Journal of Student-Run Clinics
Descriptive Report

Remotely Maintaining and Modifying a Student-Run Tuberculosis Clinic During the COVID-19 Pandemic

Taylor Santoro[1]; Alexandra Woodbridge[1]; Sophie Foroushani, MS[1]; Andrew Crawford[1]; Fiona Sylvies MS[1]; Andrew Belnap[1]; Rebekah Byrne, MD, MPH[2]; Juzar Ali, MD[3]

[1]Tulane School of Medicine, New Orleans, Louisiana, USA
[2]Tulane Medical System, Department of Family Medicine, New Orleans, Louisiana, USA
[3]Section of Pulmonary/Critical Care & Allergy/Immunology, Wetmore Clinic, Louisiana State University Health, New Orleans, Louisiana, USA

Corresponding Author: Taylor Santoro; email: tsantoro@tulane.edu

Published: May 19, 2021

Abstract

The 2019 novel coronavirus pandemic challenged many aspects of the medical system, including student-run clinics. The Tulane University School of Medicine Tuberculosis (TB) Testing program offers risk evaluation and testing at six clinics in various facilities throughout New Orleans, Louisiana, and sees approximately 2,000 patients annually. Due to temporary removal of medical students from all clinical and volunteer activities, the program rose to the challenge to temporarily restructure operations in order to continue to provide resources and support at a time when physical contact was impossible. Medical student leaders took initiative in developing a TB screening questionnaire to be administered by non-medically trained essential facility staff, in addition to maintaining regular communication and providing off-site support. Although challenging, circumstance necessitated a temporary modification of student-run clinic models of care in order to protect safety and well-being of both students and the vulnerable populations served by the clinics. Anticipated repercussions from this temporary clinic model include rebound strains on clinic capacity at the time of reopening, in addition to a nationwide dearth of medical resources. However, the proactive response and flexibility of the student-run TB clinics will assure that this important aspect of care does not suffer needlessly during a time when all focus is on the pandemic.

Introduction

The Tulane University School of Medicine (TUSOM) Student-Run Tuberculosis (TB) Testing Program provides on-site TB risk evaluation and testing at six sites located in homeless shelters and substance use rehabilitation facilities in New Orleans, Louisiana.[1] In addition to providing accessible and convenient TB testing to the city's most vulnerable populations, the program indirectly assists in securing housing, as all substance use rehabilitation centers and homeless shelters in the area require proof of TB testing every six months to maintain residence.[2]

The program is operated primarily by medical students who are assigned to a specific site with remote faculty oversight. TB testing occurs in conjunction with TB risk evaluation and stratification through the use of a standardized, validated, evidence-based questionnaire created by student leadership and physician advisors.[3] In a typical week, the program holds fourteen one to two-hour clinics throughout its six sites and annually provides services for over 2,000 patients. The program operates year-round in order to ensure that public health metrics and housing needs are met.[1] However, development of a new clinical model was necessitated by the outbreak of the 2019 novel coronavirus pandemic in New Orleans.

Normal Operational Questionnaire and Risk Stratification

Under normal operations, the program uses a standardized, internally validated questionnaire based on Centers for Disease Control and Prevention (CDC) guidelines to determine TB risk factors and symptoms (Online Appendix 1).[4-6] Based on individual responses, each patient receives a specific risk stratification score.[1,3] With site administration approval, patients with a low TB risk stratification (score between 0 and 2 points) have the option of receiving a 30-day clearance without testing, those with intermediate risk (score between 3 and 9 points) and without contraindications receive a tuberculin skin test (TST), and those with high risk and suspicion for active TB (score 10 or greater points) are referred directly to the emergency department.[1,3] Continued use of this risk stratification system is supported by previous program data analysis which shows an overall positive skin testing rate of 5.15%. Patients have significantly higher risk of positive TST with increasing risk stratification categories. Low-risk patients have positive TSTs in 4.48% of cases, whereas intermediate and high-risk patients have positive TST rates of 5.92% and 6.58%, respectively.[3]

COVID-19 Pandemic

The first case of the 2019 novel coronavirus (COVID-19), was reported in the United States in Washington State on January 20th, 2020.[7] On March 11th, the World Health Organization declared COVID-19 as a pandemic.[8] In New Orleans, the first confirmed COVID-19 case occurred on March 9th, 2020. The following week on March 17th, the American Association of Medical Colleges (AAMC) released guidance recommending that all medical students be withdrawn from clinical and in-person volunteer activities.[9,10] Since then, New Orleans has been significantly impacted by the pandemic, with per capita infection and death rates among the highest in the world at its peak.[11] As of June 25, 2020, Orleans Parish has had 7,610 cases and 529 deaths.[11] As medical students were temporarily disallowed in clinical settings, all student-run clinics were temporarily suspended. In the case of the TB clinics, this posed a particular problem, as the program dually aims to (1) limit the rate of possible TB infection in close-quarter settings, such as the homeless shelters and rehabilitation centers where the clinics are located and (2) meet housing requirements by satisfying residents' proof of TB testing.[2]

Decision to Modify Clinical Activities

The six TB clinics are staffed by medical students who are specifically trained to place and interpret tuberculin skin tests. Ideally TB testing would continue during the COVID-19 pandemic, but it was imperative to keep in mind the safety of an already vulnerable patient population and the limitations on medical student clinical involvement. It became clear that it would not be feasible for the majority of patients to be tested during the student-run clinic closures due to a lack of qualified testers once medical students nationwide were no longer allowed to participate in clinical settings. In order to continue providing care in a limited capacity, the two most suitable options without TST testing were considered: (1) telemedicine implementation to administer a TB screening questionnaire and (2) training of non-medical staff that work in the TB clinic sites (homeless shelters and substance use rehabilitation staff) to administer the questionnaire. Telemedicine, while a viable alternative to in-person encounters in many clinical settings, was deemed impractical in a population with little, if any, access to reliable technology or internet connections. Training of on-site staff, who as essential personnel, would be working at the six locations despite the outbreak and who were already familiar with the TB testing program, was a more practical and immediately implementable option. Temporary cessation of all TB activities was briefly considered but deemed socially irresponsible. Furthermore, given TUSOM's deeply rooted connections within the New Orleans community, completely withdrawing from these patients and sites during a time of increased need was not considered. With guidance from the program's faculty advisor and medical school administration, the screening questionnaire and clearance practices were adapted by the medical student leadership to instead be administered by each clinic's onsite staff.

TB Clearance Modifications

Modifications were made to the clearance process, allowing 30-day clearances for all low and intermediate-risk patients while high risk patients would be referred to either the Wetmore TB Clinic, a state-run TB clinic, for a tuberculin skin test or the nearest emergency department (if they were suspected to have active TB). This represents a deviation from typical practice where only low-risk patients are eligible for a 30-day clearance. The state facility, where all patients with positive TSTs are typically referred, was agreeable due to the relatively low number of high-risk patients (1.63% of all patients screened) thus, their patient census was unlikely to significantly increase and overwhelm capacity[1]. It was decided that given the immediacy of the situation, sites would temporarily allow all intermediate risk patients, who would ordinarily receive tuberculin skin testing, to receive clearance to maintain housing for 30 days, after which period a re-evaluation would be performed with the same questionnaire. The goal remains for all intermediate risk patients who are still in residence at the time of student-run clinic reopening's to receive testing.

TB Questionnaire Modifications

Once approved, the standard TB screening questionnaire was modified (Online Appendix 2) so that essential facility staff (without medical training) could determine risk stratification for each resident. The most pertinent questions regarding tuberculosis history were moved to the beginning of the questionnaire and bolded. These questions included: (1) Have you EVER had a positive tuberculosis test? (2) Have you EVER been diagnosed with tuberculosis? and (3) Do you have the presence of any of the following [12 symptoms for active tuberculosis]? Questions regarding past medical history were updated to include explanations for medical jargon. A simple flow chart was added explaining how to calculate the risk stratification and how to proceed based on stratification (Online Appendix 2).

Introduction of Modifications to the Clinical Sites

Due to the strong working relationship between the sites and the second-year medical students that serve as TB site leaders, the clinic facility administration and staff were presented this clinic alternative by the medical student leaders, rather than medical school administration. It was felt that after withdrawal of clinical activities, maintaining open communication using the pre-existing systems stood the best chance of continuing a good working relationship with the clinics. Student leaders were encouraged to discuss this decision and the reasoning behind it with sites while reinforcing the program's commitment to their community partnerships. Concurrently, the program's faculty advisor established a line of communication with every site's administration to provide additional clarification, medical support and to reinforce TUSOM's commitment to the sites. On March 10th, a week before the AAMC called for the official withdrawal of medical students from clinical activities, TB site leaders were instructed to train facility staff either in-person (three sites) or via email (three sites) which allowed for implementation of the modified TB questionnaire at all of the sites. This training included detailed instructions and reviewing the TB screening protocol with all potential risk stratifications. Additionally, CDC recommendations for COVID-19 control were provided for the clinic sites to ensure the safety of the on-site staff and residents were upheld.[12]

Early Experiences

The new questionnaire is designed to be administered to all new residents at each facility and at 30-day intervals to returning residents until the student-run clinics can resume testing. In June, three months after the modified questionnaire was provided to the clinics for use, an informal data survey was collected from the clinic sites who utilized the modified TB questionnaire. Although this data collection did not occur under standard collection practices, it provided insight into the current status of the sites and yielded the following results: 104 patients across four clinic sites were screened and two of those patients were sent to the emergency department at a local higher treatment facility for further evaluation. Additionally, weekly phone calls were scheduled to maintain communication between clini-

cal sites and medical student site leaders, with clinical questions escalated to the faculty advisor as needed. In addition to ensuring proper protocols are followed and all clients are kept as safe as possible, the belief is that maintaining open lines of communication in a difficult time will continue to strengthen the relationships between the school of medicine and its community clinical sites. Though the COVID-19 pandemic has forced medical students to withdraw from all clinical activities, the adaptations to this crucial program serve as a framework for other medical students to continue involvement in their service activities and to utilize innovative and creative solutions to remain active in these communities.

Results

The modification of the TUSOM Student-Run TB Program highlighted the challenges that were encountered during the unprecedented times of the COVID-19 pandemic; these included following national and institutional guidelines as well as local and state mandated stay-at-home orders, while also advocating for the patients the program serves. While medical student TB clinic leaders and volunteers are not essential employees, TB screening at these sites remains an essential service for residents.[2,12] The modification to the typical operations of the TUSOM TB program allowed residents of the these sites to maintain housing during this critical time. Additionally, these measures provided additional avenues for evaluating the highest-risk patients at an appropriate facility. These changes ensured that all clinics maintained a state-mandated public health practice at a critical time, while following the pandemic appropriate guidelines and providing for the safety of both students and patients.

Recommendations for alternative practices for TB control measures during COVID-19 were developed by the pulmonologist who serves as the faculty advisor to the TUSOM TB Testing Program.[12] These recommendations highlight the importance of continuing to monitor high-risk patient populations for TB and providing appropriate levels of support despite the limitations of student-run clinics during the COVID-19 pandemic. Although certain recommendations are impractical for the settings of these clinics, methods such as telemedicine and contact tracing, other practice recommendations were implemented to continue to provide services and support for the clinic sites. These practices included the modified TB questionnaire, training of the onsite clinic staff for screening before medical students were withdrawn from clinical duties and maintaining open lines of communication and support for clinic sites. Each site made a decision that was in the best interest of its clinic patient population: four out of the six clinic sites were able to accept the adaptations to the usual operations and utilize the provided resources, and the two sites that did not utilize the modified TB questionnaire provided by the program responded in different ways. One site sent out its patients to a community TB testing site for TB testing and the other site decided to cease TB testing until the TUSOM medical student-run clinic is able to resume its activity.

However, this halt in services is not without consequence. Residents of these sites will have been living in close quarters without testing for a significant amount of time. While an active case of TB is relatively rare, even with screening, the lack of testing increases risk of transmission as residents' TB status will remain undetermined. When testing is able to resume, there will likely be a backlog of clients requiring testing. Medical student leaders plan to tackle this challenge by increasing testing capacity, using university funding for student clinical activities and program grant funding. In turn, this may lead to an influx of positive TST referrals to the Wetmore TB Clinic in a relatively short period of time as the backlog is addressed, which could increase their patient census and put a strain on their clinics. Suspension of these services, while necessary, will continue to have lasting, long-reaching consequences both anticipated and unanticipated.

Conclusions

Though it was a deviation from the status quo and ideal clinical care, the modification of the Tulane TB Testing Program to ensure continued patient care with a simple, manageable solution highlights the innovative ways medical students can continue to serve their communities during this difficult time.

Acknowledgements

We would like to thank the Wetmore TB clinic staff and the Louisiana Department of Health Region 1 Office of Public Health for their facilitation and cooperation through these unprecedented times.

Disclosures

The authors have no conflicts of interest to disclose.

References

1. Crawford A, Foroushani S, Woodbridge A, et al. Creation and expansion of a multisite tuberculosis screening initiative. J Stud Run Clin. 2020 Aug 10;6(1). LINK
2. Louisiana Department of Health. Public-Health Sanitary Code [Internet]. Sanitary Code. Sect. Part II The Control of Diseases; 2010 Jan [cited 2020 Apr 4]. 358 p. Available from: https://www.la.gov/assets/oph/Center-PHCH/Center-PH/tuber/LouisianaAdministrativeCodeTitle51PublicHealthSanitaryCodeJan2010.pdf. LINK
3. Foroushani S, Woodbridge A, Frechtling D, et al. Evaluating follow-up rates and barriers to follow-up at a student-run, community-based tuberculosis testing clinic. J Stud Run Clin. Forthcoming.
4. Administrative Controls [Internet]. Atlanta (GA): Centers for Disease Control and Prevention; 2018 [cited 2021 May 12]. Available from: https://www.cdc.gov/tb/topic/populations/homelessness /AdminControls.htm. LINK
5. Tuberculosis control in vulnerable groups [Internet]. Geneva (Switzerland): World Health Organization; 2008 Sept [cited 2021 May 12]. Available from: https://www.who.int/bulletin/volumes/86/9/06-038737/en/. LINK
6. Prevention and control of tuberculosis among homeless persons recommendations of the advisory council for the elimination of tuberculosis [Internet]. Atlanta (GA): Centers for Disease Control and Prevention; 1992 Apr [cited 2021 May 12]. Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/00019922.htm. LINK
7. Holshue ML, DeBolt C, Lindquist S, et al. First case of 2019 novel coronavirus in the United States. N Engl J Med. 2020;382(10):929-936. LINK
8. Adhanom T. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020 [Internet]. Geneva (Switzerland): World Health Organization; Mar 2020 [cited 2020 Apr 4]. Available from: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020. LINK
9. Important guidance for medical students on clinical rotations during the coronavirus (COVID-19) outbreak [Internet]. Washington (DC): Association of American Medical Colleges; Mar 2020 [cited 2020 May 3]. Available from: https://www.aamc.org/news-insights/press-releases/important-guidance-medical-students-clinical-rotations-during-coronavirus-covid-19-outbreak. LINK
10. Guidance on medical students' participation in direct patient contact activities [Internet]. Washington (DC): Association of American Medical Colleges; 2020 [cited 2020 May 3]. Available from: https://www.aamc.org/news-insights/press-releases/covid-19-updated-guidance-medical-students-roles-direct-patient-care LINK
11. COVID-19 map [Internet]. John Hopkins University; 2020 [cited 2020 May 3]. Available from: https://coronavirus.jhu.edu/map.html. LINK
12. Ali J. COVID-19 era with or without lockdown - tuberculosis control measures through tuberculosis program clinics must go on [Internet]. TouchRESPIRATORY. 2020 April [cited 2020 May 15]. Available from: https://touchrespiratory.com/insight/covid-19-era-with-or-without-lockdown-tuberculosis-control-measures-through-tuberculosis-program-clinics-must-go-on/. LINK