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Qualitative review of early experiences of off-site COVID-19 testing centers and associated considerations

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ABSTRACT

Given the predicted need for continued SARS-CoV-2 diagnostic testing, as well as the evolving availability and types of diagnostic tests, off-site COVID-19 testing centers (OSCTC) leaders need timely guidance to ensure they are meeting the needs of their unique populations. This research discusses the challenges and offers considerations for healthcare organizations and others when setting up and running OSCTCs. It also provides a springboard to engage policy makers and leaders in the healthcare community in a discussion about emergency preparedness, and how to better respond to testing needs going forward.

1. Introduction

On March 16th, 2020, the World Health Organization Director-General, Tedros Adhanom Ghebreyesus, stated the WHO's key aggressive public health response to combat COVID-19 is to "...test, test, test. Test every suspected case."¹

In March 2020, medical facilities and public health departments began implementing off-site COVID-19 testing centers across the United States. Off-site COVID-19 testing centers (OSCTC) reduce the risk of exposure to patients and medical staff within medical facilities and minimize the use of personal protective equipment (PPE), which has been reported in short supply across the country.²⁻⁶

Between March 20th and April 15th, 2020, the Network for Regional Healthcare Improvement (NRHI) in partnership with Qualidigm, a regional member and collaborative healthcare consulting company, conducted a rapid assessment of the then-current conditions of off-site COVID-19 testing centers (OSCTC) across the United States. The team engaged national and regional partners with the goal to share challenges and considerations so others may be better prepared to deploy similar solutions for rapid testing. This study acknowledges that the findings and considerations are based on early and evolving US-based experiences that were impacted by the availability of tests and testing material, personnel, and personal protective equipment (PPE).

The assessment is based on eleven qualitative interviews with OSCTC

leaders. The interviews covered the site's intake processes, PPE protocols, site origination, challenges, and presents recommended considerations. Although ultimately a convenience sample, selected sites were heterogenous in climate, demographics of community served - including rural and urban settings, testing methodology, criteria, and capacity, type of medical center affiliation, and state/federal partnerships.

Five key challenges and considerations emerged during the interviews.

1.1. Leaders and partners

Many OSCTCs partnered with their local or state departments of public health, local civic leaders and police, neighboring healthcare providers, as well as FEMA. State and local partnerships with public health and municipal organizations were often highlighted as valuable, "I think the first success we experienced was good relationships with the Department of Health, engaging them early and often was the key to our success," commented one respondent.

While most OSCTCs reported successful collaborations with neighboring healthcare provider OSCTCs, others reported struggling with competition, "We were threatened [with] legal action if we continued to allow drive through testing in the parking lot." FEMA partnerships also reported struggles. "I think that the challenge of working through FEMA, they didn't have clear direction from their leadership, their requirements kept

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changing.”

Mutually beneficial institutional relationships and diverse, passionate, collaborative, and innovative clinical leaders are characteristics of successful OSCTCs. Priorities of OSCTCs may vary depending on whether the leadership is clinical or administrative. Balancing these priorities is critical in ensuring that all the needs are met.

1.2. Staff protection

According to the National Institute for Occupational Safety and Health (NIOSH), controlling exposures to occupational hazards is fundamental to protecting workers. While elimination or substitution in NIOSH's Hierarchy of Controls are not options at this stage of the pandemic, administrative and engineering controls can be used to protect healthcare workers.

Some of the strategies OSCTCs utilized to ensure staff is protected included patients remaining in their cars while tested (all but one OSCTC had patients remain in their car) and shorter interaction times. *“We go no more than 3 min direct exposure per patient, maximum. So, every 5 min there is a new patient that drives up with their car. And within that 5 min, is the 3-min window of exposure time.”*

Due to shortages in PPE, many respondents referenced using CDC's guidelines for extended and reuse of PPE. Yet, weather and patient demographics may impact appropriate PPE. For example, one respondent reported that face shields that are designed for surgery do not hold up against the elements and were extremely cumbersome when used outside. Respondents reported that they utilized the PPE they had on hand to the best of their abilities, and that availability and climate ultimately dictated how they used their PPE.

Some OSCTCs have a dedicated “watcher” staff member, who is charged with monitoring all staff members that interact with patients or samples to identify potential contamination and the need to replace PPE. In addition, requiring patients to schedule appointments ensures OSCTCs can plan appropriately for staffing needs, and reduce the time staff interact with patients. OSCTCs often consist of professionals from varying disciplines working together for the first time. Teamwork in healthcare uses collaboration and communication to work towards a common goal. Morning or daily huddles with OSCTC staff was one of the strategies to maintain a working team. *“Every morning the team huddles, talks about number of patients that we're going to be seeing today, runs through the workflow and any changes in the workflow being clear on what the role of each of the members of the team is. We also have a debrief at the end of the clinic just to see what went well what didn't go well, what do we need to change and having a rapid process improvement every day has been very helpful.”*

Care for the OSCTC staff must be of highest priority. Having medical and nursing staff as OSCTC leadership is essential to success. Caring for the practical needs of the healthcare workers also extends beyond PPE. Considerations for frequent breaks, access to heaters (based on need), and safety gear in colder environments must be available for healthcare workers in the OSCTC.⁷ Moving forward, PPE should continue to serve as an important basic requirement for healthcare workers, but administrative and engineering controls can have significant impacts on staff safety.

1.3. Testing capacity and follow-up process for results

OSCTCs reported using a combination of state labs, healthcare facility labs, and commercial labs for sample processing and that turnaround times varied greatly based on the type of laboratory – anywhere from days to weeks. In some cases of significant delays, OSCTCs needed to retest patients to support contact tracing. *“...12 to 13 day turn around with one of the send out labs, which makes tracing ... kind of useless honestly.”*

Due to the changing nature of the pandemic, implications of a positive result, and complexities of testing off-site, OSCTCs expressed the

importance of thinking through how test results would be shared with patients. One solution was *“daily telemedicine visits with patients until they receive results. Once they receive results and they are negative they receive one additional follow-up in 48 h. This is to make sure they do not have a false negative. If they continue to report symptoms, we offer to retest them, and we tell them to continue the quarantine.”* Another mentioned the importance of knowing what information to share with patients following results. *“We have some scripting for the nurses just to make sure they give a consistent message about when they can return to work, and sort of symptom management. We treat a COVID positive as a “critical” result, and critical results we always send you a paper copy, or an electronic copy, but we always call and we document the call”.*

For future OSCTCs, it may be useful to think about how patients would best respond to receiving their results. It is important to have the test results given to the patient's primary care provider for follow-up. Some healthcare providers, such as nurses, may not feel comfortable giving positive test results to patients and will need a physician to step in. The dissemination of information to patients must be coordinated to ensure they are receiving timely, information delivered by trained professionals.

1.4. Patients demographics

While many Centers were following CDC guidance to help prioritize who to test, there was wide variation in the populations tested by the sampled centers, which in many cases evolved over just the few weeks that these centers had been open and varied based on PPE availability. If your tests with a quick turnaround time are limited, consider who your priority populations are, and align test with the fastest and most accurate results accordingly.

Setting up an off-site COVID-19 testing center requires accommodations for diverse demographics. The preparation should begin before the OSCTC begins operating. The public needs to be informed about the OSCTC through multiple channels such as hotlines, media, handouts, and billboards.

Additionally, OSCTCs should be prepared to accommodate patients without a vehicle, those who do not speak English, or have physical or mental limitations. Respondents mentioned using a separate protocol to support “walk-ups,” and the importance of pictograms, materials in other languages, use of mobile devices to respond to diverse patient needs.

1.5. Test reimbursement

With a new disease, and corresponding new diagnostic tests for that disease, coverage and reimbursement for testing has evolved greatly over a short period of time. CMS has provided two Healthcare Common Procedure Coding System (HCPCS) codes to bill for COVID-19 diagnostic tests, the first on February 13th, 2020 for CDC testing laboratories, and the second on March 5th for non-CDC laboratories.

The Families First Coronavirus Response Act, passed on March 14, 2020, requires group health plans and individual health insurance plans to cover COVID-19 testing. Additionally, health insurance carriers are not charging copays or deductibles for COVID-19 testing. OSCTCs generally reported submitting reimbursement for testing to patients' insurance carriers. When testing medical providers, OSCTCs generally covered testing for their employees as a likely medical exposure.

2. Future research questions

Research findings are based on a rapid assessment of off-site COVID-19 testing centers in the early weeks of the pandemic in the US. As the pandemic expands and the response evolves, future research can offer additional considerations that address approaches needed to reach broader populations, the availability of new types of tests, the impact of partnerships across sectors, challenges related to financial

sustainability, and strategies to protect frontline healthcare workers.

3. Conclusion

SARS-CoV-2 RT-PCR testing improvements will result in faster turnaround times with higher yields. Serology testing is now available and may help quantify population herd immunity. We must work together to effectively use diagnostic tools to prevent the continued spread of SARS-CoV-2. This study provides valuable information that can be used to help organizations learn how some sites are implementing off-site COVID-19 testing centers. It is also a springboard for future research as the pandemic and corresponding diagnostic tools evolve, that ultimately will aid in the development of best practices.

The full report, *Qualitative Review of Early Experiences of Off-site COVID-19 Testing Centers and Associated Considerations*, can be accessed here: https://www.nrhi.org/uploads/2020/07/NR-HI-COVID-19-Report-FINAL_updated_infographic-07-20-2020.pdf.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence

the work reported in this paper.

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- 7 Some testing locations that did not conduct off-site testing, utilized booths, similar to the “testing telephone booths” in South Korea, which provided full body protection to the tester and allowed for easy cleaning of the PPE. Read more <https://brighamhealthhub.org/covid-19/transforming-the-way-clinicians-test-covid-19-patients>.