# PATH *to* TB INNOVATION

*TB was first identified in 460 BCE by Hippocrates and initially named "phthisis," which means "consumption" in Greek. Throughout history, TB has had many names, including "white plague." However, since Dr. Koch's discovery, "tuberculosis" became the more common medical term.*

**1882**
Robert Koch discovered TB using the microscope

**1895**
Development of chest x-ray diagnostic

**1907**
Tuberculin skin test developed

**1921**
BCG vaccine introduced

BCG initially proved a resounding success, reducing mortality from TB by **90%** in vaccinated children. However, BCG does not prevent primary infection or reactivation of latent TB.

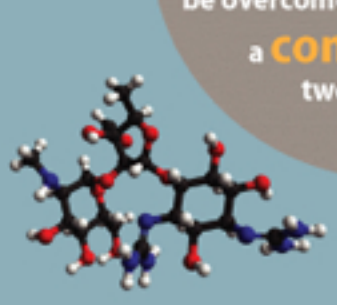
**1936**
Solid culture first used to identify TB

**1943**
First anti-TB drug discovered: Streptomycin

**1952**
First anti-TB regimen used: Streptomycin, PAS, isoniazid

**1963**
Rifampicin and Capreomycin discovered

Monotherapy-(single-drug regimen) resistant mutations began to appear within a few months of the introduction of the drug Streptomycin. It was soon demonstrated that this problem could be overcome by treating TB with a **combination** of two or three drugs.



**1974**
British Medical Research Council trials added Rifampicin and Pyrazinamide

**Emergence of MDR-TB***

**1980**
Liquid culture developed

**Emergence of TB-HIV co-infection***

**1994**
Directly Observed Treatment, Short-course (DOTS)

**USAID's Tuberculosis Program Began**

**1998**
Rifapentine approved

**Emergence of XDR-TB***

**2009**
iLED microscope, line probe assay developed

**2010**
GeneXpert MTB/RIF® rapid test for TB receives CE IVD marketing

Increasing pipeline for new drugs, diagnostics, and vaccine candidates

**2011**
New drug development approach: CPTR (critical path to TB [drug] regimens)

**GeneXpert MTB/RIF® assay** is a new molecular test that can detect TB and mutations associated with Rifampicin resistance in fewer than 2 hours with far greater accuracy than smear microscopy.

## *One Day We Hope to Have...*

- *A tool that can diagnose TB and MDR-TB within 24 hours for children, adults, and HIV-infected individuals*
- *A shorter treatment regimen that can cure TB in 10 days or less that will also work with antiretroviral drugs*
- *A vaccine that can prevent new TB infections or recurrences of the disease*

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*NOTES
MDR-TB: Multidrug-resistant tuberculosis, TB-HIV: Tuberculosis and HIV co-infection, XDR-TB: Extensively drug-resistant tuberculosis