

# HATiP

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# HIV and TB in Practice for nurses: active TB case finding

By Theo Smart

**This double edition of HATiP, targeted to nurses and other health care workers involved in task shifting in sub-Saharan Africa, is kindly supported by the Stop TB Department of the World Health Organization.**

These special editions of HATiP are intended to support the capacity development of nurses and other health care staff as they take on new roles and tasks in the scale-up of HIV counselling and testing, antiretroviral treatment, HIV/TB activities, TB case finding, diagnosis, treatment and cure.

One of our goals with these editions is to draw out key messages and issues within the last several months addressed in HATiP, the HATiP Blog, and [www.aidsmap.com](http://www.aidsmap.com)'s news coverage relevant to nurses, and others providing counselling, medical care and support services; and then to link these to related job aids, training materials, posters and training manuals that may be useful.

## Going beyond the outpatient clinic to find and eliminate TB and TB/HIV

This double edition of HATiP for nurses looks at 'active TB case finding' approaches — more aggressive ways to identify people earlier in the course of TB than the standard approach, known as passive case finding. Passive case finding means identifying TB cases when they come to the clinic, or, less diplomatically, when healthcare programmes wait for people with TB to get sick enough to come into the health facility to get relief for their cough or other TB symptoms.. Unfortunately, not every person with infectious TB goes to the clinic, so various active case finding strategies are being studied to see whether they do a better job of finding these cases, and whether that has an impact on TB control.

There is now information from several recent active case finding studies showing that some of these approaches do have promise and could affect TB programmes and outreach programmes in many countries. This issue considers what this might mean for nurses and other healthcare staff, such as community health workers and expert patients. Except where otherwise noted, the references for the material in this bulletin are to be found in HATiP [184](#) and [185](#), which provides more detail and analysis of the studies, screening and diagnostic methods.

## Active versus passive TB case finding

Before a case of TB can be diagnosed and treated, possible TB cases have to be identified.

The easiest place to find a lot of people who may have TB is where people who are suffering from the symptoms of TB come to get care. In most places, this would be the outpatient clinic (OPC) or emergency room (ER) of a larger facility, or the waiting room at the primary healthcare clinic (PHC) or health care provider's office.

Training staff in these facilities to look for and recognise the symptoms of TB, especially cough, and promptly get possible cases into the diagnostic process is a highly cost-effective way to find TB.

Even though these TB cases could have been infectious before their diagnosis, in many industrialised countries with good DOTS programmes, this passive case finding — waiting for the TB patients to come to you — seemed to be all that was necessary for good TB control.

TB programmes in most of Africa don't have such luck — in general, people, including those who have TB, put off coming to the clinic as long as they possibly can. Many never make it. As long as these cases remain undiagnosed and untreated, TB is probably being spread. On top of that, those rich countries with good TB control didn't have a high burden of HIV to deal with. In many parts of sub-Saharan Africa, HIV not only made TB dramatically more common, it made the consequences of not finding TB soon enough far more deadly.

Passive case finding is not a nice name. The word passive doesn't fairly describe the hard work and dedication required for nurses and other health care staff to find the TB cases among their patients and make sure they get diagnosed and onto care. There are many committed health care workers who are doing a good job identifying TB in their facilities. But in the resource-poor settings where most of our readership are working, it just doesn't seem to be enough, even when clinics do their very best and identify virtually every case that walks through their door by passive case finding. The huge burden of TB in many communities tells us there is a lot of TB being transmitted there, probably coming from people who don't get diagnosed soon enough, or who don't get a diagnosis at all.

In these settings, something is clearly needed over and above passive case finding. These other cases must be found. So, researchers have begun investigating 'active' case finding approaches — going out and looking in other places where there might be many previously undiagnosed people with TB. The goal is to find, diagnose and treat TB sooner in virtually *all* the people with the disease. Only by doing this can we really hope to stop the transmission of the infection.

There are several broad categories of active case finding, and even within categories approaches vary. Every programme is a little different.

## Different approaches to TB case finding

### Household contact tracing

Household contact tracing takes place after a TB patient is identified, to find out about his or her living situation over the period his TB could have been infectious. Who are (or were) they living with? Are there any young children (under five years of age) or people living with HIV in the home? Many programmes try to get the patient to bring these individuals in for screening, but this could be logistically difficult for the household to do. Generally, sending a

### Did you know?

**The sooner you find, treat and cure a person's TB, the fewer opportunities there should be for TB to spread:**

- to family and friends in their household, and
- to co-workers or other members in their community, and within the health facilities they visit — to other patients and possibly even to YOU, their healthcare provider.

trained outreach team to visit the household is the best way to identify everyone who has been living there, and provide TB screening and other services such as HIV testing. Trained nurses often lead these teams, supported by counsellors and community health workers who can make certain that anyone in need of care is connected to it.

### TB screening campaigns

TB screening campaigns in communities (such as townships or informal settlements) could be an important way to better control TB in communities with a high burden of TB. In most countries, these are the poorer communities with inadequate, substandard housing, and high rates of malnutrition who have a higher burden of TB than wealthier communities. However, these campaigns can take a variety of forms, from door to door screening, mobile vans offering TB screening and other services, temporary festival-like events held over the course of a week or weekend in a different community each week. Different approaches may work better in some communities than others. Getting the approach right to identify previously unidentified cases earlier in a community may be a process of trial and error.

### Active case finding in groups at high risk of TB

Active case finding in groups at high risk of TB (such as miners or prisoners) or where the consequences of TB are very grave and/or access to TB screening and diagnostic services low (such as in pregnant women). The success of these screening programmes is dependent on accessing the group when and where they can be found. These may be workplace programmes in the case of miners, or the primary entry points of care for pregnant women and their children, such as antenatal clinics and other maternal and child health clinics.

Many people with a high risk of TB or TB/HIV belong to oppressed groups that have poor access to health services and may have multiple risk factors for TB. For instance, the risk of being exposed to TB in prison is extremely high, and many prisons in resource-limited settings are filled with members of marginalised populations already at very high risk of HIV and TB, such as people who use drugs, men who have sex with men (MSM), transgendered individuals, and commercial sex workers.

### Intensified case finding

Case finding targeted to a group at high TB risk is sometimes called **intensified TB case finding (ICF)** but many use the term ICF specifically for screening for HIV-related TB. ICF in people living with HIV is perhaps the MOST active type of case finding because it must be performed routinely in people living with HIV because of their high risk of TB, and the greater risk that they could die of undiagnosed TB.

### WHO policy mandates that PLHIV should be screened for TB at EVERY contact with the health services, regardless of whether:

- They have already received isoniazid preventive therapy (IPT) to reduce the risk of active TB,
- They are taking IPT now, or,
- They are taking antiretroviral therapy.

A programmatic guide on [Implementing Collaborative TB-HIV Activities](#), recently produced by the International Union Against Tuberculosis and Lung Disease recommends that screening for TB in PLHIV “should be done in every section of the health facility

where they are seen so that no referral is necessary. This includes out-patient departments, HIV care/ART clinics, in-patient wards, maternity and child health departments and client-initiated testing and counselling centres.” WHO recommends screening patients with its 4 TB symptom screen or a local adaptation, which will be described in more detail in the next edition.

A critical component of active case finding programmes, however, and an area where many programmes fail, is making sure that people who have been screened are effectively linked to diagnostic services and appropriate therapy (including IPT in PLHIV and child contacts of TB cases without symptoms of TB).

The best active case finding strategy will vary depending on the setting, but some approaches could be complementary. For instance, by identifying, finding, treating and curing TB in hot spots in the community, even an intervention targeting HIV-negative people in communities with a high burden of TB and HIV could help reduce the high risk of continued TB exposure for people living with HIV in that community.

### Did you know?

**It is policy to perform household contact tracing (in most countries), whenever a person is diagnosed or put onto treatment for smear-positive pulmonary TB. This means there should be an investigation to see:**

- If other people living in the patient's household also have TB, and
- Whether there are any children under 5 living in the household who have been exposed to TB, who need to be put on isoniazid preventive therapy (IPT) to reduce their chances of developing TB, which is often life-threatening in young children

### Intensive household contact tracing

More recently, some information that could affect TB programmes and create new roles for nurses and lay providers was produced by the ZAMSTAR study, a very large trial that looked at whether two different case finding approaches in communities (or a combination of the two), could increase early TB diagnoses — and whether either would have a greater impact on a community's TB burden than passive case finding. The preliminary results were reported at the 42nd Union World Conference on Lung Health held last October in Lille, France.

Over the better part of a decade it took to plan, prepare for and perform the ZAMSTAR study, it seemed like it was much more than a clinical study— it was more like a cultural phenomenon, particularly in Zambia, where the study mostly took place. It was huge, had an innovative design, and one of the intervention approaches was very novel — requiring a process of community selection, preparation, mass community mobilisation, training and participation, on a scale never seen before in sub-Saharan Africa.

Many of the most enduring lessons from ZAMSTAR may come out of this process, and the lessons learned about bringing together so many diverse people with a stake in improving TB case management, from elementary school students to expert patients, to nurses and newspaper reporters, to government ministers and brilliant researchers to the multi-billionaire visionary who paid for it all. Somehow, they pulled off a rigorous study which reached the clear conclusion that implementing one of the active TB case

finding interventions in a community could, after several years, reduce its overall burden of TB.

That's right— the *community* as a whole did better. Unlike most other studies, ZAMSTAR did not randomly assign individuals to different care or treatment arms. Instead, it randomised entire communities to one of four arms, each with a different TB case-finding intervention.

One of the arms was supposed to serve as a control — where the community received TB case finding in just the same way as they always had: through passive case finding at the clinic. Only, the researchers pointed out that this wasn't entirely true — as part of the preparation for the study, all the communities had significant upgrades to their local health system, with additional staff and training to recognise and manage TB appropriately. This included rapid updates to current policy when new recommendations emerged, like the recommendation to perform intensified case finding in all people living with HIV. And, very importantly, they also got better laboratories to provide faster and more reliable diagnoses than before. Every community got these upgrades, but each community knew whether it was implementing one or both of the new interventions or in the case of the control arm, neither.

So after strengthening the capacity of communities to diagnose and manage TB, ZAMSTAR randomised communities in Zambia and the Western Cape province of South Africa into four arms, no intervention versus one or both of two different interventions to increase the early detection of TB cases. The investigators then evaluated whether there was less transmission of TB in the household or a lower prevalence of TB in the community.

One of the active case finding arms included an intensive form of 'household contact tracing' which involved sending counsellors to the homes of TB patients to perform contact tracing, screening household members for TB, and offering home-based HIV counselling and testing (HCT), with repeat visits to deliver TB results, educate the household about TB, and to make certain that anyone in the household with TB or HIV was effectively linked to treatment, care and support.

***In communities where household contact tracing took place, TB prevalence was reduced by 22%.***

Household contact tracing is nothing new — it has been an established and recommended TB control practice for some time — but one that has been rarely implemented in resource-limited settings. It has just been put on the stack of things that clinics and staff never got around to organising. The intervention included HIV testing, and involved repeated visits with more counselling and support than usual, but nothing really revolutionary — simply a slight update to, and consistent performance of, good TB control practice that programmes ought to have been doing all along.

The other intervention was called 'enhanced case finding' (ECF) which involved a number of activities to make a TB diagnosis easier to access and encourage people with symptoms to seek out diagnosis. In this case, sputum collection centres were set up within the community where people could collect or deliver their sputum specimens without having to go to the clinic.

The community was inundated with advocacy, communication and social mobilisation activities (community drama, radio) to educate children and adults about TB and the need to get a diagnosis. The improved labs were supposed to turn their results

around very quickly — within 48 hours — but had trouble keeping up with the number of the specimens at some sites.

The ECF intervention with all the various community activities was of course the one that everyone got excited about, and that communities wanted to continue after the study was over. But it didn't seem to do any better than the control arm — it even did a little bit worse.

On the other hand communities assigned to implementing the household contact tracing intervention saw a 22% reduction in the prevalence of culture-positive TB. This was statistically significant — and one of the first times a study has found a TB intervention to have an effect across the entire population of a community in the era of HIV.

The household contact tracing intervention arm also appeared to reduce TB transmission (as measured by tuberculin skin test conversions in children) by 55%, but this was not quite statistically significant (the limited number of communities made it hard to prove this but it would seem to be consistent with the strategy's effect on TB burden).

Enhanced case finding identified up to a quarter of the TB cases in the communities randomised to the intervention, but as implemented in this study at least, did not lead to a reduced TB prevalence when compared to the communities that did not receive the intervention. Maybe it would have done better with newer, faster and more sensitive lab technology such as the Xpert MTB/RIF test now being introduced in some countries. Even improved fluorescent microscopy can be insensitive for TB especially in people living with HIV. It is possible that people who handed in their sputum at a collection centre could have interpreted a negative result as meaning that they didn't have TB — when maybe they did. If this resulted in a delay going to the clinic, the approach might have backfired. If so, this underscores how very important it is for clinical teams and health educators to better communicate and support people with symptoms of TB in the quest for a diagnosis for smear-negative TB, until the cause of their symptoms is either determined or their symptoms resolve.

**Implications of the ZAMSTAR study for nurses and community health workers**

Many experts believe the findings of ZAMSTAR regarding intensive household contact tracing, combined with HCT and effective linkage to care should affect TB control policy and become routine practice in settings with a high burden of HIV and TB, especially in southern Africa

A number of other studies reported at last year's World Conference on Lung Health in Lille seemed to support this conclusion. A meta-analysis found that household contact tracing can be a relative simple way to find a lot of undiagnosed TB cases. Another study of household contact tracing and household HIV counselling and testing in the Northwest province of South Africa, found very high rates of culture-positive, smear-negative TB in both people with and without HIV, and also led to early identification of HIV in many household members, at higher CD4 cell counts than among people diagnosed in health facilities.

According to the ZAMSTAR researchers, intensive household contact tracing can be delivered by trained lay counsellors at relatively low cost. Another study also found that task shifting, in this case, engaging Health Extension Workers in southern Ethiopia to perform household contact tracing as part of their routine activities, almost doubled TB case detection in the community, and in particularly increased TB diagnosis in women and children who



previously had less access to TB diagnosis. These health extension workers did not require extensive additional training to perform these duties.

However, Ethiopia's health extension workers have considerably more training than some of the people who provide home based care services in other settings.

In fact, another study reported that even within one South African province, KwaZulu Natal in South Africa, the various programmes run by the health department, and non-governmental and community-based organisations have produced a variety of community health worker cadres who go through very different training programmes, have somewhat different duties, and receive substantially different compensation.

The study suggested that community health workers currently engaged in home and community-based care interventions, could be trained to better deliver TB/HIV interventions in the home – but it wasn't necessarily easy. In addition to the additional training, the community workers needed close supervision, which was supposed to be provided by one supervisor/community health facilitator, also at the community level. But the poor quality of the supervision undermined the project. Part of the problem was that some community health facilitators had too many workers to supervise well, and often didn't have any transportation to get around the district.

While some community members can certainly be trained to be supervisors, one wonders whether this may require more experience and training. In the meantime, studies in other parts of South Africa have reported good findings when outreach teams have been led or supervised by trained nurse managers.

Consequently, South Africa is already piloting an intervention of intensive household TB contact tracing, combined with HCT, and maternal/child health interventions. Trained outreach teams are led by nurses and include a counsellor to deliver the key screening and counselling interventions, while the community health workers support the household in a variety of ways, including accompanying household members as needed to the health facility for effective linkages to care. However, the intervention may be more difficult and expensive to deliver in remote settings without good roads, or for programmes without the means to transport their contact tracing outreach teams.

The success of household contact tracing will depend on:

- Whether household members start - and stay on - the appropriate treatment for TB and HIV
- The training and quality of outreach services provided;
- The linkage to, and strength to the laboratory system to rapidly turn around reliable results; and
- The ability to monitor the effectiveness of the intervention being delivered by teams

HIV diagnosis and linkage to care is also an important part of the household contact tracing interventions (although earlier HIV diagnosis did not explain the impact of the household contact tracing intervention on TB incidence).

As for enhanced case finding, other studies described at the conference suggested enhanced case finding interventions that engage communities in TB control also hold promise.

For example, another study in an urban community in Zimbabwe, found that two enhanced case finding interventions, one involving a mobile clinic with advocacy, communication and social mobilisation, the other, house-to-house screening, together were associated with a reduction in the burden of TB. On its own however, the mobile van approach seemed to find more cases.

Enhanced case finding interventions may need to scale up access to HIV testing and linkages to HIV care and treatment (and consider, including ways to enhance the diagnosis of HIV-related

smear negative TB, such as employing the smear -negative diagnostic algorithm).

## Conclusion

There is a growing consensus that health programmes will need to go beyond the clinic and aggressively seek out TB cases in order to get the TB epidemic under control, particularly in southern Africa where there is a high burden of HIV and HIV-related TB.

More aggressive case detection will be more expensive than passive case detection, but some experts suggest it will cost more in the long run not to scale up more active case finding interventions. Increasing access to new diagnostics may improve case detection, though there are questions about reserving them for the highest yielding form of case detection – passive case detection – while access remains limited and their cost is high.

Nurses can be the leaders in charge of many of these campaigns and outreach teams. But involvement of civil society organisations, PLHIV and other affected communities in the TB response can increase the reach and quality of TB services for PLHIV and hard to reach populations. Guidance is being developed by WHO to promote a productive working relationship between TB programmes and the community.

### ***Nurses can be leaders, in partnership with the community, in active case-finding programmes.***

Different case finding approaches seem to work better in different populations. Much remains to be learned about which approaches to active TB case finding are most likely to reduce TB transmission and reduce the prevalence of TB. But it may be difficult to apply the lessons from a study in one community to another, because communities are different – some have poor road access, or the community mobilisation activities that work in one, may not work in another. It appears that one size does not fit all.

In the meantime, TB case finding projects and programmes that are ongoing should monitor case finding performance closely, looking to see whether they are finding cases that would have otherwise gone undiagnosed, or just spending a lot of money to identify the same people that passive case detection would have found just a day or two later.

## Next edition

The next edition of HATIP will look at TB symptom screening in more detail.

## 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](http://aidsmap.com)