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HIV & TB in Practice: Improving clinical management of TB in people with HIV

By Theo Smart

South African TB conference looks at improving the clinical management of TB-HIV

"If HIV and tuberculosis (TB) are both treatable diseases, why do some patients with HIV-associated TB require hospital admission and die?" asked Dr Graeme Meintjes, of GF Jooste Hospital in Cape Town, during his plenary talk at the 2nd South African TB Conference held last week in Durban. "Primary care doctors say that these cases are more complex to manage and consultations take longer. There are frequent side effects ... and if a patient is deteriorating and losing weight, is this because of TB treatment failure or because of HIV-related causes?"

The best way to improve clinical care for the majority of coinfecting people is to get and keep them on appropriate TB treatment and antiretroviral therapy (ART) – and much of the 2nd South African TB Conference, held in Durban last week, was focused on how to better integrate TB and HIV services to make this process as efficient and convenient for the client as possible.

However, some people with HIV present with TB cases that are particularly challenging – and a few presentations at the conference focused on ways to improve the clinical management of some of the difficult cases of HIV-related TB, including one on the management of smear-negative TB, while Dr Meintjes shared his considerable clinical expertise on how to better tackle some of the more complicated cases where TB-IRIS, drug toxicity and other concurrent conditions lead to clinical deterioration.

WHO's smear-negative TB algorithm saves lives

One long-standing challenge for HIV-infected people with smear-negative TB has been the difficulty in obtaining timely diagnosis and treatment – but one study presented at the conference provided dramatic evidence that clinicians who follow the 2006 WHO smear-negative TB diagnostic algorithm can "drastically reduce mortality in seriously-ill, HIV-infected, sputum smear-negative TB suspects in South Africa," said Dr Thuli Mthiyane of the South African Medical Research Council (MRC).

In a coinfecting person, HIV doesn't just change the clinical course and nature of TB, it can make it extremely difficult to detect TB by the usual methods, such as smear microscopy and chest x-rays. Smear microscopy involves using a microscope to look for TB bacilli in a sample of sputum (or other biological specimen) that has been stained with a special dye – but specimens from people with HIV and TB are frequently 'smear-negative.'

According to Dr Mthiyane, in South Africa, the incidence of smear-negative TB has increased 35-fold from 1990-2010 (since the HIV epidemic). Unfortunately, under the previous guidelines for the diagnosis of smear-negative TB – which required performing microscopy on at least three sputum specimens, most of these cases were diagnosed late if at all, resulting in delayed or no treatment, and increased mortality.

In 2006, WHO released revised guidelines for the diagnosis of smear negative pulmonary TB (SNPTB) in countries with a significant burden of HIV. There were a few key changes.

First, in people with or strongly suspected of having HIV, a diagnosis of TB could be made even if only one smear was positive after performing microscopy on only two specimens. A diagnosis of SNPTB could be made in anyone with a cough for two weeks or more if both smears were negative, and there was evidence consistent with TB on chest x-ray and the clinician had decided to treat and monitor. A specimen should be sent for cultural confirmation but treatment should not wait for results.

Likewise, although a short trial with antibiotics (to check for effectiveness against other possible causes of the illness) could be useful during the three-five day period of the initial TB investigations, clinicians should not wait for a week or two for antibiotics to fail before initiating TB treatment. [The guidelines also suggest](#) that a diagnosis of SNPTB can be made in, and empiric TB treatment offered to, people with HIV who are dangerously ill with suspected TB even if chest x-ray does not suggest TB, if they do not respond to the antibiotics (including treatment for *Pneumocystis jirovecii* pneumonia) after three to five days.

WHO acknowledged that the guidelines were, in some areas, based on expert opinion rather than a strong body of clinical evidence because of the urgency of responding effectively to TB in HIV prevalent settings. In light of this, WHO encouraged operational research to strengthen the evidence base of the guidelines.

So between 2008 and 2009, researchers in South Africa conducted a prospective observational study at three hospitals in KwaZulu Natal (McCord, St. Mary's and Stanger Hospital) comparing whether people suspected of having TB who were managed under the WHO algorithm for smear-negative TB fared better than those who were managed under current standard practice.¹

The study included seriously ill people with HIV over the age of 15 with cough for more than two weeks, a chest x-ray suggestive of TB and at least two negative smears. Researchers assessed whether there was a significant difference in the proportion of TB suspects alive at 8 weeks after admission (about the time it takes to get culture results back). A secondary outcome was whether there was a significant difference in the proportion of patients discharged from the hospital, due to clinical improvement (according to the clinician's reports in the medical records) at one week after admission.

The study enrolled 351 subjects into the standard practice cohort, and 187 subjects in the WHO algorithm cohort. Demographic characteristics were well matched in both groups, with the exception that subjects in the WHO algorithm group were more severely ill (with more WHO stage IV disease). At admission, most participants had a CD4 cell count below 200, although some had CD4 cell counts that were much higher, and a few patients were already on ART.

Seven days after admission, 37% of patients were still in hospital in the standard practice group, compared to the WHO algorithm group [Odds Ratio (OR) 0.61, 95% confidence interval (CI) 0.41-0.90, p=0.01.] There wasn't a significant difference in the number who died in hospital; but after 8 weeks, a significantly greater proportion of subjects were alive in the WHO algorithm group (84%) compared to the standard practice cohort (68%) [OR 2.5, 95% CI 1.6-3.8, p=0.001].

"There was a huge difference," said Dr Mthiyane. This was driven by the success of the WHO algorithm at getting people onto appropriate treatment sooner – less than half (47%) of SNPTB

suspects in the standard practice cohort were started onto TB treatment either before or after discharge.

"There was high mortality among those in whom appropriate TB treatment was delayed or not given at all due to a trial of antibiotics," said Dr Mthiyane. "Eight week survival was highest in those in whom appropriate TB treatment was started within three days in patient's meeting WHO criteria for SNPTB."

Some in the audience were left wondering whether such a prospective study was truly necessary.

"How many lives would have been saved if the WHO Guidelines should simply been followed when they came out? We've known for years that there is little time to waste in getting a severely ill TB suspect with HIV onto TB treatment," one doctor told this reporter. "In a high burden setting like this, it is extremely likely that the person has TB. In fact, as long as the clinician keeps an eye out for other possible causes, we should probably put all advanced people with HIV and symptoms of TB onto TB treatment."

Clinical deterioration on TB treatment

While this may be true, according to the plenary talk by Dr Meintjes, it is a good idea to watch out for other conditions in a person with TB and HIV anyway — as they are often the cause when there is clinical deterioration despite TB treatment.²

"Clinical deterioration during treatment for TB remains a common reason for hospital admission," said Dr Meintjes. To learn why and how common this is, Dr Meintje and colleagues conducted a prospective observational study during the first quarter of 2007 at GF Jooste Hospital, collecting data on every case with clinical deterioration (clinical worsening or failure to stabilise after 14 or more days treatment for TB) that required hospital referral.³

Over a three-month period, there were 352 patients who met this definition of clinical deterioration, and 296 were admitted (accounting for 17% of the hospital admissions during this period). 83% were known to be HIV-infected with a median CD4 cell count of 89. The median duration of hospital admission was 9.5 days, more than twice what was normal for this setting. 16% of the patients died.

While most people would assume resistance to treatment to be the cause of deterioration in a country with a growing TB drug resistance problem, the majority of cases actually had another illness in addition to TB. Among the 291 TB-HIV coinfecting patients, rifampicin-resistant TB was only found in 10%. Other causes of deterioration included an alternative illness other than TB (in other words, a mistaken diagnosis) in 4%, poor adherence in 7%, TB-IRIS in 21%, and an *additional* illness in 72%.

Most of the additional illnesses were AIDS-defining conditions (pneumocystis pneumonia (n=20), cryptococcal meningitis (n=18), HIV encephalopathy (n=14), toxoplasmosis (n=6), oesophageal candidiasis (n=6), non-Hodgkin's lymphoma (n=5), Kaposi Sarcoma (n=4) etc). The single most common additional illnesses were bacterial infections (n=53), twelve of which were resistant organisms (e.g., MRSA), gastroenteritis (n=37), drug induced toxicity (n=35) including drug-induced hepatitis. Deep vein thrombosis was found in 12 cases.

Dr Meintjes noted that both HIV and TB have been postulated to be risk factors for deep vein thrombosis and pulmonary embolus. In 2005, a systematic review found a 2-10 fold increased incidence of deep vein thrombosis in people with HIV compared to matched healthy controls,⁴ while another study found that TB was associated with several risk factors for deep vein thrombosis.⁵

Subsequently, a similar study was conducted at a primary care TB clinic (the site B clinic in Khayelitsha, South Africa).⁶ This prospective study followed the outcomes of 292 people with TB over a three-month period in 2008, 71% of whom were HIV-infected. 40% had an episode of clinical deterioration, again mostly due to similar concurrent illnesses. Among those who were HIV-positive, there was a clear increasing risk of clinical deterioration as CD4 cell counts decreased. 15 of the 17 deaths were in people with HIV. A multivariate analysis found that both HIV infection and a low CD4 count at the time of TB diagnosis were significant risk factors for clinical deterioration and death.

Several other studies in Africa have also found TB case fatality rates that are two to eight-fold higher in people with HIV.^{7, 8, 9, 10, 11} In addition to TB-related causes of death, such as severe disease due to delayed diagnosis and treatment, TB drug resistance and neurological TB, Lawn et al in 2008 and Martinson et al both reported finding concurrent illnesses including AIDS-related opportunistic infections, bacterial infections and pulmonary embolus.¹²

The course of TB to severe disease and death is much more rapid in people with HIV. Martinson et al conducted a post-mortem study at Chris Hani Baragwanath Hospital near Johannesburg of 47 people diagnosed with TB who died within 2.4 weeks on TB treatment. 10 subjects were found not to have TB, while additional illnesses were common in the rest.¹³

In light of these findings, Dr Meintjes recommended the following approach to managing people who are clinically deteriorating:

Managing clinical deterioration

Checklist question	Action
Is the diagnosis of TB correct?	Review the TB results
Is the patient adherent	Review history
Exclude MDR-TB	Drug susceptibility testing (preferably with rapid test)
If rapid deterioration or clinical suspicion of bacterial infection	Blood culture Other bacterial cultures Antibiotics
Exclude other opportunistic infections/malignancies	Examine for Kaposi's Sarcoma Serum cryptococcal antigen Mycobacterial blood culture Tissue Biopsy
Chronic gastro-enteritis	Stool for stains Endoscopy and biopsy

Dr Meintjes reminded the audience that many of the conditions that cause clinical deterioration in TB-HIV coinfecting patients can be prevented by cotrimoxazole prophylaxis. A recent paper on TB-HIV by Harries et al reviewed the evidence for cotrimoxazole use in TB, which reduced mortality by as much as 48% in settings with a low background of cotrimoxazole resistance, and by 22-45% in settings where resistance is much more common.¹⁴

Likewise, getting TB-HIV coinfecting patients onto ART as quickly as feasible can dramatically reduce the risk of death.¹⁵ As a result of the SAPIT study, which demonstrated a 56% reduction in mortality in patients who started ART while on TB treatment, it is now policy in South Africa that ART should be initiated in TB coinfecting patients with CD4 cell counts below 350.

Dr Meintjes mentioned a couple of other measures that might be considered in some patients including heparin prophylaxis in hospitalised patients, especially if they are bedbound, unless contraindicated (due to thrombocytopenia for example). In extremely ill people with HIV who present with disseminated TB, it can also be important to take a blood culture and then to put the person on a broad-spectrum antibiotic.

TB immune reconstitution inflammatory syndrome (TB-IRIS)

Paradoxical TB-IRIS occurs when a person who is diagnosed with TB and improving on TB treatment has a recurrence of TB symptoms and new or recurrent clinical manifestations of TB after they have started taking ART (usually within one to four weeks). Dr Meintjes has found this to be relatively common in Cape Town, where 25% of people starting ART are on TB treatment, with TB-IRIS occurring in 8-43% of people on TB treatment who start ART.

TB-IRIS may present as new lymphadenopathy, worsening pulmonary symptoms, effusions, or with neurological manifestations. There can also be liver involvement, with hepatomegaly, jaundice, nausea and vomiting that may be difficult to distinguish from drug-induced hepatitis.^{16, 17}

"There is no confirmatory diagnostic test," said Dr Meintjes. "Diagnosis relies on clinical deterioration with features of TB, the temporal relationship to ART initiation and exclusion of alternative diagnoses." Other possible diagnoses include drug-resistant TB, adverse drug reactions, or other infections or cancers.

Corticosteroids are increasingly being used to manage the TB-IRIS but carry a number of potential risks, including increasing the risk of Kaposi's sarcoma, reactivating herpes virus infections, and worsening undiagnosed drug-resistant TB.¹⁸ Other treatments include NSAIDs, and aspiration of lymph nodes and other surgical procedures.

[A placebo-controlled study conducted by Dr Meintjes and colleagues](#) demonstrated that a four-week course of prednisone (1.5 mg/kg/d for 2 weeks, then 0.75 mg/kg/d for two weeks), could improve outcomes when given to people who develop TB-IRIS. The study found that there was a reduction in the combined endpoint of days hospitalised and outpatient therapeutic procedures. There was also consistent significant benefit across a range of secondary outcomes including symptom score, quality of life, chest radiology and a reduction in C-reactive protein levels (a marker of inflammation). While there were more mild infections occurring in the prednisone-treated group, there was no increase in severe reaction or metabolic steroid side-effects.¹⁹

Dr Meintjes highlighted one problem that can be found in these patients: prolonged TB lymphadenitis. In people who develop this condition he said that it is important to exclude MDR-TB by sending specimens for culture and drug sensitivity testing. Management of the adenopathy may require taking repeated wide bore needle aspirates, but surgical drainage can result in the formation of large sinuses, and TB treatment may need to be extended until the swelling resolves.

Drug toxicities

As already noted, drug toxicities are a common cause of clinical deterioration, and the problem is compounded in people on TB and ART because of shared toxicities.

Drug rash and hepatitis can be caused by ART, TB treatment or cotrimoxazole. A number of studies have found the risk of adverse

events on TB treatment to be much greater in people with HIV. Yee et al reported that people with HIV were 3.8 times more likely to experience a significant drug-related adverse event; while Dean et al reported that people on TB treatment and ART were 1.9 times more likely to have an adverse event.^{20,21} Dr Meintjes added that unpublished preliminary data from a study conducted last year at GF Jooste Hospital, by Schutz et al, found that 45 out of 255 (22%) patients with hepatitis (ALT>200 or bilirubin>44) were on TB treatment, with or without ART.

Shared toxicities

	TB medication	ART
Hepatitis	Rifampicin, isoniazid, PZA	Efavirenz and nevirapine Protease inhibitors (especially boosted)
Drug Rash	All TB drugs	Efavirenz and nevirapine
Neuropathy	Isoniazid	D4T, ddI
Kidney toxicity	Aminoglycosides, rifampicin	Tenofovir
Nausea and vomiting	All TB medications	AZT, ddI, protease inhibitors

The severity of a drug reaction (hepatitis or rash) must be assessed because reaction can be fatal. Markers of severity in rash include systemic symptoms, mucosal involvement, extensive skin involvement, blistering, desquamation, and angio-oedema. For hepatitis, subjects with jaundice, very high ALT/AST, coagulopathy and encephalopathy could be at risk of hepatic failure and death.

In such cases, there may be little option but to interrupt treatment, but in a person with TB-HIV this of course carries "the risk of resistance and a delay in optimal treatment, which could result in increased morbidity and mortality," according to Dr Meintjes.

Furthermore, regimens to re-challenge a patient can be complex. Local guidelines vary regarding how to re-start TB treatment. With ART, there is the possibility of substituting a less hepatotoxic drug, such using efavirenz rather than nevirapine.

Peripheral neuropathy is also a risk in people taking TB treatment containing isoniazid and ART containing d4T — with a 7-fold higher risk of d4T substitution reported in one study.²² D4T should be avoided in such people if possible, and supplementation with vitamin B6 is recommended.

There may be problems coadministering tenofovir with aminoglycosides in people on MDR-TB treatment as these drugs can cause renal tubular toxicity (predominantly in the proximal tubules) especially if there is underlying renal impairment.²³ Current recommendations are to avoid tenofovir in people on an MDR-TB regimen containing an aminoglycoside, and instead to switch to AZT (or d4T).

Starting ART

One final clinical challenge that remains in managing TB-HIV is when exactly to start ART, according to Dr Meintjes, keeping in mind the need to balance the risk of mortality from TB-IRIS against mortality from delaying ART. According to the new South African

DOH guidelines, all people with TB-HIV and CD4 cells under 350 are eligible, though we are still awaiting the clinical trial evidence of whether to start ART two weeks or two months after TB treatment. WHO's guidelines suggest starting as soon as possible and within 8 weeks.

But in practice, because of the many steps to ART initiation in the health system, as soon as possible may be too late. A lot of time can pass between starting TB treatment, receiving an HIV test and diagnosis, then getting a CD4 cell count, being referred for ART, waiting for an appointment, attending counselling sessions and then starting ART. During each step, there can be delays, according to Dr Meintjes, and people will be lost to death and lost to follow-up.

"But despite these challenges, the majority of patients with HIV-related TB will have a good outcomes with appropriate TB treatment, co-trimoxazole prophylaxis, antiretroviral therapy (ART), close monitoring and early diagnosis and treatment of complications and co-morbidities," Dr Meintjes concluded.

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News from the South African TB Conference

By Theo Smart

Will unprecedented honesty at the 2nd National TB Conference inspire South Africans to mobilise and integrate the TB-HIV response?

By Theo Smart

Blunt acknowledgement of South Africa's past failure to confront its TB and HIV epidemics was served up by several of the key speakers — including the country's current Minister of Health, Dr Aaron Motsoaledi — at the 2nd South African TB Conference held last week in Durban.

But as the country embarks on what could be the world's largest HIV testing — and TB screening — campaign, many presenters called for moving beyond South Africa's endless debates about what's gone wrong and who is responsible, to mobilisation and delivery of integrated services that are more convenient for the patient and more efficient for the health system.

"The size of the TB and HIV burden is too great for any one role player to tackle alone," said conference chair Professor Harry Hausler at the conference opening. "But we also need to integrate TB and HIV services so that patients receive both TB and HIV care from the same health worker at facility level and the same care worker at community level. As the Minister of Health said on World AIDS Day, 2009, TB and HIV should be treated under one roof in SA and this will require nurse-initiated and managed ART."

This sentiment was echoed by several speakers.

Dr Nono Simelela, SANAC

"We all know we have a huge problem, it's not rocket science," said Dr Nono Simelela, CEO of the South African National AIDS Council (SANAC) at the start of her keynote address. She recounted depressing data on the country's unmatched TB and HIV epidemics — which she noted would not get any better this year — and other health outcomes that are declining in South Africa relative to other nations.

"South Africa has only 0.7% of the world's population, but contains 28% of the world's population with dual HIV and TB infection. Even though we are not considered to be an under-developed country — we have the resources — we are not really responding in a way that is commensurate with what we've got at hand. We are one of the only nations that is demonstrating an increase in terms of maternal mortality," she said.

Dr Simelela, who previously held what must have been a difficult post as the head of the National HIV/AIDS/TB programme from 1998-2004 under the former Minister of Health, Dr Manto Tshabalala-Msimang, said that it was easy but less than helpful to place all the blame the political leadership and the health system:

“With political leadership, we always have the good, the bad and the ugly, the committed, the non-committed. Political leadership is a changing phenomenon... and we are constantly belaboured by problems with the health system. ‘The hospitals are falling apart; the clinics are not working efficiently; we don’t have enough resources’ — that is going to stay with us for a long time. So for how long are we going to cry about these problems and what is it that we are going to do to change these things? There is a lot that we need to fix. But what are the things that we can do differently today when we leave this conference to make a difference — since we are not going to get more nurses, more doctors, more anything, more everything?”

Dr Simelala assigned responsibility to everyone in the audience: “we are not working together, collaboratively and in a consistent way to ensure access. [We] blame patients for poor adherence, but we fail to appreciate the full patient; we see that person as a single disease; we never consider everything outside of that aspect of clinical practice. That undermines our interventions. By continuing to approach these issues in a vertical manner we undermine our response. We are denying our patients, our fellow citizens, the best benefit out of our collective knowledge. We make our patients move from pillar to post looking for this expert on a particular disease.”

She pointed out that, so far, the country had only mobilised around HIV — none of the issues around TB have been raised in such a comprehensive and sustained way. Of note, during a review of South Africa’s TB programme last year, one of the recommendations was that SANAC should be responsible for the multi-sectoral response to TB as well, which the council has now taken on board.

“The divisions between our HIV/TB responses are not even justifiable clinically,” said Dr Simelala. “We are disorganising the response to a co-mingled and indivisible problem. WE are the immediate problem, not TB HIV, and this is a problem WE can solve if we want.”

What a difference a Minister can make

When Dr Simelala spoke about political leadership, she said something quite interesting (especially given her own experience in government): “When you have a window of opportunity, when you have what I call “conscious leadership”, you seize the moment by pushing the agenda on the issues that you feel are being ignored.”

Now appears to be that moment. The current Minister of Health does not appear to suffer from denialism in the least, but owns the problems, even acknowledging that the migrant work system in South Africa was exporting TB and HIV to the rest of the region.

“At the beginning of the year, I was in Vietnam attending the International Coordinating Board of the Stop TB Campaign, and what I saw while I was seated there [concerning South Africa’s HIV and TB burden] would have made any normal South African not want to be South African, just for that time... Looked at from whatever angle, we are living in a country that finds itself in a position that nobody envies, a position in which everybody’s asking the question, ‘How did you arrive in this situation?’ I’m not sure that South Africa has an answer to that,” said Minister Mtsosaledi. But he stressed that even though “the problem is intimidating, it is not insurmountable. But the size of the TB/HIV epidemic is too

enormous for the Department of Health or government to be able to tackle alone.”

The Minister presented his response to a memorandum from an alliance of NGOs who committed themselves in the fight against TB and HIV and called on the ministry to respond with concrete plans. Although he didn’t read all the following points, the official transcript of his speech included several major departures from former policy.

Involving the NGOs in planning meetings at a national level.

“The Chief Directorate for TB in the Department of Health holds quarterly meetings with provincial coordinators to develop and review strategies and plans. NGOs involved in TB and HIV services participate in these meetings going forward. These NGOs have also been included and have a vital role to play in the TB/HIV Technical Task Team of SANAC,” said Minister Mtsosaledi.

Integrating TB and HIV at the primary care level — which will require nurses initiating ART.

“The Department of Health strongly supports the move to provide integrated TB/HIV services and is committed to making nurse-initiated and managed antiretroviral treatment available at all primary care facilities that provide TB treatment.”

Making TB screening and isoniazid preventive therapy a part of the basic package of care.

“The Department of Health is committed to providing IPT in all primary care facilities to be offered as part of a package of HIV care by World TB Day 2011.” The department has set a goal within [the HCT campaign](#) that 450,000 people should be started on IPT by March 2011 and 600,000 by June 2011. “There is no excuse for health workers to withhold this inexpensive and effective intervention to prevent TB. I strongly urge you [to download the guidelines from the Department’s web site](#) and work with your districts to start implementing as soon as you return to your health facilities.”

The decentralisation of MDR-TB services linked with strengthened infection control measures at facility and community levels.

“We do not have an adequate number of hospital beds and welcome the opportunity to work with other partners to provide decentralised MDR-TB services.” [*Many of the sessions at the conference addressed the management of drug resistant TB, and will be the focus of a future issue of HATIP*]

Standardised stipends for community health workers (whether HIV or TB).

“The Department of Health is finalising a Community Care Giver Policy Framework that supports the development of multi-skilled comprehensive community care givers with fixed stipends.”

Allowing NGO’s who are supporting TB/HIV at a facility to access facility-based registers

so that they can monitor and evaluate their programmes “so that they can be accountable for the work they do.” DOH will also explore the idea of creating a community team leader post or function at health facilities to coordinate all community care givers in the catchment population of the health facility

The Minister went off his script several times to emphasise the need to move towards a more integrated approach both in planning, training and service delivery at the primary healthcare level.

“Over time, South Africa has become over-reliant on an over-verticalised hospital-based approach to care. Now we are engaged in a very high, expensive, non-workable curative healthcare system. But I was taught even before going to school that prevention is better than cure,” he said.

Addressing the need to move towards community-based care for drug resistant TB, he said, “the whole healthcare system needs to be ‘over-hauled’ to be community orientated. But more than anything else, we need to put primary healthcare at the centre of the problem. You can build a million more hospitals and recruit and train a million more doctors and put them in our hospitals – but that is too late! That is too late.”

The minister noted that there were a number of ways the system could be made more efficient. For instance, he said that nurses had complained to him about spending much of their time in meetings with different trainers, coordinators and supervisors from different health departments – when what they really need is integrated training and supervision. Likewise, other nurses anxious to prescribe ART complained of being ‘workshopped’ to death. “They tell us ‘We want treatment now, we know who is sick. Why do you still want to workshop us? We understand, we are not that dumb. What we want is action now, please come and act! Do something – the teaching, the talking is over!’” he said.

“We all know what must be done. The question is why is it not being done in this country? Debate rather than action is what is killing us...,” said the minister, who concluded. “But we are not deliberating... we are committed to work with you.”

Enough talk, time for action

Several ideas about how to put integration in action were presented by Dr Vincent Tihon, DOH’s advisor on TB-HIV on the previous day.

“We’ve been talking a lot about it, I’m not to sure whether we should keep talking about it and just do it,” he said.

But in order to integrate these services, programmes and facilities, he said that facilities do need to think through the channels and the patient flow that clinics are organized.

“If we have a patient coming today to the reception of any facility, what is the path of that patient from one room to another in the clinic? How long will it take, how many people will they have to see before receiving comprehensive care? We talk about integrating family planning, we talk about integrating reproductive health, antenatal, sexually transmitted infections, TB, and also for HIV to be integrated into primary healthcare. But I think the bottom line is really to bring back all concepts of primary healthcare and to have all of the vertical programmes really articulated around the patient who enters all services in primary healthcare. Otherwise we have many doors for the patients to knock on; many faces that the patient will meet and many queues and many different messages and many infectious germs being happily transmitted, and many patients being lost in the process,” he said.

First, Dr Tihon said that better collaboration is needed between the programmes when it comes to planning and training:

- How [are] we coordinating our programmes?
- How do we plan activities together?
- How do we avoid a plethora of workshops that are not coordinated?
- How do we achieve comprehensive surveillance?
- How do we standardise Monitoring and Evaluation?

Integration of services happens at the facility level, and may be easier to implement at primary care facilities than in hospitals.

“The whole process of responsibilities and roles within the clinics has been redefined,” he said, pointing out that it is time that the TB hospitals be accredited to provide ART when patients are eligible for it. “And we need to promote a more nurse-led and doctor-supported programme.”

“In a consulting room, we will now address four general conditions – STI screening and management, TB screening and management, HIV Screening and management, maternal and child health – which will then require equipping all healthcare workers with a more comprehensive approach of how to deal with the client, the patient in front of us,” he said.

This will require standardised comprehensive training, standardised registers and standardised supervision.

To get this all rolling will require leadership at the provincial and district levels, according to Dr Tihon.

“It’s really the district managers, the facility managers [who need] to think differently... to redraw the rules of the clinic. So practically it means for the district to identify which are the facilities that are the most ready to change this mindset,” he said.

Advocacy and the community

The Minister’s words about the need to move on from debate also appeared to strike a chord with Paula Akugibizwe, of the AIDS Rights Alliance of Southern Africa, who gave one of the closing addresses at the meeting. After quoting the minister on the need for less talk and more action, she told the audience: “There are 208 deaths from TB per hour, 52 deaths per 15 minute conference presentations, 6,240 lives were lost to TB during the time we spent in SA TB conference... How many were saved? We need a little less conversation, a little more action,” she said.

Akugibizwe supports the move to decentralise care to the primary health care level, but pointed out that this will require an expanded community role in service delivery. “Conscious leadership does present a window of opportunity – but we need much more than strategic partnerships to capitalise on this. We need advocacy to break out of the comfort zone to generate truly vigorous response.”

Advocacy must tackle what Akugibizwe calls the TB factories, including the mines in South Africa, and the health facilities that have been implicated in spreading TB and drug-resistant TB due to poor infection control. Advocates need to push for a massive injection of funding

“Without replenishment of the Global Fund with at least US\$20 billion in October 2010, sustained progress in the fight against TB is unlikely,” said Akugibizwe who pointed out the new football stadium in Durban cost 1.6 times the global budget for control of drug-resistant TB.

Akugibizwe closed emphasising the need for a human rights approach to demanding action on TB/HIV with a quote from Marcos Espinal, on World TB Day this year. “*TB is not a medical problem. It is a development issue. It is an economic problem. It’s a human rights situation.*”

South African gold mines a 'TB factory', activist claims

By Lesley Odendal

The gold mining sector came under heavy criticism from clinicians, ex-miners, advocacy groups and the Minister of Health for

the tuberculosis crisis it faces at the recent South African TB Conference, held in Durban from 1 to 4 June 2010.

"If TB/HIV is a snake in Southern Africa, we know that its head is in South Africa in the mines. We are exporting TB and HIV throughout the region," stated the South African Minister of Health, Dr Aaron Motsoaledi during the conference's opening plenary.

Paula Akugizibwe of the Aids and Rights Alliance for Southern Africa (ARASA) stressed that the mining sector, which she referred to as a 'TB factory', was over a century behind schedule in its response to TB.

The South African Chamber of Mines, along with medical officers from the largest mining houses, such as AngloPlatinum and Goldfields, described the best practice interventions and guidelines that have been developed and implemented in the mining sector, at a symposium on TB in the mining industry hosted by the Chamber of Mines at the conference.

Why is there a TB problem in South Africa's mines?

Mineworkers are at increased risk for developing TB as poorly ventilated conditions in the mines and hostels increase the risk of transmission. Silica dust increases the risk of developing TB. Migration back and forth between home and mine reduces the likelihood of diagnosis and increases the chance of treatment interruption and failure. Health care for mine workers is often poor and TB screening by employers is inconsistent and unverified, as outlined [in a study published last week](#) by researchers from Oxford University and the London School of Hygiene and Tropical Medicine.

Interventions by the mining sector outlined at the symposium included the production of resources which outline the responsibilities of mining houses to address TB, such as the Safety in Mines Research Advisory Committee *Handbook of Occupational Health* and the Department of Mineral Resources (DMR) *Guidance Note for TB Control* produced in 2001.

A TB Review Tool which audits TB programmes in mines has also been established.

There are also efforts to provide isoniazid preventive treatment (IPT) to all HIV-positive miners and a Dust Team to address silicosis in the gold mines has been instituted, through the Mine Industry Occupational Safety and Health (MOSH) Best Practice Adoption System which aims to facilitate widespread adoption of knowledge, technology and practice in order to improve health and safety performance in South African mines.

Additional efforts are also being made to address the risk factors that place mineworkers at increased risk for developing TB, such as phasing out the hostels where mineworkers live in overcrowded conditions. 'Living out allowances' to support mineworkers living outside of hostels are being paid and financial support for home ownership is being made available.

However, activists and clinicians presenting at the session questioned if these interventions were enough.

"If we look at the response relative to the magnitude of the problem of TB and HIV in the mines, the mining industry is driving a wooden wagon of circa 1903," stated Akugizibwe.

In 1903, the Milner Commission set up to look into the problem of TB in the mines stated that 'The extent to which Miners' Phthisis [TB] prevails at the present time is so great that preventive measures are an urgent necessity.'

The South African Gold Mining Industry may well have the highest incidence of TB in the world, with cases ranging from 3000 to 7000 per 100,000 miners per year, according to the South African Department of Health Tuberculosis Strategic Plan for South Africa 2007 – 2011.

Nationally, the overall TB incidence is estimated to be 920 per 100,000 for 2008 according to the World Health Organisation, which declares it a health emergency when the TB incidence of a country is 250 per 100,000 per year.

Silicosis (an occupational disease caused by inhaling dust from gold production) is very rare in most developed countries, but is widespread among miners in South Africa and other developing countries.

The association between silicosis and tuberculosis has long been recognised. Rates for active tuberculosis in silicotic subjects are 2- to 30-fold higher than those in the same workforce without silicosis, according to a review published by Jill Murray of the National Institute for Occupational Health in South Africa. The risks of silicosis and HIV infection exponentially increase the risks of TB in gold mineworkers.

In 2003 the South African mining sector launched an initiative to eliminate silicosis and developed targets for silica dust reduction.

However, Professor Gavin Churchyard of the Aurum Institute pointed out that the elimination of silicosis would require dust levels to be at least 50% lower than the targets that have been set by the sector. According to Goldfields, there were 1778 new cases of silicosis in 2009 among the company's employees.

Compensation

According to ARASA, the compensation system for mine workers is rife with legal and policy challenges, including the fact that miner workers get worse TB compensation than other workers. A former mine worker from Lesotho who attended the conference said that after contracting TB in 2007 he was dismissed. He has since had to make several taxing and costly trips between Maseru and Johannesburg (approximately 350km apart) in his efforts to secure the compensation to which he is legally entitled, but is yet to receive.

A 2005 audit by Deloitte found that the Compensation Fund was insolvent and that mining companies' levies (paid by companies to the Compensation Fund due to the occupational risks for developing TB in the mining sector) would need to be substantially increased in order to cover the deficit. Over the 21-month period during which the audit was conducted, only 400 of the 28,000 (1.4%) claims submitted were paid out.

Currently, the burden of responsibility for this shortfall is being shifted between different government departments and the mining sector, and disagreements between the Chamber of Mines and the Department of Health about who should be held responsible for correcting the compensation fund's deficit have resulted in a court case that will be heard later this year.

However, Mr. Eric Gclitshana, the National Union of Mineworkers' National Secretary for Health and Safety warned that the union would not support litigation against the mining houses, because experience has shown that "litigation does not benefit the ex-mine worker, as all the funds go to the lawyer's fees".

Lynette Mabote from ARASA expressed concern about this view, saying that "former mineworkers, whose labour built [the South African] economy, have been left to the mercy of a system that was historically designed to maximise exploitation and impunity."

Prof. Churchyard added that greater accountability was necessary. "When deaths are caused due to mining accidents, companies are held to account. No one is held accountable for the deaths caused by TB in the mining industry. This is an unprecedented public health disaster and urgent action is needed."

Reference

South African Chamber of Mines, Satellite Session: *TB and the mining industry*. 2nd South African TB Conference, Durban.

Murray J et al. *Occupational respiratory disease in mining*. *Occupational Medicine* 54:304-310, 2004.

HIV counselling increases condom use in TB patients

By Lesley Odendal

TB patients who have knowledge regarding the relationship between TB and HIV or have been counselled on HIV are more likely to report having used a condom during sexual intercourse, according to a study presented at the 2nd South African TB conference held in Durban last week.

Researchers also reported that unmarried TB patients or those who have completed secondary level education were more likely to report condom use during last sexual encounter.

TB patients are a key group for HIV prevention because of the high rate of HIV co-infection in this group, but the study found that only 334 of the 533 (62.7%) TB patients in the study had been counselled for HIV, despite the recommendation of HIV counselling for all TB patients in South African national guidelines.

In addition, 386 of the 533 (73.5%) had no knowledge of the relationship between TB and HIV. These findings show that activities to strengthen HIV counselling and TB/HIV treatment literacy are necessary for TB patients.

Those who had not been counselled on HIV were half as likely to report condom use at last sexual encounter in comparison to those who had been counselled on HIV ($p < 0.01$).

Those who had been on TB treatment for more than 60 days were 50% more likely to report condom use than those who had been on TB treatment for less than 60 days ($p < 0.05$).

Unmarried patients were twice as likely to use condoms ($p < 0.01$) and patients who had completed secondary schooling were 80% more likely to report condom use when compared to those who had completed primary school or less ($p < 0.01$).

Women who had knowledge of the relationship between TB and HIV were half as likely to have reported condom use. According to researchers this is consistent with the previously reported inability of women to negotiate condom use due to gender inequalities in power within relationships.

The study by Dr Gladys Kigozi and Dr Christo Heunis from the Centre for Health Systems Research and Development of the University of the Free State identified factors associated with condom use during most recent sex as reported by TB patients in four sub-districts of the Free State in South Africa.

No prior research about condom use of TB patients in South Africa exists. The TB/HIV coinfection rate among registered TB patients for the Free State province was 60.3% in 2007.

600 TB patients were recruited from February to March 2008 from 61 primary health care facilities in two districts (one urban, one rural) in the Free State.

Patients were conveniently recruited when exiting TB consultation rooms and a structured questionnaire was used to identify if a condom had been used the last time they had had sexual intercourse, serving as a proxy for condom use over prolonged periods of time.

Of the 600 patients, 52 patients indicated that they had never been sexually active, 13 could not remember whether condoms were used at their last sexual encounter, and two refused to respond to this question.

The study was limited by the fact that convenience sampling at the patient level was used. However, it was found that the sample did not differ from the general South African population on key variables such as age and sex. Social desirability bias may also have been present where participants may have provided false information regarding condom use. Attempts were made to reduce this by assuring patients that all information gathered would be treated confidentially.

"Our study shows that TB patient categories who should be targeted for more aggressive condom promotion include those who are older, married, less educated and newly initiated on TB treatment," said Dr Heunis.

Reference

Kigozi G and Heunis C. *Determinants of tuberculosis patients' condom use at most recent sexual activity: A survey in four sub-districts in the Free State province*. 2nd SA TB Conference, Durban, 1-4 June 2010, Abstract no. 226

Increasing testing for HIV in TB patients feasible without additional resources

By Lesley Odendal

The implementation of programmatic strengthening activities to promote HIV voluntary counselling and testing (VCT) for TB patients can yield a higher uptake of VCT and ARV initiation among TB patients and positively impact patient care, according to a study presented at the 2nd South African TB conference in Durban last week by Dr Athmanundh Dilraj of the South African Medical Research Council (MRC).

The strengthening activities were implemented at 16 TB primary health care facilities in two high-burden districts in KwaZulu-Natal in South Africa.

The percentage of TB patients counselled for HIV testing rose to 94.8% during the study period, from 79.2% during a similar period of the previous year.

The percentage of TB patients who tested for HIV similarly rose to 89.5% from 66% in the previous year. This increased the case detection of HIV among TB patients with the prevalence of HIV among the TB patients rising from 55.4% in the previous year, to 74.7% while the strengthening activities were implemented.

The study included 847 newly diagnosed TB patients registered between May and July 2009, who were followed up for two months to facilitate VCT, CD4 testing, ARV literacy classes and initiation of ARVs.

Strengthening activities included: improvement in documentation and logistics, motivational counselling for patients and facility staff, training data capturers, and greater involvement of management.

Study nurses and counsellors visited the facilities frequently to monitor progress of patient care according to the guidelines of HIV testing in TB patients, by checking the TB registers and patient records to ensure that all TB patients were counselled and tested for HIV.

Attempts were made to contact patients and set up facility appointments if patients had not been counselled and tested for HIV.

The concept of 'motivational counselling' was adopted which included providing education on the benefits of VCT such as knowing one's HIV status in order to receive cotrimoxazole preventative therapy, treatment for opportunistic infections, CD4 count testing and ARVs when necessary.

The logistics and staff roles and attitudes towards patients with HIV were also examined, and attempts were made to improve these where necessary.

If CD4 results were not recorded, checks were performed to ascertain whether blood samples for CD4 counting had been collected and the date of collection when done.

Attempts were also made to contact patients to return for CD4 testing when necessary.

If the blood samples had been collected, the reasons for delays were investigated and addressed. All CD4 results which had not been received were obtained from the laboratory and patients were also contacted to verify if they had been given their CD4 results.

448 of the 600 HIV positive patients (74.7%) had a recorded CD4 result. 296 of these 448 patients (66.1%) had a CD4 of less than 200 cells/mm³.

CD4 testing records were not kept for 2008, so no comparison with the previous period could be made.

Patients with a CD4 of less than 200 cells/mm³ (the threshold for ARV initiation in South Africa) were followed up to ensure that they were enrolled onto ARV literacy classes, so as to guarantee prompt initiation of ARVs.

The challenges faced by the health facilities were examined in order to ensure that strengthening activities had the greatest impact. It was found that in most of the clinics there was poor recording of patient contact details and a lack of follow-up for counselling and the collection of CD4 results.

TB and HIV services were not integrated which created logistical problems. For example, TB clinics and VCT centres were often in different locations; initial CD4 tests were conducted on a separate day from the HIV test and there was also a lack of linkage between the TB and VCT registers. There was also initial hesitation among staff to conduct voluntary counselling and testing, and inadequate managerial oversight from facility managers and TB supervisors at the district level.

'Our study shows that the effective management of HIV in a TB setting, including the provision of ARVs is feasible and replicable without additional resources', said Dr Dilraj of the South African Medical Research Council.

Reference

Dilraj A. *Improving uptake of VCT and ARV treatment in TB patients*. 2nd SA TB Conference, Durban, 1-4 June 2010, abstract 133.

News from the Global HIV/AIDS Initiatives Network

By Theo Smart

About the Global HIV/AIDS Initiatives Network

Global funding for HIV/AIDS has increased dramatically during the past decade. Three global HIV/AIDS initiatives (GHIs) are together contributing most of the direct external funding to scaling up HIV/AIDS prevention, treatment and care: the Global Fund to fight AIDS, Tuberculosis and Malaria, the President's Emergency Plan for AIDS Relief (PEPFAR), and the World Bank's HIV/AIDS programmes including the Multi-country AIDS Programme (MAP).

The Global HIV/AIDS Initiatives Network (GHIN) is led by Professor Ruairi Brugha of the Royal College of Surgeons in Ireland (RCSI) and by Professor Gill Walt of the London School of Hygiene

and Tropical Medicine (LSHTM). GHIN activities are coordinated by Neil Spicer (LSHTM), Aisling Walsh (RCSI), Regien Biesma (RCSI), Carlos Bruen (RCSI) and Andrew Harmer (LSHTM).

GHIN comprises researchers in [22 countries](#) who are exploring the effects of these Global Health Initiatives on existing health systems. GHIN is focusing on collecting evidence of these effects from regions, facilities and services, and communities, in order to inform policy development at national and international level.

GHIN adds value to individual country studies by:

- Promoting comparability through common research protocols and tools
- Sharing expertise across country study teams and building research capacity
- Generating multi-country comparisons and context-specific policy lessons
- Coordinating dissemination of findings and recommendations and streamlining communication with global stakeholders

Recent publications

GHIN has published a new Policy Brief - [Understanding the effects of global health initiatives on health systems strengthening](#).

The Policy brief draws on data collected from 8 GHIN country studies (China, Georgia, Kyrgyzstan, Malawi, Peru, Uganda, Ukraine and Zambia). It concludes that while there are signs of improved transparency and coordination of services within countries, the scale up in funding that GHIs have provided has not resulted in equitable access to and delivery of services between urban and rural areas, and has increased workload without a corresponding increase in workforce.

GHIN has also published a Policy Brief on [Global health initiatives and human resources for HIV/AIDS services in Malawi, Uganda and Zambia](#). The policy brief concludes that scale up of GHI funding has not translated into significant increases in the health workforce. Rural areas - where HIV/AIDS services are most neglected - received proportionately fewer staff than urban areas, and increases in staff for non-clinical HIV/AIDS services were not replicated for clinical services.

In all three countries the national health workforce has not grown proportionately to the increasing number of clients seeking care and treatment for HIV/AIDS. As a result, workloads have increased across all health cadres.

Training takes time and it is still too early to determine accurately the effects of scale up, although increased capacity is reported in most countries. Monitoring of training is weak, however, and time set aside for training has stretched an already overburdened workforce, leading to high levels of absenteeism from work.

GHIN research on the effect of GHIs on coordination is now accessible online: '[National and Subnational HIV/AIDS coordination: are global health initiatives closing the gap between intent and practice?](#)' from *Globalization and Health*.

GHIN and the Consortium for Research on Equitable Health Systems (CREHS) have co-published a Policy Brief on lessons learned from collaboration in research partnerships: [Multi-Country Partnerships: Adding Value to Research](#)

GHIN database

GHIN's website hosts a [searchable database of research publications and other literature on global HIV/AIDS initiatives](#):

- HIV/AIDS services
- Health system strengthening

- Human resources
- Governance
- Access to services/equity
- Vulnerable groups
- Funding
- Civil society
- Countries
- Global HIV/AIDS initiatives

about HATiP

A regular electronic newsletter for health care workers and community-based organisations on HIV treatment in resource-limited settings.

The newsletter is edited by Theo Smart (Cape Town) and Keith Alcorn, NAM's Senior Editor (London).

For further information please visit the HATIP section of aidsmap.com