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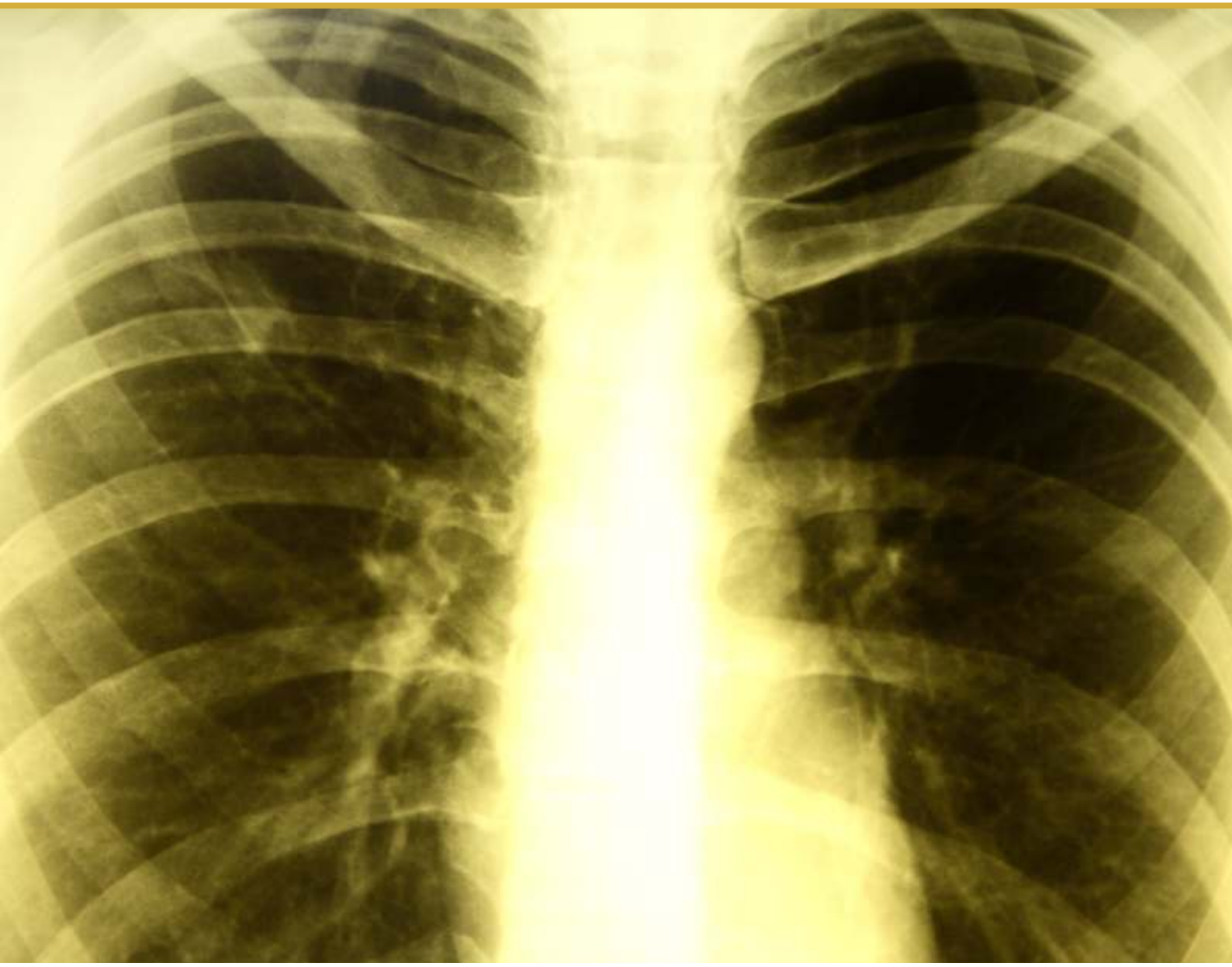
HIV Nursing matters

A Magazine of the Southern African HIV Clinicians Society



Caring for the care worker

Tips for nurses on INH therapy

TB in HIV infected children

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HIV Nursing matters

Nelouise Geyer

According to the World Health Organization (WHO), after India and China, South Africa ranks as the country with the third highest TB burden in the world. TB is a curable disease. While a team approach to tuberculosis prevention and control remains important in the successful management of tuberculosis, nurses play a critical role in the treatment and care of tuberculosis patients. This is confirmed by the revised Human Resources for Health (HRH) Strategy of the Department of Health which highlights the fact that South Africa has a nurse-based health system.

Nurses therefore plays a crucial role in the prevention of TB and HIV through early diagnosis of cases, following recommended treatment guidelines, monitoring patients' response to treatment and ensuring that treatment is completed. More importantly, nurses can play an essential role in preventing people from contracting TB. This includes implementing measures to prevent exposure to TB through infection control and protective measures, including the use of personal respiratory protective devices. The importance of all healthcare workers protecting themselves through such measures can never be overemphasized.

While there appears to be growing recognition of the contribution that nurses are making to the country's capacity to prevent and treat TB, the voice of nurses at policy and strategic decision making is absent. It is hoped that the appointment of a Chief Nursing Officer for the national Department of Health, as agreed at the Nursing Summit in April 2011, will start to make the voice of nurses heard at policy and decision making level.

As nurses, we may never forsake our advocacy role for the patient and the profession – we must lobby strategically to ensure that nurses become more actively involved in policy development.

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Message from the **president**

Dr Francesca Conradie
President Southern African Clinician's Society

Earlier this year, the newly elected Board of Directors for the Society met to review the organisation's mission and objectives. We decided that our objectives would now include partnering with governments to implement optimal HIV programmes and policies. For South Africa, this means doing all that we can to assist the government to achieve the goals of National Strategic Plan, 2012 to 2016.

To that end, we agreed to focus on the improvement of TB diagnosis, care and prevention within the context of the HIV epidemic. South Africa has had many remarkable achievements in the diagnoses, care and treatment of HIV infection and we need to repeat this in TB. The overlap between the two epidemics is substantial. For the first time in my career, there have been some new and exciting developments. The GeneXpert technology has been adopted in a bold move for the diagnosis of TB. The Department of Health has announced that ART should be provided for all HIV infected individuals who get TB, irrespective of their CD4.

It seems to me that where we are now in the TB epidemic is where we were 10 years ago in the HIV epidemic. We are on the brink of new interventions and there is renewed drive within the Department, and the global community, to tackle the problems. But the task ahead is huge. About 1% of South Africans get TB every year. Will we achieve the NSP goal of a reduction of this incidence rate by half within five years? To my mind, we can only if we apply the same determination that we did in the HIV field. TB is our next battle and looming behind that is the ever increasing burden of Drug Resistant TB.

Nurses are the backbone of South Africa's health system, and it will be your efforts that ultimately help turn the tide against TB. I hope that this edition of HIV Nursing Matters is a useful resource to you, and I look forward to working with you all to meet the ambitious targets of the NSP. ℞

Nurses efforts

will ultimately help turn the tide against TB

ARV Drug Shortages

The SA HIV Clinicians' Society is receiving continued reports of antiretroviral drug shortages and stock outs from across the country. If you are experiencing shortages of Tenofovir or other ARVs please SMS or email the Society at 087 042 2001/stock-outs@sahivsoc.org with the following information:

Name of drug:

Details of shortage/stock out(e.g. length of time drug has been out and/or supply limited; number of days of supply remaining):

Facility name:

Action taken thus far (reported to depot, etc):

Also note that Minister Motsoaledi announced last week that no patient should leave a clinic without Tenofovir. If a patient is turned away from a clinic without TDF it should be reported to one of the following numbers: 082 4191925 or 012 395 8171. You can also visit the Society's website: www.sahivsoc.org/stockouts to report a shortage online.

SA HIV Clinicians Society

Reducing Tuberculosis Transmission by Targeting 'Hotspots'

Reducing tuberculosis transmission in geographic "hotspots" where infections are highest could significantly reduce TB transmission on a broader scale, according to a study led by researchers at the Johns Hopkins Bloomberg School of Public Health. An analysis of data from Rio de Janeiro showed that a reduction in TB infections within three high-transmission hotspots could reduce citywide transmission by 9.8 percent over 5 years, and as much as 29 percent over 50 years. The study was published by the journal PNAS.

"Targeting treatment of 'core groups' as a way to reduce community-wide transmission is common with diseases like HIV and malaria, but is less accepted as a mantra for TB control," said David Dowdy, MD, PhD, ScM, lead author of the study and assistant professor in the Bloomberg School's Department of Epidemiology. "Our findings suggest that hotspots containing 6 percent of a city's population can be responsible for 35 percent or more of its ongoing TB transmission. Controlling TB in these hotspots may have a similar

impact on long-term, community-wide TB incidence as achieving the same targets in the remaining 94 percent of the population."

For the study, Dowdy and his colleagues developed mathematical models for TB transmission using surveillance data from Rio de Janeiro. Each model tested different scenarios for TB transmission between the hotspot and the rest of the community. Co-infection with HIV was also factored into the model.

According to the study, reducing TB transmission rates in the hotspot to those in the general community reduced citywide TB incidence by a mean 2 percent per year over the first 5 years. By year 50, TB incidence was reduced by 29.7 percent, reflecting a 62.8 percent reduction in incidence in the hotspot and a 23.1 percent reduction in the remaining community.

Tuberculosis infects more than 8.8 million people worldwide, resulting in 1.4 million deaths each year. The disease is known to cluster in hotspots typically characterized by crowding, poverty and other illnesses such as HIV. Nevertheless, TB transmission appears to be more homogeneous than that of many other infectious diseases, in which 20 percent of the population may generate 80 percent of infections.

According to Dowdy, "TB may not follow the same '80/20' rule that we see in parasitic or sexually transmitted diseases, but the '35/6' rule seen in our study suggests that targeting hotspots is still the best way to control TB in a community."

Medical News Today
30 May 2012
Article accessible at http://www.medicalnewstoday.com/releases/245930.php

Diagnostic Biochip-Based Device Can Detect Leukemia, HIV

Inexpensive, portable devices that can rapidly screen cells for leukemia or HIV may soon be possible thanks to a chip that can produce three-dimensional focusing of a stream of cells, according to researchers.

"HIV is diagnosed based on counting CD4 cells," said Tony Jun Huang, associate professor of engineering science and mechanics, Penn State. "Ninety percent of the diagnoses are done using flow cytometry."

Huang and his colleagues designed a mass-producible device that can focus particles or cells in a single stream and performs three different optical assessments for each cell. They believe the device represents a major step toward low-cost flow cytometry chips for clinical diagnosis in hospitals, clinics and in the field.

"The full potential of flow cytometry as a clinical diagnostic tool has yet to be realized and is still in a process of continuous and rapid development," the team said in a recent issue of Biomicrofluidics. "Its current high cost, bulky size, mechanical complexity and need for highly trained personnel have limited the utility of this technique."

Flow cytometry typically looks at cells in three ways using optical sensors. Flow cytometers use a tightly focused laser light to illuminate focused cells and to produce three optical signals from each cell. These signals are fluorescence from antibodies bound to cells, which reveals the biochemical characteristics of cells; forward scattering, which provides the cell size and its refractive index; and side scattering, which provides cellular granularity. Processing these signals allows diagnosticians to identify individual cells in a mixed cell population, identify fluorescent markers and count cells and other analysis to diagnose and track the progression of HIV, cancer and other diseases.

"Current machines are very expensive costing $100,000," said Huang. "Using our innovations, we can develop a small one that could cost about $1,000."

One reason the current machines are so large and expensive is the method used to channel cells into single file and the necessary alignment of lasers and multiple sensors with the single-file cell stream. Currently, cells are guided into single file using a delicate three-dimensional flow cell that is difficult to manufacture. More problematic is that these current machines need multiple lenses and mirrors for optical alignment.

"Our approach needs only a simple one-layer, two-dimensional flow cell and no optical alignment is required," said Huang.

Huang and his team used a proprietary technology named microfluidic drifting to create a focused stream of particles. Using a curved microchannel, the researchers took advantage of the same forces that try to move passengers in a car to the outside of a curve when driving. The microfluidic chip's channel begins as a main channel that contains the flow of carrier liquid and a second channel that comes in perpendicularly that carries the particles or cells. Immediately after these two channels join, the channel curves 90 degrees, which moves all the cells into a horizontal line. After the curve, liquid comes into the channel on both sides, forcing the horizontal line of cells into single file. The cells then pass through a microlaser beam.

An advantage of this microfluidic flow cytometry chip is that it can be mass-produced by molding and standard lithographic processes. The fibers for the optical-fiber delivered laser beams and optical signals already exist.

"The optical fibers are automatically aligned once inserted into the chip, therefore requiring no bulky lenses and mirrors for optical alignment," said Huang. "Our machine is small enough it can be operated by battery, which makes it usable in Africa and other remote locations."

The researchers tested the device using commercially available, cell-sized fluorescent beads. They are now testing the device with actual cells.

Medical News Today
1 June 2012
Also available at http://www.medicalnewstoday.com/releases/246024.php

SOUTHERN AFRICA: TB preventative therapy scorecard

Tuberculosis (TB) is the leading killer of HIV-positive people globally. Almost 15 years ago the World Health Organization (WHO) and UNAIDS recommended that people living with HIV be given isoniazid preventative TB therapy (IPT), to prevent active TB, but national implementation of IPT has been slow.

IPT, intensified TB case finding, and infection control are now the World Health Organization's three strategies for reducing TB among people living with HIV, also known as the "Three I's for HIV-TB."

IRIN/PlusNews charts the uneven adoption of TB preventative therapy in southern Africa, which has the unhappy distinction of bearing some of the world's highest HIV and TB burdens.

Botswana

After rolling out IPT at three pilot sites, the country began a national IPT rollout in 2001 that allows for symptomatic TB screening to rule out active TB as a prerequisite for IPT. By 2005 IPT was being offered alongside voluntary HIV testing and counselling, antiretroviral (ARV) treatment and prevention of mother-to-child HIV transmission services, although pregnant women and children under 16 are not eligible for IPT in Botswana.

Three years later, doctors and nurses were prescribing IPT at more than 600 health facilities, according to the Botswana Ministry of Health. By 2007 the country's IPT programme had enrolled about 72,000 eligible patients.

In 2009, a clinical trial conducted in Botswana found that taking IPT for 36 months prevents significantly more cases of TB in people living with HIV than simply taking a short course of IPT for six months.

Like neighbouring South Africa, Zimbabwe and Namibia, all HIV/TB co-infected patients are eligible for HIV treatment, regardless of their CD4 count (a measure of the immune system's strength).

Lesotho

As of September 2011 the country had not yet implemented IPT, but was set to finalize draft national guidelines.

Malawi

The WHO estimates that the country accounts for about 2 percent of HIV-TB co-infected patients globally. Malawi has adopted IPT and uses symptomatic screening to rule out active TB, but guidelines recommend that IPT be stopped in patients who recently started taking ARVs. All HIV-positive patients are started on ARVs if they are diagnosed with TB.

Mozambique

The country carried about five percent of the global HIV-TB burden in 2012, according to WHO. In recent years it embarked on an aggressive scale-up

of IPT provision, and increased the number of HIV patients on IPT almost 20-fold between 2008 and 2010. TB screening of HIV-positive people shot up 60 percent in the same time. In 2011 the country disseminated updated IPT guidelines, but is not yet completely in line with WHO recommendations because it does not prescribe IPT to pregnant women.

Namibia

IPT has been rolled out to HIV patients and others who have been in close contact with someone recently diagnosed with active TB. To qualify for IPT, people living with HIV must meet specified requirements - for example, they must be relatively healthy, with no history of alcoholism or liver disease. HIV-positive children also qualify for IPT, provided they have never received it previously and have not had active TB in the last two years.

HIV-negative children up to five years of age who have been in close contact with someone who has active TB and is still infectious also qualify for IPT, as do adults who have been in contact with such a person and have compromised immune systems due to conditions like diabetes and leukaemia. However, as the country's 2011 national HIV strategic plan notes, IPT implementation and monitoring have been limited by the lack of a dedicated plan to track HIV-TB services.

About 60 percent of TB patients are co-infected with HIV and so are eligible for treatment regardless of their CD4 count. All people living with HIV are eligible for ARVs if they are diagnosed with TB.

South Africa

Almost 300,000 people were co-infected with HIV and TB in 2010. The country is estimated to account for about 24 percent of the world's HIV-TB burden, according to the WHO. South Africa has had national guidelines for administering IPT since 2002, but coverage remains low, partly due to a lack of awareness among health care providers, according to small qualitative studies by the Aurum Institute, a South African health research organization.

The country's recent large-scale IPT trial among gold miners failed to prove that community-wide IPT worked better than the recommended targeted provision to high risk groups, but did demonstrate IPT's protective benefits against active TB.

The Aurum study also confirmed that IPT reduces the risk of death for people living with HIV by halving the risk of dying in HIV-positive patients on or just starting antiretrovirals (ARVs). Based on this finding, South African guidelines no longer discourage the use of IPT in ARV patients.

Swaziland

In a country where about 85 percent of TB patients are co-infected with HIV, health workers use symptomatic screening to rule out active TB and prescribe IPT. In 2009 about 2,000 HIV patients received IPT, according to a report by the HIV/AIDS news service, Aidsmap. By 2010 Swaziland accounted for about 1 percent of the world's HIV-TB co-infection cases.

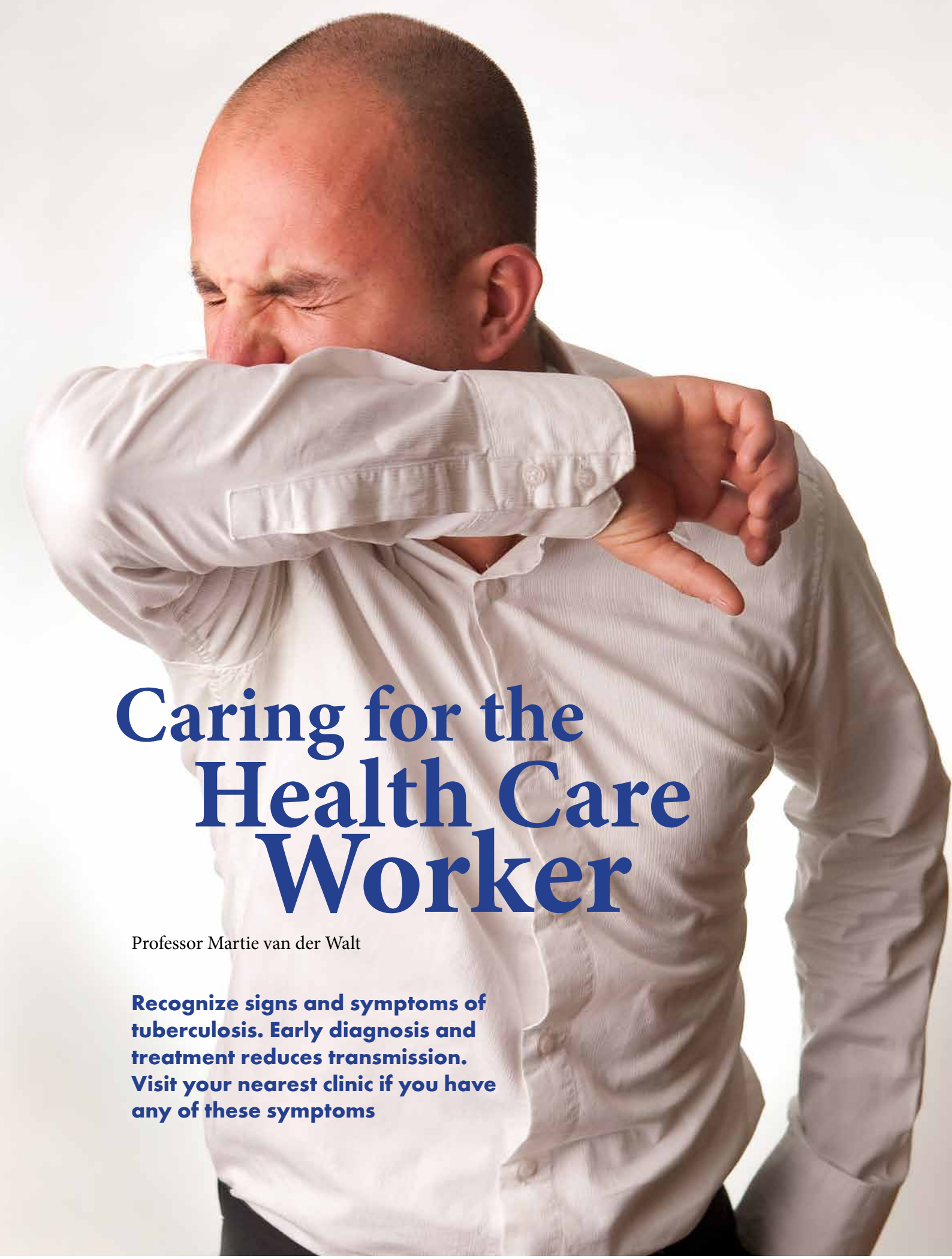
Zambia

National guidelines were drafted in 2010, allowing health workers to prescribe IPT for HIV patients without signs of active TB. While Zambia lagged behind the region in adopting IPT, its decision to recommend IPT for national use was bolstered by the use of IPT in the large-scale TB prevention ZAMSTAR clinical trial, which took place in Zambia and South Africa. About 23,000 people, or 2 percent of the global HIV-TB burden, is in Zambia.

Zimbabwe

An estimated 4 percent globally of the people co-infected with HIV and TB live in Zimbabwe. Although the most recent TB control guidelines do not recommend the use of IPT, in 2011 the country was in the process of developing national IPT guidelines.

PlusNews
JOHANNESBURG
23 March 2012
Also available at
http://www.irinnews.org/Report/95141/SOUTHERN-AFRICA-TB-preventative-therapy-scorecard



Caring for the Health Care Worker

Professor Martie van der Walt

Recognize signs and symptoms of tuberculosis. Early diagnosis and treatment reduces transmission. Visit your nearest clinic if you have any of these symptoms

Weight loss; fever; cough; night sweats: A man gazes at the poster in the corridor of the clinic, recognizes these symptoms within himself and realizes that he needs to have a tuberculosis (TB) screening test. However, he will not present to this clinic nor will he wait in the same queue as all the other patients. Stigma decrees that he does not want his colleagues to know that he may have tuberculosis. The fear of stigma is further exacerbated by his knowledge of the deadly link between tuberculosis and HIV/AIDS; he knows the nurse will enquire about his HIV status. Also, at this clinic where he works, and in the community in which he lives many people still believe that if you have the one disease, you automatically have the other. "No, I cannot go for screening today" he thinks, "and anyway, perhaps the symptoms will go away soon." And so the cycle of TB transmission continues.

Recognising the symptoms

TB is caused by the *Mycobacterium tuberculosis* bacterium and predominantly affects the lungs. In the lungs, the bacterium destroys elastic lung tissue so that when a person coughs up sputum from their damaged lungs it contains many hundreds of thousands of tuberculosis organisms.[2] People with TB of the lungs (pulmonary TB) typically have a chronic cough, generally lasting for more than two weeks and the person may also cough up blood. TB spreads when an infected person coughs or sneezes; spraying TB germs into the air which other people may breathe in to become infected themselves. It is easy for germs to pass from one family member to another when many people live closely together. It is also easy for TB to be spread within busy health facilities where patients and healthcare workers spend many hours in close proximity to each other. People can die from TB, but even people who are TB/HIV co-infected can be cured if they access the correct drug treatment in time.

Anyone can contract TB. Approximately 30% of people who spend considerable time with someone who has infectious TB disease become infected with *M. tuberculosis*, but not everyone who is infected with TB will develop disease associated with TB. The infectiousness of a TB patient is directly related to the number of tubercle bacilli that he or she expels into the air during coughing or sneezing[7]. Patients who do not cover their mouths when they cough are more likely to expel tubercle bacilli into the air. Drug resistant forms of tuberculosis are resistant to the most important anti-TB drugs, and treatment of these strains of TB requires drugs which are more toxic, more expensive, take longer to work and are not as effective.

The man in our story is a Health Care Worker (HCW) but his story is by no means unusual and can represent typical behaviour of any person presenting for screening for tuberculosis. Many persons suspected of having TB wait until they are very sick and have experienced symptoms for weeks before they seek care. This delay in health care seeking may be due to any of several factors: fear that they will die or ignorance about the fact that TB can be fairly easily treated with a simple drug regimen, fear of the stigma associated with having TB or fear of also finding out they are HIV-infected. There is something special about our story, because this man is the designated person offering tuberculosis care in this clinical set up. He can be found in any clinic or hospital or indeed in any province in the country. As can be seen, HCWs at the forefront of health delivery in the country are at greater risk for acquiring tuberculosis in the workplace than the rest of the population[5].

The causal link between TB and HIV/AIDS is devastating. South Africa has the 3rd highest incidence of TB cases in the world and 73 – 80% of patients with tuberculosis are also HIV-coinfected.[1] High tuberculosis and HIV rates in sub-Saharan Africa pose a serious threat to health care systems[4] and the decreasing number of HCWs impacts on their crucial role in achieving the United Nations' Millennium Development Goals. Only five out of 49 countries categorised as low income by the World Bank meet the minimum threshold of 23 doctors, nurses and midwifes per 10 000 population which was established by the World Health Organisation as deemed necessary to deliver essential maternal and health services[6].

Health workers and TB

It has been estimated that 45% of HCWs worldwide have latent TB infection. The health care workforce in Southern Africa faces the most severe burden as it has 11% of the world's population, 25% of the global burden of (any) disease, but only 3% of the world's health workers. In many countries there are fewer than 2.3 doctors, nurses and midwives per 1 000 people. In South Africa, the ratio of registered nurses to patients decreased from 120 per 100 000 population in 2000 to 109 per 100 000 in 2005[3]; 16% of HCWs in South Africa are infected with HIV and are at increased risk of contracting TB.[4,5]

HCWs at the forefront of health

care delivery are at greater risk for contracting TB

As well as the direct impact on health-care worker numbers of high HIV/TB prevalence in this group, three other major forces challenge the integrity of the workforce in Africa.[6] First, the devastating HIV/AIDS epidemic can lead to increasing work loads, which can adversely affect healthcare worker morale, which adversely affect their morale. Secondly, the accelerated labour migration causes losses of nurses and doctors from countries that can least afford the 'brain drain'. Third is the legacy of chronic disinvestment in human resources, frozen recruitment and salaries, restricted public budgets, as well as the depleting of work environments of basic supplies, drugs and facilities. Continued underinvestment in the health care workforce is detrimental to staff morale and the ethos of care.

Limit exposure of healthcare workers

Early identification, diagnosis, and treatment of TB cases are of the highest priority in all settings where HCWs are at high risk for TB transmission. One of the most effective means of reducing the risk of transmission of *M. tuberculosis* in hospital settings is to manage TB patients in an outpatient setting wherever possible. Many patients can be managed entirely as outpatients, hereby reducing the risk of nosocomial transmission to staff. If patients are hospitalised, however, they should be re-evaluated frequently for possible discharge to continue therapy as outpatients. Infection control measures should include use of N 95 respirators, appropriate use of natural air flow and appropriate triaging of patients. HCWs should undergo regular screening and those who are HIV-infected, or have other co-morbidities, should have access to appropriate treatment. The health care setting must also, at the same time, support the HCW by helping them cope with stressful situations and by acknowledging their sometimes dangerous and difficult working environs. Employers have a duty to provide necessary and sufficient information, human resources, protective equipment and supplies to maximally minimize risk of infection to employees.

Health care workers have specific requirements for seeking health care. Health care workers prefer convenient and cost-effective solutions, including having dedicated and discreet HIV and TB services at their place of work and being linked to other occupational health services. They deserve anonymous treatment, extended sick leave, emotional and other support from their care givers, and motivation to complete sometimes challenging treatment.

A healthy workplace is reliant on healthy health care workers and there is a need for HCWs to participate in shaping their working environment. "We have a responsibility to our patients and to the health systems to be assertive when necessary. We have two tools: One when we negotiate with our employers – our collective bargain agreements, which can, should and do often cover issues that go beyond salaries, terms of employment and working conditions. And secondly, the other tool is through legislation to implement changes at a national level."[8] R

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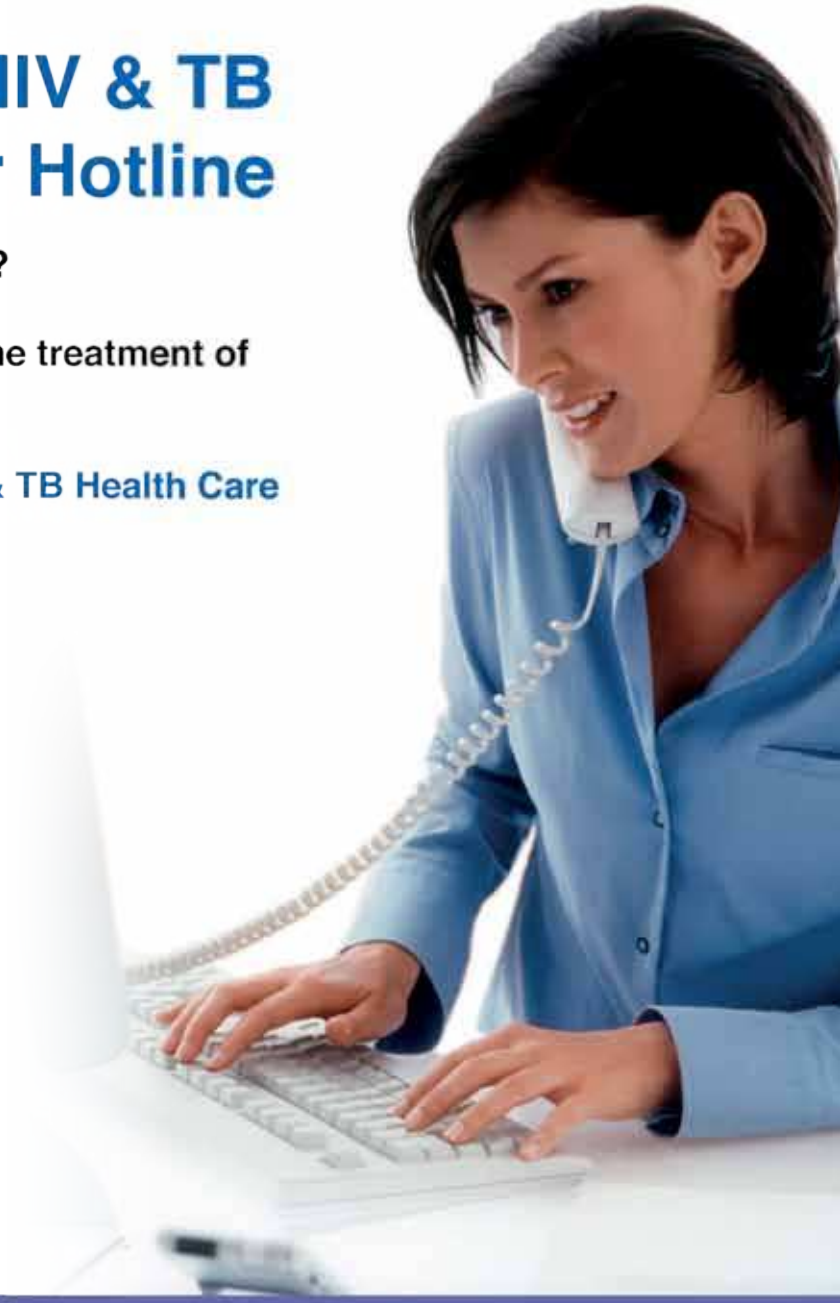
Employers have a duty to provide
sufficient information, human resources, protective equipment and supplies to minimize risk

Toll-Free National HIV & TB Health Care Worker Hotline



Are you a doctor, nurse or pharmacist?

Do you need clinical assistance with the treatment of your HIV or TB patients?

Contact the TOLL-FREE National HIV & TB Health Care Worker Hotline

NATIONAL HIV & TB HEALTH CARE WORKER HOTLINE
0800 212 506

0800 212 506 / 021 406 6782

Alternatively send an SMS or "Please Call Me" to 071 840 1572

www.hivhotline.uct.ac.za

The Medicines Information Centre (MIC) situated within the Division of Clinical Pharmacology, Department of Medicine at the University of Cape Town is the largest and only clinically-based medicine information centre in South Africa.

In collaboration with the Foundation for Professional Development and USAID/PEPFAR, the MIC provides a toll-free national HIV & TB hotline to all health care workers in South Africa for patient treatment related enquiries.

What questions can you ask?

The toll-free national HIV & TB health care worker hotline provides information on queries relating to:

- HIV testing
- Post exposure prophylaxis; health care workers and sexual assault victims
- Management of HIV in pregnancy, and prevention of mother-to-child transmission
- Antiretroviral Therapy
  - When to initiate
  - Treatment selection
  - Recommendations for laboratory and clinical monitoring
  - How to interpret and respond to laboratory results
  - Management of adverse events
- Drug interactions
- Treatment and prophylaxis of opportunistic infections
- Drug availability
- Adherence support
- Management of tuberculosis and its problems

When is this free service available?

The hotline operates from Mondays to Fridays 8.30am – 4.30pm.

Who answers the questions?

The centre is staffed by specially-trained drug information pharmacists who share 50 years of drug information experience between them. They have direct access to:

- The latest information databases and reference sources
- The clinical expertise of consultants at the University of Cape Town's Faculty of Health Sciences, Groote Schuur Hospital and the Red Cross War Memorial Children's Hospital

MIC MEDICINES INFORMATION CENTRE

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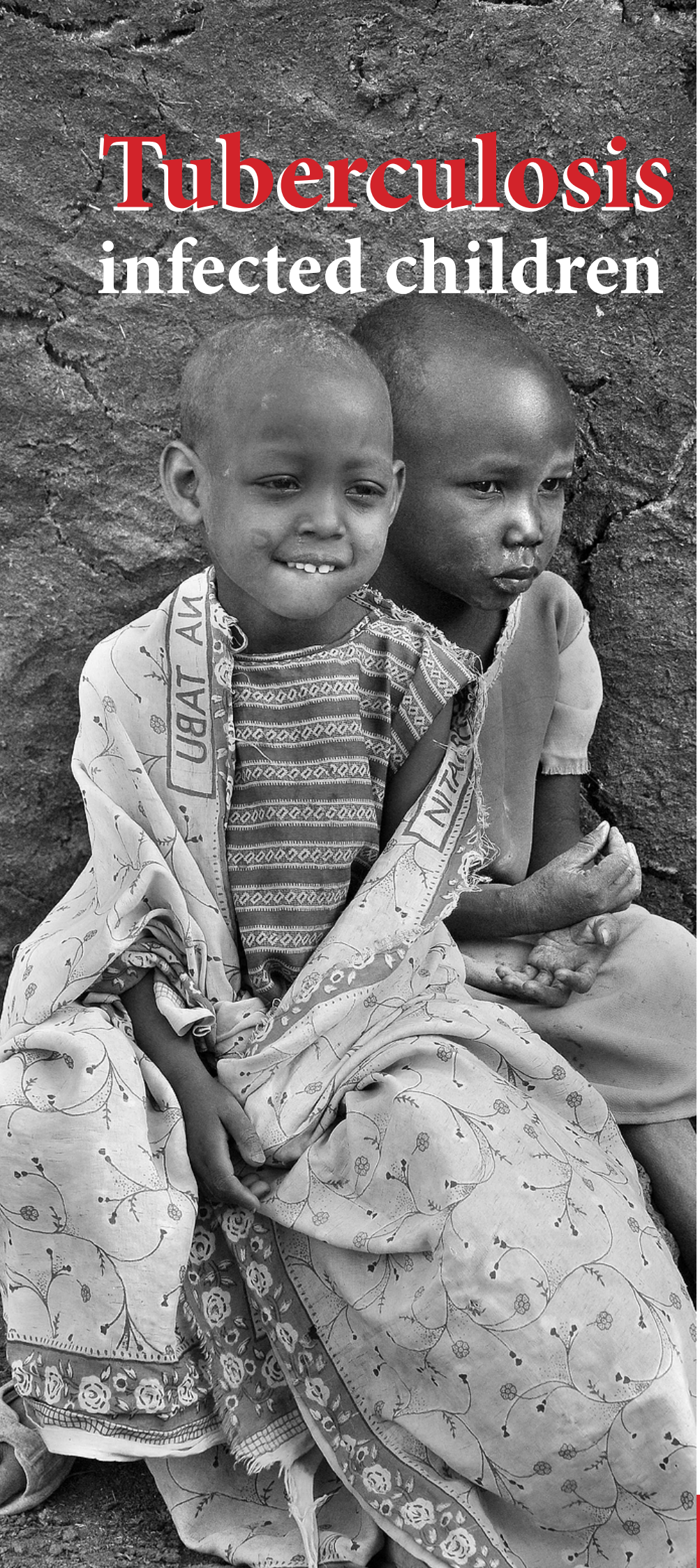

Tuberculosis in HIV infected children

A short summary

Helena Rabie, Pediatrician, Tygerberg Hospital and Faculty of Health Sciences: University of Stellenbosch

Stacie C. Stender, Africa Regional Technical Advisor, TB/HIV/ID: Jhpiego

Both HIV and TB are diseases of families and in South African communities the incidence of childhood TB is reportedly 50% of that in the adults in that community. This article considers the reasons for the phenomenon.

Mycobacterium tuberculosis (TB) is a common infection in HIV infected and uninfected African adults and children. Nine countries (South Africa, Swaziland, Lesotho, Namibia, Botswana, Mozambique, Zambia, Zimbabwe and Malawi) account for nearly 50% of the global TB/HIV burden[1,2,3]. In these settings both HIV infected and uninfected children carry a massive burden of disease and was previously neglected. A South African study reports that in some communities the incidence of childhood TB is 50% of that in the adults in that community. HIV infected infants have a 20 fold increase in risk of developing TB when compared to uninfected infants; 23.4 cases of active TB per 100 observation years are documented among HIV-infected children.

Why are children with HIV at such high risk for tuberculosis?

Increased exposure:

It is important to note that HIV and TB are both diseases of families. HIV exposed and infected children live in homes with HIV infected adults and are exposed to infectious TB source cases. Additionally TB, like HIV, has become a disease that disproportionately affects woman of child bearing age.

Although adults with smear negative pulmonary TB are considered less infectious, they also contribute to TB transmission[8,9,10]. However, it is clear that the majority of adults with HIV are smear positive at the time of diagnosis and therefore significantly contagious[11,12]. A special risk group here is the pregnant HIV infected woman. High rates of undiagnosed TB are reported in this group of woman. Poor recognition of TB during pregnancy may lead to congenital tuberculosis as well as TB in the very young infant. In addition there is a clear increase in the risk of HIV transmission to these infants. Due to the high rates of community exposure, children with HIV are also at risk of repeated episodes of TB.

Increased vulnerability

Individuals with compromised immune systems, i.e. very young children and adults / children living with HIV, are particularly vulnerable to developing TB disease. Young age is the most important determinant of a child's risk of developing TB disease following infection with M. tuberculosis [15,16]; age less than 2 years is associated with a significant increase in risk of disease after infection regardless of HIV status. Advanced clinical disease and malnutrition are associated with TB diagnosis in children living with HIV.

Can we prevent TB in HIV infected Children?

There are a number of strategies used to prevent TB in children with varied success. It is clear that control of the epidemic in adults will impact pediatric TB greatly, however for the purpose of this paper we would like to elaborate on the role of two specific interventions: Highly active antiretroviral therapy (HAART) and Isoniazid (INH) Preventative Therapy (IPT) (see figure 1).

1. Providing children with HAART

Providing children with HAART is a very effective way to prevent TB[17]. However, the astute nurse clinician should be aware that there is an increase in TB diagnosis in the first 3 months after initiation of HIV treatment in children due to unmasking TB IRIS or cases missed just prior to therapy initiation.

2. Providing IPT to HIV-infected children exposed to an individual with pulmonary TB

Firstly it is important to note that when we diagnose TB in an adult it provides the health system with a unique opportunity to prevent TB in HIV infected children of all ages and uninfected children younger than 5 years of age. In addition, care takers of HIV infected children should be asked about new TB contacts at each clinic visit and should be empowered to mention new contacts to clinicians caring for them.

There is no doubt that IPT may prevent TB disease in children living with HIV who have been in close contact with someone diagnosed with TB disease. It should be offered **after TB has been excluded** in all cases regardless of age, level of immune suppression or time on HAART. The duration of IPT is 6 months and the dose of INH is 10-15mg/kg/day up to a maximum of 300mg. TB exposed children should be entered into the IPT register, should be provided with vitamin supplements, and followed-up throughout the course of therapy. IPT should be provided on each occasion that the child has a new significant contact[18]. Where drug resistance is suspected or confirmed in the index case, a local expert should be consulted prior to initiating preventative therapy to ensure that the actions are appropriate.

3. IPT in HIV-positive children without known contact to someone with TB disease

Here the data is conflicting, however guidelines published by the Clinicians Society in 2011explain the process to be followed for primary (pre-exposure) IPT – when the child has no known contact to someone with TB disease[18]. Provinces are at different stages of implementation of general IPT for both adults and children and practitioners should follow the local guidance. The most important point for the nurse clinician to remember is to **inquire at each clinical visit with HIV-infected children whether or not someone in the home or other close contact has been diagnosed with TB.**

How do we diagnose and treat TB in children?

The most common form of TB remains pulmonary. There may be an accelerated clinical course and children may present as if they have severe pneumonia.

How do we diagnose TB?

The principles of TB diagnosis remain unaltered. Seeking a history of contact is essential. Investigating caretakers, especially in the case of younger children may yield the source case. Though negative Mantoux skin tests are not helpful, a positive test (5mm in the case of infected children) indicates infection with M. tuberculosis and may be very helpful in deciding whether the child has TB disease. CXR may show more extensive alveolar opacification and cavitary illness. In all cases a microbiological diagnosis should be sought either by induced sputum or gastric washings[19]. Children with IMCI criteria for referral should be referred

and managed according to those guidelines.

How do we manage the co-infected child?

Once TB is diagnosed in an HIV-positive child not on HAART, s/he should be assessed to initiate HIV treatment. Early initiation of HAART (within 2-8 weeks after starting TB therapy) is favored particularly where children are very young and have severe disease. Occasionally in stable HIV-infected children with minimal TB disease, postponing HAART until completion of TB treatment may be cautiously attempted provided that there is good follow-up. Even though there is a risk of immune reconstitution inflammatory disease, fear of complications should not delay therapy.

For children already on HAART, new TB does not necessarily indicate HAART failure, however CD4 and viral load results should be reviewed and adherence assessed. In the case where viral load is not recent, i.e. more than 6 months old, consider ordering a viral load now rather than waiting until the scheduled time. If virological failure is present (detectable viral load), HAART should be reviewed by an experienced clinician to consider the therapeutic options.

Children on a regimen containing efavirenz should remain on efavirenz as prescribed (no dose adjustment). Children on lopinavir/ritonavir should receive super boosting by adding ritonavir to their treatment[20].

All co-infected children, irrespective of age, should receive four TB drugs: rifampicin, isoniazid, pyrazinamide, and ethambutol. In 2 cases ethionamide may be preferable:1) In very small children simply because dosing is easier and 2) in cases of meningitis.

New weight based dosing guidelines should be followed. The standard course of therapy is 6 months, however if children improve slowly or where disease is complicated, a longer course may be indicated. In the case of TB meningitis, 9 months of therapy is recommended by many experts. Documenting clinical improvement - where possible smear/culture conversion and CXR changes - is very important. Clinicians should carefully monitor the clinical course of children receiving TB treatment for drug reactions, clinical improvement as well as adherence lapses. HIV and TB treatment have overlapping toxicities, especially nausea, vomiting and hepatitis. Adherence may be challenging particularly considering the pill-burden; support the child and caregivers by providing appropriate information, education and encouraging communication.

Conclusion

Tuberculosis is a very common opportunistic infection in HIV infected children. Contact with source cases should be sought at each interaction and prevention offered where appropriate. Where TB is diagnosed, all attempts should be made to establish an exact diagnosis. Co-infected children not on HAART should be assessed to start treatment as soon as possible. ℞

TB is a very common opportunistic infection in HIV infected children and most common form is pulmonary.

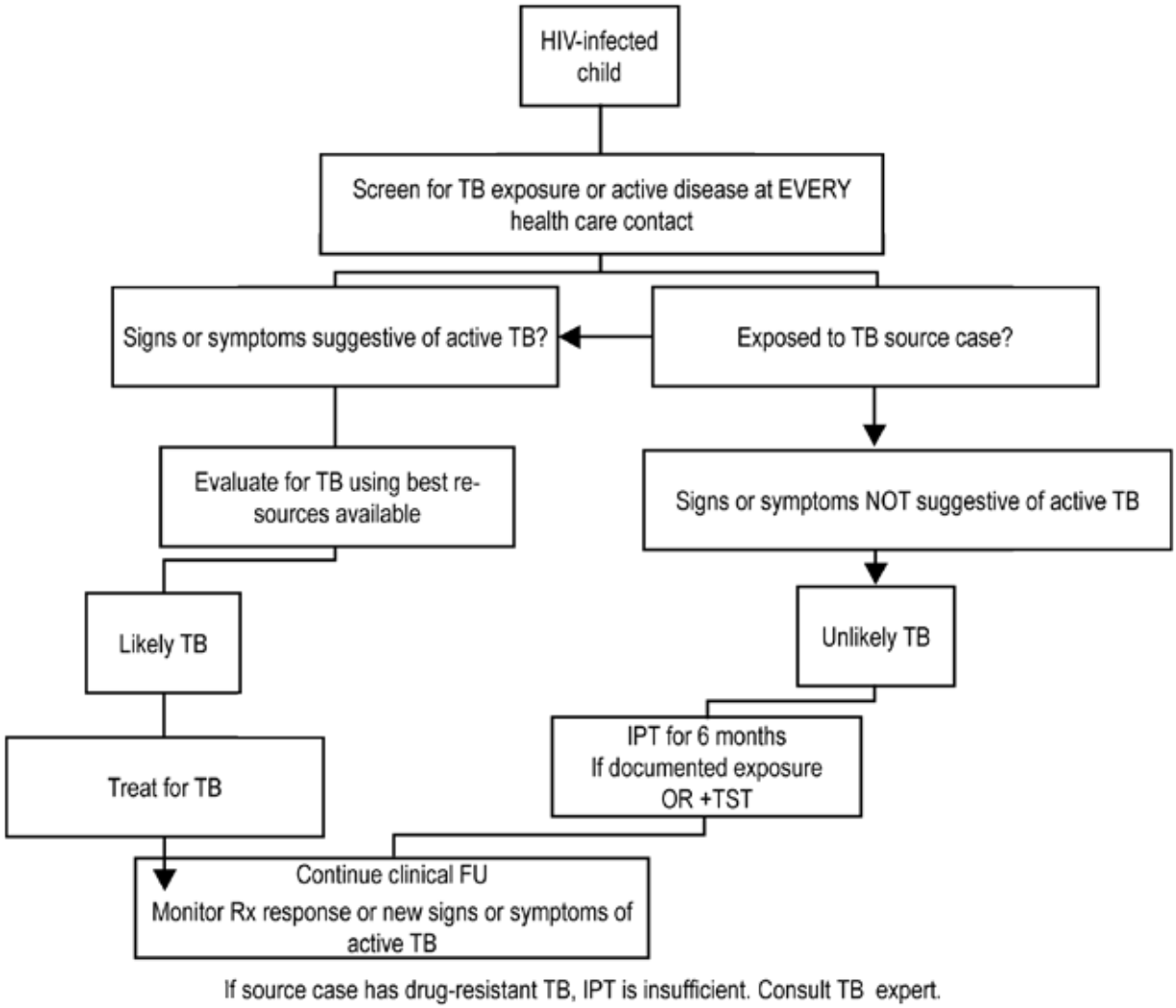

Figure 1: Management of an HIV-infected child with documented TB exposure or suspected to have TB disease.

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Isoniazid preventive therapy
Tips for nurses

Prof Harry Hausler

Isoniazid preventive therapy (IPT) is used as treatment of latent *Mycobacterium (M.) tuberculosis* (TB) infection to prevent progression from TB infection to active TB disease. It is estimated that 60% of the adult population in South Africa has latent TB infection. In people with a healthy immune system an estimated 10% progress from TB infection to active TB disease in their lifetime. Among people living with HIV (PLHIV), the annual risk of progression from infection to TB disease increases to 5-8% with a 30% lifetime risk of developing active TB (Selwyn 1989) and this risk increases as immune deficiency worsens (Williams 2003). HIV infection, by impairing cell-mediated immunity, is the most potent known risk factor for the reactivation of latent *M. tuberculosis* infection (McShane 2005).

Effectiveness of IPT

A recent Cochrane review and meta-analysis of the effectiveness of IPT in PLHIV showed that IPT decreases the incidence of confirmed, probable or possible TB by 64% (RR 0.36, 95% CI: 0.22-0.61) in PLHIV with a positive tuberculin skin test (TST), by 33% (RR 0.67, 95% CI: 0.51-0.87) in PLHIV regardless of TST result and it does not significantly decrease the incidence of TB in people with a negative TST result (Akolo, 2010). People with no positive TST are either not infected with TB or are so severely immunosuppressed that they are anergic, ie, they are unable to mount an immune response to tuberculin even if they have a latent TB infection.

The evidence showing the effectiveness of IPT resulted in the World Health Organization (WHO) recommendation in 1999 that IPT should form part of a package of care for PLHIV and that it should be the responsibility of HIV programmes to implement (WHO, 1999). South Africa participated in the WHO's ProTEST Initiative by implementing four TB/HIV pilot districts in 1998 that assessed the acceptability, feasibility and cost-effectiveness of HIV counseling and testing (HCT), intensified TB case finding and IPT for asymptomatic PLHIV. The evaluation of the pilots showed that these interventions were all acceptable, feasible and cost-effective (WHO, 2004)(Hausler et al, 2006).

IPT guidelines

The first IPT guidelines in South Africa were published by the Department of Health (DOH) in 2000 (DOH, 2000). IPT guidelines were also included as an annexure in the first antiretroviral treatment (ART) guidelines published by the DOH in 2004 (DOH, 2004).

In 2010, WHO conducted a review of the literature and published 'Guidelines for intensified TB case finding and isonaizid preventive therapy' for the following recommendations:

- PLHIV should be screened for TB and those who do not report any one of the symptoms of current cough, fever, weight loss or night sweats are unlikely to have active TB and should be offered IPT. The likelihood that someone with none of these symptoms does not have have TB (negative predictive value) is 98% (WHO, 2010). This means that a symptom screen is sufficient to rule out TB because only 2% of people with none of these symptoms will have TB.
- PLHIV who have an unknown or

positive TST status and are unlikely to have active TB should receive at least six months of IPT as part of a comprehensive package of HIV care.

- IPT should be given to such individuals irrespective of the degree of immunosuppression, and also to those on ART, those who have previously been treated for TB and pregnant women.
- PLHIV who have an unknown or positive TST status and who are unlikely to have active TB should receive at least 36 months of IPT (conditional recommendation).
- TST is not a requirement for initiating IPT in people living with HIV.
- People living with HIV who have a positive TST benefit more from IPT; TST can be used where feasible to identify such individuals.

In the same year, the South African DOH revised its IPT guidelines in line with the WHO recommendations although the South African guidelines still only recommend 6 months of IPT rather than 36 months of IPT. In South Africa, all HIV-positive clients who are HIV-positive and have no TB signs or symptoms should be given IPT (see box of eligibility criteria). Note that neither chest-x-ray nor TST is required to determine eligibility for IPT in South Africa.

It is important to particularly ensure that people who are HIV-positive and at increased risk for TB benefit from IPT. Attention should be paid to HIV-positive miners, prisoners, TB contacts, health care workers (HCW's), pregnant mothers, patients on ART and patients who successfully completed TB treatment (after completion of treatment or at any time after a previous episode of TB, if not symptomatic). HCW's and particularly nurses who have high levels of patient contact have a higher TB incidence than the general population (Joshi et al, 2006) and HIV-positive HCW's would benefit from IPT.

The other group of clients who will particularly benefit from IPT are children under the age of 5 years who are contacts of TB patients, whether they are HIV-infected or not. Despite this being in the National TB Control Programme Guidelines since 1996 there is still inadequate contact tracing of children and initiation on IPT.

Those who are not eligible for IPT are summarized in the box below.

IPT Eligibility:
HIV+
No TB signs or symptoms (current cough, fever, night sweats, weight loss)
CXR not required for screening
TST not required because can be a barrier to implementation - where it is feasible, TST can be done and IPT given if positive tuberculin skin test (>5 mm induration)
IPT can be given during pregnancy, on ART and if past history of TB
All HIV positive people with no signs and symptoms of TB are eligible for IPT

Who is **NOT** eligible for IPT:

- HIV negative patients (over 5 years of age)
- Patient with symptoms of TB
- Patients with active liver disease or active alcohol abuse should not be offered TB preventive therapy
- Patients who had TB before, who have not successfully completed TB treatment (interrupted, defaulted, still symptomatic after TB treatment)

The recommended dosage of IPT is 5 mg/kg daily for 6 months. Pyridoxine (25 mg) is given concurrently to prevent peripheral neuropathy.

IPT Regimen
- Adults: Isoniazid **(INH) 5 mg/kg/day (maximum 300 mg per day)**
- Children: Isoniazid **(INH) 10 mg/kg/day (maximum 300 mg per day)**
- Vitamin B6 (pyridoxine) 25 mg per day
- Duration: **6 months of continuous treatment**

IPT implementation

The President of South Africa launched the ambitious national HCT campaign which aimed to test 15 million people for HIV and start 40% of PLHIV (an estimated 600 000 people) on IPT from April 2010 to June 2011. The actual number started on IPT was 329 342 which was 55% of the target (DOH, 2012).

Despite the availability of IPT guidelines in South Africa for the past 12 years, the implementation of IPT is sub-optimal because of the persistence of several myths that people believe including that IPT: is not effective, is not necessary with antiretroviral treatment (ART), causes isoniazid resistance and is too toxic. In fact the scientific evidence is that IPT is effective, works synergistically with ART, does not increase isoniazid resistance and is safe. There is therefore an ethical imperative for accelerated IPT implementation in South Africa.

Principles of medical ethics

The four key principles of medical ethics include beneficence, non-maleficence, respect for autonomy and justice. Beneficence requires the health care professional to act in a way that benefits the patient. Non-maleficence requires the health care professional to not harm the patient. Respect for autonomy enables individuals to make reasoned informed choices. Finally, the principle of justice distributes benefits, risks and costs fairly.

1. Beneficence

IPT is effective with or without ART

As described above there is ample evidence of the effectiveness of IPT. IPT is also beneficial to people on ART. Two obersvational studies in Brazil (Golub et al, 2007) and South Africa (Golub et al, 2009) and a randomised controlled trial of IPT in Botswana (Samandari, 2011) showed that IPT and ART are synergistic in decreasing TB incidence. Prior to 2010, IPT was not recommended in South Africa for people on ART but now IPT is strongly recommended for PLHIV irrespective of immune status and whether or not the person is on ART.

2. Non-maleficence

TB symptom screening works

A major reason for low IPT implementation is the fear HCW's have of doing harm. The myth that persists is that it is too difficult to diagnose TB in PLHIV, that IPT will be given to patients with active TB and that this will result in increased isonaizid resistance. In fact, using the symptom screen of cough of any duration, fever, night sweats or weight loss will rule out TB in 98% of cases in settings with 5% TB prevalence (WHO, 2010). The high negative predictive valuse ensures that those who are negative on screening are unlikely to have TB and can safely start on IPT.

IPT does not increase isoniazid resistance

There is no strong evidence that IPT promotes drug resistant disease. If TB is latent there are few M. tuberculosis organisms in the body. The risk of a spontaneous mutation to isoniazid resistance is low and there is therefore a low risk of selection of an isoniazid-resistant strain becoming the dominant strain. A meta-analysis of IPT studies showed that the risk of increased resistance, if any, is small (RR 1.45, 95% CI: 0.85, 2.47) (Balcells, 2006). Most resistance arises from suboptimal treatment of active disease, so preventing active disease should actually reduce resistance. Even if active TB is missed on screening of PLHIV prior to initiation of IPT, the standard four-drug first-line anti-TB regimen works (Mitchison, 1986) (Nolan 2002).

IPT is safe

IPT toxicity is rare. Isoniazid is far less toxic than the four-drug anti-TB regimen and has far fewer interactions with ART than rifampin. A study in South African miners showed that only 1 of 679 clients stopped IPT with asymptomatic hepatotoxicity (Grant, 2005). In another South African study, IPT was not associated with higher risk of hepatotoxicity in patients on ART (Hoffman, 2007).

3. Respect for autonomy

It is imperative to inform patients of benefits/risks of IPT and allow them to choose whether they want to receive it or not. A good exercise is to ask yourself what you would want if you were in the HIV-positive patient's shoes. The answers might include good infection control in health facilities and communities, regular TB screening, access to TB diagnosis and treatment if needed, IPT to treat latent TB infection and early initiation of ART.

4. Justice

IPT is a cost-effective intervention that should be available in every primary health care facility in South Africa.

Fears about difficult diagnosis, co-administration with ART, resistance and toxicity are unfounded. There is a need to educate programme managers and clinicians about the scientific evidence and advocate for increased access to IPT.

An important resolution of the second SA TB Conference 2010 – Forging Strategic Partnerships to Fight TB and HIV was "Accelerate implementation of isoniazid preventive therapy." Failure to provide IPT is a violation of human rights and will worsen the TB epidemic among people with HIV. There is a need for partnerships between DOH and civil society to inform, mobilise, initiate and provide adherence support for IPT. Nurses play a crucial role in providing IPT all health care settings providing care for PLHIV. ℞

IPT is a cost-effective intervention that should be available in all primary health care facility

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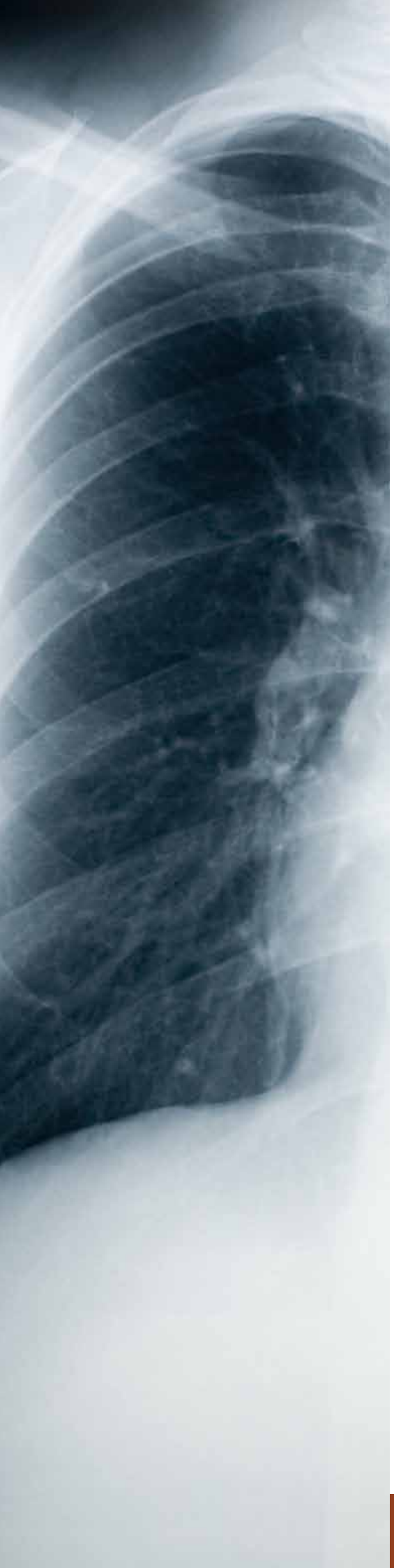
Ria Grant was born in 1944 and completed her schooling Umtata in the Eastern Cape in 1961. She was enrolled as a student nurse at Groote Schuur Hospital in Cape Town in 1962 and completed her 3 year diploma course in general nursing in 1965. She went on to do midwifery at the Peninsula Maternity Hospital. Soon after completing her studies she joined the Tuberculosis Department of the City of Cape Town as a TB district nurse where she worked until she took up the position with TB Care Association as a caseworker in 1976. Ria worked her way up to the position of Director, a position which she held until 2009. She is currently employed part-time as the Senior Advisor to TB/HIV Care Association. Ria is also a member of the Developing Country NGO Delegation of the Global fund to fight AIDS, Tuberculosis and Malaria and remains a committed TB advocate.

Community based DOT

Directly Observed Treatment for Tuberculosis

Ria grant, Senior Advisor, TB/HIV
Care Association

Working with communities can be challenging and rewarding at the same time. This article presents a case study with the challenges and successes of a pilot project to establish a community based Directly Observed Treatment project in the Western Cape.



In 1993 the World Health Organization (WHO) declared Tuberculosis a global public health emergency. Dr. A Kochi, former Director of the Stop TB initiative, stated "Tuberculosis is humanity's greatest killer and it is out of control in many parts of the world. The disease, preventable and treatable, has been grossly neglected and no country is immune to it." And indeed in the country with one of the highest incidences of TB in the world, South Africa, drastic action was called for. In 1993 there was no National Plan for Tuberculosis and every Province and sometimes even different local authorities in the same city were doing what they thought was best.

One of the major causes of the spread of infection was that infectious tuberculosis cases were not being promptly diagnosed and those that were, were not always completing their treatment and were not cured of the disease. In 1992 the Community Health Association of Southern Africa (CHASA) was granted R6,000,000 to pilot a community based Directly Observed Treatment project in the Western Cape.

Getting buy-in from all the stakeholders was as challenging as it was ambitious. There were the very skeptical health service providers who were often at loggerheads with each other; the communities who were experiencing their new found liberation; community leaders looking for their own opportunities and from a number of old established Non-Governmental Organisations (NGOs) whose management was very wary of "other" people scratching in their patch. I managed to convince the leadership of TB Care Association (as it was then called) that being part of this pilot would not only benefit the TB patients, but had the potential of an enormous community development programme which would benefit previously disadvantaged people, especially women who had been severely deprived of education and training. They agreed and we became one of the major roleplayers in implementing the project.

The attitude of my friends and colleagues, the facility nurses, was one of the biggest disappointments. They felt I was demeaning our profession; I was making women from the street with no education think they were nurses; they, the professional nurses had to struggle to get their epaulettes and certificates and I was making a mockery of them in the community. I managed to win some over but with others it was a struggle which went on for years. Some did not want the community health workers to access the facility registers. They, the community health workers, are privy to far more confidential information about their clients than what is recorded in registers! We identified certain pilot sites and started negotiations with the health committees in the community. Having the community involved every step of the way was key to the success of the project. Without their support we would never have succeeded. They were represented on the working committee at the facility along with the TB nurse, the facility manager, the funder and the implementing NGO. The working committee served as the panel for interviewing the new Treatment Supporter recruits. Monthly meetings were held to keep everyone informed regarding progress.

The model started with mapping the TB clients around a facility, recruiting reliable community members, training them on basic TB information, patient-centred approaches and record keeping. They were seconded to the facility for orientation for 3 days and then had clients allocated within an

easy walking distance to the Treatment Supporters' homes. The clients were given the choice of taking treatment in the community or at the facility. The TB nurses packed a one month's supply of treatment for each client allocated and the Treatment Supporters collected the treatment from the facility.

We had overlooked the fact that the partner/husband of a Treatment Supporter may not have been happy to have a number of strangers coming into their home on a daily basis to take their treatment. This challenge was usually overcome by a visit from the Treatment Supporter's monitor who explained the process. The clients were eager to get their treatment at a time which suited them. The rigid clinic hours were a barrier to treatment adherence, as one had to be out on the road at sunrise to get casual work for the day. Treatment Supporters initially received 50cents (South African) per client per day. Needless to say this did not go down well with one of the organisations whose philosophy was built on volunteerism. We had to develop checks and balances to ensure that there were no ghost clients or ghost treatment supporters. The up side of that was that we also could pick up very quickly if clients were not moved from one regimen to the next or if they continued with treatment long after they were meant to stop.

By the time the National Health Department introduced the National TB Control Programme in 1996 and the DOTS strategy which required all TB medication to be seen to be taken, we already had a sound infrastructure in place. The big challenge was sourcing funding for treatment supporter incentives, salaries and transport. We were adamant that the Treatment Supporters had to be rewarded for doing this work. Thanks to a World Health Organization study which we took part in, community based TB treatment support was proved to be both cost-effective and of benefit to the clients as well as the health services. Funding was made available from governments to support community based TB support and at our peak TB Care Association had about 500 TB Treatment Supporters administering treatment to 6000 clients daily in the City of Cape Town. That meant 6000 fewer clients in the facilities. The TB cure rate in Cape Town had increased to 80%.

About that time we teamed up with an organisation which was providing community based support to patients with HIV on ART. We started thinking seriously about integrating TB and HIV community support. It was inconvenient for the clients to be visited by a platoon of community health workers and it was by no means cost effective. We even changed our name to TB/HIV Care Association but integration was another long, difficult and extremely frustrating road. NGO's have the benefit of not being tied down by bureaucracy and being able to think creatively to get things done and this can cause our patience to be sorely tried when we have to stick to the pace of the health service providers.

TB treatment support
was proved to be both cost-effective and of benefit to the clients as well as the health services

Looking back I still get nostalgic about comparing a group of women arriving in the training room, timid, shy, with little self confidence on a Monday morning and then that same group of people walking out of that training room five days later much taller, confident and committed to go and do the best they can for their fellowman. And a few months later they talk confidently about two month conversion rates, combination drugs, sputum results and contact tracing. A cured TB patient recently told me that it was not the doctor, it was not the nurse, but the Treatment Supporter with the ready smile in the TB treatment room who made him feel special every day and encouraged him to complete his treatment. There have been many changes since 1992 when we launched community based TB support and there is a plan for community care workers to be formally employed by the health services. I do hope they never lose that something special which made them what they are. I also pray that the nurses who will be managing the community care workers will value them and respect them for their contribution to the National Strategic Plan.

Directly Observed Treatment will also be replaced by patient literacy programmes, adherence support and self medication for TB patients similar to the programmes developed for people living with HIV. I am privileged to have played a significant role in developing community based TB care and DOT. It taught me what Ubuntu really means – you need a person to be a person. Working with people who have so little and yet are capable of giving so much of themselves has been a very humbling experience. R

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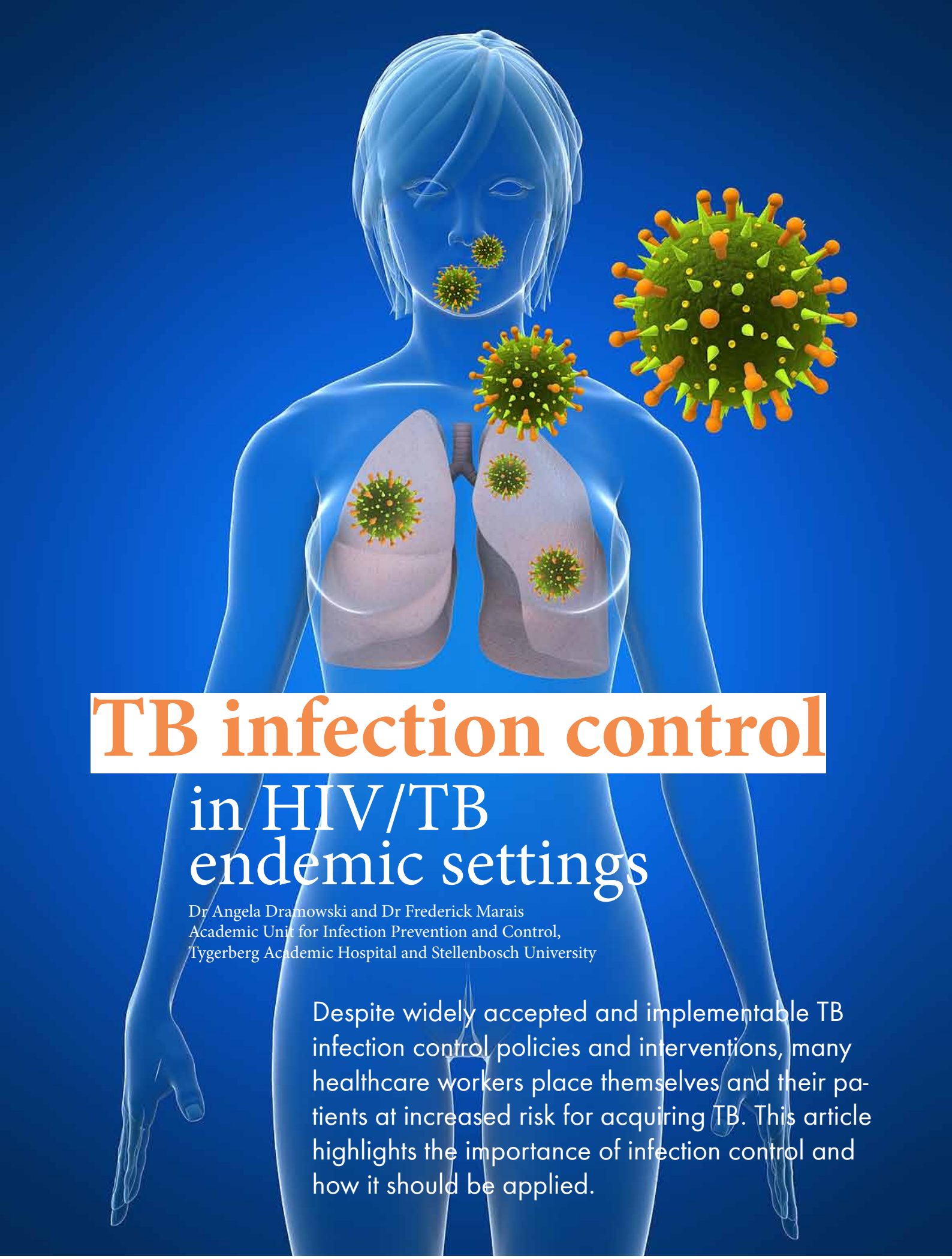

TB infection control in HIV/TB endemic settings

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Despite widely accepted and implementable TB infection control policies and interventions, many healthcare workers place themselves and their patients at increased risk for acquiring TB. This article highlights the importance of infection control and how it should be applied.

TB among people living with HIV (PLWH) in Sub-Saharan Africa

Approximately 15% of the global TB burden occurs in association with HIV (WHO 2009). However in Sub-Saharan Africa (SSA), the burden of dual disease is far greater, contributing 79% of global TB/HIV co-infections.[1] TB is also the leading cause of death among HIV-infected individuals in South Africa and other endemic countries. [2] Given this close and complex relationship between TB and HIV disease in SSA countries, it follows that measures to prevent TB transmission should be integrated as priorities within HIV treatment programmes in both hospital and primary health care settings. Although HIV-associated TB is generally less infectious (often smear-negative), the increased burden of TB among PLWH necessitates prioritisation of TB infection control in TB/HIV endemic regions.[3]

TB among healthcare workers (HCW) in South Africa

Two recent South African studies reported disproportionately high TB incidence rates among HCW when compared with non-healthcare workers in high burden settings. [4,5] Alarmingly, rates of drug-resistant TB (multi drug-resistant {MDR} and extensively drug-resistant TB {XDR} are up to 6 times higher among HCW, with low smear conversion rates (13-65%) and high mortality (up to 32%). [5] Although underlying HIV infection rates among HCW are similar to rates in the community (55% versus 57%), it does not explain the disproportionate increased risk for TB acquisition in HCW. In addition, most HCW (92%) with MDR/XDR-TB reported no previous TB treatment episodes, implying a primary infection with a drug-resistant TB strain. Increased levels of TB exposure (through prolonged and potentially unknown occupational contact) is the most likely explanation for the higher TB incidence rates reported in African settings.[5] The implication of this sustained and heightened occupational risk is that TB infection control measures are poorly implemented in many low to middle income countries.[6,7] Strengthening of infection control is critical to prevent the transmission of TB infection and thereby protect and preserve the scarce resource of HCW in Africa.

When and where are HCW at highest risk of TB acquisition?	
When a TB source case is:	coughing, sneezing, shouting, crying, singing
During procedures such as:	resuscitations, intubation, extubation, suctioning, sputum collection
In clinic areas such as :	waiting rooms, HIV clinics, sputum collection areas
In hospitals areas such as:	adult wards, radiology, TB laboratory, ICU, bronchoscopy room

TB risk reduction in HIV: The 3 I's strategy

The World Health Organization (WHO) has developed and promoted the '3I's' strategy as a means for providers of HIV-related services to reduce the burden of TB among PLWH.[8] Intensified case finding seeks to proactively identify TB among PLWH, in order to reduce the delay between infection, diagnosis and treatment. It is well-established that up to a quarter of individuals presenting for initiation of anti-retrovirals (ART) may have undiagnosed active TB, underlining the need for increased TB screening efforts.[9] Isoniazid preventive therapy (IPT) is a second intervention proven to reduce TB disease burden in PLWH in whom active TB has been excluded. IPT for a minimum of 6 months is particularly advocated for PLWH who are not yet initiated on ART and has been shown to be safe and well-tolerated.[10] Infection control is the third intervention recommended by WHO to reduce the spread of TB, both within household and healthcare (clinic/hospital) settings.

What is TB infection control?

Infection control is a process of developing and implementing safe, evidence-based practice that aims to improve quality of healthcare. TB infection control encompasses a set of tiered interventions to reduce the risk of TB transmission, both in healthcare and community contexts.[11] These interventions are commonly known as the hierarchy of TB controls, ranked in order of administrative, environmental and personal respiratory protection. These inter-connected measures cut across programmes and disciplines, and require interaction and co-operation from multiple role-players in the healthcare context, including facility managers, HCW, laboratory staff and patients/clients.

Aims of the TB infection control (IC) interventions	
Administrative	reduce production of TB aerosols in the local environment
Environmental	remove or reduce the concentration of TB aerosols
Respiratory protection	reduce risk of inhalation of TB aerosols

Administrative controls – who is responsible for what?

The administrative controls for TB infection control are placed at the top of the hierarchy since they are the most immediate and effective means of reducing the production of TB aerosols in the local environment. Early diagnosis of TB remains the most important intervention to reduce TB transmission and relies on several steps and role players, including: patient/client-centred services, clinical/diagnostic suspicion, rapid specimen collection and processing, patient recall to commence treatment, treatment adherence by both providers and patients, and active case-finding among household TB contacts.

Administrative controls for prevention of TB transmission in healthcare facilities	
All roleplayers	Promote TB awareness and education amongst healthcare providers and patients/community Encourage cough etiquette and respiratory hygiene Consider the possibility of TB in all patients
Facility	Assign responsibility and accountability for TB infection control Perform TB risk assessments with immediate corrective action when indicated Develop, implement and evaluate a contextually appropriate TB infection control plan
Laboratory	Ensure timely processing and reporting of specimens
Clinicians	Implement effective clinical management of TB patients (triage, isolation, treat promptly, discharge)
Infection Control Team	Train HCWs about TB infection control and facemask use Supply appropriate signage for TB isolation areas Conduct TB surveillance and visit TB patients in wards
Occupational Health	Evaluate HCWs at risk for TB Monitor and report occupational TB stats

Environmental controls

Ventilation (movement of air) removes contaminated air and replaces it with fresh air, thereby diluting the concentration of suspended TB droplet nuclei and reducing infectiousness. Ventilation can be natural (the preferred method), by means of open windows that generate draughts or air movement. Examples of mechanical ventilation include desk-top fans to direct air movement, wall- or ceiling-mounted extractors or air-handling units to generate negative pressure (air extraction exceeds air supply) in TB isolation rooms. Ultraviolet germicidal irradiation (UVGI) is an adjunctive intervention to kill TB bacilli that are suspended in the air.[12] The efficacy of UVGI and application in resource limited settings are however still debated. UVGI lights require regular monitoring and servicing and concerns remain over the potential for skin damage caused by the ultraviolet light.

Personal respiratory protection -which mask to wear and how do I use it?

Healthcare facilities will have their own, and often differing, policies regarding face-cover (surgical mask) or respirator (N95) usage. In general N95 respirators are recommended for all contact with MDR- or XDR-TB.[11] A respirator however, is only effective if it is worn correctly and consistently when exposed to TB. Ideally, all HCWs should be fit-tested (formally assessed) by an expert prior to personal usage to minimize the risk of exposure. It is important to establish the appropriate type of respirator according to the risk for TB acquisition, the correct method of donning (putting on) and doffing (removing) the respirator, and conformance of the respirator to the face of the HCW. The N95 respirator can be re-used over several days but must be stored dry (in an envelope marked with the HCW's name) and intact (not folded/crushed/torn) in order to maintain the filtering ability. Surgical masks and other types of face-covers should however be discarded immediately after use.

Household prevention of TB transmission – basic advice for patients and caregivers

Wherever possible, a patient treated for TB should sleep in a separate room to other household members, particularly children under 5 years of age. The door to their room should be closed and the window/s open. The patient should use tissues or a hanky to cover their mouth and nose when sneezing or coughing. Used tissues should be discarded immediately into a plastic bag and hands should be washed with soap and water or wiped down with alcohol handrub. Keep all surfaces in the room clean and dust-free to avoid re-aerosolisation of TB droplets. If the patient goes outside,

it is not necessary to wear a mask/face-cover, but the person should still maintain good cough etiquette (as described above.)

Discourage visitors while the patient remains infectious. In cases of drug-susceptible TB, the infectiousness of the TB source case will decline dramatically within 1 – 2 weeks of commencing treatment, assuming good treatment adherence. For this reason, it is usually not necessary for caregivers to wear a surgical mask/face-cover when nursing the patient beyond 2 weeks, unless there is poor treatment adherence or suspected drug-resistant TB. Caregivers should wash hands or use alcohol handrub immediately after each patient contact.

Healthcare worker behaviour change – the next dimension

Despite widely accepted and implementable TB infection control policies[11,13,14] and interventions[15], many health care facilities and healthcare workers place themselves and their patients at increased risk for acquiring TB. The reasons cited by South African HCWs for their non-adherence to TB-IC include: not being bothered "very much" by catching TB, feeling less susceptible to TB, TB respirators are uncomfortable to wear and fear of stigmatisation if HCW went for TB/HIV testing at their own HC facility.[16] TB infection control programmes need to understand and address the reasons for HCW non-compliance, if the available interventions are to be applied effectively and consistently in HIV/TB endemic settings.

HCW compliance with, and critical evaluation of, context-specific IPC interventions are critical toward the prevention of TB transmission in both the hospital and community settings. The burden of the dual TB/HIV epidemic, together with required core standards in infection prevention and control[13,14], necessitate the prioritisation of TB infection control in healthcare facilities in SSA and particularly South Africa for the protection of HCWs, patients and the public at large. R

HCW compliance with IPC interventions are critical to prevent TB transmission in hospital and community settings

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Xpert MTB/RIF for diagnosis of tuberculosis

evaluating impact and cost effectiveness in the routine roll-out in South Africa

"Xpert for TB: Evaluating a New Diagnostic" (XTEND) trial

K McCarthy ,V Chihota, S Charalambous, (Aurum Institute), W Stevens, L Erasmus, S Molapo, P Marokane (NHLS), A Grant, K Fielding, A Vassal (London School of Hygiene and Tropical Medicine), E Sinanovic, N Foster, N Ramma, M Nicol (Health Economics Unit, UCT), GJ Churchyard (Aurum Institute and Principal Investigator)

TB drug resistance is a major challenge in South Africa. In this article the authors provide an overview of the XTEND trial which aims to measure the impact and effectiveness of Xpert MTB/RIF® (Cepheid) in improving patient and programme outcomes.

South Africa is rolling out Xpert MTB/RIF® (Cepheid), a new diagnostic test with improved sensitivity for detection of active tuberculosis combined with simultaneous detection of rifampicin resistance. The test has a greatly reduced turn-around time compared with mycobacterial culture, but cost per test substantially greater than the smear microscopy it is intended to replace. It is not yet clear whether this will improve patient-relevant outcomes, and how it will contribute to tuberculosis control (both drug susceptible and drug resistant) in South Africa and elsewhere.

Aim

To evaluate the effectiveness and cost effectiveness of Xpert MTB/RIF® (Cepheid) in the investigation of TB and TB drug resistance, and its impact on patient and programme outcomes and transmission at a population level.

Specific Objectives

- To measure the effectiveness of Xpert MTB/RIF® (Cepheid) in improving patient and programme outcomes.
- To determine the likely population level impact on TB transmission of using Xpert MTB/RIF® (Cepheid) in the investigation of TB and TB drug resistance, using mathematical modelling
- To estimate the cost-effectiveness of Xpert MTB/RIF® (Cepheid)from a patient and health system perspective

Methods

Study design

A cluster randomised pragmatic trial (CRT) will be conducted, where 20 laboratories in South Africa, in high burden TB districts will be randomised to receive Xpert MTB/RIF® (Cepheid) technology, or not.

Selection and randomisation of laboratories and relationship between this study and the National Rollout of Xpert MTB/Rif by the NHLS

The NHLS is currently rolling out Xpert MTB/RIF® (Cepheid)in a phases. The 20 laboratories in the NHLS phase 2a and 2b are all due to receive Xpert MTB/RIF® (Cepheid) as part of the XTEND study. In other words, this study is 'nested' within the national roll out of Xpert. The laboratories that are participating in this study were identified in early 2011 by the NDoH and role-players. For planning needs, the random allocation of laboratories in this study to receive Xpert diagnostic tests early (Dec/Jan 2011) or late (August/September 2012) was done earlier in the year.

Selection of PHCs for participation

Prior to initiation of the study, two community or primary health care facilities will be chosen for each participating laboratory. The sub-district and district health managers, together with the NHLS and Aurum will select the clinics, based on the volume of TB suspects seen per quarter, the availability of space within the facility to accommodate two researchers, and other factors (including presence of other research projects at that facility, or other active NGO support for facilities that may interfere with the study.

Enrolment and follow-up of participants

At each PHC, TB suspects will be offered an opportunity to participate, until 120 suspects have been enrolled at each site. Informed consent will be taken according to approved protocols. Participants will be followed up for 6 months. Amongst the participants, some will develop TB disease and be started on TB treatment. These participants will be followed up for 6 months after the start of initiation of TB treatment. During the course of the study, research nurses will collect information on demographic characteristics, TB and HIV history, clinic usage, economic indicators, diagnostic tests done, and results, and outcome.

Evaluation and analysis

On completion of the study patient outcomes will be measured on TB suspects and TB patients attending clinics being serviced by these laboratories, and will include six month mortality amongst TB suspects as the primary outcome. We will determine whether the advent of Xpert MTB/RIF® (Cepheid)alters provider behaviour with respect to investigating TB suspects, and to estimate costs from the patients' perspective. Comprehensive economic costs (including costs to the health system) will also be measured, together with the parameters required for the modelling of population impact.

Significance of this study

These data will enable us to estimate effectiveness, cost and cost-effectiveness of implementation of Xpert MTB/RIF® (Cepheid) in the context of national roll-out. The data generated will populate mathematical and economic models which will explore the impact of roll-out of Xpert MTB/RIF® (Cepheid) on TB control, in South Africa and elsewhere. In addition, the data will allow us to model the effect of varying test algorithms on cost-effectiveness and future resource requirements; and will guide the development of further work to test how Xpert MTB/RIF® (Cepheid) can best be used within the health system to improve patient outcomes and TB control. R

The International Union Against Tuberculosis and Lung Disease

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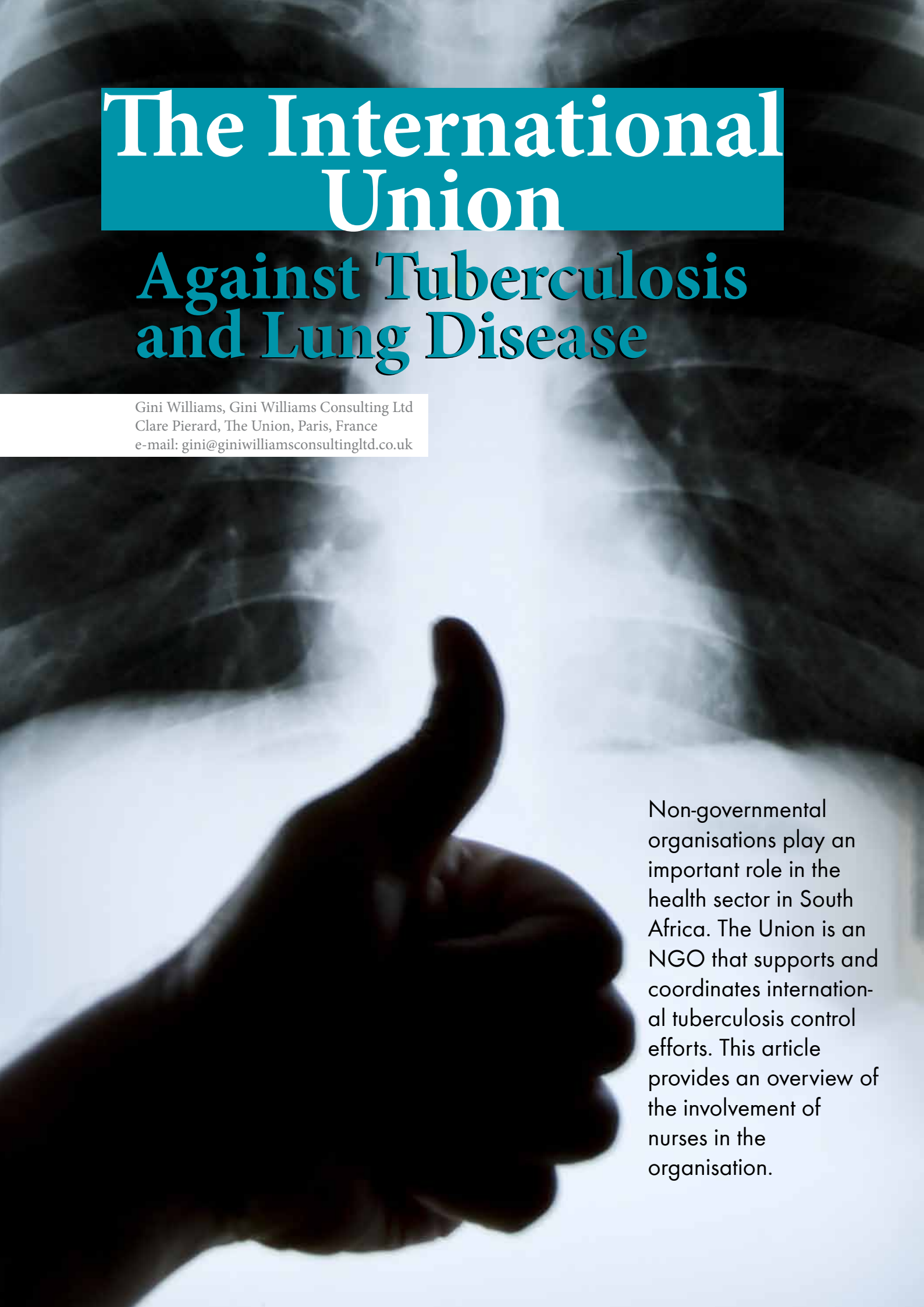

Non-governmental organisations play an important role in the health sector in South Africa. The Union is an NGO that supports and coordinates international tuberculosis control efforts. This article provides an overview of the involvement of nurses in the organisation.

The Union

The International Union Against Tuberculosis and Lung Disease (The Union) is a non-governmental organisation that was formed to support and coordinate international tuberculosis (TB) control efforts through the 31 national lung associations that founded it in 1920. The Union today, with close to 3,000 organisational and individual members and some 400 staff and consultants, provides technical assistance, education and training and conducts research in more than 70 countries each year in TB, human immunodeficiency virus (HIV), lung disease, asthma and other non-communicable diseases (NCDs), childhood pneumonia, child lung health, tobacco control and indoor air pollution. It is stated vision today, "Health solutions for the poor", reflects its move to encompass the public health challenges in low-and middle-income populations wherever they live [The Union, 2009].

The Union is most widely known for the research that led to the global strategy for treating and controlling tuberculosis, adopted by the World Health Organization in 1995, and known as the DOTS strategy. It is also well known for its annual international and regional conferences, its technical guides (notably the "Orange" TB guide, now in its 6th edition [Aït-Khaled 2010], its courses and its journals, of which there are now two, the International Journal of Tuberculosis and Lung Disease (IJTLD) and its new, online sister publication, Public Health Action (PHA).

The IJTLD, now in its sixteenth volume, has an established reputation as a reference tuberculosis journal, and is gradually increasing the proportion of articles published on non-TB-related diseases. Its three editors (two for TB and one for lung diseases) and 70 associate editors deal with nearly 1000 articles a year, of which some thirty per cent are accepted for publication. To increase its accessibility for colleagues in low-income countries, a low-cost online Union membership fee was introduced in 2006 that included access to the IJTLD. In addition, all back issues (except for the current 6 months) are available for consultation free of charge on its website. The open access journal PHA was launched in 2011 to disseminate new knowledge and encourage debate on health systems and health services for vulnerable groups, with a priority on tuberculosis, lung health, non-communicable diseases and related public health issues and areas not covered by the IJTLD.

The principal strength of The Union is its international network of members, who participate in activities such as working groups through their preferred scientific sections: TB, Tobacco Control, Lung Health and HIV. Each of these sections has a sub-section for nurses and allied professionals, reflecting The Union's commitment to serving health professionals at every level and across many disciplines.

The Union and the Nursing and Allied Professionals section

The Union's Nursing and Allied Professionals (NAPs) section was formed in 1993. Over the years, through its working group activities and participation in Union conferences, it has focused on developing activities to enhance patient care, including nursing, communication, advocacy, social determinants and education.

Early years

The initial activities of the NAPs section focused on bringing together interested members at The Union's annual World Conference on Lung Health to discuss key issues facing nurses in TB care and control. The section also contributed to the conference programme through post-graduate courses, symposia and poster sessions, and held an annual business meeting to plan activities for the coming year. The earliest working group, on training and education, created in 1999, launched a health education and training materials exhibition, which continues to be held each year.

Reaching out to The Union's regions

The lack of involvement of nurses at international conferences – especially nurses from low-income countries ¬– has been an on-going challenge to both building section membership and including nurse and allied professional speakers from areas with a high incidence of TB. In the early 2000s, with the assistance of The Union, the NAPs section secured funding from the Tuberculosis Coalition for Technical Assistance (TBCTA), which supported workshops at Union international and regional conferences, with 12 funded places for nurses: in Montreal (2002 Union World Conference on Lung Health), Bucharest, Romania (Europe Region Conference 2002), Khartoum, Sudan (Middle East Region Conference 2002), Durban, South Africa (Africa Region Conference 2002), Kathmandu, Nepal (Asian Region Conference 2003), and Punta del Este, Uruguay (Latin America Region Conference 2002).

Each workshop included a presentation on the DOTS strategy and focus group discussions on nurses' experiences with implementing DOTS, the training in DOTS provided for nurses and opportunities for them to carry out research on DOTS.

Common themes emerged: that DOTS requires a standardised approach and that there are international efforts through professional associations and

nursing councils to ensure a good standard of professional nursing practice. A further elaboration of these themes follows:

DOTS implementation: Nurses were familiar with DOTS. They felt they did much of the work to implement the strategy on the ground, but received little recognition and were rarely consulted during discussions about strategy. This resulted in systems being imposed on them, often with little consideration of their working environment.

Training: Training was available to some nurses, but it was ad hoc, focused on the clinical aspects of treatment and diagnosis, and rarely delivered by a nurse.

Research: Nurses were interested in research, in finding out more about their patients and how to improve services, but they had little or no support to do so.

Definition of the role of nurses in TB care and control: In addition to the discussions, participants completed a questionnaire to establish how they spent their time and what they saw as the most important aspects of their roles. From this, it was possible to identify and write a description of the key aspects of the nurse's role, which has since been published (ICN, 2004/2008; Williams et al, 2006)

Current NAPs Working Groups

The TB Training and Education Working Group: The TB Training and Education Working Group has joined forces with a similar TB Section Working Group to foster networking among members to share best practices in TB training efforts. They continue the materials display at Union conferences and facilitate an educational materials discussion session to enable delegates to share ideas and experiences.

The Case Management Working Group: With overwhelming agreement about the need for clear and practical guidance on the nurse's role in the implementation of DOTS, a Case Management Working Group was established to develop a nurse's manual. This resulted in two publications: the ICN TB Guidelines, first published in 2004 (ICN 2004) and revised in 2008 (ICN 2008), and The Union's guide, Best Practice for the Care of Patients with Tuberculosis, published in 2007 (Williams et al, 2007). Both are available in six languages: English, French, Spanish, Portuguese, Russian and Chinese (Mandarin). The focus of this working group has changed, and it is now called the Best Practice Implementation Working Group.

The Regional Mobilisation Working Group: In 2002–3, at each of the regional workshops, a NAP network was formed and a Chair and Vice Chair were elected. These regional officers co-ordinate the network in their region and continue to be involved in Union region conferences. When funding was available, officers also received support to attend the Union world conferences. The Regional Mobilisation Working Group was formed to co-ordinate these regional networks at a global level. The regional networks have functioned best where resources –and committed individuals – have been available to support them. Following the 2011 Union Conference in Lille, the Regional Mobilisation Working Group became an online interest group, with the primary goal of strengthening the NAP networks in the seven Union regions.

A Union Nursing Division

Having identified common themes among nurses at a local level, it was clear that work was needed to address these issues, especially with regard to practical guidance on ground-level DOTS implementation. In 2003 The Union created a Nursing Division with two Nurse Consultants, who offered technical assistance on nursing and patient care. They also collaborated with the Case Management Working Group and regional network chairs on the Best Practice guide. This guide, developed to improve the quality of patient care and of TB control in low-income countries, was based on good practice observed in these countries. It serves as a practical tool for nurses to recognise what they are doing well and address areas needing improvement.

Collaboration with the International Council of Nurses

The ICN, a federation of National Nurses Associations, began to receive funding from the Eli Lilly MDR-TB Partnership in 2005 to run a capacity-building project for nurses working in countries with a high TB burden. From this time the ICN collaborated with The Union NAPs section and Nursing Division to develop its training methodology and materials, in particular the Guidelines for Nurses (ICN, 2004 and 2007). The Union's Best Practice guide is also used as an integral part of the ICN's TB project, and has been

disseminated via ICN's Best Practice Working Group.

The ICN TB project has expanded over the years, and focused activities continue in 2012 in 16 countries, eight of which are in sub-Saharan Africa, including South Africa. Collaboration with The Union is important for nurses involved in the ICN TB Project, particularly for those from low- and middle-income countries, as it provides a mechanism for professional development, networking and presentation on subjects pertinent to the aim of improving the care offered to people affected by TB in all its forms.

Conclusion

Since its creation, The Union has existed for, and through, its members – health professionals worldwide who share a common goal – to find better methods of diagnosing, treating and preventing tuberculosis, HIV and non-tuberculous lung diseases and facing other health challenges. Among its members, in addition to physicians, laboratory technicians and researchers, are nurses and other core health staff, who are often less well represented at international conferences, but who are nevertheless at the forefront of patient care delivery, dealing first-hand with problems of treatment, adherence, drug shortages, resistance and medication side effects. Over the last twenty years, this group has played an increasingly active role in The Union's scientific sections. A clear reflection of their high level of activity was the 2007 reorganisation, integrating the separate NAPs section into each of the other sections and their core activities. As Union activities expand, it is essential that nurses remain active in all areas to ensure that the scientific work of The Union to underpin policy continues to be effectively translated into good quality patient care.

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The Union
has existed for, and through, its members – over the last 20 years nurses have played an increasingly active role.

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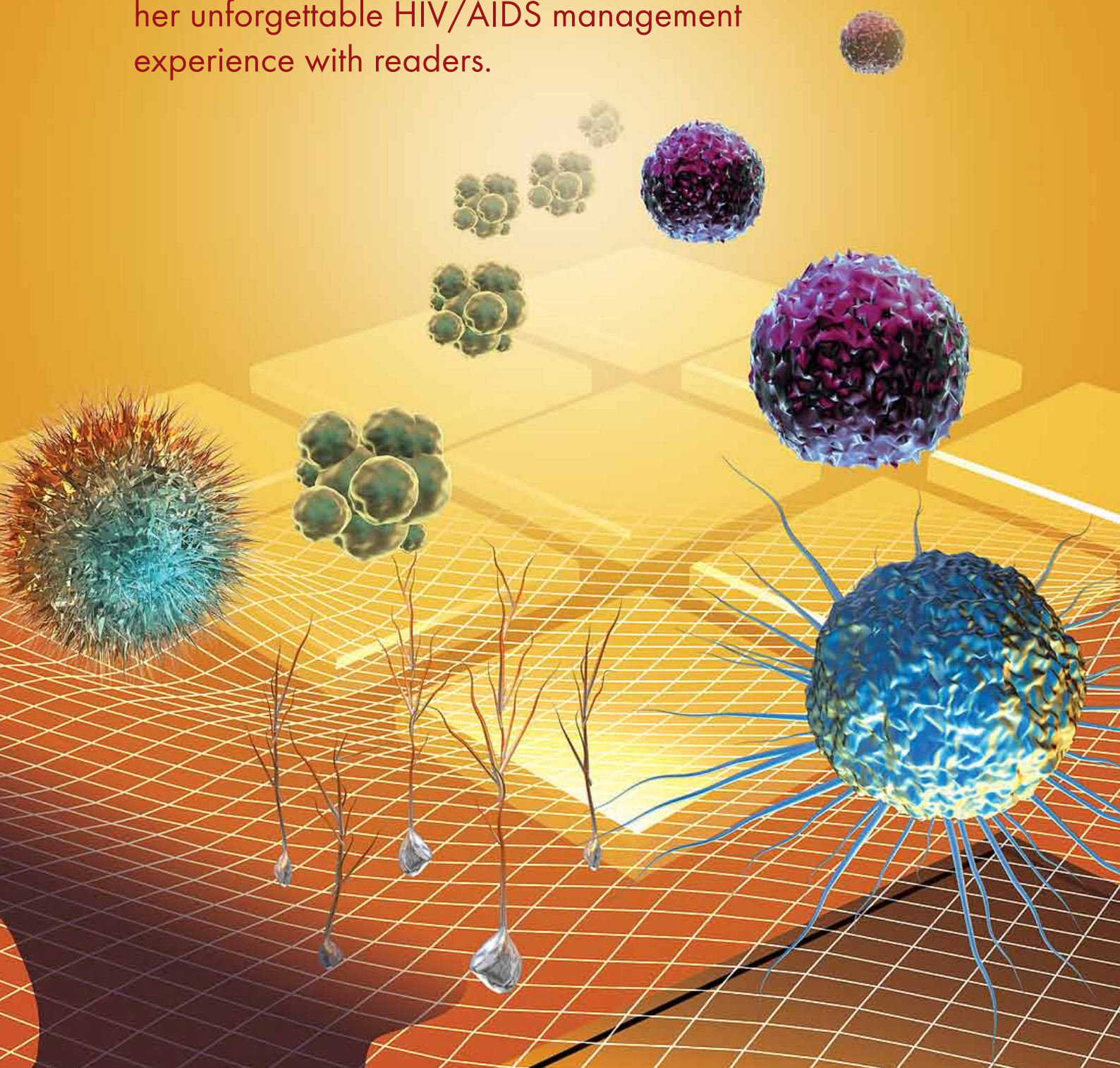
NIM-ART
A step in the right direction?

A registered nurse and midwife shares her unforgettable HIV/AIDS management experience with readers.



Thandi(we) Mabiletsa is qualified as a registered nurse/midwife at CH Baragwanath Hospital. She trained as a clinical nurse and have worked at Pholosong Hospital for 4years as a registered nurse, worked for 10 years, first as community health nurse, then facility manager/clinical nurse at Simunye clinic, Brakpan Delivery Centre. She resigned in 2003 and joined Witshealth Consortium to work as nurse clinician at Perinatal HIV Research Unit.

I worked at a wellness clinic where we were managing acute illnesses, tested for latent TB and treated patients as required. We also did family planning and cervical cancer screening for female patients as per national guidelines. I was lucky, as PHRU is at CH Baragwanath nurses' home, so access to proper and appropriate referral was a stone's throw away. We sustained our patients by giving cotrimoxazole as prophylaxis for (PCP) then, and PJP today. We also gave them vitamin supplements while we were waiting for the ART programme. There were other studies that were giving ART, but one needed to meet the inclusion criteria in order to be part of these studies and they enrolled very few patients. The wellness clinic had a long waiting list of patients who needed ART.

In August 2003 the MTCT-PLUS Initiative Programme (which was an extension of PMTCT) started where I continued to work as a nurse clinician in the management of adult patients on ART/ARV/HAART. It was a programme that was family centred. We were two nurses and two Doctors. The programme was sponsored by Columbia University. We did a three day HIV/AIDS management course through Discovery Health and the training equipped us with skills and knowledge. We enrolled 700 mothers and children plus the other infected members of the family to access ARV's. The aim of this programme was to show governments of resource poor countries that it is possible to render these services by utilizing nurses. We had a primary regimen and a secondary regimen for treatment failures. In 2004 the Columbia University established the International Center for AIDS Care and Treatment Progams (ICAP) to streamline its programmes with the aim of efficiently utilizing resources.

Treatment was initiated by Doctors and nurses did the follow up management. Dedication, passion and positive spirit amongst the healthcare team and patients kept us going. After 9 months of treatment, we had our first patient who presented with fat redistribution syndrome. I remember well that I had to collect blood for lactate. Guess what she had - hyperlactataemia.

Ask me about her management. It reminded me during my clinical training where in some instances one needed to remove the cause for symptoms to be alleviated. The patient was on D4T, 3TC and NVP. All drugs were stopped and the patient called in urgently to collect blood for lactate testing and was monitored on a weekly basis thereafter until it was resolved. It took some months to resolve and nothing else was given to correct the situation. The patient was then restarted on ddI, ABC, NLF - we must not forget that ABC is known for its hypersensitivity reaction. Progress was seen after a few months with viral load suppression, clinical improvement (quality of life) and decreased hospitalization.

In 2005 I joined CIPRA 1 Project (Comprehensive International Programme of Research on AIDS). CIPRA 1 Project is a randomized controlled study that tested the hypothesis that the care of a primary health nurse is not inferior to that of a medical Doctor. Its aim was to find strategy appropriate for resource poor countries. I am glad to say today that this trial laid a foundation for NIM-ART which now allows nurses to prescribe ARV'S (schedule 4) treatment to a vast number of South Africans who need them.

The study had two arms viz. two doctors as one arm and two nurses arm two, who worked independently of each other. We both had the same HIV management training. Patients were initiated by the clinical safety team and randomized to either arm. Both arms had enrolled 204 patients. We used the S.A. National guidelines for adults HIV/AIDS and treatment consisted of Phase 1a and 1b, Phase 2: D4T,3TC,NVP/EFV; Phase 2 ddi,3TC & Kaletra (capsule) / Aluvia tablets.

D4T amongst these drugs was a culprit drug as we had hyperlactataemia's, fat redistribution syndrome (lipodystrophy and lipoatrophy) especially in female patients. There were very few hepatotoxicities, hypersensitivities from NVP and EFV, and anaemia from AZT/ZDV.

Knowledge and skills acquired

- Management of HIV/AIDS patients.
- Examination of these patients to exclude possible opportunistic infections / WHO stage 3 & 4 diseases e.g. oral thrush, PTB, Kaposi Sarcoma, molluscum contangiousum, Aphthous Ulcers, oral hairy leukoplakia , PJP etc.
- Staging of patients according to WHO and CDC Interpretation of blood results and grading according to DAIDS toxicity grading table.

- Refer patients for Sonar, bone marrow biopsy and X-rays as needed.
- Ordering of some blood investigations e.g. patients with low HB would further be investigated for the cause of the low HB and we would order blood for Iron studies, VitB12 etc.
- Prompt reporting of adverse events and serious adverse events.
- Side effects (minor and major) management.
- Reporting of grade 4 serious adverse events e.g. grade 4 blood results, death, new hospitalization etc to the safety desk and medi-alert.

Highlights of being involved in this study

For the nurse clinician:

- Support given by Clinical safety team and trust given to us.
- Multidisciplinary team involvement.
- Availability of resources human and non-human e.g. lay councillors, social worker, study coordinator, monitors internal and external, study material and equipment.
- Feedback from the monitoring visits and safety desk.
- Quality care.
- Quality, credible data.
- Working smart.

For patients

- Quality of life.
- Reduction of hospitalization.
- Viral suppression.
- Improvement in immune system.
- Regaining of dignity, self-respect and confidence.
- Regaining life and going back to work.
- Restoring family life.
- Improved life expectancy.

Story of a hero

A story of a patient that I will always

regard as a hero – is about the beauty of acceptance, positive spirit and will power.

Ms S was randomized to our treatment arm. She was in her late 20's, had a distended abdomen with enlarged liver and spleen, deep vein thrombosis and she was on Warfarin, TB abdomen, oedema of both lower limbs up to the knees. She was started on ARV'S and two weeks later on Anti –TB treatment.

One day she came in for her follow up visit on a wheelchair accompanied by her mother and sister. Both her legs were swollen and gangrenous. According to the history the family had taken her to the witchdoctor with the belief that patient had been bewitched and she had razor cuts on both her limbs from the witch doctor. I urgently referred the patient to CH Baragwanath hospital.

The patient was admitted and within a few days she was booked for bilateral, above the knee amputation of the limbs. I visited the patient in the ward and she always had a positive spirit and the willpower and she kept on telling me that she is going to be alright with a smile. She was operated on, on a Tuesday and I went to visit her the next day in the ward. She looked bright and she was still wearing that smile on her face although she still had pain from the operation and she had lost both her limbs. This did not deter her from continuing to take her ARV'S, Anti -TB treatment and other treatment from the hospital.

After 2 weeks Ms S got discharged from the hospital and she healed excellently. The hospital social worker arranged an appointment for prostheses, and a school's contact details where she could study further as she was now a disabled person. She was discharged and given a wheelchair. I remember her telling me that she is still doing all the things she used to do before her amputation and she is still going to all the places she used to go to. She further continued to say that she is not covering her stumps as she wants people to get used to them / her.

She also told me that one day when she was from the hospital a lady ran to her and related her son's story to her that he got injured by a train and was an amputee and ever since that he stays in his bedroom and it's for years now. The lady was so proud of Ms S and she invited her to her home to come and speak to her son with the hope that her son will change his attitude towards life, accept his situation and move on with his life.

Ms S did computer training with a college for the disabled and completed her training. She then got a job at Nedbank and she was getting awards for being the best. Ms S then bought herself a house and she said she is going to buy herself a car. She bought herself a 'bakkie' and she is living a happy life. I have not heard from her after this and I am positive that she is still doing well. I have lost her contacts, but she will remain my HERO

It really confirmed to me that acceptance of situations, positive spirit and will power can do so much in one's life.

To my colleagues (NIM-ART)

I would urge you to take this move positively. It will increase your personal knowledge, skills and growth. You will have job satisfaction and self-fulfilment as with ART one definitely sees the results as long as there is good adherence by the patient. This shows that nurses are the backbone indeed of the health system and need to be acknowledged. ART/ ARV'S/ HAART are schedule 4 drugs just like amoxicillin - no need to be scared as long as one is aware of their possible side effects.

If we are able to run the PHC clinics independently one day we need to be allowed by the Minister to have our private practices where we can bill the patients, as some members of our society would rather consult nurses than medical doctors. R

NIM-ART
changes lives - also those of nurses

NDOH/SANAC Nerve Centre Hotlines

• Any HCT concerns from facility and district managers should be reported to the NDOH/SANAC

Nerve Centre Hotline and, specific emails for each province:

- **Western Cape:** 012-395 9081
  sanacwesterncape@gmail.com
- **Northern Cape:** 012-395 9090
  sanacnortherncape@gmail.com
- **Eastern Cape:** 012-395 9079
  sanaceasterncape@gmail.com
- **KZN:** 012-395 9089
  sanackzn@gmail.com
- **Free State:** 012-395 9079
  sanacfreestate@gmail.com
- **Mpumalanga:** 012-395 9087
  sanacmpumalanga@gmail.com
- **Gauteng:** 012-395 9078
  sanacgauteng@gmail.com
- **Limpopo:** 012-395 9090
  sanaclimpopo@gmail.com
- **North West:** 012-395 9088
  sanacnorthwest@gmail.com

AIDS Helpline 0800 012 322

The National AIDS Helpline (0800-012-322) provides a confidential, anonymous 24-hour toll-free telephone counselling, information and referral service for those infected and affected by HIV and AIDS.

The helpline was initiated in 1991 and is a partnership of the Department of Health and LifeLine Southern Africa. The Helpline, manned by trained lay-counsellors, receives an average of 3,000 calls per day, and is seen as a leading telephone counselling service within the SADC region.

Services Offered by the AIDS Helpline:

- Information: The Line creates a free and easy access point for information on HIV and AIDS to any member of the public, in all of the 11 official languages, at any time of the day or night.
- Telephone Counselling: Trained lay-counsellors offer more than mere facts to the caller. They are able to provide counselling to those battling to cope with all the emotional consequences of the pandemic.
- Referral Services: Both the South African Government and its NGO sector have created a large network of service points to provide a large range of services (including Voluntary Counselling and Testing, medical and social services) to the public. The AIDS Helpline will assist the caller to contact and use these facilities.The National AIDS Helpline works closely with the Southern African HIV Clinician's Society to update and maintain the Karabo Referral Database. www.sahivsoc.org
- Treatment Line: A specialised service of the AIDS Helpline, the Treatment Line, is manned by Professional Nurses. They provide quality, accurate and anonymous telephone information and/or education on antiretroviral, TB and STI treatment. They also provide relevant specialised medical referrals to individuals affected and infected by HIV and AIDS in South Africa.

NATIONAL HEALTH LABORATORY SERVICE

RESULTS HOTLINE

0860 RESULT 737858

This line is dedicated to providing results nationally for HIV Viral Load, HIV DNA PCR and CD4 to Doctors and Medical Practitioners, improving efficiency in implementing ARV Treatment to HIV infected people. This service is currently available to members of Health Professionals Council of the South Africa and the South African Nursing Council. The hotline is available during office hours from 8am to 5pm Monday to Friday.

Register to use the RESULT HOTLINE

Follow this simple Step-by-step registration process

Dial the HOTLINE number 0860 RESULT (737858)
Follow the voice prompts and select option 1 to register to use the hotline
A hotline registration form will be sent to you by fax or e-mail.
Complete the form and return it by fax or e-mail to the hotline to complete your registration process.
Once you are registered, you will be contacted with your unique number. This number is a security measure to ensure that the results are provided to an authorized user.

To use the hotline dial 0860 RESULT (737858)

Select option 2 to access laboratory results.

- You will be asked for your HPCSA or SANC number by the operator.
- You will be asked for your Unique Number.
- Please quote the CCMT ARV request form tracking number (bar coded) and confirm that the result requested is for the correct patient.

Should the results not be available when you call, you will be provided with a query reference number which must be used when you follow up at a later date to obtain the result.

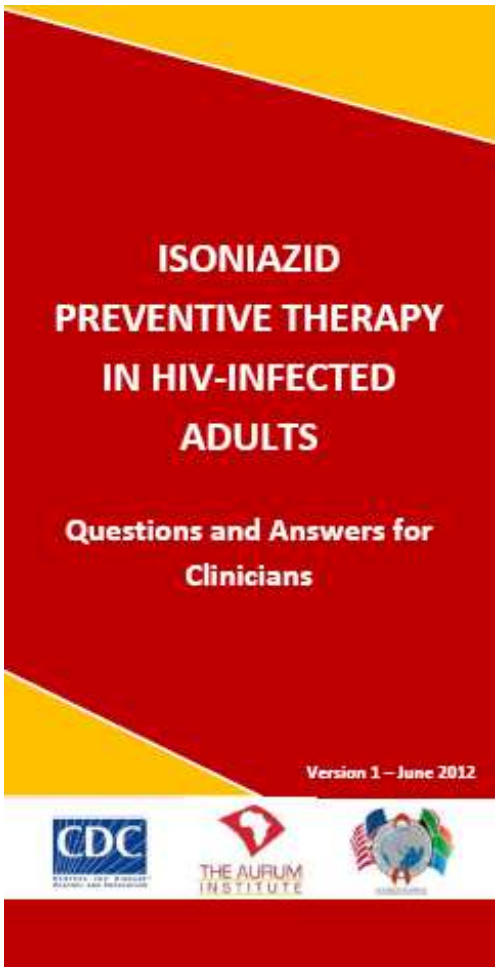
Once you have a Reference number

Select option 3 to follow up on a reference number
Should the requested results not be available, a query reference number will be provided to you.
A hotline operator will call you within 48 hours of receiving the laboratory results.

Registering for this service from the NHLS, will assit in improving efficiency, providing improved patient care and streamlining clinic processes. Call now and register to access results for HIV Viral Load, HIV DNA PCR and CD4.

ISONIAZID PRVENTATIVE THERAPY IN HIV-INFECTED ADULTS – Questions and Answers for Clinicians

This pocket sized guide is the ideal companion for clinicians. It provides instant, practical answers to the many questions around the administration, management and monitoring of patients on IPT.



A. Introduction

1. What is IPT?
2. Why Offer IPT and what is the Evidence that it Works?

B. IPT Initiation

1. Assessing for IPT
2. Contraindications to IPT
3. Exclusion of Active TB
4. IPT and ART
5. IPT and Pregnancy
6. IPT in Patients with Previous TB
7. IPT and Age
8. IPT Initiation by Nurses

C. Management Of Patients On IPT

1. Administration of IPT
2. Monitoring Patients On IPT
3. TB after IPT
4. Side Effects of IPT

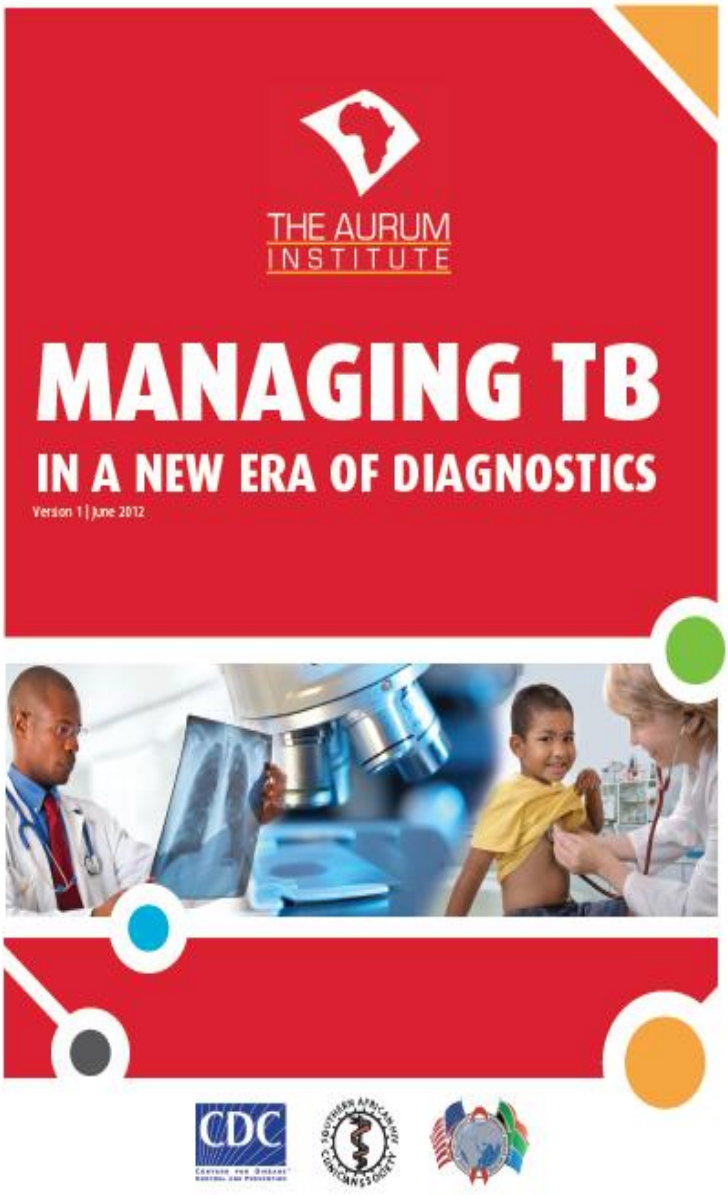
D. Screening Algorithm for IPT

How do I get this Free Tool?

Email: info@auruminstitute.org
Telephone: (010) 590 1300
Contact: Lauren de Kock

MANAGING TB IN A NEW ERA OF DIAGNOSTICS

A practical tool used to simplify and demystify the diagnosis and management of TB in a primary health care setting!



Why a Tool on TB?

TB is a major cause of morbidity and mortality in developing countries. Persons who have smear positive TB can be living with TB disease long before they are diagnosed and treated.

Why the Need for this Tool?

At any given time in our community, only approximately **30% of cases of TB are detected and treated.** During this time the disease is spread.

Aurum Institute therefore, in conjunction with various specialist and stakeholders, identified the need to develop a **tool that would make the diagnosis and management of TB simple and easy to implement**.

Structure of the Tool

Divided into 8 Sections; each simultaneously dealing with **adults and children**:

1. Background
2. Diagnosis
3. Treatment
4. TB in Pregnancy
5. TB and HIV
6. Recording and reporting
7. Prevention
8. Procedures

Format of the Tool?

- Designed in a 'Question / Answer' format
- Algorithms and reporting tools provided
- This ICON draws specific attention to content relevant to children

How do I get this Free Tool?

Email: info@auruminstitute.org
Telephone: (010) 590 1300
Contact: Lauren de Kock

Hospice Palliative Care Association of SA

Short Course in Palliative Nursing for Professional and Enrolled Nurses run in conjunction with the Hospice Palliative Care Association of SA and the Foundation of Professional Development.

INTRODUCTION
The WHO defines palliative care as "an approach that improves the quality of life of patients and their families facing problems associated with life-threatening illness, through the prevention and relief of suffering, the early identification and impeccable assessment and treatment of pain and other problems, physical, psycho-social and spiritual."

Palliative care is an integral part of every nurse's role. This course equips the nurse with the particular skills and knowledge required to care for patients with non-curable and terminal illness and to support the patient's family members. This short course is run as a collaborative venture between HPCA and FPD.

WHO SHOULD ENROL?
All professional and enrolled nurses registered with the SANC who care for patients with life-threatening illness.

ASSESSMENT / CERTIFICATION
Formative and summative assessment methods are used to evaluate learning at both theoretical and practical levels. To qualify for the certificate of completion for this short course, participants should fully attend the workshops, successfully complete the assessment process and complete the clinical work.

COURSE DESIGN
The course consists of 3 parts:
1. Day release learning based on methods suitable for adult learners.

2. Assessment component (examination, communication skills and portfolio).

3. 128 hours clinical work – done in a HPCA approved Hospice.

COURSE STRUCTURE
1. Describe the development of palliative care and its role within the health care system and apply legal, ethical and professional principles in the care of patients and families, with particular reference to death and dying.

2. Describe the management principles of pain and symptom control in advanced illness with particular reference to malignant disease, HIV and AIDS, progressive neurological disorders and end stage organ disease.

3. Be competent in the interpersonal communication skills required to establish rapport and facilitate the grieving process with patients, families and colleagues.

4. Demonstrate the ability to understand the developmental stages as applied to social, cultural and spiritual dimensions in the provision of palliative care based on respect for the uniqueness of the individual.

Starting date:
February - 2012
Day Release: 9 February 2012
Distance Learning: 6 February 2012

REGISTRATION
Educational Grant
This course is partially sponsored through an educational grant from HPCA
All interested nurses can apply for this grant from:

LeshokoKomane
Tel: 012 664 8538
Fax to email: 086 513 9814
Email: lesoko@hpca.co.za

COURSE FEE
R 6 740

A member of the SAMA group

Registered with the Department of Education as a private Institution of Higher Education under the higher education act, 1997 (Registration number: 2002/HE07/013)

Foundation for Professional Development (Pty) Ltd Registration number 2000/002641/07

Registrations are now open for the 6th Annual Workshop of Advanced Clinical Care (AWACC) – AIDS. This high-level workshop on AIDS management has developed national acclaim for bringing together the top minds in AIDS management from around the country and internationally. It focuses on the issues facing clinicians involved in the active management of patients with HIV, and is aimed at medicine-nurse practitioners, pharmacists, medical practitioners, paramedical professionals and specialists from all fields.

This year's AWACC AIDS is taking place on 4th and 5th October 2012 at the Elangeni Southern Sun Hotel in Durban from 7:30am to 5:30pm. Registration costs R1,000 which includes attendance to the event and lunch and teas for two days. Overnight accommodation and travel costs are NOT included in the registration fee, and must be funded separately by delegates. Click here to see the draft programme.

The two-day interactive workshop aims to translate the latest evidence-based research and apply best practice models of care into good clinical practice, specifically for resource scarce areas.

Objectives:

- Provide updates in the management of PLHIV with opportunistic infections, ART complications and treatment failure in resource-scarce settings;
- Educate on issues related to HIV in the pediatric population, the PMTCT programme and women;
- Develop experienced clinicians to work independently and serve as consultants in HIV medicine in different district and community health institutions; and
- Create an opportunity for networking between HIV clinicians, academicians, researchers and policy makers.

Organising Committee:

1. Dr. Henry Sunpath - Department of Medicine - McCord Hospital - Durban (Chairperson)
2. Prof. Yunus Moosa - ID Unit - Nelson Mandela School of Medicine, UKZN
3. Prof. Raj Gandhi - ID Unit - Mass General Hospital – Harvard Medical School

How to Register: Click here to register for AWACC.

AWACC is organized in consultation with KwaZulu-Natal Department of Health, Southern African HIV Clinicians' Society and Harvard University Center for AIDS Research.

For further information:

To view reports and presentations from past AWACC conferences, please click here. For more information about AWACC AIDS 2011, please contact Karen Moodley on +27 (0) 31 268 5828 or email karen@mccord.co.za and henry.sunpath@mccord.co.za

Critical 4 Africa

Combined meeting of CCSSA, SATS, SASPEN & TSSA

29 August –2 September 2012

Sun City • North West Province • South Africa

Topics for Copicon 2012

- **The Critical Care Society of Southern Africa: Critical 4 Africa**
  - Advanced ICU strategies in a resource - limited environment: Does it work?
  - Teamwork in the SA ICU
  - Processing patients in the SA ICU
- **The South African Thoracic Society**
  - Asthma
  - COPD
  - Sleep
  - Medicine and interventional pulmonology
  - TB and other drug-resistant pathogens
- **The Trauma Society of South Africa**
  - Critical Interventions in the Critically Injured
- **South African Society for Parenteral and Enteral Nutrition**
  - Inflammation & Nutrition: A Deadly Combination
- **Paediatric Critical Care**
  - Managing very severe pneumonia in the PICU (and much more)
- **Paediatric Pulmonology: The Year in Review**
  - Key opinion leaders review the latest and most exciting literature in SA paediatric pulmonology
- **Critical Care Nursing: From Good to Excellent**
  - Practice Development in Critical Care

Invited International Faculty

Peter Cox (Canada), Chuck Daley (USA), Armand Mekontso Dessap (France), Ravindra Dewan (India), Eugene Wesley Ely (USA), Can Ince (The Netherlands), Gavin Joynt (China), Tex Kissoon (Canada), Ari Leppäniemi (Finland), Manu Malbrain (Belgium), Marc Miravitlles (Spain), Robert Martindale (USA), Fernando Martinez (USA), Brendan McCormack (Ireland), Michael Pinsky (USA), Paul Wischmeyer (USA), Kazuhiro Yasufuku (Canada)

Abstract submission by 15 June

To register visit the following websites:

www.criticalcare.org.za • www.pulmonology.co.za • www.traumasa.co.za • www.saspen.com

The Critical Care Society of Southern Africa

South African Thoracic Society

Trauma Society of South Africa

SASPEN

For further information contact the Congress Office
Sue McGuinness Communications & Event Management
Tel: +27 (0)11 317 6900 • Fax: +27 (0)11 463 3265 • E-mail: events.suemc@tiscali.co.za

Joint conference of the Public Health Association of South Africa (PHASA) and the Rural Doctors Association of South Africa (RuDASA)

PRESIDENT HOTEL, BLOEMFONTEIN, SOUTH AFRICA
5 – 7 September 2012

"Bridging the Health Divide: from Policy to Practice"

The conference will be held as follows:

- 5 September 2012 Workshops
- 6-7 September 2012 Main Conference

ABSTRACT

PHASA and RUDASA are now calling for abstracts for the **2012 joint Conference.** Authors should submit abstracts online by no later than **28 May 2012.**

Please note, this year PHASA and RUDASA will offer a mentorship for new researchers and students that will assist them in developing their abstracts and powerpoints/ posters for the conference. If you are interested in being mentored by a seasoned researcher, please let us know and we will put you in touch with someone willing to support you. Please contact Deon Salomo by 5 April 2012 at Deon.Salomo@mrc.ac.za

The Conference tracks will be:

Track 1: Improving clinical practice and primary care
Track 2: Improving the performance of the health system
Track 3: Policy, Advocacy and Community action for public and rural health
Track 4: Burden of disease and disability, and the social determinants of health
Track 5: Public and Rural Health Leadership and Education

Special Conference Features

- Launch of Rural Rehab South Africa (RuReSA)
- Climate change focus
- Student Assembly

CONTACT DETAILS:

MRC EVENT MANAGEMENT OFFICE
TEL: +27 21 938 0237
E-MAIL: deon.salomo@mrc.ac.za

www.phasaconference.org.za

Fully CPD-accredited
• Interactive sessions
• Networking opportunities

SA HIV Clinicians Society Conference 2012

25 – 28 November

Cape Town International Convention Centre (CTICC)
Cape Town • South Africa

Striving for Clinical Excellence

Take your practice to a new level

4 Life-Changing Days • World-Renowned Speakers • Cutting-Edge Information

DAY 1

CONFERENCE OPENING

Professor Salim Abdool Karim:
A history of HIV/TB research in Southern Africa and the way forward

Welcome Reception

DAY 2

SESSIONS

When to start ARV treatment
Contraception and HIV
Biomedical tools for HIV prevention
Managing treatment failure in paediatric patients

DAY 3

SESSIONS

HIV and ageing
TB prevention
HIV and cervical cancer
Drug-induced complications

Celebration Dinner

DAY 4

SESSIONS

Getting to zero: PMTCT
New drug developments for paediatrics
Strategies to address maternal mortality

Early Registration Closes 24 August 2012
REGISTER ON-LINE TODAY

Confirmed Invited Faculty

Mark Cotton
Brian Gazzard (UK)
Tom Harrison (UK)
Marc Lallemant (Switzerland)
Leon Levin
Graeme Meintjes
Lynne Mofenson (USA)
John Nkengasong (USA)
Andrew Phillips (UK)
Kimberly Smith (USA)

Scientific Committee

Gary Maartens – Chairman
Linda-Gail Bekker
Andrew Boulle
Vivian Black
Ashraf Coovadia
Marc Mendelson
Yunus Moosa
Helen Rees
Ian Sanne
Wendy Stevens
Tim Tucker
Francois Venter

Call for On-line Abstract Submission — Closing Date: 3 August 2012

www.sahivsoc2012.co.za

For further information contact: SA HIV Clinicians Society Conference Office 2012
T: +27 (0)11 317 6900 • F: +27 (0)11 463 3265 • E: clauds.suemc@tiscali.co.za