MDR and XDR-TB in high-prevalence HIV settings

An epidemic requiring a paradigm shift

Experience in fighting MDR and XDR-TB to date comes from Eastern Europe and Peru. However, the situation in these countries is radically different from South Africa in at least three ways.

First, the number of M/X DR-TB patients is quite limited. For example in Latvia (population 2.2 million), 148 cases of MDR-TB and 7 cases of XDR-TB were recorded in the whole of 2005. This is equal to the number of cases seen in Khayelitsha township, South Africa (population 500,000), where by September 2007 235 of MDR-TB and 6 confirmed cases of XDR TB have been registered.

Second, HIV/AIDS and TB co-infection complicates the diagnosis and treatment of TB. In Latvia, there were 49 cases of TB/HIV co-infection in 2005 (9 of which were MDR TB). In Khayelitsha township, there were 3,700 TB/HIV cases recorded in 2006; most of the MDR cases are co-infected.

Finally, resources are much greater in the previously well-documented MDR countries of Eastern Europe and the former Soviet Union, which tend to rely on hospital-based treatment managed by medical officers. This is not an option given the magnitude of the problem in Southern Africa, where HIV is mainly managed by nurses at the primary care level and hospital beds are limited.

In Eastern Europe, the M/XDR-TB epidemic is predominantly perceived as a "man made disaster" resulting from poor functioning of the basic TB programme. As such, it is also perceived as a temporary and reversible problem that can be dealt with through intensive vertical programmes (in this way Latvia reduced its MDR-TB caseload from 332 in 97 to 148 in 2005).

In South Africa, the situation is completely different.

MDR-TB in South Africa is not only a "man made disaster"

There is no doubt about the need to strengthen existing TB programmes as the first defence against the emergence of MDR-TB. But this in itself will not be adequate to turn the tide of the current TB epidemic.

An illustration is the Cape Town Metro area: few places in Africa are able to invest as much in basic TB control as Cape Town and this programme has achieved one of the best TB cure rates in the country with a 76% cure rate and 82% completion rate in 2006. Despite this, MDR TB is increasing in Khayelitsha (9 cases in 2004, 53 in 2005 and 109 cases in 2006) and widely transmitted (30 % of recorded MDR-TB cases are primary cases).

In the context of widespread reduced immunity linked to the HIV epidemic, it is becoming clear that even with the best TB control programme, MDR-TB will emerge. This is because of the fact that people with HIV/AIDS generally suffer multiple TB episodes over time.

HIV-burdened countries cannot afford to fight two overlapping emergencies separately

HIV prevention and treatment is recognized by all SADC countries as the number one health priority, and it is accepted that this requires a massive increase in resources. The insufficiency of human resources in particular has been identified as a major bottleneck to expanding antiretroviral coverage.

In this context of scarce resources, it is clearly not possible to redirect resources to fighting another "international health priority". Given the high degree of crossover within the HIV and TB epidemics, it also makes no sense.

Instead, political and programmatic momentum for HIV programmes should be harnessed as much as possible to develop strategies against M/XDR-TB. This means training and supporting health staff at all levels to manage both diseases.

Two diseases, one patient …one programme

In southern Africa between 65 and 80% of TB patients are co-infected with HIV. For co-infected patients it is more convenient to receive integrated care from a single clinical service. In this way patients will benefit from coherent, patient-centred, adherence and social support programmes which have been developed in HIV programmes. From a programme management perspective integrated management of HIV and M/XDR-TB is also important for rationalizing resources, and also because very little is currently known about the co-administration of second-line TB drugs and antiretrovirals. This will require careful monitoring.

Towards a "controlled" decentralised M/XDR-TB programme

Decentralised delivery of HIV services is now widely accepted as the best way to reach universal coverage and improve patient retention in high-burden countries.

In contrast, there is, understandably, a reluctance to provide decentralized M/XDR-TB care due to public health concerns about disease transmission. Such concern has led some to propose isolating potential M/XDR-TB transmitters as a means of control.

However, the urgent need to prevent the spread of M/XDR-TB needs to be framed within the context of the current reality of long diagnostic delays (6–8 weeks for culture + DST). Even when diagnosis is confirmed, there is not enough space to isolate patients: waiting lists for referral to MDR hospitals are around 4–6 weeks, and this is likely to increase. This means that patients are waiting approximately three months before they begin treatment during which time remain highly infectious in the community.

One way to reduce these unacceptable delays is be to decentralise patient management while enforcing clinic and community protective measures. Such an approach would also benefit from community-based support measures that exist within decentralized HIV programmes and hopefully decrease the high defaulter rates currently experienced in centralized M/XDR-TB programmes (38% for the Cape Town Metro).

One way to assure quality and high standards would be to create an "accreditation" process, similar to the one which exist for ARV centres. This would require meeting a series of criteria for M/XDR-TB treatment initiation and follow-up at the district/sub-district level. The following points would need to be taken into consideration:

1. Infection control

Infection control at the clinic level. Current approaches to infection control are designed for the hospital setting (UV lamps, negative pressure, air extractor systems). Infection control needs to be adapted to the clinic level using proven measures such as managed patient flow (cough triage), natural ventilation, UV light (sunlight), and directional air flow to reduce the risk of contamination in waiting areas. Administrative measures are also needed to ensure staff protection (respirators & masks, non-involvement of HIV-positive staff) in specific areas recognised as high risk. Each accredited health centre and clinic would undertake an infection control assessment, develop an action plan and nominate a facility-based infection control officer.

Community-level infection control. At the community level the focus would be on family protection (education on TB risk reduction, patient isolated bedroom if possible, improved ventilation, prophylaxis for < 5 year olds, contact tracing, and so on) while supporting optimal adherence to medication.

2. Patient management

Reducing time to diagnosis and treatment. This would include systematic flagging of M/XDR-TB suspect cases (re-treatment, treatment failure, serial defaulters, and so on) reduced time-to-DST through the use of rapid DST techniques (PCR, Rif Fastplaque) and immediate initiation of treatment in "accredited decentralised centres" as soon as the results of resistance testing are known.

Hospitalisation. Criteria for hospital admission in intensive phase would be restricted to clinical status (patients too sick to remain ambulatory) and logistical concerns (too far from any health facility to attend on a daily base for injectable drug). District hospital beds or "step down facilities” would be accredited for these cases.

HAART co-treatment. M/XDR-TB is an indication for HAART initiation. Patients would benefit from existing decentralised accredited centres to be fast-tracked onto HAART via integrated TB/HIV health centres. Potential toxicity and drug-drug interaction would be monitored.

Improved M/XDR-TB treatment potency. While benefiting from a large network of HAART treatment support (doctor supervision, hot line and so on) second-line treatment will be more individualised according to DST results, introducing new drugs for second-line to improve potency.

Drug supply. Drug supply management should be established on a named-patient basis to ensure proper follow up in decentralized treatment centres. This has already been established in some sites for ARV provision (e.g., tenofovir)

3. Patient-centred adherence support

Treatment literacy. Significant NGO and community-based support currently exists for HIV treatment literacy that can be extended to M/XDR-TB. After an initial intensive period of education, patients will be eligible for community DOTS provided the supply and administration of injectable drugs has been secured.

Community-based adherence support measures. Most measures used for HAART patients (support groups, pill boxes, defaulter tracing) will be *de facto* available to MDR-TB patients as the majority will be co-infected. This support should also be extended to non co-infected individuals.

4. Monitoring & Evaluation

M/XDR-TB register. New data management tools for recording treatment outcomes and controls will need to be made available in all clinics to allow staff to evaluate their own performance and that of the programme on a quarterly basis.

Electronic database. Different software is being developed for this specific use.

5. Training, supervision and support

Formal training. All TB and HAART providers should be trained and made familiar with M/XDR-TB protocols and guidelines. Considering the large number of health professionals to be trained, training approaches will need to be creative (for example through the online WMA M/XDR-TB training course. This should be reinforced through formal and extended "facility based" training focusing on the entire medical team to ensure that everyone is familiar with procedures.

Support. Existing support (such as the HIV hotline) should be extended to all M/XDR-TB issues.

Supervision. Performance assessment based on quarterly outcomes should be assured to guarantee programme quality control within acceptable norms.

6. Programme management

The implementation of the National and Provincial M/XDR-TB plans will for the most part be at the district level. This will require the formulation of district-level action plans, which would form the basis of “district-level accreditation” for controlled, decentralised M/XDR-TB programs. Accountability for the implementation of such plans will at the level of the District Management Team level.

Dr. Eric Goemaere, Head of Mission, MSF South Africa

Ph +27 21 3645490
Fax +27 21 3617051
Email: eric.goemaere@msf.org.za
www.msf.org.za

Cape Town, November 2007