

A decrease in tuberculosis evaluations and diagnoses during the COVID-19 pandemic

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Dear Editor,

The worldwide spread of COVID-19 has had important implications for core public health surveillance functions. As resources are diverted and the public has been asked to shelter-in-place, the surveillance for and diagnosis of other communicable diseases of public health importance has become more challenging. For tuberculosis (TB), with an untreated case fatality rate of approximately 10%, the potential consequences of delayed or missed diagnoses may increase TB-related hospitalizations and death.

The San Francisco Department of Public Health (SFDPH) TB Clinic oversees the evaluation and management of all presumed or confirmed active TB cases for San Francisco residents (estimated population 881,549). In 2019, San Francisco had one of the highest incidences of TB in California, with a rate of 13 per 100,000, which is over five times the national US average of 2.7 per 100,000. Over 90% of our active cases are non-US born and the most common countries of origin are China, the Philippines, and Viet Nam. Over 80% have been in the United States over 5 years.¹

On January 30, 2020, the WHO declared the outbreak of COVID-19 a public health emergency of international concern.² From February 2 onwards, the United States imposed an entry ban on all foreign nationals who had been in the People's Republic of China in the past 14 days, and all other nonessential international travel was subsequently discouraged.³ In March, SFDPH issued a legal order for shelter-in-place, and a moratorium on routine medical appointments and elective surgery was put into effect.⁴ As a result of these restrictions, the number of patients in San Francisco seeking medical evaluation for signs and symptoms of active TB dropped substantially. Likewise, the restrictions in entry for Chinese foreign nationals and overall decline in international airline travel resulted in a dramatic decrease in the number of B-notification immigrants. These are immigrants who on overseas evaluation have had signs or symptoms, physical examination, or radiographic findings suggestive of TB, or positive interferon-gamma release assay or tuberculin skin test but are not diagnosed with active TB disease and require evaluation upon entry to the United States. The average number of patients being managed for active TB from February to May in 2018 and 2019 were 74.8 and 75.8 respectively, compared to 56.3 for the same period in 2020. Likewise, the total number of patients initiated on TB therapy for active disease for February–May in 2018 and 2019 were 47 and 42, respectively, compared to 17 for the same period in 2020. Of these combined 106 initiated on treatment over the 3 years, only 6 (5.6%) were new immigrants arriving in the United States in the preceding 6 months. The total number of B-notification immigrant evaluations for February–May in 2018 and 2019 were 84 and 76, respectively; these dropped to 19 for the same period in 2020 (see Figure). Overall in-clinic evaluations in 2020 have also declined (254 in February, 172 in March, 75 in April, and 64 in May), likely as a result of measures to encourage social distancing and shelter-in-place.

The SFDPH TB Clinic responded to the COVID-19 outbreak with a multi-faceted approach to ensure safe evaluation and management of patients. Certain services have been prioritized, including: evaluation of new presumed and active TB patients; evaluation of homeless patients for shelter placement; and treatment of high-risk latent TB patients (including those with immunocompromised status, radiographic lesions suggestive of old TB disease, pregnancy, age <15 years, recent converters or close contacts of active TB cases). More emphasis has been placed on education of, and referral to, primary care providers to treat patients with uncomplicated latent TB. Other services have been deprioritized: non-essential training has been cancelled; research activities have been postponed; and surveillance reporting has been reduced.

Strategies to keep patients safe during shelter-in-place orders have included increased utilization of video directly observed therapy; increased self-administered therapy, with regular telephone follow-up to assess adherence, new symptoms or TB-drug related adverse events; and prioritizing contact investigations of smear-positive patients in the household and workplace. More resources have also been devoted to providing safe transportation by private car, and nurse assessments of the most vulnerable elderly and immunocompromised patients (performed in-home or by telephone evaluation).

In summary, evaluations for active TB by the SFDPH TB Clinic in 2020 have dropped by over 60% compared to pre-pandemic levels in the preceding 2 years. This report provides programmatic data to support projections of the untoward consequences of COVID-19 on TB care.⁵ These findings are consistent with concerns about how changes introduced to combat COVID-19 are a barrier to care for patients reported in high TB burden countries, including China, India, and Nigeria.⁶⁻⁸ The TB public health community should anticipate and prepare for the resulting effects of delayed diagnosis, evaluation and treatment of patients with both active and latent TB, including an increase in reactivation of cases from an untreated latent TB reservoir, more severe clinical presentations, and an increase in new cases resulting from undetected community transmission. A recent modeling analysis conducted by the Stop TB partnership suggests that the disruption of TB activities in a 3-month period with a prolonged 10-month restoration phase could result in a global excess of up to 6.8 million TB cases and an additional 1.4 million TB deaths over the next 5 years.⁹ In San Francisco, where TB occurs predominantly in immigrant and marginalized populations, who lack ready access to medical care, the effect is also likely to be pronounced.¹⁰

COVID-19 has also raised public awareness of the need to employ approaches to prevent ongoing transmission, which could be applied to other communicable diseases of public health concern. For example, building on this awareness with training in the skills needed for TB control, including case investigation and contact tracing, would revitalize the public health workforce.¹¹ If combined with new electronic platforms (for screening contacts, to educate on symptoms and encourage prompt medical evaluation), it may present an opportunity to make substantial progress toward TB elimination.¹¹ More data are required to verify how COVID-19 is impacting TB control efforts in both high- and low-incidence settings, and to what extent COVID-19 containment strategies can be leveraged to enhance TB screening and prevention efforts.

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Figure Trends in total number of active TB cases, new active TB evaluations and new B-notification immigrants, February–May, 2018–2020, San Francisco, CA, USA. * For the period 1–25 May 2020. TB = tuberculosis.

