The Future of Drug-Resistant TB: How Do We Prevent a Nightmare?  
(HINT: By Treating It!)

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The Forgotten Ones

• 80% of the 480,000 new cases of MDR TB globally in 2012 were not treated.
  – These individuals are a huge source of MDR TB transmission in the community.

• Treating a case of MDR TB in the USA can cost $500,000/person.
  – 21+ months of treatment, 8 months of daily injections, 30% of patients can expect permanent hearing loss.

• 88% of MDR TB patients in the US are foreign-born.
  – The number of these cases is on the rise.

• Treating more people with MDR TB will prevent transmission and death, at home and abroad.
MDR TB in Southeast Asia

- Primary source of MDR-TB cases in the USA
- What happens to people with MDR TB?
  - Patients are often discharged home because money/capacity to treat MDR doesn’t exist.
  - Most remain infectious 1-4 years later.
  - Mortality and “spontaneous” cure rates are no different than in the 1940s.
- If we treated patients diagnosed with MDR TB, what would the impact on the epidemic be?
Results from Vietnam

• Median duration of MDR TB infectiousness: 2.9 (2.1-4.3) years
  – Each case generates 29 (17-57) infections and 4.1 (2.8-8.7) secondary active cases
What Can We Expect if We Maintain the Status Quo?

- Scenarios in which MDR TB rates double in 15-20 years are a reasonable expectation.
  - This means a doubling of MDR TB in the USA too!
MDR Treatment as Prevention: Treat people diagnosed with MDR

- Best estimate:
- Avert >50% of all cases and deaths by 2030
- Flatten the epidemic curve of MDR TB
Need for R&D: Test and Treat MDR TB with an Oral 2nd-Line Regimen

- We can eliminate MDR TB in Southeast Asia.
  - The primary source of MDR TB in the USA
Conclusions

• Patients with untreated MDR are infectious!

• Treatment as Prevention of MDR TB:
  – Treating patients with MDR-TB **can flatten the trend of the MDR TB epidemic**.

• Improve MDR TB treatment:
  – Wide treatment with an oral 2\textsuperscript{nd}-line regimens **can eliminate MDR TB in a Southeast Asian setting**.

• Funding for MDR TB testing, treatment, and drug development is essential to prevent an MDR TB “nightmare”, abroad and in the USA.
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