Reply to: Taking action to improve post-TB lung health

Dear Editor,

We appreciate the encouragement we have received from Professor Harries et al.,[1] and others who advocate for wellness after TB in the context of the 1st International Post-Tuberculosis Symposium.[2,3] The Symposium involved considerable input from many and was always meant to be a gathering point on the journey to improving post-TB outcomes, and not an end in itself.

The three points raised by Harries et al.[4] are entirely consistent with the consensus of The Symposium. The 'Fourth 90' aimed at good health-related quality of life after TB could naturally be divided into secondary (at the time of TB treatment) and tertiary (after treatment) prevention of post-TB complications. In relation to the latter, the authors rightly advocate for exit assessments at TB treatment completion. However, what became clear at the Symposium was at least three things are likely needed to ensure National TB Programme uptake. First, robust estimates of the residual disease burden and resultant cost implications for individuals, communities and healthcare systems as a whole. Second, evidence-backed assessment measures of residual impairment that also take into consideration psychosocial impact, as it remains unclear which parameter (physiological, radiological and symptoms) will correlate best with long-term outcomes in post-TB lung disease (PTLD). The proposed 6-minute walk test is a good start, but is not without its limitations,[5] as it does not assess certain impacts (e.g., exacerbation frequency) and has itself yet to be validated against longer-term outcomes in PTLD. Finally, interventions proven to be effective provide the much-needed justification for PTLD diagnosis at the end of treatment. All three are currently lacking robust data, obliging our community to generate the evidence needed as quickly as possible, and possibly to establish well-resourced nodes of post-TB research in high-burden settings, to achieve this end.

In line with the 'Fourth 90', we would however, like to go a step further, and call on the WHO to broaden the primary endpoints in TB treatment trials, to include measures of lung (e.g., spirometry) and wellness (particularly psychosocial) preservation, and not settle for endpoints of microbiological cure alone. Eradication of TB is the ideal primary prevention strategy; however in the interim, we need to know if all anti-TB drugs and regimens are equally effective in secondary prevention of complications, or if some are better than others.

Most importantly, Professor Harries et al. recommend including TB survivors in driving the post-TB agenda,[1] which strongly echoes the ethos of the Symposium. By design, our organising committee contained a number of patient advocates, and we hope to lean increasingly on TB survivors and advocacy organisations to guide and direct the field.

By consensus, a Second International Post-Tuberculosis Symposium was agreed and will be held in 2022. As Harries et al. wisely encourage,[1] we will endeavour to include global leaders and funders of TB research in the Symposium as vital participants. We will also extend the invitation to other workers in the field from all disciplines, as well as post-TB advocates, who may not have been able to attend previously.

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Changes to TB care in an outpatient centre during the COVID-19 pandemic

Dear Editor,

Since the beginning of the COVID-19 pandemic, many institutes, organisations, researchers and medical staff have predicted significant disruption to TB care. Many scientific reports, including the recent article by Meneguim et al. have identified the main

challenges faced and possible ways of adapting TB clinics during the COVID-19 pandemic.[1]

By the end of January 2020, the WHO declared the COVID-19 outbreak a global health emergency, and the outbreak has gone on to become the most serious global public health crisis of this century. Accordingly, since February 2020, comprehensive and large-scale preventive and control measures have been launched.[2] As expected, these measures have already caused significant disruption at the economic level and challenged the resilience of individuals and societies. Unfortunately, the COVID-19 pandemic also has the potential to slow the gains achieved in recent years in TB control. Even during a pandemic, clinicians still need to follow-up, treat and manage TB patients.[3] Some studies have already shown that TB detection has declined during the lockdown,[4,5] and reduced TB case notifications have been reported from the three highest TB burden countries.[4,6,7] Nigeria, the country with the highest burden of TB in Africa is an example of this: the number of presumptive cases and TB case detection decreased by respectively 35% and 34% between 2019 and 2020.[8] The WHO and others estimate that with a 3-month lockdown plus a 10-month recovery period, an additional 6.3 million new TB cases and 1.4 million additional deaths will occur globally due to TB until 2025.[4,9]

In Portugal, the first case of COVID-19 was diagnosed on 2 March 2020. By 20 November, Portugal had 249 498 confirmed cases and 3,762 deaths.[10] The Portuguese Government declared a state of emergency from 22 March until 4 May to contain the spread of the virus. As of 20 November, Portugal is once again in a state of emergency. As the first cases of COVID-19 were identified, the provision of essential services in the country (including those for TB), were heavily affected by lockdown regulations and the reassignment of health care workers to COVID-19. As part of the adjustments, rules and restrictions made by the Government, the TB Outpatient Centre in Vila Nova de Gaia (located in the north of Portugal), remained open, although some changes in routine procedures were introduced. The changes to TB care and prevention measures are summarised in the Table.

Complementary COVID-19 and TB responses can assist in curbing both conditions to save lives. Many TB control practices such as triage in primary care settings, cough etiquette, contact tracing and infection control measures in both health centres and the community, also benefit the COVID-19 response. Although all these procedures are related to a pandemic that is having a huge, negative impact, the positive aspects of the health services' response should be acknowledged. The measures implemented (Table) have contributed to maintaining and improving intersectoral cooperation between different clinical centres to continuously monitor the response to TB prevention and care.

In Portugal, this specific TB Outpatient Centre actively engaged with the premise of not leaving anyone behind, assembling a significant and rapid response to COVID-19, while ensuring that TB and other essential health services were maintained. To date, no healthcare professionals has been infected with COVID-19 and only two TB patients have had COVID-19 and TB co-infection.

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Table TB care and prevention measures before and during the COVID-19 pandemic at a TBOC in North Portugal

Domains	Past actions	Present actions since the beginning of the COVID-19 pandemic
Case finding	Clinical consultations: patients with active TB were evaluated on monthly face-to-face medical consultations throughout the course of the disease	Development of new standards of clinical consultations: patients with active TB are evaluated during face-to-face medical consultations during the first 2 months Establishment of tele-consultations for individuals with presumptive TB: after an initial period, patient follow-up is carried out by telephone. Every month, the results of the recommended blood tests are sent to the doctor by e-mail
	Specimen transportation: collection of blood and sputum samples from the TBOC and transport to the respective laboratory was done by the usual carrier	Action unchanged*
	Medical discussion of cases and rapid test results: staff from the TBOC met every week to discuss new or suspected cases of TB; in-person meetings with public health staff also occurred monthly to discuss the contacts/screening regarding TB	Improvement of digital connectivity solutions between professionals for medical discussions of cases and better and rapid test results: all staff meetings are held using Microsoft Teams (Microsoft, Redmond, WA, USA)
	Detection of active TB and management of latent TB infection: all known contacts of a positive TB case were referred to a TBOC for screening and evaluated at least twice (the number depended on the screening result) using face-to-face consultations	Strengthening of contact examination during community quarantine for the detection of active TB and management of latent TB infection: all patients with known contact with a positive TB case are referred to a TBOC for screening. Face-to-face nursing consultations and chest X-ray are performed. All contacts are contacted by phone to communicate the results. Patients with positive screening are invited for a face-to-face consultation in order to start treatment
	Examination of individuals at high-risk of TB infection: patients at high risk of developing TB (per biological testing, for example) were referred annually to the TBOC for screening and evaluated at least twice (the number depended on the screening result) using face-to-face consultation	Examination of individuals at high-risk of TB infection: all patients at high risk of developing TB (per biological testing, for example), continue to undergo annual TB screening. Face-to-face nursing consultations, chest X-ray and immunological tests are performed. All patients are contacted by phone to communication of the results. Patients with positive screening are invited for a face-to-face consultation in order to start treatment
	Early assessment and investigation of individuals suspected of having active TB: TBOCs had open consultations for community and hospital referral of individuals suspected of having active TB	Early assessment and investigation of individuals suspected of having active TB: the TBOC remained open for community and hospital referrals of patients suspected of having active TB.
Treatment	Prevention of loss to follow-up among confirmed TB cases doing TB treatment: all patients with active TB were kept on DOT during weekdays and took medication home for the weekend. Patients during the bacilliferous period took their medication at home (nursing home visits)	Prevention of initial loss to follow-up with innovative approaches for enrolment of bacteriologically confirmed TB cases and TB treatment: the majority of the patients are kept on weekly observed therapy, taking medication home for 7 days. These patients are contacted every day (mostly by phone) to ensure that the medication is taken. Patients who are suspected of not being compliant are kept on daily DOT Scaling-up digital adherence to anti-TB treatment interventions: only two patients are kept on video observed therapy, as most patients are unable to use this tool due to difficulties in accessing or using the internet
	Community-based TB treatment services: most patients took their medication at health centres closer to their homes. The TBOC remained in charge of clinical follow-up , although the number of face-to-face consultations was reduced, as previously described	Action unchanged*

Table (*continued*)

Domains	Past actions	Present actions since the beginning of the COVID-19 pandemic
Resources	Human resources for TB prevention and care: at least 3 nurses and 2–4 physicians were available for scheduled and urgent patient evaluations during each consultation period	Budget and human resources for TB prevention and care: in general, the budget and human resources remained unchanged. However, in an attempt to limit the number of people present at the same location, the number of medical personnel was reduced to just one physician per consultation period Mobilisation of community health workers, civil society organisations to strengthen the response to TB and also to COVID-19: some physicians dedicated to the treatment of TB were deployed to reinforce teams responding to COVID-19. However, these physicians also continued to pursue their usual activity at reference centres for TB
Organisation of space and care with the patients	Waiting room: there were no restrictions in the admission of patients/patient companions in the waiting room	Reduction in the number of people in the same space: patients with an appointment can only enter the waiting room alone and 15 minutes before their scheduled time. The waiting room has been reorganised and has now only one fifth of the capacity previously available
	Hand hygiene: alcoholic solution was available at the entrance but hand washing was not mandatory	Hand hygiene: When entering and leaving the centre, patients must wash their hands with an alcoholic solution (available at the entrance)
	Mandatory use of mask: only patients with active TB were obliged to use facial mask inside the facilities	Mandatory use of surgical mask: all patients are obliged to use facial masks inside the facilities. Social masks, are replaced by surgical masks (by the security guard)

* Some procedures and actions did not change since the pandemic.
TBOC = TB Outpatient Centre; DOT = directly observed therapy.