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RESEARCH

COVID-19 pandemic vaccination preparedness strategies for independent community pharmacies

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ABSTRACT

Objective: This study aimed to determine independent community pharmacist preparedness for coronavirus disease 2019 (COVID-19) vaccination and to identify strategies for COVID-19 pandemic vaccination implementation in Pennsylvania.

Methods: This study used a complementary mixed-methods approach to recruit independent community pharmacists to participate in an electronic survey and 2 virtually conducted focus groups before the availability of the first COVID-19 vaccine. Information was gathered and compiled into 5 topic areas: (1) workflow, (2) resources, (3) staff and patient safety, (4) communication, and (5) documentation and training. Data collection occurred between October and December 2020. Survey data were analyzed using descriptive statistics. Focus group discussions were audiorecorded and transcribed. A directed, content analysis was conducted to identify strategies for each topic area, and supporting quotes were selected.

Results: A total of 88 and 11 independent community pharmacists participated in the survey and focus groups, respectively. Because of the small size of most independent pharmacies, participants recommended working with community partners to support off-site mass vaccination clinics. Leveraging partnerships with community organizations and universities could be used to support staffing for vaccination efforts. Using an appointment-based immunization model was identified as one tool to optimize patient and staff safety during the pandemic. Pharmacists suggested using existing scheduling tools and text messaging and automated phone calls for second-dose reminders. Finally, independent pharmacists recommended further training and process improvements to support vaccine documentation and transmission to the Pennsylvania Statewide Immunization Information System.

Conclusion: Recommendations from this study were used to support planning and preparation for COVID-19 vaccinations across Pennsylvania. Incorporation of pharmacists' ideas and recommendations on pandemic vaccination implementation is an important strategy to efficiently expand vaccination administration during pandemics.

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Background

Large-scale, efficient vaccine administration is an essential component for successful management of pandemics. On December 11, 2020, the U.S. Food and Drug Administration granted the first emergency use authorization for a vaccine intended to prevent coronavirus disease 2019 (COVID-19).¹ Before this date, many U.S. states and territories already developed some strategies to distribute COVID-19 vaccines. In Pennsylvania, pandemic vaccination planning began years earlier and included community pharmacies as a major component for vaccine distribution.² These early pandemic

Key Points**Background:**

- Pandemics are a threat to global health security, and vaccine preparedness is essential to reducing transmission and disease severity.
- Leveraging community pharmacists as part of a pandemic vaccination public health response results in a timelier response to public health emergencies.

Findings:

- Recommendations from independent community pharmacists on strategies and resources needed for effective coronavirus disease 2019 (COVID-19) pandemic vaccination administration for independent community pharmacies.
- A playbook was developed that supported COVID-19 pandemic vaccination implementation at independent community pharmacies in Pennsylvania.

preparedness efforts culminated with a Memorandum of Agreement between community pharmacies and the Pennsylvania Department of Health to facilitate communication between these entities during a pandemic.³

Leveraging community pharmacists as part of a pandemic vaccination public health response is an important strategy and results in a more timely and coordinated response to public health emergencies.^{4,5} Schwerzmann⁶ demonstrated through simulation that when community pharmacists are part of pandemic vaccination efforts, the time to reach 80% population coverage is reduced by 7 weeks. Community pharmacies are highly accessible to the public with approximately 90% of Americans living within 5 miles of a community pharmacy.^{7,8} There have been increasing numbers of pharmacist-administered annual influenza vaccinations at an average of 20% per season from the 2016 to 2017 to 2018 to 2019 seasons.^{9–11} A geographic information system analysis using data across the United States demonstrated that approximately 75% of potential COVID-19 vaccine administration facilities were community pharmacies, which further implies that pharmacists must be prepared to actively participate in COVID-19 vaccine administration.¹²

Preparing community pharmacists to effectively provide novel vaccines during a pandemic is imperative. Pharmacists need to be experts in all aspects of pandemic vaccines including acquisition, administration, documentation, and education.¹³ Pre-existing infrastructure and resources within chain community pharmacies may allow pharmacists in these settings to provide care for large patient volumes.¹⁴ In comparison, independent community pharmacies are often single pharmacy locations or small independently owned chains that provide specific, niche services to their local communities.^{15,16} More specifically, independent pharmacies are often located in underserved areas, such as rural areas, likely operating as one of few vital pharmacy providers in their communities.^{16–18} Shortly after the COVID-19 pandemic began, it became evident that a plan for COVID-19 vaccination rollout tailored to

independent community pharmacies in Pennsylvania was needed. The objective of this study was to determine independent community pharmacist preparedness for COVID-19 vaccination and to identify strategies for COVID-19 pandemic vaccination implementation in Pennsylvania. The strategies identified in this study were then compiled into a COVID-19 vaccination playbook for Pennsylvania's Independent Community Pharmacies. This playbook was distributed throughout the Commonwealth and more broadly through the Community Pharmacy Enhanced Services Network (CPESN) USA.¹⁹

Methods

This project used a complementary mixed-methods approach and included both an electronic survey and 2 virtually conducted focus groups. In a complementary mixed-methods study, the results of 2 methods (i.e., survey and focus groups) are used to clarify and build upon one another.²⁰ The survey was used to collect data on the status of preparedness for COVID-19 vaccination administration in independent pharmacies, and the focus groups were used to identify specific strategies to improve preparedness. The research was approved by the University of Pittsburgh's institutional review board.

Survey

The survey was conducted between October and December 2020. The survey consisted of 21 items (see [Appendix 1](#)) informed by the Centers for Disease Control and Prevention (CDC) COVID-19 Vaccination Program Interim Operational Guidance for Jurisdictions Playbook.²¹ The survey was developed by the research team using Qualtrics survey software and consisted of multiple-choice (e.g., single-response and select-all-that-apply), 10-point Likert-scale, and open-ended responses. Demographic data including pharmacy practice area, gender, age, and pharmacy school graduation year were collected. Survey questions elicited information on independent pharmacies' capabilities for future COVID-19 vaccination administration and included questions on staffing, COVID-19 vaccine storage, connectivity to the Pennsylvania Statewide Immunization Information System (PA-SIIS), and additional training needs. Draft survey questions were edited and tested by the study team and reviewed by outside experts in community pharmacy practice. Survey questions underwent multiple iterations and revisions before survey distribution. The survey link was distributed on 5 separate occasions to pharmacists in Pennsylvania through e-mail communications distributed by the Pennsylvania Pharmacists Association (PPA), an independent pharmacy wholesaler, and the Pennsylvania Pharmacists Care Network (PPCN). PPCN is predominantly a network of independent community pharmacies committed to the provision of advanced patient care services.²² Respondents who practiced in an independent community pharmacy at the time of survey were included. After completion of the survey, respondents were able to enter into a randomized giveaway including 2 individually awarded monetized incentives. Descriptive statistics were used to analyze survey responses using IBM SPSS Statistics Version 26. Multiple-choice responses were reported as categorical data, and Likert-scale responses were treated as continuous variables and reported as means.

Focus groups

Two virtual focus group sessions were conducted in November 2020 via Zoom video communications platform. Potential focus group participants were identified through the survey. Survey respondents who expressed interest in participating in a focus group were directed to a separate survey form where they could provide their contact information. The study team then contacted potential focus group participants to confirm their interest and availability. Focus group participants did not receive any incentives associated with participation in this study. A focus group discussion guide (see [Appendix 2](#)) was developed and informed by the CDC COVID-19 Vaccination Program Interim Playbook for Jurisdiction Operations.²¹ The discussion guide was further refined by members of the study team, and the final guide included 18 open-ended questions. Focus group questions addressed specific pandemic vaccination administration topic areas including (1) workflow, (2) resources, (3) staff and patient safety, (4) communication, and (5) documentation and training. Both focus groups were conducted by members of the research team and included a designated facilitator and 2 observers to take field notes. Each session was scheduled for 90 minutes. Focus group sessions were audiorecorded and transcribed verbatim using a commercially available video content management software supplemented with manual review of audio files by the study team to correct and clarify autogenerated transcriptions. A directed content analysis was conducted to identify strategies within the 5 precategorized pandemic vaccination administration topic areas.²³

The research team compiled survey data and the focus group findings by the aforementioned 5 topic areas. A rapid cycle evaluation strategy was chosen to accelerate the research process and improve efficiency given the need for rapid turnaround of results before the COVID-19 vaccine rollout.²⁴ Strategies for COVID-19 vaccine implementation were developed from these results to inform a COVID-19 vaccination playbook for independent community pharmacies.²⁵ This playbook was distributed electronically in December 2020 by the PPA, the PPCN, Value Drug Company, and the University of Pittsburgh School of Pharmacy.^{19,25,26}

Results

Of the 122 anonymous survey respondents, 88 identified themselves as independent community pharmacists and thus were included in the final data analysis. There were 11 pharmacists in total who participated in the focus groups: 6 participants in the first focus group and 5 participants in the second focus group. Demographics for survey respondents and focus group participants are included in [Tables 1](#) and [2](#), respectively. All survey data that further informed strategies elicited from focus groups were included and organized into 5 broad categories as outlined below.

Workflow

When asked how they would implement COVID-19 vaccinations at their pharmacies, 74 pharmacists (84.1%) reported they would implement vaccinations into their pharmacy workflow and 60 (68.2%) would consider an on-site

Table 1

Independent pharmacists demographics from survey (n = 88)

Characteristic	Value
Sex	
Male	46 (52)
Female	42 (48)
Age	
21–40 y	35 (40)
41–60 y	37 (42)
> 60 y	16 (18)
Pharmacy school graduation y	
1980 or earlier	14 (16)
1981–1990	17 (19)
1991–2000	19 (22)
2001–2010	20 (23)
2011 or later	18 (20)

Note: Values are expressed as n (%).

vaccination clinic outside of workflow. In addition, 56 respondents (63.6%) were open to conducting off-site vaccination clinics in the community. Focus group pharmacists expressed concerns over the challenge of preserving a standard prescription dispensing workflow alongside administration of COVID-19 vaccines in their pharmacies. One pharmacist commented, “It’s going to come down to setting aside a day for vaccinations and trying to coordinate as an [immunization] appointment-based model” (pharmacist 8). Another pharmacist noted, “Since we’re closed on Sundays, I’ve thought about having the store open for just COVID vaccinations on Sundays from 9–5 pm and have that be a dedicated day” (pharmacist 3). Pharmacists expressed the added workload of COVID-19 vaccine administration might overwhelm pharmacy staff and result in workflow disruptions; however, they also expanded on the opportunity to serve new patients. “We shut down our vaccinations when COVID-19 first started, then we picked back up...it’s hopeful that when the COVID-19 vaccine becomes available we’re able to serve patients we would not normally serve” (pharmacist 9). In addition, the small size of their pharmacies was noted as a limitation to on-site mass vaccination. “A lot of independent pharmacies are lucky if they have 10 parking spots, and 3 of them are for employees” (pharmacist 11).

Focus group participants provided ideas for off-site vaccine locations including the use of local community spaces such as fire halls, church halls, and community centers. In addition, focus group participants maintained that developing partnerships with other local independent pharmacies could both optimize the capacity for mass vaccination clinics and preserve standard prescription dispensing workflow during normal business hours in their pharmacies. “An idea I had was partnering with other independent pharmacies in the area to host clinics. We could take an approach where we would be sharing our teams to deploy vaccines in a setting outside of our store, so it doesn’t disrupt the workflow of our store” (pharmacist 2).

Resources

Participants were asked about available resources including staffing and vaccine storage equipment. Independent pharmacists felt adequate team member staffing was necessary to efficiently administer COVID-19 vaccinations. Approximately 44% of the survey respondents stated they were concerned

Table 2
Focus group respondent demographics (n = 11)

Characteristic	Value
Sex, n (%)	6 (55)
Male	
Female	5 (45)
Average age in y \pm SD (range)	47.8 \pm 10.6 (31–61)
Average number of y after graduation \pm SD (range)	25.3 \pm 10.9 (8–39)
Average number of y worked in community pharmacy practice \pm SD (range)	21.2 \pm 12.0 (2–39)
Position title, n (%)	
Director of pharmacy/pharmacy services	2 (18)
Pharmacy owner	5 (45)
Pharmacy manager	1 (9)
Staff pharmacist	2 (18)
Other	1 (9)

about having enough staff to maintain pharmacy workflow during COVID-19 vaccine administration. One focus group participant stated “A resource we need is personnel or interns to help us through this process. There is going to be a great deal of extra added workflow to our pharmacies and I don’t know if our normal staff can handle it” (pharmacist 1). Correspondingly, pharmacists maintained that recruitment of volunteer health professions students could assist with additional staffing needs during vaccination clinics. Sixty-six percent of survey respondents (65.9%) agreed they would be open to incorporating student pharmacists as vaccinators at their pharmacies and vaccine clinics. “Students are great resources to provide education [and they can] talk to patients [as they do patient] triage and that makes a world of difference...” (pharmacist 7). Focus group participants championed the idea of leveraging local partnerships with universities, specifically schools of health sciences, to incorporate students and promote community-based work in school curricula. “...[you can identify] partnership opportunities with either local universities or bigger universities...especially with schools of medicine, schools of nursing, and schools of pharmacy. Most of these schools all have community type work that the school... has to do. We just have to tap resources that we probably haven’t used before, and there’s going to be people that want to help” (pharmacist 11). Focus group participants expanded this idea to include the recruitment of other health care professionals (e.g., retired registered nurses) to supplement staffing needs for vaccine preparation, administration, and patient education. One pharmacist noted, “When we did H1N1 vaccines, we had a whole staff... that were there to do all the paperwork for us to keep the lines moving. I think something we might need to all think about is how we might gear up with some retired [health care professionals] who might be willing to volunteer” (pharmacist 10).

The survey asked pharmacists about their existing vaccine storage capabilities, focusing on their current availability of equipment that would meet the CDC’s vaccine storage recommendations. At the time of the survey, 15.9% of respondents’ pharmacies used a refrigeration unit that would not meet the CDC’s guidelines for COVID-19 vaccine storage. In addition, only 36.4% of survey respondents reported using continuous temperature monitoring devices such as a digital data logger on their pharmacies’ refrigeration units. Focus group participants suggested that assistance from state partners to support the purchase of recommended equipment

would facilitate their ability to appropriately store COVID-19 vaccines once they became available. “...the -70 [degree freezer] is a little bit cost prohibitive. There are a number of different freezers that are out there...and having the resources available to pharmacies... would be a tremendous help for folks who are scrambling around trying to get that information. You do need specific model numbers...” (pharmacist 5).

Staff and patient safety

Many independent pharmacies operated with challenges to maintain crowd control and social distancing measures throughout the COVID-19 pandemic, which was attributable to their building sizes and single-store locations. Approximately 20% of survey participants felt additional support for managing large volumes of patients at their locations was needed to effectively participate in COVID-19 vaccination administration. “Most of our pharmacies are not real big, even when we’ve done spacing [of patients]...so I can’t see large crowds in the pharmacy.” (pharmacist 7). Survey respondents reported they could use multiple outside areas such as parking lots (52.3%), curbside areas (55.7%), or sidewalks (44.3%) to administer COVID-19 vaccines. Focus group participants also expressed their pharmacy locations required additional safety support measures to address and respond to sudden, large influxes of patients. Participants suggested partnerships with local law enforcement were one strategy to manage heightened traffic during vaccine clinics. “You have to work with local law enforcement...they have to be aware because the last thing you want is to have an emergency and the [emergency vehicles] can’t get down the road because there are fifty cars [blocking the road]” (pharmacist 11). Appointment-based immunization models were also discussed as a tool to further optimize safety. Pharmacists suggested that preappointment screening could be integrated into the appointment-based scheduling process. One pharmacy owner created their own prescreening form and stated, “We added a simple [prescreening] form to our website... but it gives the patient the opportunity to give us some basic information ahead of time...it seemed to streamline our in-store interactions [with patients]” (pharmacist 2). This process was viewed as an opportunity to ensure compliance with social distancing and strategically streamline patients’ time spent in the pharmacy.

Communication

Pharmacists recognized the need to promote vaccination education and ensure vaccine series completion given the availability of some COVID-19 vaccines as a multidose series. Text messaging and phone calls were identified as useful tools for second-dose reminders and for providing additional vaccination education information. Seventy-six survey respondents (86.4%) noted that their pharmacy had the ability to send reminders to notify patients about an upcoming second vaccination dose. In addition, survey respondents reported that they currently used in-store signage (83.0%), social media (71.6%), and their pharmacy websites (71.6%) to advertise information regarding vaccines. Focus group participants maintained that COVID-19 vaccine availability would unveil further inquiries from the public on the nuances of the COVID-19 vaccines. One pharmacist stated, “patients hear from their [health care] provider about [the shingles], [pneumonia], and other vaccines, but

as far as the COVID-19 vaccine, we're going to be responsible for a lot of education" (pharmacist 9). In response to a question regarding reluctance to COVID-19 vaccination, focus group respondents recognized their role in vaccine hesitancy and proposed development of a Frequently Asked Questions (FAQ) document to aid address commonly asked questions. In addition, an FAQ document was identified as a potential resource to efficiently allocate pharmacy staff time spent regarding vaccine questions. "An FAQ section potentially in your local newspaper as a public service announcement, along with your actual plan on how they're going to come and get vaccinated, would be helpful" (pharmacist 1).

Documentation and training

As of fall 2020, documentation of COVID-19 vaccine ordering and administration with the PA-SIIS requires enrollment and training for all prospective users. Approximately a third of survey respondents reported that their pharmacy had a dispensing system that already interfaced with PA-SIIS to transmit information directly into the immunization information system. Another 31.8% of respondents reported that their pharmacy staff would enter COVID-19 vaccination information manually, and the remainder of respondents were unsure of their current plan for documentation at the time of the survey. Focus group discussions placed an emphasis on the use of portable technology for ease of documentation owing to the possibility of off-site vaccination clinics. One pharmacist noted, "If they can remote into the pharmacy management system in real time from the clinic site, they could actually be doing the [documentation] while they're [at the clinic] so you wouldn't have to take it back to the pharmacy and enter all those prescriptions" (pharmacist 11).

For training needs, pharmacists ranked COVID-19 vaccine-specific training and cold chain requirements in compliance with CDC guidelines as the top 2 areas of greatest importance. On a scale of 1 to 10 with 1 being least important and 10 most important, the mean ranking for COVID-19 vaccine-specific training and cold chain requirements was 9.4 ± 1.2 and 9.2 ± 1.5 , respectively. Focus group participants stated they preferred to have this training online: "online training can be viewed and done at any time and will be most efficient" (pharmacist 6).

Discussion

The overarching goal of this work was to identify strategies to support COVID-19 pandemic vaccination implementation at independent community pharmacies in Pennsylvania. Recent studies identified pandemic vaccine implementation strategies for chain community pharmacies; however, the needs of independent pharmacies are unique.^{2,14} Independent pharmacies in Pennsylvania are often located in more rural settings and by their nature do not have access to space, personnel, and financial resources that are available to larger chain pharmacies. With the emergence of the COVID-19 pandemic, the importance of pandemic vaccination administration planning in community pharmacies that includes strategies for infection control, resource acquisition, and vaccinations became apparent. A study by Carpenter et al.¹⁷ revealed that 27% of rural community pharmacies with a disaster preparedness plan felt their plan

was inadequate for COVID-19. That study did not address preparedness for COVID-19 pandemic vaccine implementation, which was the primary focus for our present research.

Results from our survey and focus groups provide strategies for pandemic vaccination planning for independent community pharmacies in 5 topic areas: (1) workflow, (2) resources, (3) staff and patient safety, (4) communication, and (5) documentation and training. With respect to workflow, independent pharmacists expressed concerns over the small available space in their pharmacies to provide vaccines for large crowds as part of their normal workflow. Participants recommended partnering with their communities for the use of larger spaces for mass vaccination efforts. Independent pharmacies often have strong community ties, which can be leveraged during a pandemic.²⁷ Indeed, during the COVID-19 pandemic, Pennsylvania pharmacies collaborated with a variety of community partners including fire departments, churches, community centers, farms, businesses, schools, and universities.^{28,29}

Another important finding from this research was that many independent community pharmacies vaccine storage and temperature monitoring equipment did not meet the requirements set forth by the CDC for COVID-19 vaccines.³⁰ For example, our survey revealed that slightly more than one-third of respondents used the recommended continuous temperature monitoring devices such as a digital data logger on their refrigeration units. The playbook provided vital information on COVID-19 vaccine storage and handling requirements including links to CDC training and other resources. In addition, as a result of this research, the study team was able to facilitate acquisition of digital data loggers for community pharmacies through a grant from the Pennsylvania Department of Health. By meeting CDC storage and handling requirements, many independent community pharmacies in Pennsylvania were able to qualify as COVID-19 vaccine providers early on in this pandemic.³¹

One significant concern for these pharmacies was their ability to provide COVID-19 vaccines efficiently to large numbers of patients considering their staffing constraints. Focus group participants suggested expanding on their partnerships with universities to identify student pharmacists who would be willing to volunteer their time to support vaccination efforts such as patient screening, vaccine education and administration, and clinic workflow. This idea was operationalized in the playbook by providing student pharmacists from Pennsylvania's 7 schools of pharmacy with a website link where they could sign up to support vaccination efforts. Between January and April 2021, 90 student pharmacists were connected with 23 independent pharmacies in Pennsylvania to support the provision of COVID-19 vaccinations.

Similar to other community pharmacy pandemic preparedness studies, our pharmacists recognized the need for easily accessible, additional pandemic preparedness training.^{2,13,17} In a survey by Bahlol and colleagues,¹³ only 21.3% of community pharmacists reported having pandemic training, despite pharmacists' roles in emergency pandemic responses largely involving education. Another survey from Zhao et al.³² reported that most pharmacists and pharmacist extenders were willing to be trained in emergency preparedness. Our study revealed that pharmacists were most interested in training on the specific pandemic vaccine and cold

chain requirements. Cold chain training was a point of emphasis for much of the pandemic training offered by the investigative team considering that many independent pharmacy survey participants did not meet the CDC's vaccine storage and temperature monitoring equipment requirements for COVID-19 vaccine. The playbook also provided links to training that was required by the Pennsylvania Department of Health including training on the PA-SIIS and the CDC's vaccine storage and handling training. The playbook was published in December 2020 and served as a vital resource for independent community pharmacies to prepare for COVID-19 vaccinations (<https://www.clip.pharmacy.pitt.edu/2020/12/covid-19-vaccination-playbook-for-pennsylvanias-independent-community-pharmacies/>).²⁵ It was shared broadly through social media platforms and by the University of Pittsburgh School of Pharmacy, the PPA, Value Drug Company, the PPCN, and CPESN USA.

There were several limitations of this study. First, this study was conducted in a single state, which may limit its generalizability to independent pharmacies outside Pennsylvania. However, many of the recommendations within the playbook could be implemented widely in many pharmacies. In addition, because the survey link was broadly distributed through multiple electronic platforms, calculating a survey response rate was not possible. Finally, the relatively small number of focus group participants and the timing of the focus groups, which occurred before the initial COVID-19 vaccine distribution in Pennsylvania, may have limited our ability to identify all barriers and facilitators to pandemic vaccine implementation.

Conclusion

Feedback from independent community pharmacists elicited through a survey and focus groups supported planning and preparation for COVID-19 vaccinations across Pennsylvania. Incorporation of pharmacists' ideas and recommendations on pandemic vaccination implementation is an important strategy for successful vaccination efforts during a pandemic. Insight from this research informs numerous strategies for independent community pharmacies across the nation to optimize pandemic vaccination preparedness.

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Appendix 1*Pandemic Vaccine Preparedness Survey*

Q1 Select the option that best describes your primary pharmacy workplace?

- Independent community pharmacy
- Regional chain community pharmacy
- National chain pharmacy
- Mass merchant pharmacy
- Specialty pharmacy
- Outpatient pharmacy - ambulatory care
- Hospital pharmacy

Q2 What gender do you identify as?

- Female
- Male
- Prefer not to say
- Other

Q3 Which date range fits your pharmacy school graduation year?

- 1950 to 1960
- 1961 to 1970
- 1971 to 1980
- 1981 to 1990
- 1991 to 2000
- 2001 to 2010
- 2011 to 2019

Q4 What is your age?

- 21 to 30 years old
- 31 to 40 years old
- 41 to 50 years old
- 51 to 60 years old
- 61 to 70 years old
- over 70 years old
- Prefer not to say

Q5 The Pennsylvania Department of Health is requiring all community pharmacies in Pennsylvania to sign a Memorandum of Agreement (MOA) as a first step in order to participate in the provision of COVID-19 vaccination. Has your pharmacy signed the PA Department of Health's Memorandum of Agreement (MOA)?

- Yes
- No
- Unsure

Q6 Which of the following would potentially be available to administer COVID-19 vaccinations at this pharmacy location? (Select all that apply)

- Private patient care room
- Other area inside the pharmacy/store
- Drive-Through pharmacy window

- Parking lot directly outside the pharmacy/store
- Curbside parking area near the pharmacy/store
- Sidewalk area outside the pharmacy/store
- Other area: _____

Q7 At this pharmacy location, I would consider providing COVID-19 vaccinations (select all that apply)

- In pharmacy workflow
- At an on-site vaccination clinic (outside of workflow)
- At an off-site vaccination clinic (e.g. travel to local employer, nursing home, etc.)

Q8 Are you concerned about having enough staff to maintain pharmacy workflow during administration of COVID-19 vaccines?

- Yes
- No
- N/A (I don't plan on participating in COVID19 vaccinations)

Q9 Would the availability of additional pharmacy students at your pharmacy location facilitate your pharmacy's ability to provide COVID-19 vaccinations?

- Yes
- No
- Not sure

Q10 I am confident that my pharmacy can acquire sufficient personal protective equipment (PPE) for the pharmacy staff to safely administer COVID-19 vaccines.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q11 Where does your pharmacy store vaccines that require refrigeration? (select all that apply)

- Household combination unit (vaccines are stored on the refrigerator side)
- Medical grade combination unit (vaccines are stored on the refrigerator side)
- Stand-alone refrigerator unit
- Other: _____

Q12 What type of temperature monitoring device is currently used for the refrigerator that stores vaccines at your pharmacy?

- a min/max thermometer (provides information on warmest and coolest temperatures)
- a continuous temperature monitoring device such as a digital data logger (provides information on all temperatures recorded at preset intervals)

o Other:

Q13 Where does your pharmacy store vaccines that require freezing? (select all that apply)

- o Household combination unit (vaccines are stored on the freezer side)
- o Medical grade combination unit (vaccines are stored on the freezer side)
- o Stand-alone freezer unit
- o Other:

Q14 What type of temperature monitoring device is currently used for the freezer that stores vaccines at your pharmacy?

- o a min/max thermometer (provides information on warmest and coolest temperatures)
- o a continuous temperature monitoring device such as a digital data logger (provides information on all temperatures recorded at preset intervals)
- o Other:

Q15 Several of the COVID-19 vaccine candidates may require 2 doses separated by several weeks. Both doses will need to be with the same vaccine product.

Q17 COVID-19 vaccine administration has to be documented in PA-SIIS. How would you do this at your pharmacy location?

- o My pharmacy prescription dispensing system has an interface with PA-SIIS that transmits this information to the registry
- o Pharmacy staff will enter each patient's COVID-19 vaccination information manually in PA-SIIS through the web app
- o Unsure of what the plan is at this point in time

Q18 Does your pharmacy need support for any of the following to effectively participate in COVID-19 vaccinations? (Check all that apply)

- o Crowd Control
- o Security
- o Traffic/parking Management
- o Social distancing requirements
- o Communications with patients

Q19 Which forms of advertising do you currently use to promote vaccinations at your pharmacy? (select all that apply)

- o Social Media
- o Website
- o In-Store/Pharmacy Signs

	Yes	No	Unsure	Not Applicable
My pharmacy has the ability to send patients reminders (e.g. via telephone or text) when their 2nd COVID-19 vaccine dose is due.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

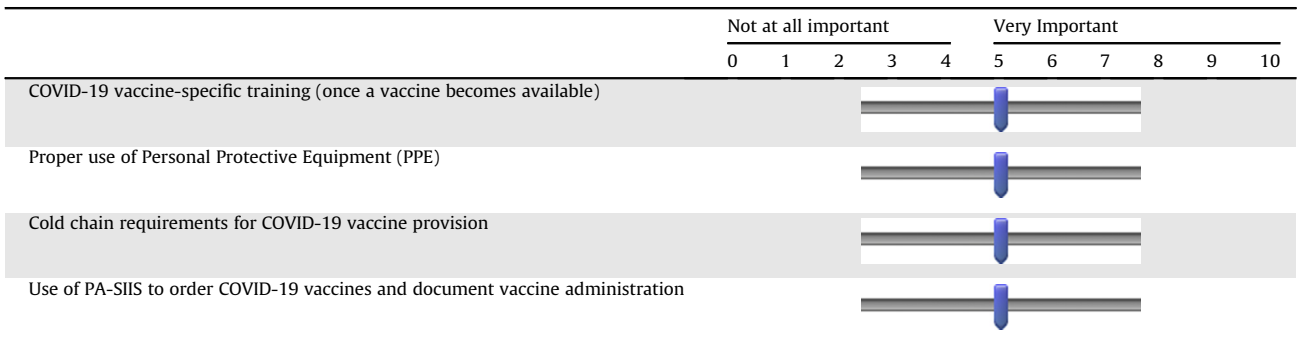
Q16 COVID-19 vaccines will be ordered using the Pennsylvania Statewide Immunization System (PA-SIIS). Is your pharmacy enrolled in PA-SIIS?

- o Yes
- o No
- o Not sure

- o Newspapers or other print media
- o Other:

- o Not applicable

Q20 How important are the following training modules for you to meet the CDC's guidelines for COVID-19 vaccination?



Q21 Please describe any other needs or questions you have around participating in COVID-19 vaccinations:_____

Appendix 2

Focus Group Questions

Introductory Question

1. How has the COVID-19 pandemic affected vaccination services at your pharmacy?

Workflow

2. What differences do you anticipate when administering COVID-19 vaccinations versus other routine vaccinations at your pharmacy?
3. How can pharmacies optimize the administration of COVID-19 vaccinations into workflow?
4. How can pharmacies optimize COVID-19 vaccination administration outside of workflow?
5. If a drive-through option is available for the provision of COVID-19 vaccines, how do you suggest to safely screen, administer and monitor patients using this method?

Resources

6. What additional resources do your independent pharmacies need to effectively participate in COVID-19 vaccinations?
 - a. Staff resources?
 - b. Space resources?
 - c. Personal protective equipment?
 - d. Equipment (e.g. digital data loggers; refrigerators)?
7. What ideas do you have on how pharmacies can acquire additional resources?
8. How can independent pharmacies work with pharmacy schools to facilitate access to students to support staffing during COVID-19 vaccination efforts?

Staff and Patient Safety

9. What are your ideas for how to safely manage large numbers of patients at your pharmacy location that come for a COVID-19 vaccine?
10. What ideas do you have regarding ways independent pharmacies can manage the pre-vaccine staging area (and post-vaccine observation) to reduce the transmission of disease?
11. What are options of alternative spaces that independent community pharmacies can use for the provision of COVID-19 vaccines?

Communication

12. What strategies do you have on how to get the word out to your community on the availability of COVID-19 vaccines at your pharmacy?
13. What are your thoughts on scheduling patients for vaccines? How would this be accomplished?
14. Many patients may be reluctant to receive a COVID-19 vaccination. What are some strategies you have for communicating with your patients on the importance of receiving a COVID-19 vaccination?
15. Several of the COVID-19 vaccines will likely be two-dose series. What are your thoughts on how independent pharmacies can effectively communicate with their patients to receive their second dose?

Documentation and Training

16. Pharmacies will be required to document COVID-19 vaccines in their pharmacy systems and in PA-SIIS within 24 hours of administering the vaccine. What are your thoughts on how independent pharmacies can efficiently document?
17. There will be some additional training requirements to participate in COVID-19 vaccinations. What ideas do you have on how these training can be implemented at independent pharmacies?

Wrap Up

18. Are there any other ideas or strategies around COVID-19 vaccination planning that you would like to share?