

Short Communication

Widescale SARS-Cov-2 Testing in Individuals Experiencing Homelessness in a Medium-Sized Midwest City

Andrew Jameson^{1,2}, Kasey Curtis², Leslie Pelkey³, Lori Lynn⁴, Nirali Bora^{2,5}, Liberty Jacques¹

¹Mercy Health Saint Mary's Hospital. Grand Rapids, MI, USA

²Michigan State University College of Human Medicine. Grand Rapids, MI, USA

³Cherry Health. Grand Rapids, MI, USA

⁴Mel Trotter Ministries. Grand Rapids, MI, USA

⁵Kent County Health Department. Grand Rapids, MI, USA

Abstract

Objectives: To describe a testing and isolating protocol that successfully helped stop a SARS-CoV-2 outbreak amongst individuals experiencing homelessness in a medium-sized Midwest City.

Methods: Following a significant increase in the population of individuals experiencing homelessness infected with COVID-19, local health partners came together to offer widescale, voluntary testing to individuals experiencing homelessness who utilized resources at social services agency. Testing was paired with an isolation strategy to physically separate positive individuals from those testing negative.

Results: Guests were tested at 4 different points in time over the course of 8 weeks in the spring of 2020. The 251 individuals were tested in window A (27.4% tested positive), 61 individuals were testing in window B (32.7% tested positive), 188 individuals were testing in window C (1.1% tested positive), and finally 168 individuals were tested in window D with only 1 positive result (0.6% tested positive). Individuals who were identified as testing positive were moved to an isolation center in a separate physical location where they could be medically monitored and isolated. Individuals who tested negative could remain at the social services agency while utilizing face coverings and ongoing temperature screening.

Conclusion: The transient nature of individuals experiencing homelessness who are at risk of contracting COVID-19 does not allow for routine contact tracing and quarantining procedures as in the general population. Widescale voluntary testing was able to quickly identify positive cases and remove them from those testing negative regardless of symptoms. The ability to test broadly and isolate positive individuals enabled a significant outbreak to be contained in a short amount of time. Significant coordination between local health departments, healthcare providers, and social service agencies is required to help keep this vulnerable population safe during the SARS-CoV-2 pandemic.

Keywords: SARS-CoV-2; COVID-19; Isolation; Homelessness

Introduction

The burden individuals experiencing homelessness is a reality faced by nearly every metropolitan city in the United States. There are consistently over 550,000 persons in the United States that experience homelessness at a given point in time. A snapshot on a single night in January of 2019 identified 568,000 persons identified as homeless with 63% of those individuals staying in either a shelter or transitional housing program [1]. Individuals residing within shelters comprise a vulnerable population with an increased prevalence of psychiatric,

medical and psychosocial challenges including an all-cause mortality that is 5 to 10 times great than the general population [2]. These challenges combined with congregate living settings, hygiene access and healthcare access barriers lead to increased vulnerability to rapid SARS-CoV-2 transmission and subsequent progression to COVID-19 disease.

There were early signals that the homeless population is easily affected by SARS-CoV-2. An outbreak in King County, WA was detected in late March 2020 and reported in the April 15th, 2020 Morbidity and Mortality Weekly Report. An outbreak occurred amongst three affiliated homeless service sites. Broad testing was offered with 63% of the 245 eligible individuals tested with 15 (9.7%) positive [3]. Another outbreak was identified in a large homeless shelter in Boston, MA where 147 (36%) guests tested positive. Cough (7.5%), shortness of breath (1.4%), and fever (0.7%) were all uncommon among COVID positive individuals indicating a high proportion of asymptomatic or pre-symptomatic individuals within this population [4].

Despite the understanding that homeless individuals are particularly susceptible to the transmission of SARS-CoV-2, there is little information on the relationship between the prevalence of disease and the protocols enacted for screening, testing, and subsequent isolation within shelters. The April 15th, 2020 MMWR

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***Corresponding author:** Andrew Jameson, Division Chief of Infectious Diseases, Mercy Health Physician Partners, Michigan State University, 310 Lafayette Suite 410, Grand Rapids, MI 49503, Michigan, USA, Tel: +1-616-685-8206; E-mail: andrew.jameson@mercyhealth.com

identified several aspects of the King County homeless service sites that may have contributed to the outbreak. The factors included the staff rotation between the three sites, decreased availability of alcohol-based hand sanitizer and showers, frequent movement of guests in and out of the shelter each day, close sleeping settings, and insufficient access to face masks [3]. As a result of this observation, these strategies and others were outlined by the CDC for implementation among homeless service sites nationwide.

Materials and Methods

The local social services agency which participated in this testing program routinely houses and feeds over 400 guests each night. In early March 2020 the first case of SARS-CoV-2 was detected locally and this agency implemented an aggressive screening, testing, and cleaning protocol. Despite these interventions, an increasing positivity rate in individuals suffering from homelessness led key stakeholders to the conclusion that it was necessary to identify guests and employees who may be asymptomatic or pre-symptomatic for COVID-19.

Baseline process

Guests were screened via temperature checks every day before meals and employees were screened at the beginning of each shift for fever and for symptoms. If temperature was elevated and/or the symptom screen was positive, the guest was directed to local emergency care settings where a formal clinical evaluation was performed. In addition to screening, cleaning & disinfection was significantly increased utilizing a dilute bleach solution. This solution was applied to high touch surfaces every 2-3 hours. A biofog solution was applied daily in the sleeping quarters and main areas of congregation. Bed linens were laundered daily with hot water and high heat drying cycles.

Testing intervention

Widescale voluntary testing was implemented the 3rd week in April 2020 (Test window A). Testing was repeated 1 week later in the last week of April 2020 (Testing Window B). Further testing took place in the last week of May 2020 (Test Window C) followed by a final testing event in the last week of June 2020 (Test Window D). Guests were tested *via* a nasopharyngeal swab utilizing NxGenMdx laboratory with amplification of the N2, S, and Open Frame 1AB sequence of the SARS-CoV-2 genome with a lower limit of detection of 35 viral copies/ml. The local Health Department coordinated follow up with the patient and the social services agency. The county Health Department secured several locations to cohort positive guests while negative guests remained at the normal overnight facility.

Staff members were tested using the same testing platform and timeline as the guests. Those who tested positive were withheld from work with a return to work policy that was consistent with the CDC symptom-based criteria. Retesting was not performed.

Results

During testing window A, 251 individuals were tested for SARS-CoV-2 utilizing RNA amplification collected *via* nasopharyngeal swab. This testing accounted for approximately 60% of the individuals who frequently utilize the social services agency overnight services. This testing excluded individuals who had tested positive previously. The mean age of those tested was 46.9 year (SD=14). Males comprised 71.9% of those tested while women represented 27.3% of the population. Positive test results were found in 69 individuals (27.4%) of the population while 182 (72.5%) were negative. During testing

Window B, 61 individuals were tested. 20 individuals (32.7%) tested positive this time with 41 individual's negative (67.3%). In testing window C, 188 individuals were tested with 2 (1.1%) individuals testing positive and 187 (98.9%) testing negative. The final testing window results included the testing of 168 individuals with 1 positive result (.6%) and 167 (99.4%) testing negative.

Discussion

Like previously described scenarios [2,3], in facilities caring for individuals suffering from homelessness, SARS-CoV-2 significantly impacted our community. It was clear that simply screening for symptoms and fever was not adequate to slow the spread in this congregate living setting. The serial testing protocol identified a dramatic number of individuals who were positive for SARS-CoV-2. In addition to identifying positive individuals, the subsequent isolation in a separate facility was a key intervention. Serial testing and identifying additional positive cases quickly decreased the positivity rate and increased the safety of individuals experiencing homelessness.

This data supports the fact testing is an essential component to keeping individuals suffering from homelessness safe in the face of COVID-19. Over the course of a month the positivity rate amongst guests at the facility dropped from 27.4% to 32.7% down to 1.1%. This low positivity rate was sustained through the month of June 2020. As this pandemic progress, ongoing mass testing and isolating strategies will remain an important tool in the fight to keep at risk populations protected.

There are numerous limitations to this data set. Clinical evaluation only took place if the temperature screen or respiratory symptom screen was abnormal. This potentially missed more subtle symptoms that reflect COVID-19 early in the infection. Additionally, individuals tested inside the emergency department or at any other healthcare facility were not including in this set of data. Finally, transient nature of this population and the voluntary approach to testing also adds a significant variable. It is unknown how many individuals declined testing and it is unknown how many of these individuals moved in or out of the region during this testing protocol.

Additionally, the process of testing individuals suffering from homelessness required significant coordination between the health department, an acute care hospital system, shelter ministry, and a local Federally Qualified Healthcare Center. The infrastructure for communicating and coordinating amongst numerous organizations in a community is essential to effectively protect this vulnerable population. This is not only the right thing to do but also serves to protect the greater community.

References

1. US Department of Housing and Urban Development. HUD 2019 Continuum of Care Homeless Assistance Programs Home Populations and Subpopulations. Sept 20, 2019.
2. Tsai J, Wilson M. COVID-19: a potential public health problem for homeless populations. *Lancet Public Health*. 2020;5(4):e186-7.
3. Tobolowsky FA, Gonzales E, Self JL, Rao CY, Keating R, Marx GE, et al. COVID-19 Outbreak among three affiliated homeless service sites - King County, Washington, 2020. *Morbidity and Mortality Weekly Report*. 2020;69(17):523-6.
4. Centers for Disease Control and Prevention. Interim Guidance for Homeless Service Providers to Plan and Respond to Coronavirus Disease 2019 (COVID-19). May 21, 2020.