

Tuberculosis in Healthcare Workers: *Findings from South Africa*

Aims of the Study

South Africa has the fourth highest tuberculosis (TB) prevalence in the world. Such a high burden puts healthcare workers (HCW) at increased risk of infection. Staff with active TB may in turn be an infection risk to their patients. Reports of drug-resistant tuberculosis have also increased concerns about the poorly controlled TB epidemic and the impact of the epidemic on HCW in Southern Africa.

University Research Co. LLC (URC) and the Desmond Tutu Tuberculosis Centre (DTTC), with funding from USAID and PEPFAR, collaborated on this research study to investigate the extent and impact of nosocomial transmission of TB amongst HCW in URC- TASC TB supported facilities in South Africa in 2008. The study had the following aims:

1. To determine the incidence of TB in HCW in selected healthcare facilities in five provinces.
2. To evaluate infection control practices in selected healthcare facilities in five provinces using the Infection Control Risk Assessment Tool (RAT).
3. To validate the RAT as a tool for assessment of TB-incidence in healthcare facilities.

Methods

The project determined TB incidence among healthcare workers in a randomly selected list of 132 facilities in Limpopo, Eastern Cape, Kwazulu-Natal, Mpumalanga, and North-West provinces.

Phase 1: A network sampling methodology was used to collect data on the number of HCWs who had TB. In each healthcare facility a questionnaire was completed by the facility manager to indicate the number of HCWs who were registered in that facility and had been on TB treatment from January 2006 – December 2008. The TB-register was audited at each facility for the fourth quarter of 2007 to calculate the TB case load, initial defaulter rate, cure rate, and completion rate.

Phase 2: This phase assessed infection control practices at the various clinics using a risk assessment tool developed by URC and DTTC. Administrative, engineering and personal protection measures were evaluated with the RAT. Further analysis includes the evaluation of the RAT as a proxy for TB-incidence amongst HCW.

Key Findings

TB burden amongst HCW

- The average TB burden amongst HCW in all provinces was 2%, with the highest burdens in Mpumalanga and North West Provinces (3%). TB incidence for the general population is estimated at 0.9%, meaning that **HCW are up to 3 times more likely to acquire TB.**
- Only 40% of facilities had a TB screening program for HCW. Many cases, therefore, are thought to go unreported. There was little standardization among existing programs.
- In addition, only 40% of facilities had a written occupational health policy in place. Facility managers cited stigma as a barrier preventing HCW from discussing their TB-status with colleagues at work.

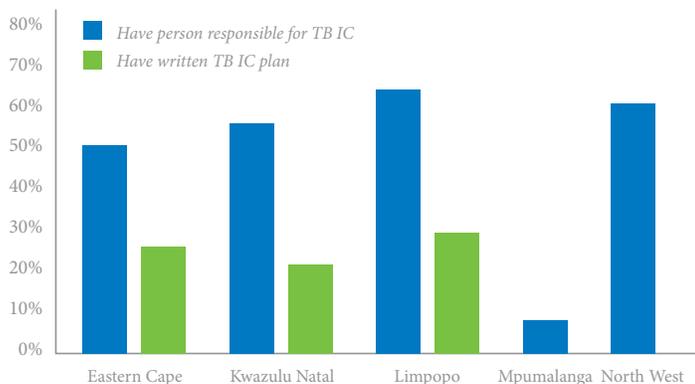
Province	TB incidence
Population average	0.9%
HCW average	2.0%
Eastern Cape	2%
Kwazulu Natal	2%
Limpopo	1%
Mpumalanga	3%
North West	3%

Early case detection in health care facilities remains the key method to limit TB transmission.

Infection Control

- Half or more of facilities in four provinces had a staff person in charge of TB infection control. Far fewer facilities had written infection control plans for TB.
- Less than 20% of all facilities reported a written respiratory protection plan. In Kwazulu-Natal and Mpumalanga more than 50% of facilities had respirators available for staff use. Unfortunately, less than 30% of all staff members were trained in their use.

TB infection control at research facilities



Routine quality control for IC

- Less than 20% of facilities in all the provinces had a system of routine checking and documentation of infection control practices.
- North West Province reported the highest number of facilities holding regular IC meetings (31.3%). The other provinces ranged from 16.7% - 4.2%.
- North West, Limpopo, and Kwazulu Natal reported high levels of staff training and patient and/or community education on infection control, with lower rates reported in the Eastern Cape and Mpumalanga provinces.

Conclusions and Recommendations

TB is an occupational risk for HCW

While HCW were believed to be at a heightened risk for TB, the study did not expect to reveal such high incidences in the provinces examined. The following are recommendations for high burden districts to reduce the risk of occupational TB in the healthcare setting:

- **Develop occupational safety policies**
 - Implement a standardised TB-surveillance program for HCW.
 - Ensure that an occupational health policy is available at each facility.
 - Ensure occupational health and TB is included in HCW training packages.
- **Strengthen infection control**
 - Place and support a dedicated person in charge of TB infection control. Ensure the availability of personal protective equipment, including respirators, in high risk settings.
 - Develop and regularly update a written TB infection control plan, including a respiratory protection plan.
 - Conduct staff infection control trainings at the facility level, with regular review.
- **Implement routine quality control measures**
 - Ensure regular meetings of a dedicated TB infection control group at each facility.
 - Train staff to implement routine checks and document infection control practices.
 - Record audits of TB folders and registers
 - Promote patient and community education on infection control and TB risk.