MDR-TB is a strain of TB that is susceptible to few first line medications, and XDR-TB is regarded as untreatable. Both of these conditions are preventable, expensive, and devastating for the person infected and their families and communities. The root cause of both MDR-TB and XDR-TB is the interruption of drug treatment. This primarily takes the form of interruption in drug supply, clinical mismanagement, and inability to adhere to treatment due to client issues (e.g., homelessness, access to care, migrant labor). MDR-TB is expensive and difficult to treat. It requires second line, injectable medications that are far more difficult for the patient to tolerate and must be administered for a significantly longer duration. In most cases MDR-TB treatment lasts twenty-four to 27 months, compared with six months of treatment for drug-susceptible TB. The cost for these medications is 50-200 times more expensive than drug-susceptible tuberculosis medication, compounding the financial strain of an already overwhelmed health infrastructure. In 2006, the
overwhelmed health infrastructure. In 2006, the total cost of drug susceptible TB was approximately R375 (US$52), while the total cost for MDR-TB was about R31,000 (US$4,340) for the same duration of treatment. Reported cases of XDR-TB in the country have increased at least 700% from 2004 to 2007. In terms of breadth of the epidemic, XDR-TB is much less understood by the South African Department of Health. XDR-TB is expensive, deadly, and incurable. In the limited number of epidemiological studies on XDR-TB, 98% of patients with XDR-TB have died; average survival time is only 16 days. Although XDR-TB has been documented in all 9 of South Africa’s provinces since 2005, the only experimental drugs available to treat XDR-TB in South Africa are currently found at only one hospital in Durban. Furthermore, experts believe the prevalence of XDR-TB is much higher than reported due to limited surveillance systems.

A matter of paramount concern is the method in which these drug resistant epidemics are being addressed in South Africa. The current policy of centralized and often forced isolation has failed to curb and has likely increased the spreading epidemics. Prolonged hospitalization fails to demonstrate improved adherence or decreased transmission, and actually indicate the contrary. DR-TB hospitals are often far away from patients’ homes resulting in high rates of default. The threat of isolation undermines testing and leads to people hiding the infection due to the stigma associated with the disease and the fear of being separated from their communities. Furthermore, available TB beds in South Africa cannot sustain treatment for all DR-TB as patients greatly outnumber available beds.
THE CURRENT policy for the management of MDR-TB in South Africa is institutionalization. The policy requires that all MDR-TB patients are to be isolated in a centralized DR-TB specialized hospital within the province. Each province has one DR-TB clinic, typically in the largest city of the province. Upon laboratory confirmation of MDR-TB, the local facility that reported the case finding is required to refer and transport the patient to the provincial DR-TB hospital. The responsibility of MDR-TB evaluation, treatment, monitoring, and management is placed in these specialized units. Treatment is to be prescribed only by the MDR-TB trained clinician at the provincial facility. Patients are required to remain in isolation at the provincial hospital for a minimum of two months during the intensive phase of treatment, however often stay over two years. If the patient refuses to be admitted, the local facility is required to apply to the local magistrate judge to obtain a court order enforcing the isolation policy.

Though MDR-TB treatment is standardized, in all cases the decision to commence treatment must be made by a specialized clinician within the provincial DR-TB hospital. In the absence of available isolation beds, MDR-TB patients must still be referred to the provincial MDR-TB hospital for evaluation before treatment may be administered. The DR-TB hospital will then refer the patient back to the patient’s local clinic or generalized isolation ward, if available. XDR-TB treatment is individualized based on a wide number of patient factors and treatment is experimental. Treatment involves an intense amount of individual patient care. Because of this treatment is not standardized as with MDR-TB. Patients with XDR-TB are to be immediately admitted to the provincial DR-TB clinic. There is no consensus on XDR-TB treatment regimens; however patients are required to remain in isolation a minimum of six months.

Once MDR-TB patients are released from the specialized hospital, referral for continuation of care and treatment is made to the local clinic, however still require monthly checkups at the DR-TB hospital. Though mechanisms of communication correlate care between the local clinic and DR-TB specialized hospital, the current policy puts the ultimate responsibility of the patient in the hands of the provincial DR-TB hospital.

**In a nutshell…**

1. **Institutionalized**  
   a. One hospital per province  
   b. DR-TB hospital must prescribe Rx

2. **Hospitalization Required for all Patients with DR-TB**  
   a. Usually 12-18 mo; 6 mo minimum  
   b. Forced isolation if patient refuses

3. **Centralized Follow Up**  
   a. Monthly visit to DR-TB hospital required after discharge

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**Figure 3:** Current model for patient care for patients diagnosed with DR-TB.
THE CURRENT policy fails to properly control DR-TB in the country for three primary reasons. First, South Africa’s health system does not have the capacity to care for all patients in the provincial DR-TB specialized hospitals, which results in highly infectious individuals with DR-TB remaining in the community untreated. The World Health Organization (WHO) estimates that approximately 13,000 new cases of incident MDR-TB arise each year in South Africa. Currently there are approximately 1,600 beds, and the Tuberculosis Strategic Plan for South Africa 2007-2011 only indicates an effort to increase bed capacity for MDR-TB patients to 3,364 by the end of the year. Community transmission of both MDR- and XDR-TB strains is increased due to a significant proportion of the patients forced to wait for a bed in the MDR-TB hospital. Even with the proposed increase of beds, the influx of new cases continues to overwhelm an already under-funded and under-resourced health infrastructure. Regardless, operating these beds at full capacity will do little to stem the epidemic due to the sheer number of MDR-TB patients remaining in the community without treatment. Effectively treating 1600 patients while more than 10,000 remain in the community severely undermines the public health efforts made by these clinics. Hospitalization is costly and consumes a significant amount of resources; operating beds at a high cost with little public health impact is exhausting valuable resources while the epidemic continues to grow into a national public health emergency.

The contingency plan when bed capacity is full – requiring patients to travel to the MDR-TB hospital to commence outpatient treatment - is an inefficient alternative. The trip to the provincial clinic is costly, time consuming, and arduous. Historically, very few patients have made this trip, as socioeconomic issues such as the opportunity costs of missing a day’s work stand in the way. In turn, patients do not make the trip. They are dissuaded from receiving treatment and return to the community highly infectious. This facilitates the spread of primary MDR- and XDR-TB infections within the community.

Second, the policy of institutionalization unnecessarily places the responsibility of DR-TB patient care on a distant, centralized clinic; it assumes central, institutionalized hospitalization is needed among all patients. There is no mention of prioritizing MDR-TB patients based on actual need for hospitalization. MDR-TB is not more virulent than susceptible TB strains, and many patients are otherwise well and able to operate in society while remaining on treatment. Requiring patients to make a demanding trip to the provincial clinic delays treatment and return to the community highly infectious. This facilitates the spread of primary MDR- and XDR-TB infections within the community.

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and care, disrupts follow up, and complicates monitoring. MDR-TB treatment regimens are standardized; requiring commencement of treatment to be initiated by a specialist in the provincial hospital impedes critical medicines from being administered sooner. This allows patients to continue to be infectious without effective treatment. Furthermore, the burden of operating through the local clinic for follow up and monitoring is cumbersome. It provides ample opportunity for patients to be lost in the system. Expeditious and adequate MDR-TB care is essential to an effective MDR-TB public health strategy. The current policy needlessly creates a middleman that encumbers and complicates access to care, ultimately resulting in patient default and inadequate treatment.

Additionally, this method of treatment has engendered negative stereotypes and false rumors of the disease that results in individuals with DR-TB hiding their status and remaining infectious in the community. These issues play a major role in undermining the public health efforts of both the drug-susceptible TB and DR-TB programs. In a nation already in hysteria due to the HIV epidemic, media headlines exclaiming, “South Africa Urged to Isolate ‘Killer’ TB Patients,” and frequent ‘breakouts’ from the clinics do little to stem malicious rumors and false information. This has also shifted social norms and society’s blame from the malfunctioning system to the patient. In turn this shift has driven the epidemic underground, as people refuse testing for fear of diagnosis and fear of treatment. It has additionally deflected resources away from the actual priorities. It has increased the cost and use of resources in case finding, manpower, and effort to recoup these hidden cases: capital that could be used for more appropriate criteria such as securing drug supply.

In a nutshell…

The current policy fails to contain the DR-TB epidemic because of:

1. Inadequate bed capacity
   a. Infectious patients left in community without treatment
   b. Untreated patients spread DR-TB in community

2. Care can only be received in a distant provincial clinic
   a. Forces patients to travel far distances, away from family
   b. Low likelihood of making trip
   c. Follow up and adherence unlikely

3. Engenders stigma and fear
   a. Stigma undermines public health efforts
   b. Drives the epidemic underground

[Figure 5: Cases of MDR-TB in an informal settlement in South Africa. Data taken from Médecins Sans Frontières pilot study.
Recommendations

DR-TB TREATMENT in South Africa should be deinstitutionalized and supported through a reconstructed system of outpatient or home based care for most patients. Concomitantly, a national campaign to de-stigmatize TB will be needed to support the transition from institutionalized care to community-based care.

The first step in this process is training and accrediting selected local outpatient clinics to treat and manage DR-TB. This will involve training community clinic healthcare workers in DR-TB management and treatment practices. Advancing education will be done by trained clinicians and well be done on the job at the outpatient clinic. The number of healthcare workers will depend on the size of the population and burden of DR-TB; successful results from other de-institutionalization campaigns indicates the need for approximately one worker for every three patients. This small ratio is because DR-TB care requires both medical and emotional support throughout the six-month treatment. Because of this, the outpatient healthcare workers must be trained in not only understanding the complex treatment regimen and laboratory drug susceptibility testing (DST), but also consultation, monitoring, and emotional support. Once accredited, the facility will directly diagnose patients with DR-TB. Once diagnosed, the clinic will be able to begin all patients on treatment immediately without referral to the institutionalized clinic.

Second, while the new guidelines will incorporate a community-based model of care, it will not dismantle institutional care. Institutional care will be available for all DR-TB patients that require hospitalization that exceeds the capability of the local outpatient clinic. Guidelines written by the Department of Health will help define cases in need of hospitalization. These guidelines will help manage the allocation of these beds, with a goal of at least 90% occupancy and no waiting list.

Third, campaigns must be put into place to counter the stigmatization and false rumors created by the status quo. This will involve efforts from all levels. Nationwide campaigns by the DOH must be initiated in coordination with culturally specific awareness campaigns at the community level. These campaigns must strive to educate the public on the disease and need for testing and treatment. At the individual level, former patients cured from DR-TB should be encouraged to act as peer educators. A system of communication for best practice campaigns should be implemented to facilitate the use of best practice techniques.

In a nutshell…

Recommendations for the DR-TB care in South Africa:

1. Deinstitutionalization
   a. Strengthen system for outpatient and home based care
   b. Equip local HCW’s to manage, treat, and diagnose DR-TB from home based setting

2. Create S.A. Specific Guidelines to guide institutionalized patients
   a. Based off of established WHO guidelines
   b. Help guide allocation of limited bed space
   c. Goal of 90% occupancy; no waiting list

3. De-stigmatization Campaigns
   a. Programs from all levels of care
   b. Educate and inform community about DR-TB
   c. Diffuse rumors and stereotypes
For decades South Africa has claimed that TB is a national emergency, yet the outcry of this rhetoric has been muted by the statistics and rise of drug resistance. Deinstitutionalizing DR-TB care while simultaneously de-stigmatizing the disease will decrease the number of infectious individuals in the community, improve adherence, and decrease DR-TB prevalence in both the short and long term. This decrease of DR-TB cases will be mirrored by a decrease in overall cost for DR-TB care in South Africa. The new guidelines proposed will ensure that South Africa will make full use of its current resources while seriously augmenting the overall strategy; decentralization will not require a ‘step backwards’ in order to be implemented. De-institutionalization makes diagnosis and treatment easier for the patient, which in turn will support public health efforts, increase adherence, and improve cure rates.

In every pilot study conducted on decentralized DR-TB care carried out in South Africa, preliminary results indicate a drastic reduction in transmission. This reduction is paralleled with an increase in cure rates and patient adherence. Moreover, neighboring countries implementing decentralized care—such as Lesotho—further reinforce that deinstitutionalized care is significantly more efficacious than South Africa’s current policy. Given this crucial period in history, where political will is opening its ear and global public health machinery is eager to assist, it is imperative that South Africa counters the DR-TB aggressively and efficiently.