

Reducing Tuberculosis (TB) Risk to Healthcare Workers - Implementing an Occupational Safety Framework

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Abstract

Tuberculosis (TB) infection and disease are important occupational hazards for healthcare workers (HCWs), particularly for those in middle- and low-income countries with high TB prevalence. The problem is compounded by an alarming workforce shortage which is more acute among front-line workers such as physicians, nurses, and clinical officers, who provide the bulk of direct patient care. TB-related morbidity and mortality among healthcare workers often leads to inadequate staffing levels, poor quality of care, increased healthcare cost and stigma or discrimination towards healthcare staff. These effects are more pronounced when worker's safety and TB infection control (IC) measures are limited due to poor resources and lack of policy regulations. Providing a healthy work climate is an important part of healthcare worker retention strategies. Therefore, the development of comprehensive approaches to protect healthcare workers from the occupational risk of TB is needed for high TB burden countries. Appropriate occupational safety policy frameworks and workers' compensation schemes are essential to provide adequate mechanisms for mitigating TB burden among healthcare workers, as well as for the preservation of their mental, physical and emotional health.

The development and effective implementation of national occupation safety measures for healthcare workers at risk of TB requires a considerable level of advocacy and commitment from stakeholders at many levels. In some countries, putting into place an occupational safety and health (OSH) platform for TB disease amounts to a paradigm shift in how TB risk is considered at the health service delivery level. Efforts to develop an OSH framework for HCW should be undertaken in coordination with efforts to strengthen infection control measures (including monitoring and surveillance of HCW TB disease) and with the strong participation of multisector partners, including health worker's advocates, national labor offices, occupational safety regulatory agencies, and employers, as well as NTP and Ministry of Health personnel at various levels (including input from the service delivery level).

This paper presents a framework outlining action steps a country may take in formulating TB occupational safety strategies to encompass the needs of prevention and treatment of TB disease among healthcare workers. The framework constitutes some of the broad steps that should be considered by policy makers and advocates in high-burden TB countries and tailored to the appropriate needs of the setting.

Keywords: Tuberculosis; *Mycobacterium tuberculosis*; Occupational Safety and Health (OSH)

Impact of tuberculosis on health services

The risk of transmission of *Mycobacterium tuberculosis* from patients with TB to other patients and HCWs has been recognized for many years. Healthcare workers are part of the general community and if TB incidence and prevalence is high in the community, one can expect similarly TB burden in healthcare workers. However, the risk from TB is higher for health workers who work in close proximity to infectious TB patients (diagnosed and undiagnosed) on a day to day basis. The level of risk varies by occupational setting, job profile, patient population, and effectiveness of TB infection control measures. As expected, the risk is higher in facilities that manage large numbers of infectious TB patients who are not rapidly diagnosed, isolated, and treated, particularly in the absence of optimal TB infection control measures, such as administrative measures to control the flow of patients, environmental measures and respiratory protection

as recommended by the World Health Organization (WHO) policy, 2009 [1]. The policy also recommends that health service workplaces collaborate with occupational health and safety programs to ensure a safer work environment.

Who are the health workers?

WHO has classified health workers into a detailed, standard classification system that is consistent with the International Standard Classification of Occupations (ISCO, 2008 revision), a system for classifying and aggregating occupational information obtained by means of population censuses and other statistical surveys, as well as from administrative records. The ISCO classification is the basis for many national occupational classifications [2].

The WHO classification of health workers maps occupation categories into five broad groupings:

- 1) Health professionals;
- 2) Health associate professionals;
- 3) Personal care workers in health services;
- 4) Health management and support personnel; and
- 5) Other health service providers not elsewhere classified.

These classifications are intended to serve as a model to facilitate communication about health occupations, to enhance comparability of data on health workers within and across countries and over time, and to make it possible for data and information on health workers obtained from different sources to be produced in a form which can be useful for research as well as for decision-making and action-oriented activities. It is recognized that the full complexity and dynamics of national health labor markets may not be captured.

Health worker TB risk

The most recent systematic review of literature by Baussano, *et al.* was conducted to assess the annual risk for latent tuberculosis infection (LTBI) among HCWs, the incidence rate ratio for TB among HCWs worldwide, and the population-attributable fraction (PAF) of TB to exposure of HCWs in their work settings [3]. Stratified pooled estimates for the LTBI rate for countries with low (< 50 cases/100,000 population), intermediate (50 - 100/100,000 population), and high (> 100/100,000 population) TB incidence were 3.8% (range 3.0% - 4.6%), 6.9% (range 3.4% - 10.3%), and 8.4% (range 2.7% - 14.0%), respectively. For TB, estimated incident rate ratios were 2.4 (range 1.2 - 3.6), 2.4 (range 1.0 - 3.8) and 3.7 (range 2.9 - 4.5), respectively. Median estimated PAF for TB was as high as 0.4%. The review found that the risk for TB among HCWs is consistently higher than the risk among the general population worldwide. This finding confirms that TB is an occupational disease. Authors concluded that the introduction of TB transmission control measures, essential to protect HCWs, may decrease TB annual incidence among HCWs by as much as 49%, 27%, and 81% in countries with low, intermediate, and high TB incidence, respectively [4].

Another systematic review published in *PLoS Medicine* summarized the available evidence on the incidence and prevalence of LTBI and TB disease among HCWs in low- and middle-income countries (LMICs) [5]. This review of 51 studies from multiple countries showed that the prevalence of LTBI among HCWs was on average 54% (range 33% - 79%). In most studies, increasing age and duration of employment in healthcare facilities, indicating a longer cumulative exposure to infection, was associated with a higher prevalence of LTBI. Estimates of the annual risk of LTBI ranged from 0.5% to 14.3%, and the annual incidence of TB disease in HCWs ranged from 69 to 5,780 per 100,000. After accounting for the incidence of TB in the relevant general population (i.e. community transmission), the excess incidence of TB in different studies that was attributable to being an HCW ranged from 25 to 5361 cases per 100,000 people per year. In addition, a higher risk of acquiring TB was associated with working in specific locations (e.g. inpatient TB facilities or diagnostic laboratories) and with specific occupations, including nurses and radiology attendants. (see Table 1). As expected, most healthcare facilities examined in the published studies had no specific TB infection control programs in place. Due to lack of sufficient published studies, this review found little evidence on the impact of infection control measures in LMICs.

Work location	TB incidence rate ratio (relative to general population TB incidence rate)
Outpatient facilities	4.2 - 11.6
General medical wards	3.9 - 36.6
Inpatient facilities	14.6 - 99.0
Emergency rooms	26.6 - 31.9
Laboratories	42.5 - 135.3
Job Title	TB incidence rate ratio (relative to general population TB incidence rate)
Doctors	0.5 - 11.7
Nurses	1.5 - 43.8
Clinical Officer/Paramedic	7.9 - 41.5
Lab Technician	14.6 - 99.0
Patient/Ward attendant	12.4 - 120.4
Radiology Technician	32.5 - 256

Table 1: TB incidence rate ratio among HCWs, by work location and job title.

A similar review of published studies since 1960 in low- and middle-income countries (LMICs) and since 1990 in high-income countries (HICs) reported the median prevalence of LTBI in HCWs was 63% (range 33 - 79%) in LMICs and 24% in HICs (4 - 46%) [6]. The review also highlighted that LTBI was consistently associated with markers of occupational exposure in LMICs, while in HICs latent TB infections were often associated with non-occupational factors. The median annual incidence of TB infection attributable to healthcare work was 5.8% (range 0 - 11%) in LMICs and 1.1% (0.2 - 12%) in HICs. Rates of active TB in HCWs were consistently higher than in the general population in all countries, although findings were variable in HICs. The review also showed that administrative infection control measures had a modest impact in LMICs while the same were very effective in HICs. The analysis concluded that that TB remains a very important occupational risk for HCWs in LMICs and for workers in some institutions in HICs.

Table 2 identifies key risk factors for healthcare workers that could result in increased risk of getting exposed to TB.

Risk factors for HCWs
Number of TB patients examined Job characteristics and place of work Delay in diagnosis Patients with multidrug resistant strains Limited access to appropriate ventilation systems Non-compliance with aerosol dissemination precautions Immune suppressed and/or malnourished HCW.
HCWs working in specific workplace (TB and Chest divisions, Infectious Diseases wards, Microbiology laboratories) and performing thoracic endoscopy and “cough-inducing” procedures are especially at risk.

Table 2: Risk factors for occupational TB exposure in HCWs.

In sub-Saharan Africa (SSA) and South-East Asia, high rates of TB and HIV infection pose a serious threat for occupationally acquired TB among healthcare workers [7]. The progression from exposure to the development of active disease is a two-stage process governed by both exogenous and endogenous risk factors [8]. Exogenous factors such as the bacillary load in the sputum of the TB patient or proximity to the TB patient play a key role. Endogenous factors including human immunodeficiency virus (HIV), malnutrition, age, diabetes, smoking or air pollution also contribute to increased risk of acquiring the TB disease. It is estimated that about five percent of TB-infected cases will progress to active TB within the first two years after infection [9]. It is useful to know the annual risk of TB infection (ARTi) in healthcare workers.

A few studies have studied ARTi in high TB burden settings. A study by Corbett, *et al.* reported an ARTi of 19.3 per 100 person years (95% CI 14.2 - 26) in 159 Zimbabwean nursing students vs. 6.0 per 100 person years (95% CI, 3.5 - 10.4) in 195 polytechnics students (control group) [10]. The extremely high rates among nursing students imply intense exposure to patients with active tuberculosis during training. Similarly, retrospective cohort studies have reported high incidences of active disease in TB in healthcare workers, ranging from 1180 cases per 100,00 in the Western Cape of South Africa in 2002 [11] to over 5,700 cases per 100,000 in Malawi in 2003 [12].

A review of several Indian studies showed that nosocomial transmission of TB is an important, but poorly documented problem in India [13]. The prevalence of LTBI and ARTi appears to be high (about 5% per year, much higher than the national average of about 1.5%) among young HCWs and medical and nursing trainees, suggesting an increased risk of acquiring TB in a hospital setting [14]. The rate of active disease appears to be exceedingly high in subgroups such as interns, residents, and nurses [15]. For example, the estimated incidence of TB among medical residents was 10-fold higher than the incidence for the country. Interestingly, most Indian studies have shown that the predominant clinical presentation of TB in HCWs is extra-pulmonary (mostly pleural) [16]. This may indicate progression to disease from a newly acquired primary infection rather than the reactivation of latent TB.

A retrospective case record review of 334 patients with XDR-TB reported during the period 1996 - 2008 from Western and Eastern Cape Province, Cape Town, South Africa was conducted and analyzed for clinical and microbiological features, and treatment outcomes. From 334 case records of patients with XDR-TB, 10 HCWs were identified. Eight of the ten HCWs were HIV-uninfected, and four of the 10 had died of XDR-TB despite treatment. All 10 HCWs had received an average of 2.4 courses of TB treatment before being diagnosed as XDR-TB. The study concluded that in the Eastern and Western Cape provinces of South Africa, XDR-TB affects HCWs, is diagnosed relatively late, does not appear to be related to HIV status, and carries a high mortality. Authors stressed the urgent need to implement WHO infection control recommendations, availability to rapid drug susceptibility testing for HCWs with suspected M/XDR- TB, and further research to establish the actual risk and sources of infection (nosocomial or community) [17].

TB risk for workers in other high risk occupational settings

Health workers and other staff working in certain occupational settings such as extractive (mining) industries, homeless shelters and prisons are especially at risk as these settings are known to have high TB and MDR-TB burden as compared to the general community. Many miners and other industrial or transport workers in SSA are migrants from neighboring countries. As a result, even if they are correctly diagnosed with TB and put on the treatment, if and when they leave their work setting, they often have trouble continuing their treatment due to lack of mechanisms to coordinate TB services. Similarly, residents of homeless shelters and prisons are more prone to discontinue TB treatment due to their poor living conditions, lack of adequate nutrition and support services, and frequent mobility. Treatment default leading to the development of drug-resistant TB is a major concern in these settings. Therefore, it is necessary to ensure that the staff working at these settings are protected and have access to TB infection control measures and occupational safety services.

Analysis: HCW TB risk and existing mitigation measures

Although TB risk among HCWs has been well documented, published data on the burden of TB among HCWs from poor and developing countries infections is limited. Tracking of occupationally acquired TB disease among HCWs is difficult due to either lack of healthcare workers medical surveillance systems or lack of TB-related data in the existing systems. A weak culture of worker safety and lack of resources in the health sector may be contributing factors as well. While the infection control guidelines present the recommended practices

for reducing the risk of infectious disease transmission to patients and HCWs, depending on the country setting, the guidelines may not be mandatory or implementation unregulated. Frequently, day-to-day compliance, surveillance, and oversight are left to each individual health institution or employer. Review of the literature indicates that variations in organizational factors (e.g. occupational safety culture, policies and procedures, healthcare worker education and training) and individual factors (e.g. knowledge, perceptions of TB risk, past experience) are determinants of adherence to infection control guidelines for protection against infectious diseases. Organizational factors appear to be the most significant predictor of safe work behaviors rather than TB infection control only approaches. Due to the high prevalence of TB and emergence of MDR/XDR TB risk among healthcare workers, compliance with routine infection control procedures and HCW access to TB occupational safety measures are increasingly important issues.

A range of factors lead to creating challenging working conditions for HCW, particularly where HIV and TB contribute to understaffing. Mortality and morbidity due to TB among HCWs leads to worker absenteeism, disruption of health services, and loss of productivity. Investing in the health and safety of the healthcare workforce and their communities is mutually beneficial for health systems, their workers, and their patients.

Occupational safety and health services for health workers

Occupational Safety and Health services for reducing workers' risk of TB infection, disease, or mortality have the best chance of being effective when two general conditions are met:

- 1) TB occupational safety policies including healthcare workers' access to TB services and TB infection control measures, such as those recommended by the international (WHO/CDC) or national (Ministry of Health or NIOSH) agencies should be implemented to significantly reduce the transmission of *M. tuberculosis* in healthcare settings.
- 2) A standard/Act/ law/regulation to increase or sustain adherence to the recommended policies and procedures should be established. Organizations are more likely to comply with laws and regulations than with voluntary guidelines. A TB occupational safety standard is also likely to be clearer and more hazard specific than guidelines. TB OSH services must also be flexible enough to allow reasonable adaptation of procedures appropriate to the different levels of risk faced by workers within healthcare setting. Finally, a TB occupational safety standard will put health workers on stronger ground in identifying and challenging an employer's inadequate implementation of mandated tuberculosis infection control and occupational safety measures.

Existing OSH policies and guidelines

As discussed earlier, the lack of specific TB occupational safety policies in many countries is a serious hindrance to effectively combating the spread of the disease among healthcare workers. There are precedents, however, for the development of such a policy. The ILO Convention on Occupational Health Services (No. 161) and the ILO Recommendations on Occupational Health Services (No. 171) recommend that each country should implement and periodically review a coherent national policy on occupational health. Such services should protect the health of workers against potential hazards at work, ensure that each worker is suited to their job, provide emergency and definitive management for injuries or illnesses arising out of work, and maintain or improve health by the education and promotion of primary healthcare. The ILO Global Program on Safety, Health, and the Environment has also updated its list of occupational diseases (No. 194) to include TB under the category of occupational diseases caused by biological agents [18].

The WHO Global Strategy on Occupational Health for All (1995) calls for a comprehensive and competent occupational health service that is available at each workplace and accessible for each worker. Since 2006, the WHO has implemented an AIDS and health workforce plan called Treat, Train, and Retain (TTR). 'Retain' relates to a set of interventions to help ensure that countries are able to keep existing workers employed in the health system. These include improving the quality of the workplace environment, establishing occupational health and safety procedures, reducing the risk of contracting HIV and other blood-borne diseases, and addressing workplace issues such as stress and burnout, among others.

In view of the escalating HIV-TB co-infection, the joint ILO, WHO, and UNAIDS working group issued policy guidelines on improving health workers' access to HIV and TB prevention, treatment, care, and support services (Nov 2010). The 14-point guidance note provides guidelines to facilitate implementation of national and workplace policies including occupational health services and workers' compensation provisions.

Additional policy guidance currently in place includes the WHO Global Plan of Action on Workers' Health (2008 - 2017) which calls on all member states to develop national programs for health worker occupational health and safety and implement existing internationally agreed conventions, guidelines, and codes of practice on occupational health in the health sector.

TB occupational safety framework

The development and effective implementation of national occupation safety measures for healthcare workers at risk of TB requires a considerable level of advocacy and commitment from stakeholders at many levels. In some countries, putting into place an OSH platform for TB disease amounts to a paradigm shift in how TB risk is considered at the health service delivery level. Efforts to develop an OSH framework for HCW should be undertaken in coordination with efforts to strengthen infection control measures (including monitoring and surveillance of HCW TB disease) and with the strong participation of multisector partners, including health worker's advocates, national labor offices, occupational safety regulatory agencies and employers, to NTP and Ministry of Health personnel at various levels. In the long term, legislation which provides explicit protection for healthcare workers at risk of occupational TB infection may be sought; the framework below addresses intermediary measures which may be put in place to develop occupational safety guidelines geared to reducing the TB risk for health workers.

The purpose of the framework below is to offer action steps in formulating TB occupational safety and workers' compensation strategies. The framework constitutes some of the broad steps that should be considered by policy makers and advocates in high burden TB countries and tailored to the appropriate needs of the setting. Each item in the framework includes a brief description of the purpose and outcomes of the activity, possible roles of different partners, and measures of completeness and success.

Framework for development of TB OSH programs

Activity 1: Assess requirements and potential for TB occupational safety measures in the country

The MOH/NTP in collaboration with key partners from the Ministry of Labour should undertake a situational assessment of TB-related occupational health and safety in the country. This will include at a minimum the following components:

- 1) Review the regulatory frameworks in place to address TB in the workplace and its application to healthcare workers. Information should also be collated on the enforcement of these regulations and which partners can play a key role in collaborating with the NTP to facilitate the roll out and uptake of any TB-related occupational safety policy or compensation package developed.
- 2) Develop a national profile of TB burden and occupational risk among health workers in various cadres. Assess the existing surveillance systems for routinely monitoring TB disease among healthcare workers and identify recommended improvements. This will also include recommendations for updating the national list of occupational diseases to include TB.

Indicator: Assessment report published.

Responsibility: NTP and Ministry of Labour.

Activity 2: Establish a national taskforce

In order to build and maintain multisector commitment to address TB OSH, a national level taskforce should be convened to review and address the information gained from the situational assessment. The taskforce should be comprised of relevant partners as identified during the assessment. In addition to the NTP/ MOH and Ministry of Labour, these may include trade unions, the labor inspectorate, business associations, etc. Relevant international partners such as the WHO and ILO may participate on a regular or occasional basis. The group will be tasked with enumerating priorities for HCW occupational safety and to jointly develop an action plan to develop and roll out a TB occupational safety policy/compensation package.

Indicator: National Taskforce convened.

Responsibility: MOH and Ministry of Labour (MOL).

Activity 3: National taskforce drafts TB occupational safety guideline

Once priorities for a TB occupational safety policy have been outlined, the National Taskforce should move to further elaborate the structure of the TB OSH program leading towards the development of a full guideline. During this process, smaller subgroups within the taskforce may meet to address specific components of the anticipated guideline and report back to the wider group for consensus and to coordinate the final draft. Subgroups will be formed based on the expertise areas of the participants (however, each subgroup should aim to include participants from several sectors in order to help achieve consensus). Possible subgroups and themes to address may include:

- 1) Clinical subgroup: Admissible definitions of TB disease; required actions after occupational TB infection is notified (i.e. access to HIV counseling and testing; contact tracing of family members and close contacts).
- 2) Labour subgroup: Employee confidentiality requirements. Definition of cadres of health workers covered by OSH framework, i.e.:
 - a. Clinical service providers
 - b. Facility support staff, including in hospitality, maintenance and reception services.
 - c. Informal, lay and community workers.
 - d. Other providers or service personnel, i.e., pathologists and morticians, laboratory personnel, dentists.
- 3) HCW Health Promotion subgroup: Explores corollary measures to promote healthcare worker wellness programs, expand access to health promotion services for TB providers, promote ethical provision of services, follow up on access to treatment and care.
- 4) Coordination subgroup: Role of national programs in supporting and implementing TB OSH, Ministry of Health/ NTP, Ministry of Labor, Ministry of Finance.
 - a. Beneficiaries covered by guideline (public sector HCW, private or informal HCW).
 - b. Available funding and levels of workers' compensation.
- 5) Monitoring and Evaluation subgroup: Overseas measures for ongoing assessment and monitoring of TB risk and implementation of OSH measures; develops research priorities; explores cost effectiveness studies.
- 6) Legal subgroup: Process for ensuring access and enforcing guideline. Outlines role of government/NTP, employers, healthcare workers, and possible role of other regulatory or civil society bodies.
- 7) Others as needed.

Indicator: Subgroup reports developed and circulated. Draft TB Occupational Safety Guideline developed.

Responsibility: National Taskforce.

Activity 4: Draft guideline shared for review

According to the procedures for national policy review, the draft TB OSH guideline should be disseminated to key national policy makers outside the taskforce for review and feedback. Ideally, this should be a consensus-building process, whereby individual elements of the guideline are introduced to gain the support of stakeholders who will participate in implementation and to ensure the accuracy and relevance of each component. The Taskforce may wish to convene stakeholder's meetings or seek opportunities to share the draft policy at national workshops, etc. Review may also be sought by regional or international labor or health agencies, such as the SADC Health Office and WHO/ ILO.

Indicator: Draft Guideline disseminated. Consensus meetings held.

Responsibility: National Taskforce; MOH and MOL.

Activity 5: Guideline REVISED AND FINALIZED

Following the dissemination of the guideline, the Taskforce should meet to discuss required changes and revise the guideline based on the feedback received. The revised guideline should be reviewed and finalized in coordination with relevant national policy makers.

Indicator: Final TB OSH guideline developed and disseminated.

Responsibility: National Taskforce, MOH and MOL.

Activity 6: Plan and procedures to operationalize guideline developed

Once the revised guideline has been developed, the Taskforce should meet to develop an implementation plan and determine necessary procedures for operationalizing components of the guideline. Subgroups may be formed or assistance may be requested from partners in different sectors to address such issues as:

- 1) Process for reporting a case of occupational TB infection and filing a claim (i.e., employer and employee forms).
- 2) Reporting and information flow regarding numbers and outcomes of cases of occupational TB exposure.
- 3) Supply and provision of personal protective equipment.
- 4) Follow-up and monitoring of reported TB cases. This may include the introduction of surveillance of TB in National Occupational Diseases and injury notification system.

Indicator: Implementation plan developed. Subgroup reports developed including any forms or monitoring tools.

Responsibility: National Taskforce.

Activity 7: Establish/strengthen the occupational safety and health committee

Once the implementation plan has been developed, the Taskforce should coordinate closely with existing OSH implementation agencies, such as the national OSH committee if present, or to work with national stakeholders to establish such a committee if needed. This committee may comprise many of the members of the taskforce (and participation of the NTP should be ensured) but will graduate to day-to-day oversight of the TB OSH program. The committee should incorporate clear terms of reference, accountability, and responsibility for implementing the TB OSH guideline.

Indicator: Occupational Safety and Health Committee established and/or terms of reference adapted to incorporate oversight role for TB OSH guideline.

Responsibility: National Taskforce, MOH and MOL, OSH Committee.

Activity 8: Outreach and engagement with healthcare community

The OSH committee should coordinate with ongoing activities on the part of the MOH/ NTP to inform HCWs and managers regarding the TB OSH guideline. This should include ensuring the active participation of health worker professional associations, health worker clinics, training institutions, and associations of private providers. The OSH and MOH should collaborate on efforts to develop mechanisms to promote the dissemination and implementation of the OSH guideline. This may include priorities for training HCW to minimize risk of TB exposure (i.e., updating infection control trainings and tools to include information on the occupational safety procedures for TB infection), use of PPE, and how to access support when an occupational TB infection is acquired.

Indicator: Outreach meetings with health workforce organizations and departments.

Responsibility: OSH Committee, MOH/NTP.

Activity 9: Develop training plans for NTP and OSH personnel

As an outcome of ongoing engagement with the health workforce and in coordination with relevant regulatory bodies, capacity development plans should be implemented designed especially to:

- a) Strengthen OSH inspection - train occupational safety inspectors in TB occupational safety; and
- b) MOH and NTP training of trainers to incorporate information regarding occupational safety processes and health worker's rights in pre- and in-service trainings for TB providers.

Indicator: Training plans developed; number of trainings implemented.

Responsibility: OSH Committee, MOH, other regulatory bodies.

Activity 10: Monitoring and assessing long term implementation

The OSH Committee should consider ways to assess the effective implementation of the TB OSH policy and establish future steps. This may include incorporation of TB into the national occupational health research agenda and coordination with universities or other partners to carry out health and economic impact assessments.

Indicator: Semi-annual or annual assessment reports on progress towards implementation and impact of TB OSH guideline on reducing HCW risk.

Responsibility: OSH Committee.

Conclusions

WHO and CDC have developed a number of guidelines and public health standards that countries should adapt for creating safe working environments for healthcare workers. These include air-borne infections as well as other occupational risks. In 2017, WHO issued a report providing an analysis of the current spectrum of global, regional and national norms including conventions, standards, directives, regulations, guides, and codes directly relating to protecting health in the workplace [19]. Countries need to urgently develop occupational reduction strategies to reduce TB exposure to healthcare workers. The framework outlined here can help countries design and implement strategies for risk reduction.

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