

Assessing knowledge, attitudes and practices regarding *Mycobacterium tuberculosis* infection risk among Health Science students in a TB-endemic setting

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Background

South African healthcare workers are at increased risk of contracting tuberculosis (TB), particularly drug-resistant strains.⁽¹⁻⁴⁾ Findings in other TB-endemic settings indicate that health science students (HSS) are also at an increased risk and that this is a result of clinical exposure.^(5,6) It has been established that improved access to information on *Mycobacterium tuberculosis* (TB) infection risk influences healthcare worker behaviour with regard to infection prevention and control (IPC) practice.⁽⁷⁾

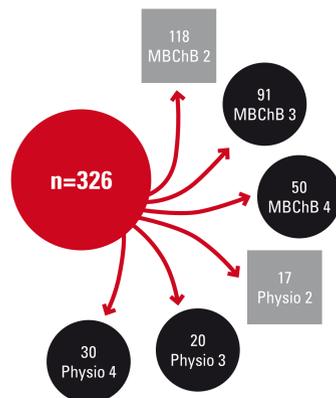
Aims

- To determine the knowledge, attitudes and practices of health science students regarding TB-IPC.
- To assess the impact of a structured educational intervention.

Methods

Medical and physiotherapy students at Stellenbosch University (n=326) participated in a cross-sectional interventional study, assessing TB knowledge, attitudes and practices with pre- and post-intervention questionnaires.

Sample group



Only students in their clinical years (3–4) answered questions relating to TB practices at Tygerberg Hospital.

The intervention included personal accounts by medical professionals affected by TB, and information on occupational TB risk and IPC measures.

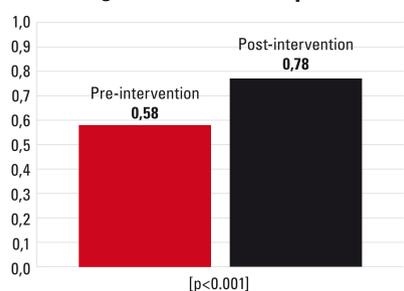
Results

Knowledge

Students overestimated their risk of developing TB, but underestimated the mortality associated with drug-resistant tuberculosis (DR-TB).

Pre-intervention knowledge of personal protective equipment use was poor but improved by 20% post-intervention (57,5% vs 77,5% [$p < 0.001$]).

Knowledge score of N95 respirator use



Attitudes

Attitudes of senior staff regarding IPC negatively impacted those of HSS.

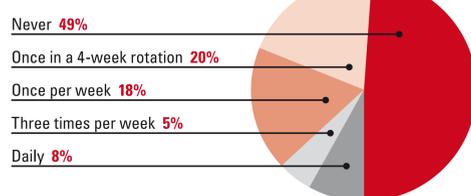
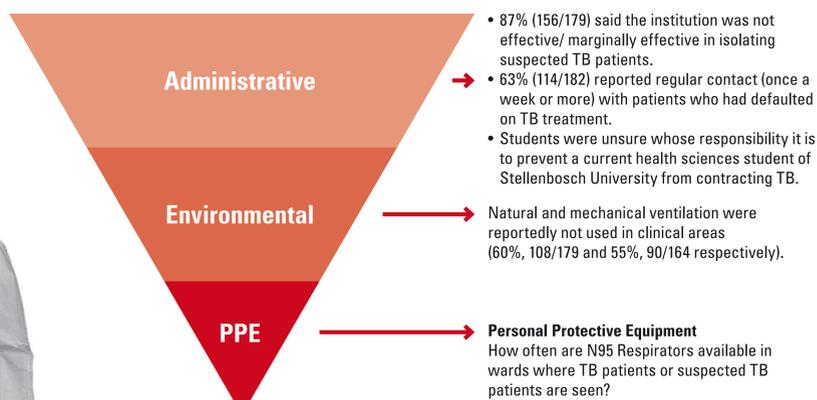
- Nursing staff are... → Familiar with exposure control and do not act accordingly. 58% (103/178) and 51% (91/179) respectively.
- Doctors are... →
- Fellow students are... → Not familiar with exposure control and do not enact any protocols. 38% (69/180)

	Pre-intervention	Post-intervention	p-value	McNemar Chi Square
Students who would refuse to interview and examine a suspected DR-TB patient without adequate protection (PPE)	83% (271/325)	93% (285/306)	0.00004	16.82

When asked, 'What would make it difficult to protect yourself in a high risk situation?', 73% indicated 'superiors that give the order' and 66% indicated they would worry about their marks being influenced.

Practices

Reported TB Infection Prevention and Control measures in training institution



Fit testing



Empowering Agents of Change: This intervention was expanded into the TB Proof campaign, which reached over a thousand HSS at Stellenbosch University and the University of Cape Town.

Qualitative data on intervention

- 'I was in denial about my risk of contracting TB as a medical student. I didn't realise that my risk was actually that high.'
- 'I will never again take working with TB patients lightly. I used to think that because I am healthy I will not contract TB or show signs and symptoms of TB.'
- '[I will] demand protection when seeing patients suspected of having TB [and] refuse to see these patients if no protection is available.'

Recommendations

- Incorporate TB-IPC training and a similar educational intervention into formal undergraduate medical and health science curricula.
- Establish policies for all universities and facilities that provide healthcare training to prevent occupational TB amongst students.
- Establish protocols for reporting and monitoring occupational TB cases among students.
- Urgently improve TB-IPC practices at all training institutions and empower students to report and address inadequate implementation.

Conclusions

HSS lack knowledge of TB-IPC measures including protective equipment usage and report poor implementation of TB-IPC at their training institution. A structured educational intervention increased students' awareness of occupational TB infection risk and knowledge of TB-IPC measures. It is of utmost importance to protect students and future professionals against occupational TB. Through education, it is hoped that they can be empowered to become *Agents of Change*, able to safeguard themselves, their colleagues and their patients.

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