# Taking XDR TB seriously in South Africa

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**"The global emergence of extensively drug-resistant tuberculosis (XDR-TB) is a stark reminder of the failure of public health systems to control TB, an infectious disease that is easily diagnosed and treated."**
(South African Medical Research Council)

According to South African and American researchers XDR TB (extremely drug-resistant tuberculosis; i.e. strains of TB that are resistant to isoniazid, rifampicin, quinolones and second line injectable anti-tuberculous drugs) may inhibit the success of TB and HIV treatment programs worldwide. Reports by Neel Ghandi and colleagues[1] that XDR TB poses a greater threat to low-income countries such as South Africa and that committed action is needed to address the issue of resistant strains were first published in 2006. The study by Ghandi *et al* shows the devastating effect of XDR TB on patients and health workers, its alarmingly high mortality rates in those co-infected with HIV, and rapid nosocomial spread.

The study reported in the *Lancet* and led by Dr Neel Ghandi, assistant professor of medicine at the Albert Einstein College of Medicine at Yeshiva University, revealed that highly resistant strains of TB were more common than previously thought in rural areas of KwaZulu Natal. Of 1,539 patients, 221 had MDR (multi drug resistant TB) and 53 of these had XDR TB. Prevalence rates in a group of 475 patients with TB were 39 percent for MDR and six percent for XDR TB higher rates than previously reported. All the patients with XDR TB who were tested for HIV tested positive. All but one died.

The researchers claim their findings are particularly worrying for South Africa where TB is the most common opportunistic infection for people living with AIDS and where MDR is emerging as a major cause of mortality amongst these patients. A further cause for concern raised by the study is the evidence that many XDR TB infections were nosocomial. Dr Tony Moll (who first discovered the XDR strain of TB in Natal), from the Church of Scotland Hospital in Tugela Ferry, contributed to the 2006 study and stated: "Our findings and data suggest that the bulk of infections are hospital acquired."

Professor Simon Schaaf, MDR treatment expert at Tygerberg and Brooklyn Chest hospitals explains that in South Africa a major cause for the spread of MDR and XDR TB is "poor or no isolation facilities in hospitals or clinics for infectious TB patients."

The researchers have pushed for aggressive action to contain the spread of XDR TB. "One will have to address the general TB programme as well as the specifics of the M/XDR TB problem in parallel," says Moll. "Concentrating on one without addressing the other will not solve the XDR TB problem." Moll recommends a massive co-ordinated input of human resources and material resources to scale up the general TB programme and parallel to this, a programme to address the M/XDR TB problem specifically which will entail:

- An epidemiological study to understand the transmission of XDR TB better.
- Quick surveys to determine the extent of XDR TB
- Wide spread availability of laboratory DST (Drug Sensitivity Testing) to all MDR TB (and ideally all TB) suspects
- Faster diagnoses of M/XDTB patients to facilitate faster isolation, treatment initiation, and contact tracing
- Implementation of infection control measures to protect patients, visitors, family contacts and staff from exposure
- Availability of all drug options to ensure the best treatment regimens possible
- An upgraded TB programme to support optimal case finding, case holding and treatment completion.

Van Rie and Enarson[2] suggest that there will be no magic bullet to tackle the problem of XDR TB and its emergence should act as a stimulus to strengthen basic control measures and explore why significant scientific advances have had limited impact on the TB situation in the world.[2]

Since the first report of XDR TB the number of reported cases of XDR TB in South Africa has mushroomed. Today, according to the South African National Department of Health, XDR TB is now prevalent in all nine provinces (Table 1), although KwaZulu Natal remains the hotspot and contributes 65 percent of all cases.[3]

**Table I:** XDR TB cases in South Africa by province, 2004-2007

| Province | 2004 | 2005 | 2006 | 2007 | Total |
|---|---|---|---|---|---|
| E Cape | 0 | 1 | 45 | 44 | 90 |
| Free State | 0 | 4 | 4 | 0 | 8 |
| Gauteng | 32 | 6 | 44 | 3 | 85 |
| KwaZulu Natal | 19 | 158 | 279 | 133 | 589 |
| Limpopo* | 1 | 0 | 0 | 0 | 1 |
| Mpumalanga* | 0 | 0 | 0 | 0 | 0 |
| N West | 4 | 5 | 19 | 0 | 28 |
| N Cape | 0 | 3 | 12 | 0 | 15 |
| W Cape | 18 | 7 | 16 | 41 | 82 |
| South Africa | 74 | 184 | 419 | 221 | 898 |

* Potentially gross under detection in Mpumalanga and Limpopo provinces due to poor access to culture and DST services for these two provinces.
Adapted from data published for National Department of Health, 20073

In response to the gravity of the situation the South African Department of Health has developed the new Tuberculosis National Strategic Plan for 2007-2011, a plan designed to meet the challenges of TB, MDR TB and XDR TB by focusing on the following key issues:

- Availability and access to MDR referral centres
- Timely referral of MDR suspects
- Continuity of drug supply
- Adherence to guidelines
- Treatment delivery after hospitalization
- Management of side effects
- Laboratory quality control
- Costs involved

Within this framework all confirmed XDR-TB patients are referred to an MDR-TB Unit for hospitalisation for a minimum period of six months. Once discharged these patients receive ambulatory care at the nearest health facility which ensures continued treatment and psychosocial support. To create space in the currently available MDR treatment units and also in an attempt to improve adherence and thereby treatment outcomes it may in future be necessary to manage a larger proportion of patients with MDR TB in the community

MDR TB units monitor XDR TB patients on a monthly basis until the required 24 month treatment regimen is completed. In keeping with the South African Constitutional right to personal freedom and international human rights laws, the enforced quarantine of XDR TB patients is acceptable only when vo-luntary measures to isolate the patient have failed. This issue remains highly contentious with health care workers generally supporting the principle of isolation and patient activists opposing quarantine as an infection control measure. The importance of containing the epidemic and to protect the global community should not be taken lightly. However, the most important step in curtailing the rise of MDR and XDR TB does not lie in isolating patients but in improving overall TB control by improving the early diagnosis of active TB, specifically MDR TB in any individual infected by ***Mycobacterium tuberculosis,*** and by ensuring the successful completion of treatment with drugs to which the organism is susceptible. The failure to complete treatment with effective drugs is largely responsible for the emergence of the current global crisis.

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