The development of multidrug-resistant tuberculosis treatment programs in Peru

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Background

In response to the tuberculosis epidemic that emerged following the economic crisis in the 1980s, Peru's national government established a nation-wide clinic-based program of Directly Observed Therapy, short-course (DOTS). The DOTS strategy emphasized supervised administration of treatment with additional patient support to ensure proper compliance with drug regimens (GiveWell, 2009). While DOTS improved the detection and treatment of TB in Peru, addressing the medical facets of the disease, it did not tackle the socio-economic and cultural inequities of the region.

Problem

- Irregular and inadequate treatment provides ideal conditions for drug-resistant mutants to flourish
- When initial DOTS treatment was ineffective, WHO guidelines called for retreatment with the same antibiotics, plus an additional antibiotic
- Erratic treatment and retreatment can result in TB resistant to multiple drugs (MDR) (Kidder, 2003)
- Peru's National Tuberculosis program had fostered an epidemic of MDR TB, but second-line drugs were unaffordable to the government (Kidder, 2003)

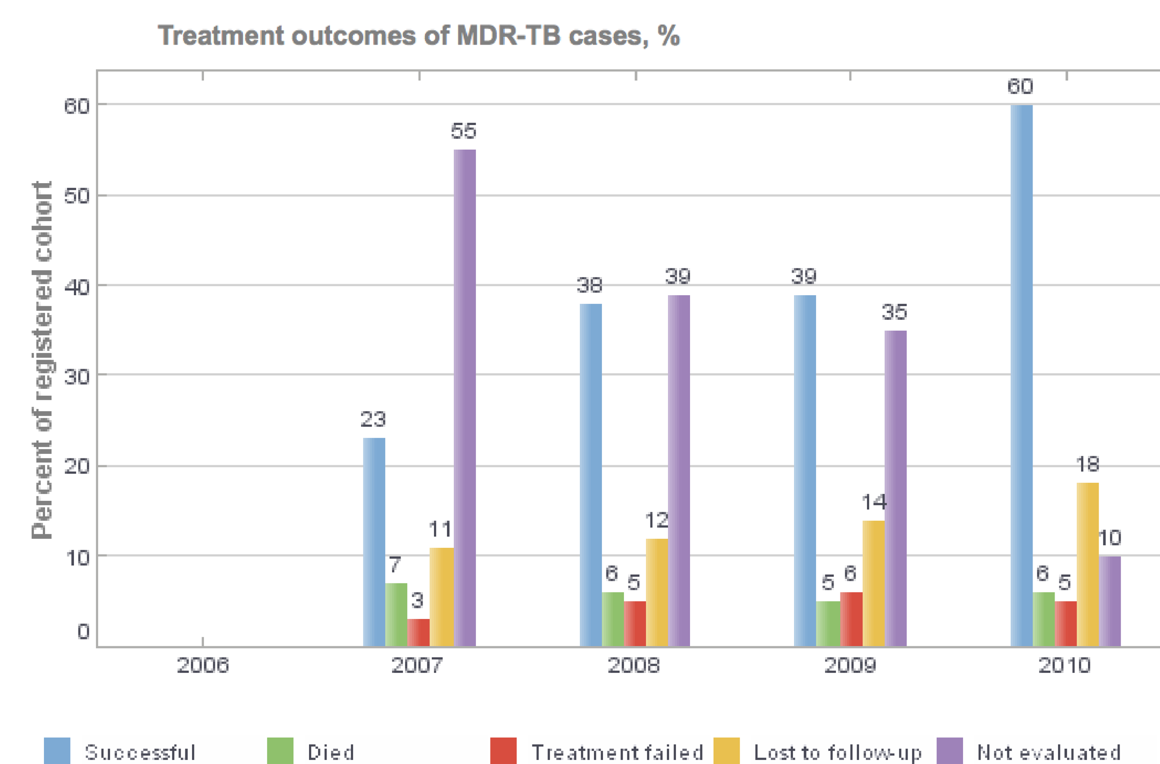


Figure 1: Treatment outcomes of MDR-TB cases, %

Methods of Response

I. Partners in Health (PIH)

- PIH opened a health clinic named Socios en Salud in Carabayllo, Peru and began to treat patients with MDR TB and other communicable diseases
- The clinic provided personal, community based care supported entirely by PIH funding
- The Peruvian government eventually launched a pilot program, using a standardized regimen to cure drug resistance
- Although this program was less costly, less than one-third of the first group of patients who completed the trial were cured, versus an 85% cure rate among patients who had completed the individualized protocols administered by PIH/SES (Smith-Nonini, 2005)

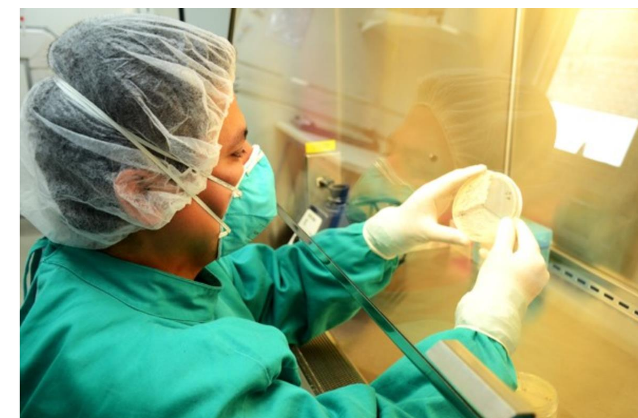


Figure 2: Biologist Celer Giovanni Pantoja Cabrera conducts tuberculosis testing in a new high-tech tuberculosis lab in Peru

II. National Expansion of DOTS-Plus

- DOTS-Plus integrated approaches used by the Ministry of Health and PIH
- Included greater community based services such as active outreach and close communication with patients and families (Bayona et al., 2004)
- Medications provided free of charge, and discounts available for transportation, specialist consultations, and surgery

III. The Green Light Committee (GLC)

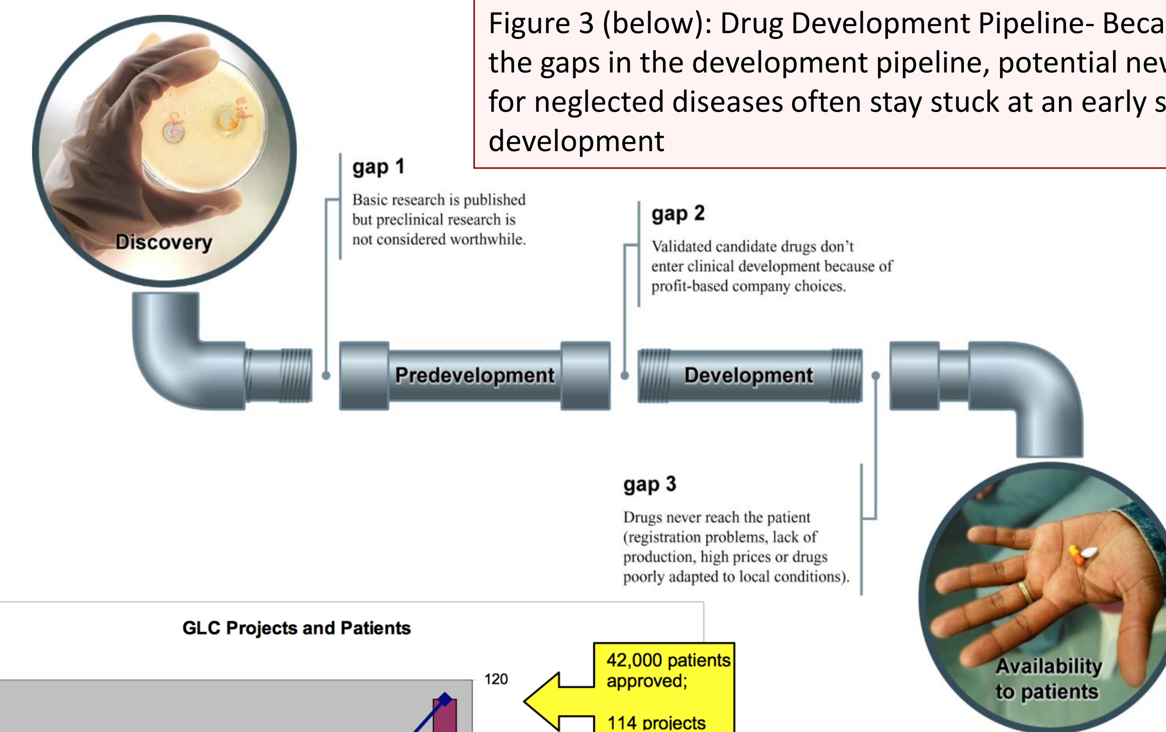
- Served as primary distributor of second-line drugs
- Programs buying through the GLC paid about 95% less for four of the second-line drugs than they did in 1996, and 84% less for two others (Kidder, 2003)
- Any TB program that wanted low prices had to demonstrate that it had a successful plan, incorporating methods of DOTS and DOTS-Plus

Analysis

I. Strengths

- DOTS-Plus improved treatment and quality of care for patients with MDR TB
- It ended the public health argument rationalizing MDR TB as too expensive to treat
- Policy makers and health professionals united to form a Global Alliance for TB Drug Development
- The GLC notably reduced the cost of treatment and concurrently aided in the expansion of DOTS-Plus

Figure 3 (below): Drug Development Pipeline- Because of the gaps in the development pipeline, potential new drugs for neglected diseases often stay stuck at an early stage of development



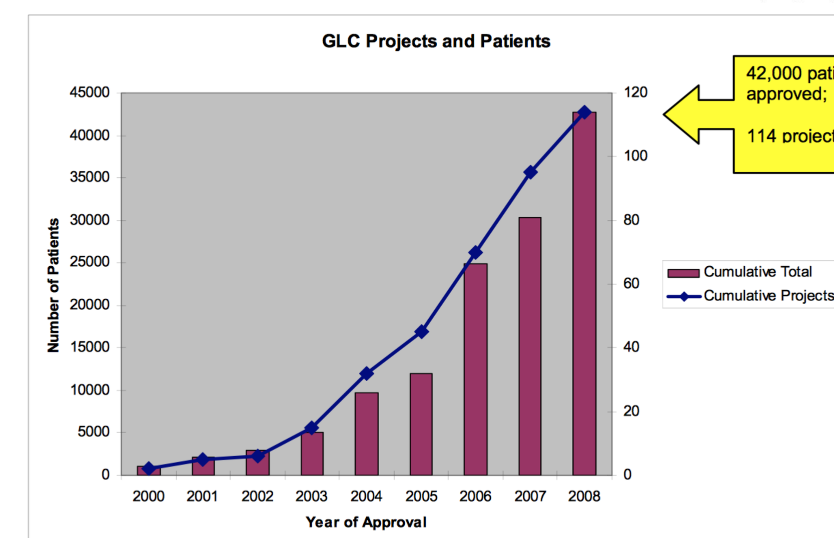


Figure 4 (left): GLC Projects and Patients as of August 2008

II. Limitations

- Little outreach to counter stigmatization of persons with TB and to address structural inequalities
- Many efforts do not accommodate for high illiteracy rates and limited access to education, so clinics are still unattended by the poorest individuals
- High poverty and unemployment rates and continued pressure to reduce government spending threaten the sustainability of Peru's improvements (Smith-Nonini, 2005)
- Donor funding and technical assistance must increase to support construction and operation of in-country laboratories

Conclusions

Tuberculosis is essentially a social disease, thus social determinants of health such as education, income, and material circumstances must be addressed in addition to the biological mechanisms of the disease. Ethnographic research is critical to the identification and ranking of the barriers that prevent accessibility to care, and policies must place the welfare of the people at the forefront of health planning, funding, and advocacy (Smith-Nonini, 2005). The success of DOTS-Plus therapy in Peru substantiates the need for health care that is responsive to the unique situations of individual patients. Using the methods and approaches of DOTS-Plus and the Green Light Committee as a foundation, national governments can adapt a community-based approach to address numerous other diseases that are sensitive to social determinants.

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