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Barriers and enablers to pharmacists' involvement in a novel immunisation programme

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ABSTRACT

Aim: Pharmacists are involved in immunisation programmes for a variety of diseases. However, some patient populations may be considered at high risk of complications from vaccination and are excluded from these programmes. The study aimed to explore pharmacists' roles in a vaccination programme to identify factors that influence their involvement.

Methods: Phenomenological qualitative semi-structured interviews were conducted online with a convenience sample of pharmacists working in a COVID-19 vaccination centre in January and February 2021, by a single researcher. Recordings of the interviews were transcribed automatically, manually quality checked and thematically analysed using NVivo Version 1 by all authors. Data were repeatedly read to identify what pharmacists did and how they did it.

Results: Seventeen pharmacists were interviewed, and transcript analysis identified 1) What pharmacists did in the Vaccination Centre, 2) Barriers to involvement in the Vaccination Centre and 3) Enablers to being involved in the Vaccination Centre. Key findings indicate pharmacists adopted the roles of information counsellors, supporting patients with vaccine hesitancy, making autonomous prescribing decisions as well as documenting product administration and manipulation. Limited free time at work and desk-based roles for senior pharmacists were barriers to taking on a patient-facing role. National recognition of pharmacists' skills, access to information through official and unofficial networks and a sense of duty, or *zeitgeist*, enabled pharmacists' to be involved.

Discussion: Pharmacists can support immunisation for patients during pandemics if given appropriate autonomy and recognition. Further work is needed to explore how pharmacists may be recognised for their work and use information obtained through informal networks.

1. Background

The World Health organization declared an emergency public health crisis on January 30th 2020.¹ A new coronavirus referred to as SARS-CoV-2 or COVID-19, had begun to spread globally leading to symptoms including difficulty breathing and, in some cases, death.¹ A key challenge relating to this pandemic was the novelty of the virus, which meant human responses to infection were unpredictable. As scientific, health and political leaders worked together to develop strategies to manage the spread of the virus, vaccines and vaccination programmes became a key part of the coronavirus response.² As vaccines are typically regulated as medicinal products, a COVID-19 vaccination was given emergency authorisation in the United Kingdom, to be administered under a national protocol³ as a prescription-only medication. This meant it could only be sold, supplied, or administered under the legal authority of a prescriber or as part of a patient group direction (PGD), where a prescriber pre-authorises the

administration of a prescription-only medication to a specific group of patients. For example, adults over 18 years, who are not pregnant and have no long-term conditions. PGDs can only be used by registered personnel, for example, registered nurses and pharmacists.⁴ The national protocol acted as a national PGD, enabling pharmacists to supply and administer the vaccine to specific groups, however, for some patient populations (such as pregnant women) a prescription from an authorised prescriber was still required.

Pharmacists and their teams are recognised as immunisers for multiple vaccination programmes.^{5,6} For vaccination programmes, such as influenza,⁷ existing literature suggests key roles for pharmacy teams as educators, distributors and administrators.^{8,9} As educators, pharmacists have historically provided teaching for patients and healthcare professionals about the nature of vaccines, the vaccination process and immunity acquisition. As distributors, pharmacists have been involved in the safe, legal, and effective supply of vaccinations, from manufacturing to delivery.

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Finally, and more recently, pharmacists have been involved in vaccination schemes as administrators; inviting, reviewing and administering vaccinations to specific patient populations directly as part of routine care during flu-seasons.⁵ In the US, the ability of pharmacists to contribute to vaccination programmes can be shown with work linked to measles, mumps and rubella (MMR) where vaccinations increased by 231.9% when one large chain pharmacy began administering vaccinations in response to a peak in infections in 2019.¹⁰ However, the existing literature is limited, as it is often contextualised within seasonal, endemic or epidemic contexts, rather than global pandemics. Further work is needed to explore pharmacists' roles in novel vaccination programmes within the pandemic context.

Of pertinence, is the experiences of pharmacists supporting populations which are typically excluded from mass vaccination programmes, such as pregnant women. Pregnant women may be considered high-risk within vaccination programmes and vaccination services for this population may be refused access to vaccination and referred to specialist facilities.¹¹ This is often due to complications that may arise from vaccination, and the difficult decision-making process to balance these risks with the risk of possible infection.^{12,13} Existing literature indicates pharmacists may indeed overestimate the risk of vaccination for high-risk patients, compared to the risk of infection.¹⁴ A key barrier to immunisation is a recommendation from a healthcare professional,¹⁵ indicating that if pharmacists are overly cautious in recommending vaccination, patients may experience vaccination hesitancy or refuse vaccination entirely, increasing the risk of infection and complications.¹¹ This is a particular concern for vaccinations for a novel virus during a global pandemic, where little is known about the virus, the vaccine or the impacts of both vaccine and virus on health. Further work is needed to explore what enables or inhibits pharmacists' involvement in vaccination, particularly for people at higher risk of complications.

2. Aim

The aim of this project then was to explore pharmacists' roles and experiences in working within a COVID-19 vaccination programme.

3. Methods

This paper uses the COREQ guidelines.¹⁶ Qualitative research methods were chosen as an appropriate method to explore the experiences of pharmacists working in a COVID Vaccination Centre in North East England. The study was underpinned by a phenomenological approach, where subjective lived experiences are collected to understand the textural and structural components of a phenomenon.¹⁷

The study took place between January and February 2021. Participants were recruited from an NHS Trust in the North East and Yorkshire region, responsible for delivering health care to a large, and mostly rural, geographical area in North East England. The COVID Vaccination Centre served the local population, with appointments bookable online by the general population. People could also 'drop in' without an appointment and join the queue for Vaccination. Vaccinators included pharmacists, as well as other healthcare professionals, such as physicians and nurses.

A convenience sample of pharmacists was invited to take part in an interview via email, which included information about the study, who was conducting the study and what they would need to do if they wanted to take part. Interested parties contacted the research team via email to coordinate the interviews using Microsoft Teams. Inclusion criteria were limited to; registered pharmacists with experience working in a COVID-19 Vaccination Centre. The number and reasons for non-participation were not recorded.

Semi-structured interviews using a topic guide were conducted by a single interviewer (APR) using Microsoft Teams. Interviews took place at a time and place convenient to the participant, which included their homes ($n = 7$), their offices in a hospital ($n = 4$) and clinical environments ($n = 6$). The interviewer had previously worked as a clinical pharmacist within the same organisation with some participants ($n = 7$) however

had no previous relationship with the remaining participants ($n = 10$). Participants understood the research was being conducted to evaluate their experiences of being involved in a vaccination programme and the researcher had no previous bias or presumptions about the programme. Verbal consent was taken before the interview. Interviewers were audio-visually recorded and uploaded to Microsoft Stream, transcription was completed automatically and manually quality checked by the interviewer. Questions included (i) How did you get involved in working at the Vaccination Centre? (ii) what was it like working there on your first day (iii) what has been a highlight of working at the centre? (iv) what was the most challenging part about working there? (v) What influenced your decision to get involved? Identifiable information was removed from the transcript and participant checking was used to ensure meaning had not been lost. No repeat interviews were carried out and field notes were made to support the interview.

Inductive thematic analysis was completed using NVivo Version 12 by the research team (APR, WB, DC) on transcripts (field notes were not analysed).¹⁷ All members of the research team identified as men and had substantial experience in qualitative health services research. Two members of the research team have PhDs (APR and WB) and one member is an experienced research leader (DC). One member of the team worked as an academic (APR) and the others as senior managers in the NHS (WB and DC). Analysis was completed by reading the transcripts line by line to identify themes, which were clustered to form themes that described the data. The authors met regularly to interrogate findings, using a constant comparison technique, to establish a consensus on the final themes. Theoretical data saturation was determined by consensus and reached after 15 interviews. Two additional interviews were conducted to confirm saturation had been reached. Data analysis was interrogated by a group of clinical pharmacists, postgraduate researchers, and academics (the Pharmacy Academic Research Group) who supervise research within the healthcare organisation.

The study received ethical approval from Newcastle University and was registered with an NHS Trust in North East and Yorkshire Region's Research and Development Department. NHS Health Research Authority Research Ethics Committee approval was not required for this study.

4. Results

4.1. Participant demographics

A summary of participant demographics is summarised in Table 1. A summary of the findings is presented in Fig. 1

5. Theme 1) What pharmacists did in the vaccination centre

Participants described four roles, with most of the time spent in counselling roles providing information to patients and professionals as well as administrative roles, working with colleagues to monitor and manage the number of vaccinations being administered and those that had received suitable training also contributed to the reconstitution of the vaccine. Participants reported spending time supporting patients with vaccine hesitancy and making prescribing decisions, with patients and healthcare professionals. Pharmacists reported providing information to healthcare professional colleagues who were involved in other aspects of the vaccination programme, such as vaccine prescribing or administration. Participants also reported offering specialist information to patients that did not readily fit into sections of the national protocol and required the vaccination to be prescribed. For example, patients that had had previous anaphylaxis or were pregnant. Participants reported their experiences of coaching patients with vaccine hesitancy about the side effects of the vaccination and that this helped patients to accept the vaccine. Participants reported making autonomous decisions about if a vaccine should be prescribed, managing the risk of the vaccines and infection with the benefits of preventative treatment. This included foundation pharmacists (within the first 2 years of practice), who are unable to formally prescribe medications but able to make these decisions with supervision from senior pharmacists

Table 1
Summary of participant demographics.

	n	%
Total	17	100%
Gender		
Female	11	65%
Male	6	35%
Level of Practice		
Foundation	5	29%
Senior	8	47%
Advanced/Consultant	4	24%
Duration of Practice since graduation		
<2 years	5	29%
2–10 years	7	41%
>10 years	5	29%
Educational Attainment		
PGDip Clinical Pharmacy	12	71%
Prescriber	5	29%
Main sector of practice		
Hospital	12	71%
Split	5	29%
Ethnicity		
White	14	82%
BAME	3	18%

The analysis identified three themes derived from the data which are described in detail below supported by extracts of data from interview transcripts.

with experience in prescribing. Participants also contributed to the decisions of other healthcare professionals, who then went on to prescribe the vaccine for patients at high risk of complications of vaccination or infection, such as pregnant women, that were out with the remit of the PGD.

I spent most of my time, probably 75%, just regurgitating information that I'd learned, things like the vaccine had been through the regulatory process, what the MHRA was, what the risks were, things like that, like information that was out there, but I just was a sensible voice saying it – P1.

Sub-theme 1) Supporting patients with vaccine hesitancy

A real highlight for me was this one lady, who come and she knew a lot about the vaccine already, but she just wanted to talk it through with someone who knew as much as she did, and on that day, she didn't actually have the vaccine, but the day after, she came back and said, she'd thought about what I'd said overnight and now she wanted to have it, so that was nice – P11.

Sub-theme 2) Making autonomous decisions.

The best part for me was making decisions about patients like everyone would be there, the nurse, the patient, and they would all be sort of waiting on you to make a decision and you had to use your brain to work out, will this be okay or not? Because whatever I said, that was

going to be the outcome. If I said no, the patient doesn't get the vaccine but might catch COVID, if I said yes, the patient gets the vaccine but might react but will that be as bad as COVID? So, it was really challenging, I thrived in that part of it – P9.

Sub-theme 3) Documenting product administration and manipulation.

Because I had aseptic training I was able to help with the making up the vaccine for administration with the technical team, I didn't do that very much, but I did help out initially making them up, taking them out of the freezer and stuff - P2.

Collectively these findings indicated that whilst pharmacists were able to contribute to documentation, administration, and product manipulation, supporting patients with vaccine hesitancy and patients considered 'high-risk' or 'complex' appeared to provide an opportunity for pharmacists to thrive. P.

6. Theme 2) Barriers to involvement in the Vaccination Centre

The major reported barrier to involvement in the Vaccination Centre was managing existing time commitments. Managing existing commitments was the biggest barrier to involvement reported by the participants. One participant reported not wanting to become too involved due to uncertainty about the practicalities of taking on another role, such as managing existing workload, remuneration, working over the weekend and when they would find time to rest between shifts (lieu time). Foundation pharmacists reported finding it harder than senior colleagues to find time to take on a role in the clinic as they had less autonomy over how to spend their time compared to senior pharmacists. However, senior pharmacists described concerns relating to returning to a patient-facing role. Transitioning from largely office-based or managerial roles back to a patient-facing role was challenging for some senior pharmacists, as they felt out of practice or were going back to a more challenging mode of practice, described as 'the front line'. Only one participant reported concerns about exposure to the virus and the impact this may have on their own health and well-being.

Sub-theme 1) Practicalities of an additional role.

I would be able to do it if I didn't also have to do my day job, I just can't work an additional four or five hours each day, I'm already busy and covering multiple wards so it's not like there are any reserves in the tank – P5.

I don't want to do too much of it, because, really, it's not clear if we'll be paid for all this extra work, or if it'll just be lieu time that we'll never be allowed to take because we're short-staffed all the time – P10.

It's harder for us [foundation pharmacists] to do it cause we don't have much freedom, like we don't have as many meetings and things to go to that we could cancel, but the more senior ones, I think they find the time more easily to do it on top of their usual work, cause the meetings could be cancelled or postponed, whereas we're still needed by patients on the front line – P8.

What pharmacists did in Vaccination Centres	Enablers	Barriers
Information Counselling	Professional Recognition	Practicalities of additional roles
Coaching Vaccine Hesitancy	Access to Information	Transitions backwards
Prescribing Decision Making	Social Responsibility	
Documentation and Supply		

Fig. 1. Summary of results.

Sub-theme 2) Transitioning backwards.

You know I think for me, I'm a senior professional, I spend a lot of time talking to people about medications in meetings and presentations and things, but there was a part of me that hesitated and thought – can I still do this? Can I still do a patient-facing role because my job now is entirely desk-based, I don't really get any patient-facing time anymore – P3.

When I saw the email requesting people [to work in the Vaccination Centre] I did think, 'oh no, I'll have to wear scrubs' and that sinking feeling of being on the front line after so many years in an office job, it was a bit scary. But the time we're in, I think, I was scared anyway because of the uncertainty, so being involved didn't make that worse, it just didn't make it easy to be involved. – P17.

What crossed my mind straight away was that there would be lots of people coming in [...] so that you know, I might be more exposed to [the virus]. – P15.

7. Theme 3) Enablers to being involved in the Vaccination Centre

Participants reported a key enabler to getting involved was an expectation. Pharmacists were expected to be involved in vaccination provision and this expectation appeared to be influenced by three factors – (i) professional recognition from managers, peers, and patients, (ii) official and unofficial information and (iii) societal values.

Sub-theme 1) Receiving professional recognition

Participants reported feeling recognised by senior managers within their organisation, with and out with the pharmacy department, for example, pharmacists were specifically mentioned within the national protocol and the pharmacy department was visited by Executive Managers and Directors. The sense of value and respect that came with this, empowered pharmacists to embrace their professional identity - rather than trying to perform the role of another healthcare professional as previous role expansion had done, the roles in the vaccination centre were specifically intended for pharmacists. Whilst working in the Vaccination Centre, the feeling of being valued and respected by senior managers was reinforced by people accessing the service, strengthening pharmacists' recognition of their professional identity and abilities to make decisions about 'complex' patients at 'high risk' from vaccination or infection. This suggests recognition from senior leadership and senior members of the healthcare team, as well as patients and the public, may build an expectation that pharmacists 'should' be involved (rather than 'can' be involved) - empowering pharmacists to use their decision-making skills to get involved in novel programmes and working at the 'top of their licence'.

My interest really, that made me think, I must do this, is when the Executive team came round and were talking about pharmacists, how pharmacy would be there, it made me feel like I had to step up, like I was expected to get involved – P3.

That pharmacists are specifically mentioned in the national guidance about the vaccine really helped [...] resistance from medical and nursing staff melted away when they could see in black and white, in the policy, how important pharmacists were. You really got a sense that the work that we were doing was very, very valued and that was very, very respected. And we have definitive role [...] where sometimes I think in some other sectors pharmacists are almost forgotten or tried to be made into different types of professionals, like a mid-grade doctor, whereas this was, [...] our unique skills, unique knowledge, very respected, very valued, which meant I felt confident to do it. – P1.

Everyone in the [Vaccination Centre] kind of expected us to make the decisions, so that meant that I could make them? So, for example, a senior consultant is administering the jabs, but he asks me if it's okay to give to a particular patient and I respond and say yes, cause I know it can be, and then he administered it, like no questions asked. But usually, we are the ones asking the consultants if something is okay? So, I suppose for me it was the team recognised my skills so I was able to use them - P17.

Sub-theme 2) Accessing information

Participants all reported access to information about the product as well as the service built the expectation that enabled them to get involved. Participants describe two forms of information: official and unofficial. Participants described official information as that which was cascaded from senior management using recognised, structural forms of communication within the organisation, such as via emails or face-to-face meetings or official communications available from the manufacturer or UK Government website. Unofficial information was accessed via personal networks on social media or face-to-face chance meetings in corridors or break rooms (e.g., canteens, tea rooms) with colleagues. A key finding here is that access to both, official and unofficial information, was equally important. Access and use of official and unofficial information were tools, that equipped pharmacists with knowledge about what patients and professionals might ask (based on unofficial information) but also with the knowledge to answer those questions (based on official information). A key enabler then was pharmacists having access to and synthesising both official and unofficial forms of information to construct an expectation of what might happen and what their role might be in the Vaccination Clinic.

The night before I went to the [Vaccination Centre] I was googling all sorts, trying to learn everything I could officially, and my pharmacist friends were sending me information on WhatsApp, like cheat sheets and things, that to be honest, that was how I learned what I needed to, to do it, I couldn't have done it otherwise – P9.

Some summaries were going around on pharmacy Twitter, so I just saved them on my phone then I emailed the coordinator and signed up for a few shifts. Once I had the information I knew I'd be able to do it – P14.

It was strange cause we all knew what people were going to ask, because we'd talked about it beforehand on WhatsApp or we'd see it on the news or Facebook or something, like people were worried about fertility, the cold chain so we'd better read the Government information about that – P9.

Sub-theme 3) Feeling a social responsibility

The final factor that was identified described pharmacists' relationship with society. Participants' experiences here drew on feelings of fear that the virus would continue to negatively impact the everyday lives of society. The zeitgeist or 'spirit of the time' constructed an expectation that everybody 'should' do what they could do to return society to pre-pandemic functions. This sense of duty was particularly strong for patients considered 'high risk' or most vulnerable. One participant reported that even though they were anxious about their first day, crossing the threshold of the vaccination centre gave them hope for their community. Other participants echoed this sentiment.

It sounds weird but I felt like I just had to be involved because it was the right thing to do, socially – P1.

It felt to me a bit like you know when your [Grandparents] talk about the war, and everyone chipping in to help out, it felt like that, like I

had to help, even though I wasn't forced to by the managers, I still felt like I had to do it – P4.

I felt responsible as a pharmacist, this is what we're here for, to help the communities we're in, when things like this happen, we must stick together and do what we can to help – P3.

I knew that going there, and doing this, it gave me hope that things might get a bit better for everyone. The kids can back to school, my grandparents can go out again. – P14.

These findings indicated that recognition and empowerment by senior leaders; having access to official and unofficial information and feeling a social responsibility or zeitgeist to take part, constructed an expectation that pharmacists 'should' be involved and therefore had to overcome barriers to their involvement in the vaccination programme; taking on new roles within their existing practice.

8. Discussion

8.1. Summary of the findings

The findings indicate pharmacists were enthusiastic to establish novel practices as part of a pandemic vaccination programme. Pharmacists contributed to the administration, manipulation, and supply of medication for all patients but spent much of their time in a counselling role for patients that did not 'fit' within the national protocol PGD, such as pregnant women or those with previous anaphylaxis. In this role, foundation, senior and advanced pharmacists were able to provide education to patients and practitioners. Recognition, empowerment, access to official and unofficial information and a sense of duty or zeitgeist were key enablers that generated an expectation that pharmacists 'should' be involved in providing vaccinations in a novel programme. The main barrier to involvement was free time due to existing clinical commitments, with limited flexibility to manage sudden increases in demand. Transitions to patient-facing roles were also reported as a barrier by senior pharmacists, who reported spending much of their time before COVID-19 in desk-based administrative or managerial roles, creating hesitation to take on patient-facing roles 'on the front line'. Collectively these findings indicate that where there is a strong expectation that pharmacists will work autonomously, make prescribing decisions and work in patient-facing roles, pharmacists can (and did, in this instance) step up to take on new roles, for novel products and vaccination programmes.

8.2. Comparison to the existing literature

These findings add to the existing literature as they demonstrate the role and experience of pharmacists in a novel vaccination centre during the pandemic.^{6–9,11,14,15} Although pharmacists had already been identified as educators, distributors and administrators,¹⁰ these findings suggest pharmacists might also act as decision-makers and counsellors, to enable patients in specific groups (such as pregnant women and patients with vaccine hesitancy) to also receive vaccinations. The findings also show that barriers to engaging pharmacists in this work are linked to the clinical workforce capacity of junior pharmacists and office-based work patterns of senior pharmacists. This is supported by existing work, suggesting clinical roles for senior pharmacists are needed to develop a suitably skilled workforce.¹⁸ Policymakers and senior leaders can use these findings to recognise the contribution pharmacists (at all levels of experience) make to clinical environments, as autonomous decision-makers, and review or rationalise office-based practices of senior pharmacists to create capacity in the clinical workforce that can be called upon, more routinely and also when required.

An additional finding is that pharmacists find information using informal social networks. This has also been shown in another study¹⁹ The findings in this study demonstrated that where conventional methods of organisational communication breakdown, pharmacy teams respond reflexively and collaborate to share information to design, develop and deliver services using social media. The findings push the understanding of the flow of medicines information further, demonstrating that information about new medications, moves from 'official' to 'unofficial' channels, yet still appears to inform practice. However, this project did not explore the quality or validity of the information being shared socially, and so further work is needed to examine the credibility of information shared in this way, particularly if it informs practice.

8.3. Strengths and limitations

The findings presented above reflect the experiences of the participants and are not intended to be generalisable. However, they may be transferrable to similar settings and contexts. Participant member checking was used to ensure transcripts of interviews and quotes represented the views of the participants which adds validity.²⁰ Participants were recruited from a single vaccination centre and so findings may not include the breadth of experiences of pharmacists who may be involved in multiple vaccination centres or vaccination centres coordinated in other settings. However, data was collected from pharmacists with a wide range of experiences, and so do provide insights into the level of experience needed for the role of counselling pharmacists within vaccination centres. For qualitative studies, the sample size is determined by theoretical data saturation, which was reached in this study at 15 participants, two additional interviews were completed to confirm saturation had been achieved. Completing further interviews after saturation is confirmed is unlikely to yield additional new findings.²¹ The same interviewer completed all the data collection which may influence the findings. Evidence indicates different approaches by interviewers can yield different data,²² thus using the same interviewer may have contributed to a standardised form of data collection. Additionally, this study was focused on the COVID-19 immunisation programme, so further work is needed to transfer the findings to other vaccination schemes.

9. Conclusion

The aim of this project then was to explore pharmacists' roles and experiences in working within a COVID-19 vaccination programme. The findings demonstrate that pharmacists spent much of their time providing counselling to patients and professionals to support the vaccination of people who are considered 'complex' or 'high-risk' from side effects of vaccination or infection. A key enabler for pharmacists' taking on this role was an expectation that pharmacists 'should' be involved by senior managers, patients, colleagues, and society. Further work is needed to explore how professional recognition, information exchange and engagement with the zeitgeist or 'spirit of the times' can enable pharmacists to expand their professional roles.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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