


Infectious disease screening lab panel for homeless patients: A retrospective review at a large academic health system

Kusha Davar MD, MBA, MS¹ , Mary Noli Pilkington RN, CCM², Jessica Powers BA², Ashley Busuttill MD¹, Roger Lee MD¹ and Daniel Uslan MD, MBA, FIDSA, FSHEA¹

¹David Geffen School of Medicine at UCLA, Los Angeles, California and ²UCLA Health, Los Angeles, California

Homelessness is an epidemic in the United States, with an estimated hundreds of thousands of people homeless on any given night.¹ Such individuals experience a high rate of infection, including human immunodeficiency virus (HIV), tuberculosis (TB), and other infectious diseases, which may be due to barriers to care, lack of access to sexual protection such as condoms, and limited social services, among other causes.¹

The emergency department (ED) and inpatient wards are sources of intake and evaluation for homeless individuals seeking medical care, given infrequent access to preventive or primary care. Moreover, homelessness is an independent risk factor for seeking emergent care, suggesting the importance of offering comprehensive care in the ED setting.² In 2019, California state law has mandated that all individuals who identify as homeless have “been offered or referred for screening for infectious diseases common to the region, as determined by the local health department.”³

We sought to observe how a required panel of laboratory tests for infectious diseases ordered in the ED for homeless patients at an academic health system helped to identify those infected with HIV, hepatitis B, tuberculosis, syphilis, gonorrhea, and chlamydia.

Methods

All patients presenting to the ED at our 2 academic medical centers were evaluated for unstable housing through the registration process noted within the electronic health record (EHR). Beginning in October 2019, patients identified as homeless and admitted as an inpatient underwent a required panel of tests for infectious diseases. This panel was built as an order set in our EHR and included as part of the initial order set for admission.

We performed a retrospective review of testing completed in the emergency department and inpatient hospital setting from October 2019 to June 2020. Data were reviewed from laboratory tests ordered and were analyzed to assess the number of tests that returned positive and the impact and outcomes of clinical management for the patient.

Results

In total, 318 homeless patients were tested at the 2 respective hospitals, and 12 recurrent patients were identified. The number

of patients with each respective positive laboratory result are shown in Figure 1. Overall, 7 (2.5%) had positive HIV fourth-generation tests, 21 (7.5%) had positive TB testing via interferon-gamma release assay (IGRA), zero (0%) had positive hepatitis B surface antigen testing, 7 (2.4%) had positive syphilis testing via a rapid plasma reagin (RPR) testing, and 7 (2.1%) had positive urine gonorrhea or chlamydia testing with a nucleic acid antigen test (NAAT). No patients were identified with positive cervical, rectal, or pharyngeal NAAT results.

No new HIV diagnoses were made, and all positive HIV tests were for individuals with previously known diagnoses, with the exception of 1 false-positive result with a confirmatory negative HIV RNA test. The positive test result was not disclosed given a negative confirmatory test during the same encounter.

Overall, 7 patients with positive IGRA results were referred for follow-up for latent tuberculosis infection (LTBI) treatment as an outpatient; 2 patients were previously treated for LTBI; 2 were previously treated for active pulmonary TB; and 1 patient died, unrelated to tuberculosis, prior to any discussion regarding LTBI treatment. In total, 9 positive IGRA results had no treatment or referral plan established.

Positive RPR results were either treated with intramuscular penicillin or oral doxycycline or were deemed to be an improving titer or serofast result. In 4 cases of positive RPR results, we did not find documentation of a treatment plan in place.

Finally, gonorrhea and chlamydia testing identified 2 positive urine gonorrhea results and 1 positive urine chlamydia result, all of which were treated.

Discussion

The literature surrounding homeless individuals and infectious diseases has focused on HIV, tuberculosis, and hepatitis C.² At UCLA Health, we created an infectious disease screening lab panel for homeless patients to help identify patients with HIV, hepatitis B, tuberculosis, syphilis, gonorrhea, and chlamydia in an effort to increase treatment. As a result, 21 patients were identified with LTBI, and 7 patients (33.3%) were referred for LTBI treatment, and 3 patients were identified with gonorrhea or chlamydia infections, of whom all 3 (100%) were appropriately treated.

Although 318 patients were included in the study, there were certainly homeless patients who were not identified during this time period, highlighting the importance of accurately screening for unstable housing. Importantly, the testing interventions also reminded physicians in the ED and inpatient setting of the pitfalls of extended laboratory testing turnaround time and the necessity

Author for correspondence: Kusha Davar, E-mail: kushadavar@mednet.ucla.edu

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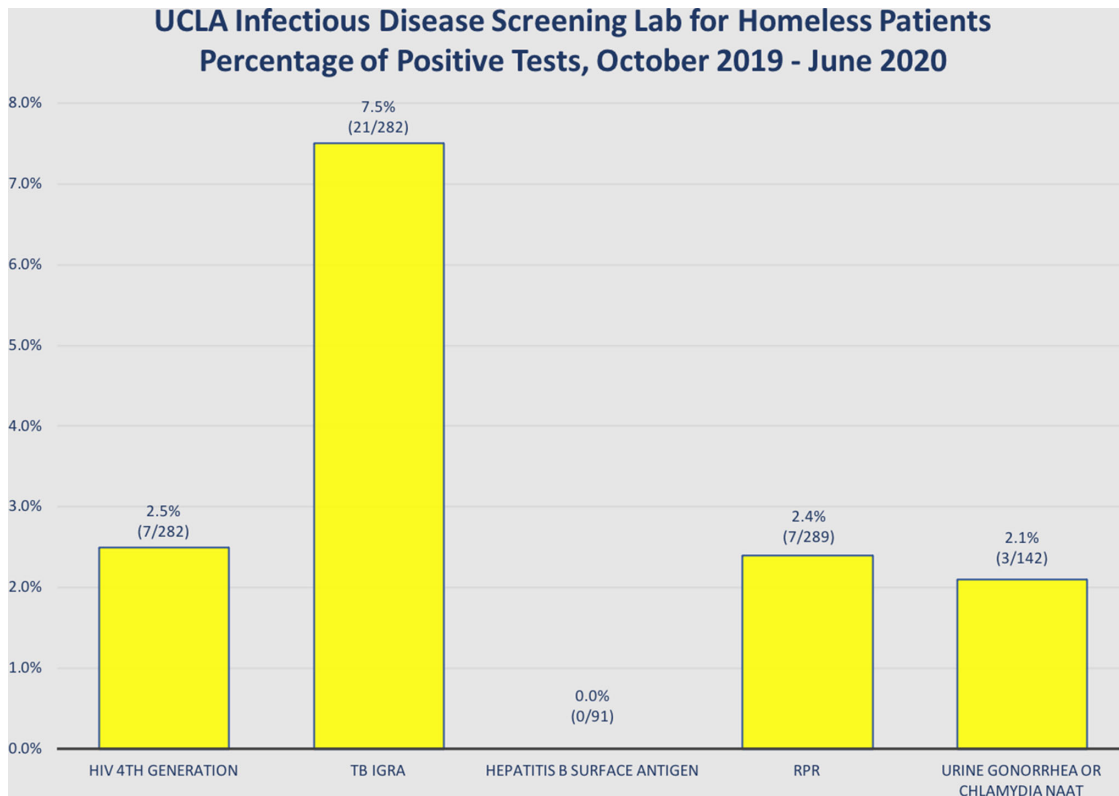


Fig. 1. UCLA Infectious Disease Screening Laboratory for Homeless Patients, percentage of positive tests, October 2019–June 2020.

to establish an optimal discharge plan. This test included the 9 IGRA and 4 RPR results that were not followed-up appropriately. A collaborated effort with the department of public health may be helpful to treat these patients lost to follow-up.

Homeless patients often present repeatedly to emergency departments, resulting in repeated, non-cost-effective testing.⁴ We prevented this by displaying recent results for individual tests, within the previous 6 months, for physician review.

The next steps in our intervention may include adding hepatitis C testing to our panel to help capture untreated cases given its high prevalence and the effective treatment that has now been established. Additionally, given outbreaks of hepatitis A in the homeless population in Los Angeles County, screening for hepatitis A may allow for timely identification and an opportunity to offer treatment by starting a vaccination series during the same patient encounter.⁵ Moving forward, the establishment and overall adoption of dedicated laboratory testing for homeless individuals may help to transform the level of care we provide to such a vulnerable population.

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