Rapid COVID-19 Testing and On-site Case Investigation and Contact Tracing in an Underresourced Area of Salt Lake City, Utah, December 2020–April 2021

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Abstract

This case study describes how we paired free SARS-CoV-2 rapid antigen testing with on-site case investigation and contact tracing at a drive-through site in an underresourced area of Salt Lake City. Residents of this area had lower rates of employment and health insurance and higher rates of poverty than in the Utah general population. People were given an option to remain on-site and wait until their test results were ready. If a vehicle occupant received a positive test result, the case investigation occurred on-site; contact tracing with the other vehicle occupants was also initiated. People were provided resources to support isolation and quarantine. Bilingual staff who spoke Spanish were incorporated into the workflow. From December 2020 through April 2021, public health staff administered 39,587 rapid tests; 4094 people received a positive test result and 1133 stayed for on-site case investigation. More than half (60.5%) of people with a positive test result who agreed to stay for on-site case investigation were Hispanic or self-reported belonging to a non-Hispanic racial minority group (American Indian/Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, or other racial identities). Pairing rapid antigen testing with on-site case investigation and contact tracing is feasible and improved the timeliness of case investigation by ≥1 day. On-site vaccination services were later integrated. Future emergency responses might consider assisting underresourced communities with on-site services that provide convenient and accessible public health interventions. By providing dependable and reliable services, we were able to achieve buy-in and become a consistent resource for those in the community.

Keywords

COVID-19 testing, rapid on-site evaluation, contact tracing, health services accessibility, public health practice
Purpose
This case study describes the workflow of a drive-through COVID-19 testing site and characteristics of the people who stayed for on-site case investigation in Utah during December 4, 2020, through April 30, 2021.

Methods
This site operated Monday through Saturday from 11 AM to 6 PM. On-site case investigation involved approximately 10 Utah Department of Health staff daily from a roster of 40 who had been trained for COVID-19 case outreach work; 19 staff members spoke Spanish. Spanish-speaking staff were always present during operating hours.

Targeted campaigns to promote the Fairpark testing site to Salt Lake City residents included social media and radio announcements. We established the drive-through area for sample collection and testing (Figure) in a vacant rodeo barn. Walk-up testing was available for those who did not arrive by car.

Before or upon arrival, people completed a mobile testing registration and consent form on the Utah.gov website before being tested; people without an internet-enabled smartphone completed their registration using a provided digital tablet. Adult guardians provided consent for children aged ≤17 years. During the registration process, the secure REDCap survey tool form was available in English and Spanish and collected data on name, sex (male/female), date of birth, ethnicity (Hispanic), race (American Indian/Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, Other), residential address, telephone number, and self-reported COVID-19 symptoms. People were also asked to provide an email address and consent to receive test results through a secure email. Alternately, people could opt to stay and receive paper results at the testing site.

Upon arrival, a greeter determined if a Spanish-speaking staff member was needed and then verified the online registration, explained the testing process, and offered people the option to remain on-site for their results or immediately depart after specimen collection. Those who opted to remain on-site had a tracking card placed on the vehicle. Whether the vehicle would depart or remain after specimen collection was also noted in the secure REDCap tracking spreadsheet that was accessible to other on-site staff. Once the vehicle entered the testing barn, people underwent midturbinate sampling performed by health department testing teams, with the swabs submitted for a COVID-19 rapid antigen test in a dedicated separate area.

Figure. Flow of SARS-CoV-2 testing and COVID-19 case investigation and contact tracing operations at the Utah State Fairpark, December 2020–April 2021. OCI, on-site case investigation.
Table 1. SARS-CoV-2 testing and on-site case investigations at Utah State Fairpark, December 2020–April 2021

| Month | Rapid antigen tests administered | People who stayed on-site for results | Positive results |
|-------|---------------------------------|--------------------------------------|-----------------|
| December² | 7455                           | —                                    | 1082 (14.5)     |
| January | 14 193                          | 2442 (17.1)                          | 1705 (12.0)     |
| February | 7898                          | 2612 (33.1)                          | 677 (8.6)       |
| March   | 6094                           | 2428 (39.8)                          | 374 (6.1)       |
| April   | 3947                           | 1633 (41.4)                          | 256 (6.5)       |
| Total   | 39 587                         | 9115 (28.4)                          | 4094 (10.3)     |

Of those tested, 39 587 people underwent SARS-CoV-2 rapid antigen testing at Fairpark from December 4, 2020, through April 30, 2021. A total of 4094 (10.3%) people received a positive test result; 1133 of 3012 (37.6%) completed on-site case investigation before leaving Fairpark (Table 1).
Demographic characteristics were available for the 39,587 people who registered for a test during January 1–April 30, 2021. Their median age was 29.4 years (interquartile range [IQR], 21.2-41.9), and 50.7% were female (Table 2). Three-quarters (75.6%, n = 29,939) of people self-reported non-Hispanic White race and ethnicity, 25.5% (n = 10,094) Hispanic ethnicity, and 11.6% (n = 4,587) Other race.

Similarly, among the 4,094 people who received a positive SARS-CoV-2 rapid antigen test result, the median age was 30.9 years (IQR, 21.9-43.6), and 48.5% were female. Among the 1,133 people with a positive test result who took part in on-site case investigation, the median age was 31.3 years (IQR, 22.4-43.2), 48.5% were female, 31.8% were Hispanic, and 28.7% self-reported as another racial minority group (American Indian/Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, or multiple races).

The on-site case or contact interview averaged 18 to 20 minutes and fluctuated per the responses. On-site investigation and linkage to supportive services were generally completed within an hour of a person’s arrival at Fairpark. By comparison, case investigation via telephone during the same period occurred a median 1 day but in some cases up to 15 days after the positive test result.

**Lessons Learned**

Timely testing, case investigation, and contact tracing can contribute to the prevention of SARS-CoV-2 transmission.8 We found that on-site case investigation improved the timeliness of case investigation by ≥1 day, providing an efficient approach for reaching infected people and, if present in the vehicle, some of their close contacts. By placing this activity within an underresourced part of the city and involving public health staff who were bilingual in English and Spanish, we were also able to reach a demographically diverse group: more than half of people who stayed for on-site case investigation were Hispanic or self-reported belonging to a non-Hispanic racial minority group.

To better evaluate the effectiveness of similar efforts in the future, we plan and would recommend collecting certain data on the people with positive test results who were not interviewed on-site. Specifically, we would have liked to compare contact tracing outcomes for people who were tested elsewhere and interviewed via telephone only, people who were tested at Fairpark but interviewed via telephone after their departure, and people who were tested and interviewed at Fairpark. Nevertheless, the high rate of participation in on-site case investigation suggests that on-site services were well received by the community around Fairpark.

This case study had several limitations. First, we did not quantify participation rates for case investigation via telephone after a positive test result at Fairpark. Second, we were unable to compare the efficacy of on-site case investigation with that of other approaches. Third, although the sensitivity of SARS-CoV-2 rapid antigen tests can be low in this type of setting, the positive predictive value is high,7 ensuring that people who received a positive test result were likely not only infected but also infectious, underscoring the value of immediate on-site case investigation and contact tracing with other people in the vehicles.

We encountered several challenges during the implementation of the site. One challenge was finding an efficient method to relay test results to on-site staff who were stationed in different areas within our site. We overcame this challenge by...
using secured Google spreadsheets, which allowed for real-time updates. Another challenge was achieving community buy-in for the services that we were offering. We used targeted promotional campaigns to promote the site, and we offered consistent times, locations, and services to establish ourselves as a reliable source of support during the pandemic.

Because of the success of this activity, the operation was extended for several months and was still in operation as of July 2022 (Monday–Saturday but with fewer hours). Additionally, on-site vaccination services for COVID-19 were incorporated in July 2021. Furthermore, this integrated approach to integrated testing and vaccination was implemented at 7 additional sites in the state. Future steps would be to compare the case rates of neighborhoods that used this on-site approach with neighborhoods that did not.

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Disclaimer
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