

TB and COVID-19 in migrants – the need to focus on both conditions

In the board game “Pandemic”, players form a team of medical and para-medical staff attempting to control disease outbreaks. Winning the game requires cooperation, careful planning, attention to multiple simultaneous events and the ability to adapt swiftly. In reality, the prevention and mitigation of a real pandemic also requires resources and involves personal and public tragedies, economic effects, political needs, overcoming “pandemic fatigue”, and international cooperation. Nonetheless, the game provides important lessons for how we should operate in the real world.

Disease outbreaks and pandemics have occurred throughout history, and can be accelerated by population density, lower levels of hygiene, travel or migration. In addition, a number of countries have more than one concurrent epidemic, as illustrated by the ongoing Ebola outbreak.¹ The SARS-CoV-2 virus has been spreading since the first months of 2020 and disproportionately affects populations living in overcrowded conditions.² Therefore migrants, and those who are detained or do not have stable housing, are more susceptible to SARS-CoV-2.^{3,4} The morbidity and mortality due to COVID-19 can be significant, particularly in settings where medical systems are already fragile or inefficient – or among migrants, whose eligibility for medical care is limited.⁵ In addition, migrants may be stranded in host countries with increased vulnerability because of unemployment, social instability and loss of income, which may decrease their already limited access to food, housing and healthcare services. As migrants are often ineligible for social benefits and lack health or economic safety nets, they may be forced to work even when ill, or under isolation or quarantine. Furthermore, enforced travel restrictions by national authorities can potentially decrease migrants’ access to medical care by requirements of documents on their way to the clinic or by aggravating the attitudes of the authorities due to their unstable legal status.

Mycobacterium tuberculosis and SARS-CoV-2 share some commonalities, including the respiratory transmission route and several risk factors (including older age and pre-existing pulmonary diseases). Migrants are at a greater risk for *M. tuberculosis* infection because of the higher incidence in countries of origin or adverse circumstances during transit and arrival in the country of destination.⁶ New evidence,

including mathematical modelling,⁷ demonstrates that TB incidence is predicted to significantly increase as a result of direct, and particularly, indirect impacts of COVID-19.^{8,9} Furthermore, as a recent review¹⁰ and other new evidence suggest,¹¹ TB-COVID-19 co-infection may lead to worse treatment outcomes. Together with higher incidence, this could lead to increased TB mortality and morbidity.¹²

Healthcare systems globally have been allocating resources to control the rapid spread of COVID-19. Consequently, medical personnel, equipment and materials have been diverted to diagnose, treat and research into COVID-19.¹³ In line with this reprioritisation, the gap in TB care has widened.^{9,14} While medical attention and resources have decreased,¹⁵ travel restrictions and lock downs have also restricted access to diagnosis and treatment for TB.¹⁶ Additionally, border closures can interfere with the global TB drug distribution chain, which in turn increases the risk for the development of drug resistance.¹⁷ Furthermore, the global distribution of anti-TB drugs is being disrupted, which risks the interruption of necessary continuous and appropriate treatment regimens and may increase the risk for developing drug resistance. Finally, the BCG vaccine (the only vaccine licenced against TB) is being sought for its potential protection against SARS-CoV-2 infection.^{18,19}

While the scientific community is gaining experience in understanding and controlling COVID-19, lessons from the field of TB can be used in the fight against COVID-19.^{20,21} Practitioners who work in TB programmes have gained wide experience in treating vulnerable and hard-to-reach populations. Many have already established effective communication channels with the migrant community, reduced knowledge gaps, built trust and established effective mechanisms for their support and involvement. The medical expertise and current infrastructure established for TB care is a valuable resource that can also be used to respond to COVID-19 in migrants.²² Integration of TB and COVID-19 efforts among migrants could have a synergistic effect, as illustrated through a few examples in different countries.

In India, while the ongoing COVID-19 pandemic has stressed healthcare systems and interrupted TB programmes, considerable synergies have also been

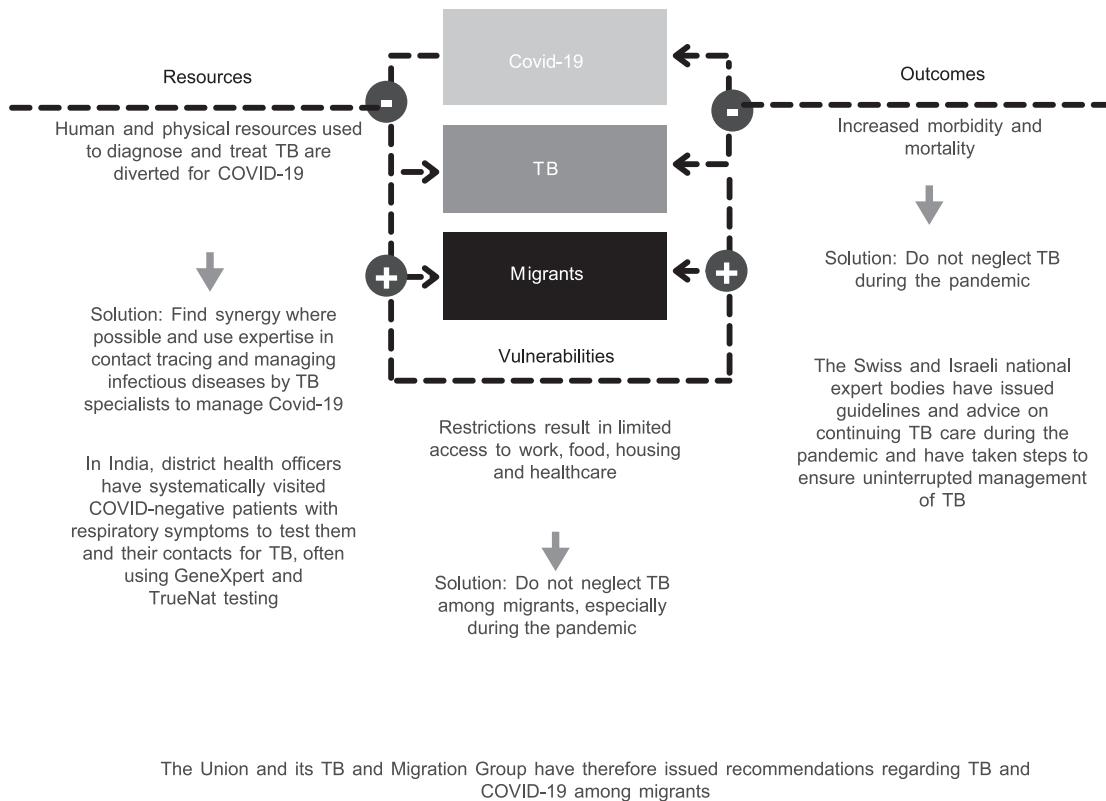


Figure Covid-19, TB and migrants.

found. For example, district health officers have systematically visited COVID-19-negative patients with respiratory symptoms to test them and their contacts for TB, often using GeneXpert (Cepheid, Sunnyvale, CA, USA) and TrueNat (MolbioDiagnostics, Verna, India) tests. In Switzerland, a low TB incidence country, contact tracing for TB has continued with fewer cases notified than in the last 10 years and the need for continuous care for patients with TB has been highlighted by the Swiss National Lung Association.²³ COVID-19 contact tracing has been scaled-up extensively by cantonal authorities for all individuals with infection according to recommendations from the Federal Office of public health. In Israel, another low TB incidence country, the Ministry of Health issued guidelines for the continuum of care for TB patients soon after the first COVID-19 patient was detected in the country. New technologies, including video-observed therapy (VOT), were introduced to support TB treatment during lockdown. However, in all three settings, a shifting of resources from TB to COVID-19 has also been observed, and loss of key trusted individuals (for example, that of the Eritrean community worker in Tel Aviv, Israel, who acted as a ‘bridge’ to his community) has had a negative effect on TB care.

It is now over a year since COVID-19 was declared a pandemic by the WHO and we need to ensure sustainable continuation of TB care in all countries.^{24,25} The Union and its TB and Migration Group

have therefore issued recommendations regarding TB and COVID-19 among migrants. This emphasises the need to continue to pay close attention to TB control, to ensure early and appropriate diagnosis and care of COVID-19 and TB for all, including migrants, and to ensure that TB care in migrants is not neglected so that the control of both diseases can be optimised or even synergised, where appropriate.

It is harder to tackle more than one epidemic at once, but as the game “Pandemic” demonstrates, if you neglect one disease to focus solely on another, you cannot win.

I. MARGINEANU¹
Z. MOR^{2,3}
D. GARCIA⁴
C. GILPIN⁵
S. DHAWAN^{6,7}
N. RITZ⁸
D. ZENNER⁹

¹Department of Clinical Pharmacy and Pharmacology, University Medical Centrum Groningen, Rijksuniversiteit Groningen, Groningen, the Netherlands;

²Tel Aviv Department of Health, Ministry of Health, Tel Aviv,

³Ashkelon Academic College, School of Health Sciences, Ashkelon, Israel;

⁴Migrant Clinicians Network, Austin, TX, USA;

⁵International Organization for Migration, Geneva,

Switzerland;

⁶Partasia Biopharm, New Delhi, India,

⁷SHARE INDIA, Delhi, India;

⁸Paediatric Infectious Diseases and Vaccinology Unit, Mycobacterial and Migrant Health Research, University Children's Hospital Basel, University of Basel, Basel, Switzerland;

⁹Centre for Global Public Health, Institute for Population Health Sciences, Queen Mary University of London, London, UK

Correspondence to: Ioana Margineanu, Department of Clinical Pharmacy and Pharmacology, University Medical Centrum Groningen, Rijksuniversiteit Groningen, Hanzelplein 1, Groningen, The Netherlands. e-mail: i.s.margineanu@umcg.nl; ismargineanu@gmail.com

Conflicts of interest: none declared.

References

- 1 Morens DM, et al. Pandemic COVID-19 joins history's pandemic legion. *MBio* 2020; 11: e00812-20.
- 2 Rader B, et al. Crowding and the shape of COVID-19 epidemics. *Nat Med* 2020; 26: 1829–1834.
- 3 Bozorgmehr K, et al. COVID and the convergence of three crises in Europe. *Lancet Public Health* 2020; 5: e247–e248.
- 4 Brandenberger J, et al. The global COVID-19 response must include refugees and migrants. *Swiss Med Wkly* 2020; 150: w20263.
- 5 Organisation for Economic Co-operation and Development. COVID-19, crises and fragility. Paris, France: OECD, 2020 <https://www.oecd.org/coronavirus/policy-responses/covid-19-crises-and-fragility-2f17a262/>
- 6 Walker TM, et al. A cluster of multidrug-resistant *Mycobacterium tuberculosis* among patients arriving in Europe from the Horn of Africa: a molecular epidemiological study. *Lancet Infect Dis* 2018; 18: 431–440.
- 7 Stop TB Partnership. Developed by Stop TB Partnership in collaboration with Imperial College, Avenir Health, Johns Hopkins University and USAID. The potential impact of the COVID-19 response on tuberculosis in high-burden countries: a modelling analysis. Geneva, Switzerland: Stop TB Partnership, 2020. http://www.stoptb.org/assets/documents/news/Modeling%20Report_1%20May%202020_FINAL.pdf
- 8 World Health Organization. Global tuberculosis programme: Our response to COVID-19. Geneva, Switzerland: WHO, 2020 <https://www.who.int/teams/global-tuberculosis-programme/covid-19>
- 9 Migliori GB, et al. Worldwide effects of coronavirus disease pandemic on tuberculosis services, January–April 2020. *Emerg Infect Dis* 2020; 26(11): 2709–2712.
- 10 Motta I, et al. Tuberculosis, COVID-19 and migrants: Preliminary analysis of deaths occurring in 69 patients from two cohorts. *Pulmonology* 2020; 26: 233–240.
- 11 Tadolini M, et al. Active tuberculosis, sequelae and COVID-19 co-infection: first cohort of 49 cases. *Eur Respir J* 2020; doi:10.1183/13993003.01398-2020.
- 12 Visca D, et al. Tuberculosis and COVID-19 interaction: A review of biological, clinical and public health effects. *Pulmonology* 2021;27: 151–165.
- 13 Zhou S, Van Staden Q, Toska E. Resource reprioritisation amid competing health risks for TB and COVID-19. *Int J Tuberc Lung Dis* 2020; 24: 1215–1216.
- 14 Kadota JL, et al. Impact of shelter-in-place on TB case notifications and mortality during the COVID-19 pandemic. *Int J Tuberc Lung Dis* 2020; 24: 1212–1214.
- 15 World Health Organization. Global TB progress at risk. Geneva, Switzerland: WHO, 2020. <https://www.who.int/news-room/item/14-10-2020-who-global-tb-progress-at-risk>
- 16 Huang F, et al. The impact of the COVID-19 epidemic on tuberculosis control in China. *Lancet Regional Health* 2020; 3: 100032.
- 17 Wilson FA, Miller TL, Stimpson JP. COVID-19 and TB control in immigrant communities. *Int J Tuberc Lung Dis* 2020; 24: 975–977.
- 18 Fritsch N, Curtis N, Ritz N. Bacille Calmette Guérin (BCG) and new TB vaccines: specific, cross-mycobacterial and off-target effects. *Paediatr Respir Rev* 2020; doi:10.1016/j.prrv.2020.08.004.
- 19 Schaaf HS, et al. Bacille Calmette-Guérin (BCG) vaccine and the COVID-19 pandemic: responsible stewardship is needed. *Int J Tuberc Lung Dis* 2020; 24: 732–734.
- 20 Nguyen T-A, et al. Adapting a TB contact investigation strategy for COVID-19. *Int J Tuberc Lung Dis* 2020; 24: 548–550.
- 21 Dara M, et al. New diseases and old threats: lessons from tuberculosis for the COVID-19 response. *Int J Tuberc Lung Dis* 2020; 24: 544–545.
- 22 Echeverría G, Espinoza W, de Waard JH. How TB and COVID-19 compare: an opportunity to integrate both control programmes. *Int J Tuberc Lung Dis* 2020; 24: 971–974.
- 23 Bag BFG. Zahlen zu Infektionskrankheiten. In: Bundesamt für Gesundheit. <https://www.bag.admin.ch/bag/de/home/zahlen-und-statistiken/zahlen-zu-infektionskrankheiten.exturl.html/aHR0cHM6Ly9tZWxkZXN5c3RlbWUuYmFnYXBwcy5jaC9pbmZyZX/BvcnRpbmcvZGF0ZW5kZXRhawxzL2QvdHViZXJrdWxvc2UuaHrt/bd93ZWJncmFiPWlnbm9yZQ==.html> [Accessed 30th January 2021].
- 24 Keddy KH, Migliori GB, Van Der Walt M. Developing health policies in patients presenting with SARS-CoV-2: consider tuberculosis. *Lancet Global Health* 2020; 8: 1357–1358
- 25 The TB/COVID-19 Global Study Group. TB and COVID-19 co-infection: rationale and aims of a global study. *Int J Tuberc Lung Dis* 2021; 25: 78–80.