The COVID-19 pandemic has caused immense hardship and suffering across our nation. It continues to test the capacity and resilience of the US public health system and has put great personal and physical strain on the public health workforce. The development of effective COVID-19 vaccines has been the turning point of the pandemic, and the speed at which these vaccines were developed was a significant scientific accomplishment. Equally impressive was the widespread distribution and administration of this vaccine by state and local health departments.

As of July 28, 2022, 78.8% of the US population had received at least one dose of the vaccine, a rate that far surpassed administration of any other vaccine that has been offered to the general public. This commentary reviews specific aspects of planning and administration, partnerships, surveillance, and public health policy and regulatory actions that demonstrate strengths our public health system should be built on for the future.

Planning and Administration

The urgency of the COVID-19 pandemic required unprecedented state planning for vaccine administration, even prior to the Centers for Disease Control and Prevention (CDC) issuing specific vaccine guidance. The single biggest accomplishment in this phase of the vaccine campaign was enrolling tens of thousands of providers to be able to administer COVID-19 vaccines. Partnerships were developed with hundreds of groups to train and educate providers to attest to proper storage and handling capacity and meet requirements to report doses administered within 24 to 72 hours. These groups included medical societies, emergency medical services, city and county governments, hospitals, insurers, pharmacies, nurses, and many more. Significant capacity exists within the US public health system to deliver and administer vaccine. Every state has a CDC-funded immunization program and a Vaccines for Children (VFC) program that ensures widespread access to vaccines. But the effort required for this campaign is far beyond what had been developed for routine childhood immunizations and what was established during the H1N1 pandemic. However, existing infrastructure, previously developed by CDC and the states, allowed the federal government to institute centralized ordering, distribution, and provider enrollment without establishing new processes.

The early distribution and administration of vaccine were particularly challenging, given the limited supply. All states initially followed ACIP guidelines and successfully prioritized vaccination of frontline health care workers, residents of long-term care facilities, and older adults. As the rollout continued, they diverged from ACIP prioritization guidelines in response to direction from federal policy makers. However, despite early inequities in vaccination among racial and ethnic minority groups, as vaccine supply expanded, states were able to implement a variety of interventions to reach these communities and substantially reduce disparities. The early distribution process was also highly efficient. States adapted to packaging and cold storage requirements of the manufacturers, including developing the capacity to redistribute vaccine in smaller increments than the minimum 100-dose Moderna order and 925-dose Pfizer order.

Public Health Partnerships

Throughout the pandemic, states drew on their close relationships with CDC and worked closely with a variety of trusted partners. In some cases, these partnerships were long established; however, new partnerships were rapidly built because of the size and scope of the situation. Initially, state and local public health worked with community health care
systems to administer vaccine to health care workers. As supply increased, public health responded by establishing large-scale community vaccination clinics. This demonstrated the ability of the public health system to respond to changing needs and environment. States enrolled health care providers to administer vaccine in record numbers, including providers previously enrolled in the state-administered VFC program. When initial uptake was slower than desired at hospital and other traditional health care sites, public health planned and executed large-scale clinics, set up information technology scheduling systems, expanded appointment hours, and established vaccine locator tools. In addition, states worked with sites identified through the federal retail pharmacy program to help ensure success and equitable allocation in long-term care facilities for some of the most vulnerable populations. In some instances, states augmented or even took over administration of vaccine in long-term care sites where capacity did not otherwise exist. To increase vaccination among historically underserved communities, states worked with and often augmented the federal allocations to federally qualified health centers and rural health sites. As the pace of vaccine administration slowed over time, states expanded their partnership with chain and independent pharmacies to increase community-based administration. When vaccine became available for children, states assessed parent preferences and worked to increase enrollment of health care providers and expand distribution capacity in these settings.

Surveillance

Significant work was put into public health data and surveillance systems to ensure information was collected and reported in an accurate and timely manner to the public and federal partners. States scaled up or enhanced Immunization Information Systems (IIS) that had varying levels of capacity, technology interface, and provider participation. While most states were not reporting vaccination data to CDC, they quickly built the capacity to share vaccine administration data in near real time, allowing CDC to set up the federal COVID-19 vaccine data tracker and supporting state dashboards to highlight vaccine uptake in their jurisdictions. To accomplish this, every state had to adapt laws and overcome significant data sharing and privacy considerations. In addition, states used the IIS to adjust distribution and allocation priorities and implement recall and reminder functions. Throughout the response, states improved the collection and reporting of race and ethnicity data to better understand vaccine uptake and develop tailored messaging and resource for communities.6

Public Health Regulatory Systems and Vaccination Policies

The large-scale administration of a new vaccine necessitated significant requirements, reporting, and quality control systems. Storage and handling were critically important. States developed regulatory systems to ensure safe handling and storage and conducted regular site visits to ensure and assess compliance. They developed regulations and laws requiring providers to report doses administered to state IIS and in some cases incentivized participation. States also developed policies expanding pharmacist scope of practice to administer vaccines.

Finally, efforts were made to increase participation in COVID-19 vaccination in specific, high priority groups through state policy interventions. As of April 2021, 22 states had COVID-19 vaccine mandates in place for state employees, health care workers, teachers, or students. Finally, many states have also convened racial equity task forces to focus specifically on addressing inequities in COVID-19 cases, deaths, and vaccinations in minority communities.

Conclusion

Despite intense scrutiny and critique by the media and the general public, public health leaders and the public health system launched a highly effective COVID-19 vaccination effort through planning and administration, partnerships, surveillance, and public health policy and regulatory actions. While there will be ample time to review what did not work in the vaccination campaign, it is equally important to assess what is working and continue to build upon current capacity and prior successes into the future.

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