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“It stayed there, front and centre”: Perspectives on community pharmacy’s contribution to front-line health care services during the COVID-19 pandemic

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-064549
Article Type:	Original research
Date Submitted by the Author:	09-May-2022

Complete List of Authors:	Patterson, Susan M.; Queen's University Belfast Cadogan, Cathal; Trinity College Dublin, Pharmacy Barry, Heather; Queen's University Belfast, School of Pharmacy Hughes, Carmel; Queen's University Belfast, School of Pharmacy

Keywords:	COVID-19, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PRIMARY CARE, QUALITATIVE RESEARCH

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"*It stayed there, front and centre*": Perspectives on community pharmacy's contribution to front-line health care services during the COVID-19 pandemic

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ABSTRACT

Objectives: To explore community pharmacists' and key stakeholders' perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises.

Design, setting and participants: Qualitative study using semi-structured interviews (via telephone or online videoconferencing platform), with community pharmacists and a range of key stakeholders (representing other health professions, professional/governing organisations concerned with community pharmacy and patient advocacy groups) from across Northern Ireland. Data were analysed using thematic analysis and constant comparison.

Results: Thirty interviews were conducted with community pharmacists (n=15) and key stakeholders (n=15). Four themes were identified: (1) adaptation and adjustment (reflecting how community responded quickly to the need to maintain services and adjusted and adapted services accordingly); (2) the primary point of contact (the continuing accessibility of community pharmacy when other services were not available and role as a communication hub, particularly in relation to information for patients and maintaining contact with other health care professionals); (3) lessons learned (the flexibility of community pharmacy, the lack of infrastructure, especially in relation to information technology, and the need to build on the pandemic experience to develop practice); and (4) planning for the future (better infrastructure which reinforced concerns about poor technology, co-ordination of primary care services and preparing for the next public health crisis). There was a general view that community pharmacy needed to build on what had been learned to advance the role of the profession.

Conclusions: The strengths of community pharmacy and its contribution to healthcare services in the COVID-19 pandemic were noted by community pharmacists and acknowledged by key stakeholders. The findings from this study should inform the policy debate on community pharmacy and its contribution to the public health agenda.

Strengths and limitations of this study

- Recruited a diverse range of participants which provided a holistic and in-depth account
- Rigorous approach to data analysis
- Data saturation was achieved

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- Focus on NI may mean that the results reflect the local situation
- Participant demographic characteristics have not been reported due to the limited geographical area from which recruitment took place and the need to preserve anonymity

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INTRODUCTION

The COVID-19 pandemic has had profound effects on the delivery of health care worldwide. In the context of the United Kingdom (UK), hospitals faced unprecedented pressures and waiting lists for non-COVID services are now at an all-time high.[1] Primary care access, notably general practice, was greatly reduced, but community pharmacy largely remained open and accessible to patients and the public.[2]

As part of a larger project examining the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic, a telephone-administered questionnaire undertaken with a sample of community pharmacists in Northern Ireland (NI) reported how these pharmacists continued to work in the early phases of the pandemic (from March 2020-December 2020).[3] Practice changed during this time, with essential services being maintained, other services suspended, and new services being implemented. Pharmacies introduced measures to prevent the spread of infection and to protect their staff, and became more involved in public health activities such as 'flu vaccination. Despite feeling unprepared during the first wave (March-May 2020), this changed over time, with pharmacists reporting feeling more prepared when the second wave of infection struck in September 2020. They maintained contact with general practitioner (GP) colleagues and patients (largely by telephone), maintained and updated their professional knowledge, and were enthusiastic about adopting roles that would contribute to future COVID vaccination and testing. [3]

Although this questionnaire provided a valuable snapshot of the community pharmacy experience in the early phases of the pandemic, it did not provide an in-depth understanding of the *lived experience* of community pharmacists. Furthermore, there has been little exploration of other stakeholders' views of community pharmacy's contribution to healthcare during the pandemic. Therefore, the aim of this study was to explore community pharmacists' and other stakeholders' perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises

METHOD

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Key informant interviews were conducted with community pharmacists and other stakeholders (including representatives from patient organisations) in NI. The study has been reported in accordance with the consolidated criteria for reporting qualitative research (COREQ) checklist[4] and received ethical approval from the Queen's University Belfast Faculty of Medicine, Health and Life Sciences Research Ethics Committee (Ref. No. MHLS 21_21).

Setting and population

We sought to recruit key stakeholders for interview including registered community pharmacists from community pharmacies in NI, representatives of professional and governing bodies concerned with community pharmacy services in NI (e.g. Department of Health, Public Health Agency, National Pharmacy Association, and the Pharmaceutical Society of NI), representatives of other professions such as the Royal College of General Practitioners, British Medical Association, and representatives of patient advocacy groups, such as the Patient and Client Council NI, Carers Trust (unpaid carers), Care.org (residential and nursing homes), and Alzheimer's Society NI.

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Patient and Public Involvement

Two patient and public involvement (PPI) representatives were recruited to the Study Advisory Group via the Patient Involvement Enhancing Research (PIER) NI network from the Health and Social Care Research and Development division. The Study Advisory Group also included members of the pharmacy profession representing practice, regulation and professional advocacy, along with a methodological advisor. The Group contributed to the development of the topic guide (see below), identification of pharmacists to help pilot the topic guide, with one PPI member participating in a pilot interview one to gauge the clarity of questions for key stakeholders and duration of the interview.

Participant sampling and recruitment

Sampling and recruitment of community pharmacists

We sought to recruit between 15-20 community pharmacists (with the final sample size guided by data saturation). Community pharmacists who took part in the telephone questionnaire study referred to in the Introduction,[3] were asked if they were interested in

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participating in a follow-up interview. Those who expressed an interest were contacted by telephone and those who confirmed interest were sent an invitation letter, information sheet and a consent form. Potential participants were given one week to read and consider this information. After one week had elapsed, if there were more than 20 pharmacists willing to participate, the list of pharmacists was to be randomised. The researcher (SP) contacted them by telephone to arrange a suitable date and time for the interview. These pharmacists were known to the researcher by virtue of having taken part in the preceding study.[3]

Sampling and recruitment of other key stakeholders

We sought to recruit between 15-20 other key stakeholders in total (again, with final sample size determined by data saturation). Convenience sampling was used to recruit a range of additional stakeholders as key informants and was informed initially by consulting with members of a Study Advisory Group that was overseeing the conduct of this study. The research team also identified potential participants through their own professional networks and experience from previous studies, contacting organisations listed above. Potential participants were contacted by email in the first instance to gauge interest. Those who expressed interest were sent an invitation letter, information sheet and a consent form. Potential participants were given one week to read and consider this information, and a mutually suitable date and time were arranged for the interview. The researcher would have been known to some of these key stakeholders, but not all.

Interview topic guide

The interview topic guides (Supplementary Files 1 and 2) were developed based on the published literature,[5-8] current COVID-19 guidelines at the time,[9] data from a review of the practice and policy literature,[10] findings from the telephone questionnaire[3] and discussions within the research team. Five pilot interviews were conducted by SP with members of the Study Advisory Group and qualified pharmacists from the School of Pharmacy, Queen's University Belfast to ensure that interview questions were clearly understood by participants and to estimate the duration of the interview.

Data collection and analysis

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To adhere with public health guidelines at the time of the study, all interviews were conducted by telephone or using an online videoconferencing platform. All interviews were digitally recorded and no visual images of the participants were captured, and no other persons were present during the interview. Interviews began with a short briefing during which the researcher (pharmacist with a PhD who had undertaken qualitative work as part of her doctorate; had a professional interest in the research topic) introduced herself, outlined the background to the study and provided an overview of the process that would be followed during the interview. Verbal consent was obtained and recorded at this stage if not already received electronically in advance. Following the interview, all participants (where relevant) were offered a certificate of participation (for Continuing Professional Development purposes) and an honorarium of £50 in recognition of their time and inconvenience.

The digital recordings were transcribed verbatim, and each transcript was checked against the original recording for accuracy and anonymised to remove names of people, places and any other identifying information. Each participant was assigned an alphanumeric code, e.g. community pharmacist (CP), CP097, key stakeholder (KS), KS03. NVivo® 12 Pro® software was used for management and analysis of the transcribed data.

Reflexive thematic analysis was undertaken concurrently with data collection to determine data saturation.[11-13] Briefly, this involved initial data familiarisation; generation of initial codes; identification of themes, reviewing identified themes; defining and naming the themes, and writing up the findings.

Each transcript was analysed independently by two researchers (SP and CMH) using an inductive and iterative approach. After analysis of the first five transcripts, the research team met to discuss emerging themes and sub-themes, and a coding framework was developed based on these. This coding frame was then used for the analysis of all subsequent transcripts and for re-analysis of the first five transcripts. The use of the constant comparison method ensured that any new themes arising from the data were identified and added to the coding frame.[11-14] Any discrepancies between researchers were resolved by discussion amongst the research team to reach consensus. Final themes were reviewed and agreed between all authors to enhance reliability. No transcripts were returned to participants.

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RESULTS

A total of 30 interviews were conducted with community pharmacists (n=15) and key stakeholders (n=15) from July-September 2021. No repeat interviews were conducted. Due to the relatively small population from which participants were recruited, we have not reported any demographic information to ensure anonymity. Interviews took place either by telephone (n=22) or via online videoconferencing (n=8), and lasted between 29-79 minutes (mean=53 minutes). Following analysis, four themes emerged from the data: (1) adaptation and adjustment; (2) the primary point of contact; (3) lessons learned; and (4) planning for the future. An overview of each theme, supported by anonymised quotes, is provided below.

Theme 1: Adaptation and adjustment

The initial phase of the pandemic (from March 2020) was characterised by adaptation and adjustment on the part of community pharmacists and their staff, who demonstrated high levels of resilience and flexibility. Initially, there was a sense of panic as realisation dawned about the risk of infection to pharmacy staff, with little knowledge about the severity of the disease:

> *"This was just a perfect storm of a highly infectious disease that was proven to be very, very dangerous, and the information around it was still evolving."* KS03

The effect of the pandemic was unprecedented, pharmacy staff felt unprepared, and were dealing with a marked increase in workload:

> *"…but as for being prepared, I don't think anything would have prepared us for the onslaught that we had for the first few weeks"* CP097

> *"The biggest challenge, initially, was the severely increased workload when there was such an absolute surge in prescription numbers."* CP071

As the pandemic continued, community pharmacists demonstrated their ability to adapt, and showed a high degree of flexibility and resilience in order to maintain essential services and medicines supplies. Some key stakeholders commented that these activities relieved

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the pressure somewhat on other services, including hospital emergency departments and GPs. Medicines supply was the core service that took priority during the pandemic:

> *"As entrepreneurs, as innovators, they were able to cope very well with a completely unprecedented situation. They're always prepared for the unknown. They're always agile, but they wouldn't have necessarily been prepared for this."* KS08

> *"We get a lot of phone calls and things like that saying, 'I'm isolating, I need to get my medication' in which case we would absolutely do our upmost to make sure they got their medication on time, and everything was all correct, everything was there that they'd ordered."* CP052

> *"We've had to prioritise, and priority is getting people their medicine."* CP074

A key stakeholder representing service users recognised pharmacists' ethos of 'keeping calm and carrying on':

> *"For me, pharmacy was one of the shining lights, it stood its ground. It didn't stand back and didn't revolt and say, 'we have to close, we can't do this, we have to redeploy'. It stayed there, front and centre"* KS10

Throughout this period of adaptation and adjustment, participants described the situation as being emotionally charged with stress, pressure and concern for staff. Community pharmacists depended on having a strong and flexible staff team to manage the high workload and patient demands and expectations. Their emotional reactions were evident:

> *"It would probably be the most challenging professional time of my whole career. Very stressful, very worrying"* CP043

There was considerable pressure on pharmacy staff to stay at work; many were worried and anxious about contracting infection and placing vulnerable family members at risk. However, they demonstrated unwavering commitment to their work and indeed, many increased their working hours to manage the increased workload and demand from the public. The pharmacy staff team was considered very important to community pharmacists which was also recognised by key stakeholders:

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> *"The number of contractors, employers who have spoken to me and said, you know, they just are in awe of their staff who have…, just came in when ones (*sic*) could have isolated, could have gone on furlough, whatever."* KS08

Throughout the pandemic, community pharmacists maintained essential services and adapted their services models to provide modified services enabling the continuation of the critical supply of essential medicines to the public. Pharmacies also implemented innovations such as the development and provision of modified patient services, e.g. medicines adherence, prescription collection and delivery services, and a range of new pandemic services such as flu vaccination, public health advice and an emergency supply service (whereby a 30-day supply of prescription medicines could be provided to patients without a prescription) that alleviated the pressure on GP out-of-hours and emergency department services. There were many positive comments about what worked well:

> *"The prescriptions, having to be sent to the pharmacy directly from the doctors, I think that was a really good change, it allows you to manage workload."* CP046

> *"The other thing is people running out of medication, we're not supposed to loan anybody anything without going through the emergency supply route. So that was good in that they set up the emergency supply service which pharmacists could give an emergency supply during the pandemic and that worked well and for a change there wasn't a pile of paperwork to go with it."* CP097

Theme 2: The first point of contact

In the early stages of the pandemic, it was recognised that community pharmacies were one of the only entry points to primary healthcare services where the public had direct access to a healthcare professional:

> *"Our roles have changed dramatically I think of what's expected of us in the community, definitely. Because we're the most accessible healthcare professional."* CP043

> *"They* [patients] *would have been very quick to say of the reliance that they had on the community pharmacist. And it was always followed up by*

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> *the comment, "Because we can't get to a doctor, we can't get access to a doctor," you know."* KS12

Community pharmacists reported that patients increasingly relied on them as the first point of contact for advice, either in person or by telephone:

> *"So, I think that has really changed for us in that we are now their first point of contact really. And even now we are seeing that people are coming to see us even before they phone the doctor and saying, 'Well, what do you think, should I phone the doctor? How should I manage this? What's your opinion?'"* CP046

> *"We had huge numbers of phone calls, the phones just did not stop. So, there were a lot of people…because of either they were in lockdown, so they felt not coming to the counter was appropriate and maybe phone calls were more appropriate. So, there was a huge amount of phone calls. We ramped up our social media campaigns to try and disseminate some advice."* CP132

Community pharmacies also played a key role in information provision, representing the hub for communication of COVID-19 information directly to patients, other healthcare professionals and each other. The Public Health Agency in NI rolled out a series of campaigns on COVID-19 and community pharmacies were central to that communication to patients. Being in the front line of healthcare resulted in community pharmacists having to adopt an expanded role, undertaking new services (notably COVID vaccination) and utilising skills in triage and assessment of patients:

> *"Now it's a lot more about trying to help people with diagnoses and treatments and signposting them on then to where they really need to be."* CP046

> *"it's great obviously that pharmacists can vaccinate, you know, obviously with helping with the COVID jabs has been great. Even just being accessible."* CP109

> *"So, to have done that number* [COVID vaccinations] *in such a short period of time has been fantastic"* KS01

However, being this primary point of contact was sometimes overwhelming, especially with respect to the amount of information being provided by organisations for onward

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distribution and dissemination, which was duplicative and sometimes out of date by the time that it arrived:

> *"The problem is, you were standing there, and it might have been Wednesday the 10th and that letter* [e.g. advice from Department of Health or Health Board] *is dated Tuesday the 2nd".* CP072

> *"And we would just go in and there would be multiple emails printed off from work, read this, this, this and this at the start of the day. So, I suppose maybe if it could be centralised and come from one source, or fewer sources, it would have made it maybe easier to handle."* CP046

> *"We probably were putting out enough information to choke a donkey"* KS01

Community pharmacists maintained communication with other members of the primary health care team, particularly GPs and practice pharmacists, and thought that relationships in primary care had improved, despite practices remaining largely closed in the early stages of the pandemic:

> *"There was a symbiosis as such of trying to help each other and so I would say that it was a lot of good, positive relationships built up"* CP018

> *"We found working with the practice pharmacists very good during the pandemic. They were a really good resource to have. Because if you maybe couldn't get hold of the GP themselves, the practice pharmacists were really well based to speak to you'* CP046

Theme 3: Lessons learned

The importance of community pharmacy in health care was a key lesson. An unintended consequence of the pandemic was the spotlight placed on community pharmacy, demonstrating what it could do. The response from community pharmacy during the pandemic was universally praised, and its reputation was enhanced:

> *"It's just reinforced how big a part community pharmacists and the community pharmacy team, members of staff, etc. play and how important they are and just to remember that we are really, really important to the people who we treat."* CP043

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> *"I think it is well recognised by a range of stakeholders of just how important the community pharmacy contribution during COVID has been, ranging from the Health Minister, and elected, various elected political representatives, through to the Health Service officials, and indeed the public at large."* KS07

The maintenance of medicines supply was seen as critical (and perhaps somewhat under-appreciated up to this point as it seemed 'basic'), with recognition that the system could have collapsed without this:

> *"The main contribution of community pharmacy, as I said, was maintaining access to medicines, and they did that, and they maintained public access to medicines'* KS03

> *"The continuity of supply of medicines. The fact that we were able to keep things going. Generally speaking, bar maybe some isolated incidents, I'm not aware of any, but nobody ended up in hospital because they didn't have their medication."* CP071

Through the adaptation and adjustment made to services (and highlighted in Theme 1), services were introduced quickly as a result of the profession's agility and flexibility, and pharmacists provided important new and modified services that they would want to retain in the future, another key lesson. The retention of these services was supported by key stakeholders:

> *"Community pharmacy I think would have a role to play in that, so there's* [sic] *not about dispensing more tablets, it's more about looking at the individual's needs and how the individual can be supported either individually or in a community context."* KS06

The agility and flexibility (reinforcing Theme 1) of pharmacy staff and their commitment to the care of patients was evident as they stepped up and took more responsibility for frontline patient care, putting previously learned skills into practice. It was noted how much was implemented in a short space of time:

> *"I think the biggest thing is how adaptable we are and how quickly we can change things around because there was an absolutely mad two or three weeks back in March/April 2020, where the pharmacies really, really had to dig deep, including the*

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staff and all the rest of it to get the job done basically without the system falling down. Because that would have been catastrophic, you know." CP071

"The pharmacy profession has really benefited from that in that they [patients] *could see what we can actually do. So that would be the biggest change I would have noticed which is good for the profession."* CP52

However, it was recognised that the lack of infrastructure, especially with respect to information technology (IT), had been problematic during the pandemic, and led to significant frustration. Participants described the IT system as "antiquated", and a key lesson learned from the pandemic was the need for electronic transfer of prescriptions (eTP):

"And just the fact that we're still chasing paper, you know, at this stage is crazy to be honest. My number one thing would be definitely have electronic prescriptions." CP083

"I think what it has shown is that the absolute number one priority is the electronic prescribing, because that gives a sustainable future to what we've started to do." KS05

Other lessons learned included the value of the newly introduced emergency supply service, the enhanced contribution to health care that community pharmacy could make, and the need for more formal and recognised integration of community pharmacy into the primary health care team. Concern was expressed that post-pandemic, community pharmacy's contribution would be forgotten, so the opportunity needed to be seized in order to capitalise on the good will that had been engendered:

"And it would be nice that, you know, we've had all the plaudits and the pats on the back with politicians coming out and getting photo opportunities in community pharmacies and such like. It would be nice to get properly paid and to have a contract in place, and us given that respect that is due after all this. I think that is the biggest thing that I would like to see come out of this." CP018

"But as the health service normalises, then there is always the risk that pharmacy reverts back to a hidden role." KS07

Theme 4: Planning for the future

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This final theme linked closely to that presented in Theme 3 in that participants felt that the lessons learned needed to feed into planning for the post-pandemic future. Areas where planning was seen as critical were infrastructure, review and co-ordination of service provision (including the workforce) and preparing for the next emergency.

Improvement and upgrading of the current infrastructure were viewed as an urgent priority:

> "*And I think it's archaic that we're using paper prescriptions"* CP074

> *"So, it's dealing with those patients who become frustrated with the process basically for repeat prescriptions. To me, it isn't a very effective use of doctor or even practice-based pharmacist's time… Yeah, electronic prescription transmission would certainly help with that sort of thing."* CP071

This view also extended to access to patient records by community pharmacists, to facilitate the development of the clinical role:

> *"This is about reducing administrative burden, reducing regulatory burden, so that the focus can be on patient services, and patient support, patient advice, patient information, and the safe supply of medicines to patients, and building the services around those contacts that you make whenever medicines are supplied."* KS07

There was overwhelming support for extending the role of community pharmacists and reviewing the range of patient-facing or clinical services they provide:

> *"I think the government should maybe pay attention to that* [providing clinical services] *and the health service would benefit from it dramatically. That's the way I would love to see pharmacy going."* CP111

Such services included public health initiatives, vaccinations, the maintenance of the new emergency supply system introduced during the pandemic, and independent prescribing:

> *"Definitely the vaccination services would be part and parcel of any future service provision."* CP047

> *"I actually think… the emergency supplies. I think that they potentially, you know, even post pandemic I think there's a place for them. I think they* [community pharmacists] *should be allowed some trust when it comes to, you know, providing*

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medication where it's impossible to get a prescription. Because obviously we have the knowledge, and we have the information from their PMR [patient medication records] *system to make that call*." CP074

"*I would like to think in a future pandemic we would have more independent prescribers in community pharmacy as well, and who could be managing larger formularies of medicines. So, that would help the public access and treatment for specific conditions"* KS03

Better coordination between sectors within the profession and interprofessional linkages were seen as important for the future success of community pharmacy, along with supporting and enhancing the workforce:

"So, that lack of co-ordination, I think, on the ground between primary care. It was always there, but that hasn't improved with the pandemic, whereas relations with the Board (organisation responsible for commissioning services in NI) *have improved*." KS08

"So, the only thing I'd like is somebody to pull a couple of hundred or a few hundred pharmacists available to community pharmacy out of the hat! So, the one thing I definitely don't want to see continuing is the lack of pharmacy cover and staff" CP071

"*And have the remuneration set up that all pharmacies would have two pharmacists, you know. And that was mooted away back 30 or 40 years ago now [*researcher's name*], but nothing ever happened with that. I mean when you go to the continent the pharmacies are like clinical pharmacies."* CP111

Although community pharmacy had demonstrated its agility in dealing with the pandemic, there was an acknowledgement that future planning for another emergency (pandemic) had to be much more co-ordinated:

"*But I think just having systems in place and, you know, having a plan. A pandemic plan needs to be drawn up and then we need to be trained on it. So, if this happens, we do this, if this happens, we do that. And, you know, a stockpile of PPE* [personal

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protective equipment] *and stuff like that that could be drawn upon. Because PPE and sanitiser was a big issue at the start as well"* CP132

"*If you think about it in terms of services, there needs to be clear trigger points, if you like, for service stand-down, and prioritisation, maybe service stand-up of specific activities that need to be done. So, there's a learn there in terms of services, and the sort of dynamic commissioning, and decommissioning, if you like, and for community pharmacies just being prepared for that as well."* KS03

"Planning, in terms of workforce, needs to be better, because we're just in a difficult place at the minute in terms of adequacy of workforce. So, that needs to be sort of regularised or resolved ahead if there's another cyclical pandemic." KS07

There was a clear view that community pharmacy's contribution during the pandemic had demonstrated its value and provided momentum for the profession's trajectory:

"*Pharmacy has indicated very clearly how it can make a contribution in the acute pandemic phase which has just kind of proved what pharmacies have been saying all along, and that just needs to be now captured and I think given expression."* CP047

"We have a direction of travel here, and we build on what has been achieved." KS07

DISCUSSION

This study has captured the views and perspectives of community pharmacists who worked during the early phases of the pandemic, and those of key stakeholders (some of whom were pharmacists) representing a wide range of constituencies and interests. The findings clearly convey a recognition of community pharmacy's contribution to maintaining essential health services during the early phases of the pandemic, particularly when other services were not accessible or available. Key stakeholders were very appreciative of what community pharmacy had done, and perhaps one of the unintended consequences of the pandemic was to highlight the role that community pharmacy could play in a post-pandemic health service.

At the beginning of the pandemic, community pharmacy had to adapt and adjust. Community pharmacist participants recounted the increased workload, uncertainty, a

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feeling of unpreparedness, fear, and worry. But as was recognised, they demonstrated agility, resourcefulness, innovation, unceasing commitment and maintained key services and introduced new and adapted ones. These characteristics were also reflected by Liu et al.[15] who reported on the experiences of pharmacists in China at the start of the pandemic. They highlighted the importance of rapid adaptability and resiliency of individual practitioners to rapidly changing circumstances of the pandemic.[15] Interviews with primary care professionals (largely GPs and nurses) from eight European countries also revealed a rapid transformation of services with the onset of COVID-19, in the context of uncertainty about diagnosis, management and treatment.[16]

Much of what community pharmacists did during the early stages of the pandemic reflected a Pharmacy Emergency Preparedness and Response Framework developed by Aruru et al.[17] consisting of five components - emergency preparedness and response, operations management, patient care and population health interventions, public health, and continuing professional education. An important part of this Framework specifically refers to the importance of preparation and flexibility in emergency circumstances to ensure effective responses and worker safety.[17] Community pharmacy activities as reported in this study exemplified these components. A scoping review by Costa et al.[18] outlined current practices on COVID-19 reported by pharmacy professional associations from across 32 countries. Almost all preventive measures to reduce health risks had been provided in most countries. Other frequent interventions reflected preparedness for stockpiling, increased demand for services and products, and important patient care interventions beyond the dispensing role. In view of COVID-19, changes to regulation and legislation enabled services to be delivered that improved access to medicines and relevant products, patient screening and referral including point-of-care antigen testing, support to vulnerable patients, and COVID-19 vaccination.[18] Again, many of these activities were undertaken by pharmacists in the present study and were recognised by participating stakeholders.

Community pharmacy was inundated with patients seeking help due to the lack of availability of other services which has been reported in other UK-based studies.[8] Pharmacists were the first point of contact, and indeed, sometimes the only point of contact, demonstrating the critical role that community pharmacy played in delivery of primary care during the pandemic. These observations are consistent with the comments

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from Traynor[19] who stated that "pharmacists matter in a pandemic response", highlighting how pharmacies and pharmacists could and should serve a more useful role in society-wide pandemic preparedness. It was recognised that in addition to providing vaccinations, community pharmacies could become decentralised primary care service hubs, triaging patients prior to accessing family doctors or emergency rooms, and providing more direct hands-on support for medication therapy management at the patient and community level.[19] And based on our interview data, this appeared to happen in the early stages of the pandemic, with community pharmacy becoming that main point of contact. Indeed, these findings are consistent with a 2020 Report from the Organisation for Economic Co-operation and Development (OECD) which identified pharmacists as primary care providers in its definition of primary health care.[20] The Report outlined that there is ample scope for further developing the role of pharmacists and the need to develop more effective collaboration with the GPs and other healthcare professionals.

As a result, pharmacists reported that they perceived that patients now viewed them in a different light and were asking for advice and intervention from community pharmacists that may have been previously given by other sources, e.g. general practice. They disseminated information on COVID and participated in vaccination campaigns. But this also led to a surge in workload which was difficult to manage at times. In addition, by the time information was received, it was often out of date, and there was a recognition from some key stakeholders that there was probably too much information disseminated. This was also reported by Austin and Gregory[21] who interviewed 21 pharmacists based in Ontario, Canada, with a view to exploring resilience during the pandemic. These pharmacists noted the early stages of the pandemic as being a time of information overload and confusion. Most participants in the Canadian study reported increasing reliance on the websites of, and emails from, regulatory bodies and professional associations as their primary source of information. However, there was also frustration that communication from these organisations was often ambiguous and unclear.[21] A Belgian study reporting on interviews with GPs, highlighted an over-supply of information on COVID-19 which was also contradictory.[22] Wanat et al.[16] documented that primary care participants often felt overwhelmed with information that was constantly changing and coming from multiple sources.

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The experience of working in the pandemic gave participants the opportunity to consider lessons learned. These lessons highlighted the importance of community pharmacy and its essential role in maintaining medicines supply, services that should be retained post-pandemic, and the adaptability and flexibility of community pharmacists and staff to meet demands. But there was also recognition as to the limits of what could be done largely due to outdated infrastructure, notably information technology (IT). Participants expressed frustration at antiquated systems, largely paper-based, and called for investment in better systems. Austin and Gregory[21] in their interview study noted that pharmacy organisations that had previously invested in technology were much better able to manage the surge in workload than those without such systems. In this present study, there was strong support for a change to IT services.

Finally, while the contribution of community pharmacy was universally recognised, there were concerns that the lessons learned and experience gained could be quickly forgotten in the post-pandemic world. There was a view that the goodwill and recognition of pharmacy and its contribution needed to be exploited in order to plan for the future, and instigate much needed change. And indeed, many of the lessons and experience fed into planning for the future which was the final theme. There was reinforcement of needing better infrastructure (IT being a case in point), better coordination and review of services (including workforce) and planning for the next emergency. This call for better planning was echoed by Wanat et al.[16] Community pharmacists were very willing to assume a much more prominent public health role, and to be a primary point of contact as they had been during the pandemic. There was also support for a prescribing role and better co-ordination across other health sectors, the need for more staffing, and much better planning and training for the next pandemic. Again, this reflects what other community pharmacy studies have reported, with a particular emphasis on the necessary infrastructure.[21] Indeed, at a broader policy level, it has been highlighted in a report from the King's Fund that 'the road to renewal' in the post-pandemic health and care system has to focus on a number of key areas including workforce, digital changes and the relationship between communities and public services.[23] These priorities reflect those for community pharmacy.

The strengths and limitations of this study should be acknowledged. We recruited a diverse range of participants who had had direct experience of delivering or planning services over

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the course of the pandemic. The views of key stakeholders provided a more external perspective to that of community pharmacists, but largely reinforced the views of the latter. We attained data saturation with the sample recruited, and the findings reinforced those from a preceding study,[3] but through the interviews, more in-depth discussion was possible which provided a more nuanced understanding of the issues. However, all participants were recruited from the same geographical region, perhaps limiting transferability of findings. It should be noted that other studies conducted in the community pharmacy sector which have evaluated the impact of the pandemic have reported complementary findings and themes.[8 15 21] Due to the close-knit nature of health care delivery and policy organisation in Northern Ireland, we decided not to report any participant characteristics e.g. gender, professional role, in order to maintain anonymity.

The COVID-19 pandemic has had a profound effect on healthcare delivery across the world. Community pharmacy was very much part of the front-line of services that remained accessible to patients. The data generated in this study have highlighted how the profession responded under the most difficult of circumstances, but have also demonstrated on what can be derived from the experience in order to inform future planning for the profession. Moynihan et al.[24] in their systematic review on the impact of the COVID-19 pandemic on healthcare service utilisation, suggested that post-pandemic recovery provided a rare opportunity for systematic changes in healthcare systems. This very much reflects the community pharmacy scenario in which participants also wanted to use the pandemic experience to progress the role of community pharmacy in a strategic way, and as conveyed by the findings in this study, community pharmacists were willing and enthusiastic to deliver on such strategies.

Acknowledgements: The authors wish to acknowledge the contribution of all participants to this study. We also wish to thank the members of the Study Advisory Group for their advice and support and those who helped to pilot the topic guides.

Contributors: Conception/design: CAC, HEB, CMH; Acquisition, analysis or interpretation of the data: SMP, CAC, HEB, CMH; Manuscript drafting, revision, approval: SMP, CAC, HEB,

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3 CMH. Overall guarantors: CMH. The guarantor accepts full responsibility for the work and/or
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5 the conduct of the study, had access to the data and controlled the decision to publish.
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9 **Funding**: This work was funded by the Health and Social Care Research and Development
10
11 Division of the Public Health Agency, NI, under its COVID-19 Rapid Response Funding Call
12
13 (Ref. No. COM/5601/20**).** The content or views expressed are those of the
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15 authors/presenters and do not necessarily reflect the official views of the HSC R&D Division.
16
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18 **Competing interests:** None to declare
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21
22 **Patient consent for publication:** Not required
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25 **Data availability statement:** Data are available upon reasonable request
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29 **Ethics statement**: This study received ethical approval from the Queen's University Belfast
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31 Faculty of Medicine, Health and Life Sciences Research Ethics Committee (Ref. No. MHLS
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A mixed methods study of the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

COMMUNITY PHARMACIST INTERVIEW TOPIC GUIDE

Introduction

"Hello, my name is Susan Patterson and I am a researcher from the School of Pharmacy, Queen's University Belfast. Thank you very much for making the time to speak with me today.

Have you had a chance to read through the information sheet that was sent out to you? Would you like me to read you a short summary? Are there any questions that you would like to ask me before we start?"

Optional section to read if the pharmacist hasn't read the participant information sheet

"In this research project, we are interested in finding out about the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic. In the first part of this project, we reviewed various documents relating to structural changes to community pharmacy practice (i.e. infrastructure, funding/resourcing, legislation, policies and guidelines) in Northern Ireland in preparation for and/or in response to the COVID-19 pandemic. In the second part we contacted 130 community pharmacists in Northern Ireland by telephone and asked them to complete a short questionnaire about how they prepared for and responded to the COVID-19 pandemic. You participated in this stage and expressed an interest in taking part in the next stage of the study. Now we are speaking to a range of key stakeholders to further explore perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises. We will be exploring the views and experiences of community pharmacists in more detail and will also be interviewing representatives of patients, the pharmacy and medical professions, policy makers and service commissioners."

Explaining what will happen in the interview and afterwards

"I will be recording the interview on a digital recorder, to ensure that we have an accurate and detailed record of what you say. The recording will be saved on a password-protected computer and only those immediately involved in the research study and a transcriber (who will sign a confidentiality agreement) will be able to listen to it. The recording will be typed up word-for-word and any names, locations, or anything else that could identify you will be removed so that the information is anonymous. After we have conducted interviews with all participants, we will analyse the information within the research team. The interview should last approximately 40 minutes. You are free to stop

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the interview and/or recording at any point. If there are any questions that you would prefer not to answer, just let me know and we can move on to the next question."

Consent

"Before we start, I need to obtain your consent to ensure that you understand what the study involves; that anything you say will be kept completely confidential, that you will not be identified in any way, and also that you are happy for the interview to be recorded."

If the interview is conducted in person: "*Can you please read through the consent form (Appendix 1) and initial each box to indicate that you understand and agree with each statement, before signing and dating the form? There are two copies: you will keep one of them and I will keep the other for our records."*

[Turn the digital recorder on]

[Consent form – see Appendix 1]

If the interview is conducted by telephone: *"I will now read you a series of statements about the study (Appendix 1) which I would like you to respond to with either "Yes" or "No". I will audio-record and note your responses on the consent form."*

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- How would you sum up your experience of the pandemic while working in community pharmacy?
  - How prepared did you feel?
  - How did your experience change over time?
  - What worked well?
  - What worked less well?

- What do you think were the biggest challenges that the community pharmacy profession has faced during the pandemic?
  (Prompts[1]: protection of pharmacy workforce, concerns about staff illness, staff isolation, risk of pharmacy closure, financial difficulties, essential medicines stock shortages, public panic, GP closure, provision of COVID advice)

- Did the nature of your interactions with the public change during the pandemic?
  - How do you think the public perceived community pharmacists during the pandemic?
  - How do you think public expectations of community pharmacy could be managed in a future pandemic?

- Responses from the telephone questionnaire indicated that during the current pandemic, some pharmacists had some negative experiences with the public. What was your experience?
  (Prompts: aggressive behaviour, panic/anxiety, stockpiling)
  - Were there any common issues or problems that arose?
  - What was the impact on you and your staff?
  - Do you have any thoughts on how this could be avoided in a future pandemic?
    (Prompts: communication with GPs, advance information provided to the public re. changes to the Rx process)

- Do you think the public received sufficient information about COVID-19 from community pharmacy?
    (Prompts: infection control, symptoms and usual course of the disease, testing, contact tracing, seeking help, accessing medicines)

[1] The researcher will rephrase the question if necessary and not verbalise these as far as possible to avoid leading the interviewee

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Community Pharmacists Interview Topic Guide Study ID

- How do you think the core role of the community pharmacist changed over the course of the pandemic?

- In what areas do you think community pharmacy has made the biggest contributions to the healthcare response to COVID-19?

- Do you think that there are any areas where community pharmacy could have been more actively involved or made a greater contribution during the healthcare response to COVID-19?
  - What would have been needed to facilitate this?

- Can you tell me about any changes to your practice/services as a pharmacist that occurred as a result of the pandemic that you would like to see remain in place? (Prompt: Flu vaccination services, COVID-19 vaccination services, text alerts, change in methods of service delivery to maintain social distance e.g. video consultations, telephone calls and medicines pick up)
  - What would you **not** like to see remain in place?

- What were your experiences of working with local healthcare professionals across the NHS during the pandemic?
  - How did they perceive community pharmacists?
  - Did relationships change? (If so, in what way?)

- How do you think the pandemic will affect your working relationship with local healthcare professionals going forward?

- How do you think healthcare professionals' expectations of community pharmacy could be managed in a future pandemic?

- COVID-19-related information for pharmacists on a number of topics, i.e. clinical, business and financial matters, came from several different sources during the course of the pandemic, e.g. BSO website, HSCB e-mails, Department of Health letters, CPNI. What did you think about the COVID-19 information that was available to you? (Prompts: Quality, volume, frequency of distribution, evidence base, source)
  - What areas were covered well?
  - Was there anything in terms of information provision that could have been done differently?

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- How helpful was the business support you received from professional bodies / government departments? [*may not be relevant to employee pharmacists*] (Prompt e.g. financial support, permission to change opening hours, temporary pharmaceutical register)
    - Did you receive the support that you needed? (If not, can you tell me more about this?)
    - What was good about the support you received?
    - *For employee pharmacists:* Were there any areas of support you felt were lacking for you as an employee pharmacist?

- How do you think community pharmacy could prepare for a future pandemic or health care crisis?
  (Prompts: Business continuity / staffing – cross sectoral working, Communication strategies, Advance disaster planning, Guidance for pharmacy contractors on how to manage during a pandemic, Training – community pharmacists + staff?, Training in locality – multidisciplinary? Modernising prescription medicines processes and structures)

- How much autonomy should there be for healthcare professionals such as community pharmacists to exercise their own professional judgement in the decisions or actions that they take during an emergency situation such as a pandemic?
  (Prompts: controlled drugs storage, emergency medicines legislation)

- What has been the single biggest learning point for you about your role as a community pharmacist from the pandemic so far?

Closing the interview

"That brings us to the end of the interview.

Is there anything else about community pharmacy and the ongoing COVID-19 pandemic that you feel has not been covered or that you would like to discuss before we finish up?

Do you have any additional comments you would like to make as to the content of the interview or how it went?

Thank you very much for making the time to speak with me today."

[Turn the digital recorder off]

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Appendix 1: Interview participant consent form

School of Pharmacy

Medical Biology Centre
97 Lisburn Rd
Belfast BT9 7BL
Tel: 028 90972007
Fax: 028 90247794

INTERVIEW PARTICIPANT CONSENT FORM **STUDY ID**

Study Title: The community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

Please initial box

1. I confirm that I have read, or had read to me, and understand the information sheet dated 10/02/2021 (version 1.0) for the above study. I have had the opportunity to ask questions, and these have been answered fully. ☐

2. I understand that my participation is completely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. ☐

3. I understand, and agree to, the interview being digitally audio recorded. ☐

4. I understand that direct quotations from the interview may be used in reports and papers, but that confidentiality and anonymity will be maintained, and it will not be possible to identify me from any publications. ☐

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Community Pharmacists Interview	Topic Guide	Study ID

5. I understand that the researcher may share the pseudonymised audio-recordings with a transcription company and that the company will destroy the recording as soon as the transcription has been checked.

6. I understand that what is discussed during the interview is confidential.

7. I understand that the study is being conducted by researchers from Queen's University Belfast and that my personal information (including consent forms) will be held securely on University premises (in the School of Pharmacy) and handled in accordance with the provisions of the General Data Protection Regulation (2018).

8. I agree to take part in the above study.

_______________________ _______________ ___________________________

Name of Participant **Date** **Signature**

(Please print)

SUSAN PATTERSON

_______________________ _______________ ___________________________

Name of Researcher **Date** **Signature**

(Please print)

When completed: A signed copy of this form can be returned by e-mail to susan.patterson@qub.ac.uk or by post to Dr Susan Patterson, at the address above. Please retain a copy for your personal records.

Thank you for your participation in this research.

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Other Key Stakeholders Interview	Topic Guide	Study ID

A mixed methods study of the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

OTHER KEY STAKEHOLDERS: INTERVIEW TOPIC GUIDE

Introduction

Hello, my name is Susan Patterson, and I am a researcher from the School of Pharmacy, Queen's University Belfast. Thank you very much for making the time to speak with me today.

Have you had a chance to read through the information sheet that was sent out to you? Would you like me to read you a short summary? Are there any questions that you would like to ask me before we start?"

Optional section to read if the participant hasn't read the information sheet

"In this research project, we are interested in finding out about the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic. In the first part of this project, we reviewed various documents relating to structural changes to community pharmacy practice (i.e. infrastructure, funding/resourcing, legislation, policies and guidelines) in Northern Ireland in preparation for and/or in response to the COVID-19 pandemic. In the second part, we contacted 130 community pharmacists in Northern Ireland by telephone and asked them to complete a short questionnaire about how they prepared for and responded to the COVID-19 pandemic. Now we are speaking to a range of key stakeholders to further explore perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises. We will be exploring the views and experiences of community pharmacists in more detail and will also be interviewing representatives of patients, the pharmacy and medical professions, policy makers and service commissioners."

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Explaining what will happen in the interview and afterwards

"I will be recording the interview on a digital recorder, to ensure that we have an accurate and detailed record of what you say. The recording will be saved on a password-protected computer and only those immediately involved in the research study and a transcriber (who will sign a confidentiality agreement) will be able to listen to it. The recording will be typed up word-for-word and any names, locations, or anything else that could identify you will be removed so that the information is anonymous. After we have conducted interviews with all of the other participants, we will analyse the information within the research team. The interview should last approximately 40 minutes. You are free to stop the interview and/or recording at any point. If there are any questions that you would prefer not to answer, just let me know and we can move on to the next question."

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Other Key Stakeholders Interview	Topic Guide	Study ID

Consent

"Before we start, I need to obtain your consent to ensure that you understand what the study involves; that anything you say will be kept completely confidential, that you will not be identified in any way, and also that you are happy for the interview to be recorded."

If the interview is conducted in person: "*Can you please read through the consent form and initial each box to indicate that you understand and agree with each statement? There are two copies: you will keep one of them and I will keep the other for our records."*

[Turn the digital recorder on]

[Consent form – see Appendix 1]

If the interview is conducted by telephone: "*I will now read you a series of statements about the study which I would like you to respond to with either "Yes" or "No". I will audio-record and note your responses on the consent form."*

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Other Key Stakeholders Interview Topic Guide Study ID

Demographic information

"I would like to start by asking you a few questions about yourself and I will note the answers on this form [show participant the demographic details form]. This form will help us describe who has taken part in this study, but you will not be identified in any way."

[If it is a telephone interview, the text above will be amended to take account of this.]

1. Can I confirm the gender you identify as?

Female ☐ Male ☐ Prefer not to disclose ☐ Other (please specify) ☐

Other: ____

2. Which of the following categories includes your age?

<25 ☐ 25 - 34 ☐ 35 - 44 ☐ 45 - 54 ☐ 55 - 64 ☐ ≥65 ☐

3. What is your occupation?

Administrative Pharmacy/ Doctor / Patient representative / Other please specify

☐ ☐ ☐ ☐

____

4. How many years have you been working in your current role?

≤5 ☐ 6 – 10 ☐ 11 – 15 ☐ ≥15 ☐

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Other Key Stakeholders Interview	Topic Guide	Study ID

- Focusing on your role as [*insert whatever their role is*], can you tell me about how you would sum up your experience of community pharmacy during the pandemic?
  - How prepared do you think community pharmacists were as the pandemic started?
  - Did your experience with community pharmacy change over time?
  - What worked well?
  - What worked less well?

- In your current role, how has the nature of your interaction with community pharmacists changed as a result of the pandemic?

- What do you think were the biggest challenges that community pharmacy has faced during the pandemic?
  (Prompts[1]: protection of pharmacy workforce, concerns about staff illness, staff isolation, risk of pharmacy closure, financial difficulties, essential medicines stock shortages, public panic, GP closure, provision of COVID advice)

- In what areas do you think community pharmacy has made the biggest contributions to the healthcare response to COVID-19?

- In what areas do you think community pharmacy could have been more actively involved or made a greater contribution during the healthcare response to COVID-19?
  - What would have been needed to facilitate this?

- How do you think the role of the community pharmacist has changed as a result of the pandemic?
  - Do you view community pharmacists differently now compared to pre-pandemic? (If yes, why/can you tell me more about this?)

- Can you tell me about any changes to community pharmacy services as a result of the pandemic that you would like to see remain in place?
  (Prompt: Flu vaccination services, COVID-19 vaccination services, text alerts, change in methods of service delivery to maintain social distance e.g. video consultations, telephone calls and medicines pick up)
  - What would you **not** like to see remain in place?

[1] The researcher will rephrase the question if necessary and not verbalise these as far as possible to avoid leading the interviewee

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Other Key Stakeholders Interview	Topic Guide	Study ID	

- COVID-19-related information came from several different sources during the course of the pandemic. Can you tell me about the COVID-19 information that your organisation/department provided to community pharmacies? [*may not be relevant to everyone*] (Prompts: Quality, volume, frequency of distribution, evidence base, source)
  - Did your organisation coordinate information with other professional organisations?
  - What was good about the provision of information?
  - What could have been done differently with community pharmacies in respect of the provision of and the coordination of information?

- How could community pharmacies have been utilised more to disseminate COVID-19 information to the public?
  (Prompts: infection control, symptoms and usual course of the disease, testing, contact tracing, seeking help)
  - What could have been done differently by community pharmacy to keep the public informed? (Prompt: about the disease and how to access their medicines)

- How do you think healthcare professions such as community pharmacy should prepare for a future pandemic or health care crisis?
  (Prompts: Business continuity / staffing – cross sectoral working, Communication strategies, Advance disaster planning, Guidance for pharmacy contractors on how to manage during a pandemic, Training – community pharmacists + staff?, Training in locality – multidisciplinary? Modernising prescription medicines processes and structures)

- How can we maintain the supply of medicines to make things run more efficiently if a pandemic were to happen again? [*may not be relevant to everyone*]
  - What needs to change?
  (Prompts: Prescription review, alignment of quantities on repeat prescriptions, electronic transfer of prescriptions, Dispensing Robots, medicines adherence technology?)

- How much autonomy should there be for healthcare professionals such as community pharmacists to exercise their own professional judgement in the decisions or actions that they take during an emergency situation such as a pandemic?
  (Prompts: controlled drugs storage, emergency medicines legislation)

- What do you think has been the biggest learning point for you in respect of community pharmacy from the pandemic so far?

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Closing the interview

"That brings us to the end of the interview.

Is there anything else about community pharmacy and the ongoing COVID-19 pandemic that you feel has not been covered or that you would like to discuss before we finish up?

Do you have any additional comments you would like to make as to the content of the interview or how it went?

Thank you very much for making the time to speak with me today."

[Turn the digital recorder off]

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Appendix 1: Interview participant consent form

School of Pharmacy

Medical Biology Centre
97 Lisburn Rd
Belfast BT9 7BL
Tel: 028 90972007
Fax: 028 90247794

INTERVIEW PARTICIPANT CONSENT FORM **STUDY ID**

Study Title: The community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

Please initial box

1. I confirm that I have read, or had read to me, and understand the information sheet dated 10/02/2021 (version 1.0) for the above study. I have had the opportunity to ask questions, and these have been answered fully.

2. I understand that my participation is completely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected.

3. I understand, and agree to, the interview being digitally audio recorded.

4. I understand that direct quotations from the interview may be used in reports and papers, but that confidentiality and anonymity will be maintained, and it will not be possible to identify me from any publications.

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5. I understand that the researcher may share the pseudonymised audio-recordings with a transcription company for typing and that the company will destroy the recording as soon as the transcription has been checked.

6. I understand that what is discussed during the interview is confidential.

7. I understand that the study is being conducted by researchers from Queen's University Belfast and that my personal information (including consent forms) will be held securely on University premises (in the School of Pharmacy) and handled in accordance with the provisions of the General Data Protection Regulation (2018).

8. I agree to take part in the above study.

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Name of Participant (Please print)	**Date**	**Signature**

SUSAN PATTERSON

Name of Researcher (Please print)	**Date**	**Signature**

***When completed:* A signed copy of this form can be returned by e-mail to *susan.patterson@qub.ac.uk* or by post to Dr Susan Patterson, at the address above. Please retain a copy for your personal records.**

Thank you for your participation in this research.

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

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

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

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BMJ Open

"It stayed there, front and centre": Perspectives on community pharmacy's contribution to front-line health care services during the COVID-19 pandemic in Northern Ireland

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-064549.R1
Article Type:	Original research
Date Submitted by the Author:	03-Aug-2022
Complete List of Authors:	Patterson, Susan M.; Queen's University Belfast Cadogan, Cathal; Trinity College Dublin, Pharmacy Barry, Heather; Queen's University Belfast, School of Pharmacy Hughes, Carmel; Queen's University Belfast, School of Pharmacy
Primary Subject Heading:	Health services research
Secondary Subject Heading:	Public health, Qualitative research
Keywords:	COVID-19, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PRIMARY CARE, QUALITATIVE RESEARCH

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***"It stayed there, front and centre"*: Perspectives on community pharmacy's contribution to front-line health care services during the COVID-19 pandemic in Northern Ireland**

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ABSTRACT

Objectives: To explore community pharmacists' and key stakeholders' perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises.

Design, setting and participants: Qualitative study using semi-structured interviews (via telephone or online videoconferencing platform), with community pharmacists and a range of key stakeholders (representing other health professions, professional/governing organisations concerned with community pharmacy and patient advocacy groups) from across Northern Ireland. Data were analysed using thematic analysis and constant comparison.

Results: Thirty interviews were conducted with community pharmacists (n=15) and key stakeholders (n=15). Four themes were identified: (1) adaptation and adjustment (reflecting how community responded quickly to the need to maintain services and adjusted and adapted services accordingly); (2) the primary point of contact (the continuing accessibility of community pharmacy when other services were not available and role as a communication hub, particularly in relation to information for patients and maintaining contact with other health care professionals); (3) lessons learned (the flexibility of community pharmacy, the lack of infrastructure, especially in relation to information technology, and the need to build on the pandemic experience to develop practice); and (4) planning for the future (better infrastructure which reinforced concerns about poor technology, co-ordination of primary care services and preparing for the next public health crisis). There was a general view that community pharmacy needed to build on what had been learned to advance the role of the profession.

Conclusions: The strengths of community pharmacy and its contribution to healthcare services in the COVID-19 pandemic were noted by community pharmacists and acknowledged by key stakeholders. The findings from this study should inform the policy debate on community pharmacy and its contribution to the public health agenda.

Strengths and limitations of this study

- Recruited a diverse range of participants which provided a holistic and in-depth account
- Rigorous approach to data analysis
- Data saturation was achieved

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- Focus on NI may mean that the results reflect the local situation
- Participant demographic characteristics have not been reported due to the limited geographical area from which recruitment took place and the need to preserve anonymity

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INTRODUCTION

The COVID-19 pandemic has had profound effects on the delivery of health care worldwide. In the context of the United Kingdom (UK), hospitals faced unprecedented pressures and waiting lists for non-COVID services are now at an all-time high.[1] Primary care access, notably general practice, was greatly reduced, but community pharmacy largely remained open and accessible to patients and the public.[2]

A three-phase research project was undertaken in Northern Ireland (NI) to assess community pharmacy's preparedness for and response to the pandemic, using Donabedian's over-arching three-pillar model of quality of care: structure, process and outcome.[3] Phase 1 (representing structure) was a documentary analysis of guidance and policy documents released over the initial months of the pandemic,[4] Phase 2 (process) was used to gather quantitative data from a geographically stratified and representative sample of community pharmacists across NI,[5] while Phase 3 (outcome) was a series of semi-structured interviews with community pharmacists and key stakeholders and is reported in this paper. As outlined in the accompanying survey paper,[5] practice changed during this time, with essential services being maintained, other services suspended, and new services being implemented. Pharmacies introduced measures to prevent the spread of infection and to protect their staff, and became more involved in public health activities such as 'flu vaccination. Despite feeling unprepared during the first wave (March-May 2020), this changed over time, with pharmacists reporting feeling more prepared when the second wave of infection struck in September 2020. They maintained contact with general practitioner (GP) colleagues and patients (largely by telephone), maintained and updated their professional knowledge, and were enthusiastic about adopting roles that would contribute to future COVID vaccination and testing.[5]

Although this questionnaire provided a valuable snapshot of the community pharmacy experience in the early phases of the pandemic, it did not provide an in-depth understanding of the *lived experience* of community pharmacists. Furthermore, there has been little exploration of other stakeholders' views of community pharmacy's contribution to healthcare during the pandemic. Therefore, using the findings from the telephone survey (REF) and with reference to the wider literature, the aim of this study was to explore community pharmacists' and other stakeholders' perspectives and reflections on the

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community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises

METHOD

Key informant interviews were conducted with community pharmacists and other stakeholders (including representatives from patient organisations) in NI. The study has been reported in accordance with the consolidated criteria for reporting qualitative research (COREQ) checklist[6] and received ethical approval from the Queen's University Belfast Faculty of Medicine, Health and Life Sciences Research Ethics Committee (Ref. No. MHLS 21_21).

Setting and population

We sought to recruit key stakeholders for interview including registered community pharmacists from community pharmacies in NI, representatives of professional and governing bodies concerned with community pharmacy services in NI (e.g. Department of Health, Public Health Agency, National Pharmacy Association, and the Pharmaceutical Society of NI), representatives of other professions such as the Royal College of General Practitioners, British Medical Association, and representatives of patient advocacy groups, such as the Patient and Client Council NI, Carers Trust (unpaid carers), Care.org (residential and nursing homes), and Alzheimer's Society NI.

Patient and Public Involvement

Two patient and public involvement (PPI) representatives were recruited to the Study Advisory Group via the Patient Involvement Enhancing Research (PIER) NI network from the Health and Social Care Research and Development division. The Study Advisory Group also included members of the pharmacy profession representing practice, regulation and professional advocacy, along with a methodological advisor. The Group contributed to the development of the topic guide (see below), identification of pharmacists to help pilot the topic guide, with one PPI member participating in a pilot interview one to gauge the clarity of questions for key stakeholders and duration of the interview. Members of the Group did not contribute to analysis, but initial findings were presented to them and their comments were sought.

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Participant sampling and recruitment

Sampling and recruitment of community pharmacists

We sought to recruit between 15-20 community pharmacists (with the final sample size guided by data saturation). Community pharmacists who took part in the telephone questionnaire study referred to in the Introduction,[5] were asked if they were interested in participating in a follow-up interview. Those who expressed an interest were contacted by telephone and those who confirmed interest were sent an invitation letter, information sheet and a consent form. Potential participants were given one week to read and consider this information. After one week had elapsed, if there were more than 20 pharmacists willing to participate, the list of pharmacists was to be randomised as a way to manage high numbers of pharmacists expressing interest in participation. However, following recruitment, there was no necessity to do this. The researcher (SP) contacted them by telephone to arrange a suitable date and time for the interview. These pharmacists were known to the researcher by virtue of having taken part in the preceding study.[5]

Sampling and recruitment of other key stakeholders

We sought to recruit between 15-20 other key stakeholders in total (again, with final sample size determined by data saturation). Convenience sampling was used to recruit a range of additional stakeholders as key informants and was informed initially by consulting with members of a Study Advisory Group that was overseeing the conduct of this study. The research team also identified potential participants through their own professional networks and experience from previous studies, contacting organisations listed above. Potential participants were contacted by email in the first instance to gauge interest. Those who expressed interest were sent an invitation letter, information sheet and a consent form. Potential participants were given one week to read and consider this information, and a mutually suitable date and time were arranged for the interview. The researcher would have been known to some of these key stakeholders, but not all.

Interview topic guide

The interview topic guides (see Supplementary Files 1 and 2) were developed based on the published literature,[7][8][9][10] current COVID-19 guidelines at the time,[11] data from a review

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of the practice and policy literature,[4] findings from the telephone questionnaire[5] and discussions within the research team. Five pilot interviews were conducted by SP with members of the Study Advisory Group and qualified pharmacists from the School of Pharmacy, Queen's University Belfast to ensure that interview questions were clearly understood by participants and to estimate the duration of the interview.

Data collection and analysis

To adhere with public health guidelines at the time of the study, all interviews were conducted by telephone or using an online videoconferencing platform. All interviews were digitally recorded and no visual images of the participants were captured, and no other persons were present during the interview. Interviews began with a short briefing during which the researcher (pharmacist with a PhD who had undertaken qualitative work as part of her doctorate; had a professional interest in the research topic) introduced herself, outlined the background to the study and provided an overview of the process that would be followed during the interview. Verbal consent was obtained and recorded at this stage if not already received electronically in advance. Following the interview, all participants (where relevant) were offered a certificate of participation (for Continuing Professional Development purposes) and an honorarium of £50 in recognition of their time and inconvenience.

The digital recordings were transcribed verbatim, and each transcript was checked against the original recording for accuracy and anonymised to remove names of people, places and any other identifying information. Each participant was assigned an alphanumeric code, e.g. community pharmacist (CP), CP097, key stakeholder (KS), KS03. NVivo® 12 Pro software was used for management and analysis of the transcribed data. The codes used for community pharmacists were the respondent numbers from the survey study[5] which preceded the interviews. We retained this numeric coding for ease of reference across the two datasets.

Reflexive thematic analysis was undertaken concurrently with data collection to determine data saturation.[12][13][14] This was aligned to 'codebook thematic analysis' as described by Braun and Clarke.[14] Each transcript was analysed independently by two researchers (SP and CMH) using an inductive and iterative approach. After analysis of the first five transcripts, the research team met to discuss emerging themes and sub-themes, and a

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coding framework (codebook) was developed based on these. This coding frame was then used for the analysis of all subsequent transcripts and for re-analysis of the first five transcripts. An iterative approach ensured that any new themes arising from the data were identified and added to the coding frame.[14][15] Any discrepancies between researchers were resolved by discussion amongst the research team to reach consensus. Final themes were reviewed and agreed between all authors to enhance reliability. No transcripts were returned to participants.

RESULTS

A total of 30 interviews were conducted with community pharmacists (n=15) and key stakeholders (n=15) from July-September 2021. Due to the relatively small population from which participants were recruited, we have been very selective about the demographic information reported to ensure anonymity. In the case of pharmacists, 10 were male, the age range for the sample was 25-65 years old, five were pharmacy owners (with the remainder being employees), and eight participants worked in independent pharmacies. In the case of key stakeholders, nine were female and six were male, with most aged between 45-54 years old. Interviews took place either by telephone (n=22) or via online videoconferencing (n=8), and lasted between 29-79 minutes (mean=53 minutes). Following analysis, four themes emerged from the data: (1) adaptation and adjustment; (2) the primary point of contact; (3) lessons learned; and (4) planning for the future. An overview of each theme, supported by anonymised quotes, is provided below.

Theme 1: Adaptation and adjustment

The initial phase of the pandemic (from March 2020) was characterised by adaptation and adjustment on the part of community pharmacists and their staff, who demonstrated high levels of resilience and flexibility. Initially, there was a sense of panic as realisation dawned about the risk of infection to pharmacy staff, with little knowledge about the severity of the disease:

> *"This was just a perfect storm of a highly infectious disease that was proven to be very, very dangerous, and the information around it was still evolving."* KS03

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The effect of the pandemic was unprecedented, pharmacy staff felt unprepared, and were dealing with a marked increase in workload:

> *"…but as for being prepared, I don't think anything would have prepared us for the onslaught that we had for the first few weeks"* CP097

> *"The biggest challenge, initially, was the severely increased workload when there was such an absolute surge in prescription numbers."* CP071

As the pandemic continued, community pharmacists demonstrated their ability to adapt, and showed a high degree of flexibility and resilience in order to maintain essential services and medicines supplies. Some key stakeholders commented that these activities relieved the pressure somewhat on other services, including hospital emergency departments and GPs. Medicines supply was the core service that took priority during the pandemic:

> *"As entrepreneurs, as innovators, they were able to cope very well with a completely unprecedented situation. They're always prepared for the unknown. They're always agile, but they wouldn't have necessarily been prepared for this."* KS08

> *"We've had to prioritise, and priority is getting people their medicine."* CP074

A key stakeholder representing service users recognised pharmacists' ethos of continuing to provide care:

> *"For me, pharmacy was one of the shining lights, it stood its ground. It didn't stand back and didn't revolt and say, 'we have to close, we can't do this, we have to redeploy'. It stayed there, front and centre"* KS10

Throughout this period of adaptation and adjustment, participants described the situation as being emotionally charged with stress, pressure and concern for staff. Community pharmacists depended on having a strong and flexible staff team to manage the high workload and patient demands and expectations. Their emotional reactions were evident:

> *"It would probably be the most challenging professional time of my whole career. Very stressful, very worrying"* CP043

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There was considerable pressure on pharmacy staff to stay at work; many were worried and anxious about contracting infection and placing vulnerable family members at risk. However, they demonstrated commitment to their work and indeed, many increased their working hours to manage the increased workload and demand from the public. The pharmacy staff team was considered very important to community pharmacists which was also recognised by key stakeholders:

> *"The number of contractors, employers who have spoken to me and said, you know, they just are in awe of their staff who have…, just came in when ones (*sic*) could have isolated, could have gone on furlough, whatever."* KS08

Throughout the pandemic, community pharmacists maintained essential services and adapted their services models to provide modified services enabling the continuation of the critical supply of essential medicines to the public. Pharmacies also implemented innovations such as the development and provision of modified patient services, e.g. medicines adherence, prescription collection and delivery services, and a range of new pandemic services such as flu vaccination, public health advice and an emergency supply service (whereby a 30-day supply of prescription medicines could be provided to patients without a prescription) that alleviated the pressure on GP out-of-hours and emergency department services. There were many positive comments about what worked well:

> *"The prescriptions, having to be sent to the pharmacy directly from the doctors, I think that was a really good change, it allows you to manage workload."* CP046

> *"The other thing is people running out of medication, we're not supposed to loan anybody anything without going through the emergency supply route. So that was good in that they set up the emergency supply service which pharmacists could give an emergency supply during the pandemic and that worked well and for a change there wasn't a pile of paperwork to go with it."* CP097

Theme 2: The first point of contact

In the early stages of the pandemic, it was recognised that community pharmacies were one of the only entry points to primary healthcare services where the public had direct access to a healthcare professional:

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"Our roles have changed dramatically I think of what's expected of us in the community, definitely. Because we're the most accessible healthcare professional." CP043

"They [patients] *would have been very quick to say of the reliance that they had on the community pharmacist. And it was always followed up by the comment, "Because we can't get to a doctor, we can't get access to a doctor," you know."* KS12

Community pharmacists reported that patients increasingly relied on them as the first point of contact for advice, either in person or by telephone:

"So, I think that has really changed for us in that we are now their first point of contact really. And even now we are seeing that people are coming to see us even before they phone the doctor and saying, 'Well, what do you think, should I phone the doctor? How should I manage this? What's your opinion?'" CP046

Community pharmacies also played a key role in information provision, representing the hub for communication of COVID-19 information directly to patients, other healthcare professionals and each other. The Public Health Agency in NI rolled out a series of campaigns on COVID-19 and community pharmacies were central to that communication to patients. Being in the front line of healthcare resulted in community pharmacists having to adopt an expanded role, undertaking new services (notably COVID vaccination) and utilising skills in triage and assessment of patients:

"Now it's a lot more about trying to help people with diagnoses and treatments and signposting them on then to where they really need to be." CP046

"So, to have done that number [COVID vaccinations] *in such a short period of time has been fantastic"* KS01

However, being this first point of contact was sometimes overwhelming, especially with respect to the amount of information being provided by organisations for onward distribution and dissemination, which was duplicative and sometimes out of date by the time that it arrived:

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"The problem is, you were standing there, and it might have been Wednesday the 10th and that letter [e.g. advice from Department of Health or Health Board] *is dated Tuesday the 2nd".* CP072

"And we would just go in and there would be multiple emails printed off from work, read this, this, this and this at the start of the day. So, I suppose maybe if it could be centralised and come from one source, or fewer sources, it would have made it maybe easier to handle." CP046

Community pharmacists maintained communication with other members of the primary health care team, particularly GPs and practice pharmacists, and thought that relationships in primary care had improved, despite practices remaining largely closed in the early stages of the pandemic:

"We found working with the practice pharmacists very good during the pandemic. They were a really good resource to have. Because if you maybe couldn't get hold of the GP themselves, the practice pharmacists were really well based to speak to you' CP046

Theme 3: Lessons learned

The importance of community pharmacy in health care was a key lesson. An unintended consequence of the pandemic was the spotlight placed on community pharmacy, demonstrating what it could do. The response from community pharmacy during the pandemic was universally praised, and its reputation was enhanced:

"It's just reinforced how big a part community pharmacists and the community pharmacy team, members of staff, etc. play and how important they are and just to remember that we are really, really important to the people who we treat." CP043

"I think it is well recognised by a range of stakeholders of just how important the community pharmacy contribution during COVID has been, ranging from the Health Minister, and elected, various elected political representatives, through to the Health Service officials, and indeed the public at large." KS07

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The maintenance of medicines supply was seen as critical (and perhaps somewhat under-appreciated up to this point as it seemed 'basic'), with recognition that the system could have collapsed without this:

> *"The main contribution of community pharmacy, as I said, was maintaining access to medicines, and they did that, and they maintained public access to medicines'* KS03

> *"The continuity of supply of medicines. The fact that we were able to keep things going. Generally speaking, bar maybe some isolated incidents, I'm not aware of any, but nobody ended up in hospital because they didn't have their medication."* CP071

Through the adaptation and adjustment made to services (and highlighted in Theme 1), services were introduced quickly as a result of the profession's agility and flexibility, and pharmacists provided important new and modified services that they would want to retain in the future, another key lesson. The retention of these services was supported by key stakeholders:

> *"Community pharmacy I think would have a role to play in that, so there's* [sic] *not about dispensing more tablets, it's more about looking at the individual's needs and how the individual can be supported either individually or in a community context."* KS06

The agility and flexibility (reinforcing Theme 1) of pharmacy staff and their commitment to the care of patients was evident as they stepped up and took more responsibility for frontline patient care, putting previously learned skills into practice. It was noted how much was implemented in a short space of time:

> *"I think the biggest thing is how adaptable we are and how quickly we can change things around because there was an absolutely mad two or three weeks back in March/April 2020, where the pharmacies really, really had to dig deep, including the staff and all the rest of it to get the job done basically without the system falling down. Because that would have been catastrophic, you know."* CP071

> *"The pharmacy profession has really benefited from that in that they* [patients] *could see what we can actually do. So that would be the biggest change I would have noticed which is good for the profession."* CP52

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However, it was recognised that the lack of infrastructure, especially with respect to information technology (IT), had been problematic during the pandemic, and led to significant frustration. Participants described the IT system as “antiquated”, and a key lesson learned from the pandemic was the need for electronic transfer of prescriptions (eTP):

> *“And just the fact that we’re still chasing paper, you know, at this stage is crazy to be honest. My number one thing would be definitely have electronic prescriptions.”* CP083

> *“I think what it has shown is that the absolute number one priority is the electronic prescribing, because that gives a sustainable future to what we’ve started to do.”* KS05

Other lessons learned included the value of the newly introduced emergency supply service, the enhanced contribution to health care that community pharmacy could make, and the need for more formal and recognised integration of community pharmacy into the primary health care team. Concern was expressed that post-pandemic, community pharmacy’s contribution would be forgotten, so the opportunity needed to be seized in order to capitalise on the good will that had been engendered:

> *“And it would be nice that, you know, we’ve had all the plaudits and the pats on the back with politicians coming out and getting photo opportunities in community pharmacies and such like. It would be nice to get properly paid and to have a contract in place, and us given that respect that is due after all this. I think that is the biggest thing that I would like to see come out of this.”* CP018

> *“But as the health service normalises, then there is always the risk that pharmacy reverts back to a hidden role.”* KS07

Theme 4: Planning for the future

This final theme linked closely to that presented in Theme 3 in that participants felt that the lessons learned needed to feed into planning for the post-pandemic future. Areas where planning was seen as critical were infrastructure, review and co-ordination of service provision (including the workforce) and preparing for the next emergency.

Improvement and upgrading of the current infrastructure were viewed as an urgent priority:

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> *"And I think it's archaic that we're using paper prescriptions"* CP074

> *"So, it's dealing with those patients who become frustrated with the process basically for repeat prescriptions. To me, it isn't a very effective use of doctor or even practice-based pharmacist's time… Yeah, electronic prescription transmission would certainly help with that sort of thing."* CP071

This view also extended to access to patient records by community pharmacists, to facilitate the development of the clinical role:

> *"This is about reducing administrative burden, reducing regulatory burden, so that the focus can be on patient services, and patient support, patient advice, patient information, and the safe supply of medicines to patients, and building the services around those contacts that you make whenever medicines are supplied."* KS07

There was overwhelming support for extending the role of community pharmacists and reviewing the range of patient-facing or clinical services they provide:

> *"I think the government should maybe pay attention to that* [providing clinical services] *and the health service would benefit from it dramatically. That's the way I would love to see pharmacy going."* CP111

Such services included public health initiatives, vaccinations, the maintenance of the new emergency supply system introduced during the pandemic, and independent prescribing:

> *"I actually think… the emergency supplies. I think that they potentially, you know, even post pandemic I think there's a place for them. I think they* [community pharmacists] *should be allowed some trust when it comes to, you know, providing medication where it's impossible to get a prescription. Because obviously we have the knowledge, and we have the information from their PMR* [patient medication records] *system to make that call.*" CP074

> *"I would like to think in a future pandemic we would have more independent prescribers in community pharmacy as well, and who could be managing larger formularies of medicines. So, that would help the public access and treatment for specific conditions"* KS03

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Better coordination between sectors within the profession and interprofessional linkages were seen as important for the future success of community pharmacy, along with supporting and enhancing the workforce:

> *"So, that lack of co-ordination, I think, on the ground between primary care. It was always there, but that hasn't improved with the pandemic, whereas relations with the Board* (organisation responsible for commissioning services in NI) *have improved*." KS08

> *"So, the only thing I'd like is somebody to pull a couple of hundred or a few hundred pharmacists available to community pharmacy out of the hat! So, the one thing I definitely don't want to see continuing is the lack of pharmacy cover and staff"* CP071

Although community pharmacy had demonstrated its agility in dealing with the pandemic, there was an acknowledgement that future planning for another emergency (pandemic) had to be much more co-ordinated:

> "*But I think just having systems in place and, you know, having a plan. A pandemic plan needs to be drawn up and then we need to be trained on it. So, if this happens, we do this, if this happens, we do that. And, you know, a stockpile of PPE* [personal protective equipment] *and stuff like that that could be drawn upon. Because PPE and sanitiser was a big issue at the start as well"* CP132

> *So, there's a learn there in terms of services, and the sort of dynamic commissioning, and decommissioning, if you like, and for community pharmacies just being prepared for that as well."* KS03

> *"Planning, in terms of workforce, needs to be better, because we're just in a difficult place at the minute in terms of adequacy of workforce. So, that needs to be sort of regularised or resolved ahead if there's another cyclical pandemic."* KS07

There was a clear view that community pharmacy's contribution during the pandemic had demonstrated its value and provided momentum for the profession's trajectory:

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> *"Pharmacy has indicated very clearly how it can make a contribution in the acute pandemic phase which has just kind of proved what pharmacies have been saying all along, and that just needs to be now captured and I think given expression."* CP047

> *"We have a direction of travel here, and we build on what has been achieved."* KS07

DISCUSSION

This study has captured the views and perspectives of community pharmacists who worked during the early phases of the pandemic, and those of key stakeholders (some of whom were pharmacists) representing a wide range of constituencies and interests. We had framed the three-phase study using Donabedian's framework,[3] and this third phase represented the 'outcome' aspect of the framework in terms of reflections and experiences of community pharmacists and a broad range of key stakeholders. The findings clearly convey a recognition of community pharmacy's contribution to maintaining essential health services during the early phases of the pandemic, particularly when other services were not accessible or available. Key stakeholders were very appreciative of what community pharmacy had done, and perhaps one of the unintended consequences of the pandemic was to highlight the role that community pharmacy could play in a post-pandemic health service.

At the beginning of the pandemic, community pharmacy had to adapt and adjust. Community pharmacist participants recounted the increased workload, uncertainty, a feeling of unpreparedness, fear, and worry. But as was recognised, they demonstrated agility, resourcefulness, innovation, unceasing commitment and maintained key services and introduced new and adapted ones. These characteristics were also reflected by Liu et al.[16] who reported on the experiences of pharmacists in China at the start of the pandemic. They highlighted the importance of rapid adaptability and resiliency of individual practitioners to rapidly changing circumstances of the pandemic.[16] Interviews with primary care professionals (largely GPs and nurses) from eight European countries also revealed a rapid transformation of services with the onset of COVID-19, in the context of uncertainty about diagnosis, management and treatment.[17]

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Much of what community pharmacists did during the early stages of the pandemic reflected a Pharmacy Emergency Preparedness and Response Framework developed by Aruru et al.[18] consisting of five components - emergency preparedness and response, operations management, patient care and population health interventions, public health, and continuing professional education. An important part of this Framework specifically refers to the importance of preparation and flexibility in emergency circumstances to ensure effective responses and worker safety.[18] Community pharmacy activities as reported in this study exemplified these components. A scoping review by Costa et al.[19] outlined current practices on COVID-19 reported by pharmacy professional associations from across 32 countries. Almost all preventive measures to reduce health risks had been provided in most countries. Other frequent interventions reflected preparedness for stockpiling, increased demand for services and products, and important patient care interventions beyond the dispensing role. In view of COVID-19, changes to regulation and legislation enabled services to be delivered that improved access to medicines and relevant products, patient screening and referral including point-of-care antigen testing, support to vulnerable patients, and COVID-19 vaccination.[19] Again, many of these activities were undertaken by pharmacists in the present study and were recognised by participating stakeholders.

Community pharmacy was inundated with patients seeking help due to the lack of availability of other services which has been reported in other UK-based studies.[10] Pharmacists were the first point of contact, and indeed, sometimes the only point of contact, demonstrating the critical role that community pharmacy played in delivery of primary care during the pandemic. These observations are consistent with the comments from Traynor[20] who stated that “pharmacists matter in a pandemic response”, highlighting how pharmacies and pharmacists could and should serve a more useful role in society-wide pandemic preparedness. It was recognised that in addition to providing vaccinations, community pharmacies could become decentralised primary care service hubs, triaging patients prior to accessing family doctors or emergency rooms, and providing more direct hands-on support for medication therapy management at the patient and community level.[20] And based on our interview data, this appeared to happen in the early stages of the pandemic, with community pharmacy becoming that main point of contact. Indeed, these findings are consistent with a 2020 Report from the Organisation for Economic Co-operation

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and Development (OECD) which identified pharmacists as primary care providers in its definition of primary health care.[21] The Report outlined that there is ample scope for further developing the role of pharmacists and the need to develop more effective collaboration with the GPs and other healthcare professionals.

As a result, pharmacists reported that they perceived that patients now viewed them in a different light and were asking for advice and intervention from community pharmacists that may have been previously given by other sources, e.g. general practice. They disseminated information on COVID and participated in vaccination campaigns. But this also led to a surge in workload which was difficult to manage at times. In addition, by the time information was received, it was often out of date, and there was a recognition from some key stakeholders that there was probably too much information disseminated. This was also reported by Austin and Gregory[22] who interviewed 21 pharmacists based in Ontario, Canada, with a view to exploring resilience during the pandemic. These pharmacists noted the early stages of the pandemic as being a time of information overload and confusion. Most participants in the Canadian study reported increasing reliance on the websites of, and emails from, regulatory bodies and professional associations as their primary source of information. However, there was also frustration that communication from these organisations was often ambiguous and unclear.[22] A Belgian study reporting on interviews with GPs, highlighted an over-supply of information on COVID-19 which was also contradictory.[23] Wanat et al.[17] documented that primary care participants often felt overwhelmed with information that was constantly changing and coming from multiple sources.

The experience of working in the pandemic gave participants the opportunity to consider lessons learned. These lessons highlighted the importance of community pharmacy and its essential role in maintaining medicines supply, services that should be retained post-pandemic, and the adaptability and flexibility of community pharmacists and staff to meet demands. But there was also recognition as to the limits of what could be done largely due to outdated infrastructure, notably information technology (IT). Participants expressed frustration at antiquated systems, largely paper-based, and called for investment in better systems. Austin and Gregory[22] in their interview study noted that pharmacy organisations that had previously invested in technology were much better able to manage the surge in

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workload than those without such systems. In this present study, there was strong support for a change to IT services.

Finally, while the contribution of community pharmacy was universally recognised, there were concerns that the lessons learned and experience gained could be quickly forgotten in the post-pandemic world. There was a view that the goodwill and recognition of pharmacy and its contribution needed to be exploited in order to plan for the future, and instigate much needed change. And indeed, many of the lessons and experience fed into planning for the future which was the final theme. There was reinforcement of needing better infrastructure (IT being a case in point), better coordination and review of services (including workforce) and planning for the next emergency. This call for better planning was echoed by Wanat et al.[17] Community pharmacists were very willing to assume a much more prominent public health role, and to be a primary point of contact as they had been during the pandemic. There was also support for a prescribing role and better co-ordination across other health sectors, the need for more staffing, and much better planning and training for the next pandemic. Again, this reflects what other community pharmacy studies have reported, with a particular emphasis on the necessary infrastructure.[22]

Although the current study did not explicitly seek to inform and develop policy, it has been highlighted in a report from the King's Fund that 'the road to renewal' in the post-pandemic health and care system has to focus on a number of key areas including workforce, digital changes and the relationship between communities and public services.[24] These priorities reflect those for community pharmacy. We had framed the three-phase study using Donabedian's framework,[3] and this third phase represented the 'outcome' aspect of the framework in terms of reflections and experiences of community pharmacists and a broad range of other key stakeholders.

The strengths and limitations of this study should be acknowledged. We recruited a diverse range of participants who had had direct experience of delivering or planning services over the course of the pandemic. The views of key stakeholders provided a more external perspective to that of community pharmacists, but largely reinforced the views of the latter. We attained data saturation with the sample recruited, and the findings reinforced those from a preceding study,[5] but through the interviews, more in-depth discussion was

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possible which provided a more nuanced understanding of the issues. However, all participants were recruited from the same geographical region, perhaps limiting transferability of findings. It should be noted that other studies conducted in the community pharmacy sector which have evaluated the impact of the pandemic have reported complementary findings and themes. [10[[16] [22] Due to the close-knit nature of health care delivery and policy organisation in Northern Ireland, we decided not to report any participant characteristics e.g. gender, professional role, in order to maintain anonymity.

The COVID-19 pandemic has had a profound effect on healthcare delivery across the world. Community pharmacy was very much part of the front-line of services that remained accessible to patients. The data generated in this study have highlighted how the profession responded under the most difficult of circumstances, but have also demonstrated on what can be derived from the experience in order to inform future planning for the profession. Moynihan et al.[25] in their systematic review on the impact of the COVID-19 pandemic on healthcare service utilisation, suggested that post-pandemic recovery provided a rare opportunity for systematic changes in healthcare systems. This very much reflects the community pharmacy scenario in which participants also wanted to use the pandemic experience to progress the role of community pharmacy in a strategic way, and as conveyed by the findings in this study, community pharmacists were willing and enthusiastic to deliver on such strategies.

Acknowledgements: The authors wish to acknowledge the contribution of all participants to this study. We also wish to thank the members of the Study Advisory Group for their advice and support and those who helped to pilot the topic guides.

Contributors: Conception/design: CAC, HEB, CMH; Acquisition, analysis or interpretation of the data: SMP, CAC, HEB, CMH; Manuscript drafting, revision, approval: SMP, CAC, HEB, CMH. Overall guarantors: CMH. The guarantor accepts full responsibility for the work and/or the conduct of the study, had access to the data and controlled the decision to publish.

Funding: This work was funded by the Health and Social Care Research and Development Division of the Public Health Agency, NI, under its COVID-19 Rapid Response Funding Call

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(Ref. No. COM/5601/20**).** The content or views expressed are those of the authors/presenters and do not necessarily reflect the official views of the HSC R&D Division.

Competing interests: None to declare

Patient consent for publication: Not required

Data availability statement: Data are available upon reasonable request

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Ethics statement: This study received ethical approval from the Queen's University Belfast Faculty of Medicine, Health and Life Sciences Research Ethics Committee (Ref. No. MHLS 21_21).

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Community Pharmacists Interview | Topic Guide | Study ID

A mixed methods study of the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

COMMUNITY PHARMACIST INTERVIEW TOPIC GUIDE

Introduction

"Hello, my name is Susan Patterson and I am a researcher from the School of Pharmacy, Queen's University Belfast. Thank you very much for making the time to speak with me today.

Have you had a chance to read through the information sheet that was sent out to you? Would you like me to read you a short summary? Are there any questions that you would like to ask me before we start?"

Optional section to read if the pharmacist hasn't read the participant information sheet

"In this research project, we are interested in finding out about the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic. In the first part of this project, we reviewed various documents relating to structural changes to community pharmacy practice (i.e. infrastructure, funding/resourcing, legislation, policies and guidelines) in Northern Ireland in preparation for and/or in response to the COVID-19 pandemic. In the second part we contacted 130 community pharmacists in Northern Ireland by telephone and asked them to complete a short questionnaire about how they prepared for and responded to the COVID-19 pandemic. You participated in this stage and expressed an interest in taking part in the next stage of the study. Now we are speaking to a range of key stakeholders to further explore perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises. We will be exploring the views and experiences of community pharmacists in more detail and will also be interviewing representatives of patients, the pharmacy and medical professions, policy makers and service commissioners."

Explaining what will happen in the interview and afterwards

"I will be recording the interview on a digital recorder, to ensure that we have an accurate and detailed record of what you say. The recording will be saved on a password-protected computer and only those immediately involved in the research study and a transcriber (who will sign a confidentiality agreement) will be able to listen to it. The recording will be typed up word-for-word and any names, locations, or anything else that could identify you will be removed so that the information is anonymous. After we have conducted interviews with all participants, we will analyse the information within the research team. The interview should last approximately 40 minutes. You are free to stop

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the interview and/or recording at any point. If there are any questions that you would prefer not to answer, just let me know and we can move on to the next question."

Consent

"Before we start, I need to obtain your consent to ensure that you understand what the study involves; that anything you say will be kept completely confidential, that you will not be identified in any way, and also that you are happy for the interview to be recorded."

If the interview is conducted in person: "*Can you please read through the consent form (Appendix 1) and initial each box to indicate that you understand and agree with each statement, before signing and dating the form? There are two copies: you will keep one of them and I will keep the other for our records."*

[Turn the digital recorder on]

[Consent form – see Appendix 1]

If the interview is conducted by telephone: *"I will now read you a series of statements about the study (Appendix 1) which I would like you to respond to with either "Yes" or "No". I will audio-record and note your responses on the consent form."*

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Community Pharmacists Interview	Topic Guide	Study ID	

- How would you sum up your experience of the pandemic while working in community pharmacy?
  - How prepared did you feel?
  - How did your experience change over time?
  - What worked well?
  - What worked less well?

- What do you think were the biggest challenges that the community pharmacy profession has faced during the pandemic?
  (Prompts[1]: protection of pharmacy workforce, concerns about staff illness, staff isolation, risk of pharmacy closure, financial difficulties, essential medicines stock shortages, public panic, GP closure, provision of COVID advice)

- Did the nature of your interactions with the public change during the pandemic?
  - How do you think the public perceived community pharmacists during the pandemic?
  - How do you think public expectations of community pharmacy could be managed in a future pandemic?

- Responses from the telephone questionnaire indicated that during the current pandemic, some pharmacists had some negative experiences with the public. What was your experience?
  (Prompts: aggressive behaviour, panic/anxiety, stockpiling)
  - Were there any common issues or problems that arose?
  - What was the impact on you and your staff?
  - Do you have any thoughts on how this could be avoided in a future pandemic?
    (Prompts: communication with GPs, advance information provided to the public re. changes to the Rx process)

- Do you think the public received sufficient information about COVID-19 from community pharmacy?
    (Prompts: infection control, symptoms and usual course of the disease, testing, contact tracing, seeking help, accessing medicines)

[1] The researcher will rephrase the question if necessary and not verbalise these as far as possible to avoid leading the interviewee

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- How do you think the core role of the community pharmacist changed over the course of the pandemic?

- In what areas do you think community pharmacy has made the biggest contributions to the healthcare response to COVID-19?

- Do you think that there are any areas where community pharmacy could have been more actively involved or made a greater contribution during the healthcare response to COVID-19?
  - What would have been needed to facilitate this?

- Can you tell me about any changes to your practice/services as a pharmacist that occurred as a result of the pandemic that you would like to see remain in place? (Prompt: Flu vaccination services, COVID-19 vaccination services, text alerts, change in methods of service delivery to maintain social distance e.g. video consultations, telephone calls and medicines pick up)
  - What would you **not** like to see remain in place?

- What were your experiences of working with local healthcare professionals across the NHS during the pandemic?
  - How did they perceive community pharmacists?
  - Did relationships change? (If so, in what way?)

- How do you think the pandemic will affect your working relationship with local healthcare professionals going forward?

- How do you think healthcare professionals' expectations of community pharmacy could be managed in a future pandemic?

- COVID-19-related information for pharmacists on a number of topics, i.e. clinical, business and financial matters, came from several different sources during the course of the pandemic, e.g. BSO website, HSCB e-mails, Department of Health letters, CPNI. What did you think about the COVID-19 information that was available to you? (Prompts: Quality, volume, frequency of distribution, evidence base, source)
  - What areas were covered well?
  - Was there anything in terms of information provision that could have been done differently?

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Community Pharmacists Interview Topic Guide Study ID

- How helpful was the business support you received from professional bodies / government departments? [*may not be relevant to employee pharmacists*] (Prompt e.g. financial support, permission to change opening hours, temporary pharmaceutical register)
  - Did you receive the support that you needed? (If not, can you tell me more about this?)
  - What was good about the support you received?
  - *For employee pharmacists:* Were there any areas of support you felt were lacking for you as an employee pharmacist?

- How do you think community pharmacy could prepare for a future pandemic or health care crisis?
  (Prompts: Business continuity / staffing – cross sectoral working, Communication strategies, Advance disaster planning, Guidance for pharmacy contractors on how to manage during a pandemic, Training – community pharmacists + staff?, Training in locality – multidisciplinary? Modernising prescription medicines processes and structures)

- How much autonomy should there be for healthcare professionals such as community pharmacists to exercise their own professional judgement in the decisions or actions that they take during an emergency situation such as a pandemic?
  (Prompts: controlled drugs storage, emergency medicines legislation)

- What has been the single biggest learning point for you about your role as a community pharmacist from the pandemic so far?

Closing the interview

"That brings us to the end of the interview.

Is there anything else about community pharmacy and the ongoing COVID-19 pandemic that you feel has not been covered or that you would like to discuss before we finish up?

Do you have any additional comments you would like to make as to the content of the interview or how it went?

Thank you very much for making the time to speak with me today."

[Turn the digital recorder off]

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Appendix 1: Interview participant consent form

School of Pharmacy

Medical Biology Centre
97 Lisburn Rd
Belfast BT9 7BL
Tel: 028 90972007
Fax: 028 90247794

INTERVIEW PARTICIPANT CONSENT FORM **STUDY ID**

Study Title: The community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

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Please initial box

1. I confirm that I have read, or had read to me, and understand the information sheet dated 10/02/2021 (version 1.0) for the above study. I have had the opportunity to ask questions, and these have been answered fully. ☐

2. I understand that my participation is completely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. ☐

3. I understand, and agree to, the interview being digitally audio recorded. ☐

4. I understand that direct quotations from the interview may be used in reports and papers, but that confidentiality and anonymity will be maintained, and it will not be possible to identify me from any publications. ☐

Community Pharmacists Interview Topic Guide Study ID

5. I understand that the researcher may share the pseudonymised audio-recordings with a transcription company and that the company will destroy the recording as soon as the transcription has been checked.

6. I understand that what is discussed during the interview is confidential.

7. I understand that the study is being conducted by researchers from Queen's University Belfast and that my personal information (including consent forms) will be held securely on University premises (in the School of Pharmacy) and handled in accordance with the provisions of the General Data Protection Regulation (2018).

8. I agree to take part in the above study.

Name of Participant (Please print)	Date	Signature

SUSAN PATTERSON

Name of Researcher (Please print)	Date	Signature

When completed: A signed copy of this form can be returned by e-mail to susan.patterson@qub.ac.uk or by post to Dr Susan Patterson, at the address above. Please retain a copy for your personal records.

Thank you for your participation in this research.

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Other Key Stakeholders Interview	Topic Guide	Study ID

A mixed methods study of the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

OTHER KEY STAKEHOLDERS: INTERVIEW TOPIC GUIDE

Introduction

Hello, my name is Susan Patterson, and I am a researcher from the School of Pharmacy, Queen's University Belfast. Thank you very much for making the time to speak with me today.

Have you had a chance to read through the information sheet that was sent out to you? Would you like me to read you a short summary? Are there any questions that you would like to ask me before we start?"

Optional section to read if the participant hasn't read the information sheet

"In this research project, we are interested in finding out about the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic. In the first part of this project, we reviewed various documents relating to structural changes to community pharmacy practice (i.e. infrastructure, funding/resourcing, legislation, policies and guidelines) in Northern Ireland in preparation for and/or in response to the COVID-19 pandemic. In the second part, we contacted 130 community pharmacists in Northern Ireland by telephone and asked them to complete a short questionnaire about how they prepared for and responded to the COVID-19 pandemic. Now we are speaking to a range of key stakeholders to further explore perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises. We will be exploring the views and experiences of community pharmacists in more detail and will also be interviewing representatives of patients, the pharmacy and medical professions, policy makers and service commissioners."

Explaining what will happen in the interview and afterwards

"I will be recording the interview on a digital recorder, to ensure that we have an accurate and detailed record of what you say. The recording will be saved on a password-protected computer and only those immediately involved in the research study and a transcriber (who will sign a confidentiality agreement) will be able to listen to it. The recording will be typed up word-for-word and any names, locations, or anything else that could identify you will be removed so that the information is anonymous. After we have conducted interviews with all of the other participants, we will analyse the information within the research team. The interview should last approximately 40 minutes. You are free to stop the interview and/or recording at any point. If there are any questions that you would prefer not to answer, just let me know and we can move on to the next question."

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Other Key Stakeholders Interview | Topic Guide | Study ID

Consent

"Before we start, I need to obtain your consent to ensure that you understand what the study involves; that anything you say will be kept completely confidential, that you will not be identified in any way, and also that you are happy for the interview to be recorded."

If the interview is conducted in person: "*Can you please read through the consent form and initial each box to indicate that you understand and agree with each statement? There are two copies: you will keep one of them and I will keep the other for our records."*

[Turn the digital recorder on]

[Consent form – see Appendix 1]

If the interview is conducted by telephone: "*I will now read you a series of statements about the study which I would like you to respond to with either "Yes" or "No". I will audio-record and note your responses on the consent form."*

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Other Key Stakeholders Interview	Topic Guide	Study ID

Demographic information

"I would like to start by asking you a few questions about yourself and I will note the answers on this form [show participant the demographic details form]. This form will help us describe who has taken part in this study, but you will not be identified in any way."

[If it is a telephone interview, the text above will be amended to take account of this.]

1. Can I confirm the gender you identify as?

Female ☐ Male ☐ Prefer not to disclose ☐ Other (please specify) ☐

Other: ____

2. Which of the following categories includes your age?

<25 ☐ 25 - 34 ☐ 35 - 44 ☐ 45 - 54 ☐ 55 - 64 ☐ ≥65 ☐

3. What is your occupation?

Administrative Pharmacy/ Doctor / Patient representative / Other please specify

☐ ☐ ☐ ☐

____

4. How many years have you been working in your current role?

≤5 ☐ 6 – 10 ☐ 11 – 15 ☐ ≥15 ☐

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Other Key Stakeholders Interview	Topic Guide	Study ID

- Focusing on your role as [*insert whatever their role is*], can you tell me about how you would sum up your experience of community pharmacy during the pandemic?
    - How prepared do you think community pharmacists were as the pandemic started?
    - Did your experience with community pharmacy change over time?
    - What worked well?
    - What worked less well?

- In your current role, how has the nature of your interaction with community pharmacists changed as a result of the pandemic?

- What do you think were the biggest challenges that community pharmacy has faced during the pandemic?
  (Prompts[1]: protection of pharmacy workforce, concerns about staff illness, staff isolation, risk of pharmacy closure, financial difficulties, essential medicines stock shortages, public panic, GP closure, provision of COVID advice)

- In what areas do you think community pharmacy has made the biggest contributions to the healthcare response to COVID-19?

- In what areas do you think community pharmacy could have been more actively involved or made a greater contribution during the healthcare response to COVID-19?
    - What would have been needed to facilitate this?

- How do you think the role of the community pharmacist has changed as a result of the pandemic?
    - Do you view community pharmacists differently now compared to pre-pandemic? (If yes, why/can you tell me more about this?)

- Can you tell me about any changes to community pharmacy services as a result of the pandemic that you would like to see remain in place?
  (Prompt: Flu vaccination services, COVID-19 vaccination services, text alerts, change in methods of service delivery to maintain social distance e.g. video consultations, telephone calls and medicines pick up)
    - What would you **not** like to see remain in place?

[1] The researcher will rephrase the question if necessary and not verbalise these as far as possible to avoid leading the interviewee

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Other Key Stakeholders Interview Topic Guide Study ID

- COVID-19-related information came from several different sources during the course of the pandemic. Can you tell me about the COVID-19 information that your organisation/department provided to community pharmacies? [*may not be relevant to everyone*] (Prompts: Quality, volume, frequency of distribution, evidence base, source)
  - Did your organisation coordinate information with other professional organisations?
  - What was good about the provision of information?
  - What could have been done differently with community pharmacies in respect of the provision of and the coordination of information?

- How could community pharmacies have been utilised more to disseminate COVID-19 information to the public?
(Prompts: infection control, symptoms and usual course of the disease, testing, contact tracing, seeking help)
  - What could have been done differently by community pharmacy to keep the public informed? (Prompt: about the disease and how to access their medicines)

- How do you think healthcare professions such as community pharmacy should prepare for a future pandemic or health care crisis?
(Prompts: Business continuity / staffing – cross sectoral working, Communication strategies, Advance disaster planning, Guidance for pharmacy contractors on how to manage during a pandemic, Training – community pharmacists + staff?, Training in locality – multidisciplinary? Modernising prescription medicines processes and structures)

- How can we maintain the supply of medicines to make things run more efficiently if a pandemic were to happen again? [*may not be relevant to everyone*]
  - What needs to change?
  (Prompts: Prescription review, alignment of quantities on repeat prescriptions, electronic transfer of prescriptions, Dispensing Robots, medicines adherence technology?)

- How much autonomy should there be for healthcare professionals such as community pharmacists to exercise their own professional judgement in the decisions or actions that they take during an emergency situation such as a pandemic?
(Prompts: controlled drugs storage, emergency medicines legislation)

- What do you think has been the biggest learning point for you in respect of community pharmacy from the pandemic so far?

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Other Key Stakeholders Interview	Topic Guide	Study ID

Closing the interview

"That brings us to the end of the interview.

Is there anything else about community pharmacy and the ongoing COVID-19 pandemic that you feel has not been covered or that you would like to discuss before we finish up?

Do you have any additional comments you would like to make as to the content of the interview or how it went?

Thank you very much for making the time to speak with me today."

[Turn the digital recorder off]

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Appendix 1: Interview participant consent form

School of Pharmacy

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Tel: 028 90972007
Fax: 028 90247794

INTERVIEW PARTICIPANT CONSENT FORM **STUDY ID**

Study Title: The community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic

Please initial box

1. I confirm that I have read, or had read to me, and understand the information sheet dated 10/02/2021 (version 1.0) for the above study. I have had the opportunity to ask questions, and these have been answered fully. ☐

2. I understand that my participation is completely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. ☐

3. I understand, and agree to, the interview being digitally audio recorded. ☐

4. I understand that direct quotations from the interview may be used in reports and papers, but that confidentiality and anonymity will be maintained, and it will not be possible to identify me from any publications. ☐

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5. I understand that the researcher may share the pseudonymised audio-recordings with a transcription company for typing and that the company will destroy the recording as soon as the transcription has been checked.

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8. I agree to take part in the above study.

For peer review only

Name of Participant (Please print)	**Date**	**Signature**

SUSAN PATTERSON

Name of Researcher (Please print)	**Date**	**Signature**

When completed: A signed copy of this form can be returned by e-mail to susan.patterson@qub.ac.uk or by post to Dr Susan Patterson, at the address above. Please retain a copy for your personal records.

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

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

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

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