

## Policy Analysis

**Cite this article:** Pammal RS, Kreinices JB, Pohlman KL. Importance of pharmacy partnerships in effective COVID-19 vaccine distribution. *Disaster Med Public Health Prep.* doi: <https://doi.org/10.1017/dmp.2021.178>.

**Keywords:** COVID-19; vaccination; pharmacy partnerships; health equity

**Corresponding author:** Rajkumar S. Pammal, Email: [rpammal@student.nymc.edu](mailto:rpammal@student.nymc.edu).

# Importance of Pharmacy Partnerships in Effective COVID-19 Vaccine Distribution

Rajkumar S. Pammal BA<sup>1</sup> , Jason B. Kreinices BS<sup>1</sup> and Kevin L. Pohlman MEd<sup>2</sup>

<sup>1</sup>New York Medical College School of Medicine, Valhalla, New York, USA and <sup>2</sup>New York Medical College School of Health Sciences and Practice, Center for Disaster Medicine, Valhalla, New York, USA

### Abstract

The goal of vaccinating the majority of Americans against coronavirus disease 2019 (COVID-19) in a timely manner requires a robust federal vaccine distribution plan involving pharmacy partnerships. Previously, the 2009 Centers for Disease Control and Prevention (CDC) H1N1 Vaccine Pharmacy Initiative resulted in approximately 10% of adults who received a vaccine during the 2009 pandemic reporting they were vaccinated at a pharmacy. This proportion has already largely increased for COVID-19 vaccinations, with the US Department of Health and Human Services (HHS) using similar channels for vaccination as existing partnerships with national pharmacy and grocery retail chains for the COVID-19 Community-Based Testing Program. It continues to prove crucial that the Biden administration's national COVID-19 vaccine distribution plan, including the Federal Retail Pharmacy Program, focus on ensuring equitable vaccine distribution and access in medically underserved areas and to vulnerable populations, enabling maximum uptake of COVID-19 vaccines.

Given the severe damage coronavirus disease 2019 (COVID-19) has caused to human life, health-care systems, and the economy in the United States (US) and worldwide, the development of multiple safe, effective vaccines against the virus is a pivotal event in the effort to mitigate the pandemic. However, for the vaccines to attain their full potential in protecting the American public against COVID-19, it is crucial that there is public trust in the vaccines, and that vaccines are distributed as efficiently as possible to providers and patients in disparate locales. It is well-documented that politicians and other public figures have continually worked toward building trust in COVID-19 vaccination to encourage individuals to get vaccinated once they are eligible. However, the supply chain and distribution process of how the vaccine gets from manufacturer to hospitals, pharmacies, and ultimately to the general public is less understood. As of April 6 2021, President Biden announced that over 150 million vaccine doses had been administered since the new administration began on January 20 2021.<sup>1</sup> Additionally, 90% of US adults were declared eligible to receive the vaccine by April 19, 2021, largely aided by increased focus on the federal pharmacy program expanding vaccination sites to nearly 40,000 locations.<sup>2</sup> Since the onset of vaccine distribution efforts, Departments of Health (DOHs) in states have grappled with planning and implementation of effective vaccine distribution. It is pivotal that the federal government's coordinated plan to distribute vaccines uses state and local partnerships with both the public and private sector, specifically pharmacy partnerships.

### Previous Vaccine Distribution Efforts (2009 H1N1 Pandemic)

The challenge of effective vaccine distribution amidst health crises is not a new one, as evidenced with the H1N1 Influenza vaccine in 2009. The execution of an effective distribution plan in 2009 was too delayed to effectively limit the spread of the virus.<sup>3</sup> In the 2009 pandemic, the US government distributed antiviral medications and vaccines through the Strategic National Stockpile (SNS).<sup>4</sup> The simple SNS distribution plans, such as releasing a fixed quantity each month from the stockpile to states, proportional to each states' population size, were optimal for mitigating the spread and effects of the virus.<sup>3</sup> However, this is most likely attributed to the influenza's mild contagious effect, whereas more contagious strains, such as COVID-19, require increased supply from the Federal SNS and more optimal policies to include greater-quantity early releases.<sup>4</sup>

Pre-existing distribution plans, such as those seen in 2009, have generally followed the following framework: the federal government allocates vaccines to states based on population size, and then states develop their own distribution plans.<sup>5</sup> In 2009, vaccines were shipped directly to vaccination provider sites (public and private) from the central distributor.<sup>4</sup> States then deployed various types of distribution plans by means of a combination of state and local public health authorities, private health-care providers, and pharmacies.<sup>5</sup> While some states relied on local health departments for distribution, some states received all of their vaccine supply and coordinated the physical distribution to vaccine provider sites without partnerships with

additional agencies.<sup>5</sup> The heterogeneity in distribution plans was reported to have caused communication challenges, especially in the states in which each local health department deployed a unique distribution plan.<sup>5</sup>

The 2009 CDC H1N1 Vaccine Pharmacy Initiative proved to play an imperative role in the vaccination efforts. In conjunction with the Association of State and Territorial Health Officials (ASTHO), the CDC distributed vaccines directly to pharmacies to assist in the state vaccination campaigns.<sup>6</sup> Approximately 10% of adults who received a vaccine during the 2009 pandemic reported getting vaccinated at a pharmacy.<sup>6</sup>

### Current COVID-19 Vaccine Distribution Approach and Pharmacy Partnerships

The accessibility of community pharmacies makes them a popular location for health-related visits and pharmacists are often the first encounter with a health-care professional for many Americans seeking care. It has been reported that 9 in 10 Americans live within 5 miles of a community pharmacy.<sup>7</sup> Pharmacies have, therefore, played a beneficial role in the vaccination of hundreds of thousands of Americans. Using pharmacies increases the accessibility of vaccines at a community level, and their contribution to national, regional, and local storage and distribution can be of use with large scale administration of vaccines, which has contributed significantly in the effort to achieve herd immunity against COVID-19 in a timely manner.

The Federal Retail Pharmacy Program has been structured to aid the COVID-19 vaccination program and will directly supply vaccines to nearly 40,000 pharmacy locations across the 50 states.<sup>7</sup> The use of community pharmacies in the distribution of vaccines provides greater availability in convenient and familiar locations.<sup>8</sup> Several European countries have reported that distribution models that effectively involve pharmacists result in increased vaccination coverage and assist in achieving herd immunity, both extremely beneficial in diminishing infectious diseases.<sup>9</sup> Pharmacy participation is particularly important in the circumstance of another rise in COVID-19 cases in which a shortage of medical staff and depleted infrastructure is already a concern. Currently, select pharmacy partners listed as participating in the COVID-19 Vaccine Program represent upward of 50% of total pharmacy industry market share by prescription drug dispensing revenue (Table 1).<sup>10,11</sup>

The existing national vaccine distribution plan provides support to States' DOHs by both increasing vaccine supply and enabling equitable vaccine distribution and administration through additional funding.<sup>12</sup> Previously, state governments had to develop their own systems to distribute limited vaccine doses, raising concerns of access and equity.<sup>12</sup> In the first month of US vaccinations, available data demonstrated that 5.4% of vaccine recipients were Black and 11.5% were Hispanic, despite those ethnic groups being 12.2% and 18.5% of the US population, respectively.<sup>13</sup> The Federal Retail Pharmacy Program is based on pharmacy partners using the Social Vulnerability Index (SVI) to inform decisions on additional locations and vaccination sites.<sup>7</sup> Additionally, the Biden administration is organizing partnerships with federally qualified health centers (FQHCs), which tend to serve low-income individuals and people of color.<sup>12</sup> Initial results indicate that such efforts are indeed alleviating inequities, with 45% of Federal Retail Pharmacy Program sites being located in zip codes with high social vulnerability scores, and over 65% of the federal doses allocated to community health centers being administered to people of color.<sup>14</sup>

**Table 1.** COVID-19 vaccination program select pharmacy partners

Organization	No. of pharmacies nationwide <sup>a</sup>	Market share of pharmacy industry prescription revenue (2019) <sup>b</sup>
CVS Health	9900+	24.5%
Walgreens	9277	18.9%
Walmart	5000+	4.7%
The Kroger Company	2200	3.1%
Rite Aid Corporation	2464	2.5%
Albertsons Companies	1743	1.2%
Costco Wholesale Corporation	453	0.6%
H-E-B	300+	0.4%

<sup>a</sup>Determined from company websites.

<sup>b</sup>Based on the 2020 Economic Report on US Pharmacies and Pharmacy Benefit Managers (Drug Channels Institute, 2020); [https://drugchannelsinstitute.com/products/industry\\_report/pharmacy/](https://drugchannelsinstitute.com/products/industry_report/pharmacy/).

Federal government investment in State DOHs is essential for supporting functions, such as workforce funding, data reporting systems, and communication efforts.<sup>15</sup> Apart from infrastructural support, states have had difficulty developing comprehensive plans that determine priority populations, set up immunization registries, and meet CDC time requirements for reporting measures.<sup>16</sup> Lack of state preparedness does not appear to be a COVID-specific issue, as it has been reported that multiple states that had lower than a 40% immunization rate against influenza in 2019 are the same states among the highest in COVID-19 infection rates currently.<sup>15</sup> While state governments are essential partners in implementation of vaccination distribution, the federal government can provide additional operational support, such as the Federal Emergency Management Agency (FEMA) assisting in developing federally run community vaccination centers and mass vaccination sites.<sup>12</sup> Furthermore, the federal government can coordinate targeted partnerships, such as a recent initiative between the CDC and Administration for Community Living (ACL), in which the federal government provided nearly \$100 million in grants to aging and disability networks in every state and territory, along with funding for national hotlines to connect older adults and people with disabilities to resources that assist in vaccine registration and support.<sup>17</sup>

### Policy Recommendations

An effective Federal Retail Pharmacy Program is crucial in accelerating the current vaccine distribution rate to the general American population, with nearly all Americans now eligible to receive the vaccine. Based on learnings from these recent developments and historical context in considering federal and state governments' vaccine distribution plans, we propose the following recommendations that may drive future policy development:

- *Use federal government capabilities and resources to ensure equity in vaccine distribution and adequate access to vaccinations.* While state governments know their populations the best, federal government resources have been and should continue to be used to focus specifically on equity and access to COVID-19 vaccination. A potential next step includes involving

rural health centers and pharmacies that are not currently engaged in the federal pharmacy partnership strategy.

- *Continue to prioritize high-risk and vulnerable populations.* From the outset of this pandemic, nursing home residents have been disproportionately affected. The Pharmacy Partnership for Long-Term Care (LTC) Program has been set up between the CDC and partners like CVS, Walgreens, and Managed Healthcare Associates to provide on-site COVID-19 vaccination services for nursing home residents.<sup>18</sup> There are over 63,000 LTC facilities enrolled in the program, but opportunity exists for continued expansion.<sup>7</sup>
- *Invest additional resources in information and awareness campaigns.* In the past, such as with the H1N1 pandemic, local variations in vaccine allocation led to confusion about public eligibility for vaccination.<sup>19</sup> Therefore, it is necessary to educate the public about when and where they will be able to receive COVID-19 vaccination, as well as continue to build public trust in the vaccines' safety and efficacy. Recent events, such as the CDC recommendation to pause use of the Johnson & Johnson vaccine, require additional investment in public messaging and communication.
- *Allow for flexibility in distribution models.* Pharmacy partnerships should allow for flexibility such that resources and vaccines can be reallocated quickly to areas in which supply is needed, especially given varying COVID-19 positivity rates across the country and the presence of multiple virus strains. This can occur through initiatives such as the Pharmacy Transfer Program, which allows states to transfer their allocated vaccine doses to federal pharmacy partners in other locales.<sup>7</sup>

Taken together, strong emphasis on equity, pharmacy partnerships, and federal support increases the likelihood of more efficient COVID-19 vaccine distribution and improved societal health outcomes.

**Author contributions.** R.S.P. and J.B.K. contributed equally to background research/literature review and writing of the manuscript. K.L.P. provided subject-matter expertise in contributing to policy recommendations and revising the manuscript

**Conflict of interest.** None.

## References

1. **Superville D, Jaffe A.** Biden makes all adults eligible for a vaccine on April 19. AP News. April 6, 2021. <https://apnews.com/article/biden-move-vaccine-eligibility-date-april-19-021157c7bdf964181e3b63f51b89601e>. Accessed June 17, 2021.
2. **The White House.** FACT SHEET: President Biden announces 90% of the adult US population will be eligible for vaccination and 90% will have a vaccination site within 5 miles of home by April 19." The United States Government. March 29, 2021. [www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-president-biden-announces-90-of-the-adult-u-s-population-will-be-eligible-for-vaccination-and-90-will-have-a-vaccination-site-within-5-miles-of-home-by-april-19/](http://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-president-biden-announces-90-of-the-adult-u-s-population-will-be-eligible-for-vaccination-and-90-will-have-a-vaccination-site-within-5-miles-of-home-by-april-19/). Accessed June 17, 2021.
3. **Escuyer KL, Fuschino ME, St George K.** New York State emergency preparedness and response to influenza pandemics 1918-2018. *Trop Med Infect Dis.* 2019;4(4):132. doi: [10.3390/tropicalmed4040132](https://doi.org/10.3390/tropicalmed4040132)
4. **Dimitrov NB, Goll S, Hupert N, et al.** Optimizing tactics for use of the U.S. antiviral strategic national stockpile for pandemic influenza. *PLoS One.* 2011;6(1):e16094.
5. **Institute of Medicine (US) Forum on Medical and Public Health Preparedness for Catastrophic Events.** The 2009 H1N1 influenza vaccination campaign: summary of a workshop series. Washington, DC: National Academies Press; 2010. 3, Vaccine Distribution. <https://www.ncbi.nlm.nih.gov/books/NBK54182/>. Accessed June 17, 2021.
6. **Koonin LM, Beauvais DR, Shimabukuro T, et al.** CDC's 2009 H1N1 vaccine pharmacy initiative in the United States: implications for future public health and pharmacy collaborations for emergency response. *Disaster Med Public Health Prep.* 2011;5(4):253-255. doi: [10.1001/dmp.2011.83](https://doi.org/10.1001/dmp.2011.83)
7. **Centers for Disease Control and Prevention.** COVID-19 Vaccination Federal Retail Pharmacy Partnership Program. Centers for Disease Control and Prevention. April 12, 2021. [www.cdc.gov/vaccines/covid-19/retail-pharmacy-program/index.html](http://www.cdc.gov/vaccines/covid-19/retail-pharmacy-program/index.html). Accessed June 17, 2021.
8. **Strand MA, Bratberg J, Eukel H, et al.** Community pharmacists' contributions to disease management during the COVID-19 pandemic. *Prev Chronic Dis.* 2020;17:E69. doi: [10.5888/pcd17.200317](https://doi.org/10.5888/pcd17.200317)
9. **Czech M, Balcerzak M, Antczak A, et al.** Flu vaccinations in pharmacies-a review of pharmacists fighting pandemics and infectious diseases. *Int J Environ Res Public Health.* 2020;17(21):7945. doi: [10.3390/ijerph17217945](https://doi.org/10.3390/ijerph17217945)
10. **HHS.gov.** Trump administration partners with chain and independent community pharmacies to increase access to future COVID-19 vaccines. December 31, 2020, [www.hhs.gov/about/news/2020/11/12/trump-administration-partners-chain-independent-community-pharmacies-increase-access-future-covid-19-vaccines.html](http://www.hhs.gov/about/news/2020/11/12/trump-administration-partners-chain-independent-community-pharmacies-increase-access-future-covid-19-vaccines.html). Accessed June 17, 2021.
11. **Fein AJ.** The 2021 economic report on US pharmacies and pharmacy benefit managers. Drug Channels Institute. 2020. [https://drugchannelsinstitute.com/products/industry\\_report/pharmacy/](https://drugchannelsinstitute.com/products/industry_report/pharmacy/). Accessed June 17, 2021.
12. **Rapfogel N.** How Biden's coronavirus plan funds and supports state vaccination efforts. Center for American Progress. February 11, 2021. [www.americanprogress.org/issues/healthcare/news/2021/02/11/495712/bidens-coronavirus-plan-funds-supports-state-vaccination-efforts/](http://www.americanprogress.org/issues/healthcare/news/2021/02/11/495712/bidens-coronavirus-plan-funds-supports-state-vaccination-efforts/). Accessed June 17, 2021.
13. **Painter EM, Ussery EN, Patel A, et al.** Demographic characteristics of persons vaccinated during the first month of the COVID-19 vaccination program - United States, December 14, 2020-January 14, 2021. *MMWR Morb Mortal Wkly Rep.* 2021;70(5):174-177. doi: [10.15585/mmwr.mm7005e1](https://doi.org/10.15585/mmwr.mm7005e1)
14. **The White House.** FACT SHEET: Biden administration announces historic \$10 billion investment to expand access to COVID-19 vaccines and build vaccine confidence in hardest-hit and highest-risk communities. The United States Government. March 25, 2021. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/25/fact-sheet-biden-administration-announces-historic-10-billion-investment-to-expand-access-to-covid-19-vaccines-and-build-vaccine-confidence-in-hardest-hit-and-highest-risk-communities/>. Accessed June 17, 2021.
15. **Blumenthal D, McClellan M, Tewarson H, et al.** States need federal help to get COVID-19 vaccines into millions of arms." Commonwealth Fund. December 2020. [www.commonwealthfund.org/blog/2020/states-need-federal-help-get-covid-19-vaccines-millions-arms](http://www.commonwealthfund.org/blog/2020/states-need-federal-help-get-covid-19-vaccines-millions-arms). Accessed June 17, 2021.
16. **Michaud J, Kates J, Dolan R, et al.** States are getting ready to distribute COVID-19 vaccines. What do their plans tell us so far? KFF. January 7, 2021. [www.kff.org/coronavirus-covid-19/issue-brief/states-are-getting-ready-to-distribute-covid-19-vaccines-what-do-their-plans-tell-us-so-far/](http://www.kff.org/coronavirus-covid-19/issue-brief/states-are-getting-ready-to-distribute-covid-19-vaccines-what-do-their-plans-tell-us-so-far/). Accessed June 17, 2021.
17. **HHS.gov.** HHS to expand access to COVID-19 vaccines for older adults and people with disabilities. March 29, 2021. [www.hhs.gov/about/news/2021/03/29/hhs-to-expand-access-to-covid-19-vaccines-for-older-adults-and-people-with-disabilities.html](http://www.hhs.gov/about/news/2021/03/29/hhs-to-expand-access-to-covid-19-vaccines-for-older-adults-and-people-with-disabilities.html). Accessed June 17, 2021.
18. **CDC.** Understanding the pharmacy partnership for long-term care program. CDC.gov. December 9, 2020. <https://www.cdc.gov/vaccines/covid-19/long-term-care/pharmacy-partnerships.html>. Accessed June 17, 2021.
19. **Weintraub RL, Subramanian L, Karlage A, et al.** COVID-19 vaccine to vaccination: why leaders must invest in delivery strategies now. *Health Aff (Millwood).* 2021;40(1):33-41. doi: [10.1377/hlthaff.2020.01523](https://doi.org/10.1377/hlthaff.2020.01523)