Addressing Disparities in Covid-19 Vaccination

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Executive Summary (1/4 Page)

The Sars-CoV-2 Pandemic has placed in stark relief those populations too often overlooked by traditional modes of healthcare delivery, and the resulting health disparities that affect these vulnerable communities. The challenge is especially acute in Philadelphia, which is one of the most diverse and racially segregated big cities in the United States. In May 2020, the *Philadelphia Inquirer* reported that Black patients were dying from COVID-19 at a rate more than 30% higher than the death rate among white patients. In July, it further reported that Black and Hispanic women in Philadelphia were infected at rates five times higher than white women. During the initial release of the COVID vaccines, it became apparent that, despite poorer outcomes with infection, Black, Latinx, Asian, and American Indian (Persons of color [POC]) were being vaccinated at disproportionately low rates.

In response, Jefferson led a robust, multidisciplinary, and dual-pronged effort to address these disparities head on. In Phase I of this effort, Jefferson identified a need to focus equitable invitation efforts for vaccinations to POC and enacted aggressive questionnaire processes to established patients in an equitable process to close the care gap between white and POC patient groups.

After initial vaccination efforts were established, Phase II prioritized the launch of mobile vaccination units to focus on underserved populations and bring the vaccine directly into underserved communities. In April 2021, in response to a request for proposals from the city of Philadelphia to expand or establish vaccination operations for COVID-19, Jefferson's Department of Emergency Medicine collaborated with the Health Design Lab to implement a robust city-wide mobile vaccination workflow.

Through these efforts, Jefferson has aided in the closing of the care gap between the incredibly diverse populations of our city. Since early 2021 our rates of vaccination in POC have steadily increased, and our mobile vaccination sites demonstrate over 80% of their patient population were POC. In fact, Jefferson's efforts were heralded in a meeting with members of the White House Covid Task Force for our utilization of technology in mobile efforts. While there is much work left to do, Jefferson Health remains committed to providing more equitable services to underserved populations and minority groups and working to close the longevity gap that has impacted Philadelphia for far too long.

Lessons learned include:

- "Equality" is defined as the distribution of the same resources and opportunities to every individual across a population. Alternatively, "Equity" is the customized distribution of resources and opportunities across a population to ensure no subset of groups are at a particular disadvantage over others in achieving their maximum potential.

- To provide a patient-friendly workflow for vaccinations, the decision was made to utilize our enterprise electronic health record which maintained workflows and

integrations. This despite other resources made available that would have been lower cost to implement.

- Integral to the success of this project were the efforts of the clinical informaticists who were able to quickly and efficiently design a workflow that met the needs of the operational leaders.

- When working with underserved populations, it is critical to understand and target the specific barriers impeding care access for each community. Our multidisciplinary leadership team partnered with well-established groups in underserved communities to design accessible vaccination clinics that addressed multiple barriers including education, trust, and hesitancy concerns. Integrating the community leaders in the design process allowed us to identify a location and population in need, building a bridge between our clinics and target patient populations. Our partnership with community leaders uniquely positioned us to be a trusted healthcare access point. Often, this collaboration led to co-locating with community events making it easy for patients to be served in a convenient and comfortable setting.

Define the Clinical Problem and Pre-Implementation Performance

Across the nation and around the world, the COVID-19 pandemic has disproportionately affected POC. In Philadelphia, city-wide data demonstrates that Black patients had higher rates of infection and death despite lower rates of hospitalization overall.
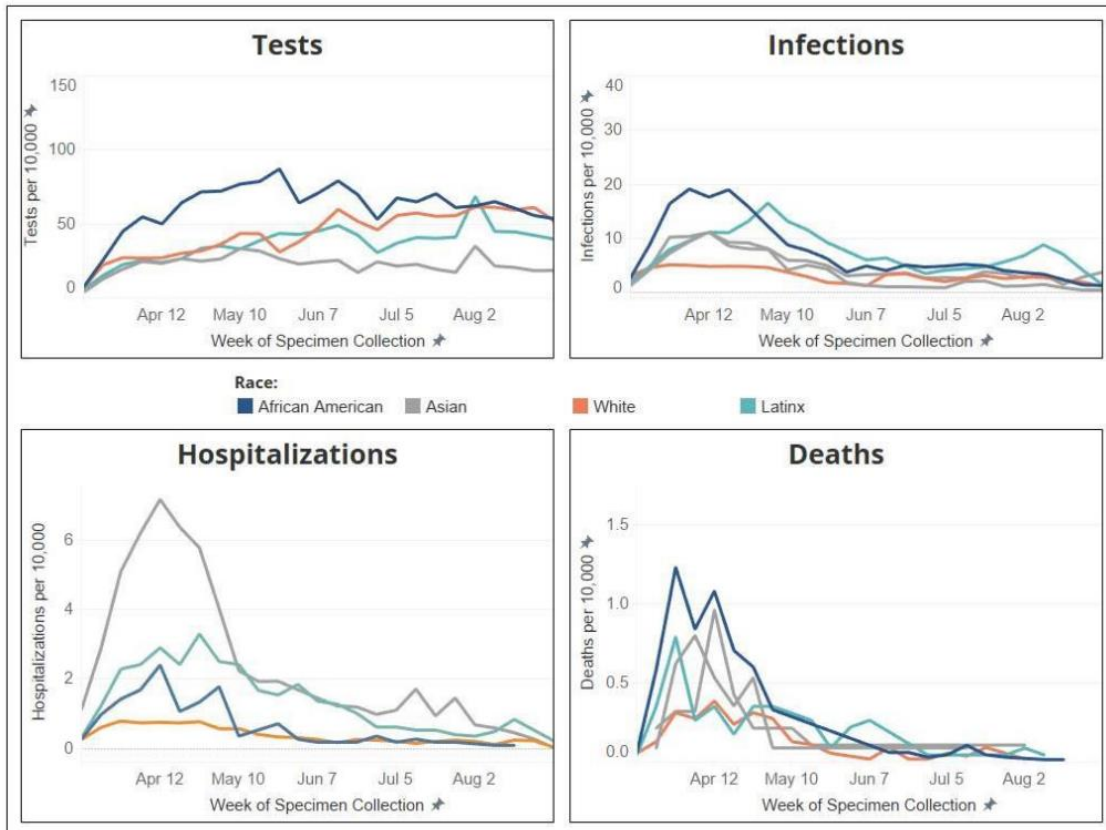
Figure 1. Rates of COVID-19 tests, infections, hospitalizations and deaths across various races for the city of Philadelphia for 2020

Source: City of Philadelphia Health Department. Phila.gov (https://www.phila.gov/programs/coronavirus-disease-2019-covid-19/data/testing/#overview)

Jefferson-specific data shows that our established patient population is approximately 56% white and 43.6% POC. Despite relatively similar rates of testing between the two groups, POC had 50% higher rates of infection overall.
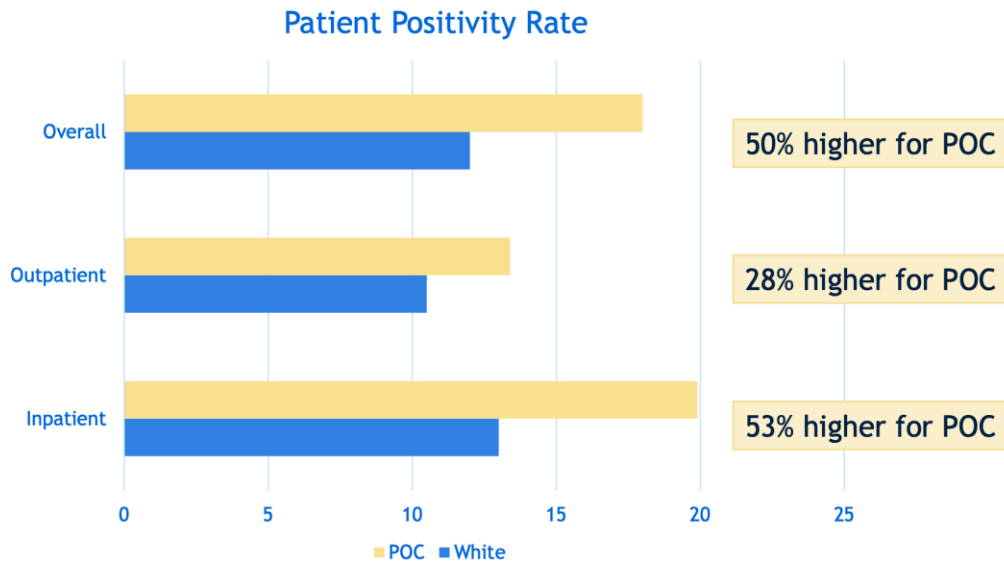
Patient Positivity Rate

Overall		50% higher for POC
Outpatient		28% higher for POC
Inpatient		53% higher for POC

POC ■ White

Figure 2. Jefferson patient population COVID-19 positivity rates

City-wide vaccination efforts began in December 2020 as stationary community vaccine clinics. These successfully provided a COVID-19 vaccine first dose to 54% of Philadelphians by May 1, 2021. Despite the early success of vaccination sites, many factors led to disproportionately low vaccination rates in underserved communities, such as language, documentation, health insurance and scheduling concerns, to name a few. By May 1, 2021, 53% of White Philadelphians and 70% of Asian Philadelphian's had received at least one dose while only 42% of Philadelphia's Hispanic population and 37% of Philadelphia's Black or African American population had received at least one dose.

In its early vaccination efforts, Jefferson invited Transplant and 75+ patients to schedule appointments starting on January 28, 2021. These initial invitations were predominantly sent to White patients (78.5%), as 80% of patients who are 75+ and use our patient portal for scheduling invitations are White.

Given Jefferson's institutional commitment to health equity, subsequent vaccination invitations focused on generating lists of invitations that were equitable in race and ethnicity within the phased groups. Months later, once the general population had had access to vaccines, Jefferson focused its vaccination efforts on identifying ZIP codes at higher risk for co-morbidities and poor health outcomes, with a particular focus on non-white, non-English speaking populations. The initial vaccination efforts targeted established Jefferson patients, while the mobile vaccination efforts served all participants in communities that were 92% POC and 47% non-English speaking and those neighborhoods with lower health indexes by ZIP code.

Given the qualities of the pandemic, there were no benchmarks to meet for initial vaccination efforts. Our internal goal was to close the gap between ethnic groups to establish population vaccination rates similar to our population demographics.

In the overall outcomes data, our established numerators were:

- Proportion of invitations sent to traditionally underserved populations and/or POC.

- Proportion of mobile vaccinations provided to traditionally underserved populations and/or POC and/or non-English speakers.

The denominator was total vaccinations provided by our organization.

Design and Implementation Model Practices and Governance

COVID-19 informatics build efforts were overseen by a committee of dedicated multidisciplinary group of clinicians, informaticists, build analysts, analytics analysts, pharmacists, infection control and virology specialists and operational leaders. Specific leaders for these projects included enterprise chief medical information officers (CMIO), ambulatory and emergency medicine medical information officers (MIO), EHR analysts from ambulatory, pharmacy and laboratory teams as well as clinical integration architects. Operational support came from leaders in the physician practice group, enterprise operations and emergency medicine as well as quality improvement. The same build group that developed EHR-linked workflows to vaccinations that were first utilized during mass vaccination efforts then worked to develop the design and process for our mobile vaccination groups.

The process for assuring and reviewing quality and completeness of data, including all required data reporting elements aligned with the reporting process for other Jefferson vaccination sites as well as with the city and state. Our informatics and data management plan was overseen by dedicated physician informaticists, who ensured that data management met Jefferson standards for data processing and quality assurance at all COVID vaccine sites.

Location selection for mobile vaccination sites, guided by Jefferson's mapping team, was based on high positivity rates, poor outcomes, and low access to testing. These communities are 98% African American and experience multiple identified barriers to healthcare access. To access these populations through a patient-centered approach, we collaborated closely with trusted community organizations including Puentes de Salud, Southeast Asian Mutual Assistance Association Coalition (SEAMAAC), Philadelphia Parks and Recreation, New Kensington Community Development Corporation (NK-CDC), All Faiths Vaccination Campaign, Philadelphia Department of Public Health (PDPH), and Philadelphia School Districts. To address the health disparities impacting these communities, our vaccination team provided accessible COVID-19 testing, counseling, and follow-up coordination, while our

community outreach team implemented a robust communication program targeting patients with barriers to accessing healthcare including misinformation, vaccine hesitancy, spoken language, literacy, transportation, mobility, health insurance, documentation, and substance abuse.

After community partners or PDPH identified and referred vulnerable groups that met both Emergency Use Authorization (EUA) criteria and the current prioritization category for vaccination, our team worked diligently to schedule both doses at the same time.

Clinical Transformation enabled through Information and Technology (Guideline: Three Pages)

Phase I: Targeted Invitations

Utilizing Jefferson's electronic health record (Epic Systems, Verona, WI), the team created questionnaires that were sent to prospective vaccine recipients before vaccines became widely available. Questionnaires were utilized to gauge patient interest, and were shared with those in the appropriate age and risk groups based on CDC guidelines. Interested parties were then provided invitations for the initial vaccination process through the EHR's patient portal, where they could request specific dates and times based on availability. Follow up appointments were automatically generated at the time of vaccination to allow for completion of the vaccine series.
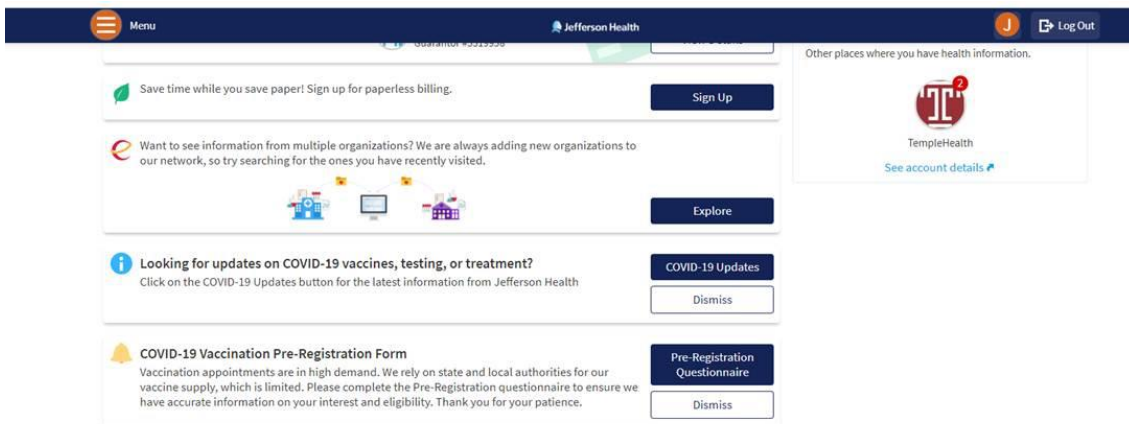

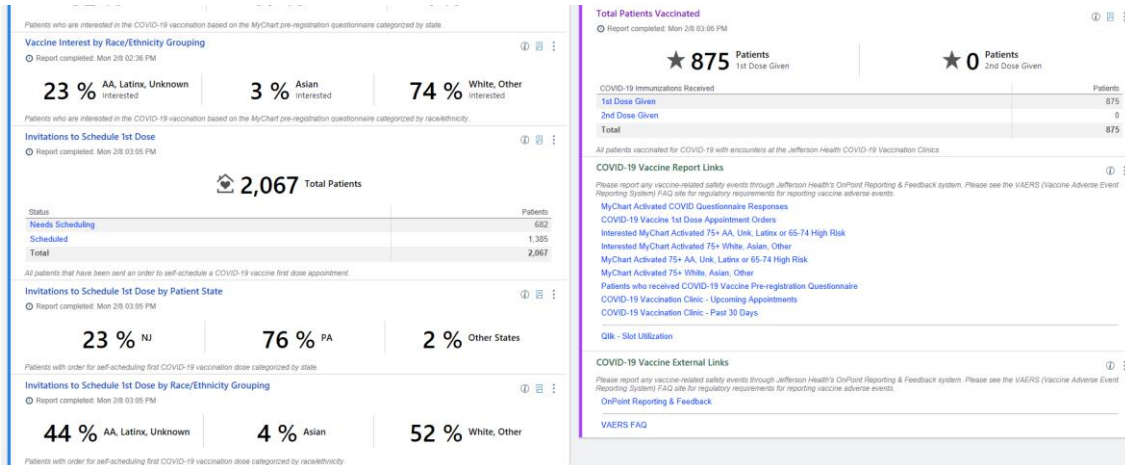*Figure 3. Example of patient facing invitation for vaccination*

Figure 4. Covid-19 Vaccination Scheduling report

In order to fully quantify the problem of Covid-19 infections in our patient population and the effect of our vaccination efforts, Jefferson's Business Intelligence and Analytics teams developed a number of analytics tools to track rates of vaccination.

Specifically, utilizing our third part analytics tool (Qlik, Reading, PA), hospital and operation leadership were able to monitor rates of infection and vaccination.
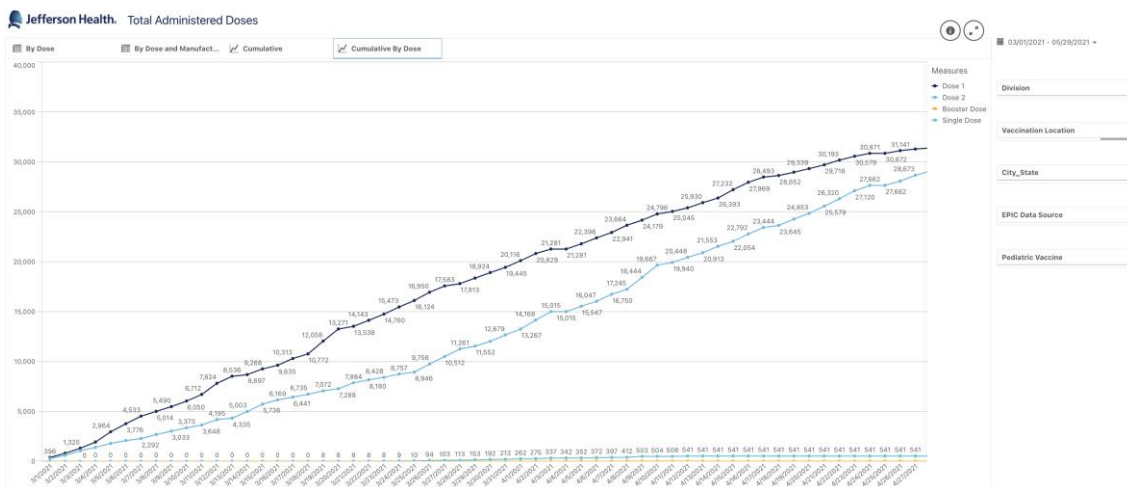

Figure 5. Analytics software demonstrating vaccination rates for first and second dose in early 2021.

Tabs: By Dose | By Dose and Manufact... | Cumulative | Cumulative By Dose

Filters: Division | Vaccination Lo... | Dose Number | Manufacturer

	Covid Vaccine Booster Dose			Covid Vaccine Dose 1			Covid Vaccine Dose 2		Single Dose
	Janssen	Moderna	Pfizer	-	Moderna	Pfizer	Moderna	Pfizer	Janssen
Totals	7	7	10	1	9,909	24,440	12,061	26,850	685
Abington	-	-	-	-	6,073	2,083	7,578	1,690	-
Abh Hhs Internal Medicine	-	-	-	-	-	-	1	-	-
Abington Hospital - Jefferson Health	-	-	-	-	127	330	52	171	-
Community-Based Clinics	-	-	-	-	-	251	-	225	-
Covid-19 Vaccination Clinic 225 Newtown Rd	-	-	-	-	126	14	1,068	51	-
Inpatient Vaccination	-	-	-	-	-	1	-	-	-
Lansdale Hosp... Jefferson Health	-	-	-	-	3,105	-	4,340	-	-
Warminster - Jefferson Health	-	-	-	-	2,715	1,487	2,117	1,243	-
Center City	4	6	10	1	811	14,253	915	16,994	446
Covid-19 Mobile Vaccination Unit Richard Allen Prep Charter School	-	-	-	-	-	25	-	4	3
Covid-19 Mobile Vaccination Unit South Philly Barbacoa	-	-	-	-	-	48	-	4	32
Covid-19 Mobile Vaccination Unit St Raymond Of Penafort Church	-	-	-	-	-	91	-	-	1
Covid-19 Mobile Vaccination Unit Universal Bluford Charter School	-	-	-	-	-	145	-	114	8
Covid-19 Vaccination Clinic 233 S 10th St	-	-	-	-	-	24	1	846	-
Covid-19 Vaccination Clinic 1902 S 8th St	-	-	-	-	-	307	-	72	8
Covid-19 Vaccination Clinic Convention Center	-	-	-	-	-	8,052	-	8,981	29
Covid-19 Vaccination Clinic Navy Yard	-	5	10	-	787	5,515	798	6,900	97
Emergency Department Vaccination	1	-	-	-	-	-	-	-	69
Fam 33 S 9th St 3rd Fl	-	-	-	-	-	1	-	-	-
Inpatient Vaccination	3	1	-	-	-	11	7	18	165
Int 33 S 9th St 7th Fl	-	-	-	-	-	3	-	-	-
Int Jhap 33 S 9th St 2nd Fl	-	-	-	-	-	1	-	-	-
Jmc Fam Med Art Museum	-	-	-	-	-	1	-	1	-
Magee	-	-	-	1	23	27	107	34	34
Paper Doc Sites	-	-	-	-	-	3	2	20	-
New Jersey	-	1	-	-	1,972	-	2,355	-	80
Covid-19 Vaccination Clinic 400 Laurel Oak Rd	-	1	-	-	1,971	-	2,355	-	71
Inpatient Vaccination	-	-	-	-	1	-	-	-	-
Int Ext 151 Fries Mill Rd	-	-	-	-	-	-	-	-	9
Northeast	3	-	-	-	1,053	8,104	1,213	8,166	159
Covid-19 Vaccination Clinic 380 Oxford Valley Rd	-	-	-	-	1	251	-	792	-
Covid-19 Vaccination Clinic Frankford Hospital	-	-	-	-	-	506	-	367	-

Figure 6. Breakdown of vaccinations by dose, brand and location for early 2021.

Specific builds in our analytics software allowed for monitoring the prioritization of invitations and vaccinations based on demographics.

Tabs: Totals By Site | By Site and Manufactu... | By Age Group | By Gender | By Ethnicity | By Race | By ZIP | 2nd Dose By Side

RFP By Race

Filters: Race | Vaccination We...

	4/25/2021 – 5/1/2021	5/2/2021 – 5/8/2021	5/9/2021 – 5/15/2021	5/16/2021 – 5/22/2021	5/23/2021 – 5/29/2021
Totals	123	61	126	278	274
African American	119	13	65	167	74
Asian	-	22	24	45	53
Hispanic	1	15	26	31	66
Other	1	-	1	1	4
Unknown	1	-	1	13	49
White	2	11	9	21	28

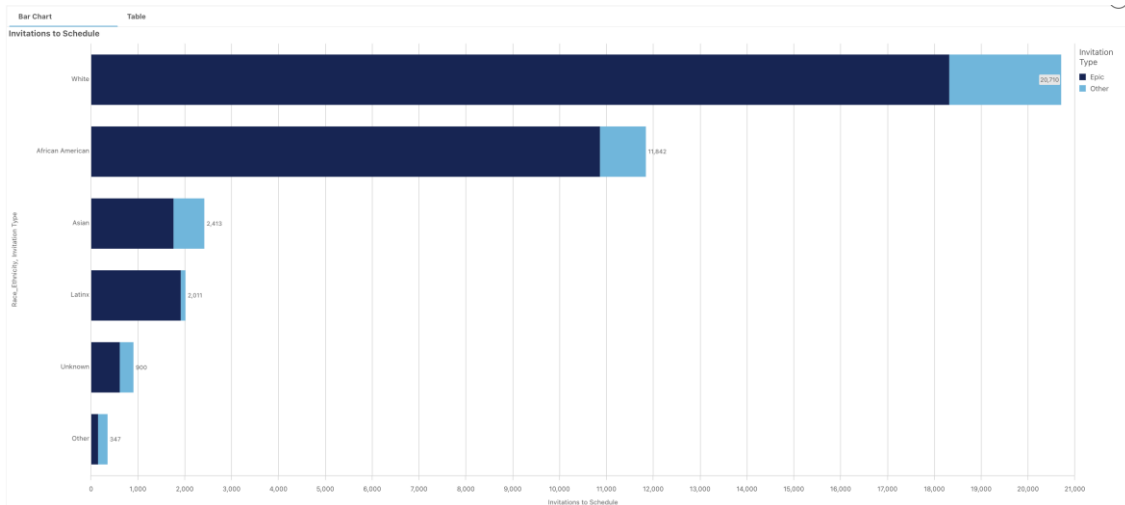*Figure 7. Vaccination rates for the mobile vaccination sites by racial group.*

Figure 8. Vaccination invitations sent groups by patient race.

Additionally, the monitored vaccination rates based on patients' ZIP codes were mapped to the Community Needs Index to understand how the team's efforts were impacting underserved communities.

Population	Community Need Index (CNI)	Total Vaccinated Patients	% Population Vaccinated
		44283	-
54973	5	356	0.65%
28234	5	14	0.05%
23252	5	14	0.06%
14164	5	6	0.04%
7895	5	6	0.08%
1750	5	1	0.06%
70385	4.8	571	0.81%
62858	4.8	314	0.50%
41336	4.8	493	1.19%
27883	4.8	22	0.08%
26514	4.8	110	0.41%
16833	4.8	3	0.02%
13035	4.8	1	0.01%
12382	4.8	3	0.02%
10240	4.8	1	0.01%
18	4.8	0	0.00%
35169	4.6	409	1.16%
33608	4.6	14	0.04%
30183	4.6	233	0.77%
26233	4.6	8	0.03%
24040	4.6	308	1.28%

Figure 9. Breakdown of Zip codes (not pictured for confidentiality) with their corresponding population, community needs index and number of patients vaccinated as well as percent of population vaccinated.

In order to administer vaccinations, the team utilized the EHR's proprietary immunization workflow, which had been adapted to the Covid-19 pandemic. To ensure our reports were accurate, Epic prompted all registrars to gather information from patients including demographics information like race, ethnicity, address, and English proficiency at the time of vaccination. The team then used this information to measure success in vaccinating members of vulnerable communities, and to continually monitor and modify its vaccination efforts.

The typical patient workflow was as follows:

Patient Identified
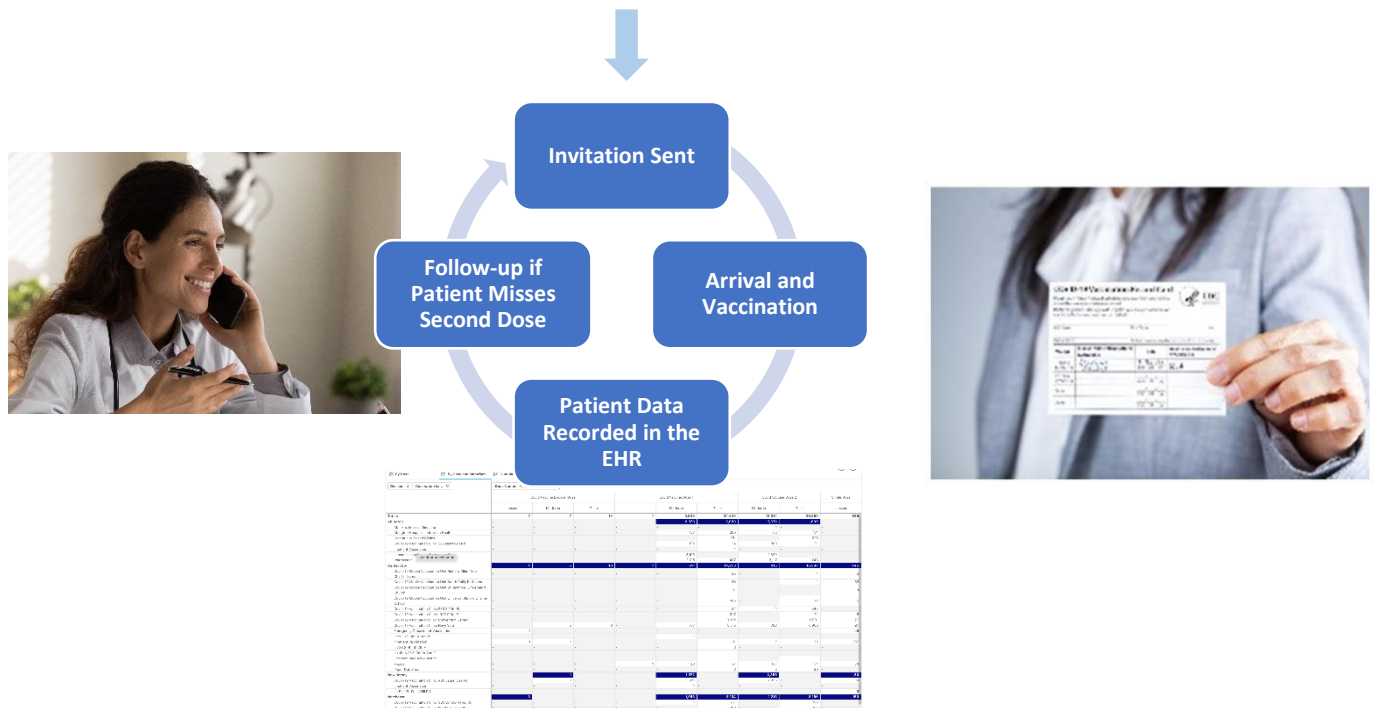
Phase II: Mobile Vaccination

As the team began planning for its mobile vaccination effort, they learned of various barriers to accessing vaccines including language, documentation, health insurance, and scheduling concerns that were disproportionately experienced by individuals in vulnerable communities. To address disparities in vaccination rates, they sought to understand these complex perspectives and design a human-centered service that provided easy-access vaccine opportunities to underserved Philadelphians. Using principles of health design thinking, the Jefferson COVID-19 mobile team addressed barriers to vaccination, created a new health care service, and successfully vaccinated underserved populations.

Jefferson's COVID-19 Mobile Unit held "pop-up" vaccine clinics across Philadelphia in at-risk neighborhoods and Jefferson community anchor sites like the Hansjörg Wyss Wellness Center, which delivers much-needed clinical services to South Philadelphia's un- and underinsured immigrant and refugee populations (Figure 10). Original locations were selected in collaboration with Jefferson College of Population Health mapping team who identified sites as areas of high COVID-19 positivity, poorer outcomes when diagnosed with COVID-19, and significant under testing, then expanded upon collaboration with community partners to identify "vaccine deserts". All clinics (even those at brick-and-

mortar sites) utilized our "pop-up" style to allow for consistency with workflows and data collection including maintaining use of the same hardware and software solutions.

Figure 10. Front door to the Wyss Wellness Center

The mobile units operated from Ford Mobile Health Unit vehicles (specifically designed for pandemic response) and collaborated closely with enterprise IS&T and informatics to maintain the highest standards of patient safety and data security, while operating in non-traditional locations.

Figure 11. Mobile Vaccination van.

The mobile vaccine clinical operation was designed to be agile and mobile so we could continue to respond to evolving community needs over the grant period. Unlike our enterprise's original vaccination efforts which were all pre-scheduled, the nature of our mobile clinics required the ability to perform walk-up appointments. To meet this need we adapted a same-day open scheduling workflow utilizing QR codes (Figure 12), which allowed patients who scan QR codes throughout the clinic to register for their vaccination on their personal device. Additionally, we trained registrars in same-day appointment workflows for those patients who could not use the QR code. Epic prompted all registrars to gather information and provided information beneath questions to ensure non-clinical registration staff had up-to-date information about ever changing eligibility guidelines. Epic also surfaced links with

guidelines and warnings when patient responses to the travel screening required further review.
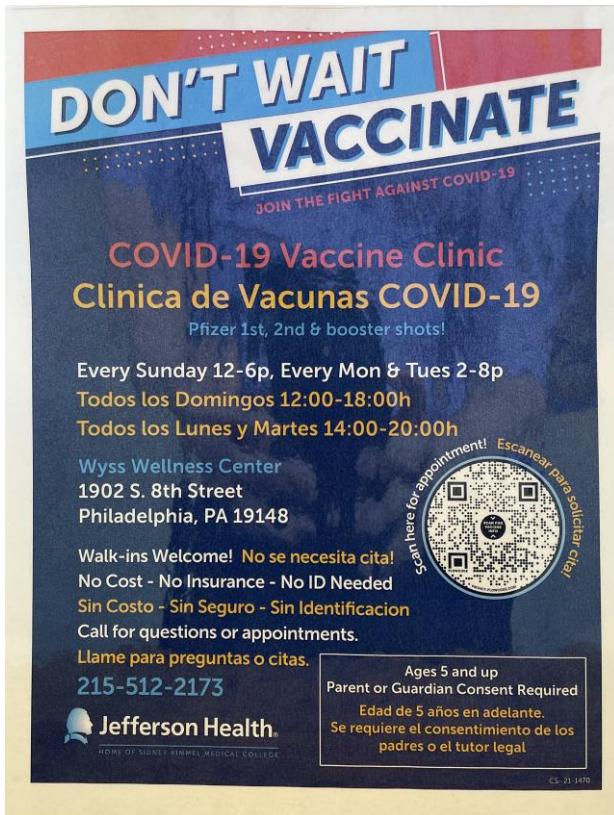

Figure 12. Flyers for mobile vaccination units with QR code that links to open scheduling site.

Self-check in through the patient portal (myChart) or kiosks (Welcome tablets) were available for patients with appointments to check in. The same information was collected, and the kiosk instructed patients with flagged answers to check in with registration for further review (Figure 13). Kiosks and tablets allowed volunteers to aid patients during the check in process without the need for formal registration training or mobile computer workstations.
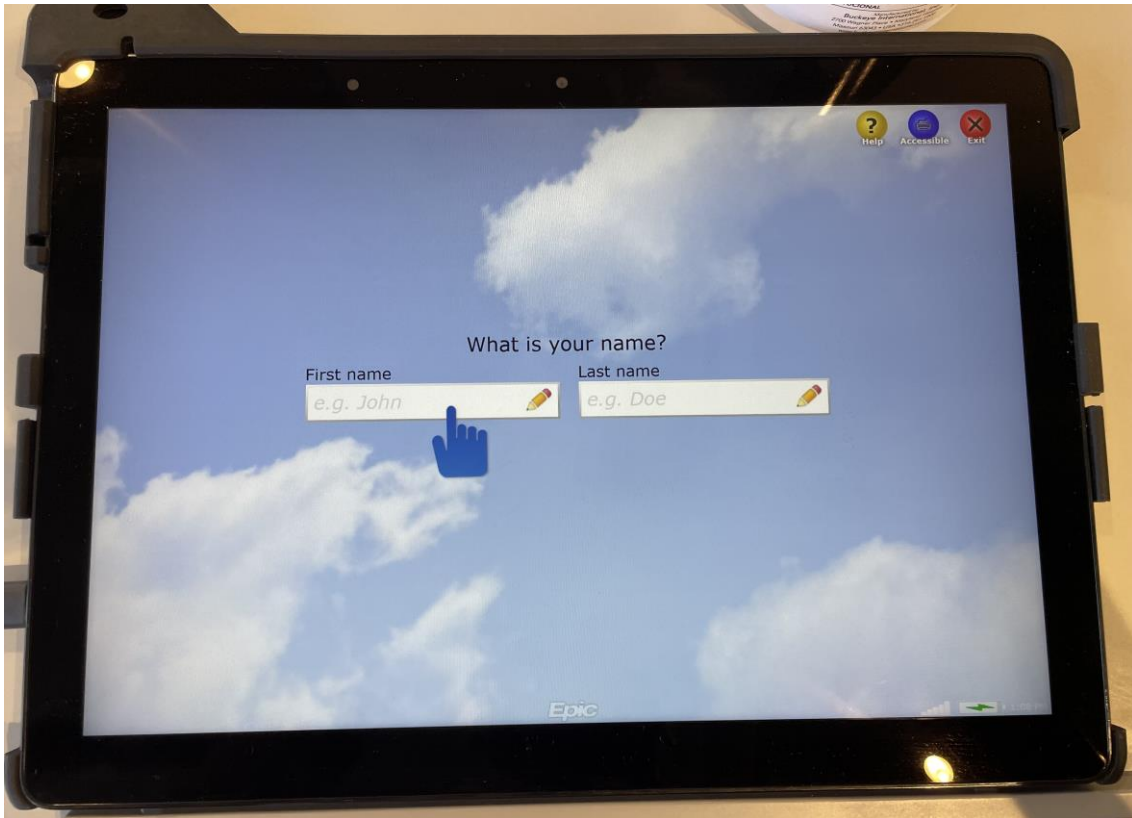
Figure 13. Epic Welcome tablet with search function for patients who already have an appointment for vaccination.
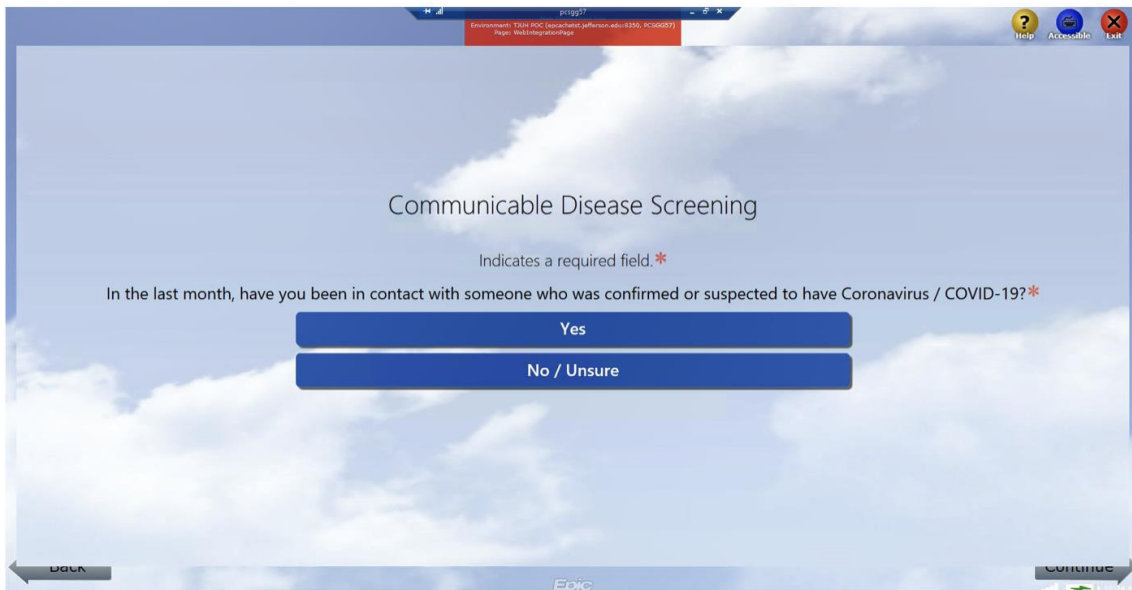

Figure 14. Screening for COVID-19 exposures during welcome process.

Mobile units collected mandatory reporting elements that met the same high standard of care delivered throughout enterprise hospital and community-based sites, while uniquely operating on a secure mobile network. The lightweight, cellular-based

mobile WiFi allowed the team to connect high-security enterprise hardware and informatics system through Jefferson's secure heath system network virtually from the community location. Jefferson-trained and credentialed registrars collected and entered data to the secure Epic EHR.

The mobile unit provided patients with a Community Health Worker-run multi-language accessible phone line, available 40 hours per week (M-F 9a-5p). Community health workers were Epic-trained and able to schedule testing and vaccine appointments in hundreds of languages for callers. Automated reports were created using our third-party analytics software to monitor vaccination appointments and missed appointments. These reports were emailed automatically to community health leadership on a weekly basis. Patients who had received first doses but had not scheduled second doses or missed second dose appointments were reported weekly to members of the COVID-19 mobile unit. Our team would call these patients and schedule them for second doses with our clinics or help them find a different convenient location to complete their vaccination series. Our phone service also provided multilingual interpreter service, vaccine counseling, appointment scheduling, and free transportation to sites. During phone encounters, standardized documentation was used (Figure 15). Reports were generated from the answers to these questions to monitor our community outreach program and trend barriers to missed appointments.

Patient contacted for confirming second dose scheduling for vaccination

Reason for contact: Confirm 2nd dose
Patient called: Yes
Patient texted: Yes
Patient responded: Yes
Appointment: {Canceled   ------   Reason for Canceling:1604000105}
Transportation Barrier Exists: {Transport Organized Y/N:1604000 | Canceled: Already Got Vaccinated
Canceled: Changed Mind
Canceled: Unable to get transportation
Canceled: Other ***

Figure 15. Standardized documentation for second dose follow-up. Answers generate results in a weekly report for follow-up planning.

Improving Adherence to the Standard of Care (Guideline: One Page)

While vaccination clinics are not novel, multiple information technology and clinical informatics workflow barriers needed to be overcome to meet the needs of this specific application. Allowing for both scheduled encounters and walk-ups meant training a predominantly volunteer and temporary workforce. Enterprise-level vaccination efforts focused on patient-portal scheduling, but the goal of the mobile clinics was to prioritize underserved and low technology literacy populations, so alternative workflows for scheduling needed to be developed including training staff to aid patients during the arrival process, prioritizing open scheduling, and making call-in scheduling available for those without smartphones or email. Rapidly

developing guidelines and expansion to new eligible patient populations (i.e. pediatrics) meant rapid updates in the build, sometimes prior to enterprise release of the same updates. Robust reporting was required to track patients for second dose clinics, identifying individuals who required travel assistance and report mandatory information to the city and state.

Utilizing third-party analytics software for chart abstraction, the team was able to measure underserved populations' risk of COVID, pre- and post-vaccine rates, underserved population invitations compared to the general population, and underserved vaccination rates at mobile sites compared to general Jefferson populations. The team then compared this data to published results from the city of Philadelphia and the federal government.

Key highlights include:

- Though healthcare workers and individuals over 75 in Philadelphia are over 40% Black, within the first few months of vaccination only 14% went to Black residents (AP 1/30/2021). By comparison, Jefferson's initial rate of vaccination to POC was approximately 23%. As vaccines became available to all phases and demand decreased, Jefferson pivoted to a more focused vaccination approach, increasing the proportion of POC each month.
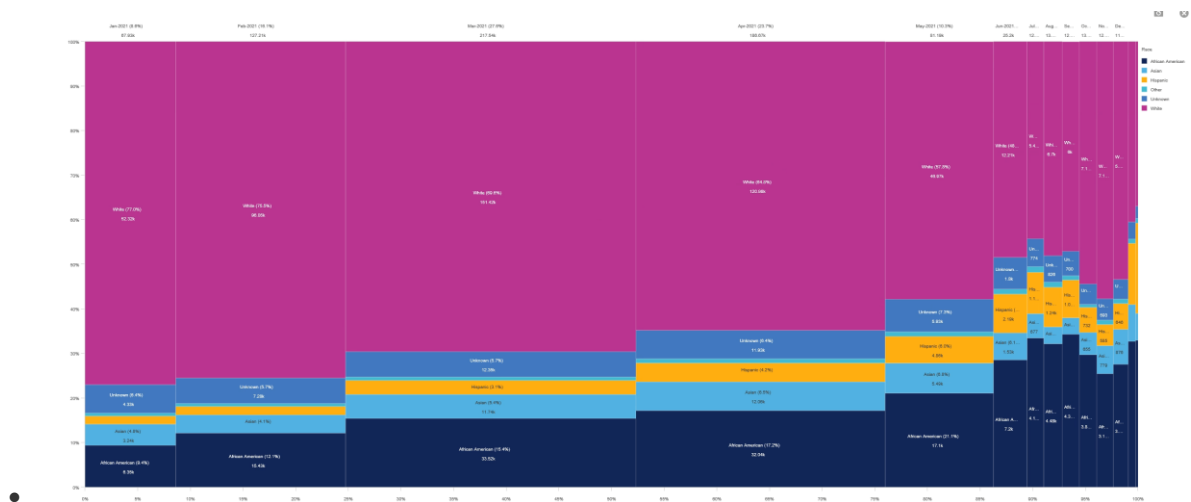

Figure 16. Monthly rates of vaccination based on racial group for enterprise vaccination efforts.

- The team has administered 9,943 vaccines in Philadelphia's vulnerable communities, including Pfizer doses 1-3, boosters and pediatric vaccination to patients age 5+, and Janssen single dose vaccine during all our clinics. Within two weeks of pediatric vaccine approval for ages 5+, the team operated six school-based events in underserved communities.
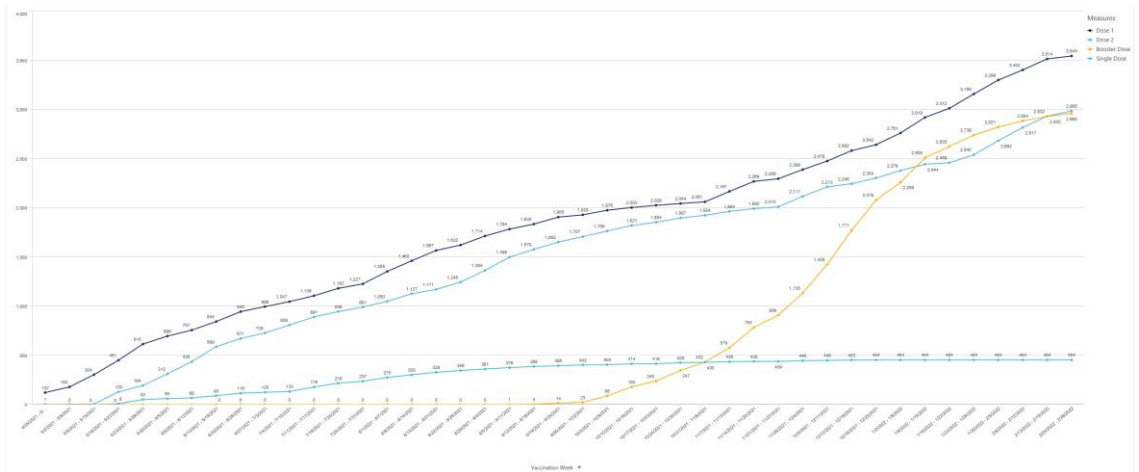
-

Figure 17. Weekly rates of vaccination for the mobile vaccination units based on dose.

- From January 2021 to February 2022, there have been a total number of 20 community-based vaccination locations, 20 pop-up mobile vaccination sites, reaching patients from over 40 zip codes, the majority from underserved communities.
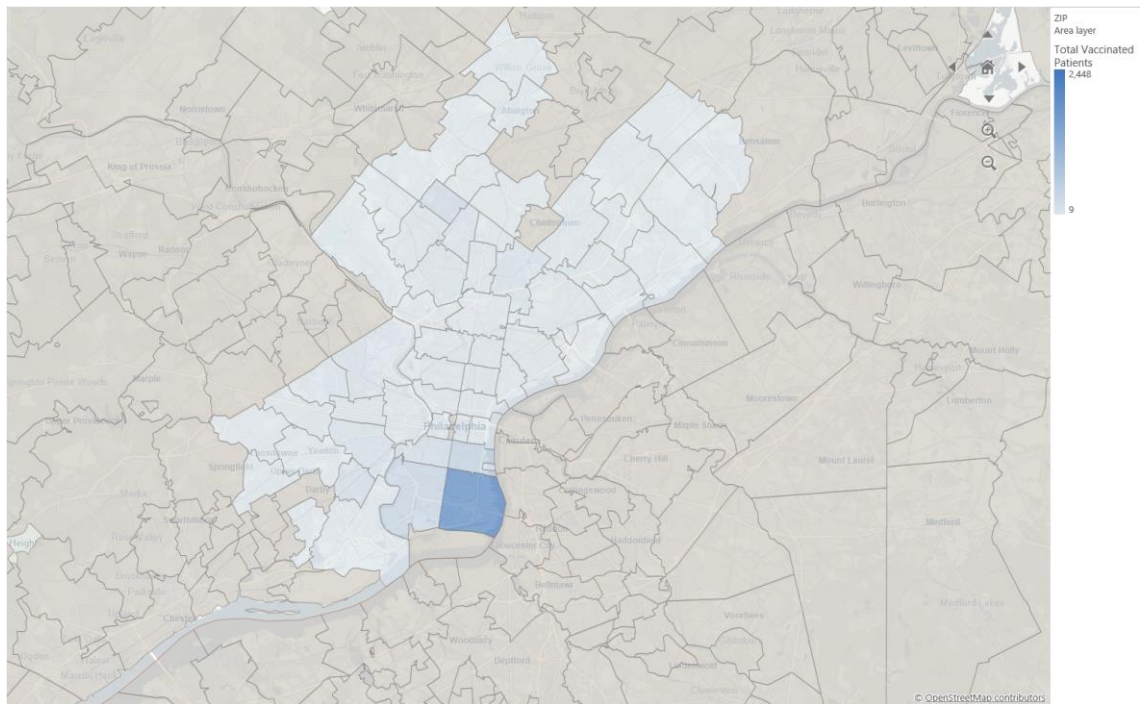

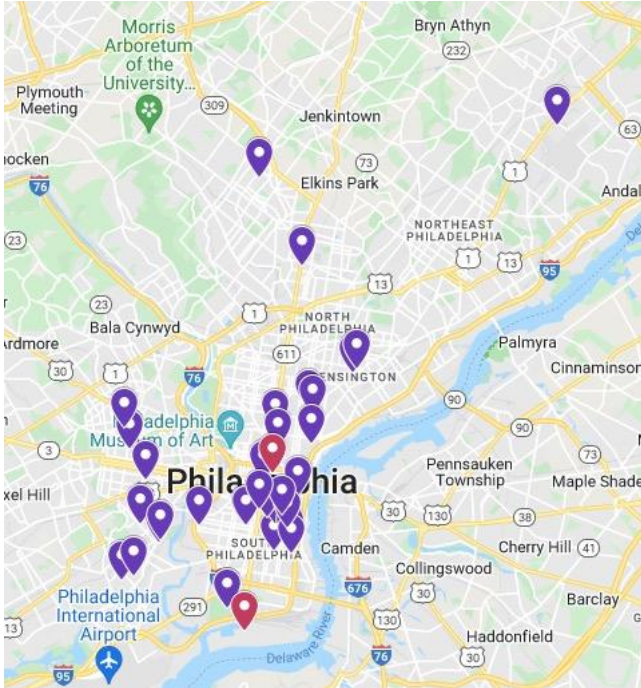*Figure 18. Heatmap of zip codes with 10 or more patients*

Figure 19. Map of the mobile vaccination locations

Improving Patient Outcomes (Guideline: One Page)

Through its data-driven and human-centered approach, Jefferson Health had a meaningful impact on vaccination efforts for covid-19 with a focus on traditionally underserved populations.
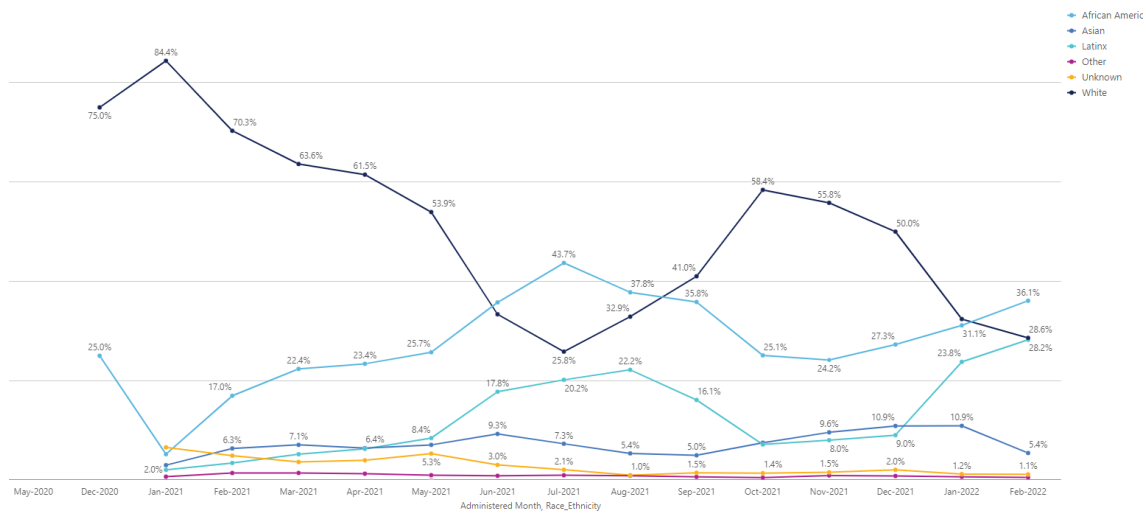

Figure 20. Enterprise monthly vaccinations with proportions based on race.

After modifications to our invitation process, we saw an increase in vaccination rates for POC in our established patient population. Originally, white patients accounted for up to 84% of vaccinations administered, but this improved over time.

When examining the efforts of our mobile vaccination clinics. Our human-centered mobile COVID-19 vaccination program provided vaccines to Black, Indigenous Persons, and other People of Color (POC) as well as non-English speaking populations at a higher rate when compared with large-volume, stationary vaccination clinics in our health system. Between May 1, 2021 and December 31, 2021, our mobile clinics administered 7,481 vaccine doses. During that same period, Jefferson Health's large volume stationary clinics administered 10,066 vaccine doses. Our team vaccinated 80.72% POC patients, a statistically significantly higher proportion compared to the 48.22% of patients at traditional clinics (p<0.001). Additionally, 37.15% of our patients were non-English speaking, compared to 8.88% from the routine clinic vaccination efforts (p<0.001).

Rates of Covid In underserved populations have decreased over time since initial vaccination efforts, and vaccinations are now above 90% overall. City data shows that Asians and Hispanics have surpassed whites in all age groups for vaccinations, and while there is more work to do in younger age groups of all ethnicities, all ethnicities in the 65+ age group are above 85% vaccinated.
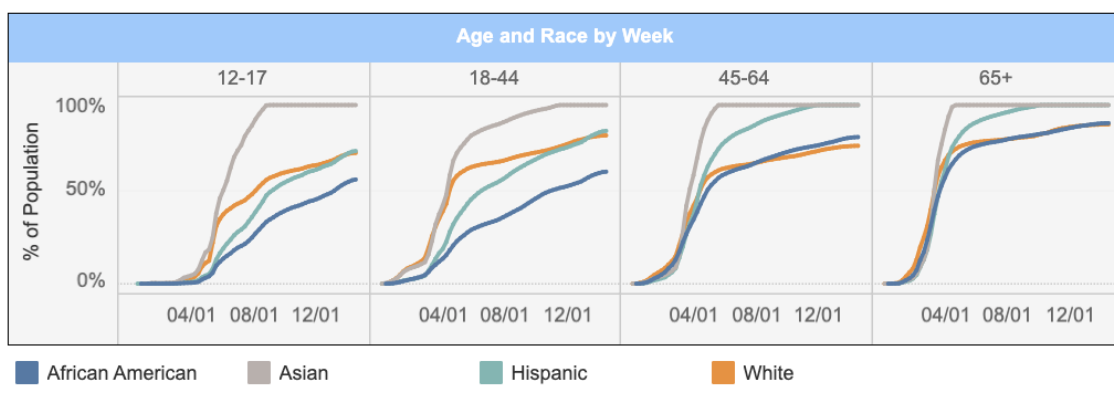

Figure 21. Philadelphia vaccination rates based on race for 2021.

Accountability and Driving Resilient Care Redesign (One Page)

As the largest health system in the Philadelphia region and a trusted safety net hospital for more than two-thirds of residents in one of the most racially and ethnically diverse cities in the country, Jefferson immediately recognized the need for an equitable approach to its COVID-19 vaccination efforts. There were two cornerstones in this complex undertaking: data and people.

Prior to vaccination efforts, the enterprise's work in quantifying the effects of the pandemic had led to detailed development of analytics and reporting tools to track infections, hospitalizations, and deaths. This request came from hospital administration to monitor the impact of the pandemic. Utilizing these analytics tools, Jefferson Health was able to see in real-time the disproportionate toll of the virus on underserved populations. Data sheets were generated from our HIPAA-compliant EHR platform (Epic), which interfaced directly with city and state vaccine registries. Data was reviewed on a weekly basis by our informatics director and program leadership.

A dedicated COVID-19 app was created detailing rates of infections and pandemic trends across the seven-county health system, which allowed for a focused approach in our response to the novel coronavirus. When COVID-19 vaccines became available, a new app was created to track vaccination rates in near real time by pulling information from the Epic EHR, and displaying the results in easy-to-read graphs. The Epic SlicerDicer reporting tool was customized to allow physicians to access real-time data and generate reports for vaccine invitations.

Jefferson Health. Key Indicators

Data as of: 2/27/2022

Total Administered Vaccinations	Total 1st Doses Administered	Total 2nd Doses Administered	Total Single Dose Administered	Total Booster Doses Administ...
127,452	54,553	50,548	1,512	20,829

Total Invitations to Schedule	Total Committed Doses	Fully Vaccinated Patients
38,223	346	451,598

Based on internal, historical and data from interfaces

Figure 22. Key Performance indicators for enterprise vaccination analytics application.

Figure 23. Mobile Vaccination setup for the Vax Up Philly Event (photo credit 6ABC).

Figure 24. Mobile vaccination clinic with central supply and vaccinators working out of van.

This data was then used to identify high-risk areas of the city and tailor the team's human-centered approach to the unique needs of each community served through ongoing patient education and community outreach. Race and socioeconomics were integrated into each subsequent wave of vaccination invitations, with a focused and data-driven approach that allowed for equitable invitations and increased availability and outreach to at-risk communities.

Throughout this process, analytics and EHR tools were utilized to monitor the impact of team's efforts drive meaningful changes in underserved populations.

Through the efforts of multiple stakeholders within the Jefferson Health enterprise, coordinated interventions we implemented to address inequity in vaccination distribution for the COVID-19 pandemic. While there are many people still unvaccinated, and inequity persists in healthcare, these efforts have demonstrated that focused attention to vaccination invitations and community based mobile vaccination clinics can aid in reducing inequity within vaccination rates.

HIMSS Global Conference Audience Guidance (This will not be published)

Topic Guidance: Check three which apply to this case study

Clinical Informatics and Clinician Engagement

Clinically Integrated Supply Chain

Consumer/Patient Engagement and Digital/Connected Health

Consumerization of Health

Culture of Care and Care Coordination

Data Science/Analytics/Clinical and Business Intelligence

Disruptive Care Models

Grand Societal Challenges

Health Informatics Education

Health Information Exchange

Interoperability

Data Integration, and Standards

Healthcare Applications and Technologies Enabling Care Delivery

Healthy Aging and Technology

Improving Quality Outcomes

Innovation, Entrepreneurship, and Venture Investment

Leadership, Governance, and Strategic Planning

Population Health Management and Public Health

Precision Medicine and Genomics

Process Improvement, Workflow, and Change Management

Social, and Behavioral Determinants of Health

Telehealth

User Experience (UX)

Usability

User-Centered Design