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Contribution of supervision to the development of advanced practitioners: a qualitative study of pharmacy learners' and supervisors' views

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5 **Contribution of supervision to the development of advanced practitioners: a**
6 **qualitative study of pharmacy learners' and supervisors' views**
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Abstract

Objective: To apply educational theory to explore how supervision can contribute to the development of advanced practitioners using the example of several post-registration primary care training pathways for pharmacy professionals (pharmacists and pharmacy technicians)

Design: Qualitative semi-structured telephone interviews applying Billet's theory of workplace pedagogy for interpretation.

Setting: England

Participants: Forty-seven learners and ten supervisors

Primary outcome: The contribution of clinical (CS) and educational supervision (ES) to the development of advanced practitioners in primary care.

Results:

Findings were mapped against components of Billet's theory to provide insights into the role of supervision in developing advanced practitioners. Key elements for effective supervision included: supporting learners to identify their learning needs (ES), guiding learners in everyday work activities (CS), combination of regular pre-arranged face-to-face meetings and ad hoc contact when needed (CS), along with ongoing support as learners progressed through a learning pathway (ES).

Clinical supervisors supported learners to develop proficiency and confidence in translating and applying the knowledge and skills they were gaining into practice. Learners benefitted from having clinical supervisors in the workplace with good understanding and experience of working in the setting, as well as receiving clinical supervision from different types of health care professionals. Educational supervisors supported learners to identify their learning needs and the requirements of the learning pathway, and then as an ongoing available source of support as they progressed through a pathway. Educational supervisors also filled in some of the gaps where there was a lack of local clinical supervision, and in settings like community pharmacy where pharmacist learners did not have access to any clinical supervision.

Conclusions: This study drew out important elements which contributed to effective supervision of pharmacy advanced practitioners. Findings can inform the education and training of advanced practitioners from different professions to support healthcare workforce development in different healthcare settings.

Strengths and limitations of this study

- This is the first study to apply Billet's theory of workplace pedagogy as an interpretive framework to understand the mechanisms facilitating effective supervision of advanced practitioners in new and changing primary care settings, with pharmacy professionals as an exemplar.
- Triangulating views of learners and supervisors from different primary care learning pathways helped gather insights into the role of clinical and educational supervision across the board.
- Participants volunteered to take part in this study which increased the potential of self-selection, self-reporting, social desirability and recall bias.
- There were only five clinical and five educational supervisors that participated in this study which limited the depth of findings.

Background

Increasing patient demand, workforce shortages and escalating costs are key challenges encountered by healthcare systems worldwide.¹ Both in the United Kingdom (UK) and internationally, there has been a drive to develop a flexible, multidisciplinary healthcare workforce that can competently work in different organisations and sectors to enable effective service provision across integrated care systems.²⁻⁵ The reported benefits of expanding the role of the non-medical workforce (e.g. nurses, pharmacists, optometrists, chiropractors, physiotherapists, psychologists, occupational therapists, dieticians) include: improving patients' access to healthcare, reducing healthcare costs, controlling prescribing expenditure, detecting and resolving drug related problems, and making clinical interventions to patients' medicines.⁶⁻⁸ In the UK, in part driven by current NHS workforce pressures,⁹ 'advanced practice' roles are increasingly being introduced so that new services can be provided by staff who are competent and have clinical capacity.³ Advanced practitioners include healthcare professionals from a range of professional backgrounds (e.g. nursing, pharmacy, paramedics occupational therapy) widening their scopes of practice, working more autonomously, taking on more patient-facing, clinical work in a range of healthcare settings.² Similar policy initiatives on advanced practice and optimising healthcare workforce skill mix exist in other countries.¹⁰

Of particular importance is preparing the healthcare workforce to work across different settings, and to gain the skills and confidence needed to do so. Effective supervision plays a key part in this preparation, supporting trainees to apply their learning in practice, to facilitate deeper learning.¹¹ Whilst there are different forms of, and approaches to, supervision (e.g. clinical supervision, educational supervision, managerial supervision, informal supervision, mentoring, coaching), they share a common goal which is to promote trainees' personal and professional development.¹² Hence, supervision often involves one-to-one encounters between trainees and supervisors which promote the development of competence and reflective practice. This includes (but is not limited to) guidance, management, training, assessment, or remediation.

In medical education, the most common form of supervision is clinical supervision which consists of oversight of day-to-day clinical performance with regular feedback.¹³ The benefits

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3 of effective clinical supervision in facilitating learning and performance have been widely
4 recognised in both the medical and nursing literature.¹⁴⁻¹⁹ Common features of effective
5 supervision include: availability of supervisor, informative feedback, effective communication
6 and a supportive relationship between supervisor and supervisee.¹⁸⁻²¹ Of paramount
7 importance is having clinical supervisors with the experience, skills and knowledge to support
8 learners in the workplace.²²
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11 Another, more recently established, form of supervision is 'educational supervision'. In the
12 medical literature, this role involves establishing trainees' learning needs and reviewing
13 progress to ensure that trainees are making the necessary clinical and educational progress.¹¹
14 The medical literature on educational supervision suggests that educational supervision is
15 beneficial when supervisors provide learners with adequate support to identify their learning
16 requirements along with sufficient access to appropriate training opportunities.^{23 24} On the
17 other hand, inadequate time, lack of training and clarity on supervision role detracts from the
18 benefit of educational supervision.^{13 23} Apart from physicians and nurses, research is limited
19 in relation to different types of supervision models in the training and development of a wider
20 range of healthcare professionals which will support the expansion of skill-mix within
21 healthcare teams.
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26 Pharmacy professionals' skills have been increasingly recognised in the UK, and they have
27 been deployed across a range of primary care settings, partially due to funding from the
28 Pharmacy Integration Fund (PhIF). Therefore, pharmacy offers a good exemplar to explore
29 the role of supervision to support a move to advanced practice. The PhIF was launched by
30 NHS England (NHSE) in 2016 to commission and evaluate activities that integrate pharmacy
31 professionals in community pharmacies and other primary care settings to deliver medicines
32 optimisation and clinical pharmacy services for patients as part of an integrated system.²⁵
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35 In UK pharmacy, there is no real culture of, or formal support/ framework for, registered
36 pharmacy professionals' support or supervision. Some evidence has been emerging on the
37 process (or lack) of supervision and support for pharmacists and pharmacy technicians in the
38 workplace, mostly stemming from the period prior to registration.²⁶⁻²⁹ Community pharmacists,
39 for example, commonly work as the sole pharmacist and do not have access to peer support
40 or supervision in the workplace. Another issue is the lack of consistency in work-based
41 experiences for pharmacy professionals within and between hospital and community
42 pharmacy sectors. For instance, hospital pharmacists learn about specialist medicines on
43 ward rotations whereas in community pharmacy, pharmacists develop knowledge of over-the-
44 counter medicines.³⁰ In addition, pharmacy technician education and training lacks the clinical
45 focus required to take on extended roles, and, in community pharmacy, technicians' roles are
46 not clearly defined or sufficiently different from other support staff.²⁹
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50 More recently, pharmacy professionals increasingly work in a range of primary care settings,
51 which have a limited understanding of their skills or learning needs.³¹ To support pharmacy
52 professionals, and indeed other types of advanced practitioners, to fit into a multidisciplinary
53 team and be supported to do so for best patient care, it is important to understand what
54 supervision is required. A better understanding of supervision requirements can help design
55 a supervision model which supports the learning of pharmacy professionals and other
56 healthcare professionals in advancing their practice.
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3 The aim of this paper is to explore how supervision can contribute to the development of
4 advanced practitioners using the example of a number of PhIF-funded post-registration
5 training pathways for pharmacy professionals (pharmacists and pharmacy technicians) in
6 England.
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9 Pharmacy Integration Programme in England

11 In the context of pharmacy in England, Health Education England (HEE)¹ commissioned a
12 range of training and development pathways to support the development of pharmacy
13 professionals to extend their scope of practice, funded through PhIF.
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15 As defined by HEE, “advanced level practice isn’t a specific role, it includes all practitioners
16 who have progressed to an advanced level through further education and training”.³² PhIF is
17 providing support for a number of learning pathways which facilitate advanced practice. The
18 focus of this paper is on the following pathways: Medicines Optimisation in Care Homes
19 (MOCH), Integrated Urgent Care (IUC), Accuracy Checking Pharmacy Technician (ACPT),
20 and post-registration programmes (**Table 1**). These pathways, whilst having some
21 commonalities, were also quite different, with some (post-registration and ACPT) focusing on
22 training without pharmacy professionals moving to a new role or setting, whilst others
23 encompassed employment in a new role (urgent care setting or care home) accompanied by
24 a programme of learning. Learners on MOCH, IUC, and some post-registration pathways were
25 provided with educational supervisors. The role of educational supervisors was to guide
26 learners in an educational capacity on behalf of the training provider. Learners on the MOCH
27 and IUC pathways were also assigned clinical supervisors to guide them in their clinical
28 practice at their place of work; and on ACPT, pharmacy technicians had workplace supervisors
29 which worked alongside learners in the same setting and provided guidance on day-to-day
30 activities. The following table provides a description of the key elements of the learning
31 pathways
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36 **[Insert Table 1 here]**
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41 Theory of workplace pedagogy

43 This paper draws on educational theory to shed light on the contribution of supervision in
44 supporting the development of pharmacy professionals as advanced clinical practitioners.
45 Billet’s theory of workplace pedagogy³⁷ focuses on learning opportunities and resources made
46 available in the workplace and how the trainee engages with opportunities and resources
47 provided in that workplace (**Table 2**). Billet’s workplace theory is grounded in the idea that
48 learning solely through participation in everyday work activities may not be sufficient without
49 guidance of more experienced co-workers. In the context of this study, pharmacy
50 professionals’ learning and development was reliant upon them obtaining the support,
51 resources and guidance required to contribute to the workplace. This also depended on what
52 was offered to pharmacy learners and on their personal characteristics and motives. Hence,
53 using Billet’s theory of workplace pedagogy as a lens to analyse and interpret findings helps
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59 ¹ the NHS statutory body responsible for the education and training of the health workforce
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3 uncover what contributes to an effective supervision model to support the learning of
4 healthcare professionals in advanced clinical practice roles.
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7 **[Insert Table 2 here]**
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10 **Design**

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12 This study is part of a wider mixed methods evaluation of PhIF Learning Pathways. Data from
13 semi-structured qualitative interviews with learners and supervisors were analysed to unpack
14 the role of supervision, and what contributes to, or detracts from, effective workplace learning
15 in these pathways.
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18 Learners from each of the learning pathways in the PhIF evaluation were invited to take part
19 in these interviews. To recruit education and clinical supervisors on the PhIF pathways,
20 learning providers distributed email invitations amongst their networks, requesting those
21 interested to contact the research team. Recruitment adverts were also distributed by the
22 research team via social media.
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25 Telephone interviews were conducted by 3 members of the research team with learners and
26 supervisors between January and March 2020. Interviews ranged from 25 to 60 minutes. Field
27 notes were taken during or after the interview. Those conducting interviews had considerable
28 experience conducting qualitative research from previous research. They were paused for two
29 months at the start of the COVID-19 pandemic and resumed from June to November 2020.
30 Interview questions were tailored to understand the views and experiences of learners and
31 supervisors in relation to the learning pathways and the subsequent application of learning in
32 the workplace. Topic guides were informed by the Theoretical Domains Framework, a model
33 of behaviour change used to understand how learning and policy interventions influence
34 changes in practice. Questions relating specifically to supervision explored the role of
35 educational and clinical supervision in facilitating learning and application. Data collection
36 continued until data saturation was reached.
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40 All interviews were audio-recorded and transcribed verbatim. Transcriptions were imported
41 into NVivo11 to manage the data analysis process. Interview transcripts were analysed using
42 an abductive approach, integrating inductive data-driven coding with deductive theory-driven
43 interpretation³⁸ by positioning empirical findings against components of Billet's work-based
44 theory. Taking a combined iterative and theoretical approach to analysis ensured that Billet's
45 work-based education theory was used in an exploratory way to make sense of findings.³⁹
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48 Forty-seven learners and ten supervisors were interviewed. Interviewed learners included 20
49 post-registration pharmacists, 13 MOCH pharmacists, three MOCH pharmacy technicians,
50 seven IUC, and four ACPTs. Supervisors included five clinical supervisors (MOCH=4, IUC=1),
51 and five educational supervisors from the post-registration pathway.
52

53 **Results**

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55 Using Billet's theory of workplace pedagogy, findings have been grouped into three themes to
56 provide insight into supervision models in terms of developing advanced practitioners (**Table**
57 **3**):
58

- 59 • Participation in workplace activities and guided learning at work
60

- Workplace affordances
- Ongoing support to help meet learning needs

An additional theme was identified from inductive data driven coding but did not map on to Billet's theory:

- Support offered for supervisors

[Insert Table 3 here]

Participation in workplace activities and guiding learning at work

Billet highlights the importance of supervisees being provided with opportunities to observe and participate in workplace activities and receive guidance from supervisors as well as experienced co-workers. This was reflected in learners' accounts regarding their experiences of clinical supervision. Those who portrayed supervision as a beneficial source of support typically described clinical supervision as an opportunity to shadow, be observed by, and receive feedback from an experienced clinician. Learners described having protected time to undertake learning within the workplace, often supported or facilitated by colleagues, and undertaken in conjunction with their supervisor.

"So, what she [supervisor] would do is just take me through, before a case came in, she would take me through her thought process of what she thought and expected. And then you'd see during the consultation how things change and how things develop. And then we'd debrief afterwards...So, it helped that learning experience and then we'd discuss it afterwards and identify anything that I wanted to work on further or anything in my portfolio that I had to get experience, to tick off that competency." (Pharmacist learner; IUC.136)

Billet refers to guided learning as "a more experienced co-worker (the mentor) using techniques and strategies to guide and monitor the development of the knowledge of those who are less skilful (the mentees)".⁴⁰ Guided learning was an essential component of the clinical supervisory role. Clinical supervisors typically conceptualised their role in terms of supporting learners to develop proficiency and confidence with regards to translating and applying the knowledge and skills they were gaining into their clinical practice.

"So, for me, it's about practical application of what they learn through, you know, reading or on study days or through their discussion groups. So, for me, the course needs to put in a foundation of clinical knowledge that we can then apply, on the one hand almost patient by patient because it's a very patient focused service in real terms, but equally, it's also about the clinical confidence..." (Clinical supervisor; MOCH.502)

Several clinical supervisors highlighted their role in supporting learners to overcome initial challenges, including a lack of established professional networks and information governance agreements between organisations. This included supporting learners to understand and orientate themselves within their practice environments whilst navigating the relational and structural aspects of their new role and work environments:

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"Yes, I think it's an enabling role, I think it's somebody who, I think more of this is about relationships and actually facilitating and navigating these individuals to embed them locally. And when we are talking about primary care and integrated care, actually making that as seamless as possible for them to do that." (Clinical supervisor; MOCH.500)

Supervisors frequently described facilitating critical reflection as a key element of their role:

"...it's all about encouraging people isn't it? And making sure that they're aware of their own working practices, making sure that they're aware, what their strengths and their own weaknesses are, so that they can regulate themselves a little bit more." (Work-based supervisor; ACPT.203)

Signposting learners to other sources of relevant support was additionally referenced as a means of enabling learners to progress their learning and expand their support networks.

"I've had lots of discussions about trying to enable those individuals to get what they need, and it's not always from me, but actually from a number of different individuals, depending on what the nature of the problem of the challenge is that has presented itself." (Clinical supervisor; MOCH.500)

Learners on different pathways valued support from the wider team (particularly other pharmacists) to ease their transition into new advanced roles. However, some learners thought that teamwork and collaboration between pharmacy teams and wider healthcare professionals still needed improvement.

"Because naturally in the team previously I think pharmacists have been the ones doing the medication, main medication review and when it gets, you know, and it's like, oh technicians do that bit whereas now we're becoming more as a team... so sometimes there is a bit of resistance, a bit of natural resistance because people fear the unknown." (Pharmacy technician learner; MOCH.104)

Workplace affordances

Billet describes "workplace affordances" as the way the workplace shapes learning by providing learners access to activities and the direct and indirect guidance that individuals are able to access at the workplace.³⁷ In this study, clinical supervisors who also acted as learners' line managers were a good fit as they were frequently able to offer a combination of regular pre-arranged face-to-face meetings alongside the opportunity for more ad hoc contact as and when learners felt this was needed.

On the other hand, several learners felt their clinical supervisors were mismatched to their needs. Reasons that learners felt this ranged from supervisors lacking relevant experience, to being located geographically far away and lacking understanding of the role or course. These factors / conditions led to a lack of affordances:

"I think that because the person [supervisor] hadn't done the course themselves and had only had the training that's offered, didn't understand a lot of what had to be done and things and relied very heavily on me explaining to her, so I think that the training was obviously lacking. But she did the best that she could." (Pharmacist learner; MOCH. 109)

Lack of proximity to the learner also created challenges in respect of observing learners' practice and assessing competencies.

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"I think the idea of the clinical supervisor would be that you are spending time directly with that individual during their clinical practice and some of the physical examination assessments and observing those, you know, the way in which the assessments were structured and the criteria were put in place that I just couldn't fulfil the role that was described, I think that's the way to put it, because of the lack of capacity that I had really." (Clinical supervisor; MOCH.502)

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Workplace affordances were not solely derived from the supervisor. The delegation of observation and assessment responsibilities to others was frequently cited as a means of overcoming challenges regarding capacity and geographical spread.

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"Well we managed to work round it by very kind nurses and doctors working alongside him [clinical supervisor] to get us signed off for all the bits that needed to be signed off and they supervised us." (Pharmacist learner; MOCH.115)

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Utilising the skills and expertise across the workplace was beneficial to learners. Learners who described receiving clinical supervision from other types of health care professionals, particularly those receiving supervision from GPs and nurses, tended to describe the experience positively.

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"The organisation helped me shadow different GPs and different nurse practitioners to get a good flavour of the different kinds of consultation styles and different kinds of cases that you'd be dealing with. Because a nurse practitioner will deal with different things than a GP sometimes and handle them in a different way." (Pharmacist learner; IUC.136)

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Issues with supervisor availability and expertise were less frequently encountered by ACPT learners who were all allocated a supervisor within their workplace which afforded them high accessibility, level of support and feedback.

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"Having the [work based] supervisor was quite handy because I always spoke to them. Whenever I worked there, they're there, so I can speak to them and then they could guide me. They would see the way that I work as well and he will give me the improvements and guidance. They were very supportive." (Pharmacy technician learner; ACPT.151)

44 45 Ongoing support to help meet learning needs

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Educational supervision offered a way to fill some of the gaps where local clinical supervision was not available, and in settings like community pharmacy where learners did not have access to clinical/ work-based supervision at all, yet still needed support. Educational supervisors characterised their role in terms of supporting learners to identify their learning needs and the requirements of the learning pathway, and then as an ongoing available source of support in relation to any personal or academic challenges that learners encountered as they progressed through a pathway. Setting realistic and manageable aims and objectives with learners was described as a key component of the educational supervisor role.

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"I would say it's having that initial meeting over the telephone, or even in person with the student, to really develop a development plan and their learning needs analysis, because we want to find out initially, because we need to plan ahead, what their backgrounds are, what their aims are, what they want to achieve and between us we come with objectives and realistic objectives, because a lot of

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3 *people think coming here expecting one thing, when in reality it's completely*
4 *different" (Educational supervisor; post registration pathway.200)*
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6 For some learners, educational supervision appeared to be structured and readily available.
7 These learners discussed receiving frequent structured reviews that were planned in advance.
8 On the contrary, some learners described the educational supervision that was available as
9 being largely learner-led. These learners felt they would have benefited from more proactive
10 support from their supervisors.
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12 Support offered for supervisors

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14 When asked about support or training received for supervision, some supervisors described
15 feeling well supported in their role. This was attributed to having access to other supervisors
16 with vast experience for support as well as wider networks. Other supervisors often reported
17 feeling largely unsupported in their supervisory role, particularly those that supported learners
18 who were not based within a service that they managed. Suggestions for additional support
19 included face-to-face supervisor training sessions, and additional structure and clarity around
20 expectations and monitoring associated with the role.
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23 *"I mean, I think going forward, we probably want to put in some kind of face-to-*
24 *face clinical supervisor training session or contact session." (Clinical supervisor;*
25 *MOCH.500)*
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30 **Discussion**

31 Drawing on qualitative data from a wider mixed methods evaluation of PhIF learning pathways,
32 this paper explored pharmacy learners' and their supervisors' views on supervision models
33 which can contribute to the development of advanced practitioners. Using Billet's theory of
34 workplace pedagogy as an interpretive framework enabled an understanding of the
35 mechanisms facilitating effective supervision. Findings from this study should be considered
36 in future policy interventions relevant for enhancing the education and training of advanced
37 practitioners.
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40 Participants in this study drew out important elements for effective supervision of advanced
41 practitioners highlighting key workplace pedagogic practices such as: supporting learners to
42 identify their learning needs (setting realistic and manageable aims and objectives); guided
43 learning at work (i.e. opportunity to shadow, be observed by, and receive feedback from an
44 experienced clinician), combination of regular pre-arranged face-to-face meetings and ad hoc
45 contact when needed; along with ongoing support as learners' progressed through a learning
46 pathway. These findings are consistent with studies on supervision in medical and nursing
47 education, where setting clear goals and actions to achieve learning outcomes; facilitating
48 learners' participation in workplace activities; providing regular ongoing feedback; and
49 responsive support facilitate personal and professional development for learners.⁴¹⁻⁴³
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53 The educational and clinical supervisory roles in this study were described as complementary,
54 offering distinct but connected contributions to learning, with clinical supervisors aiming to
55 support learners to apply their learning in practice and educational supervisors focusing on
56 supporting learners to navigate the requirements of a learning pathway. These findings
57 complement existing research and guidance in medicine and nursing around the roles of
58 clinical and educational supervision.^{11 13} However, our evaluation highlighted that supervision
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3 needs to be more consistent in terms of supervisors' availability and accessibility, knowledge
4 and experience, and level of support.
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6 Achieving effective supervision requires a flexible approach to supervision suited to local
7 circumstances and context of the setting. Important considerations involve having clinical
8 supervisors in practice settings with good proximity, good understanding and experience of
9 working in the setting. It is beneficial to have a supervisor from the same profession,
10 particularly if there are issues around role clarity in newer settings. Equally, or possibly more
11 beneficial, is for learners to have supervision from different professions to support the breadth
12 of development necessary across all areas of advanced practice. Advanced practitioners
13 come from a range of professions and there will be some overlap in roles and responsibilities
14 across different professions. This was gleaned from learner accounts in this study, where
15 learners receiving some form of clinical supervision from other types of health care
16 professionals tended to describe the experience positively as they developed a broader
17 understanding of how different professions provide patient care. Hence, supervisory tasks do
18 not necessarily have to be profession specific; what is more important is for supervisors to
19 have the knowledge, skills and availability to help the learner to develop a specified capability
20 and assess trainee competence. Such multi-professional approaches are common in training
21 of medical students⁴⁴ and could ensure early career advanced practitioners' broad knowledge
22 and skills are encompassed.
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27 In addition to clinical supervision focusing on specific individual learning needs in the
28 workplace, more formative educational supervision is needed to identify learning needs,
29 provide continuous and responsive support with a focus on guiding learners' development
30 from single sector healthcare professionals to cross-sector healthcare professionals. An
31 educational supervisor should be responsible for overseeing and coordinating multi-
32 professional learning with clinical supervisors. Educational supervisors in this study also
33 offered a way to fill in some of the gaps where there was a lack of local clinical supervision,
34 and in settings like community pharmacy where pharmacist learners did not have access to
35 clinical supervision at all – where they are otherwise isolated and relatively unsupported.⁴⁵
36 There may also be a role for an arms-length clinical mentor, who has the clinical knowledge
37 but does not work close by – particularly in situations where learners work in isolation (e.g.
38 community pharmacy). Structured mentoring programmes have been implemented to facilitate
39 specific career-advancement of healthcare professionals (mainly nurses) where reported
40 benefits are consolidation of the mentees' professional and social skills, increased self-
41 confidence, improved communication skills leadership development, and succession
42 planning.^{46 47}
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47 Our findings also highlight the need for developing a flexible healthcare workforce with
48 supervision skills in a variety of settings so they can meet the needs of the learners, where
49 advanced practice and behaviour and practice change are the goal. Training and support for
50 supervision should include a range of flexible supervision models/styles which can be adapted
51 by supervisors to facilitate interaction and ensure continuity regardless of setting. These
52 models should be underpinned by an integrated approach to supervision which recognises
53 communication pathways between different type of supervisors and other means of support
54 (e.g. mentors, line managers etc.) involved within the learner's training and education
55 pathway. Supervisors also need organisational support to facilitate their professional
56 development and balance supervision duties with daily practice.⁴⁸
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3 In addition to providing supervisors with guidance on best supervisory practices and
4 organisational support, expectations for advanced practitioners need to be clearly defined
5 otherwise supervisors and learners may hold conflicting views which will negatively impact
6 learning and supervision experiences.^{49 50} It is also advisable that healthcare professionals
7 from different disciplines are made aware of the professional role and capabilities of learners
8 to offset challenges with professional identity formation and adjustment ('identity work') in new
9 workplace settings.⁵¹ Findings from this study suggest that having a more experienced
10 healthcare professional in the workplace from the same discipline as the learner could help
11 facilitate professional identity work. Interprofessional education and training in the workplace
12 are also other means which can enhance professional identity formation and a collaborative
13 approach to patient care⁵²⁻⁵⁴

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17 Our study limitations include self-selection, self-reporting, social desirability and recall bias
18 making findings more positive. Any potential bias that could occur due to two of the authors
19 being pharmacists was mitigated as those conducting and analysing the interviews were not
20 pharmacists. Another limitation is that there were only five clinical and five educational
21 supervisors. In addition, all the educational supervisors which participated in our study were
22 from the post-registration learning pathway which limited the depth of findings on educational
23 supervision. Nonetheless, views of learners from other learning pathways (although limited)
24 helped us gather some insights on the role of clinical and educational supervision across the
25 board.
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29 Conclusion

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31 Using educational theory, this study highlights important considerations for effective
32 supervision of pharmacy learners in advanced practitioner roles. Insights from this study can
33 inform the education and training of advanced practitioners from different professions to
34 support healthcare workforce development and integrated multi-disciplinary working in
35 different healthcare settings. Future research should focus on developing models which
36 encourage interprofessional supervision and mentoring to support development of advanced
37 practitioners in different settings and to aid with supervisory capacity in the existing workforce.
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41
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43

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45

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53 by SW with input from EIS, SJ, IM, ES and AM. AH drafted the manuscript, which EIS, SW,
54 SJ, JA, IM, ES, SS, CF and AM commented on and edited. The final manuscript was read and
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56

57 **Ethics Approval:** This study received ethics approval by The University of Manchester
58 Research Ethics Committee (Ref no. 2019-7358-12719). Written or verbal consent to
59 participate in the study was obtained from each participant prior to starting data collection.
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4 **Patient consent form:** N/A
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6 **Data sharing statement:** The datasets generated and/or analysed during the current study
7 are not publicly available due to protection of participant confidentiality.
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Tables

TABLE 1: Summary of PhIF learning pathways in scope of the evaluation

Learning pathways	Definition	Aim	Mode of delivery*	Supervision
Medicines Optimisation in Care Homes	Pharmacist independent prescriber works as a member of the multidisciplinary team to support care home residents achieve medicines optimisation according to need. Pharmacy technician ensures the efficient supply and management of medicines within the care home, supporting care home staff and residents. ³³	To give pharmacists and pharmacy technicians working in care homes the confidence and skills to deliver medicines optimisation for care home residents as part of a multidisciplinary team	One provider; used a blended approach of online and workplace-based learning	Provided by educational and clinical supervisor
Integrated Urgent Care	Pharmacist independent prescriber works in urgent care as part of the multidisciplinary team where they handle medicines-related enquiries and issues, undertake clinical assessment and treatment of minor ailments and where appropriate, prescribe for repeat prescription requests, and	For pharmacists to develop the knowledge, confidence and adaptability to work effectively in NHS 111/Integrated Urgent Care settings as part of an MDT.	One provider; used a blended approach of online and workplace-based learning	Provided by educational and clinical supervisor

	provide self-care advice. ³⁴			
Accuracy Checking Pharmacy Technician	An accuracy checking pharmacy technician provides the final autonomous accuracy check of dispensed medicines, following clinical check by a pharmacist ³⁵	To ensure pharmacy technicians are able to check dispensed items safely and effectively, taking a greater leadership role in pharmacies	Used a blended approach of online and workplace-based learning	Provided by work-based supervisor
Post registration programmes^a	Provides community and health in justice pharmacists to choose from a range of courses and modules which focus on: service improvement; extended skills; patient activation; delivering medicines optimisation; and NHS England clinical priorities. ³⁶	To ensure community pharmacists have the skills and confidence to deliver a range of clinical services across a range of care pathways.	Range of HEIs commissioned; varied blended approach and others providing the learning almost entirely online	Provided by educational supervisor

* These pathways commenced in 2018/19. Following COVID-19 pandemic, mode of learning became almost entirely online for all pathways

a = post-registration learning pathway mainly involved community pharmacists but was also open to prison pharmacists. The evaluation only involved community pharmacists.

Table 2: Three planes of workplace pedagogic practices taken from Billet³⁷

Participation in work activities: the organizing of access to and the guidance and monitoring of engagement in work activities of increasing accountability, including access to the direct and indirect guidance that workplaces provide freely through everyday work activities
<ul style="list-style-type: none"> • Learning through undertaking everyday work activities
<ul style="list-style-type: none"> • Sequencing of tasks (from low to highly accountability [peripheral to full participation])
<ul style="list-style-type: none"> • Opportunities to participate, observe and listen
<ul style="list-style-type: none"> • Opportunities to access goals required for performance
Guided learning at work: direct guidance in the form of intentional learning strategies (e.g., modelling, coaching, questioning, analogies, diagrams) directed toward developing the values, procedures, and understandings that would not be learned through experience or discovery alone
<ul style="list-style-type: none"> • Close guidance by experienced workers
<ul style="list-style-type: none"> • Use of modelling, coaching and scaffolding
<ul style="list-style-type: none"> • Use of techniques to engage workers in learning for themselves
<ul style="list-style-type: none"> • Use of techniques to develop understanding
Guided learning for transfer^a : extending the adaptability of individuals' knowledge to other situations and circumstances
<ul style="list-style-type: none"> • Use of questioning, problem-solving and scenario-building to extend learners' knowledge to novel situations

a. *Transferable outcomes will also be developed on the other planes.*

Table 3: Mapping of themes against components of Billet's theory

Components of Billet's theory of workplace pedagogy	Theme(s)
Learning through undertaking everyday work activities Opportunities to participate, observe and listen Use of modelling, coaching and scaffolding	<ul style="list-style-type: none"> • Participation in workplace activities and guided learning at work
Use of techniques to develop understanding	<ul style="list-style-type: none"> • Participation in workplace activities and guided learning at work • Ongoing support to help meet learning needs
Opportunities to access goals required for performance	<ul style="list-style-type: none"> • Workplace affordances • Ongoing support to help meet learning needs
Close guidance by experienced workers	<ul style="list-style-type: none"> • Participation in workplace activities and guided learning at work • Workplace affordances • Ongoing support to help meet learning needs
	<ul style="list-style-type: none"> • Support offered for supervisors*

*Additional theme identified from inductive data driven coding but did not map on to Billet's theory.

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

YOU MUST PROVIDE A RESPONSE FOR ALL ITEMS. ENTER N/A IF NOT APPLICABLE

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
<i>Personal Characteristics</i>		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Design (page 6)
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Cover page (page 1)
3. Occupation	What was their occupation at the time of the study?	Cover page (page 1)
4. Gender	Was the researcher male or female?	N/A
5. Experience and training	What experience or training did the researcher have?	Design (page 6)
<i>Relationship with participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	No
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Design (page 6)
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Discussion (page 12)
Domain 2: study design		
<i>Theoretical framework</i>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Design (page 6)
<i>Participant selection</i>		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Design (page 6)
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Design (page 6)
12. Sample size	How many participants were in the study?	Design (page 6)

13. Non-participation	How many people refused to participate or dropped out? Reasons?	N/A
<i>Setting</i>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	N/A (Telephone interviews)
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	N/A
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Design (page 6)
<i>Data collection</i>		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Design (page 6)
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	N/A
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Design (page 6)
20. Field notes	Were field notes made during and/or after the interview or focus group?	Design (page 6)
21. Duration	What was the duration of the interviews or focus group?	Design (page 6)
22. Data saturation	Was data saturation discussed?	Design (page 6)
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	N/A
Domain 3: analysis and findings		
<i>Data analysis</i>		
24. Number of data coders	How many data coders coded the data?	Contributors (page 12)
25. Description of the coding tree	Did authors provide a description of the coding tree?	N/A
26. Derivation of themes	Were themes identified in advance or derived from the data?	Design (page 6-7)
27. Software	What software, if applicable, was used to manage the data?	NVivo mentioned in page 6
28. Participant checking	Did participants provide feedback on the findings?	N/A (contact details for participants had to be removed after completion of interviews to comply with university research ethics regulation)
<i>Reporting</i>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Results (pages 7-10)
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Discussion (pages 14-16)

31. Clarity of major themes	Were major themes clearly presented in the findings?	Results (pages 6-10)
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Results: Additional theme which did not map on to theory (page 7/ Table 3)

Once you have completed this checklist, please save a copy and upload it as part of your submission. When requested to do so as part of the upload process, please select the file type: *Checklist*. You will NOT be able to proceed with submission unless the checklist has been uploaded. Please DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

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Contribution of supervision to the development of advanced practitioners: a qualitative study of pharmacy learners' and supervisors' views

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Keywords:	EDUCATION & TRAINING (see Medical Education & Training), Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PRIMARY CARE, CLINICAL PHARMACOLOGY

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5 **Contribution of supervision to the development of advanced practitioners: a**
6 **qualitative study of pharmacy learners' and supervisors' views**
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Abstract

Objective: To apply educational theory to explore how supervision can contribute to the development of advanced practitioners using the example of several post-registration primary care training pathways for pharmacy professionals (pharmacists and pharmacy technicians)

Design: Qualitative semi-structured telephone interviews applying Billet's theory of workplace pedagogy for interpretation.

Setting: England

Participants: Fifty one learners and ten supervisors

Primary outcome: The contribution of clinical (CS) and educational supervision (ES) to the development of advanced practitioners in primary care.

Results:

Findings were mapped against components of Billet's theory to provide insights into the role of supervision in developing advanced practitioners. Key elements for effective supervision included: supporting learners to identify their learning needs (ES), guiding learners in everyday work activities (CS), combination of regular pre-arranged face-to-face meetings and ad hoc contact when needed (CS), along with ongoing support as learners progressed through a learning pathway (ES).

Clinical supervisors supported learners to develop proficiency and confidence in translating and applying the knowledge and skills they were gaining into practice. Learners benefitted from having clinical supervisors in the workplace with good understanding and experience of working in the setting, as well as receiving clinical supervision from different types of health care professionals. Educational supervisors supported learners to identify their learning needs and the requirements of the learning pathway, and then as an ongoing available source of support as they progressed through a pathway. Educational supervisors also filled in some of the gaps where there was a lack of local clinical supervision, and in settings like community pharmacy where pharmacist learners did not have access to any clinical supervision.

Conclusions: This study drew out important elements which contributed to effective supervision of pharmacy advanced practitioners. Findings can inform the education and training of advanced practitioners from different professions to support healthcare workforce development in different healthcare settings.

Strengths and limitations of this study

- This study applied Billet's theory of workplace pedagogy as an interpretive framework to better understand the mechanisms facilitating effective supervision of advanced practitioners in primary care settings.
- This study triangulated views of learners and supervisors from different primary care learning pathways to explore the role of clinical and educational supervision across the board.
- Participants volunteered to take part in this study which increased the potential of self-selection, self-reporting, social desirability and recall bias.
- There were only five clinical and five educational supervisors that participated in this study which limited the depth of findings.

Background

Increasing patient demand, workforce shortages and escalating costs are key challenges encountered by healthcare systems worldwide.¹ Both in the United Kingdom (UK) and internationally, there has been a drive to develop a flexible, multidisciplinary healthcare workforce that can competently work in different organisations and sectors to enable effective service provision across integrated care systems.²⁻⁵ The reported benefits of expanding the role of the non-medical workforce (e.g. nurses, pharmacists, optometrists, chiropractors, physiotherapists, psychologists, occupational therapists, dieticians) include: improving patients' access to healthcare, reducing healthcare costs, controlling prescribing expenditure, detecting and resolving drug related problems, and making clinical interventions to patients' medicines.⁶⁻⁸ In the UK, in part driven by current NHS workforce pressures,⁹ 'advanced practice' roles are increasingly being introduced so that new services can be provided by staff who are competent and have clinical capacity.³ Advanced practitioners include healthcare professionals from a range of professional backgrounds (e.g. nursing, pharmacy, paramedics occupational therapy) widening their scopes of practice, working more autonomously, taking on more patient-facing roles, clinical work in a range of healthcare settings.² Similar policy initiatives on advanced practice and optimising healthcare workforce skill mix exist in other countries.¹⁰

Of particular importance is preparing advanced practitioners to move between different primary and secondary care settings working as part of a multi-disciplinary team, and to gain the skills and confidence needed to do so. Effective supervision plays a key part in this preparation, supporting trainees to apply their learning in practice, to facilitate deeper learning.¹¹ Whilst there are different forms of, and approaches to, supervision (e.g. clinical supervision, educational supervision, managerial supervision, informal supervision, mentoring, coaching), they share a common goal which is to promote trainees' personal and professional development.¹² Hence, supervision often involves one-to-one encounters between trainees and supervisors which promote the development of competence and reflective practice. This includes (but is not limited to) guidance, management, training, assessment, or remediation.

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3 In medical education, the most common form of supervision is clinical supervision which
4 consists of oversight of day-to-day clinical performance with regular feedback.¹³ The benefits
5 of effective clinical supervision in facilitating learning and performance have been widely
6 recognised in both the medical and nursing literature.¹⁴⁻¹⁹ Common features of effective
7 supervision in medicine, pharmacy, and nursing literature include: availability of supervisor,
8 informative feedback, effective communication and a supportive relationship between
9 supervisor and supervisee.¹⁸⁻²² These features have also been found to facilitate effective
10 clinical supervision of physiotherapists, occupational therapists, social workers, dietitians,
11 psychologists, podiatrists and speech pathologists.²³ Of paramount importance is having
12 clinical supervisors with the experience, skills and knowledge to support learners in the
13 workplace.²²⁻²⁴
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18 Another, more recently established, form of supervision is 'educational supervision'. In the
19 medical literature, this role involves establishing trainees' learning needs and reviewing
20 progress to ensure that trainees are making the necessary clinical and educational progress.¹¹
21 The medical literature on educational supervision suggests that educational supervision is
22 beneficial when supervisors provide learners with adequate support to identify their learning
23 requirements along with sufficient access to appropriate training opportunities.^{25 26} On the
24 other hand, inadequate time, lack of training and clarity on supervision role detracts from the
25 benefit of educational supervision.^{13 25} Apart from physicians and nurses, research is limited
26 in relation to different types of supervision models in the training and development of a wider
27 range of healthcare professionals which will support the expansion of skill-mix within
28 healthcare teams.
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32 Pharmacy professionals' skills have been increasingly recognised in the UK, and they have
33 been deployed across a range of primary care settings, partially due to funding from the
34 Pharmacy Integration Fund (PhIF). Therefore, pharmacy offers a good exemplar to explore
35 the role of supervision to support a move to advanced practice. The PhIF was launched by
36 NHS England (NHSE) in 2016 to commission and evaluate activities that integrate pharmacy
37 professionals in community pharmacies and other primary care settings to deliver medicines
38 optimisation and clinical pharmacy services for patients as part of an integrated system.²⁷
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41 In UK pharmacy, there is no formal support/ framework for registered pharmacy professionals'
42 support or supervision. There is emerging research that considers the process (or lack) of
43 supervision and support for pharmacists and pharmacy technicians in the workplace, mostly
44 stemming from the period prior to registration.²⁸⁻³¹ Community pharmacists, for example,
45 commonly work as the sole pharmacist and do not have access to peer support or supervision
46 in the workplace. Another issue is the lack of consistency in work-based experiences for
47 pharmacy professionals within and between hospital and community pharmacy sectors. For
48 instance, hospital pharmacists learn about specialist medicines on ward rotations whereas in
49 community pharmacy, pharmacists develop knowledge of over-the-counter medicines.³² In
50 addition, pharmacy technician education and training lacks the clinical focus required to take
51 on extended roles, and, in community pharmacy, technicians' roles are not clearly defined or
52 sufficiently different from other support staff.³¹
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57 More recently, pharmacy professionals increasingly work in a range of primary care settings,
58 where other professionals and support staff in the different settings have a limited
59 understanding of the role and potential learning needs of pharmacy professionals.³³ To
60 support pharmacy professionals, and indeed other types of advanced practitioners, to fit into

a multidisciplinary team and be supported to do so for best patient care, it is important to understand what supervision is required. A better understanding of supervision requirements can help design a supervision model which supports the learning of pharmacy professionals and other healthcare professionals in advancing their practice.

The aim of this paper is to explore how supervision can contribute to the development of advanced practitioners using the example of a number of PhIF-funded post-registration training pathways for pharmacy professionals (pharmacists and pharmacy technicians) in England.

Pharmacy Integration Programme in England

In the context of pharmacy in England, Health Education England (HEE)¹ commissioned a range of training and development pathways to support the development of pharmacy professionals to extend their scope of practice, funded through PhIF.

As defined by HEE, “advanced level practice isn’t a specific role, it includes all practitioners who have progressed to an advanced level through further education and training”.³⁴ PhIF is providing support for a number of learning pathways which facilitate advanced practice. The focus of this paper is on the following pathways: Medicines Optimisation in Care Homes (MOCH), Integrated Urgent Care (IUC), Accuracy Checking Pharmacy Technician (ACPT), and post-registration programmes (**Table 1**). These pathways, whilst having some commonalities, were also quite different, with some (post-registration and ACPT) focusing on training without pharmacy professionals moving to a new role or setting, whilst others encompassed employment in a new role (urgent care setting or care home) accompanied by a programme of learning. Learners on MOCH, IUC, and some post-registration pathways were provided with educational supervisors. The role of educational supervisors was to guide learners in an educational capacity on behalf of the training provider. Learners on the MOCH and IUC pathways were also assigned clinical supervisors to guide them in their clinical practice at their place of work; and on ACPT, pharmacy technicians had workplace supervisors which worked alongside learners in the same setting and provided guidance on day-to-day activities. The following table provides a description of the key elements of the learning pathways.

TABLE 1: Summary of PhIF learning pathways in scope of the evaluation

Learning pathways	Definition	Aim	Mode of delivery*	Supervision
Medicines Optimisation in Care Homes	Pharmacist independent prescriber works as a member of the multidisciplinary team to support care home residents achieve medicines	To give pharmacists and pharmacy technicians working in care homes the confidence and skills to deliver medicines optimisation for	One provider; used a blended approach of online and workplace-based learning	Provided by educational and clinical supervisor

¹ the NHS statutory body responsible for the education and training of the health workforce

	optimisation according to need. Pharmacy technician ensures the efficient supply and management of medicines within the care home, supporting care home staff and residents. ³⁵	care home residents as part of a multidisciplinary team		
Integrated Urgent Care	Pharmacist independent prescriber works in urgent care as part of the multidisciplinary team where they handle medicines-related enquiries and issues, undertake clinical assessment and treatment of minor ailments and where appropriate, prescribe for repeat prescription requests, and provide self-care advice. ³⁶	For pharmacists to develop the knowledge, confidence and adaptability to work effectively in NHS 111/Integrated Urgent Care settings as part of an MDT.	One provider; used a blended approach of online and workplace-based learning	Provided by educational and clinical supervisor
Accuracy Checking Pharmacy Technician	An accuracy checking pharmacy technician provides the final autonomous accuracy check of dispensed medicines, following clinical check by a pharmacist ³⁷	To ensure pharmacy technicians are able to check dispensed items safely and effectively, taking a greater leadership role in pharmacies	Used a blended approach of online and workplace-based learning	Provided by work-based supervisor

Post registration programmes^a	Provides community and health in justice pharmacists to choose from a range of courses and modules which focus on: service improvement; extended skills; patient activation; delivering medicines optimisation; and NHS England clinical priorities. ³⁸	To ensure community pharmacists have the skills and confidence to deliver a range of clinical services across a range of care pathways.	Range of HEIs commissioned; varied blended approach and others providing the learning almost entirely online	Provided by educational supervisor
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* These pathways commenced in 2018/19. Following COVID-19 pandemic, mode of learning became almost entirely online for all pathways

a = post-registration learning pathway mainly involved community pharmacists but was also open to prison pharmacists. The evaluation only involved community pharmacists.

Theory of workplace pedagogy

This paper draws on educational theory to shed light on the contribution of supervision in supporting the development of pharmacy professionals as advanced clinical practitioners. Billet's theory of workplace pedagogy³⁹ focuses on learning opportunities and resources made available in the workplace and how the trainee engages with opportunities and resources provided in that workplace (**Table 2**). Billet's workplace theory is grounded in the idea that learning solely through participation in everyday work activities may not be sufficient without guidance of more experienced co-workers. In the context of this study, pharmacy professionals' learning and development was reliant upon them obtaining the support, resources and guidance required to contribute to the workplace. This also depended on what was offered to pharmacy learners and on their personal characteristics and motives. Hence, using Billet's theory of workplace pedagogy as a lens to analyse and interpret findings helps uncover what contributes to an effective supervision model to support the learning of healthcare professionals in advanced clinical practice roles.

Table 2: Three planes of workplace pedagogic practices taken from Billet³⁹

<p>Participation in work activities: the organizing of access to and the guidance and monitoring of engagement in work activities of increasing accountability, including access to the direct and indirect guidance that workplaces provide freely through everyday work activities</p> <ul style="list-style-type: none"> • Learning through undertaking everyday work activities • Sequencing of tasks (from low to highly accountability [peripheral to full participation]) • Opportunities to participate, observe and listen • Opportunities to access goals required for performance
<p>Guided learning at work: direct guidance in the form of intentional learning strategies (e.g., modelling, coaching, questioning, analogies, diagrams) directed toward developing the values, procedures, and understandings that would not be learned through experience or discovery alone</p> <ul style="list-style-type: none"> • Close guidance by experienced workers • Use of modelling, coaching and scaffolding • Use of techniques to engage workers in learning for themselves • Use of techniques to develop understanding
<p>Guided learning for transfer^a : extending the adaptability of individuals' knowledge to other situations and circumstances</p> <ul style="list-style-type: none"> • Use of questioning, problem-solving and scenario-building to extend learners' knowledge to novel situations

a. *Transferable outcomes will also be developed on the other planes.*

Design

This study is part of a wider mixed methods evaluation of PhIF Learning Pathways. Data from semi-structured qualitative interviews with learners and supervisors were analysed to unpack the role of supervision, and what contributes to, or detracts from, effective workplace learning in these pathways.

Learners from each of the learning pathways in the PhIF evaluation were invited to take part in these interviews. To recruit education and clinical supervisors on the PhIF pathways, learning providers distributed email invitations amongst their networks, requesting those interested to contact the research team. Recruitment adverts were also distributed by the research team via social media.

Telephone interviews were conducted by 3 members of the research team with learners and supervisors between January and March 2020. Interviews ranged from 25 to 60 minutes. Field notes were taken during or after the interview. Those conducting interviews had considerable experience conducting qualitative research from previous research. They were paused for two months at the start of the COVID-19 pandemic and resumed from June to November 2020. Interview questions were tailored to understand the views and experiences of learners and

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3 supervisors in relation to the learning pathways and the subsequent application of learning in
4 the workplace. Topic guides were informed by relevant literature and the Theoretical Domains
5 Framework, a model of behaviour change used to understand how learning and policy
6 interventions influence changes in practice. Questions relating specifically to supervision
7 explored the role of educational and clinical supervision in facilitating learning and application.
8 Although not pilot tested, topic guides were refined following discussions between the
9 research team and relevant PhIF stakeholders. Data collection continued until data saturation
10 was reached.
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12

13 All interviews were audio-recorded and transcribed verbatim. Transcriptions were imported
14 into NVivo11 to manage the data analysis process. Interview transcripts were analysed using
15 an abductive approach, integrating inductive data-driven coding with deductive theory-driven
16 interpretation⁴⁰ by positioning empirical findings against components of Billet's work-based
17 theory. Taking a combined iterative and theoretical approach to analysis ensured that Billet's
18 work-based education theory was used in an exploratory way to make sense of findings.⁴¹
19

20 Fifty one learners and ten supervisors were interviewed. Interviewed learners included 20
21 post-registration pharmacists, 13 MOCH pharmacists, seven MOCH pharmacy technicians,
22 seven IUC, and four ACPTs. Supervisors included five clinical supervisors (MOCH=4, IUC=1),
23 and five educational supervisors from the post-registration pathway.
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28 Patient and Public Involvement

29 Patients were not involved in design or conduct of this study as the evaluation looked at
30 learning pathways for pharmacy professionals.
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34 Results

35 Using Billet's theory of workplace pedagogy, findings have been grouped into three themes
36 under clinical supervision and educational supervision, to provide insight into supervision
37 models in terms of developing advanced practitioners (**Table 3**):
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40 Clinical supervision

- 41 • Participation in workplace activities and guided learning at work
- 42 • Workplace affordances
- 43
- 44

45 Educational supervision

- 46 • Ongoing support to help meet learning needs
- 47

48 An additional theme was identified from inductive data driven coding but did not map on to
49 Billet's theory:

- 50 • Support offered for supervisors
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Table 3: Mapping of themes against components of Billet's theory

Components of Billet's theory of workplace pedagogy	Theme(s)
Learning through undertaking everyday work activities	<ul style="list-style-type: none"> • Participation in workplace activities and guided learning at work
Opportunities to participate, observe and listen	
Use of modelling, coaching and scaffolding	
Use of techniques to develop understanding	<ul style="list-style-type: none"> • Participation in workplace activities and guided learning at work • Ongoing support to help meet learning needs
Opportunities to access goals required for performance	<ul style="list-style-type: none"> • Workplace affordances • Ongoing support to help meet learning needs
Close guidance by experienced workers	<ul style="list-style-type: none"> • Participation in workplace activities and guided learning at work • Workplace affordances • Ongoing support to help meet learning needs
	<ul style="list-style-type: none"> • Support offered for supervisors*

*Additional theme identified from inductive data driven coding but did not map on to Billet's theory.

Clinical supervision

Participation in workplace activities and guiding learning at work

Billet highlights the importance of supervisees being provided with opportunities to observe and participate in workplace activities and receive guidance from supervisors as well as experienced co-workers. This was reflected in learners' accounts regarding their experiences of clinical supervision. Those who portrayed supervision as a beneficial source of support typically described clinical supervision as an opportunity to shadow, be observed by, and receive feedback from an experienced clinician. Learners described having protected time to undertake learning within the workplace, often supported or facilitated by colleagues, and undertaken in conjunction with their supervisor.

“what she [supervisor] would do is just take me through, before a case came in, she would take me through her thought process of what she thought and expected. And then you'd see during the consultation how things change and how things develop. And then we'd debrief afterwards..., it helped that learning experience and then we'd discuss it afterwards and identify anything that I wanted

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3 *to work on further or anything in my portfolio that I had to get experience, to tick*
4 *off that competency." (Pharmacist learner; IUC.136)*
5

6 Billet refers to guided learning as "a more experienced co-worker (the mentor) using
7 *techniques and strategies to guide and monitor the development of the knowledge of those*
8 *who are less skilful (the mentees)".⁴² Guided learning was an essential component of the*
9 *clinical supervisory role. Clinical supervisors typically conceptualised their role in terms of*
10 *supporting learners to develop proficiency and confidence with regards to translating and*
11 *applying the knowledge and skills they were gaining into their clinical practice.*
12

13
14 *"...it's about practical application of what they learn through, you know, reading or*
15 *on study days or through their discussion groups. The course needs to put in a*
16 *foundation of clinical knowledge that we can then apply, on the one hand almost*
17 *patient by patient because it's a very patient focused service in real terms, but*
18 *equally, it's also about the clinical confidence..." (Clinical supervisor; MOCH.502)*
19

20
21 Several clinical supervisors highlighted their role in supporting learners to overcome initial
22 challenges, including a lack of established professional networks and information governance
23 agreements between organisations. This included supporting learners to understand and
24 orientate themselves within their practice environments whilst navigating the relational and
25 structural aspects of their new role and work environments:
26

27
28 *"...it's an enabling role, I think it's somebody who, I think more of this is about*
29 *relationships and actually facilitating and navigating these individuals to embed*
30 *them locally. And when we are talking about primary care and integrated care,*
31 *actually making that as seamless as possible for them to do that." (Clinical*
32 *supervisor; MOCH.500)*
33

34 Supervisors frequently described facilitating critical reflection as a key element of their role:

35
36 *"...it's all about encouraging people isn't it? And making sure that they're aware of*
37 *their own working practices, making sure that they're aware, what their strengths*
38 *and their own weaknesses are, so that they can regulate themselves a little bit*
39 *more." (Work-based supervisor; ACPT.203)*
40

41 Signposting learners to other sources of relevant support was additionally referenced as a
42 means of enabling learners to progress their learning and expand their support networks.
43

44 *"I've had lots of discussions about trying to enable those individuals to get what*
45 *they need, and it's not always from me, but actually from a number of different*
46 *individuals, depending on what the nature of the problem of the challenge is that*
47 *has presented itself." (Clinical supervisor; MOCH.500)*
48

49 Learners on different pathways valued support from the wider team (particularly other
50 pharmacists) to ease their transition into new advanced roles. However, some
51 learners thought that teamwork and collaboration between pharmacy teams and
52 wider healthcare professionals still needed improvement.
53

54 *"Because naturally in the team previously I think pharmacists have been the ones*
55 *doing the medication, main medication review and when it gets, you know, and it's*
56 *like, oh technicians do that bit whereas now we're becoming more as a team... so*
57 *sometimes there is a bit of resistance, a bit of natural resistance because people*
58 *fear the unknown." (Pharmacy technician learner; MOCH.104)*
59
60

Workplace affordances

Billet describes “workplace affordances” as the way the workplace shapes learning by providing learners access to activities and the direct and indirect guidance that individuals are able to access at the workplace.³⁹ In this study, clinical supervisors who also acted as learners’ line managers were a good fit as they were frequently able to offer a combination of regular pre-arranged face-to-face meetings alongside the opportunity for more ad hoc contact as and when learners felt this was needed.

On the other hand, several learners felt their clinical supervisors were mismatched to their needs. Reasons that learners felt this ranged from supervisors lacking relevant experience, to being located geographically far away and lacking understanding of the role or course. These factors / conditions led to a lack of affordances:

“because the person [supervisor] hadn’t done the course themselves and had only had the training that’s offered, didn’t understand a lot of what had to be done and things and relied very heavily on me explaining to her, so I think that the training was obviously lacking.” (Pharmacist learner; MOCH. 109)

Lack of proximity to the learner also created challenges in respect of observing learners’ practice and assessing competencies.

“I think the idea of the clinical supervisor would be that you are spending time directly with that individual during their clinical practice and some of the physical examination assessments and observing those, you know, the way in which the assessments were structured and the criteria were put in place that I just couldn’t fulfil the role that was described, I think that’s the way to put it, because of the lack of capacity that I had really.” (Clinical supervisor; MOCH.502)

Workplace affordances were not solely derived from the supervisor. The delegation of observation and assessment responsibilities to others was frequently cited as a means of overcoming challenges regarding capacity and geographical spread.

“Well we managed to work round it by very kind nurses and doctors working alongside him [clinical supervisor] to get us signed off for all the bits that needed to be signed off and they supervised us.” (Pharmacist learner; MOCH.115)

Utilising the skills and expertise across the workplace was beneficial to learners. Learners who described receiving clinical supervision from other types of health care professionals, particularly those receiving supervision from GPs and nurses, tended to describe the experience positively.

“The organisation helped me shadow different GPs and different nurse practitioners to get a good flavour of the different kinds of consultation styles and different kinds of cases that you’d be dealing with. Because a nurse practitioner will deal with different things than a GP sometimes and handle them in a different way.” (Pharmacist learner; IUC.136)

Issues with supervisor availability and expertise were less frequently encountered by ACPT learners who were all allocated a supervisor within their workplace which afforded them high accessibility, level of support and feedback.

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3 *“Having the [work based] supervisor was quite handy because I always spoke to*
4 *them. Whenever I worked there, they’re there, so I can speak to them and then they*
5 *could guide me. They would see the way that I work as well and he will give me the*
6 *improvements and guidance. They were very supportive.” (Pharmacy technician*
7 *learner; ACPT.151)*
8
9

10 **Educational supervision**

11 Ongoing support to help meet learning needs

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14 Educational supervision offered a way to fill some of the gaps where local clinical supervision
15 was not available, and in settings like community pharmacy where learners did not have
16 access to clinical/ work-based supervision at all, yet still needed support. Educational
17 supervisors characterised their role in terms of supporting learners to identify their learning
18 needs and the requirements of the learning pathway, and then as an ongoing available source
19 of support in relation to any personal or academic challenges that learners encountered as
20 they progressed through a pathway. Setting realistic and manageable aims and objectives
21 with learners was described as a key component of the educational supervisor role.
22
23

24 *“...it’s having that initial meeting over the telephone, or even in person with the*
25 *student, to really develop a development plan and their learning needs analysis,*
26 *because we want to find out initially, because we need to plan ahead, what their*
27 *backgrounds are, what their aims are, what they want to achieve and between us*
28 *we come with objectives and realistic objectives, because a lot of people think*
29 *coming here expecting one thing, when in reality it’s completely different”*
30 *(Educational supervisor; post registration pathway.200)*
31
32

33 For some learners, educational supervision appeared to be structured and readily available.
34 These learners discussed receiving frequent structured reviews that were planned in advance.
35 On the contrary, some learners described the educational supervision that was available as
36 being largely learner-led. These learners felt they would have benefited from more proactive
37 support from their supervisors.
38

39 Support offered for supervisors

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41 When asked about support or training received for supervision, some supervisors described
42 feeling well supported in their role. This was attributed to having access to other supervisors
43 with vast experience for support as well as wider networks. Other supervisors often reported
44 feeling largely unsupported in their supervisory role, particularly those that supported learners
45 who were not based within a service that they managed. Suggestions for additional support
46 included face-to-face supervisor training sessions, and additional structure and clarity around
47 expectations and monitoring associated with the role.
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50 *“...going forward, we probably want to put in some kind of face-to-face clinical*
51 *supervisor training session or contact session.” (Clinical supervisor; MOCH.500)*
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55 **Discussion**

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57 Drawing on qualitative data from a wider mixed methods evaluation of PhIF learning pathways,
58 this paper explored pharmacy learners’ and their supervisors’ views on supervision models
59 which can contribute to the development of advanced practitioners. Using Billet’s theory of
60

workplace pedagogy as an interpretive framework enabled an understanding of the mechanisms facilitating effective supervision. Findings from this study should be considered in future policy interventions relevant for enhancing the education and training of advanced practitioners.

Participants in this study drew out important elements for effective supervision of advanced practitioners highlighting key workplace pedagogic practices such as: supporting learners to identify their learning needs (setting realistic and manageable aims and objectives); guided learning at work (i.e. opportunity to shadow, be observed by, and receive feedback from an experienced clinician), combination of regular pre-arranged face-to-face meetings and ad hoc contact when needed; along with ongoing support as learners' progressed through a learning pathway. These findings are consistent with studies on supervision in medical and nursing education, where setting clear goals and actions to achieve learning outcomes; facilitating learners' participation in workplace activities; providing regular ongoing feedback; and responsive support facilitate personal and professional development for learners.⁴³⁻⁴⁵

The educational and clinical supervisory roles in this study were described as complementary, offering distinct but connected contributions to learning, with clinical supervisors aiming to support learners to apply their learning in practice and educational supervisors focusing on supporting learners to navigate the requirements of a learning pathway. These findings complement existing research and guidance in medicine and nursing around the roles of clinical and educational supervision.^{11 13} However, our evaluation highlighted that supervision needs to be more consistent in terms of supervisors' availability and accessibility, knowledge and experience, and level of support.

Achieving effective supervision requires a flexible approach to supervision suited to local circumstances and context of the setting. Important considerations involve having clinical supervisors in practice settings with good proximity, good understanding and experience of working in the setting. Our findings highlighted that importance of trainees utilising the skills and expertise across the workplace. Hence, it is beneficial for learners to have clinical supervision from different professions to support the breadth of development necessary across all areas of advanced practice. Advanced practitioners come from a range of professions and there will be some overlap in roles and responsibilities across different professions. This was gleaned from learner accounts in this study, where learners receiving some form of clinical supervision from other types of health care professionals tended to describe the experience positively as they developed a broader understanding of how different professions provide patient care. Such multi-professional approaches are common in training of medical students⁴⁶.

In addition to clinical supervision focusing on specific individual learning needs in the workplace, more formative educational supervision is needed to identify learning needs, provide continuous and responsive support with a focus on guiding learners' development from single sector healthcare professionals to cross-sector healthcare professionals. Educational supervisors in this study also offered a way to fill in some of the gaps where there was a lack of local clinical supervision, and in settings like community pharmacy where pharmacist learners did not have access to clinical supervision at all – where they are otherwise isolated and relatively unsupported.⁴⁷ There may also be a role for an arms-length clinical mentor, who has the clinical knowledge but does not work close by – particularly in situations where learners work in isolation (e.g. community pharmacy). Structured mentoring programmes have been implemented to facilitate specific career-advancement of healthcare

professionals (mainly nurses) where reported benefits are consolidation of the mentees' professional and social skills, increased self-confidence, improved communication skills leadership development, and succession planning.^{48 49}

Our findings also highlight the need for developing a flexible healthcare workforce with supervision skills in a variety of settings so they can meet the needs of the learners, where advanced practice and behaviour and practice change are the goal. Training and support for supervision should include a range of flexible supervision models/styles which can be adapted by supervisors to facilitate interaction and ensure continuity regardless of setting. These models should be underpinned by an integrated approach to supervision which recognises communication pathways between different type of supervisors and other means of support (e.g. mentors, line managers etc.) involved within the learner's training and education pathway.^{50 51} Supervisors also need organisational support to facilitate their professional development and balance supervision duties with daily practice.²³

It is also advisable that healthcare professionals from different disciplines are made aware of the professional role and capabilities of learners to offset challenges with professional identity formation and adjustment in new workplace settings.⁵² Findings from this study suggest that having a more experienced healthcare professional in the workplace from the same discipline as the learner could help facilitate development of the trainees' professional identity. Interprofessional education and training in the workplace are also other means which can enhance professional identity formation and a collaborative approach to patient care⁵³⁻⁵⁵

Our study limitations include self-selection, self-reporting, social desirability and recall bias making findings more positive. Any potential bias that could occur due to two of the authors being pharmacists was mitigated as those conducting and analysing the interviews were not pharmacists. Another limitation is that there were only five clinical and five educational supervisors. In addition, all the educational supervisors which participated in our study were from the post-registration learning pathway which limited the depth of findings on educational supervision. Nonetheless, views of learners from other learning pathways (although limited) helped us gather some insights on the role of clinical and educational supervision across the board.

Conclusion

Using educational theory, this study highlights important considerations for effective supervision of pharmacy learners in advanced practitioner roles. These include supporting learners to identify their learning needs (ES), guiding learners in everyday work activities (CS), combination of regular pre-arranged face-to-face meetings and ad hoc contact when needed (CS), along with ongoing support as learners progressed through a learning pathway (ES). Insights from this study can inform the education and training of advanced practitioners from different professions to support healthcare workforce development and integrated multi-disciplinary working in different healthcare settings. Future research should focus on developing models which encourage interprofessional supervision and mentoring to support development of advanced practitioners in different settings and to aid with supervisory capacity in the existing workforce.

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Contributors: JA, SS, CF were responsible for data collection. JA, SS and CF coded and analysed the interview transcripts which was overseen by SJ with input from EIS. AH was responsible for applying educational theory to interpret the data analysis which was overseen by SW with input from EIS, SJ, IM, ES and AM. AH drafted the manuscript, which EIS, SW, SJ, JA, IM, ES, SS, CF and AM commented on and edited. The final manuscript was read and approved by all authors.

Ethics Approval: This study received ethics approval by The University of Manchester Research Ethics Committee (Ref no. 2019-7358-12719). Written or verbal consent to participate in the study was obtained from each participant prior to starting data collection.

Patient consent form: N/A

Data sharing statement: The datasets generated and/or analysed during the current study are not publicly available due to protection of participant confidentiality.

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For peer review only

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

YOU MUST PROVIDE A RESPONSE FOR ALL ITEMS. ENTER N/A IF NOT APPLICABLE

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
<i>Personal Characteristics</i>		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Design (page 6)
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Cover page (page 1)
3. Occupation	What was their occupation at the time of the study?	Cover page (page 1)
4. Gender	Was the researcher male or female?	N/A
5. Experience and training	What experience or training did the researcher have?	Design (page 6)
<i>Relationship with participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	No
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Design (page 6)
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Discussion (page 12)
Domain 2: study design		
<i>Theoretical framework</i>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Design (page 6)
<i>Participant selection</i>		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Design (page 6)
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Design (page 6)
12. Sample size	How many participants were in the study?	Design (page 6)

13. Non-participation	How many people refused to participate or dropped out? Reasons?	N/A
<i>Setting</i>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	N/A (Telephone interviews)
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	N/A
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Design (page 6)
<i>Data collection</i>		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Design (page 6)
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	N/A
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Design (page 6)
20. Field notes	Were field notes made during and/or after the interview or focus group?	Design (page 6)
21. Duration	What was the duration of the interviews or focus group?	Design (page 6)
22. Data saturation	Was data saturation discussed?	Design (page 6)
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	N/A
Domain 3: analysis and findings		
<i>Data analysis</i>		
24. Number of data coders	How many data coders coded the data?	Contributors (page 12)
25. Description of the coding tree	Did authors provide a description of the coding tree?	N/A
26. Derivation of themes	Were themes identified in advance or derived from the data?	Design (page 6-7)
27. Software	What software, if applicable, was used to manage the data?	NVivo mentioned in page 6
28. Participant checking	Did participants provide feedback on the findings?	N/A (contact details for participants had to be removed after completion of interviews to comply with university research ethics regulation)
<i>Reporting</i>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Results (pages 7-10)
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Discussion (pages 14-16)

31. Clarity of major themes	Were major themes clearly presented in the findings?	Results (pages 6-10)
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Results: Additional theme which did not map on to theory (page 7/ Table 3)

Once you have completed this checklist, please save a copy and upload it as part of your submission. When requested to do so as part of the upload process, please select the file type: *Checklist*. You will NOT be able to proceed with submission unless the checklist has been uploaded. Please DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.