

## Partners In Health-Lesotho

### Achieving Treatment Success for Pediatric Multidrug-Resistant Tuberculosis in Lesotho November 2011

***The Problem of Pediatric Tuberculosis:*** Tuberculosis (TB) is a bacterial infection that infects 8.8 million people annually, kills 1.4 million, and disproportionately affects the poor, malnourished, and those living with HIV. Multi-drug resistant TB (MDR-TB) treatment takes more time and is more costly to treat than drug susceptible TB. If people with MDR-TB are not treated for the disease, they can transmit the drug resistant infection to others.

Pediatric TB comprises an estimated 10-15% of the global burden of TB. There is little information available about the prevalence, diagnosis, or treatment of MDR-TB among children, and there are no pediatric formulations of MDR-TB medications. This makes it especially challenging to diagnose and treat MDR-TB in children. Treatment of pediatric MDR-TB is further complicated if the children are HIV-positive, because they need to be treated for both HIV and MDR-TB.

***The Global Health Status Quo:*** Many providers in poor countries simply do not treat MDR-TB in children, at least in part because it is difficult to diagnose and treat. Children diagnosed with MDR-TB are essentially given a death sentence because their illness is deemed too expensive or labor intensive to treat. MDR-TB is just as infectious as drug susceptible TB, so these children can still infect others in their household or their community with MDR-TB. Even when children with TB are treated, their outcomes are often poor. For example, a study found that only 45% of children with TB in Malawi completed treatment and 17% died. Many providers require drug susceptibility testing to be done before they will initiate treatment for pediatric MDR-TB, causing delays that have been shown to decrease the effectiveness of treatment.

***PIH Innovation:*** The team at Partners In Health-Lesotho (PIHL) aggressively treats children who have MDR-TB, and will often initiate treatment based on the child's symptoms and history, as opposed to delaying treatment for drug susceptibility testing. Recent studies have shown very positive outcomes for these children. Researchers at PIHL studied a cohort of 19 children who were enrolled on MDR-TB treatment between 2007 and 2011. Three out of four of these children were HIV-positive, and over half were malnourished. For patients who are so sick (with HIV coinfection, malnourishment, and MDR-TB) in other programs in poor countries, treatment outcomes would typically be terrible. For PIHL, however, the treatment success rate for the 17 patients who finished treatment by the time of this analysis was 88%. Two of the patients (12%) died. These outcomes are similar to outcomes among children in MDR-TB treatment programs with largely HIV-negative patients, where treatment success has ranged from 80-100% and 0-6% of patients died.

Much of PIHL's success is due to two factors: first, our community-based model employs paid community health workers who monitor for side effects and ensure that children have adequate support. Second, our clinicians provide comprehensive and timely care by treating HIV as well as MDR-TB, and by initiating MDR-TB treatment earlier instead of waiting for drug susceptibility testing.

***PIH's Impact on Global Health:*** Through our work, PIHL has demonstrated that pediatric MDR-TB treatment is possible in a resource-poor setting with a high HIV prevalence. We have shown that initiating treatment promptly and providing community health worker accompaniment can ensure better outcomes for our pediatric MDR-TB patients. We will spread this example to others in the global health community so that more programs will actively and effectively treat and cure pediatric MDR-TB.