Development of TB Occupational Safety Framework

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LIST OF ACRONYMS

aOR	Adjusted Odds Ratio
ART	Anti-Retroviral Treatment
ARTi	Annual Risk of TB infection
COIDA	Compensation for Occupational Injuries & Diseases Act
HCW	Health Care Workers
HIC	High Income Countries
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Virus
HSC	Health and Safety Committee
IGRA	Interferon γ Release Assays
ILO	International Labor Organization
IPT	Isoniazid Preventive Treatment
LMIC	Low and Middle Income Countries
LTBI	Latent TB Infections
MDR TB	Multi-Drug Resistant TB
MOH	Ministry of Health
MOL	Ministry of Labour
NTP	National TB Programme
OHSIS	Occupational Health and Safety Information System
OSH	Occupational Safety and Health
PD	Permanent Disablement
SSH	Sub-Saharan Africa
TB	Tuberculosis
TTD	Temporary Total Disablement
TTR	Treat, Train, Retain
TST	Tuberculin Skin Test
WHO	World Health Organization
XDR TB	Extensively Drug Resistant TB

1 EXECUTIVE SUMMARY

Tuberculosis (TB) infection and disease are important occupational hazards for health care workers (HCWs), particularly 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 where 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 development of comprehensive approaches to protect healthcare workers from 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 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 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, in additional to NTP and Ministry of Health personnel at various levels (including input from the service delivery level).

This report, developed by the USAID TB CARE II project led by University Research Co., LLC, provides a draft framework which outlines action steps a country may take in formulating TB occupational safety strategies to encompass the needs of prevention and treatment of TB disease among health care 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. The framework was presented to TB implementers and stakeholders for review and revision during the 42nd Annual IUATLD meeting in Lille, France in October 2011. The session served to build consensus around the need to look beyond infection control as the primary means to address health worker TB risk, and draw attention to potential strategies to expand social protections for TB providers.

2 INTRODUCTION

2.1 Rationale

Tuberculosis (TB) infection and disease are important occupational hazards for health care workers (HCWs), particularly 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 where worker's safety and TB infection control (IC) measures are limited due to poor resources and lack of policy regulations. Under these pressures many trained providers are forced to leave the health profession, leave the public sector, or migrate to work in other countries. Providing a healthy work climate is an important part of healthcare worker retention strategies. Therefore development of comprehensive approaches to protect healthcare workers from 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 preservation of their mental, physical and emotional health.

2.2 Methodology

The USAID TB CARE II proposes to introduce a framework for implementing TB occupational safety policies packages in high burden countries. As a first step a synthesis report has been developed following a desk review focused on the literature published from the high TB and HIV burden countries in Southern Africa, South Asia and Central Asia. The review presents the current information on TB risk among healthcare workers; summary of existing OSH policies/guidelines by the international agencies such as WHO and ILO; an examination of the strategies that are being used in healthcare-related work settings to mitigate the risk of occupationally-acquired TB including use of infection control plans (including implementation at the operational level); and existing legislative frameworks/ policies around occupational safety and worker's compensation for healthcare professionals and health center staff.

The information was used to develop a summary framework providing actionable steps to assist high burden countries in developing/implementing key TB occupational safety policies, implementation plans and minimum worker's compensation protocols. A consensus building meeting took place during the Annual IUATLD conference in Lille, France in October 2011, during which the synthesis report was reviewed by TB stakeholders and implementers who provided recommendations on the draft framework guidelines.

3 REVIEW OF OCCUPATIONAL SAFETY FOR TB

Methodology of literature review: The review focused on the published literature from high TB and HIV burden countries in Southern Africa, South America, South Asia and Central Asia. Online literature search using Pubmed for indexed articles and websites of international TB conferences, country governments and development agencies (WHO, ILO, World Bank, OSHA, CDC); lay information, news reports, and programmatic reports, policies and guidelines was used. A number of key words and combinations including "health care workers", "infection control', "nosocomial TB", "TB", "developing countries", "occupational safety", "occupational health" and "worker's compensation" was applied as a search strategy. The review was limited to the articles and reports published in English and within last 10 years.

3.1 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 similar 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 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.

3.2 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. 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[3].

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).[4] 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 5780 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 a 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 (**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.

> In most low and middle income countries, the incidence of active TB among healthcare workers was many times greater, and in some cases, twenty times greater than that of the general population.

A similar review of published studies since 1960 in LMICs and since 1990 in high income countries (HICs) reported the median prevalence of LTBI in HCWs as 63% (range 33-79%) in LMICs and 24% in HICs (4-46%). Among HCWs from LMICs, LTBI was consistently associated with markers of occupational exposure, but in HICs it was more often associated with non-occupational factors. The median annual incidence of TB infection attributable to health care 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. Administrative infection control measures had a modest impact in LMICs, yet seemed the most effective in HICs. The overall conclusion was that TB remains a very important occupational risk for HCWs in LMICs and for workers in some institutions in HICs.[5]

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

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 to 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 1a: Risk Factors for Occupational TB Exposure in HCWs

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.

The studies in

Table 2 have looked at latent TB among health staff using either tuberculin skin testing (TST) or newer interferon γ release assays (IGRA) (such as Quantiferon or EliSPOT). Note that most had previously been vaccinated with BCG, which can lead to some false positives in TST (especially with repeated testing).

Table 2: Prevalence of latent TB in HCWs (some selected studies)

Country	Number	% TST+	IGRA+
Georgia[6]	265	67	59
Taiwan[7]	39*	84	10
Uganda[8]	396*	57	ND
Côte D'Ivoire[9]	512*	79	ND
South Africa	152*	48.8	ND

* = BCG vaccinations

Therefore, sound TB infection control measures should be implemented in all health care facilities with patients suspected of having infectious TB. In fact, the TB rate among HCW is the main impact indicator for TB IC implementation measures. Better prevention, surveillance, and management of institutional M. tuberculosis transmission need to be supported.

Molecular studies suggest that about 32 to 42% of TB cases among HCW are related to occupational exposure.

3.2.1 Health Worker Risk in High Burden TB/HIV settings

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 health care workers. About half of active TB occurs in the first two years after infection, so 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 recent 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 the 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 newly acquired primary infection rather than reactivation of latent TB.

To identify factors associated with TB disease among staff of an 1800-bed hospital in Kenya, a case-control study, where cases (n = 65) were staff diagnosed with TB and randomly selected controls (n = 316) were staff without recent TB, was conducted. The annual incidence of TB from 2001 to 2005 ranged from 645 to 1115 per 100,000 population. Factors associated with TB disease were additional daily hours spent in rooms with patients (adjusted odds ratio [aOR] 1.3, 95% CI 1.2-1.5), working in areas where TB patients received care (aOR 2.1, 95%CI 1.1-4.2), HIV infection (aOR 29.1, 95%CI 5.1-167) and living in a slum (aOR 4.7, 95%CI 1.8-12.5) or hospital-provided low-income housing (aOR 2.6, 95%CI 1.2-5.6). Hospital exposures were associated with TB disease among staff at this hospital regardless of their job designation, even after controlling for living conditions, suggesting transmission from patients. The study concluded that health care facilities should improve infection control practices, provide quality occupational health services and encourage staff testing for HIV infection to address the TB burden in hospital staff.[17] The rates of treatment for TB are several times the national case notification rates in each country (approximately 700 or 800 per 100,000 case notification rates).

Annual TB risk in HCWs appears particularly high when there is **increased exposure** combined with **inadequate infection control** measures.

3.2.2 Health Worker Risk for MDR/XDR-TB

Health care workers are at greater risk for multidrug-resistant TB (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB) compared to the general population.

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 ten were HIV-uninfected, and four of 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). [18]

Another study estimated the rate of MDR-TB and XDR-TB hospitalizations among HCWs in KwaZulu-Natal, South Africa. Retrospective case review of patients with drug-resistant tuberculosis who were admitted from 2003 to 2008 in a referral hospital for the initiation of therapy was done. Estimated incidence of MDR-TB hospitalization was 64.8 per 100,000 among health care workers versus 11.9 per 100,000 among non-health care workers (incidence rate ratio, 5.46 [95% CI, 4.75 to 6.28]). Estimated incidence of XDR-TB hospitalizations was 7.2 per 100,000 among health care workers versus 1.1 per 100,000 among non-health care workers (incidence rate ratio, 6.69 [CI, 4.38 to 10.20]). A higher percentage of health care workers than non-health care workers with MDR-TB or XDR-TB were women (78% vs. 47%; $P < 0.001$), and health care workers were less likely to report previous tuberculosis treatment (41% vs. 92%; $P < 0.001$). HIV infection did not differ between health care workers and non-health care workers (55% vs. 57%); however, among HIV-infected patients, a higher percentage of health care workers were receiving antiretroviral medications (63% vs. 47%; $P < 0.001$). Health care workers in this HIV-endemic area were substantially more likely to be hospitalized with either

MDR-TB or XDR-TB than were non-health care workers. The increased risk may be explained by occupational exposure, underlining the urgent need for tuberculosis infection-control programs. [19]

The psychosocial impact of occupational MDR-TB on HCWs

The psychosocial impact of occupational MDR-TB on HCWs has received little attention in the literature. A retrospective medical record review from 1999 to 2003 found 15 HCWs who were treated for drug-resistant TB at a specialist hospital in South Africa. Five HIV negative doctors with no predisposing factors for drug resistance were interviewed to explore the long-term psychosocial impact of TB in 2009. Four doctors had primary MDR-TB and one had primary resistance to multiple first-line drugs. Time from symptom onset to commencement of effective treatment ranged from 8 to 39 weeks. Time for bacteriological confirmation of drug-resistant TB ranged from 6 to 24 weeks. All were cured within 3 years of initial presentation. Content analysis of follow-up interviews revealed five main themes: 1) prolonged morbidity, 2) psychological impact, 3) poor infection control, 4) weak support structures and 5) attrition from the field. The study concluded that TB infection control education and practice should be prioritized to minimize HCW morbidity and prevent HCW attrition from high-burden resource-constrained settings. [20]

Health workers perspectives on MDR-TB cases hospitalization: Anecdotal evidences

A couple of participants at the skills building session at the South African TB Conference were convinced that the patients in the MDR-TB isolation wards were deliberately trying to infect the healthcare workers with their strains of TB. The current practice of institutionalizing people with drug-resistant TB in healthcare facilities was perceived an occupational risk because some of the patients seem to be lashing out on health care staff. Some of the verbatim are presented below[21]:

> *"I've had to go in there to mediate between the patient and the administration and whoever. In the Eastern Cape, the patients feel they're locked away… and if you have them in the hall where you are now going to hear all their grievances, 140 patients will cough and cough on you. And they deliberately cough upon all our nursing staff,"*

M/XDR-TB infection fear psychosis may lead to health care workers attrition.

> "*If you want to designate a specific ward or side-room for MDR patients, no one will voluntarily work there,"*

> "*But they* [health workers] *are working with MDR-TB patients all the time, unknowingly, anyway. Education* [awareness that the patient has MDR-TB], *I think, is one of the biggest barriers to infection control in healthcare workers*."

This suggests yet another good reason to move towards community-based models of providing treatment to people with MDR-TB. But even that won't remove the risk entirely.

> *"We had one of our clinic senior nursing sisters recently diagnosed with MDR-TB and she subsequently died. Following that, I tried to engage with the superintendents and*

even the CEO of the hospital - firstly - to arrange an Infection Control Committee. We do not have an Infection Control Committee at that large hospital. If you don't have support from your hospital and from higher up, you really are powerless to make any changes."

3.2.3 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.

3.3 Status of infection control in health facilities

There are numerous solutions to reduce or eliminate the risks of contracting TB. Useful measures include a number of administrative-, environmental/infrastructure- and personal-related infection control measures that have proven to be successful in reducing occurrence of new infections including clinical TB cases among HCWs.

The recent WHO Treat, Train and Retain (TTR) survey studied the infection control practices at health facilities in SSA.[22] Six countries: Ethiopia, Kenya, Malawi, Mozambique, South Africa, Zimbabwe participated in the survey. Six (6) "routine" facilities and four (4) "best practice" facilities (4) were randomly selected in each country. A total of 509 (from randomly selected facilities) and 401 (from best practices) health care workers participated. Although participants in the TTR survey had a good basic knowledge of TB infection and control, the survey identified several areas where even key cadres had low levels of knowledge:

- Only 44% of qualified staff agreed with the fact that patients with negative smears can be considered non-infectious
- Only 62% agreed with the basic principle of cough hygiene that patients with a cough should be given a cloth or mask to cover their mouths until TB has been excluded
- There was poor knowledge (in only 23%) that keeping TB suspects/patients outdoors would keep TB from spreading
- Only 19% of health workers knew that ordinary surgical masks do not protect the wearer from TB
- 63% thought that ART would help protect HIV-positive health workers from TB, but only 39% thought isoniazid preventive treatment (IPT) could do so.

At facility level

- Only 28% practicing outpatient triage for cough;
- Only 10% practicing cough hygiene (cloths to cover mouth, coughing);

- Only 18% collecting sputum outdoors, as opposed to the toilet which is the most common place; and
- Only 46% of facilities with wards had a separate ward for TB inpatients.
- And there was very little in the way of active TB prevention for HIV-positive health workers: mainly reliance on change of duties and early detection. Only Ethiopia had a policy of routine IPT for exposed health workers.

TB infection control practices are not optimal at most health facilities.

48% of health workers in the survey stated that TB was the most serious threat to their health, which was higher than any other condition. 35% and 39% of the healthcare worker deaths in the previous year (in the routine and best practice facilities respectively) were attributed to TB. This is clear evidence that infection control practices are not good at most of these facilities.

TB infection control guidelines implementation is an important intervention for reducing nosocomial transmission, but rigorous monitoring and follow-up are needed.

Following the introduction of guidelines for the control of TB infection in all hospitals in Malawi, a study was carried out to determine whether the guidelines were being implemented, the time between admission to hospital and the diagnosis of pulmonary TB had been reduced, and the annual case notification rates among health workers had fallen and were comparable to those of primary-school teachers. The study involved 40 district and mission hospitals. Staff and patients were interviewed in order to determine whether the guidelines had been adopted. In four hospitals the diagnostic process in patients with smear-positive pulmonary TB was evaluated before and after the introduction of the guidelines, with the aid of case notes and TB registers. In all hospitals the proportion of health workers registered with TB before and after the guidelines were introduced, in 1996 and 1999, respectively, was determined by conducting interviews and consulting staff lists and TB registers. A similar method was used to determine the proportion of primary-school teachers who were registered with TB in 1999.

The study found that the guidelines were not uniformly implemented. Only one hospital introduced voluntary counseling and testing for its staff. Most hospitals stated that they used rapid systems to diagnose pulmonary TB. However, there was no significant change in the interval between admission and diagnosis or between admission and treatment of patients with smear-positive pulmonary TB. The TB case notification rate for 2979 health workers in 1999 was 3.2%; this did not differ significantly from the value of 3.7% for 2697 health workers in 1996 but was significantly higher than that of 1.8% for 4367 primary-school teachers in 1999. The study concluded that the introduction of guidelines for the control of TB infection is an important intervention for reducing nosocomial transmission of the disease, but rigorous monitoring and follow-up are needed in order to ensure that they are implemented. [23]

Administrative measures for infection control are effective in high burden resource poor settings.

Administrative and engineering interventions simultaneously implemented in hospitals of developed countries have reduced the risk of nosocomial transmission of *M. tuberculosis*. The impact of administrative infection control measures on the risk for LTBI among HCWs was studied in a resource-limited, high-burden Brazil. An intervention study was undertaken in a university-

affiliated, inner-city hospital in Rio de Janeiro, where routine serial TST is offered to all HCWs. From October 1998 to February 2001, the following infection control measures were progressively implemented: isolation of TB suspects and confirmed TB inpatients, quick turnaround for acid-fast bacilli sputum tests and HCW education in use of protective respirators. Among 1336 initially tested HCWs, 599 were retested. The number of TST conversions per 1000 person-months during and after the implementation of these measures was reduced from 5.8/1000 to 3.7/1000 person-months (P=0.006). The most significant reductions were observed in the intensive care unit (from 20.2 to 4.5, P<0.001) and clinical wards (from 10.3 to 6.0, P<0.001). Physicians and nurses had the highest reductions (from 7.6 to 0, P<0.001; from 9.9 to 5.8, P=0.001, respectively). Authors concluded that the administrative measures for infection control can significantly reduce LTBI among HCWs in high-burden countries and should be implemented even when resources are not available for engineering infection control measures.[24]

Effective infection control in a health facility requires that all the components of a health system function well: governance and stewardship, financing, infrastructure, procurement and supply chain management, human resources, health information systems, service delivery and finally supervision. Occupational safety policy development regarding tuberculosis infection control programs focused on workplace prevention in health care facilities is needed.

3.4 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, the 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 then TB infection control only approaches. Due to the high prevalence of TB and emergence of MDR/XDR TB risk among health care 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 health care workforce and their communities is mutually beneficial for health systems, their workers, and their patients.

3.5 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:

A. 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 health care settings.

B. 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 health care 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 education and promotion of primary health care. 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.[25]

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, including 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.

3.5.1 OSH policies for Health Workers- Stakeholders' responses

Effective, routine implementation and management of OSH policies and programs would require efficient mobilization of stakeholders, with lead roles to be played by local government units and civil sector associations. Some examples of the existing OSH platforms in high burden countries are provided below.

In line with ILO's recommendations, occupational safety and health (OSH) has received high priority in government policies in South Africa (**Table 3**).

Table 3: Legislation pertaining to occupational health services (excluding mine works) in South Africa

Act	Function	Enforcement Agency
Occupation Health and Safety Act (OHSA), 1993	Ensures a healthy and safe environment in factories and offices (work places)	Department of Labor
Compensation for Occupational Injuries & Diseases Act (COIDA), 1993	Provides for medical cover and compensation of occupations injuries or diseases in all workplaces	Department of Labor
Occupational Health and Safety Policy, 2008	Minimum standards and requirements of occupational health and safety for the DOH facilities	Department of Health (DOH)
Medicines and Related Substances Act, 1965	Provides for authorization permit to be issued to a nurse to dispense schedule 1-4 substances at workplace health services	Department of Health

The National Institute for Occupational Health (NIOH) is South Africa's major centre for occupational health development, training, service support and research. There has been an advocacy role and involvement in the development of legislation, which ranks internationally with the most advanced for worker protection, and policy implementation and evaluation. NIOH is a resource to various stakeholders involved in occupational health including government departments and academic institutions, labor and industry within South Africa as well as in the Southern African Development Community (SADC).

In March 2011, WHO in collaboration with PEPFAR organized a workshop to accelerate the implementation of the Three I's for HIV/TB in SSA. The workshop was attended by 75 participants including national AIDS and TB program managers and civil society advocates from the following eight Southern African countries: Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe. The workshop led to the development of a list of priority activities to accelerate the implementation of the Three I's for HIV/TB including protective measures to ensure safety for health care workers such as conducting routine surveillance, implementation of IC plans, guidelines and ensuring health care workers involvement[26]. Additionally, civil society groups like the AIDS Coalition to Unleash Power, (ACT UP) and the Treatment Action Group are beginning to mobilize healthcare worker unions around occupational safety issues[27].

In Thailand, the Occupational Safety and Health Bureau was introduced in 2010 by restructuring functions within the Ministry of Labor. Its aim is to set up and develop OSH standards; monitor compliance with the law concerning occupational safety, health and environment; develop a system for OSH and environment protection, measures and inspection practices and enforce authorization and registration of employers on OSH program. It is currently geared towards heavy industries; however, it is moving towards expansion into other types of works settings.

WHO, along with the world's leading health and hospital professional associations, have jointly produced the first-ever joint guidelines on incentives for the retention and recruitment of health professionals. Commissioned by the Global Health Workforce Alliance as part of its work to identify and implement solutions to the health workforce crisis, the Guidelines on Incentives for Health Professionals is the combined result of collaboration between the International Council of Nurses, the International Hospital Federation, the International Pharmaceutical Federation, the World Confederation for Physical Therapy, the World Dental Federation and the World Medical Association. The guidelines underline both financial and non-financial incentives to ensure effective recruitment, retention and performance of health workers across the world. The Guidelines describe different approaches taken by a number of countries and include examples of non-financial incentives for ensuring positive work environments through creating safe, clean workplaces, and access to health care services for health workers and their family members. Professional associations are currently implementing the guidelines by raising awareness of all stakeholders including patients [28].

Challenges of OSH in developing countries:

- High prevalence of TB and HIV
- Lack of human resources (doctors, nurses, technicians) and high levels of absenteeism/ morbidity and mortality related to TB/HIV
- Lack of resources: TB drugs, lab tests, infrastructure in health facilities/labs and required equipments for infection control
- Lack of coordination between the various agencies
- Unavailability of occupational health and safety services for many workers whether in the governmental or private sector.

3.5.2 Occupational safety policies: current gaps and challenges

The existing literature highlights a number of key challenges to implementing OSH and infection control measures in low resource, high TB burden settings. These are summarized in the box at right and examples are provided below.

A comparison study was made in 2002 regarding the implementation of occupational health services for 153,265 employees in all of South Africa's 370 provincial hospitals. Information was obtained from 303 (82%) hospitals revealing that 32% of hospitals had an occupational health clinic at that time. Sixty-one percent of employees worked in hospitals with a clinic. Occupational health clinics were more likely to be present in larger hospitals, and mostly provided primary care and chronic disease services to workers. Thirty-nine per cent of hospitals had a safety officer, 41% had access to an industrial hygienist or environmental health officer, and 80% had health and safety committees, as required by law. The study shows that substantial occupational health services exist, but that important gaps persist. Differences in occupational health services were associated with presence or absence of coherent occupational health policies and not with the availability of resources between provinces.[29]

Another study in South Africa assessed health care workforce occupational safety interventions. Findings highlighted weaknesses in health worker knowledge regarding the use of N95 respirators and safe handling of sharps, and suggested the need for improved training. Access to supplies and personal protective equipment was the major reported reason for failure to follow proper OSH procedures; this was confirmed by workplace assessments. Discussion groups highlighted the important role for worker Health and Safety Committees (HSC), including in combating stigma and encouraging reporting. Interest in data to support decision-making resulted in development of the Occupational Health and Safety Information System (OHASIS); further training of HSCs is still needed. [30]

A historical cohort study was carried out based on medical charts related to cases treated via referral TB control programs in the city of Vitoria, Brazil, between 2002 and 2007. Cases of latent TB infections were stratified into two groups: health care workers (HCW group); and individuals who were not health care workers (NHCW group). Non-adherence to

chemoprophylaxis was 37.1% and 21.9% in the HCW and NHCW groups, respectively (p = 0.045). The strongest factor for non-adherence was being a health care worker (OR = 8.60; 95% CI: 2.09-35.41). In order to improve adherence to occupation safety measures among health workers, new TB control program strategies targeted for health care workers are needed. [31]

In Thailand, a total 1,218 HCWs in 33 hospitals were interviewed. The authors' primary objective was to describe how the health-care facilities across Thailand provided preventive and therapeutic services specifically in infectious diseases for their health-care personnel. The study also intended to describe the laws and regulations related to infectious diseases prevention and therapy for health-care personnel. Nurses and doctors were the majority group, accounting for 31.5% and 30.5% respectively. The authors noted that the Pre-employment health screenings were done by physical examination in 56.0% and chest X-ray in 55.7% and immunization against tuberculosis were offered in 11.4%. Annual physical examination and chest x-ray were done in 66.3% and 76.9%. Reported infection with tuberculosis in HCWs was 2.6%. Only 3.5% to 24.3% of HCWs ever read guidelines on the prevention of infection. The means to improve infectious disease prevention in health-care facilities were suggested by the study participants are shown in **Table 4**.

Table 4: Means to improve infectious diseases prevention in health-care facilities (N=1218)

Suggested means to improve IPC practices	%
Training/education	19
Provision of protective devices	14
Establishing work instruction	10
Setting up special unit to manage	7
Setting a clear national policy	5

In Thailand, existing OSH laws allowed the implementation of prevention, treatment and compensation in case of occupationally acquired infection in HCWs. However, prevention of infection in HCWs was implemented far below the ideal level. There is a need to strengthen surveillance and implementation of existing OSH laws.[32]

Table 5. Key Requirements for OSH Platforms

OSH planning and implementation require:
• Policy environment - Standards/Guidelines/Regulations • Political commitment • Multi-stakeholder involvement, including private sector, civil society and workers advocates • Facility level Infection Control Plans and Procedures including trainings • Risk assessments, Compliance reports, Research studies including prevalence, incidence • Facility/HCW level surveillance • Examples from experience of other infectious diseases, i.e. HIV, Hepatitis B

3.6 Worker's compensation policies

The primary purpose of workers' compensation is to guarantee a reasonable remuneration, income stream, and/or protected long term employment for the employees temporarily or permanently exiting the work force for accidents or health-related reasons causally linked to the job (i.e., workplace injuries and occupational diseases). There are very few published examinations or examples of worker's compensation packages in developing countries.

Worker's compensation in Thailand

The Royal Edict on Medical Welfare for Officials was issued in 1980. Medical expenditures on therapy of general medical disorders are covered or can be reimbursed from the Government of Thailand. The law covers exclusively government officials, not personnel in the private sector, and not specifically covering infectious diseases. There was no legislation covering any particular disease prevention for officials. In case of high risk settings, e.g., health-care personnel with close contact to contagious infectious diseases, the charges of immunization and chemoprophylaxis may be covered on an individual basis. Post-exposure prophylaxis, may be covered or compensated, stated by the Royal Act for Officials with occupationally-acquired injury or illness, issued in 1955. Specifically on HIV/AIDS, there was the Finance Ministerial Regulation on compensation for occupationally-acquired HIV-infected health-care providers, issued in 1997, revised in 1999. There is no clear mention of TB as a compensable disease. Government officials or private health-care personnel are all covered by the law. The proven occupationally-acquired HIV–infected individual is eligible for 1.5 million baht compensation and 0.3-0.5 million baht for their spouses and children.

Worker's compensation in South Africa

The entire structure of the compensation scheme in South Africa is defined by the Compensation for Occupational Injuries & Diseases Act (COIDA). COIDA stipulates who contributes to the fund, the amount of the contribution, who is covered by the fund, the type of injuries and diseases covered by the fund as well as the extent of compensation. Further, the COIDA clearly defines the procedures for compensations as well as the agents and their responsibilities. While the COIDA is supposed to cover all employees in South Africa for work-related accidents and occupational diseases, it currently excludes domestic, independent and self-employed workers from compensation. TB is a compensable disease under COIDA (See **Annex 1** for more details).

4 STEPS FOR IMPLEMENTING TB OCCUPATIONAL SAFETY MEASURES

4.1 Draft 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, in additional to NTP and Ministry of Health personnel at various levels (including input from the service delivery level). In the long term, legislation which provides explicit protection for health care 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 at reducing 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:

A. Review the regulatory frameworks in place to address TB in the workplace and its application to health care 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.
B. 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 labour 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:

A. 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)
B. 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
C. 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
D. 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
E. 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
F. 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
G. 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 6. 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 7. 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:

A. Process for reporting a case of occupational TB infection and filing a claim (i.e., employer and employee forms)
B. Reporting and information flow regarding numbers and outcomes of cases of occupational TB exposure
C. Supply and provision of personal protective equipment
D. 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 8. 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 9. 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 10. 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 11. 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

5 ANNEX

Annex 1: COIDA: Worker's compensation in South Africa

Who is covered?

If an employee is diagnosed with a work-related disease, the employee or their dependents will be entitled to compensation under the COIDA. An occupational disease is a disease that has arisen out of and in the course of employment. The date of commencement of the occupational disease is the date of the first diagnosis of the disease by a medical practitioner.

While the COIDA is supposed to cover all employees in South Africa for work-related accidents and occupational diseases, it currently excludes domestic, independent and self-employed workers from compensation. Under the COIDA, all types of work relationships are covered, including workers on temporary contracts. In the case of contract work, the principal contractor is under an obligation to ensure that the subcontractor registers the employee; if this requirement is not respected, the principal contractor is liable for workplace accidents or diseases.

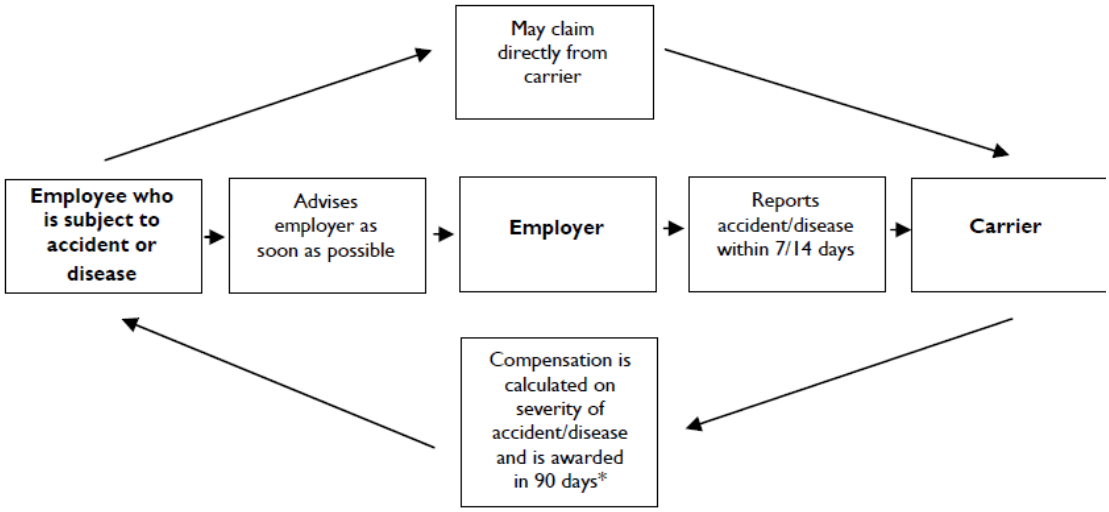
Under the COIDA (Section 67(2)), if the employee is no longer in employment at the time of the commencement of the disease, the employee's calculated earnings will be based on the earnings that the employee would most likely be earning if still working. Therefore, if the employee is diagnosed with a work-related illness many years after employment, then compensation will be in line with current remuneration.

All employers are obliged to register with a "carrier", which is either the Compensation Commissioner of the Compensation Fund or an approved designated mutual. Employers are then required to provide their respective carrier with the particulars of their businesses. The onus is on the employer to ensure that these details remain up to date. Failure to register for Compensation constitutes an offence.

The employer has the responsibility to maintain records of the earnings of employees for a period of at least four years. A health and safety representative elected in terms of the Occupational Health and Safety Act (No 85 of 1993) has the right to inspect, and, if necessary, notify the Commissioner of any documentation that the employer should retain in terms of the COIDA.

Claims procedures

The employee has to inform the employer of the disease if he or she is physically able to do so. The employer then is obliged to inform the Commissioner or the designated carrier of the employee's situation within 7 days in the case of an accident or 14 days in the case of an occupational disease. These prescriptions apply from the time that the employer is made aware of the condition of the employee. The Commissioner will then engage in an inquiry of the lodged claim. Once the severity of the disease has been established, the Commissioner or the designated carrier will compensate the worker for lost income or any other expenses incurred through the disease.



* Compensation Fund turnaround – Mutual Associations have faster turnaround times.

If the employer fails to inform the Commissioner or the designated carrier, this does not bar the employee from the right to compensation. The right to compensation applies even for cases where the employee fails to inform the employer, but the employer is aware of the accident/disease through other sources. An employer that does not comply with the notification process is guilty of an offence and may be liable to pay a fine up to the full amount of the compensation due to the employee. Carriers find it problematic to administer this part of the claims process, as the 7/14 day notification period of the employer refers to the time from when the employer was made aware of the disease and not from the time of the disease diagnosis.

The affected employee is required by the carrier, when deemed necessary, to provide information and documentation. Notably, if claims have not been lodged with the Commissioner or the designated carrier within 12 months after the diagnosis of the disease, the worker's right to compensation will lapse.

Compensation package

COIDA provides a system of "no-fault compensation" for employees who contract diseases during the course of employment. Compensation can take the form of payment for loss of earnings (tax free), travelling expenses, medical expenses, lump-sum payments or pensions. The following types of compensation are paid by the Fund or the designated carriers:

A. Temporary Total Disablement (TTD) (loss of income/salary);

B. Permanent Disablement (PD);

C. Medical Costs;

D. Death benefits.

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