Final Report
Executive Summary

HSC R&D Division Final Progress Report

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HSC Public Health Agency
Research and Development

HSC R&D Division Award Details

HSC R&D File Reference	COM/5601/20
HSC R&D Funding Scheme	COVID-19 Rapid Response Funding Call
Project Title	A mixed methods study of the community pharmacy workforce's preparedness for, and response to, the COVID-19 pandemic
Award Holder Name (Employer)	Carmel M. Hughes (School of Pharmacy, Queen's University Belfast)
Host Research Organisation	Queen's University Belfast
Award Duration	12 months
Award Start Date	November 1st 2020
Award End Date	January 31st 2022 (including a three month no-cost extension)
Name of Lead Supervisor: *(only applicable to training awards)*	-

Signature

Award Holder Signature:

Date: March 28th 2022

Evidence Brief

(1 page: which may be used for dissemination by HSC R&D Division)

Why did we start? (The need for the research and/or Why the work was commissioned)	Community pharmacy is one of the most accessible parts of the health service. Efforts to tackle COVID-19 have required an immediate response from the community pharmacy workforce. However, this response has not been comprehensively studied. It is also unclear if community pharmacies were suitably prepared and supported in making some of the necessary changes in response to COVID-19. This project aimed to examine how community pharmacies in Northern Ireland (NI) responded during the early stages of the COVID-19 pandemic.
What did we do? (Methods)	The project consisted of three work packages (WP). WP1 involved a review of official updates and changes to the ways in which community pharmacies operated. This involved a documentary analysis of changes to policies, guidelines and funding schemes. WP2 consisted of a short telephone questionnaire involving community pharmacists. The questionnaire examined their views and experiences of how community pharmacies operated in response to COVID-19. In WP3, semi-structured interviews were conducted with community pharmacists, and key stakeholders from other professions, government departments, patient support groups and professional organisations. The interviews explored findings from earlier phases of the project, as well as lessons that could be learned to better understand how community pharmacies can help in responding to any future healthcare crises. Appropriate analyses were undertaken for the data produced in all WPs.
What answer did we get? (Findings)	In WP1, 61 documents produced by various NI health organisations were analysed. Four main themes were identified: medication prescribing and supply (including changes to legislation and emergency supply of medicines); infection control (guidance to be followed in respect of cleaning, social distancing and use of personal protective equipment); operational issues (e.g. business continuity, communications and workforce) and vaccination services (with a focus on flu vaccination). In WP2, 130 community pharmacists across NI completed the telephone questionnaire. Findings indicated that the pharmacy workforce remained accessible and maintained supply of essential medicines and advice to patients throughout the pandemic. Provision of modified and additional services such as vaccination extended the clinical and public health role of pharmacy. Pharmacists were willing to in engage with COVID-19 vaccination and testing. In WP3, 30 participants (15 community pharmacists, 15 key stakeholders) were interviewed. Four themes were identified: (1) adaptation and adjustment (reflecting how community responded quickly to the need to maintain services); (2) the primary point of contact (the continuing accessibility of community pharmacy and role as communication hub); (3) lessons learned (the flexibility of community pharmacy, the lack of infrastructure and the need to build on the pandemic experience to develop practice); and (4) planning for the future (better infrastructure, co-ordination of services and preparing for the next health crisis.
What should be done now? (Practice/Policy Implications and/or Recommendations)	This study has highlighted that community pharmacy was central to maintaining health services in primary care during the early stages of the COVID-19 pandemic and appeared to demonstrate its value. Although partly driven by policy changes as reflected in the documentary analysis, community pharmacy practice adapted significantly, with the provision of essential and new services, and maintenance of the critical role of medicines supply and advice provision. Community pharmacists assumed the role of being the main point of contact, communication and care for patients and other health professionals. Pharmacists expressed enthusiastic support for a continuation of the enhanced role they assumed over the course of the pandemic, but noted that this needs to be supported through an investment in infrastructure and workforce, and better planning for services and indeed, the next emergency situation.

Final Report

(no more than 20 pages)

Please structure the report using the headings below

1. Background

During crises, such as COVID-19, resilient healthcare systems (i.e. those with capacity to prepare and respond effectively, and reorganise services where required) are critical to reducing mortality and adverse health consequences through effective care for emergency and routine healthcare needs.[1,2] Community pharmacy is one of the most accessible health sectors and has played a vital frontline role during key stages of the current COVID-19 pandemic (i.e. prevention, preparedness, response, recovery).[3,4] Amid the restrictions imposed following the onset of the pandemic, community pharmacy was deemed an essential service which reflects the centrality of medicines to everyday life.[5] Governments and professional organisations in various countries have specifically acknowledged the need to support and maximise pharmacy as a resource in maintaining delivery of patient care during a pandemic.[6]

The practical outworking of the COVID-19 pandemic in Northern Ireland (NI) began with a lockdown in March 2020, at which time GP practices, dental practices and many outpatient clinics within secondary care were no longer available to the public. At this time, community pharmacies remained open, providing essential medicines and advice, as well as limited other services to patients. Due to the 'walk-in' nature of community pharmacy services, pharmacy businesses had to adapt very quickly to the circumstances during March 2020, putting measures in place to prevent the spread of COVID-19, whilst maintaining the supply of essential medicines to patients.[7]

Guidance was issued to community pharmacists in NI from local government and community pharmacy service commissioners[7-9] and other professional and regulatory healthcare bodies.[10,11] However, the extent of the NI community pharmacy workforce's preparedness for, and response to the pandemic has yet to be investigated. This forms the basis of this project.

2. Aims and objectives

The overall aim of this study was to examine how community pharmacies across NI responded to the COVID-19 pandemic. The objectives were to:

1. Identify and review structural changes to community pharmacy practice (i.e. infrastructure, funding/resourcing, legislation, policies and guidelines) in NI in preparation for and/or response to COVID-19;
2. Examine the immediate views and experiences of the pharmacy workforce regarding changes in community pharmacy practice/processes in preparation for, and response to, COVID-19; and
3. Explore stakeholder perspectives and reflections on the community pharmacy workforce's preparedness for, and response to COVID-19, including lessons for future public health crises.

3. Methods

This project involved a mixed methods design.[12] The above project objectives and work packages (WPs) outlined below, align with Donabedian's model[13] which categorises quality of care into structure (WP1), process (WP2), and outcome (WP3). This overarching model provided information on key structures and processes required for maintaining quality healthcare during COVID-19. The project has been conducted in accordance with relevant methodological guidance and reporting guidelines.[14] The key researchers on this project were Susan Patterson (SP), Heather Barry (HB), Cathal Cadogan (CC), and Carmel Hughes (CH). Emma O'Reilly (EO'R) assisted with the documentary analysis and Kathleen Bennett (KB) provided statistical advice.

3.1 Work Package 1: Review of structural changes to community pharmacy practice

This work package (WP) aligned to Project Objective 1 above and focused on the 'Structure' component of Donabedian's model (i.e. the context and environment in which community pharmacies operated during COVID-19).[13] A documentary analysis, following relevant methodological guidance,[15,16] was therefore undertaken of COVID-19-related documentation affecting community pharmacy structures and processes in NI.

3.1.1 Inclusion criteria

Any document published between 1st January and 31st October 2020 containing information relating to changes to community pharmacy practice (i.e. infrastructure, funding/resourcing, legislation, guidelines or policies) in preparation for, and/or in response to, COVID-19 was eligible for inclusion. The start date was selected, as the first reporting of COVID-19 by China to the World Health Organization occurred on 31st December 2019.[17] Documents had to be published by official government, health service, regulatory and professional representative bodies and organisations in NI. Official publications/reports, web pages, email updates, circulars and social media posts were eligible for inclusion. Documents outlining general updates or changes to the health service not explicitly directed at community pharmacy or the related

workforce were excluded (e.g. general social distancing guidance), as were documents with no clear implementation date or strategy (e.g. commentaries, opinion statements).

3.1.2 Search process

A systematic electronic search of the websites of relevant organisations such as Pharmaceutical Society NI (PSNI), Department of Health (DoH), Business Services Organisation (BSO), Community Pharmacy NI (CPNI), and Health and Social Care Board (HSCB) was undertaken. For websites with search functionalities, the following search terms and combinations thereof were used: "COVID-19", "coronavirus", "pandemic", "community pharmacy", "community pharmacist". Initial screening of each website was undertaken by a single reviewer (HB/EO'R). Brief details (e.g. source, search date, document title, URL/web-link) of any potentially relevant documents were collated in a Microsoft Excel spreadsheet for full-text screening and reviewed to remove duplicates. The full-texts of identified documents were assessed for inclusion by two reviewers independently (HB, EO'R); discrepancies were resolved through discussion with a third reviewer (SP). Reasons for exclusion were documented throughout.

3.1.3 Data analysis

Initially, we had planned to undertake a framework analysis[18] using deductive coding under the categories of 'prevention', 'preparedness', 'response' and 'recovery',[3,19] followed by a content analysis[20] of the material coded under each of these four categories. However, this was found to be difficult as documents did not always fit under these pre-determined categories. Therefore, following a familiarisation phase, a conventional content analysis was undertaken.
Preliminary codes were derived inductively by highlighting sections of text that captured key changes to community pharmacy practice in preparation for and/or response to COVID-19. These codes were sorted into larger categories based on how they related and interlinked; the coding scheme was refined on an iterative basis. To ensure rigour in the coding process,[21] a 10% random sample of included documents was selected and coded by two reviewers working independently (HB, CH). Coding was compared and any discrepancies were resolved through discussion. The remaining documents were then coded by one reviewer and the findings discussed within the research team. NVivo® 12 Pro[22] was used to organise and manage the data.

3.2 Work Package 2: Community pharmacy modifications/innovations in preparation/response to COVID-19

This work package was aligned to Project Objective 2 above and focused on the 'Process' component of Donabedian's model (i.e. the provision of care through community pharmacies during COVID-19).[13] A cross-sectional study was undertaken involving a brief telephone questionnaire with community pharmacists to examine their immediate views and experiences of changes in community pharmacy practice/process in preparation for, and response to, COVID-19. This study received ethical approval from the Faculty of Medicine, Health and Life Sciences Research Ethics Committee (Ref. MHLS 21_21).

3.2.1 Questionnaire development

The telephone questionnaire was developed based on findings from WP1, relevant literature describing a framework of activities that pharmacy personnel can undertake in preparation/response to crises such as COVID-19[23] and following consultation with the Study Advisory Group (see Section 4). It included questions on demographic characteristics, community pharmacists' experiences of working during the pandemic, i.e. prevention of infection and maintaining pharmacy services, preparedness for and response to the COVID-19 pandemic, communication and looking to the future. To minimise the impact of participation on community pharmacy practice, the content was designed to ensure that the questionnaire was concise and that the component questions, where possible, did not seek any elaboration on the answers provided. Respondents could also skip any questions that they would prefer not to answer. It was piloted with volunteer community pharmacists (n=5) to assess face and content validity and refined based on their responses. This piloting indicated that completion time for the questionnaire was approximately 15 minutes. These pilot responses were not included in the final analysis. A copy of the questionnaire is provided in Appendix 1.

3.2.2 Sampling

A purposive and geographically stratified sample of community pharmacists was recruited for the study. Using the publicly accessible Pharmaceutical List available from the Health and Social Care Business Services Organisation,[24] community pharmacies were stratified according to Local Commissioning Group (LCG) areas. The numbers sampled were in proportion to the number of registered pharmacies in each locality to ensure representation across NI.

In November 2020, there were 528 pharmacies currently on the Pharmaceutical List in NI. In order to attain a statistically representative sample of community pharmacies across NI, and to estimate the percentage response to any questions in the questionnaire within a precision of +/-7.5% (i.e. a confidence level of 95% that the real value is within ±7.5% of any questionnaire responses), a sample of n=130 questionnaire respondents was required. Based on the total number of community pharmacies across NI (n=528) and an anticipated response rate of 30%, up to ~433 pharmacies were to be contacted (from the 528) to achieve the required sample size (n=130). This equated to a sampling fraction of 24% of the total number of community pharmacies. Within each LCG area, a random list of community pharmacies was generated

using a random number generator (on Microsoft Excel). Community pharmacies were telephoned sequentially in each LCG area by the researcher (SP) using the randomly selected list until a 30% response rate within each LCG area was achieved.

3.2.3 Recruitment and consent

In advance of recruitment and to raise awareness, information about the study was made available to all community pharmacies through Community Pharmacy NI (CPNI), a body that represents all community pharmacies in NI. CPNI circulated a short description of the study to community pharmacies by email, and this same information was included in newsletters and emails from other pharmacy organisations with close links with the community pharmacy sector, e.g. Pharmacy Forum NI.

Community pharmacies were contacted by telephone (using publicly available contact details) in random order (see Section 3.2.2) across the LCGs by the researcher (SP) who briefly outlined the study, referred to information previously circulated to community pharmacies and gauged interest. SP advised that the questionnaire would take approximately 15 minutes to complete (based on the pilot). Pharmacists were offered the opportunity to complete the questionnaire during the telephone call or to arrange a more convenient later time and date. Further information about the study, if requested, was provided via email. For pharmacists who expressed an interest in taking part, consent was taken verbally over the telephone and audio-recorded. The explicit yes/no responses for consent were also documented on the questionnaire form (Section 1). Consent records (Section 1) were stored separately from the completed questionnaire responses (Section 2).

3.2.4 Data collection

A unique study identification (ID) number was assigned to each participant and recorded on the questionnaire. These ID numbers were recorded in a password-protected Microsoft Excel spreadsheet which acted as a log, linking ID numbers to respondents known only to the researcher and stored on the researcher's secure and password-protected laptop. Responses to the questions were recorded by the researcher (SP) on the form. If the pharmacist was interrupted during the questionnaire data collection, they were asked if they were willing to complete the questionnaire at a later time and an appointment was arranged. Following completion of the questionnaire, if participants expressed an interest in participating in a subsequent interview (WP 3, see Section 3.3), they were asked to provide their contact details for follow-up.

3.2.5 Data analysis

Data were coded and entered into SPSS v27[25] and analysed using descriptive statistics, such as frequencies, percentages and 95% confidence intervals. Missing data were coded as such and excluded from analyses. Free text responses to questions were recorded, coded and the main themes derived.

3.3 Work Package 3: Reflections on community pharmacy workforce preparedness and response

This work package was aligned to Project Objective 3 above and focused on the 'Outcome' component of Donabedian's model (i.e. the impact of COVID-19 on community pharmacy services, community pharmacists and service users) (5).

Key informant interviews were conducted with community pharmacists and other stakeholders (including representatives from patient organisations) in NI. The study received ethical approval from the Faculty of Medicine, Health and Life Sciences Research Ethics Committee (Ref. MHLS 21_21) and has been reported in accordance with the consolidated criteria for reporting qualitative research (COREQ) checklist.[26]

3.3.1 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, Health and Social Care Board, Business Services Organisation, Public Health Agency, Local Commissioning Groups, GP Federation practice pharmacists, Pharmacy Forum, National Pharmacy Association, Community Pharmacy NI, Ulster Chemists Association, Community Development Health Network 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 NI, Age NI, Independent Health and Care Providers, Carers Trust (unpaid carers), Care.org (Residential and Nursing homes), Four Seasons Health Care, Cancer Focus NI, Diabetes UKNI, NI Chest Heart and Stroke and Alzheimer's Society NI.

3.3.2 Participant sampling and recruitment

Sampling and recruitment of community pharmacists

We sought to recruit between 15-20 community pharmacists (dictated by data saturation) for this work package. Those community pharmacists who, during the telephone questionnaire (WP2) expressed an interest in participating in an interview, were contacted by telephone to confirm their ongoing interest. 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 more than 20 pharmacists were 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. Written informed consent was obtained from all participants.

Sampling and recruitment of other key stakeholders
We sought to recruit between 15-20 other key stakeholders in total (again, 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 the Study Advisory Group. The research team also identified potential participants through their own professional networks and experience from previous studies. 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. Written informed consent was obtained from all participants.

3.3.3 Interview topic guides

The interview topic guides (Appendices 2 and 3) were developed based on the published literature,[4,27-29] current COVID-19 guidelines at the time,[7] data from WP1 and 2 and following discussions within the research team. Five pilot interviews were conducted with members of the Study Advisory Group and qualified pharmacists from the School of Pharmacy, QUB to ensure that interview questions were clearly understood by participants and to estimate the duration of the interview.

3.3.4. 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 meeting platform. All interviews were digitally recorded, and no visual images of the participants were captured. Interviews began with a short briefing during which the researcher introduced herself, outlined the background to the study and provided an overview of the process that would be followed during the interview. 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.

The digitally recorded interviews were transcribed verbatim (by a transcription company; confidentiality agreement signed), and each transcript was checked against the original recording for accuracy and pseudonymised. Each participant was assigned an alphanumeric code, e.g. community pharmacist (CP), CP097, key stakeholder (KS), KS03. NVivo v12 (QSR International Pty Ltd., 2020)[22] software was used for management and analysis of the transcribed data.

Thematic analysis was undertaken concurrently with data collection to determine data saturation.[30,31] 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 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 frame 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.[30,32] Any discrepancies between researchers were resolved by discussion amongst the research team to reach consensus.

3.4 Triangulation

Following completion of all WPS, triangulation of all project data was conducted in accordance with an established protocol.[12] This process was led by the two researchers working independently. Briefly, this process consisted of five phases: sorting, convergence coding (which involves identifying key themes from each data source and noting the degree and type of concurrence between sources for each theme, i.e. agreement, partial agreement, silence, dissonance), convergence assessment, completeness assessment, researcher comparison and feedback to the research team. This enabled different perspectives on the research question (i.e. the community pharmacy workforce's preparedness for, and response to, COVID-19), from and between data sources, to be compared and synthesised.

4. Personal and Public Involvement (PPI)

Due to the timeline associated with the submission of the application, it had not been possible to secure PPI input in the development of the study. However, PPI input was secured post-award through two PPI representatives recruited via the Patient Involvement Enhancing Research (PIER) NI network from the HSC Research and Development division. The PPI representatives sat on the Study Advisory Group. The latter also included members of the pharmacy profession representing practice, regulation and professional advocacy, along with a methodological advisor. The Study Advisory Group met virtually (via Teams) on three occasions over the course of the study. At each meeting, the background to the study was provided, along with an update on progress. We found PPI and professional input to be particularly useful in the drafting of the telephone questionnaire and the interview topic guides. Indeed, one PPI representative undertook a pilot interview with SP to gauge the clarity of questions for key stakeholders and duration of the interview. Other Study

Advisory Group members also facilitated communication about the study to the profession through identifying community pharmacists who assisted with piloting the interview topic guide.

5. Findings

The findings presented below reflect the three work packages described in the Methods section above and are presented in sequential order.

5.1 Work Package 1: Review of structural changes to community pharmacy practice

In total, 154 documents were identified from the searches. Following screening, five duplicates were removed, and 88 documents did not meet the eligibility criteria. Therefore, 61 documents remained and were included in the documentary analysis. The majority of these documents were published by the HSCB, with others published by the BSO, Community Development & Health Network (CDHN), DoH (NI), PSNI, and Public Health Agency (PHA). Included documents were published between March and October 2020. Over half (n=39) of the included documents were published in the first three months of the pandemic (i.e. March to May 2020).

Four main themes were identified: medication prescribing and supply; infection control; operational issues and vaccination services. These are described in more detail below.

5.1.1 Medication prescribing and supply

Legislative amendments

Whilst amendments were made on 29th April 2020 to the Misuse of Drugs Regulations (Northern Ireland) to facilitate the dispensing of medicines during the pandemic, there was no further correspondence from the DoH to activate the flexibilities introduced by this legislation, which resulted in no change to practice.

Emergency supply

A temporary Community Pharmacy Emergency Supply during a Pandemic Service was introduced, which commenced on 6th April 2020. This service was commissioned to run from April to June 2020, in the first instance, to ensure that patients could access up to a 30-day emergency supply (without payment) of their regular prescription medicines where they were unable to obtain a prescription. Pharmacists were not required to interview the person requesting the emergency supply, in light of patients potentially having to adhere to public health guidance around self-isolation. However, an emergency supply of a controlled drug was excluded from this service. Where a patient received their medicines dispensed in instalments (e.g. weekly dispensing), then the quantity supplied had to be in line with the normal quantity supplied via prescription. There was no restriction to patients receiving further supplies of repeat medications via this service.

Home delivery

A volunteer delivery service was provided to support vulnerable people to receive their medicines during the initial months of the pandemic. Pharmacies received support from community or voluntary organisations in conjunction with the CDHN, which coordinated volunteers to deliver medications to patients on behalf of the pharmacy. This service was stood down on 31st August 2020 and replaced in September 2020 with a commissioned Community Pharmacy Home Delivery Service. This service provided delivery of prescribed items to specified, eligible patients who, due to their medical condition, could not present in the pharmacy and where no other person was able to collect the item from the pharmacy and deliver it to the patient. This was commissioned as a core service under the Community Pharmacy Contract Framework, as one which all pharmacies were expected and encouraged to provide.

Prioritisation of pharmacy services

There was significant change to the provision of pharmacy services during the pandemic, with many being stood down/suspended with immediate effect in March 2020 due to increasing pressure and demand on community pharmacies. This affected the following services: Pharmacy First, Minor Ailments Service, Managing your Medicines, Medicines Use Review, Care Homes service, Carers Service, Alcohol MOT Service, Smoking Cessation Service (for new patients), and all other service pilots. Some of these services were reintroduced later in 2020 (e.g. Minor Ailments Service, Smoking Cessation Service) with modifications allowing consultations to take place remotely via telephone or video call and for third party consultations to take place where appropriate. At the time of writing, other services (e.g. Medicines Use Review, Managing Your Medicines) have not been reinstated. A small number of services were still provided, such as supervised consumption of opioid substitution treatment (for high-risk patients), needle and syringe exchange, and targeted provision of adherence support. Instalment dispensing and provision of medicines in compliance aids (where supply was not based on issue/abuse) was at the pharmacist's discretion.

Palliative care

The Community Pharmacy Palliative Care On-Call Service was introduced during the first wave of the pandemic to increase access to palliative care medicines during the out-of-hours period. This service was suspended in July 2020 but reintroduced in November 2020 in anticipation of a second surge of COVID-19. There was an increased stock of

medicines held by palliative care pharmacies to support the availability of essential medicines for palliative/end-of-life patients managed in primary care settings, to include more oral, rectal and transdermal medications. Nursing Home Pandemic Packs (assembled and distributed centrally, and not by community pharmacies) were provided to larger nursing homes in April 2020 to give an anticipatory stock of medication that could be used immediately with direction from a prescriber. Community pharmacies received signed requisitions from registered nurses for replenishment of stock to these pandemic packs. In April 2020, there was a temporary change to the community pharmacy oxygen supply model (whereby oxygen was supplied by the BOC contracted service instead of via community pharmacies) due to increased demand from nursing homes.

Protecting the medication supply chain and preventing stockpiling
Pharmacies were advised in March 2020 to provide complete prescription supplies if possible, for one or two months. However, pharmacies could restrict supply to one month if excess prescription volume had been ordered. Pharmacies were told to advise patients and carers to reorder prescriptions after three weeks to ensure timely receipt of medications. General guidance to pharmacists advised that there were no medicines shortages in the UK as a result of the pandemic. Strategic stockpiles of key medicines were available and could be drawn upon in the event of any supply issues. Pharmacists were advised not to stockpile medicines or support patients who were trying to stockpile, due to the additional strain these actions may put upon the supply chain.

5.1.2 Infection control
Early in the pandemic, community pharmacies were advised that there would be limited need for Personal Protective Equipment (PPE) unless supporting a patient showing symptoms of COVID-19. They were advised to follow UK-wide guidance issued by Public Health England at the time. Local arrangements were put in place for delivery of packs containing gloves, aprons and fluid-repellent face masks to community pharmacies during March 2020 for use by pharmacy staff and isolated patients only. Good infection control practices (e.g. social distancing, optimal hand hygiene, frequent surface sanitisation, ventilation) were emphasised at every opportunity, and this was supported by online training and information sessions. Community pharmacies were advised that unused or unwanted medicines returns from patients should not be accepted, i.e. medicines that would normally be returned for disposal. Checklists for protecting community pharmacy staff were provided to ensure that appropriate infection control measures (e.g. limiting the number of people in the pharmacy, floor markers to encourage social distancing, use of hatches/temporary screens, handwashing rotas, contactless payments, etc.) were implemented. Additional infection control guidance and PPE supplies were issued in October 2020 for implementation during adult 'flu clinics.

5.1.3 Operational issues
Business continuity
In the early days of the pandemic, community pharmacies were encouraged to have business continuity plans and processes in place to support local demand. As the pandemic escalated, a process was introduced at the end of March 2020 for submission of daily situation reports ('Sit reps') to the HSCB to ensure that the continued availability of pharmacy services could be monitored in relation to workload, staff levels and stock issues on a local and regional basis. In July 2020, this reporting moved to a weekly submission. Pharmacies were also encouraged to have 'buddy' arrangements in place to form 'pharmacy clusters' in an area to ensure the continuation of key services.

Communications
Due to the high level of communications from the HSCB and Department of Health, pharmacy HSC email addresses were established in March 2020 as the preferred method of communication from the HSCB, and pharmacies were advised to check this daily. This continued to develop over the course of the pandemic and from 1st October 2020, a secure email system provided by HSCB and BSO was used to correspond routinely with pharmacies and the use of hard copy correspondence ceased. Remote consultations via Zoom were introduced later in 2020 and funding was allocated to community pharmacies to implement appropriate infrastructure to facilitate this.

Funding
Additional funding was provided to community pharmacies on a number of occasions during the pandemic in recognition of the increased expenditure they had faced. Initial funding was provided in March 2020, followed by a further allocation in April 2020 to cover modification of premises (e.g. installation of Perspex screens, hatches and adjustments to entrances), stock cleaning, sourcing of additional PPE and to cover increased staff hours or employment of additional staff. Additional funding was also allocated to all contractors in recognition of workload associated with service provision during the pandemic (e.g. home delivery, emergency supply, targeted adherence support) and to cover the purchase of a mobile tablet device to assist with provision of remote consultations.

Regulation
Routine inspections of pharmacies were suspended with immediate effect on 19th March 2020. Regarding Fitness to Practise, the PSNI announced that whilst complaints and concerns would continue to be received and logged, these would be risk assessed and only those which presented an immediate risk to the public would be progressed. The 2019/2020 registration year was extended by the PSNI to 31st August 2020 (from 31st May 2020) to reduce bureaucratic

burden on pharmacists. The submission date for Continuing Professional Development (CPD) portfolios was also postponed until 31st August 2020.

Staffing and workforce
All pharmacy registrants were encouraged to consider working as locums in community pharmacies to alleviate workforce pressures. A COVID-19 temporary register was created in April 2020 to register over 260 individuals who had left the register in the last three years in good standing, and who had not indicated that they would like to opt out of this. In addition, a cohort of 30-40 recently retired pharmacists were temporarily registered with the PSNI in April 2020 and funding was made available to cover indemnity costs and to reimburse contractors. Thirty-four foundation dentists were redeployed in May 2020 to support community pharmacists to ensure essential services could continue to be delivered. The examination for pre-registration pharmacists who had started their training in 2019 was postponed from June 2020 to August 2020; the training year for the 2020 pre-registration intake began as usual on 1st July 2020.

Working arrangements
Changes to business hours (i.e. opening at 10am and closing from 1-2pm) were implemented during March 2020 to allow time for staff rest breaks, stock replenishment and cleaning. From 11th May 2020, pharmacies could return to normal opening hours, but still remain closed for one hour over lunch. In April 2020, it was announced that there would be a temporary allowance for the Belfast Community Pharmacy Out of Hours Rota to recognise the increased pressure faced by the service. This was backdated to the week commencing 16th March and was provided until 30th June 2020. The HSCB commissioned partial opening of community pharmacies on the Easter Monday and Tuesday bank holidays and £1m was secured to support this. There were also enhanced community pharmacy rota arrangements over the July bank holidays to ensure adequate coverage.

5.1.4 Vaccination services
The Community Pharmacy Seasonal Influenza Vaccination (CPFV) Service for Frontline Health and Social Care Workers ran from late September 2020 until 31st March 2021. It was designed to run alongside the seasonal influenza vaccination programme to sustain and maximise the uptake of the ‘flu vaccine in frontline health and social care workers by building the capacity of community pharmacies. Participating community pharmacies had to already provide or plan to provide a private ‘flu vaccination service and have access to HSC NI secure email. Community pharmacies in NI have been involved in delivering a COVID-19 vaccination service since April 2021, however correspondence regarding this fell outside the search dates for this study.

5.2 Work Package 2: Community pharmacy modifications/innovations in preparation/response to COVID-19
During March–May 2021, the researcher approached 175 community pharmacists in order to complete the desired number of 130 telephone questionnaires. One hundred and thirty-nine (79.4%) community pharmacists agreed and were eligible to participate and 130 (74.3%) completed the questionnaire by telephone with the researcher. Nine community pharmacists were unable to complete the survey due to interruptions during administration and could not be contacted again. Completion of the telephone questionnaires took 46 working days, with 110 (62.9%) community pharmacists deferring the call to another day due to work pressures at the time of the arranged call. The demographics of the 130 community pharmacists who completed the telephone questionnaire are reported in Table 1 and the characteristics of the community pharmacies (having achieved the required 30% response rate per LCG area) in which they worked are reported in Table 2.

Table 1. Demographic characteristics of community pharmacists (n=130) who completed the telephone questionnaire

Community pharmacist characteristic	n (%)
Gender	
Female	72 (55.4)
Male	58 (44.6)
Age	
under 25 years	6 (4.6)
25-34 years	53 (40.8)
35-44 years	38 (29.2)
45-54 years	21 (16.2)
55-64 years	10 (7.7)
65 years or more	2 (1.5)
Number of years in community pharmacy practice	
5 years or less	36 (27.7)
6-10 years	22 (16.9)
11-15 years	25 (19.2)
15 years or more	47 (36.2)
Status	
Owner/contractor	25 (19.2)
Employee	105 (80.8)
Usual role	
Owner manager	17 (13.1)
Responsible pharmacist	12 (9.2)
Dispensary manager	67 (51.5)
Locum pharmacist	13 (10.0)
Pharmacist team member	15 (11.5)
Superintendent	6 (4.6)
Shielding during Wave 1	8 (6.2)
On the temporary Pharmaceutical Register	2 (1.5)

Table 2. Characteristics of participating community pharmacies

Community pharmacy characteristic	n (%)
Geographical location (LCG area)	
Belfast	32 (24.6)
Northern	28 (21.5)
South Eastern	24 (18.5)
Southern	22 (16.9)
Western	24 (18.5)
Location type	
Urban	56 (43.1)
Rural	36 (27.7)
Suburban	38 (29.2)
Pharmacy type	
Independent	42 (32.3)
Small chain (<5 pharmacies)	18 (13.8)
Medium chain (5-20 pharmacies)	20 (15.4)
Large chain (>20 pharmacies)	50 (38.5)

5.2.1 Community pharmacists' experience of working during the pandemic.

The telephone questionnaire (Appendix 1) included questions on community pharmacists' experience of working during the COVID-19 pandemic. The questions were largely focused on what they reported had happened during the initial wave (Wave 1) of the pandemic during March to May 2020 and then followed the sequence of events through the summer (June – August 2020) and the second wave (Wave 2) from September to the end of December 2020.

Questionnaire Section 1: Preventing the Spread of COVID-19

The first set of questions dealt with measures taken in pharmacies to prevent the spread of infection and the results are summarised in Table 3. During the first wave, the most common measure taken to prevent the spread of COVID-19 was the management of social distancing in the shop (96.2%; n=125), including one-way systems, limiting capacity within the pharmacy, and queue management. Adjustments such as the erection of barriers or screens, were made to premises in 95.4% (n=124) of pharmacies to reduce the risk of contact between staff and patients. Cleaning and disinfection of premises became a routine task during the first wave or the pandemic, implemented in 93.8% (n=122) of pharmacies and performed at least twice a day in most. Public health information was displayed in 92.3% (n=120) pharmacies, using materials from the PHA and HSCB joint initiative "Living Well" public health campaigns that focussed on COVID-19 related issues.

Table 3. Measures taken during the onset of the pandemic (March – May 2020) to prevent the spread of COVID-19 in community pharmacies

Prevention of Infection Measures	Implemented in March – May 2020		Stopped in June – August 2020		Started later (after September 2020) n (%)
	Yes n (%)	No n (%)	Yes n (%)	No n (%)	
Management of social distancing in the shop	125 (96.2)	5 (3.8)	3 (2.3)	122 (93.8)	3 (2.3)
Premises adjustments such as barriers, screens	124 (95.4)	6 (4.6)	115 (88.5)	9 (6.9)	5 (3.8)
Protocols for disinfection of pharmacy surfaces	122 (93.8)	8 (6.2)	5 (3.8)	122 (93.8)	0 (0.0)
Public Health Information on preventing COVID-19 displayed, e.g. Living Well campaigns	120 (92.3)	10 (7.7)	2 (1.5)	119 (91.5)	2 (1.5)
Reduced face-to-face contact	120 (92.3)	10 (7.7)	6 (4.6)	116 (89.2)	0 (0.0)
Lunchtime closing	119 (91.5)	11 (8.5)	63 (48.5)	55 (42.3)	2 (1.6)
Use of PPE by pharmacy staff	115 (88.5)	15 (11.5)	1 (0.8)	116 (89.2)	11 (8.5)
Changes to the use of the available space	98 (75.4)	32 (24.6)	7 (5.4)	92 (70.8)	2 (1.5)
Shorter opening hours	87 (66.9)	43 (33.1)	69 (53.1)	17 (13.1)	0 (0.0)
Changes to staff working patterns	64 (49.2)	66 (50.8)	9 (6.9)	57 (43.8)	1 (0.8)

In the first wave, 88.5% (n=115) community pharmacists reported that staff were using PPE. When asked for further comments, pharmacists reported how government advice on PPE was changing and some large chain pharmacies were also giving conflicting advice. Community pharmacists were concerned about protecting their staff, especially those with vulnerable family members and some introduced early protection measures, e.g. making visors when PPE was in short supply, ensuring adequate ventilation, setting up dispensary workstations two metres apart and asking delivery drivers to wear protective clothing.

Many pharmacies (75.4%; n=98) closed the shop floor space entirely or reduced it and reused the space to prepare and check prescriptions, MDS (monitored dosage system) boxes and orders for delivery. Working patterns and break times were changed in 49.2% (n=64) of pharmacies to reduce the number of staff working at any one time. Many staff reported working longer hours and starting early to manage the increased volume of prescriptions. Many of the changes outlined in Table 3 were maintained over the time periods assessed, apart from lunchtime closing which was stopped in almost 50% of pharmacies (48.5%; n=63) in June-August 2020.

Questionnaire Section 2: Provision of Pharmacy Services during the pandemic
Community pharmacies normally provide a wide range of core services (provided by all pharmacies) or locally commissioned services (delivered by choice or driven by local need). At the outset of the pandemic, the commissioners (HSCB and PHA) stood down a number of additional patient-facing services, e.g. Medicines Use Reviews (MURs). However, some of these were reintroduced at a later date, e.g. Minor Ailments and Smoking Cessation (September 2020) with appropriate COVID-safe modifications. The immediate actions taken in relation to community pharmacy services in response to the pandemic and over time, up to the end of December 2020 are described below.

Core pharmacy services, principally dispensing, continued to be provided from all pharmacies throughout March–December 2020, while over-the-counter (OTC) medicines advice and supply were available from 128 (98.5%) and 121 (93.1%) of pharmacies respectively. Prescription collection and delivery services were maintained (and increased) by the majority of pharmacies (95.4%; n=124 and 88.5%; n=115, respectively). Of the 84 (64.6%) pharmacies that provided out-of-hours dispensing services, two stopped service provision during March-May 2020 and one restarted with a modified service during September-December 2020. Some pharmacies did not restart services until September -December 2020 and then provided them in a modified format, e.g. nursing home advice was provided by telephone or videocall by 12 (9.2%) pharmacies during Wave 2. All participating pharmacies, except one, normally provided Living Well campaigns; 55 (42.3%) stopped this service at the onset of the pandemic but by June-August 2020, 44 (33.8%) had restarted modified campaigns providing COVID-19 information to the public.

Most of the non-core services were stood down during March-May 2020, with the notable exception of needle and syringe exchange services (NSES) which were modified to reduce the COVID-19 transmission risk. Just over 70% (71.5%; n=93) of community pharmacies stopped smoking cessation services, 56.2% (n=73) restarted the service during June-August and 16.1% (n=21) reported providing a modified service by September-December 2020. Pharmacists reported that opioid substitution treatment supervision (OST) was initially stopped, but then as patients' needs were reassessed, it was recommenced in a modified format e.g increased supervision by addiction team staff. Most private travel vaccination services did not restart; pharmacists commented that there was no demand for them.

During the pandemic, a number of new services were commissioned and provided by community pharmacies. In addition, many new initiatives were undertaken as the pandemic progressed such as “drive-through” pharmacies or the equivalent such as ‘call and collect’ and measures to flag/assist patients with sensitive issues such as domestic violence reporting. The new services/initiatives and their status over time are presented in Table 4 below:

Table 4. Newly commissioned services and community pharmacy initiatives during the COVID-19 pandemic.

New Services or Initiatives	Implemented in March – May 2020 n (%)		Stopped in June – August 2020 n (%)		Started at a later date n (%)
	Yes	No	Yes	No	
Emergency Supply during a pandemic service (ESS)	121 (93.1)	9 (6.9)	4 (3.1)	117 (90.0)	0 (0.0)
Flu vaccination service (frontline Health and Social Care workers)	101 (77.7)	29 (22.3)	101 (77.7)	0 (0.0)	0 (0.0)
Situation reporting (staffing/stock) to the Health and Social Care Board	74 (56.9)	56 (43.1)	10 (7.7)	64 (49.2)	0 (0.0)
Measures to flag/assist patients with sensitive issues such as domestic violence reporting	73 (56.2)	57 (43.8)	0 (0.0)	73 (56.2)	6 (4.6)
Prescription delivery by volunteers in the local community	71 (54.6)	59 (45.4)	32 (24.6)	39 (30.0)	0 (0.0)
Referrals to Test and Trace services	70 (53.8)	60 (46.2)	2 (1.6)	68 (52.3)	0 (0.0)
Employment of additional staff, e.g. dentists, volunteers, students, retired pharmacists	49 (37.7)	81 (62.3)	22 (16.9)	27 (20.8)	0 (0.0)
Drive-through (or equivalent) pharmacy services	33 (25.4)	97 (74.6)	1 (0.8)	32 (24.6)	0 (0.0)
Replenishment of care home pandemic packs	19 (14.6)	107 (82.4)	4 (3.1)	15 (11.5)	1 (0.8)
Palliative care on-call services	19 (14.6)	111 (85.4)	2 (1.5)	17 (13.1)	0 (0.0)
Supply of medicines usually supplied in the hospital setting (e.g. oncology, antiretroviral drugs, ‘Healthcare at Home’)	11 (8.5)	119 (91.5)	0 (0.0)	11 (8.5)	0 (0.0)
Medicines delivery service (to vulnerable people) (commissioned Sept 2020)	n/a	n/a	n/a	n/a	95 (73.1)

The Emergency Supply Service was widely implemented from the onset of the pandemic; it was initially provided by 93.1% (n=121) of community pharmacies, four of whom stopped provision between June to August 2020. Pharmacists commented that this was due to an inappropriately excessive demand for pain medication in some areas. The ‘flu vaccination campaign was provided by 77.7% (n=101) of community pharmacies and paved the way for the subsequent COVID vaccination programmes in 2021. Almost 55% (54.6%; n=71) used volunteer delivery services but by June-August 2020, 24.6% (n=32) had stopped and by September-December 2020, 73.1% (n=95) of pharmacies had switched to commissioned Home Delivery services. Pharmacists commented that the volunteer services were invaluable but that in some cases, they had encountered problems with insurance and confidentiality issues.

Questionnaire Section 3: Preparedness for working during a pandemic

Pharmacists were asked to recall the initial outbreak of the pandemic (March-May 2020) and to reflect on their level of preparedness. The responses are shown in Table 5 and illustrate the changes in preparedness over time. Initially, 74.6% (n=97) pharmacies reported having had appropriate working patterns in place and 66.2% (n=86) had sufficient PPE available for staff at the onset of the pandemic, but after 6 months, this increased to 95.4% (n=124) and 99.2% (n=129) respectively. Increases were also seen over the time period in the number of pharmacies reporting that business continuity plans were in place in their premises for prolonged staff absences or for the eventuality of pharmacy closure. Employee pharmacists in pharmacy multiples reported that they did not know about the existence of business continuity plans or financial resources available during the pandemic, e.g. 54 (41.5%) were unaware of financial resources during March-May 2020. Pharmacies having sufficient information about PPE increased from 53.1% (n=69) during March-May 2020 to 99.2% (n=129) September-December 2020, reflecting the increasing amount of advice relevant to community pharmacy available from Public Health England and the DoH NI. Sufficient stocks and supplies of medicines and hand sanitisers increased over the same time periods from 65.4% (n=85) to 94.6% (n=123) and 35.4% (n=46) to 99.2% (n=129) respectively.

Table 5. Community pharmacists' reflections on aspects of preparedness

Did you have….	During March – May 2020			During September – December 2020		
	Yes n (%)	No n (%)	Don't know n (%)	Yes n (%)	No n (%)	Don't know n (%)
Appropriate staff working patterns in place	97 (74.6)	33 (25.4)	0 (0.0)	124 (95.4)	6 (4.6)	0 (0.0)
Enough supply of PPE for staff	86 (66.2)	44 (33.8)	0 (0.0)	129 (99.2)	1 (0.8)	0 (0.0)
A business continuity plan in place for use in the event of staff absence over a prolonged period	85 (65.4)	26 (20)	19 (14.6)	101 (77.7)	10 (7.7)	19 (14.6)
A business continuity plan in place for use in the event of pharmacy closure	85 (65.4)	21 (16.2)	24 (18.5)	100 (76.9)	7 (5.4)	23 (17.7)
Enough stock and supply of essential prescription and OTC medicines	85 (65.4)	43 (33.1)	2 (1.5)	123 (94.6)	6 (6 (4.6)	1 (0.8)
Enough information about PPE requirements for staff	69 (53.1)	60 (46.2)	1 (0.8)	129 (99.2)	0 (0.0)	1 (0.8)
Enough financial resources to cover the additional demands on your pharmacy business	63 (48.5)	13 (10.0)	54 (41.5)	76 (58.5)	1 (0.8)	53 (40.8)
A system to manage quantity limits for patients for the supply of individual medicines	56 (43.1)	73 (56.2)	1 (0.8)	38 (29.2)	91 (70.0)	1 (0.8)
Enough stock and supply of hand sanitisers	46 (35.4)	83 (63.8)	1 (0.8)	129 (99.2)	1 (0.8)	0 (0.0)

Pharmacists were asked about what single aspect of their work they felt most prepared for and what they felt least prepared for. Forty-three pharmacists (33.1%) commented that they felt most prepared for continuing core services, i.e. normal dispensary work. They reported being least prepared for the surge in the workload and the increased demand for medicines (56.2%; n=73), the behaviour exhibited by the public (25.4% n=33) and wearing PPE and dealing with the risk of COVID-19 infection (16.2%; n=21). Almost all pharmacist respondents (96.9%; n=126) reported that they felt better prepared for working during the second wave of the pandemic (September-December 2020) compared to the first wave (March-May 2020).

Questionnaire Section 4: Communication with others during the pandemic

During the pandemic, 84.6% (n=110) pharmacists said that they communicated differently with GP practices and 86.9% reported (n=113) communicating differently with patients during the pandemic compared with beforehand. The dominance of telephone communication was evident, representing 75% (Figure 1a) and 69% (Figure 1b) of the communication methods used for GPs and patients respectively.

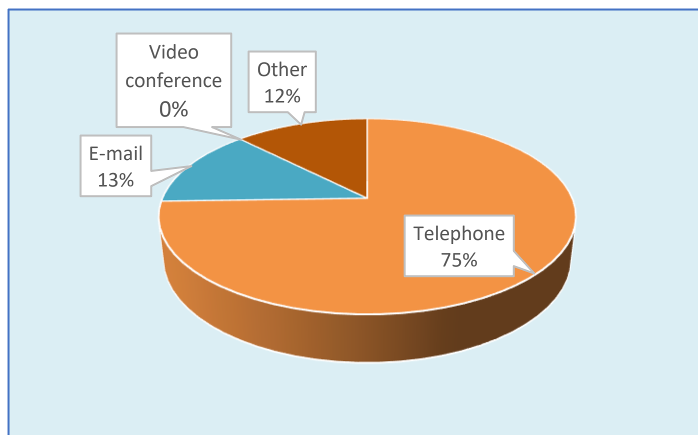


Figure 1a. Pharmacists' methods of communication with GP practices during the pandemic.

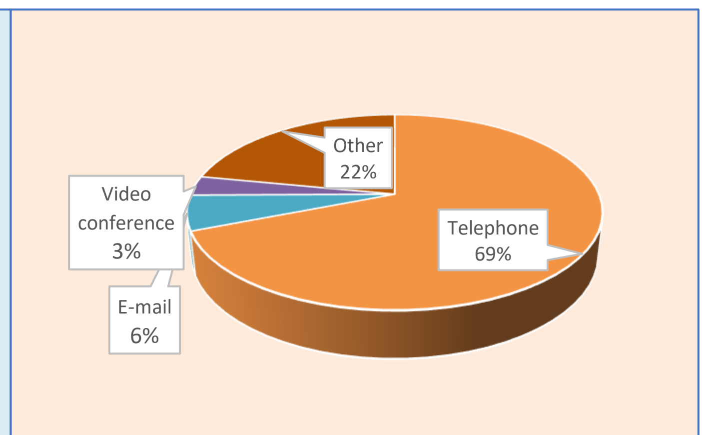
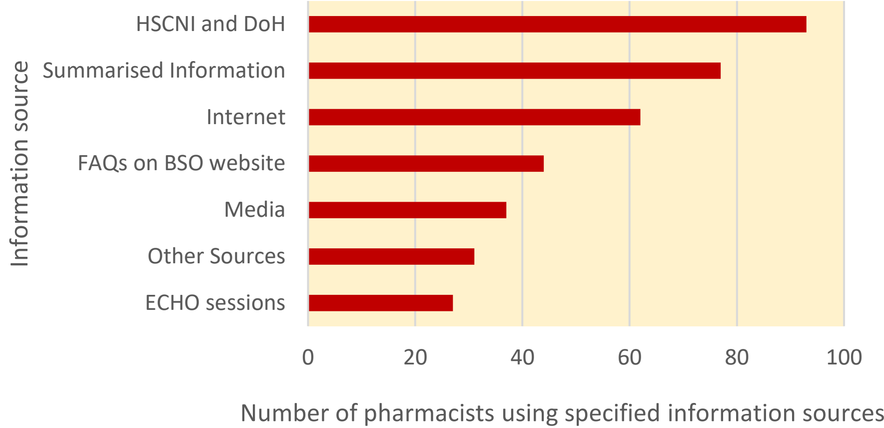


Figure 1b. Pharmacists' methods of communication with patients during the pandemic.

Questionnaire Section 5: Updating professional knowledge during the pandemic

Almost 90% of community pharmacists (86.9%; n=113) reported that sufficient training resources were available to them during the pandemic to maintain their professional knowledge. The reported use of COVID-19 resources is illustrated in Figure 2 below:



Key:

HSCNI and DoH: Advisory letters/emails were provided regularly by the Health and Social Care Board, the Department of Health and related agencies
Summarised information: Distilled information provided by the contractor/head office or a professional organisation, e.g. Community Pharmacy NI, Pharmacy Forum
FAQs: Frequently Asked Questions updated daily on the Business Services Organisation (BSO) website
ECHO sessions: Online video sessions provided by Department of Health and Health & Social Care Board

Figure 2. COVID-19 related information sources used by community pharmacists (n=130)

Other information sources used by pharmacists were online professional courses (n=20), COVID-19 vaccine training courses (n=6) and miscellaneous resources, e.g. pharmacy publications. Pharmacists commented that they were overwhelmed by the volume of information (n=19), but sometimes they needed more, for example, clinical information (n=18), and that it changed frequently which was confusing (n=16).

Questionnaire Section 6: Looking to the future
Pharmacists were asked for their views on three post-pandemic activities: re-establishing normal patient care services, COVID vaccinations and COVID testing. The responses are summarised in Figure 3.
Almost 90% (87.7%; n=114) pharmacists agreed or strongly agreed that they would be able to establish normal patient care services post-pandemic. Eighty per cent (80.7%; n=105) agreed or strongly agreed that they would be willing to provide and administer COVID-19 vaccinations when they were available through community pharmacies in NI. Sixty per cent (60.8%; n=79) agreed or strongly agreed that they would be willing to provide COVID-19 testing within the pharmacy if available in the future.

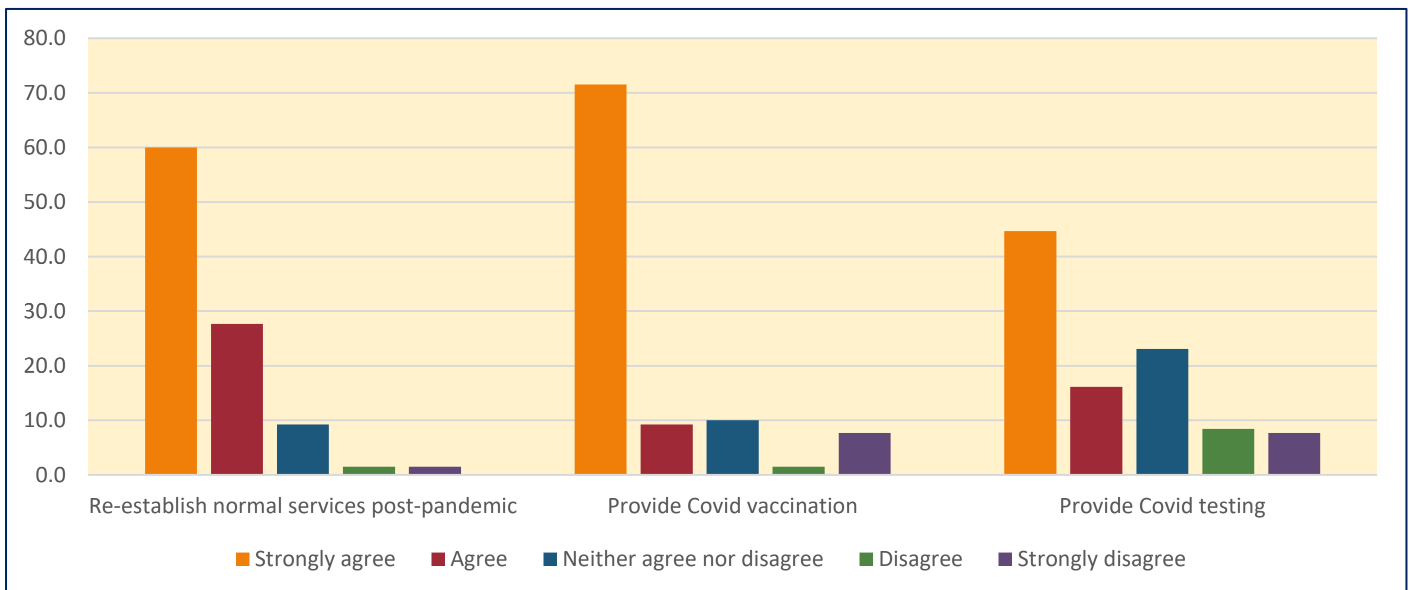


Figure 3. Views of pharmacists (n=130) on selected post-pandemic activities

5.3 Work Package 3: Reflections on community pharmacy workforce's preparedness and response

In total, 30 interviews were conducted with community pharmacists (CP; n=15) and key stakeholders (KS; n-15). Demographic characteristics are not reported to ensure participant anonymity. Interviews took place by either telephone (n=22) or via online video-conferencing (n=8), and lasted between 29-79 minutes (mean=53 minutes). Following analysis, four themes were agreed as follows: (1) adaptation and adjustment; (2) the primary point of contact; (3) lessons learned; and (4) planning for the future. An overview of these themes, supported by anonymised quotes, is provided below:

5.3.1. Theme 1: Adaptation and adjustment

Participants reported that 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)

Pharmacists reported the effect of the pandemic was unprecedented, pharmacy staff felt unprepared, and had to deal 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 had to adapt and show 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 for community pharmacists during the pandemic:

> *"As entrepreneurs, as innovators, they* [community pharmacists] *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, pharmacist 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:

> *"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 and 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 could have isolated, could have gone on furlough, whatever."* (KS08)

Throughout the pandemic, community pharmacists maintained essential services and adapted their service models to provide modified services enabling the continuation of the critical supply of essential medicines to the public. Pharmacies also implemented a range of new pandemic services such as 'flu vaccination, public health advice and the emergency supply service 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)

5.3.2. 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 accessible entry points to primary healthcare services where the public had direct access to a healthcare professional:

> *"I think on the whole our public were very supportive. Our public was very supportive, they saw pharmacy very much as their point of access."* (CP097)

> *"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)

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."* (CP132)

Community pharmacies also played a key role in COVID-19 information provision directly to patients, other healthcare professionals and each other. The PHA rolled out a series of campaigns on COVID-19 and community pharmacies were the centre of that communication to patients. Being on 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)

> *"To have done that number* [of COVID vaccinations] *in such a short period of time has been fantastic."* (KS01)

However, being this primary point of contact was sometimes overwhelming for pharmacists, 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 it arrived:

> *"The problem is, you were standing there, and it might have been Wednesday the 10th and that letter* [e.g. advice from DoH or HSCB] *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 may be 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)

5.3.3. 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)

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 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 existing skills into practice. The profession was widely praised for this, and 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)

However, it was recognised that the lack of infrastructure, especially with respect to 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 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)

5.3.4. Theme 4: Planning for the future

This final theme linked closely to that presented in Section 5.3.3 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.
The current infrastructure was seen as antiquated, and improvement and upgrading 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 include 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 medication where it's impossible to get a prescription. Because obviously we have the knowledge, and we have the information from their PMR 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* [Health and Social Care] *Board 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 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)

5.4 Triangulation of findings

Figure 4 provides a schematic overview of the key findings from each work package and the final triangulated summary. The structural changes outlined in Section 5.1 led directly to practice changes (Section 5.2) focusing on safety, maintaining medication supply, delivery of innovative services, and communicating with others, while updating their professional knowledge to deal with these changes. However, the changes in practice were also driven by adapting and adjusting as outlined in Section 5.3. Community pharmacists became the main point of contact for information, advice and communication. Reflecting on experience in the pandemic gave rise to important lessons learned, which in turn, contributed to planning for the future.

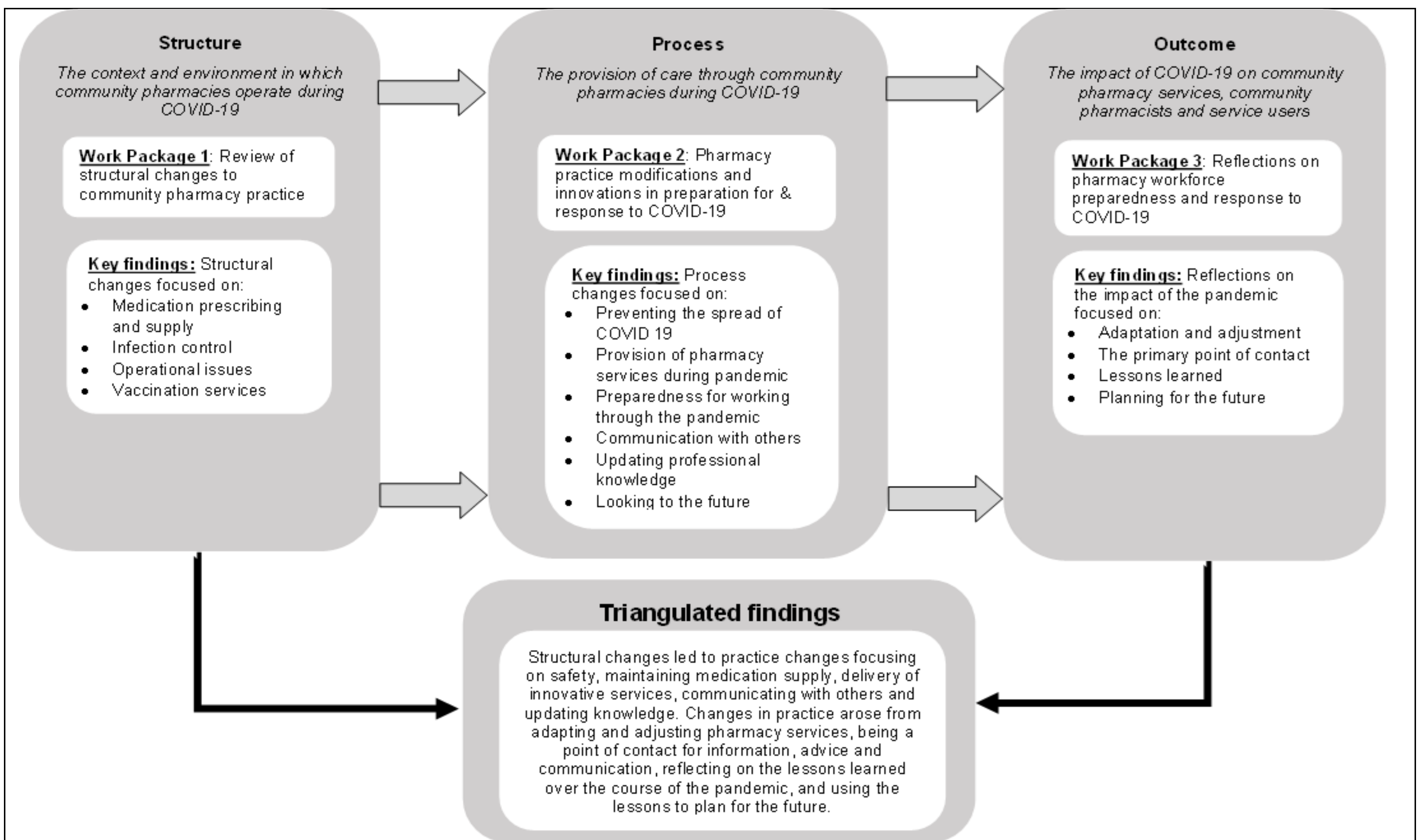


Figure 4. Overview of findings aligned to Donabedian's model[13]

6. Conclusion

Three complementary work packages using different research methods led to common findings in terms of changes in community pharmacy practice that were driven by policy and regulatory responses to the unprecedented nature of the pandemic. The documentary analysis undertaken in WP1 highlighted themes that were reinforced in the subsequent WPs – the importance of medication supply, operational issues such as maintaining business continuity, staffing and work arrangements. The telephone questionnaire described in WP2 highlighted how infection control became a critical activity in community pharmacy, the services that were maintained, stood down or introduced, the level of preparedness reported by community pharmacists, how they communicated with others (notably GPs and patients) and anticipated post-pandemic activities. The semi-structured interview findings from WP3, provided an in-depth exploration and reflection of how community pharmacy had adapted and adjusted practice, became the main point of contact for patients during the early stages of the pandemic, the key lessons learned and how all of this could contribute to planning for the future.

This study has a number of strengths. In relation to WP1 (the documentary analysis), the searches were comprehensive, which broadened the research team's understanding of the topic and the most immediate changes that were implemented. Findings from WP1 were able to inform the content of the telephone questionnaire in WP2. This was clearly borne out by the face validity of the questionnaire content based on the comprehensive responses provided by the participants. The target sample size for the telephone-administered questionnaire (n=130) was achieved, with a broad representation of pharmacist participants in terms of key demographic characteristics. The timing of the telephone questionnaire administration and interviews was fortuitous. Participants had been through two waves of the pandemic and had had time to reflect upon their experiences. This was particularly borne out by the interviews which provided an authentic recounting of the 'lived experience' of working during the pandemic. The inclusion of key stakeholders in interviews provided another perspective on the contribution of community pharmacy, which reinforced and endorsed that contribution.

With a study of this nature, it is important to recognise limitations. All work was carried out in the context of NI, and findings may not be generalisable beyond the region. Data collection took place largely in 2021, so there have been further changes in the nature of practice, societal restrictions and perspectives on the pandemic. The work was observational/cross-sectional in nature, and therefore, we cannot derive any conclusions in terms of objective changes in clinical or economic outcomes.

7. Practice and policy implications/recommendations

There are clear lessons for practice and policy. This study has highlighted that community pharmacy was central to maintaining health services in the primary care during the early stages of the pandemic and appeared to demonstrate its value. Although partly driven by policy changes as reflected in the documentary analysis, community pharmacy practice adapted significantly, with the provision of essential and new services, and maintenance of the critical role of medicines supply and advice provision. They assumed the role of being the main point of contact, communication and care for patients and other health professionals. Pharmacists expressed enthusiastic support for a continuation of the enhanced role they assumed over the course of the pandemic, but this needs to be supported through an investment in infrastructure and workforce, and better planning for services and indeed, the next emergency situation.

8. Pathway to Impact

This research was undertaken in the context of community pharmacy practice working through and experiencing the early waves of the COVID-19 pandemic. The findings are derived from policy documents, questionnaire responses and analysis of semi-structured interviews, which, in turn, have been triangulated to give a holistic overview of changes in structure, process and outcome pertaining to pharmacy practice. The pathway to impact will be realised through a consideration of the practice and policy implications outlined in Section 7, and action taken in respect of the changes required to sustain and develop community pharmacy's contribution to health care.

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10. Relevant Logos

Appendix 1. Telephone questionnaire

------------ Section 1: Introduction and Consent -----------

Community Pharmacy COVID-19 Study: Telephone questionnaire

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

INTRODUCTION

Hello, my name is Susan Patterson. I'm from the School of Pharmacy, Queen's University Belfast and I'm a pharmacist undertaking a research study about community pharmacy's preparedness for and response to the COVID-19 pandemic in Northern Ireland. I'm phoning to see if you might be interested in taking part in a short telephone questionnaire. The Pharmacy Forum and NPA recently circulated information about the study to all community pharmacists. Your experience of working in community pharmacy during the pandemic will be vitally important to help shape how community pharmacies prepare for any future pandemics or public health crises. Does this sound like something you would be interested in?

Yes ☐ **No** ☐

The questionnaire takes roughly 15 minutes and can be completed with me now or alternatively I can call back later at a time that suits you[1].

CONSENT

Completion of this questionnaire is completely voluntary, and the results will be anonymous to anyone other than the research team who will treat all the information confidentially. You have the right to skip questions and to withdraw from the study, without giving a reason, at any time. If you withdraw, you can contact me on this phone number or at the School of Pharmacy and I will delete all data relating to you.

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 telephone questionnaire form.

[1] Suitable dates/times for call backs to be recorded by the researcher in a separate spreadsheet

1. I confirm that I have read, or had read to me, and understand the information provided in advance by email for the study. I have had the opportunity to ask questions and these have been answered fully

   Yes ☐ **No** ☐

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

   Yes ☐ **No** ☐

3. I understand the study is being conducted by researchers from Queen's University Belfast and that my personal information will be held securely on University premises and handled in accordance with the provisions of the Data Protection Act 2018.

   Yes ☐ **No** ☐

4. I understand that data collected as part of this study may be looked at by authorized individuals from Queen's University Belfast, Trinity College Dublin and Royal College of Surgeons in Ireland) where it is relevant to my taking part in this research. I give permission for these individuals to have access to this information.

   Yes ☐ **No** ☐

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

   Yes ☐ **No** ☐

- **If the reply is No,**

"Thank you for speaking to me today and goodbye".

- **If the reply is Yes**, proceed with completing the questionnaire.

"In the interests of time, I will try to keep this as short as possible. Please help me by keeping your responses brief. If we are interrupted, can I call back later to finish it?"

Yes ☐ **No** ☐

Suitable alternative times:

____

____

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------------ **Section 2: Telephone Questionnaire** -----------

PHARMACIST AND PHARMACY CHARACTERISTICS (DEMOGRAPHICS)

To begin, I will ask you some questions about you and the community pharmacy in which you work.

1. **Pharmacist characteristics**

1.1 Can I confirm the gender you identify as?

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

Other: ____

1.2 Which of the following categories includes your age?

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

1.3 How many years have you been practising as a pharmacist?

≤5	6 – 10	11 – 15	≥15
☐	☐	☐	☐

1.4 Are you the pharmacy owner (contractor) or an employee pharmacist?

Owner (contractor) ☐ Employee ☐

1.5 What is your usual role in the pharmacy? Please choose one of the following:

Owner manager	Responsible pharmacist	Dispensary manager	Locum	Other (please specify)
☐	☐	☐	☐	☐

Other: ____

1.6 Were you shielding during the early stages of the pandemic (approximately from March to May 2020)?

Yes ☐ **No** ☐

[***If the response is yes, researcher to discuss services in Questions 4 and 6 from the time period when the pharmacist returned to work (Question 5 refers only to June/July onwards)***]

1.7 Are you on the temporary Pharmaceutical Register?

Yes ☐ **No** ☐

2. Community pharmacy characteristics

2.1 Researcher to record: Local Commissioning Group (LCG) (or Trust) Area:

Belfast	Northern	South Eastern	Southern	Western
☐	☐	☐	☐	☐

2.2 ***Researcher to record: Location of the pharmacy:***

Urban (population >10,000)	Rural (population <5,000)	Suburban (population of 5,000 – 10,000)
☐	☐	☐

2.3 Which of the following options best describes the community pharmacy in which you work?

Independent ☐
Small chain (group of <5 pharmacies) ☐
Medium chain (group of 5-20 pharmacies) ☐
Large chain (group of >20 pharmacies) ☐

A. PHARMACIST'S EXPERIENCE OF WORKING DURING THE PANDEMIC

I will now ask you a series of questions about your experience of working during the pandemic. The questions are about what happened from March 2020 onwards and largely follow the sequence of events up to December 2020.

PREVENTING THE SPREAD OF COVID-19

This first set of questions deal with preventing the spread of COVID-19.

I would like you to think about March to May 2020 when answering these initial questions. I will read out a series of statements, and for each one, please respond with either Yes or No.

3. Part I **Did you have any of the following measures in place in your pharmacy between March and May 2020 to prevent the spread of COVID-19?**	**Part I** **Yes (Y)/No (N)**	**Part II** **Measures stopped in June to August 2020? Yes (Y)/No (N)**
3.1 Public health information on preventing COVID-19, e.g. posters, 'Living Well' campaign COVID booklet?	☐	☐
3.2 Protocols for disinfection of pharmacy surfaces	☐	☐
3.3 Use of Personal Protective Equipment (PPE) by pharmacy staff, e.g. masks, gloves, aprons, eye protection	☐	☐
3.4 Management of social distancing, e.g. number of people in the shop, floor markings for queuing in the pharmacy	☐	☐
3.5 Shorter opening hours to facilitate cleaning, re-stocking, staff breaks	☐	☐
3.6 Lunchtime closing	☐	☐
3.7 Changes to how your available space was used, e.g. using consultation room for staff breaks	☐	☐
3.8 Adjustments to premises, e.g. physical barriers at counters in pharmacies, screens, partitions	☐	☐
3.9 Reduced opportunity for face-to-face contact, e.g. temporary suspension of direct patient care services	☐	☐
3.10 Changes to staff working patterns to facilitate social distancing	☐	☐
Part II **And did you stop any of these at a later date, for example, during June to August 2020?** [*Record Yes (Y)/No (N) in 2nd column]*		

3.12 Were there any other measures put in place in your pharmacy to prevent the spread of COVID-19 that you would like to mention?
[document free-text response]

____

____

____

____

PHARMACY SERVICES

The next set of questions focuses on your experience of the immediate actions taken in relation to community pharmacy services in response to the pandemic over time up to the end of December 2020.

I will ask you about each pharmacy service in turn, and I would like to think about how you responded initially and if anything changed over time. Again, please provide Yes or No responses or state "not applicable" if you don't usually provide the service.

4. Part I Did you have to stop providing any of the following services during March-May 2020 (first wave)? If so, did you restart during June-August? (after 1st wave).	Part I			Part II
	Service provision **stopped during March-May 2020** (Wave 1) **Yes (Y)/No (N)**	**N/A** Service is not usually provided	**If stopped,** Re-started by pharmacy Jun-Aug 2020 (after Wave 1) **Yes (Y)/No (N)**	Service provision **stopped during Sept-Dec 2020** (Wave 2) **Yes (Y)/No (N)**
4.1 Dispensing acute and repeat (chronic) medicines				
4.2 Supply of OTC medicines				
4.3 Medicines advice to patients				
4.4 #Living Well campaigns				
4.5 Nursing/residential homes' support and advice				
4.6 Dispensing of out-of-hours prescriptions				

Community Pharmacy COVID-19 Study ID ___________________

Question 4 continued……	Part I			Part II
Part I **Did you have to stop providing any of the following services during March-May 2020 (first wave)? If so, did you restart during June-August? (after 1st wave).**	Service provision **stopped during March-May 2020** (Wave 1) **Yes (Y)/No (N)**	**N/A** Service is not usually provided	**If stopped,** Re-started by pharmacy Jun-Aug 2020 (after Wave 1) **Yes (Y)/No (N)**	Service provision **stopped during Sept-Dec 2020** (Wave 2) **Yes (Y)/No (N)**
4.7 Prescription collection*				
4.8 Prescription delivery service*				
4.9 #Minor Ailments Scheme/ Pharmacy First				
4.10 #Medicines Use Review				
4.11 #Managing Your Medicines				
4.12 #Smoking Cessation				
4.13 Adherence support (e.g. weekly dispensing)				
4.14 #Supervision of Opioid Substitution Treatment*				
4.15 Needle and syringe exchange service*				
4.16 Travel Vaccination				

4.17 Any others? Please specify:____

____

***If usually provided by your pharmacy** **#Stood down by HSCB during March-May 2020**

Part II *[On completion of Part 1 above, list services again and add responses to table above]*

Did you have to stop providing any services again during Sep-Dec (the 2nd wave)? Which ones?

During the pandemic, a number of new services were commissioned; many pharmacies also developed new and innovative ways of working.

5 **Part I** **Did you implement any of the following new ways of working in response to COVID-19 between March and May 2020 (Wave 1)?**	**Part I** Yes (Y)/No (N)	**Part II** Stopped at a later date? Yes (Y)/No (N)
5.1 Community Pharmacy Emergency Supply during a Pandemic service	☐	☐
5.2 Prescription delivery services by volunteers	☐	☐
5.3 Replenishment of Care Home Pandemic packs	☐	☐
5.4 Palliative care on-call services	☐	☐
5.5 Employment of additional staff, e.g. dentists, volunteers, undergraduate students, retired pharmacists	☐	☐
5.6 Flu vaccination service (frontline Health and Social Care workers)	☐	☐
5.7 Supply of medicines usually supplied in the hospital setting (e.g. oncology, antiretroviral drugs, 'Healthcare at Home')	☐	☐
5.8 Measures to flag/assist patients with sensitive issues such as domestic violence reporting	☐	☐
5.9 Drive-through pharmacy services (initiated or increased)	☐	☐
5.10 Daily reporting of staffing/stock situation to the Health and Social Care Board	☐	☐
5.11 Referrals to Test and Trace services	☐	☐
5.12 Commissioned Prescription delivery service (starting Sept 2020)	☐	☐
5.13 Any others? Please specify: ________________ ________________ ________________		
Part II **And did you stop any of these afterwards at a later date?** *[Record Y/N Yes (Y)/No (N) in 2nd column]*		

PREPAREDNESS

Having now had the experience of working during the pandemic, I'd like to ask you to reflect on how well prepared you felt you were.

6. Thinking back to the start of the initial outbreak of COVID-19 firstly in March-May 2020 and secondly in Sept-Dec 2020, did you have…	**March - May 2020 (beginning of Wave 1) Yes (Y)/No (N)**	**Sept - Dec 2020 (beginning of Wave 2) Yes (Y)/No (N)**
6.1 A business continuity plan in place for use in the event of staff absence over a prolonged period?	☐	☐
6.2 A business continuity plan in place for use in the event of pharmacy closure?	☐	☐
6.3 Enough stock and supply of essential prescription and OTC medicines?	☐	☐
6.4 Enough financial resources to cover the additional demands on your pharmacy business	☐	☐
6.5 Enough stock and supply of hand sanitisers	☐	☐
6.6 Enough information about PPE requirements for staff	☐	☐
6.7 Enough supply of PPE for staff	☐	☐
6.8 A system to manage quantity limits for patients for the supply of individual medicines	☐	☐
6.9 Appropriate staff working patterns in place	☐	☐
6.10 Did you have to close the pharmacy at any stage during the pandemic?	☐	☐
6.11 And if so, for how long? *[document free text response]*		

7.1 What single aspect of your work, if any, did you feel MOST prepared for during March to May 2020 (Wave 1)?

____

____

7.2 What single aspect of your work, if any, did you feel LEAST prepared for during March to May 2020 (Wave 1)?

____

____

7.3 Overall, did you feel better or worse prepared for working during Wave 2 in Sept-Dec 2020 compared to Wave 1 in March-May 2020?	**Better prepared**	**Worse prepared**
	☐	☐

7.4 If worse, can you <u>briefly</u> explain why?

____

____

____

COMMUNICATION

Now I'd like you to think about how you were able to communicate with others during the pandemic.

	Yes	**No**
8.1 Did you communicate differently with GPs and patients during the pandemic?	☐	☐
How did you communicate?		

<u>8.2 GPs</u>	**<u>8.3 Patients</u>**
Telephone ☐	Telephone ☐
E-mail ☐	E-mail ☐
Video call ☐	Video call ☐
Other ☐	Other ☐
______________________	______________________
______________________	______________________
______________________	______________________

UPDATING PROFESSIONAL KNOWLEDGE

This question is about keeping your clinical knowledge of COVID-19 up to date.

	Yes	No
9.1 Were sufficient training resources available to you?	☐	☐

9.2 What resources did you use? Tick all that apply

- Remote training (ECHO) sessions ☐
- Frequently Asked Questions for community pharmacists on the BSO website ☐
- Distilled / summarised information sources provided by CPNI, NPA or your employer ☐
- Internet ☐
- Media ☐
- Dept of Health, Health & Social Care Board, Public Health Agency COVID-19 guidance ☐
- Other, please specify ☐

____
____

LOOKING TO THE FUTURE

The final few questions will focus on your views about returning to normal activities post-pandemic. On a scale of 1-5 where 1= strongly agree and 5= strongly disagree, please indicate your level of agreement with the following statements:

10.1 I am confident that I will be able to re-establish normal patient care services post-pandemic				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1	2	3	4	5

10.2 I am willing to provide and administer COVID-19 vaccinations when they are available through community pharmacies in N. Ireland				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1	2	3	4	5

10.3 I am willing to provide COVID-19 testing within the pharmacy if available in the future				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1	2	3	4	5

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------------ Section 3: Conclusion and Interview Information -----------

CONCLUSION	Thank you for participating & information about participation in a future interview

- Thank you very much for taking the time to answer these questions. Your responses will provide a very helpful insight into how community pharmacy has responded to the pandemic.

- This questionnaire is part of a larger study about community pharmacy and COVID-19. In the next stage, we plan to invite a range of key stakeholders to take part in interviews to explore, in more depth, the role of community pharmacists over the course of the pandemic. The interview will last about 40 minutes. If you think you might be willing to be interviewed, I can send you further information about what this will entail. Please be assured that by requesting information you are not committing to take part. Would you like more information about the study?

Yes ☐ **No** ☐

- **If the reply is yes,**

Could you provide me with your contact details?

- Name: ____
- E-mail address: ____
- Telephone number: ____

- **If the reply is no, thanks again for your time and goodbye.**

Appendix 2. Community pharmacist interview topic guide

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 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]

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."*

- 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[2]: 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)

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

- 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?

- 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]

Appendix 3. Other key stakeholders interview topic guide

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."

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]

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."*

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
☐	☐	☐	☐

- 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[3]: 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)

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

- What would you **not** like to see remain in place?

- 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?

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]