

STELLENBOSCH UNIVERSITY FACULTY OF MEDICINE AND HEALTH SCIENCES TUBERCULOSIS RISK REDUCTION GUIDELINE

JUNE 2014



STELLENBOSCH UNIVERSITY FACULTY OF MEDICINE AND HEALTH SCIENCES STUDENT
TUBERCULOSIS RISK REDUCTION GUIDELINE

Reference number of this document	
HEMIS classification	
Purpose	TB IPC
Type of document	Guideline
Accessibility	
Date of implementation	2013
Revision date	2015
Previous revisions	
Owner of these rules	Prof M de Villiers
Institutional functionary (curator) responsible for these rules	
Date of approval	
Approved by	
Keywords	

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Cover photo: Heena Narotam, Stellenbosch University MB,ChB 3, poses with a N95 respirator at one of the first TB Risk Reduction Education Sessions in 2012.

The original University of Cape Town student TB guideline was adopted with permission by members of faculty of the Stellenbosch University, Faculty of Medicine and Health Science, the Academic Unit for Infection Prevention and Control, Stellenbosch University Campus Health, Health Science Students from Stellenbosch University, TB Proof and the Division of Community Health at Stellenbosch University.

Disclaimer: No external funding was provided to persons providing input or comments on this guideline.

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1. Introduction

Tuberculosis (TB) is one of the major causes of mortality internationally, killing around 1,3 million people in 2012. (1)

South Africa is at the centre of the HIV and TB pandemics.(2) The global lifetime risk for non-HIV infected person to develop TB is 5 to 10%, increasing to 5 to 10% per year in HIV-infected persons. Hence, reducing the risk of TB is intimately linked to knowing and acting upon one's HIV status. Accumulated lifetime risk of developing tuberculosis in Cape Town (in HIV negative individuals) is 20-22%.(3)

Health care workers are more likely to contract TB than the general population. (4–6) Health care workers are more likely to get MDR and XDR TB disease. (5,7–9) Findings in other TB endemic settings – similar to that of South Africa - support the notion that health science students (HSS) are also at an increased risk. This can be attributed to clinical exposure. (10–12) It has been established that improved access to information on TB infection risk influences healthcare worker behaviour with regard to infection prevention and control (IPC) practice. (13)

It is therefore essential that medical and health science students are informed about the risk of contracting occupational TB and gain the necessary knowledge and skills that will lead to safe practice. An attitude that will enable them to act as agents of change in the health care system is essential. Protecting themselves, other health care workers and patients against nosocomial transmission is within reach and the SU FMHS TB Prevention Guideline aims to bring the FMHS closer to realizing this goal. This will not only make the working environment safer for health care workers, it will also make the health care environment safer for patients.

2. Purpose of guideline

- 2.1. Due to the burden of TB in South Africa, students working in a healthcare environment will be unable to completely avoid contact with patients suffering from TB. Measures will be implemented to reduce the risk of TB infection.
- 2.2. Stellenbosch University (SU), while training students in a high TB prevalence area, must have a functional and practical strategy to:
 - 2.2.1.Reduce the risk of occupationally acquired TB infection and disease in the student population. A Multilateral Agreement between the Department of Health and the FMFS makes provision to ensure a safe environment for students training.
 - 2.2.2.In the event that a student contracts TB, have support and treatment structures in place to reduce mortality and morbidity.
 - 2.2.3.Train students that will be health care workers that can act as agents of change in the health care system to improve TB infection prevention and control in the workplace.
- 2.3. All students at Stellenbosch University are offered voluntary counselling and testing for HIV infection at the SU Campus Health Facilities at the Tygerberg and Stellenbosch campuses. Students should ensure that they know their HIV status during the early part of their training, before commencement of clinical work.
- 2.4. These guidelines are in accordance with the current 2009 WHO TB IPC guidelines(14). It will be reviewed periodically and brought into line with the Western Cape Department of Health TB IPC

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Policy. By continuous review and appraisal in future the guideline should be updated as necessary to align with the DoH and WHO guidelines. (14)

A relevant video that can be used in training was developed by the CDC and can be accessed here: <http://www.youtube.com/watch?v=tsnGi-eLIQc>

A second hospital based TB IPC video is currently in development and will hopefully be released later in 2014.

3. Minimising risk of TB transmission in the workplace / clinical learning environment – implementation of the guideline

Due to the burden of TB in South Africa, students working in a healthcare environment will be unable to totally avoid contact with patients suffering from TB. The following measures will be implemented to reduce the risk of TB infection:

3.1. Education

3.1.1. All medical and health sciences students will be specifically educated regarding the risks of TB acquisition and as to the preventive measures that should be adhered to, to minimize such risks. This education will be the responsibility of the Programme Committee (incorporating the TB Proof team). An hour-long educational including fit testing will take place before students start clinical rotations. This will form part of the clinical skills training division of the curriculum. Refresher training in phase 3 of the MB,ChB curriculum and in the later years of the Allied Health Science curricula is recommended.

3.1.2. Students will be encouraged to seek medical advice from SU Campus Health Services or any other health facility of their choice if symptoms of TB occur. Students suspecting that they may have contracted tuberculosis should report to CHS at Tygerberg in person or telephonically if they are off campus at one of the rural training platforms.

3.1.3. It is essential that students report to the SU Campus Health Service clinic to access the support available from the university.

3.2. Administrative risk reduction

3.2.1. A Multilateral Agreement between the Department of Health and the FMHS that addresses the avoidance of risk to students when working in the training / academic hospitals and clinics, is in place.

3.2.2. Students should (wherever possible) avoid contact with patients known to have multi-drug resistant (MDR) or extensively-drug resistant (XDR) pulmonary TB. Students should NOT enter an isolation cubicle accommodating a patient with MDR or XDR pulmonary TB or one accommodating a patient with extra-pulmonary or laryngeal MDR or XDR TB, where pulmonary or laryngeal involvement has not been ruled out.

3.2.3. Known TB patients have to be identified and isolated in the hospital environment. Airborne precaution notices must be used to communicate risk to health care workers and students.

3.2.4. Students will not receive bedside teaching from medical staff using patients known to have MDR or XDR pulmonary TB.

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- 3.2.5. Routine screening for health science students should be undertaken in the form of a 6-monthly exposure and symptom questionnaire. Chest radiology and GeneXpert sputum tests should be considered if the questionnaire alerts one to the possibility of TB.
- 3.2.6. Students whose immune systems are compromised:
Students who are immune compromised for whatever reason (HIV-infected, on a long-term immune suppressant such as corticosteroids or methotrexate, battling cancer, are struggling with stress, poor nutrition or diabetes mellitus etc.) are encouraged to discuss their health with SU Campus Health Service or any other health facility of their choice. There is a vital role for isoniazid preventive therapy (IPT) for some of these students (e.g., those with a positive tuberculin skin test) and for those who are HIV-infected, antiretroviral therapy may be indicated.
- 3.2.7. MDR and XDR patients will not be included in clinical examinations such as OSCE, short on long cases.
- 3.2.8. Where students are uncomfortable in examining patients who are thought to have TB but the diagnosis is still unclear, due to possible risk, they need to discuss this with their clinical supervisor who needs to guide the students on the correct approach. Students should not be used to examine patients that the clinical supervisors themselves are not prepared to examine. The normal student complaints mechanisms apply to lack of compliance to this.
- 3.3. Environmental risk reduction
- 3.3.1. In general and undifferentiated areas (such as waiting areas, passages and consultation rooms) students should, where possible, open windows and doors to improve ventilation in poorly ventilated areas. The open windows and doors should increase the number of air changes in these areas, thus reducing concentration of TB bacilli and therefore reducing the infection risk.
- 3.3.2. The doors in TB patients' isolation rooms should however remain closed.
- 3.3.3. The faculty, Infectious Diseases, Occupational Health and Infection Prevention & Control divisions of the Faculty of Medicine and Health Sciences should do their best to engage with the health services on an on-going basis to ensure that ideal environmental control measures in the working and clinical learning environments are progressively realized.
- 3.4. Risk reduction through the use of personal protective equipment – N95 respirators.
- 3.4.1. Fit-testing
All students will have a once off fit-test after the during education session to determine the correct type and size of respirator for their facial features, thereby ensuring a proper fit. The outcome of each student's fit-test will be recorded for future reference. Each student after the fit test will be supplied with a card documenting the last date of fit testing and the appropriate best-fit respirator for the student. Students should be encouraged to present for repeat fit-testing every 2 years, or sooner if they suspect they are not obtaining a proper seal with the chosen N95 respirator.

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The fit-testing process, organized by the Clinical Coordinator, will instruct students on correct use of the N95 respirator. The following should be noted:

- 3.4.1.1. What a N95 respirator is and how the grading is estimated in the clinical environment;
- 3.4.1.2. Facial hair (notably beards) disrupt N95 respirator efficiency and facial hair removal is advisable;
- 3.4.1.3. The integrity of the respirator must be checked every time it is used;
- 3.4.1.4. How to put the respirator on and take it off;
- 3.4.1.5. Hands should be disinfected before putting the respirator on and after taking it off;
- 3.4.1.6. Care must be taken not to fold or crumple the respirator;
- 3.4.1.7. Under normal working conditions a N95 respirator can remain effective for at least 8 hours of continuous use. Respirator efficacy is reduced if it becomes torn or moist. If the N95 mask is used only intermittently then it can be effective for 1 week, depending on the frequency of use. Respirators should be stored in an envelope, not a plastic bag as moisture destroys the filter;
- 3.4.1.8. Used respirators must be disposed of by being discarded in a medical waste box;
- 3.4.1.9. The Campus Health will coordinate and administer the FMHS's fit-testing programme and provision of respirators before students enter the clinical areas.

3.4.2. Type of face masks / respirators to be worn

Surgical masks are ineffective as a means to prevent the inhalation of aerosolised TB bacilli. Students must, therefore, wear an N95 graded particulate filter mask (respirator).

Students should collect their container with 50 N95 respirators at the beginning of each year. This should be sufficient for a whole year if worn and handled correctly. The masks will be paid for through student fees. Further masks will be available for sale if the initial 50 masks are not sufficient to last a whole year. During the consultation all patients that are suspected of having smear-positive TB (therefore coughing) should wear a surgical mask, as this could reduce aerosolization of TB bacilli and therefore transmission to uninfected individuals.(15)

3.4.3. The following will be considered high-risk environments

- 3.4.3.1. Admissions (undifferentiated patients), emergency rooms, clinic waiting areas,
- 3.4.3.2. Internal medicine, trauma and paediatric medicine wards, where indicated.
- 3.4.3.3. When entering or working in an induced sputum cubicle, cough booth/room; or
- 3.4.3.4. With formally identified pulmonary TB patients presenting for the first time; or
- 3.4.3.5. Confirmed drug-sensitive TB patients who have not been on confirmed anti-TB treatment for ≥ 2 weeks; (of specific relevance to physiotherapy students); or
- 3.4.3.6. All confirmed DR-TB patients at all time until documented cure has been achieved.

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4. Students with TB

- 4.1. Students with symptoms suggestive of TB should seek medical attention at Campus Health as soon as possible.
- 4.2. Any student diagnosed with TB is urged in the strongest possible terms to ensure that they know their HIV status in order to ensure optimal treatment.
- 4.3. A student who is found to have TB is also strongly encouraged to confidentially advise SU Campus Health Services of their TB status in order to enable the Faculty to help ensure that s/he receives whatever support, treatment and follow-up is required. This will be communicated to students at the start of their academic year and in their year booklet.
- 4.4. In the case of confirmed drug-sensitive pulmonary TB, a student should stay out of class and out of the work environment for two weeks after diagnosis and commencement of treatment. . The relevant sick certificate must be obtained and submitted through the usual procedures. With any form of pulmonary drug-resistant TB, while the final decision will be in the hands of the attending doctor, generally a return to class and work should be allowed once they have sputum converted – that is, established to be culture-negative on two occasions for sputum samples taken one month apart.
- 4.5. The above are minimum recommended return times only. It is very important to emphasize that the period of sick leave will be determined by the treating doctor in consultation with the student and could be as long as two years without any prejudice against the student or their academic prospects (in accordance with existing occupational health legislation - COIDA). (16)
- 4.6. Return to curriculum after illness or disease: The current SU sick leave policy (and with consideration of occupational disease principles - 4.5) will guide the student's return to the curriculum after recovery, or on effective treatment for TB.
- 4.7. SU Campus Health Services will maintain a confidential record of all students who have reported their diagnosis of TB in order to help ensure that such students are appropriately managed throughout their illness.
- 4.8. Reporting: Occupational Health Physician: SU Campus Health Services will monitor infections on the basis of confidential student TB statistics. In the case of changes in incidence, the appropriate action needs to be taken by Campus Health Services, in consultation with FMHS management as needed.
- 4.9. Stigma and discrimination are factors that negatively impact disclosure, access to care and future career options in health care workers and students affected by tuberculosis. Any discrimination or attempt at discrimination by any faculty members, educators, clinical staff, fellow students or any other persons against a student who contracted tuberculosis will therefore be seen in an extremely serious light and should be reported immediately. The FMHS commits to taking immediate remedial action, with the understanding that their findings will not impose any limitations on the options for legal recourse by the affected student or students.

5. Contact details

5.1. Campus Health:

www.sun.ac.za/kampusgesondheid

Dorothy Carolissen (Nurse):

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5.2. **Occupational Health, Tygerberg Hospital;** Academic Unit for Infection Prevention and Control

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<http://www.sun.ac.za/uipc/>

5.3. **TB Proof:**

www.tbproof.org OR <https://www.facebook.com/TBproof>

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This document was amended with the permission and agreement by

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Valued input was provided by members of the TB Proof team, the Department of Community Health, the Academic Unit for infection Prevention and Control, Campus Health, Health Science Students and Faculty Management.

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From vulnerable to TB Proof - creating agents of change

This photo was taken on 2012-10-22 at the Stellenbosch University, Faculty of Medicine and Health Sciences, main lecture theatre.

Health care workers in South Africa are 5 times more likely to get Multi-Drug-Resistant *Mycobacterium Tuberculosis* than the general population. Many of them are unaware of the risk. TB Proof educates medical students in high TB burden areas about their risk and how to decrease it. With the knowledge it is hoped that they will act as a new wave of change in the health care system advocating for a safer working environment, benefiting both patients and health care workers. Healthy health care workers count!