

# High Primary COVID-19 Vaccine Series Completion by People Who Inject Drugs When Colocating Services at a Syringe Services Van

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**Objective:** The aim of the study is to describe the impact of colocating COVID-19 vaccinations with local syringe service programs on vaccine completion among people who inject drugs.

**Methods:** Data were derived from 6 community-based clinics. People who inject drugs who received at least one COVID-19 vaccine from a colocated clinic partnering with a local syringe service program were included in the study. Vaccine completion was abstracted from electronic medical records; additional vaccinations were abstracted using health information exchanges embedded within the electronic medical records.

**Results:** Overall, 142 individuals with a mean age of 51 years, predominantly male (72%) and Black, non-Hispanic (79%) received COVID-19 vaccines. More than half elected to receive a 2-dose mRNA vaccine (51.4%). Eighty-five percent completed a primary series, and 71% of those who received a mRNA vaccine completed the 2-dose series. Booster uptake was 34% in those completing a primary series.

**Conclusions:** Colocated clinics are an effective means of reaching vulnerable populations. As the COVID-19 pandemic continues and need for annual booster vaccines arises, it is important to bolster public support and funding to continue low-barrier preventive clinics colocated with harm reduction services for this population.

**Key Words:** primary prevention, opioid use, healthcare utilization, vaccination, people who inject drugs

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People who inject drugs (PWID) have experienced disproportionately higher morbidity and mortality during the coronavirus

2019 (COVID-19) pandemic, including more severe outcomes after SARS-CoV-2 infection<sup>1</sup> and higher risk for breakthrough infections after vaccination.<sup>2</sup> It is therefore critical that they maintain up-to-date vaccination status. However, there are several barriers to vaccinating PWID, including poor access to health care, discrimination by healthcare providers, and perceived stigma.<sup>3,4</sup>

Mobile health clinics are a cost-effective model to increase healthcare access for the medically underserved.<sup>5</sup> These clinics remove structural barriers and, when coupled with existing community-based programs such as syringe services, provide access to preventive care through trusted sources.<sup>4,6</sup> Leveraging these clinics to improve vaccination coverage among PWID is an important mechanism to ensure equitable access.<sup>7</sup> However, the impacts of these clinics on COVID-19 vaccination coverage for PWID have not been well described.

In 2021, the Johns Hopkins COVID-19 mobile vaccination clinic partnered with the Baltimore City Health Department (BCHD) Syringe Services Program (SSP) to increase vaccine outreach to PWID.<sup>8</sup> This article describes the impacts of these colocated vaccination services.

## METHODS

### Vaccine Clinics

From May to September 2021, COVID-19 vaccines were administered at 6 vaccine clinics held in community settings colocated with the BCHD SSP. Details of these vaccine clinics have been previously published.<sup>8</sup> In brief, individuals seeking services at the SSP were notified of the availability of COVID-19 vaccines at the clinic. Those who elected to be vaccinated were registered in the electronic medical record (EMR) and their vaccine history checked in the EMR-embedded health information exchange (HIE). Individuals could select the Janssen (“viral vector”) 1-dose vaccine or either the Pfizer or Moderna (“mRNA vaccines”) 2-dose COVID-19 vaccines, including either dose of their 2-dose vaccine series, if eligible. Those who received the first dose of a 2-dose vaccine series were scheduled for a follow-up vaccination with a colocated clinic with the SSP or referred to another community-based clinic or pharmacy.

### Study Design

This was a retrospective evaluation of EMR-abstracted data from patients receiving COVID-19 vaccines from our clinic. Data were abstracted between December 2021 through May

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2022. The Johns Hopkins Medicine Institutional Review Board acknowledged this as quality improvement and exempt from review.

**Data Abstraction**

Data were abstracted from the EMR and HIE of all participants who were vaccinated at the clinic. Demographic data included age, sex, race, ethnicity, preferred language, and insurance. Housing status was assessed by validating the patient’s EMR-listed address to determine whether it was a residential address, hospital, shelter, or a nonexistent or invalid location. The institutional EMR, Maryland state vaccine registry (“ImmuNet”), and regional HIE (“CRISP”) were reviewed to assess whether individuals received subsequent COVID-19 vaccines elsewhere.

**Outcomes**

The primary outcome was completion of a primary vaccine series. Secondary outcomes included the proportion of individuals not completing a 2-dose series after initiating with our clinic, those who received their first dose elsewhere and completed their vaccinations with our clinic, and uptake of booster after completion of a primary series.

**RESULTS**

Overall, 142 individuals received COVID-19 vaccines from our clinic. Participants’ mean age was 51 (range, 18–79). Participants were predominantly male (72%), Black (80.3), and non-Hispanic (97.2%; Table 1). Most listed a Medicare or Medicaid insurance (48.5%) while 47% did not have health insurance coverage.

More than half of individuals vaccinated at the clinics received an mRNA vaccine (73/142). This included individuals who received a first dose only, second dose only, and first and second dose of a two-dose series. The remaining individuals (n = 69) received a viral vector vaccine. Seventy-one percent of individuals (52/73) who received an mRNA vaccine completed the 2-dose series. In total, 85% of individuals who engaged with the colocated clinic (121/142) completed a primary vaccine series.

Of PWID who received their first dose of a mRNA vaccine series with our clinic (n = 68), 69% (n = 47) completed the series. Forty percent (27/68) started and completed the mRNA series with the mobile clinic and 29% (20/68) completed their vaccines elsewhere. Thirty-one percent (21/68) did not complete the vaccine series. In 5 instances, the mobile clinic also completed the vaccine series for mRNA recipients who started the series at a separate location. The mean interval between first and second dose for these individuals was 111 days (SD, 64).

At the time of data abstraction in June 2022, 22 individuals who had received both doses of the mRNA vaccines (42%) and 19 individuals who had received a viral vector vaccine (27.5%) had a documented COVID-19 booster.

**DISCUSSION**

We conducted 6 community-based COVID-19 vaccination clinics with the BCHD SSP to prioritize vaccinations for

PWID. Our data indicated that 85% of individuals who engaged with our clinic completed a primary COVID-19 vaccine series, including 71% of individuals receiving a 2-dose vaccine.

Few studies have examined COVID-19 vaccine completion among PWID. Data from a longitudinal cohort of PWID in Baltimore found that 68% of the study population had received at least one dose of a COVID-19 vaccine.<sup>9</sup> This is lower than the vaccination rates among adults in the United States, where 91.6% have received at least one dose of a COVID-19 vaccine.<sup>10</sup> Another study found that when colocating hepatitis B vaccines with SSPs in Sweden, PWID had high initiation (75%) and completion (59%) of the series.<sup>11</sup> These studies speak to PWID as an underserved population and highlight SSPs as an ideal location for delivery of primary prevention services.

Colocated clinics are an effective means of reaching vulnerable populations who may not routinely access “brick and

**TABLE 1.** Demographics and Vaccine Metrics of 142 PWID Receiving COVID-19 Vaccination at a Clinic Colocated with BCHD SSP

Variable	n	%
Age		
Mean (SD)	51.0	13.4
Sex/Gender*		
Male	102	72.0
Female	40	28.0
Race		
Black	114	80.3
White	19	13.4
Other/unknown race	9	6.3
Ethnicity		
Hispanic	4	2.8
Non-Hispanic	138	97.2
Preferred language		
English	139	97.9
Spanish	3	2.1
Housing status†		
Residential address listed	121	85.2
No valid address listed	21	14.8
Insurance		
Medicare	5	3.5
Medicaid	64	45.0
Private	3	2.1
Self-pay/special billing	4	2.7
None	65	46.7
First-dose vaccine		
Janssen	69	48.6
Pfizer	70	49.3
Moderna	3	2.1
2-Dose completion (n = 73)		
Completed entire series at SSP	27	37.0
First dose received at SSP—finished elsewhere	20	27.4
First dose received at SSP—incomplete series	21	28.8
First dose elsewhere—finished with SSP	5	6.8
Booster uptake		
Completed 2-dose series	22	42
Completed 1 dose series	19	27.5

\*Because of lack of data on patient’s gender, their sex identified at birth is reflected in the data. For those with gender identity specified in the EMR, their sex at birth has been replaced with their identified gender.

†Patients were classified as having “residential address listed” if they had a residential address listed in the EMR; “no valid address listed” included nonresidential addresses or if address was unknown.

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mortar” healthcare facilities and experience systemic discrimination and other barriers within the healthcare system.<sup>6,7,12</sup> Syringe services programs provide harm reduction services generating high trust from PWID<sup>13</sup> and are a natural partner for targeted preventive healthcare services. Data from this population continually demonstrate the desire for preventive healthcare services, including COVID-19 vaccination.<sup>14</sup> Colocated services with essential harm reduction services for this population meets the tenet of “meeting them where they are.”

This study is subject to limitations. Because of privacy considerations, the SSP does not collect data on how many people were seen during a vaccine clinics, so we were unable to assess the percentage who opted to get vaccinated or any characteristics that may be associated with those who did versus did not opt to get vaccinated. In addition, delays in reconciliation of vaccines received in other venues may have led to incorrect capture of booster status.

There is a public health and moral imperative to provide vaccination for PWID in a way that circumvents barriers and optimizes engagement.<sup>15</sup> Only 34% of our study population had received boosters, which had not yet been widely authorized at the time of our last community-based clinic. Our data indicate that most of our population had not sought boosters elsewhere, which may be due to lack of awareness, barriers to access, or other challenges that were overcome by our colocated clinics. The COVID-19 pandemic continues even as federal funding for vaccinations and risk reduction services wanes. It is important to bolster public support and funding to continue low-barrier preventive clinics colocated with harm reduction services for this population. Furthermore, beyond COVID-19, these low-barrier colocated healthcare delivery models may be effective in expanding protection of PWID against other infectious diseases, reducing adverse outcomes associated with the opioid epidemic, and responding to other emerging health threats.

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