





BUILDING CAPACITY TO DESIGN, IMPLEMENT AND EVALUATE WORKPLACE-BASED HIV AND TUBERCULOSIS PROGRAMMES FOR THE HEALTHCARE WORKFORCE:
Evaluating the first phase of a South African-Canadian collaboration

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1. Background and Context:

a. dual HIV and TB epidemics




Global TB. Source: WHO, 2010

The risk of getting TB is 26 times greater in HIV positive people and TB is the main cause of death in people with HIV.

Incidence

South Africa has 0.1% of the world's population but 20% of the world's patients co-infected with HIV and TB. 75% of TB patients are HIV positive.



The graph shows the link between HIV prevalence and TB incidence in South Africa. The incidence of TB (red line) went up as HIV infections increased (yellow line).

1. Background and Context:

b. Why focus on the HCWs


- **Critical shortage** of HCWs globally, especially in S-SA

And:

- **“81% of TB cases among HCWs** attributable to occupational exposure in high TB settings (Baussano et al. 2011)
- HIV infection estimated as effecting 20% of HCWs.
- Lack of surveillance and screening programs
- Poor infection control measures

HCWs are at high risk for TB exposure!

“AT LEAST **30 nurses are dying every day of tuberculosis** as a result of poor infection control measures at health centres, according to the Treatment Action Campaign (TAC) and the TB/HIV Care Association”



-SipokaziMaposa and BronwynneJooste:
-The Cape Argus

Tuberculosis among Health Care Workers

Isopoko Mawanda, Paul Maiti, Brian Winters, Elizabeth Phiri, Maudelaine Buzeni, and Peter Siano

Emerging Infectious Diseases | www.cdc.gov/eid | Vol. 17, No. 3, March 2011

Included 43 studies

- Stratified pooled estimates for countries with **low** (<50 cases/100,000 population), **intermediate**(50-100/100,000 pop), and **high** (>100/100,000 pop)
- For **TB**, estimated incident rate ratios were **2.4** (95% CI 1.2-3.6), **2.4** (95% CI 1.0-3.8), and **3.7** (95% CI 2.9-4.5), respectively.

i.e. HCWs have up to almost 4 times higher risk for TB.

- Sound TB infection control measures should be implemented in all health care facilities with patients suspected of having infectious TB.

MDR-TB and HCWs

ORIGINAL RESEARCH *Annals of Internal Medicine*

High Incidence of Hospital Admissions With Multidrug-Resistant and Extensively Drug-Resistant Tuberculosis Among South African Health Care Workers

(23 XDR-TB and 208 MDR-TB HCWs in KZN)

Results: Annual Incidence in Hospital Admissions (per 100,000)

	HCWs	General Population	Incidence Rate Ratio
MDR-TB	64.8	11.9	5.46
XDR-TB	7.2	1.1	6.69

1. Background:

c. Why a certificate programme?

Need for capacity building in designing, implementing and evaluating interventions in the workplace to improve:

- Surveillance, screening, case identification, treatment
- Infection control measures
- Use of occupational health resources

What's the challenge?

Healthcare practitioners are understaffed and overworked - thus have limited time and availability for training.

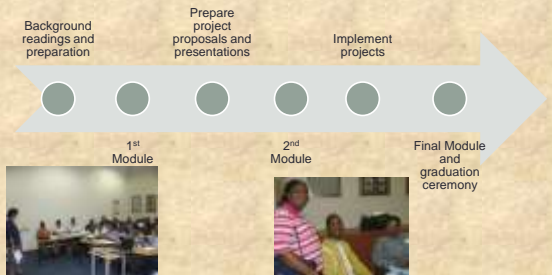
2. Goals and Objectives

- Goal of the Certificate program
 - **To build capacity** to improve working conditions for healthcare workers by training them to design, implement and evaluate workplace-based interventions to combat HIV and tuberculosis – in a program that is feasible for busy practitioners.
- Objective of the research
 - **To evaluate** the program



3. Methods: The "intervention" – combined short face-to-face 3-4 day modules and workplace-based project

Timeline

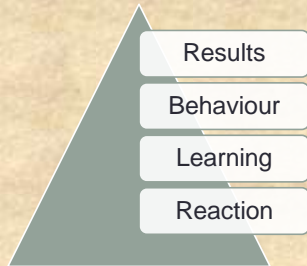


The participants

- Recruited through the Free State Department of Health.
- They are mostly:
 - **Nurses (80%)**
 - Occupational Health
 - Infection Control
 - Miscellaneous
 - Project managers
- From:
 - The **major hospitals** in Bloemfontein
 - Hospital in Harrismith
 - The local municipality
 - Free State Department of Health
- **Over 80% female**
- 44% between the ages of 40 and 49



Evaluation Methodology: The Kirkpatrick Evaluation Framework



Program Evaluation Components: Questionnaires

Components

- Pre-Post KAP and reactions
 - Likert- scales
 - True-False
 - Open-ended



Analysis

- Pre-post compared using Wilcoxon signed ranks and McNemar tests
- Open-ended grouped by theme

Program Evaluation Components: Interviews and observations

Participants observations

Individual interviews

- Assessed:
 - Behaviour change
 - Learning
 - Reactions
 - Barriers

Analysis

- Transcribed and analyzed by inductive qualitative content analysis
- Nvivo 7



Program Evaluation Components: Built in Project evaluation

Structure



Process



Outcome



4. Results: a) Questionnaires

- Response rate: 100%
- Significant improvements in
 - Knowledge (self-rated and true/false)
 - Practice (self-rated)



4. Result: a) Questionnaire (2)

- No significant changes in the *Attitudes* section
 - Attitude were already high at baseline (Mean: 85%)
- Reactions
 - Mean score for the first module: 80%.
 - Meeting expectations: 83% answered "Yes"

4. Result: Questionnaire (self-rated scores scores by categories)

Question Categories	Scores (%)			P-value ^a
	Pre	Post	Δ	
Quantitative research methods	60.4	71.4	11	0.001
Occupational Health and Infection control	73.0	87.0	24	<0.001
HIV	83.0	93.3	10.3	0.001
Tuberculosis	67.6	90.9	23.3	<0.001
Guidelines	49.1	78.3	29.2	<0.001
Research	50.2	74.1	23.9	<0.001
Policy	63.3	83.1	19.8	<0.001

^a Wilcoxon signed-rank test

4. Results: Questionnaires (true/false)

Questions	Correct (%)			P-value ^b
	Pre	Post	Δ	
a) You should use a medical mask to protect yourself from TB unless the person you are caring for has multiple drug resistant TB, in which case you need to use an N95 respirator.	41	73	32	0.0045
b) If you have HIV you should be treated for latent TB even if you do not have active TB.	53	87	24	0.0023
c) It is the responsibility of the employer to decide if a health and safety committee is needed in the workplace.	64	63	-1	0.7055

Interviews: How HIV affects their lives

“
 We live this [HIV] every day and **there isn't any household that does not have an HIV infected family member**. I lost a member [my brother] in 2004, the one and only to this HIV. He was married and then their first born died within the first year and then, [in] 2001, the wife had a baby and within the second month of having that baby, she died. Fortunately, that child is HIV negative.”

-Nurse, TB Coordinator

An OH nurse reported that out of the 60 new employees that arrived at her hospital about “25 of them are HIV + that we know of.”

That's almost 42%!

Interviews: Impact on practice (3)

“Normally, even [with] the **patients who are coughing, we didn't isolate them**, up until the workshop. But now, we are isolating them and we take the sputum. We don't wait for the doctor anymore. We take the sputum, we fill the form [...]. Sometimes, the night shift worker would tell in the morning that so and so patient is coughing a lot etc. and we didn't initiate anything. **Now we isolate and take the sputum**. If they are positive they will start treatment and remain in isolation [...]. Now if there is a cough, they get tested.”

- Nurse, Geriatrics, Pain Control

Interviews: Impact on practice (4)

Example reported by a head nurse:

- One of her nurses is HIV positive and was working in Pulmonology. After learning of the increased risks to TB and other infectious diseases, she moved that nurse to a “cleaner” ward. The result has been that

“this personnel is no longer booked off as sick as much as she used to be. She used to have cold, she used to have apparent problems but now, after being taken out of this department to another department, at least she's no more ill as she was.”

- Nurse, Operational Manager for Medical Clinics

Interviews: Impact on attitudes

- Participants reported changes in attitudes as a result of the program

- Better **understanding** of those affected by HIV.
- Better **able to communicate** with people about HIV.
- Feel stronger, **more empowered and authoritative** to face the challenges posed by HIV and tuberculosis.
- Forming a **deeper realization** and understanding of HIV **stigma**.
- Feel much more comfortable and **less intimidated by research and project planning** and implementation.

Interviews: Impact on attitudes towards the OH clinic

"Now with the project, people are aware that if they have those signs [of TB], they can come to the clinic and get screened for TB. Because after the project has been introduced to them, now they are coming for that. Not just the employees in the certificate programme, other employees. Because it has been introduced to [them at] the meeting so that's why now the response is there. Other people were not aware that [this TB] service is rendered here."

- Chief Professional Nurse

Interviews: Attitudes towards HIV+ HCWs

"One is a little bit more helpful with the HIV people [now...], maybe more empathetic. There are more eye-opening things that you see. For example, a client that came today. It was not our employee so I was not suppose to see him but as a 6th sense that just tells you: 'just do the basics, it will not cost you anything to do his blood pressure [etc.]'. And then while talking, [it turned out] he was HIV+ and he knows [his] CD4 and we go along with the things and at the end, he's not on ARVs yet, so now we can refer him. It's more like a 6th sense thing, you're more aware of things. Before I would have said: 'sorry, not my employee.'

- OH Nurse

Interviews: Technology use (2)

"I have an email address now because of this programme. I didn't have one before. I'm learning computer now. I bought myself a computer. [I'm] learning how to use powerpoint and the computer. I'm studying on my own. Slowly but surely."

- Nurse, Geriatrics, Pain Control

Interviews: Challenges Identified

- **New to project management/research**
 - Learning curve was steep!
- **Time**
 - Time for projects was limited
- **Mentor coordination**
 - Suggest greater coordination among program mentors
- **Institutional capacity**
 - Some concerns that the OH services may not have the capacity to support a larger influx of HCWs due to projects.
- **Technology**
 - Many first time computer-users
 - Poor bandwidth

The Group Projects

1
Improving utilization of workplace HIV/AIDS programme for healthcare workers at Pelonomi Hospital

11. If you and your coworkers do not access the DHS service, tell us how likely it is that each factor listed below explains why:

not given time during the work day to go to the DHS

1. Less than 25%	2. 25 to 49%	3. 50%	4. 51 to 75%	5. More than 75%
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Comments:

concern that the worker will be charged as a primary health care visit

1. Less than 25%	2. 25 to 49%	3. 50%	4. 51 to 75%	5. More than 75%
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Comments:

see no point if Anti-Retroviral Treatment is not provided at the DHS

1. Less than 25%	2. 25 to 49%	3. 50%	4. 51 to 75%	5. More than 75%
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Comments:

fear that confidentiality will not be maintained

1. Less than 25%	2. 25 to 49%	3. 50%	4. 51 to 75%	5. More than 75%
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Group projects continued

2. Reducing risk of acquiring TB by TB supporters in **Bloemfontein clinics**: Improving Infection Control practices
 3. Reducing risk of acquiring TB by TB supporters in 2 **Welkom clinics**: Improving Infection Control practices
-working together to share expertise!

The Group Projects continued

4. Creating a safe environment for patients and staff in the **Bronchoscopy** theatre at Universitas Academic Hospital



The Group Projects continued

5

Investigating TB infection control practices in the medical **outpatient** department at Pelononi Hospital



ESTABLISHING AN EFFECTIVE SYSTEM TO PREVENT, TEST and TREAT TUBERCULOSIS in HEALTHCARE WORKERS

If you are a healthcare worker, you have a right to be confidentially tested, and if needed, treated, for tuberculosis, free of charge.

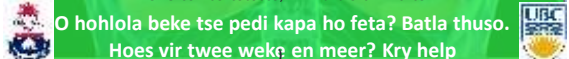
If you have been coughing for more than two weeks...

ask your supervisor for a permission slip to go to the Occupational Health Clinic for an assessment.

In addition to free confidential testing and treatment, you may be eligible for workers compensation benefits.

FOR MORE INFORMATION contact any of the following:
 Me Sidiyo: 0738724278; Mr Nkhatho: 0835327764; Me Moliko: 0828360230;
 Me Langfoot: 0836025519; Me Kololo: 0727377903;
 Me Benson: 0820909069; Mr Phandle: 0711264652

O hohlola beke tse pedi kapa ho feta? Batla thuso. Hoes vir twee weke en meer? Kry help



5. Conclusions

- **Immediate application of knowledge:**
 - Trainees had not received the required infection control training, nor were aware or encouraged to use the occupational health services: programme changed this!
- **The formative evaluation of the program is positive:**
 - Modules and projects well-received
 - Successful **knowledge transfer** in the modules
 - Positive impacts from projects seem likely
- **The format also seems to be successful:**
 - Occupational health and infection control practitioners require condensed training programs - adapted to their busy schedules.



Program model worth replicating!

6. Acknowledgements

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