



## Drug resistant TB in South Africa – Hospitalization, statistics & costs

### The Emergence of Drug Resistant TB

Drug resistant TB (that is TB which is resistant to at least one anti tuberculosis drug (<https://www.tbfacts.org/tb-drugs/>)) had emerged in South Africa by the 1980s, but was not thought to be a major problem.<sup>1</sup>Schaaf H, “The 5 year outcome of multi drug resistant tuberculosis patients in the Cape Province of South Africa”, Trop Med Int Health, 1996 [www.ncbi.nlm.nih.gov/pubmed/8911459](http://www.ncbi.nlm.nih.gov/pubmed/8911459) (<http://www.ncbi.nlm.nih.gov/pubmed/8911459>)<sup>2</sup>Weyer K, “Tuberculosis drug resistance in the Western Cape”, S Afr Med J 1995 [www.ncbi.nlm.nih.gov/pubmed/7652628](http://www.ncbi.nlm.nih.gov/pubmed/7652628) (<http://www.ncbi.nlm.nih.gov/pubmed/7652628>) XDR TB (<https://www.tbfacts.org/xdr/>) (using the 2006 revised definition) was prevalent in the Western Cape province of South Africa as early as 1992.<sup>3</sup>Symons, G, “A historical review of XDR tuberculosis in the Western Cape province of South Africa”, S Afr Med J 2011 [www.ncbi.nlm.nih.gov/pubmed/21920174](http://www.ncbi.nlm.nih.gov/pubmed/21920174) (<http://www.ncbi.nlm.nih.gov/pubmed/21920174>)

TBFACTS.org has more about the different types of drug resistant TB (<https://www.tbfacts.org/types-of-drug-resistant-tb/>).

### Drug Resistant TB Management Programme

The South African National Department of Health implemented its first drug resistant TB (<https://www.tbfacts.org/drug-resistant-tb/>) management programme in early 2000. The guidelines required that all the drug resistant TB patients should be hospitalised for at least the first six months of their TB treatment (<https://www.tbfacts.org/tb-treatment/>).

### The South African TB drug resistance survey 2001 – 2002

The first definite figures of drug resistant TB came from a national survey carried out in 2001-2002 which showed that although the absolute numbers were small, in most of the provinces there were some TB patients who were already resistant to the four main TB drugs, isoniazid (INH), Rifampicin (RMP), Ethambutol (EMB) and Streptomycin (SM).

In the worst affected province, the Eastern Cape, more than 10% of strains had resistance to at least 1 drug.<sup>4</sup>“Anti-tuberculosis drug resistance in the world report no. 3 2004”, WHO, Geneva, 2004 [books.google.co.uk/books/about/Anti\\_tuberculosis\\_Drug\\_Resistance\\_in\\_the.html?id=VmJGeFYPIIN8C&redir\\_esc=y](http://books.google.co.uk/books/about/Anti_tuberculosis_Drug_Resistance_in_the.html?id=VmJGeFYPIIN8C&redir_esc=y) ([http://books.google.co.uk/books/about/Anti\\_tuberculosis\\_Drug\\_Resistance\\_in\\_the.html?id=VmJGeFYPIIN8C&redir\\_esc=y](http://books.google.co.uk/books/about/Anti_tuberculosis_Drug_Resistance_in_the.html?id=VmJGeFYPIIN8C&redir_esc=y))

### TB drug resistance by South African province 2001-2002 New Treatment Patients

South African province ▼	Total number of strains tested ⚡	No. susceptible to all four drugs ⚡	No. resistant to 1 drug ⚡	No. resistant to 2 drugs ⚡	No. resistant to 3 drugs ⚡	No. resistant to 4 drugs ⚡	Treatment success (%) ⚡	Estimated HIV positive TB cases (%) ⚡
Eastern Cape	506	449	40	14	1	2	60.3	30.5
Free State	454	415	25	7	6	1	69.3	71.9
Gauteng	592	553	24	9	5	1	68	63.8
KZN	595	556	22	6	7	4	58.8	64.4
Limpopo	451	419	13	11	3	5	59	52.4
Mpumalanga	702	636	39	15	10	2	67.2	67.2
North West	631	580	28	12	6	5	68	66
Western Cape	427	403	13	10	3	0	70.9	28.2

### XDR TB at Tugela Ferry

In 2005 South African and US clinicians and researchers identified a large number of cases of an almost untreatable type of TB at the Church of Scotland hospital in Tugela Ferry, a rural and extremely poor part of KwaZulu-Natal. The XDR TB, as it was called, occurred among HIV infected individuals and it was resistant to almost all the anti TB drugs available in South Africa.<sup>5</sup>“Tugela Ferry, KwaZulu Natal, South Africa”

ysmwebsites.trafficmanager.net/intmed/global/sites/southafrica.aspx (<http://ysmwebsites.trafficmanager.net/intmed/global/sites/southafrica.aspx>) There is more about XDR TB (<https://www.tbfacts.org/xdr/>) at Tugela Ferry.

## Locking up people with drug resistant TB

Many problems had resulted from the compulsory hospitalisation of drug resistant TB patients for six months. The TB patients were forced to give up almost all their work and home responsibilities.<sup>6</sup>“Multi Drug Resistant Tuberculosis, A policy framework on decentralised and deinstitutionalised management for South Africa” <https://www.tbfacts.org/wp-content/uploads/2016/02/S-Africa-Prisons.pdf> (<https://www.tbfacts.org/wp-content/uploads/2015/08/SA-MDR-TB-Policy.pdf>) In 2008 there were a number of breakouts by TB patients who were desperate to be able to go home. The TB patients had to stay as in-patients until they were no longer infectious and patients with XDR TB were being required to spend up to two years in hospital with the very real possibility that they would die before they were released.<sup>7</sup>“Prison-like hospitals for drug-resistant TB patients” IRIN March 2008 [www.tbfacts.org/wp-content/uploads/2016/02/S-Africa-Prisons.pdf](http://www.tbfacts.org/wp-content/uploads/2016/02/S-Africa-Prisons.pdf) (<https://www.tbfacts.org/wp-content/uploads/2016/02/S-Africa-Prisons.pdf>)

“We’re being held here like prisoners, but we didn’t commit a crime. I’ve seen people die and die and die. The only discharge you get from this place is to the mortuary”<sup>8</sup>“TB patients Chafe under Lockdown in South Africa” New York Times March 2008 [www.nytimes.com/2008/03/25/world/africa/25safrica.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2008/03/25/world/africa/25safrica.html?pagewanted=all&_r=0) ([http://www.nytimes.com/2008/03/25/world/africa/25safrica.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2008/03/25/world/africa/25safrica.html?pagewanted=all&_r=0))

*Siyasanga Lukas, a patient at Jose Pearson TB hospital*

## Drug resistant TB statistics

▼	2007 MDR TB ↕	2007 XDR TB ↕	2008 MDR TB ↕	2008 XDR TB ↕	2009 MDR TB ↕	2009 XDR TB ↕	2010 MDR TB ↕	2010 XDR TB ↕
Eastern Cape	1,092	108	1,501	175	1,858	123	1,782	320
Free State	179	4	381	3	253	3	267	7
Gauteng	986	38	1,028	30	1,307	65	934	37
KZN	2,208	241	1,573	181	1,773	254	2,032	201
Limpopo	91	2	185	2	204	6	126	6
Mpumalanga	506	12	657	14	446	18	312	5
North West	397	4	363	4	520	13	158	14
Northern Cape	199	7	290	19	631	40	353	39
Western Cape	1,771	42	2,220	60	2,078	72	1,422	112

## A review of the TB program

A clinical audit of drug resistant TB services, together with a WHO led review of the TB programme, revealed that the current programme was facing many challenges which included:

- delayed initiation of treatment
- inadequate bed capacity
- poor infection control in hospitals
- and poor adherence to treatment.

As some patients were hospitalised for a considerable period of time, long waiting lists developed for patients needing to be admitted to the centralised units. A number of patients died before starting treatment. In addition delays in starting treatment meant that more family and community members were exposed to infectious and untreated patients.

## Decentralising and deinstitutionalising drug resistant TB services

In 2011 the South African National Department of Health responded to these criticisms by suggesting that the length of time that MDR TB (<https://www.tbfacts.org/mdr-tb/>) patients were required to stay in centralised hospitals was reduced and also that services were decentralised and deinstitutionalised.<sup>9</sup>“Multi Drug Resistant Tuberculosis, A policy framework on decentralised and deinstitutionalised management for South Africa” <https://www.tbfacts.org/wp-content/uploads/2015/08/SA-MDR-TB-Policy.pdf> (<https://www.tbfacts.org/wp-content/uploads/2015/08/SA-MDR-TB-Policy.pdf>)

What is meant by the decentralisation of services?

Decentralised management of drug resistant TB, refers to the transfer of responsibility for treating MDR TB patients, to a lower level of the health system on condition that they meet certain criteria. It includes the management of drug resistant TB patients in decentralised drug resistant TB units, satellite multi drug resistant TB units, or in the community using mobile teams and community caregivers and households.

Which patients would still be admitted to hospital?

- Patients with MRD TB who have tested smear negative and who were TB culture positive, would no longer need to be admitted.
- Patients with MRD TB without extensive disease, and who have tested smear positive should be admitted until they have two negative smear microscopy results.
- Very sick patients with MDR TB and with extensive disease and XDR TB patients, should be admitted until they have two consecutive TB culture negative results.

It was estimated at the time that this would mean that about 30% of patients would no longer need to be admitted. However, this still leaves 60% of patients being hospitalized. It has been said that:



(<https://www.tbfacts.org/wp-content/uploads/TB-patient-south-africa11.jpg>)

A patient with drug resistant TB, and their DOTS supporter in South Africa

“People lose so much during the treatment phase. They lose an income, they lose relatives, and sometimes spouses. Taking treatment closer to home is the best option.

*Dr Maurice Goodman<sup>10</sup>Makhubu, Ntando, “SA buckling under strain of deadly TB”, [www.iol.co.za/lifestyle/](http://www.iol.co.za/lifestyle/) (<http://www.iol.co.za/lifestyle/sa-buckling-under-strain-of-deadly-tb-1.1903640#.VdyfyM66mX0>)*

## Drug Resistant TB in South Africa after 2011

After 2011 the number of MDR and XDR cases continued to increase with 15,419 and 1,596 patients respectively diagnosed in 2012.<sup>11</sup>Churchyard, G., Mamejta, L. “Tuberculosis control in South Africa: Successes, challenges and recommendations”, *South African Medical Journal*, 104(3), 244-248. doi:10.7196/samj.7689 The treatment success rate for adult MDR and XDR TB remained low at 42% and 18% respectively for those diagnosed in 2010.

In 2013 there were 10,691 people on treatment for MDR TB, and in 2014 there were 11,500 on treatment.<sup>12</sup>Makhubu, Ntando, “SA buckling under strain of deadly TB”, [www.iol.co.za/lifestyle/](http://www.iol.co.za/lifestyle/) (<http://www.iol.co.za/lifestyle/sa-buckling-under-strain-of-deadly-tb-1.1903640#.VdyfyM66mX0>)

The MDR TB programme has continued to face many challenges including a high initial loss to follow up of patients; inadequate bed capacity; poor infection control and limited availability of appropriate second-line drugs.

## What is the Cost of Diagnosis and Treatment of Drug Resistant TB

Assuming adherence to national drug resistant TB management guidelines, the per patient cost of XDR TB in South Africa has been estimated to be \$26,392, four times greater than MDR TB (\$6,772) and 103 times greater than drug sensitive TB (\$257). Despite drug resistant TB comprising only 2.2% of the case burden, it is estimated to have consumed approximately 32% of the total estimated 2011 national TB budget of US\$218. But it is still said to be underfunded.

“It is grossly underfunded. Not enough money is put into research, innovation, implementation. The fight against TB is struggling.

*Dr Sanni Babutunde, WHO head of TB programme*

It was also said that:

“We are not doing well with TB; we are failing. As much effort as had been put into fighting HIV was needed to combat TB. With HIV, we know how transmission occurs, we understand how it spreads but we have no idea what happens with TB, which has been around for much longer.

*Dr Sanni Babutunde, WHO head of TB programme*

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GHE is a registered charity (no. 1146692) based in the UK.

The initials GHE stand for Global Health Education. GHE was set up as a charity to improve health through education, particularly in relation to diseases such as TB which have a global impact.

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