor. *Facilitating Learning in Healthcare*. London: Pharmaceutical Press, 2012
4. **Jubraj, R., Jubraj, B.** *Infertility – The Silent and Unseen Issue*. Horsham: RoperPenberthy, 2007

Conference abstracts/posters; and learning event/webinar presentations

1. Olayide A., Davies JG., **Jubraj B.** *The qualities of an effective work-based pharmacist tutor* Abstract, poster and oral presentation at the Pharmacy Education Symposium 'Ancora Imparo – I am still learning'. Monash University, Prato July 2019
2. Crook J., Patel D., Marvin V., **Jubraj B.**, Abbadi I., Ward, E. *An evaluation of the views of adolescent patients with a learning disability and their carers on a Medicines Information Leaflet*. Poster presentation at the 24th Neonatal & Paediatric Pharmacists' Group (NPPG) Annual Professional Conference and Exhibition, Bristol November 2019 (see <https://adc.bmj.com/content/103/2/e1.35>; (accessed 14.7.19) [NB, author omitted from co-authorship in error])
3. Lumb R., **Jubraj B.**, Barber S. *The use of 'My Medication Passport' in Special Schools – A proof of principle study*. Poster and oral assessment at the MPharm 4 poster day, King's College London March 2019
4. Williams H., **Jubraj B.**, Shaw M., Anderson E. *Learning Disability: User perspectives and the CPPE learning disabilities training package*. Poster presentation at the 7th Clinical Pharmacy Congress, London April 2018
5. Waghorn J., **Jubraj B.** *Socialisation Internship: A Novel Placement for Pharmacy Students*. Abstract, poster and oral presentation at the Pharmacy Education Symposium 'Pharmacy education and collaboration for global practice'. Monash University, Prato July 2017

6. **Jubraj B.**, Adams D. *Issues for patients with a learning disability and their carers – top tips on how pharmacy teams from all sectors can provide medicines optimisation support.* NHS Specialist Pharmacy Services Medicines Use & Safety Network webinar July 2017
7. **Jubraj B.** *A carer's perspective on medicines optimisation.* NHS Specialist Pharmacy Services Medicines Use & Safety Network webinar March 2017
8. Patel D., Ward E., **Jubraj B.**, Marvin V., Smith E., Abbadi I. *An evaluation of the views of adolescent patients with a learning disability and their carers on a Medicines Information Leaflet and the My Medication Passport.* Abstract and Poster presentation at the NWL Research Symposium on 21 Sept 2016. Also presented at the CLAHRC Medicines Optimisation and Patient Safety learning event Jan 2017
9. Szymanski T., Marvin V., Ward E., **Jubraj B.** *Deprescribing following medication review in acute care: the ReMAC project.* Abstract and presentation at the Pharmaceutical Care Network Europe, Hillerød, Denmark February 2016. Conference abstract also published in International Journal of Clinical Pharmacy p17. DOI 10.1007/s11096-016-0283-8. Also presented at the CLAHRC Medicines Optimisation and Patient Safety learning event January 2017
10. **Jubraj B.** *Supporting patients with a learning disability and their carers.* NHS Specialist Pharmacy Services (SE England) learning event presentation September 2016
11. Marvin V., Dinesen L., Ward E., **Jubraj B.**, Gilbert M., Poots AJ. *Frailty and polypharmacy.* (Abstract and Poster) International Forum on Quality and Safety in Healthcare, Gothenburg, Sweden April 2016
12. Marvin V., Ward E., **Jubraj B.**, Rajagopalan A., Poots AJ. *Reducing falls risk in elderly falls patients through pharmacist medicines review.* Abstract and poster presented at the NWL Research Symposium for Health Professions, London November 2015
13. Marvin V., Patel S., Kuo S., Ward E., **Jubraj B.**, Reed J. *Evaluating the accuracy of medicines reconciliation in acute admissions.* (Poster presentation) International Forum on Quality and Safety in Healthcare. London, April 2015 and at the NWL Research Symposium for Health Professions, London November 2015
14. **Jubraj B.**, Marvin V. (2015) *Influencing undergraduate education on medication review and deprescribing* NIHR CLAHRC NW London Summer Collaborative Learning Event presentation. London 17th July 2015

15. Sathyamoorthy G., **Jubraj B.** *NIHR CLAHRC NWL – Introduction to medicines optimisation project in the ‘frailty’ area of work* Imperial College Health Partners Medicines Optimisation Roadshow Plenary session 5. London 3rd March 2015
16. Patel S., **Jubraj B.**, Marvin V., Bovill I., Umer M., Trehane S.J., Poots A.J. *A survey exploring junior doctors attitudes to medication review.* (Poster presentation) 26th Annual Scientific Meeting, PRIMM (Prescribing and Research In Medicines Management) “One for All and All for One – Different Perspectives in Medicines Optimisation”: London, January 2015. Also published in *Pharmacoepidemiology and Drug Safety Prescribing and Research in Medicines Management (UK & Ireland)* Published Online First: 15/6/15 doi: 10.1002/pds.3812
17. **Jubraj B.** *Developing a sustainable workplace-based learning infrastructure.* Royal Pharmaceutical Society conference: *Preparing pharmacy for the challenges of workplace-based learning.* London May 2011
18. Barnett N., **Jubraj B.** *Peer mentoring live play.* Royal Pharmaceutical Society Mentoring Training Event. London April 2011
19. **Jubraj B.** *Clinical pharmacy and the new practice models/The heart of the system: new learning environments and workforce development* Tempus PQPharm Networking event for Serbian Pharmacists. London November 2011

Professional blogs

Barnett N., Grimes L., **Jubraj B.** (2015) Making our Patients Feel Cared for <http://www.pharmaceutical-journal.com/opinion/blogs/making-our-patients-feel-cared-for/20067874.blog>

Jubraj B., Patel S., King E. *Pharmacists of the future need to prompt doctors to review and stop unnecessary medicines* 2014. <http://www.pharmaceutical-journal.com/opinion/blogs/pharmacists-of-the-future-need-to-prompt-doctors-to-review-and-stop-unnecessary-medicines/20066189.blog>

Other media

1. **Jubraj B.** *Promotional video for the Centre for Pharmacy Postgraduate Education (CPPE) Learning disabilities distance learning programme.* March 2017 (and subsequent Facebook panel event April 2017). <https://vimeo.com/208110072> (accessed 7.6.19)
2. Barnett N., Jubraj B. *Deprescribing: a special issue from the European Journal of Hospital Pharmacy.* Podcast March 17: <https://soundcloud.com/bmipodcasts/deprescribing-a-special-issue-from-ejhp> (accessed 7.6.19)

3. **Jubraj B.**, Adams D., *Foreword for the Centre for Pharmacy Postgraduate Education (CPPE) Learning disabilities distance learning programme*. February 2017
4. **Jubraj B.** *Speaking on various aspects of medication adherence*. Medication Adherence MOOC. King's College London January 2017. <https://app.frame.io/reviews/4df0208d-d90a-4341-8c23-403b265f62af/4e53a7b6-ce31-40be-b619-ed4071f993cf> (accessed 14.6.19)
5. **Jubraj B.**, Crilly P. *Support for Carers Interview*. Kingston University School of Pharmacy November 2016. <https://vimeo.com/192330461> (accessed 7.6.19)
6. **Jubraj B.** *The bottom up approach to education around medication review and deprescribing*. NIHR CLAHRC NWL Collaborative Learning Event July 2015 <https://www.youtube.com/watch?v=QqO1VooHlHY> (accessed 7.6.19)
7. **Jubraj B.** *From counselling to consulting*. Video tutorial for the national Consultation Skills for Pharmacy Practice pathway 2014 <http://www.consultationskillsforpharmacy.com/share3.asp?P=7#> (accessed 7.6.19)
8. Barnett N., **Jubraj B.** Two videos for the Centre for Pharmacy Postgraduate Education (CPPE) Consultation Skills initiative 2014. 'Making a difference in a short consultation'. <https://vimeo.com/150664602> and 'Making a difference in a short consultation; the experts debrief'. <https://vimeo.com/150664603> (both accessed 7.6.19)

Articles in preparation or submitted for publication

1. **Jubraj B.**, Grant D., Reddy B., Barnett N., Stevenson J. *Education around Medication Review and Deprescribing: Results of a pilot scoping exercise*. Submitted June 2019 to <https://www.mdpi.com/journal/pharmacy>
2. Poots A., **Jubraj B.**, Ward E., Wycoco A., Barnett N. *Education around medication review and deprescribing: a survey of medical and pharmacy students' perspectives*. Resubmitted June 2019 following peer review to Therapeutic Advances in Drug Safety <https://journals.sagepub.com/home/taw> at June 2019
3. Barber S., **Jubraj B.** *Pharmacy staff use of My Medication Passport to support conversations with patients in medication review settings*. In preparation for submission to The Pharmaceutical Journal (anticipated August 2019)

Appendix 3: Co-authored journal article verifications

THE AUTHORSHIP STATEMENTS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

This appendix contains verification emails from colleagues who co-authored journal articles or other key publications with the author of this PhD thesis.

Listed publications are followed by a short email trail that includes:

- The author's (Barry Jubraj):
 - Request for verification
 - Statement of their contribution to each article
- The response from one co-author (who is representative if there is more than one)

Please note:

- Each reference is numbered according to the order in appendix 2, the full publication list.
- Articles are not listed in this appendix if the author (Barry Jubraj) is the sole author
- Only journal articles or other key publications are included in this table, since these are the largest contributor to this PhD by publication. Videos, abstracts and conferences are not included
- Where the author and a co-author have collaborated on more than one article:
 - These articles are grouped together in the table
 - The email trail contains the author's statement of their contribution to each article
- Where there are multiple authors on an article, only one co-author has been approached to verify the author's contribution. This will typically be the main co-author
- Key publications for this thesis are highlighted
- There are a very small number of unverified articles, because the author has been unable to contact the co-author. These are clearly marked and the author is satisfied that these publications make little if any direct impact on this PhD thesis

Appendix 4: Fellowship of the Faculty of the Royal Pharmaceutical Society 2013 - Summary and personal development plan

Note:

This personal development plan is based on mapping the author's achievements to the Royal Pharmaceutical Society's Advanced Pharmacy Framework, which can be found here:

<https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Frameworks/RPS%20Advanced%20Pharmacy%20Framework.pdf> (accessed 9.6.19)

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The Royal Pharmaceutical Society

Feedback Summary

The feedback summary (below) is based on the outcomes of the assessment of your Advanced Practice Portfolio and evidence against the Advanced Practice Framework. The comments are from the two Faculty assessors assigned to you and intended to help you to reflect on your practice and support your ongoing professional development and create an action plan.

The feedback is broken down into the six clusters

- ☐ Expert Professional Practice EPP
- ☐ Collaborative Working Relationships CWR
- ☐ Leadership L
- ☐ Management M
- ☐ Education, Training & Development ET&D
- ☐ Research & Evaluation R&E.

Cluster	Competencies				Cluster outcome
	Stage I	Stage II	Mastery		
Expert Professional Practice (EPP)	0	0	4	<i>out of 4</i>	3
Collaborative Working Relationships (CWR)	0	0	2	<i>out of 2</i>	3
Leadership (L)	0	0	5	<i>out of 6</i>	3
Management (M)	0	3	6	<i>out of 9</i>	3
Education, Training & Development (ET&D)	0	0	6	<i>out of 6</i>	3
Research & Evaluation (R&E)	0	1	6	<i>out of 7</i>	3
				Assessment outcome (algorithm)	3

Appendix 5: Kingston University PhD by Publication Prima Facie Statement

Minus:

Appendix 1:

Curriculum vitae and publication list (updated for this thesis – see appendix 2)

Appendix 2:

Publication themes diagram (see introduction of this thesis where it is reproduced)

Prima facie stage of application for PhD by prior publication/portfolio

Barry Jubraj - November 2017

1. The name of the proposed supervisor and the School/research area within which the PhD is to be located:
2. A full CV including all publications and research outputs. [See appendix 1](#)
3. A brief summary of the relevant publications and/or portfolio materials to be included in the final PhD submission [See appendix 2](#)
4. A statement of intent/outline of the introductory section (approximately 500-700 words). This should include the proposed title of the work and seek to contextualise the selected publications, demonstrate their coherence, and identify the contribution to the advancement of knowledge in the chosen area of research. [See appendix 3](#)

Personal Statement

Summary

My application for PhD by publication is a culmination of nearly three decades of service to the NHS and clinical education. As I have developed my expertise, my publication profile reflects the contribution that I have made on a local, national and international level.

Upon qualifying as a pharmacist in 1991, I gained a thorough grounding in NHS hospital pharmacy and working as a mid-grade pharmacist in the first 7 years of my career. Over the next ten years, I trained as a teacher and a counsellor; and subsequently combined these three areas in order to practice pharmacy, act as a role model, and educate students and practitioners, to a standard that has been recognised through professional fellowships and awards. My current roles as a Clinical Senior Lecturer and Honorary Pharmacist for 'Medicines Optimisation' give me the opportunity to utilise my training and experience to focus on clinical education, research supervision and quality improvement in the NHS.

Early publications (2001 – 2008):

My research for an MSc in Clinical Pharmacy in 1994 was around health beliefs and medication adherence. My findings demonstrated that haemodialysis patients intentionally do not adhere to treatment recommendations. Our work was published in 2001 and to this day is still cited in the literature. At the time of publication, I was working as a pharmacy 'teacher-practitioner' for the Chelsea & Westminster Hospital and King's College London. At that time, I decided to publish our hospital's work on retaining and developing resident pharmacists, which led to the realisation that I enjoy writing and publishing. This became a powerful driver as I sought opportunities to complete key projects with a publication. Early examples included my co-creation of a pre-registration pharmacy programme with placements both in hospital and the community. I also developed a methodology of writing job outlines for a health service framework that was published and used by a number of colleagues around London.

Workplace education and assessment publications (2009 onwards)

A secondment to the UCL School of Pharmacy gave me the opportunity to contribute to the development of the first competency-based post-registration foundation programme for pharmacists in Great Britain. Our approach was debated nationally because of philosophical views around the merit of competency-based training, and other drivers that included the need to develop the pharmacy workforce cost-effectively. This inspired me to regularly publish, speak publically and develop other media as I was expected to comment and provide answers to some of the challenges of developing the workforce in times of change, particularly given the impact of economic austerity. I led the development of workplace supervisor training and developed substantial expertise in workplace-based assessment, leading to educational infrastructures that are still in place across London and south-east England. With colleagues I published the first known pharmacy-specific definition of self-directed learning. This was an important influence on

the way that foundation trainees and their supervisors perceived workplace education in terms of their roles and responsibilities for clinical development. I also co-developed a competency framework for pharmacy workplace supervisors which was adopted for use by the Kent, Surrey and Sussex pharmacy deanery for its initial training strategy for supervisors in that locality. This led directly to published work on redefining the terminology around pharmacy workplace supervisors.

Quality improvement publications (2014 onwards)

I was seconded from my hospital role in 2014 to the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for northwest London. NHS drivers such as delivering 'more for less', translating research into care more rapidly, and delivering quality improvement more systematically, gave me opportunities to critically evaluate pharmacy services and pilot improvements, all of which I have published and presented. Examples include piloting a 'Medication Passport' in my disabled son, and demonstrating the utility of a medication review tool in novel settings such as elderly care rehabilitation and outpatients. My work has been recognised through awards and shortlisting, for example being a finalist at the National Patient Safety Awards for a case study on 'deprescribing'.

It is during this secondment that I grasped the opportunity to combine my educational expertise with quality improvement. As a clinician and educator, I began to reflect about the need for education to underpin the development of clinical care, quality improvement and service development, by ensuring that curricula for undergraduates and foundation trainees included these concepts. My work with CLAHRC northwest London led to a published 'bottom up approach to education around medication review and deprescribing', which is the first known strategy to be published worldwide, and outlines the impact of our work in securing a presence of this teaching area in teaching for undergraduate and postgraduates in pharmacy.

Caring, consultation and learning disability publications (2015 onwards)

Becoming a parent to a disabled child with a learning disability in 2006, and a becoming a patient myself have led to many personal experiences of receiving healthcare, some of which have been negative, and sometimes have involved pharmacists. These have led me to reflect powerfully on my professional identity as a pharmacist and galvanised me into engaging with national drivers for pharmacists to provide person-centred care as clinicians. My publication outputs, both written and spoken, have been driven by identifying the need for pharmacists to consult more effectively with patients with a learning disability and their carers, to engage with the notion of 'clinical empathy' and to consider their pastoral, mentoring and developmental role for trainees and colleagues so that they can contribute to this agenda. I also care about the development of individual students and practitioners in terms of their personal and professional growth, which is evidenced by my outputs on mentoring and feedback.

PhD theme: Equipping stakeholders to deliver Medicines Optimisation using a collaborative approach

No single definition of 'Medicines optimisation' exists, but key stakeholders generally support the different published explanations of the term, and agree with the Royal Pharmaceutical Society's 'four principles of medicines optimisation' that were published in 2013. Medicines optimisation has become a defining concept for the pharmacy profession, and is endorsed by other health professions. It has been incorporated by the National Institute of Clinical Excellence (NICE) into national policy, including the development of a quality standard. The Chief Pharmaceutical Officer for England representing the Department of Health, Professor Keith Ridge is a regular speaker on medicines optimisation. NHS England has also been establishing 'Regional Medicines Optimisation Committees' (RMOCs) to drive forward the necessary changes to optimise medicines use. Two published descriptions of medicines optimisation summarise the concept of medicines optimisation. Firstly, medicines optimisation has been described by NICE as "an approach that seeks to maximise the beneficial clinical outcomes for patients who take medicines, with an emphasis on safety, governance, professional collaboration and patient engagement". Beneficial clinical outcomes that I have been particularly active in include improved adherence, partnership in clinical decision-making, and tackling polypharmacy. Secondly and more succinctly, medicines optimisation has been defined by NICE as "a person-centred approach to safe and effective medicines use, to ensure people obtain the best possible outcomes from their medicines." My full PhD submission will seek to demonstrate that my publication outputs relate to beneficial clinical outcomes that are closely associated with my work; and have equipped a number of defined stakeholders (including students and other professionals) to advance their mission to deliver them. For example, one outcome is a better patient experience which requires clinicians to understand their patients' experience. I advocate strongly that this is where the pharmacy profession urgently needs to improve in order to meet the expectations of patients, public, the wider health system and national government. Many of my publications are deliberately targeted at practitioners in professional publications, rather than academic journals, in order to target and influence those 'at the coalface'.

Impact examples from my publication outputs

My impact on a range of individuals over 25 years has included helping them get to where they want to go professionally, achieving the dual outcomes of personal growth and an ability to care well for patients. A number of my students and trainees have become chief pharmacists, consultant pharmacists, academics and respected clinicians. Another impact that I am pleased with relates to work in establishing 'educational infrastructures' in hospital pharmacy departments to support workplace assessment, supervision and tutoring across London and south east England. This is still embedded as part of the original 'Joint Programmes Board' foundation programme. More recently, my recommendations around adding learning outcomes and competency statements relating to medication review and deprescribing have been taken up by four Schools of Pharmacy in south-east England, the Royal Pharmaceutical Society, and are captured in one of the first international journal themed issues on deprescribing, which I co-edited.

Summary

My career journey has given me many rich opportunities, ranging from undertaking teacher and counselling training, to making a contribution to pharmacy education, quality improvement and the carer/learning disability agenda. My contribution has been recognised through three fellowships, honorary academic positions and conference speaking and publication invitations. I continue to be a carer at home and I use these experiences in my teaching, speaking and writing. My publications range from journal articles, to conference presentations and audio-visual media. This work has had a direct impact on pharmacy education and patient care. For example, my published work has led directly to changes in undergraduate and postgraduate education (for example around work-based learning and assessment), and influenced pharmacy students and clinicians to think differently about managing patients who take lots of medicines.

Appendix 2: Summary of relevant journal publications and portfolio materials to be included in the final PhD submission

1. Publication themes diagram

As outlined in my personal statement, the theme of my PhD by publication is intended to be 'medicines optimisation'. I have chosen to relate my publication outputs for my PhD submission to the beneficial clinical outcomes that I have defined in the following publication themes diagram. I have taken an accepted definition of medicines optimisation and related it to four of my publication themes. In turn, I have drawn out some beneficial clinical outcomes that relate to the publication themes, and identified example publication outputs that link some of them together.

My publication themes of medication review, polypharmacy and deprescribing; as well as health beliefs, medication adherence, consultation skills, patient empowerment and clinical empathy have clear links to the medicines optimisation agenda that I will unpack in the full thesis. I believe that the uniqueness of my thesis will be my equipping of the following stakeholders to begin delivering beneficial outcomes:

1. Patients, carers and service-users
2. Undergraduate pharmacy students
3. Foundation pharmacists
4. University Schools of Pharmacy
5. The wider pharmacy workforce
6. Other healthcare professionals
7. Opinion-formers in medicines optimisation

I posit that in order to provide the desired outcomes of medicines optimisation, stakeholders need to be appropriately educated, trained, empowered and motivated. My publications reflect my contribution in seeking to achieve that.

Summary of key publications within each theme in the publication themes diagram

At a national policy level, medicines optimisation has been driven and embraced by NHS England. The concept is widely referred to in discussions around how society can get the best out of medicines and tackle medicines-related challenges such as non-adherence. The wider body of literature continues to articulate what it means and how it is to be practised. I have contributed to this literature and my publication themes relate to the beneficial clinical outcomes required by medicines optimisation. Moreover, I believe that my publications contribute to the natural development of the concept as well as a deeper understanding of what it means in practice for professionals and patients.

2.1 Medication review, polypharmacy and deprescribing publications

Research and other publications have demonstrated that an ageing population is leading to patients living longer, often with multiple long-term medical conditions. Medicines are often prescribed for these conditions and can lead to large numbers of medicines being taken by individual patients ('polypharmacy'). Polypharmacy may be defined as 'appropriate' or 'problematic', and the following publications and portfolio materials reflect my contribution to this agenda, particularly in the areas of education, medication review and the use of appropriate review tools. This quality improvement work has been undertaken on secondment with NIHR CLAHRC NW London

(<http://clahrc-northwestlondon.nihr.ac.uk/home>), who seek to combine the expertise of different types of professionals to undertake research to find new ways of improving patient care. A strong philosophy is to 'spread and embed' work of demonstrable value, in order to maximise impact. CLAHRC NW London has, since 2009, had an active medicines optimisation work-stream that has focused on tackling polypharmacy, particularly in elderly patients. My contribution, in partnership with CLAHRC and others, has been to draw out and emphasise the need to actively stop medicines (i.e. 'deprescribe'), which has led to a number of educational impacts as well as invitations to present at conference and to co-edit the first known themed issue on 'deprescribing' internationally.

1. Barber S., **Jubraj B.** *Medicines Optimisation and Patient Safety NIHR CLAHRC Learning Event, held 16th January 2017.* Journal of Medicines Optimisation. June 2017; Vol 3 No 2: 30-33
2. Barnett N., **Jubraj B.** *A themed journal issue on 'Deprescribing'.* European Journal of Hospital Pharmacy. January 2017; Vol 24 no 1: 1-2
3. Marvin V., Ward E., Poots AJ., Heard K., Rajagopalan A., **Jubraj B.** *Deprescribing medicines in the acute setting to reduce the risk of falls.* European Journal of Hospital Pharmacy 2017; 24:10-15. doi:10.1136/ejhpharm-2016-001003
4. Duraisingham S., **Jubraj B.**, Marvin V., Kuo S., Bovill I., Poots AJ. *Stopping Inappropriate Medicines in the Outpatient Setting.* Geriatric Medicine 2015; May: 37-41
5. Saheb MA., **Jubraj B.**, Bovill I., Kuo S., Marvin V, *Intermediate Care.* [An optimal setting for review of inappropriate medication in elderly patients]. Geriatric Medicine February 2014. 13-17
6. Kuo S., **Jubraj B.**, Bovill I., Marvin V. *Case Studies of innovation in Medicines Optimisation during Admission, Discharge and Medication Review, at the Chelsea & Westminster Hospital.* 2Eqipp Chichester: Kingsham Press, December 2014. ISBN : 1-904235-978

2.1.1 Portfolio materials

1. Szymanski T., Marvin V., Ward E., **Jubraj B.** *Deprescribing following medication review in acute care: the ReMAC project*. Abstract and presentation at the Pharmaceutical Care Network Europe, Hillerød, Denmark February 2016. Conference abstract also published in International Journal of Clinical Pharmacy p17. DOI 10.1007/s11096-016-0283-8. Also presented at the CLAHRC Medicines Optimisation and Patient Safety learning event January 2017
2. Marvin V., Dinesen L., Ward E., **Jubraj B.**, Gilbert M., Poots AJ. *Frailty and polypharmacy*. (Abstract and Poster) International Forum on Quality and Safety in Healthcare, Gothenburg, Sweden April 2016
3. Marvin V., Ward E., **Jubraj B.**, Rajagopalan A., Poots AJ. *Reducing falls risk in elderly falls patients through pharmacist medicines review*. Abstract and poster presented at the NWL Research Symposium for Health Professions, London November 2015
4. Sathyamoorthy G., **Jubraj B.** *NIHR CLAHRC NWL – Introduction to medicines optimisation project in the ‘frailty’ area of work* Imperial College Health Partners Medicines Optimisation Roadshow Plenary session 5. London 3rd March 2015

2.2 Health beliefs, medication adherence, consultation skills, patient empowerment and clinical empathy publications

There is clear evidence that patients do not always take the medicines prescribed for them as intended. ‘Non-adherence’ is an accepted term for this phenomenon and may be defined as ‘intentional’ or ‘unintentional’. Research shows that the quality of the patient/clinician relationship, particularly listening to their perspectives and experience, has an important impact on adherence and this is an area that I took seriously in my years of clinical practice. ‘Understanding the patient experience’ is a key principle of medicines optimisation that the following publications explore. For example, a CLAHRC NW London initiative was the development of ‘My Medication Passport’ (MMP), a patient held record of medicines developed by patients. The MMP publications below, as with the others, reflect my joint work in exploring what it is like for patients to manage their medicines whilst coping with advancing age, illness or disability. The portfolio materials within this theme reflect ongoing work to equip students and practitioners to consult better with patients and develop appropriate empathy to imagine what their patients contend with. This work has led directly to my involvement in supporting national and local initiatives to improve pharmacist engagement with patients, including the development of a learning disability training package, a published definition of ‘clinical empathy’, and the promotion of MMP by the Down’s Syndrome Association.

1. **Jubraj B.** *Going to the Chemist.* Down's Syndrome Association Journal Spring/Summer 2017; 135: 26
2. **Jubraj B., et al.** *Why we should understand the patient experience? Clinical empathy and Medicines Optimisation.* International Journal of Pharmacy Practice 2016: doi: 10.1111/ijpp.12268
3. **Jubraj B.** *A carer's perspective on medicines optimisation.* Journal of Medicines Optimisation March 2016 Vol 2 No 1: 3-4
4. **Jubraj B., et al.** *Pharmacy Consultations with people with learning disabilities.* The Pharmaceutical Journal. Vol 296, No 7885, online | DOI: 10.1211/PJ.2016.20200330
5. **Jubraj B., et al.** *Patient perspectives on the use of 'My Medication Passport'.* Geriatric Medicine. August 2016; Vol 12 no 8: 25-28
6. **Jubraj B., Thakkar K., My Medication Passport.** Down's Syndrome Association Journal Autumn/Winter 2015; 132: 23
7. **Jubraj B., Blair M.** *Use of a medication passport in a disabled child seen across many care settings.* BMJ Case Reports 2015. doi:10.1136/bcr-2014-208033
8. **Jubraj B.** *Patient counselling and medication adherence: What can we learn from mainstream counselling?* Pharmacy in Practice 2007; 17 (1): 8
9. Horne R., Sumner S., **Jubraj B.,** Weinman J., Frost S. *Haemodialysis patients' beliefs about treatment: implications for adherence to medication and fluid-diet restrictions.* International Journal of Pharmacy Practice 2001; 9:169

2.2.1 Portfolio materials

1. Barnett N., **Jubraj B.** *Deprescribing: a special issue from the European Journal of Hospital Pharmacy.* Podcast, March 17: <https://tinyurl.com/m8srm4w> (accessed 5.7.17)
2. Waghorn J., **Jubraj B.** *Socialisation Internship: A Novel Placement for Pharmacy Students.* Abstract, poster and oral presentation at the Pharmacy Education Symposium 'Pharmacy education and collaboration for global practice'. Monash University, Prato July 2017
3. **Jubraj B., Adams D.** *Issues for patients with a learning disability and their carers - top tips on how pharmacy teams from all sectors can provide medicines optimisation support.* NHS Specialist Pharmacy Services (SE England) webinar July 2017
4. **Jubraj B.** *A carer's perspective on medicines optimisation.* National Medication Safety Network webinar March 2017

5. Barnett N., Grimes L., **Jubraj B.** (2015) Making our Patients Feel Cared for <http://www.pharmaceutical-journal.com/opinion/blogs/making-our-patients-feel-cared-for/20067874.blog>
6. Patel D., Ward E., **Jubraj B.**, Marvin V., Smith E., Abbadi I. *An evaluation of the views of adolescent patients with a learning disability and their carers on a Medicines Information Leaflet and the My Medication Passport*. Abstract and Poster presentation at the NWL Research Symposium on 21 Sept 2016. Also presented at the CLAHRC Medicines Optimisation and Patient Safety learning event Jan 2017
7. **Jubraj B.** *Promotional video for the Centre for Pharmacy Postgraduate Education (CPPE) Learning disabilities distance learning programme*. March 2017 (and subsequent Facebook panel event April 2017)
8. **Jubraj B.**, Adams D., *Foreword for the Centre for Pharmacy Postgraduate Education (CPPE) Learning disabilities distance learning programme*. February 2017
9. **Jubraj B.**, Crilly P. *Support for Carers Interview*. Kingston University School of Pharmacy November 2016. <https://vimeo.com/192330461> (accessed 4.7.17)
10. **Jubraj B.** *Speaking on various aspects of medication adherence*. Medication Adherence MOOC. King's College London January 2017. <https://vimeo.com/204204844/e79d7d1082> (accessed 4.7.17)
11. Barnett N., **Jubraj B.** *Two videos for the Centre for Pharmacy Postgraduate Education (CPPE) Consultation Skills initiative – 'Making a difference in a short consultation'*. Available through Journal of Medicines Optimisation 2016; 2 Issue 1 (accessed 4.7.17)

2.3 Clinical education and training publications

In Great Britain, postgraduate pharmacy education until the 2000s was typically classroom based, with some application in the workplace. Medical education literature suggests that learning in a professional context, work-based learning and workplace-based assessment can deliver a greater assurance of performance and competence in practice. It also suggests that a deeper level of reflective learning occurs, compared with classroom-based learning. The south-east England initiative by the Joint Programmes Board (JPB) to emulate this model of work-based learning was intended to 'build a collaborative exemplar for a formal postgraduate educational infrastructure that can address policy developments in health care', for example the Foster review, fitness to practice and patient safety agendas. The term 'medicines optimisation' is relatively recent, but I believe that the underlying concepts have their roots in the need to address medicines-related policy developments, and have been articulated in different ways and practised long before the definition. In other words, I contend that the concept of medicines optimisation predates the term itself. My secondment to the JPB allowed me to profoundly influence the education and development of a generation of newly-

qualified pharmacists in this geography, so that they may deliver the benefits of medicines optimisation. As such, the publications and portfolio materials below represent my mission as a clinical educator to improve the training and assessment of clinicians, as well as establishing appropriate educational systems and infrastructure. The educational initiatives published below aim to develop competent and capable practitioners who can practise safely and effectively.

- 1 **Jubraj B., et al.** *The Acute Care Assessment Tool: 'Pharmacy ACAT'*. The Clinical Teacher 2016; 13:1-5
- 2 Fleming G., **Jubraj B.**, Wright E., Pettit M., Jones S.C. *Mapping education competencies to demonstrate advanced level practice*. The Pharmaceutical Journal 2013; 290: 648
- 3 Davies JG., Ciantar J., **Jubraj B.**, Bates I.P. *Use of a Multisource Feedback Tool to Develop Pharmacists in a Postgraduate Training Program*. American Journal of Pharmaceutical Education 2013; 77 Issue 3, Article 52.
- 4 Jones S.C, Fleming G., Hay D., Ibrahim M., Pettit M., Wright E., **Jubraj B.** *Development and piloting of a competency framework for pharmacy educational and practice supervisors*. Pharmacy Education, 2012; 12 (1): 14 – 19
- 5 **Jubraj B.**, Innes I., Kavanagh R. *Dispel the myths and see the benefits of workplace-based assessments*. The Pharmaceutical Journal 2011; 287: 467-468
- 6 Chung C., **Jubraj B.** *Training junior doctors to prepare and administer injectable drugs*. British Journal of Clinical Pharmacy 2010; 2 (10): 309-311
- 7 **Jubraj B.**, Henry D., Hardy I., McCall-Peat N. *Training doctors to use electronic prescribing information sources*. British Journal of Clinical Pharmacy 2010; 2 (1): 21-22

2.3.1 Portfolio materials

- 1 **Jubraj B.**, Poots A. *Planning for sustainability through clinical education: Medication review and deprescribing*. Presentation at the NIHR CLAHRC NW London Winter Collaborative Event. February 2017
- 2 **Jubraj B.** *Developing a sustainable workplace-based learning infrastructure*. Royal Pharmaceutical Society conference: *Preparing pharmacy for the challenges of workplace-based learning*. London May 2011

2.4 Developing and empowering the workforce publications

Key NHS bodies agree that better training delivers better care. Sir John Temple's key document, 'Time for Training,' was an important milestone in shifting the culture away from education being an 'add on' to day-to-day clinical work. A key focus in my

publication list is the personal and professional development of staff, echoing my long-held belief that education should be at the core of clinical practice. For example, I have written about the importance of mentoring, facilitating self-development, inculcating habits of reflective practice and influencing the development of role identity at an early career stage. The work I have led on education around medication review and deprescribing is based on my belief that in order to change practice across a health system, culture change is needed, which involve exposing novice practitioners to the concepts and empowered to contribute to service improvement. The first-known pharmacy-specific definition of 'self-directed learning' changed the mind set of trainees and their tutors as I began to spread this definition in my teaching of foundation trainees and training of tutors across south east England.

1. Poots AJ., **Jubraj B.**, Barnett N. *Education around deprescribing: 'spread and embed' the story so far*. European Journal of Hospital Pharmacy January 2017 Vol 24 No 1: 7-9
2. Picton C., **Jubraj B.** *Royal Pharmaceutical Society Principles of Medicines Optimisation – Interview with Catherine Picton*. Journal of Medicines Optimisation June 2016 Volume 2 No 2: 25-27
3. **Jubraj B.**, Marvin V., Poots AJ., Patel S., Bovill I., Barnett N., Issen L., Bell D. *A pilot survey of junior doctors' attitudes and awareness around medication review: time to change our educational approach?* European Journal of Hospital Pharmacy 2015 doi:10.1136/ejhpharm-2015-000664
4. Duraisingham S., **Jubraj B.** *Time to stop*. Clinical Pharmacist 2014; 6: 162
5. Barnett N., **Jubraj B.** *How peer-mentoring helps pharmacists prepare for RPS Faculty admission* The Pharmaceutical Journal 2013; 291: 500
6. **Jubraj B.**, Barnett N. *Keys to peer mentoring: similar experience, trust, honesty and a willingness to change*. The Pharmaceutical Journal 2011; 287: 500-501
7. Morris K., Safdar A., Jones S.C., **Jubraj B.** *Make reflection part of your daily practice*. Clinical Pharmacist 2010; 2: 397-399
8. **Jubraj B.** *Developing a culture of self-directed workplace learning in pharmacy*. The Pharmaceutical Journal 2009; 283:47–8.
9. Bruno A., Jones S.C., **Jubraj B.** *Continuing Professional Development (CPD) in Pharmacy Practice: Is it really about learning to learn or legislating learning?* International Pharmacy Journal 2009; 25 (2): 20-25
10. Safdar A., Pullinger W., Karemo K., **Jubraj B.** *Workforce development – rising to current challenges*. Hospital Pharmacist 2007; 14: 267
11. **Jubraj B.** *Assessing Junior Doctors – How Pharmacists can be Prepared*. Hospital Pharmacist 2006;13: 291

12. Hewitt K, **Jubraj B**, Cox D, Ankrah S. *KSF implementation – producing outlines for pharmacy staff*. Hospital Pharmacist 2006; 13:169
13. Farrington P., Buddell K., **Jubraj B**. *Recruitment and retention initiatives and competence-based training for junior pharmacists*. Pharmaceutical Journal 2001; 267: 55

2.4.1 Portfolio materials

- 1 **Jubraj B.**, Marvin V. (2015) *Influencing undergraduate education on medication review and deprescribing* NIHR CLAHRC NW London Summer Collaborative Learning Event presentation. London 17th July 2015
- 2 Patel S., **Jubraj B.**, Marvin V., Bovill I., Umer U., Trehane S.J., Poots A.J. *A survey exploring junior doctors attitudes to medication review*. (Poster presentation) 26th Annual Scientific Meeting, PRIMM (Prescribing and Research In Medicines Management) “One for All and All for One - Different Perspectives in Medicines Optimisation”: London, January 2015. Also published in *Pharmacoepidemiology and Drug Safety Prescribing and Research in Medicines Management (UK & Ireland)* Published Online First: 15/6/15 doi: 10.1002/pds.3812
- 3 **Jubraj B.**, Patel S., King E. *Pharmacists of the future need to prompt doctors to review and stop unnecessary medicines* 2014. <http://www.pharmaceutical-journal.com/opinion/blogs/pharmacists-of-the-future-need-to-prompt-doctors-to-review-and-stop-unnecessary-medicines/20066189.blog>

A statement of intent/outline of the introductory section (approximately 500-700 words). This should include the proposed title of the work and seek to contextualise the selected publications, demonstrate their coherence, and identify the contribution to the advancement of knowledge in the chosen area of research

Appendix 3: Statement of intent/outline of the introductory section

Proposed title of the work: Equipping stakeholders to deliver Medicines Optimisation using a collaborative approach

I believe that my submission for PhD by publication will present a body of work that coheres with the concept of ‘medicines optimisation’. It is well-known that patients experience problems with their medicines, but little research exists around how patients actually use their medicines in practice. NHS England drove the development of medicines optimisation (MO) as a term and a concept, seeking to improve practice in areas such as patient engagement/empowerment and medication safety. MO also seeks to embed itself as part of routine practice.

The four publication themes in my PhD submission cohere with the concept of MO and have had an impact as follows:

Medication review, polypharmacy and deprescribing: Medication review has become an accepted element of MO, in order to ensure that patients are on the right medicines for the right length of time. 'Deprescribing' or stopping inappropriate medicines, is a logical outworking of this. My published co-developed quality improvement projects have supported the embedding of medication review in hospitals across north-west London, and the publication of an international themed issue on deprescribing which I jointly edited. A patient case identified through one of my joint projects involving the use of a medication review tool in the elderly rehabilitation setting, was a finalist at the National Patient Safety Awards 2014. Our use of the tool in the hospital outpatient setting then suggested utility in spite of reservations that it would impede the working of doctors in this busy and time-pressured setting.

Health beliefs, medication adherence, consultation skills, patient empowerment and clinical empathy publications

My earliest published work in this section was as a researcher investigating the health beliefs of haemodialysis patients. The findings from my 1993 study that these patients expressed concerns about their medicines which may impact adherence to them, inspired me to begin a journey of exploration of health beliefs, adherence and patient views about treatment that are represented in all the publications in this section. The haemodialysis study has been widely cited, including by the former 'Medicines Partnership' which was a national authority at the time.

Since then, I have jointly articulated a definition of 'clinical empathy' and for the first time, linked it to one of the key principles of MO. I mapped in a novel fashion, my experience as a carer to the principles of MO which has led to some of the portfolio activities listed in this prima facie statement, which have been used at face-to-face and online at pharmacy meetings and formal teaching around south-east England. My case study on the use of 'My Medication Passport' (MMP) in a disabled child was the first use of this tool in this type of patient. My publications on learning disability, partly borne out of my experience as a parent and carer, led to an invitation to review and co-write the foreword for a national learning disabilities training package that was published in 2017.

Clinical education and training

Predating the term 'MO' but coherent with the concept, my publications in this section relate to medication safety and the need to train staff on students to provide safe and effective care. My publications include the development of training programmes for newly-qualified doctors that are now embedded in a major teaching hospital in London. This type of work prepared me for future work in implementing competency-based training for newly-qualified pharmacists in south-east England (known as 'Foundation Training'). My publications reflect the ongoing impacts; including providing guidance for an educational infrastructure for hospital pharmacies to support work-based learning and assessment. This and other published work around workplace-based assessment and

feedback, were key elements of the mission in south-east England to develop trainee performance in the workplace. Foundation training is now embedded in London and beyond, with international interest in the programme philosophy. I have also advised the Royal Pharmaceutical Society in its quest to develop and accredit national 'Foundation Schools'.

Developing and empowering the workforce

I have written and spoken widely on professional development topics including mentoring, and reflective practice. I have been regularly invited to speak on these topics, including by the Royal Pharmaceutical Society (RPS), and jointly wrote and spoke about the benefits of peer mentoring for candidates to join the RPS Faculty. Later on, I jointly published the first pharmacy-specific definition of self-directed learning which has been a key element of training hospital Foundation pharmacy tutors in south-east England for a decade. I also led the publication of the 'bottom up approach to education around medication review and deprescribing', being amongst the first to articulate strategies to change the culture of medication review by targeting education and training to undergraduate and novice practitioners. This has led to the development of deprescribing teaching for undergraduates and postgraduates, with the stated aim of empowering them to take the initiative in starting conversations with patients and colleagues, in a collaborative way, that lead to appropriate medication review. Our work was also successfully submitted to the Royal Pharmaceutical Society in order to advocate, with others, for 'deprescribing' to be mentioned in the recently published single competency framework for prescribers. Finally, I seek to empower through exhortation, as my short editorials and blogs about medication review demonstrate. These publications have proved to be useful in the educational setting as short discussion pieces to stimulate group reflection. A new example of this is the embedding of a workshop on MO into the undergraduate pharmacy degree at King's College London.

Appendix 6: Key Publication 1 (See Chapter 2.2)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Horne R., Sumner S., **Jubraj B.**, Weinman J., Frost S. *Haemodialysis patients' beliefs about treatment: implications for adherence to medication and fluid-diet restrictions*. International Journal of Pharmacy Practice 2001; 9:169

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Appendix 7: Key Publication 2 (See Chapter 2.3)

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Jubraj B., Barnett N., Grimes L., Varia S., Chater A., Auyeung V. *Why we should understand the patient experience? Clinical empathy and Medicines Optimisation.* International Journal of Pharmacy Practice 2016 Volume 24 Issue 5: 367-370. doi: 10.1111/ijpp.12268

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Appendix 8: Key Publication 3 (See Chapter 2.4)

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Jubraj B., Deakin A., Mills S., Grimes L. *Pharmacy Consultations with people with learning disabilities*. The Pharmaceutical Journal. Vol 296, No 7885, online | DOI: 10.1211/PJ.2016.20200330

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Appendix 9: Key Publication 4 (See Chapter 3.3)

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Saheb MA., **Jubraj B.**, Bovill I., Kuo S., Marvin V, *Intermediate Care*. [An optimal setting for review of inappropriate medication in elderly patients]. *Geriatric Medicine* February 2014. 13-17

Freely available at:

<https://www.qmjournl.co.uk/intermediate-care>

Appendix 10: Key Publication 5 (See Chapter 3.4)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Jubraj B., Marvin V., Poots AJ., Patel S., Bovill I., Barnett N., Issen L., Bell D. *A pilot survey of junior doctors' attitudes and awareness around medication review: time to change our educational approach?* European Journal of Hospital Pharmacy 22: 243-248.
doi:10.1136/ejhpharm-2015-000664

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Appendix 11: Key Publication 6 (See Chapter 3.5)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Barnett N., **Jubraj B.** Themed guest editors (2017) *Themed issue on 'Deprescribing'*. European Journal of Hospital Pharmacy <https://ejhp.bmj.com/content/24/1> (contents page accessed 19.6.19)

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Appendix 12: Key Publication 7 (See Chapter 4.4)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Jubraj B., Patel S., Naseem I., Copp S., Karagkounis D. *The Acute Care Assessment Tool: 'Pharmacy ACAT'*. *The Clinical Teacher* 2016; 13:1-5

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Appendix 13: Key Publication 8 (See Chapter 4.5)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Jubraj B. *Developing a culture of self-directed workplace learning in pharmacy.*
The Pharmaceutical Journal 2009; 283:47–8.

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Appendix 14: Key Publication 9 (See Chapter 4.6)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Davies JG., Ciantar J., **Jubraj B.**, Bates I.P. *Use of a Multisource Feedback Tool to Develop Pharmacists in a Postgraduate Training Program*. American Journal of Pharmaceutical Education 2013; 77 Issue 3, Article 52.

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Available at: <http://europepmc.org/articles/PMC3631727>

Appendix 15: Key Publication 10 (See Chapter 5.3)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Jones S.C., Jubraj B. *Reflecting on teaching and learning*. In Carter S., Editor. *Facilitating Learning in Healthcare*. London: Pharmaceutical Press, 2012

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Available at: <https://www.pharmpress.com>

Appendix 16: Key Publication 11 (See Chapter 5.4)

THE KEY PUBLICATIONS HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Jones S.C, Fleming G., Hay D., Ibrahim M., Pettit M., Wright E., **Jubraj B.**
Development and piloting of a competency framework for pharmacy educational and practice supervisors. Pharmacy Education, 2012; 12 (1): 14 – 19

Permissions:

Freely available at:

<http://pharmacyeducation.fip.org/pharmacyeducation/article/view/286/258>

Appendix 17: NIHR CLAHRC for north-west London - Medication review tool: The 'STOPIT' tool (See Chapter 3.2)

THIS HAS BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Available from: <https://www.sps.nhs.uk/wp-content/uploads/2017/07/STOPIT-review-form-clahrc-NWL-GENERIC-pdf.pdf> (accessed 9.7.19)

**Appendix 18: Nomination for the Royal Pharmaceutical Society 2013
'Excellence in Education' award; and other student feedback**

Please see the start of chapter 4

NB: Quality of the reproduction:

Material for this appendix has been copied from emails and this is the best reproduction achievable.

**ROYAL PHARMACEUTICAL SOCIETY EXCELLENCE IN EDUCATION AWARD:
NOMINATION ONLY**

Name of nominee: Mr Barry Jubraj

Contact Phone Number (incl. area code): 020 8746 8000 x58845

Email Address: Barry.Jubraj@chelwest.nhs.uk

Postal Address (incl. post code): Pharmacy Department, Chelsea and Westminster Hospital, 369 Fulham Road, London, SW10 9NH

Place of work and job title: Chelsea and Westminster NHS Foundation Trust, London.
Lead Pharmacist for Academic Studies & Professional Development.

The award will be made to a person who has made an outstanding contribution to pharmacy education and development, which would be recognised throughout the UK. The nomination will be expected to demonstrate one or more of the following criteria: -

- excellence in pharmacy education and development;
- leadership in pharmacy education and development;
- working effectively across organisational and departmental boundaries to deliver pharmacy education and development;
- innovation that has markedly improved pharmacy education and development

Please describe in no more than 500 words why you feel you or your nominee meets the above criteria.

Please highlight text and start here (500 words max)

Barry is a truly inspirational educator and mentor, and is so humble that he would never say this himself or mention his more recent honorary professorship or RPS fellowship, and undoubtedly there are many more accolades to his name than those of which I am aware.

He continues to work tirelessly for the good of those around him – not just those whom he is officially responsible for and to, but to all within his immediate pharmacy team. He has a compassionate and a holistic approach to the education and development of all those he meets, interested in helping them to develop as people - not just as pharmacists. This has perhaps been most clearly seen in his role with training the often newly qualified (and young!) resident hospital pharmacists that start each year. Without his guidance and, more importantly, I suspect many of these new professionals would have “sunk” and not “swum” as they began at the deep end of their new careers in that hospitals' busy and demanding environment.

Furthermore Barry frequently caring and enquiring after staff many years after they have left his immediate team (to which I can testify personally, despite never having had a role that worked closely with his).

He is widely published on the topic of education, both within pharmacy and beyond, as well as in other areas outside of pharmacy (again there are likely to be many more papers than those of which I am aware, so please do ask for his publication list).

Despite having worked at C&W hospital for in excess of 15 years (I don't know how long exactly) his experience and view of pharmacy is not narrow or hospital centric, nor London centric. He has worked in extensively collaboration with the School of Pharmacy (University of London) as part of the Joint Programme Board and was instrumental in the set up and validation of the General Level Framework competency assessment, followed by the Advanced to Consultant Level Framework which is the tool forming the basis for the RPS's Faculty competency assessment.

He is truly empathetic and supportive to those he works with and always has a calm considered and rational approach to the crises in which many staff find themselves and so turn to him for support.

Barry Jubraj

Life Sciences and Medicine

Congratulations! You were nominated in the Teaching Excellence Awards 2017 in the following categories:

Student Support, Rising Star, Student Support

Comments:

Always replies to student emails, makes himself available to everyone and goes out of his way to make sure students are satisfied ',

'As a first year student, university can be daunting - your support cushions in the form of teachers are now less available due to being busy, and although it can't be helped, less approachable. However, every first year pharmacy student would attest that Barry, our course's professional lead, is an undoubtedly brilliant ergonomic support cushion.

Yes, we call him Barry instead of Mr Jubraj - because he asks us to do so. Because he, without needing to say, clearly respects us students on equal ground and has made us feel the same way. He is the definition of going the extra mile - going beyond what the student even imagines receiving. Yes, a cliché and common phrase, but not a common doing. We all have heard about the number of emails flooding lecturer's inboxes. Barry is also a carer for a child with Down's syndrome yet he always replies in a timely fashion and still apologises for not replying sooner! We email a question about the lecture? We get a brilliantly explained answer with links to get extra information. Although we shouldn't, we even email him about issues not under his responsibility, and he solves our problems beyond what we expected. Why is he the first person we decide to email? Because people who genuinely care for you and exude friendliness and safety and equal respect, draw people towards them.

It is clear in his lectures. Truthfully, the topic of pharmacy law is not one that interests most students, but we enjoy his lectures because of the energy and excitement he brings. He gives examples from his clinical practice, sparks debates that students themselves initiate - because he has taught us more than pharmacy law. He has taught us to be professionals, and indirectly the role model to inspire others through unspoken passion and pride for the title of a 'pharmacist' (one that much of the general public do not value). We may all say that we will 'put patients first'. But Barry has taught us to know ourselves as individuals - the ethics and values we hold - and strive to develop and

improve. He helped us to find our own path to that journey of truly making the best clinical judgement. And all that Barry was required was to teach us was pharmacy law - something that can, frankly, be learnt at home from a textbook.

As our module leader, he also asks for feedback from our lectures, and takes actions to change them - its transparent - that he wants our learning to be of the best quality.

Barry is a new lecturer at King's - Pharmacy Year 1's professional lead. And only as I write this do I realise perhaps he isn't going the extra mile. Perhaps he is transforming the title of 'professional lead' into not just supporting us to become professionals of the academic nature, but supporting and motivating us to become individuals that know no limit to the word 'professional' or 'clinician' like himself. Thus Barry is a 'rising star', that I am sure would very soon encompass all the categories in the Teaching Excellence Awards.'

'He goes out of his way to support students even when it inconveniences him. He ensures that students fully understand why what is being taught and especially how it applies in the real life of a Pharmacist. He has a listening ear and is genuinely keen to help out as much ss he can.'

From: Neagle, Ann < > **On Behalf Of** McFadzean, Ian

Sent: 07 June 2019 14:44

To: Jubraj, Barry < >

Subject: King's Education Award

Dear Barry

I am writing to let you know that your students nominated you recently for a King's Education Award; many congratulations. I would also like add my personal thanks for going that extra mile to ensure that our students gain the most from their time at university.

I have appended any citations that came with your nominations below so that you can see how appreciative the students are of your efforts.

Barry has supported me throughout the MPharm programme. He is willing to share his past experience to us fellow students. He also provides great teaching with his up to date and comprehensive knowledge in clinical pharmacy. He is one of the lecturers that is willing to go the extra mile to help and support his students.

All the lecturers and academic staff are very professional and helpful when required however I feel that Barry deserves recognition as an exceptional form tutor. He has helped me immensely in my first 2 years of education which have been quite difficult due to personal circumstances however Barry has been a figure I could largely trust with sensitive information and he too shares his personal struggles and how he manages them which I have always appreciated and admired. He has always been supportive and offered personalised support to my general challenges which I feel is partially responsible for my progression in the course. Furthermore, he has never judged me when I have faulted in my course however, he always motivated me to be the best individual I can be. Finally he always reassures me and has spoken to ease my anxieties at times where it has been a problem for me which I appreciate. For these reasons I feel that Barry deserves recognition for the work that he does as he goes the extra mile to get the best out of his students/tutees.

Made me feel comfortable when first starting university Makes learning engaging and he's relatable Increased my confidence and made me feel at ease even when times were stressful . Always encouraging students

With very best wishes

Ian

Professor Ian McFadzean FRSB, FBPhS

Dean of Bioscience Education

Faculty of Life Sciences & Medicine

Room 1.2N, Hodgkin Building

King's College London

Guy's Campus

LONDON SE1 1UL

Appendix 19: Workplace-based Assessment (WPBA) Tools mentioned in Chapter 4

THESE HAVE BEEN REMOVED FROM THIS ELECTRONIC COPY OF THE THESIS. THE INTRODUCTORY TEXT REMAINS BELOW:

Tools included are as follows (NB – some tools reproduced in part to illustrate the principles):

1. Mini-clinical evaluation exercise (mini-CEX) – includes page 2 of guidance
 - a. A prospectively snapshot tool
2. Direct observation of practical skills (DOPS):
 - a. As above, focusing on practical skills
3. Medication-Related Consultation Framework (MRCF):
 - a. As above, focusing on practical skills
4. Case-based discussion (CbD):
 - a. A retrospective snapshot tool
5. Mini-Peer assessment tool (mini-PAT):
 - a. A type of 360 degree feedback tool
 - b. See chapter 4.6 and key publication 9**
6. The Pharmacy Acute Care Assessment Tool (Pharmacy ACAT):
 - a. See chapter 4.4 and key publication 7**

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(The versions included were used at the time of the author's activity. They have since been superseded by updates from the Royal Pharmaceutical Society, based on the Joint Programme Board's original work)

Appendix 20: Author's 'wagon wheel' to illustrate Workplace-based Assessment (WPBA) and summative assessment tools used in the London pharmacy foundation programme

See:

Section 4.4

Key publication 7 (appendix 12)

Figure 1: 'Wagon wheel' of WPBA & summative assessment in pharmacy foundation training

