Drug resistant tuberculosis (DR TB) is a global public health crisis that threatens to undermine TB control efforts in many countries. South Africa currently has the fifth highest burden of multidrug resistant TB (MDR TB) and in the world, with 15,400 diagnosed cases in 2012. Approximately 10% of these MDR TB cases were reported to have extensively drug resistant TB (XDR TB). As of part of its National Strategic Plan on HIV, STIs, and TB (2012 – 2016), the Government of South Africa is committed to the prevention of DR TB through improvement in identifying and curing drug-susceptible TB, and early detection and effective treatment of all MDR/XDR TB cases. Since 2009, the USAID TB Program South Africa has been supporting the National Department of Health in combating DR TB in the country through expanding access to diagnostics, improving programmatic management of MDR TB at the community level, and increasing provider capacity at all levels to implement DR TB programs.

Countering the threat of MDR TB

Multi-drug resistant tuberculosis (MDR TB) is defined as TB that is resistant to at least isoniazid and rifampicin, the two most potent TB drugs. These drugs are used to treat all persons with TB disease. South Africa has also experienced ongoing intermittent cases of extensively drug resistant TB (XDR TB). MDR TB that is resistant to these drugs as well as several second-line drugs normally used. Drug resistance to anti-TB drugs can develop as a result of health systems gaps which limit patients’ or providers’ ability to properly access, manage, or adherence to standard (first line) treatment for drug susceptible cases. Increasingly, primary infections are occurring among those exposed to someone with MDR TB.

The USAID TB Program South Africa has helped expand cPMDT by working with districts and MDR TB treatment sites to develop and operationalize cPMDT programs. This includes conducting situational analyses in prospective sites, identifying the gaps that would hinder implementation and the resources that would fill them, the mapping of MDR TB patients to inform planning, building the capacity of nurses and other health care workers to provide MDR TB treatment, and developing tools to monitor and evaluate cPMDT programs. Through its small grants program, TB Program South Africa is supporting four local NGOs in three provinces to expand cPMDT programs. At the community level, mobile injection teams comprised of nurses have been developed to conduct daily home visits to MDR TB patients to give second-line TB drugs by injection and observe doses of oral TB medications and ARVs. After introduction of cPMDT, a large number of DR TB patients are now being discharged after a short stay in hospital.

Increasing Capacity to Implement DR TB Programs

TB Program South Africa is working to increase the capacity of health care providers at all levels of the health system to effectively address DR TB. The project provides policy support and advocacy for the development and expansion of national plans to increase availability of MDR TB services, and has provided expert assistance to train physicians in each of the nine province in the clinical management of DR TB, in coordination with the International Union Against TB and Lung Disease (IUATLD) and other groups. This cadre of DR TB trainers will continue to provide regular training to ensure compliance with international standards and national guidelines.

In 2011 TB Program South Africa conducted a DR TB household mapping designed to identify “hot spot areas” of MDR TB burden and to inform community interventions based on case loads. Through use of smart phones and geomapping technologies, locations and distributions of patients in the community are able to be mapped, allowing program managers to identify hotspots and monitor treatment progress. This system is also being used to better identify, map and plan services for vulnerable communities, such as miners.

The project is also collaborating with district health offices to ensure that resources for DR TB are effectively mobilized and integrated into existing TB programs at the facility level. These activities include:

- Monitoring implementation of district TB plans and identifying areas for follow up support;
- Emphasizing the importance of community management of DR TB and the role of district TB managers/DR TB units in supporting cPMDT roll out;
- Providing monitoring tools (both paper-based and electronic) to improve DOT worker performance;
- Advocating immediate tracing and screening of all household contacts of index cases to promptly identify active TB disease – including among children;
- Emphasizing the importance of accurate, detailed previous TB treatment history reports in identifying retreatment cases;

Community-Based Care for MDR TB Patients

TB Program South Africa continues to advocate for and assist districts and communities to adopt community-based management of MDR TB patients, which has been shown to:

- Improve treatment compliance through individualized patient care and counseling
- Allow patients to receive sustained family and community support
- Reduce hospital acquired infections
- Reduce high hospital caseloads and delays in treatment initiation, and reduce inpatient costs

Map of all MDR Cases registered in the North West including cases residing outside of the province.

Cases registered from January 2009 to July 2011.

MDR TB Cases
- 40
- 20
- 4
• Ensuring strict compliance with TB patient management guidelines;
• Ensuring early identification and tracking of patients lost to follow up;
• Conducting infection control assessments and educating families of index cases on TB and DR TB control.

**Innovating to meet the challenge of DR TB**

The USAID TB Program South Africa is driven by the idea that South Africa is equipped to be an incubator for best practices in health system development and that it has the human and material resources to drive change and lead the Southern African region in the development of solutions to critical challenges like DR TB, which pose enormous threats to the country’s health and social development. Drawing on the cutting-edge expertise of TB program’s staff, URC is working to promote additional strategies to close the gaps in MDR TB services by:

• Supporting the introduction of new drugs and shorter treatment regimens (bedaquiline and 9-month regimen);
• Introducing new cadres of health providers to increase access to treatment (exploring systems for nurse-led MDR TB treatment);

**MDR TB in Children**

Approximately 15–20% of South Africa’s TB cases occur in children. TB Program South Africa developed a tool to assess the status of pediatric TB and MDR TB case detection and management in selected health facilities. The assessment revealed weak child contact tracing and evaluation systems. Strengthening these systems to identify MDR TB in children is an essential component of the DR TB response.

Further study is needed to quantify the burden of MDR TB in children and to develop dosing and treatment regimens for them.

• Connecting health and strategic technology solutions to support contact tracing, patient tracking and case management; and
• Developing systems to increase palliative care services for patients who cannot be cured.