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.

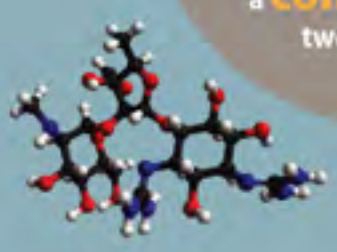
1936
Solid culture first used to identify TB

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

Increasing pipeline for new drugs, diagnostics, and vaccine candidates

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

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*

USAID FROM THE AMERICAN PEOPLE

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