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TB BASICS: a framework to improve infection prevention and control practices

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Shareable abstract (@ERSpublications)

TB BASICS is a framework for improving infection prevention and control policies and practices at the health facility level. Implementation of this framework now spans over a decade, with countries around the world sharing valuable lessons. <https://bit.ly/41VGEB8>

To the Editor:

We were pleased to note that the recent publication by AKKERMAN *et al.* [1] on tuberculosis (TB) infection prevention and control (IPC) implementation guidance referred to TB Building and Strengthening Infection Control Strategies (TB BASICS). We take this opportunity to offer additional information about this strategy and highlight the application of TB BASICS in various settings.

TB BASICS is a risk reduction framework focused on improving TB IPC policies and practices at the health facility level. Developed by the US Centers for Disease Control and Prevention, TB BASICS has been implemented by health ministries in Africa, Asia, and Central and South America. Core elements of TB BASICS include training, mentorship of staff at health facilities on IPC practices, and standardised, facility-based risk assessments. The framework can be tailored to align with context-specific considerations and goals of the local TB programme. A sample of IPC measures typically evaluated during TB BASICS risk assessments is included in figure 1. Core component indicators are facility-wide, while administrative, environmental and respiratory protection indicators are assessed at the department level. A minimum of one baseline and one follow-up assessment is conducted at each participating facility.

In 2011, a set of precursory projects that focused on improving IPC policies and practices were carried out in numerous countries, including in Botswana and Zambia [2]. These projects featured similar components to those we see in TB BASICS today, including intensive healthcare worker training, detailed risk assessment tools, templates for facility-

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specific remediation plans, and capacity building for continuous quality improvement. In both countries, administrative measures, such as designating a TB IPC focal person and establishing an IPC committee, and managerial IPC policies and practices, such as cough monitoring and use of outdoor waiting areas, improved substantially during follow-up. In 2015, the Nigeria Ministry of Health was an early adopter of TB BASICS. Over a 6-month implementation period, seven enrolled facilities demonstrated substantial improvements in TB infection control measures, and established formal occupational healthcare screening programmes, which resulted in several TB diagnoses among healthcare workers [3].

Although TB BASICS was based in facilities supported by the US President's Emergency Plan for AIDS Relief (PEPFAR) in Botswana, Nigeria and Zambia, the framework has been applied outside of HIV-endemic settings as well. In 2017, the Chinese Center for Disease Control and Prevention embarked on an 18-month follow-up of nine health facilities representing a wide range of patient volume and socioeconomic development [4, 5]. This TB BASICS implementation was notable for its size (>3000 healthcare workers responded to a baseline survey on IPC knowledge, attitudes and practices), but also for robust monitoring data that allowed for more detailed analysis of specific IPC measures by department type.

Our experiences implementing TB BASICS have reaffirmed many of the concerns raised by AKKERMAN *et al.* [1]. In Belize, for example, outdoor sputum collection – not necessarily a resource-intensive practice – was not performed at any facility upon enrolment [6]. Observations such as this highlight other challenges, such as stigma and cultural factors, or practical considerations, such as rainy or cold climates, to upholding the highest infection prevention standards.

Beyond promoting a safer environment for staff, clients and visitors at the facility level, findings from TB BASICS have informed updates to national policies and guidelines in several countries [4, 7]. The benefits of investing time and effort to improve TB IPC have likely extended to other airborne diseases as well, including COVID-19 [4, 8]. As AKKERMAN *et al.* [1] pointed out, TB IPC should be part of “coordinated actions within the broader IPC framework” [1]. Findings from India, where TB BASICS was carried out through the establishment of airborne infection control units, highlight the spillover benefits associated with TB infection control strengthening. While mentorship transitioned to a virtual model during the COVID-19 pandemic, a follow-up assessment conducted when restrictions were lifted showed that progress in measures such as crowd management, social distancing and proper respirator use was made during the pandemic [8].

TB BASICS is one of many methods to operationalise globally recognised infection prevention tenets [9]. Implementation of this framework in varying forms now spans over a decade, with countries around the world sharing valuable lessons. Supported by PEPFAR, several countries – including Cameroon, Nigeria, Uganda and Tanzania – are adapting the TB BASICS framework for IPC at the facility level. Findings from its implementation in these countries may support the growing evidence of the benefits of implementing TB BASICS in routine practice. Those interested in implementing the TB BASICS toolkit may contact the corresponding author for more information.

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A) Facility-Level Core Components Indicators						
Indicator	Baseline			Follow Up		
An infection control (IC) practitioner or nurse has been assigned to carry out IC activities in the facility						
A written facility-specific infection control plan has been developed and is available to staff						
Staff members are screened for TB disease at least annually						

B) Department-Specific Indicators						
Indicator	Baseline			Follow Up		
	Outpatient	Inpatient	Laboratory	Outpatient	Inpatient	Laboratory
ADMINISTRATIVE						
Clients with cough or other symptoms of TB are promptly separated from others						
Cough etiquette signage is present in waiting areas						
Sputum samples are collected in a designated area with good ventilation away from others						
ENVIRONMENTAL						
All appropriate windows and doors are open on observation						
Occupancy of wards does not exceed one person per 6 cubic meters						
Regular maintenance for directional and extractor fans is documented						
RESPIRATORY PROTECTION						
Respirators are readily available to all staff who have contact with persons with confirmed or presumptive TB						
Staff can demonstrate proper respirator use						
There have been no stock-outs of respirators in the past 3 months						

	Fully implemented		Partially implemented		Not implemented		Not applicable
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FIGURE 1.

Abbreviated example list of indicators evaluated during TB Building and Strengthening Infection Control Strategies (TB BASICS) risk assessments at the facility level, and at the department level. TB: tuberculosis.