

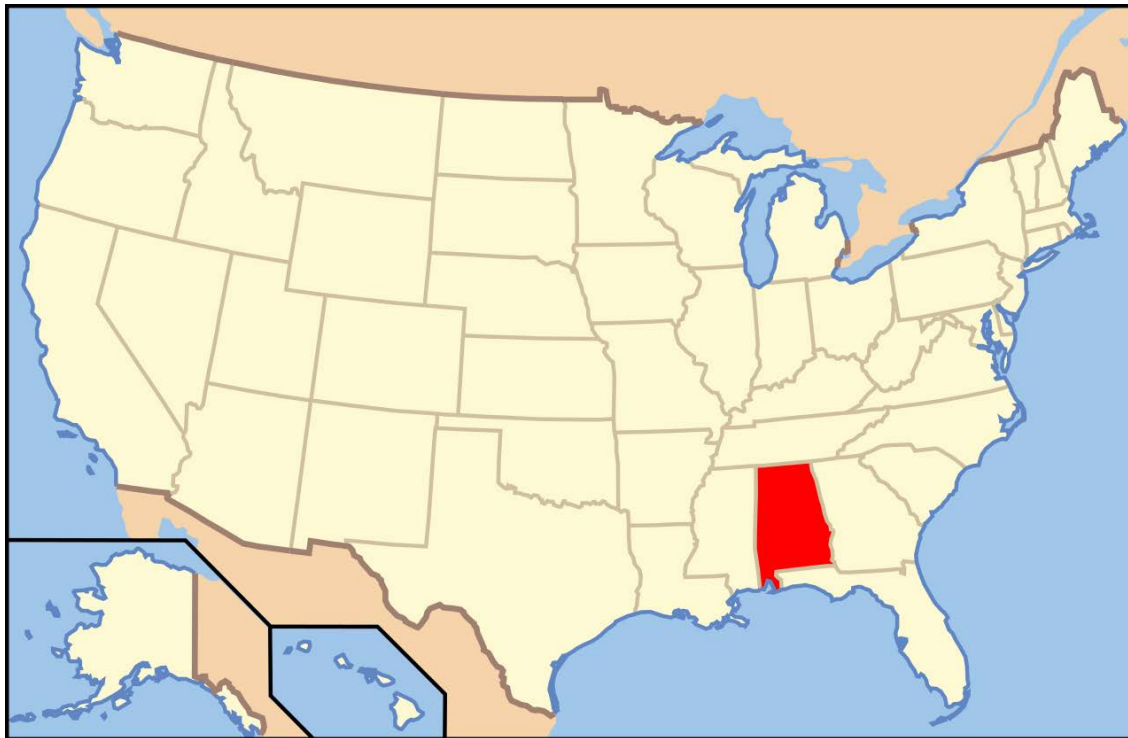
Experience with GeneXpert MTB/RIF in a Low Incident State

Nancy N. Robinson, MPH, M(ASCP)

Microbiology Division Manager

Alabama Bureau of Clinical Laboratories

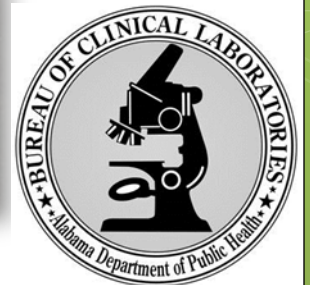
Alabama



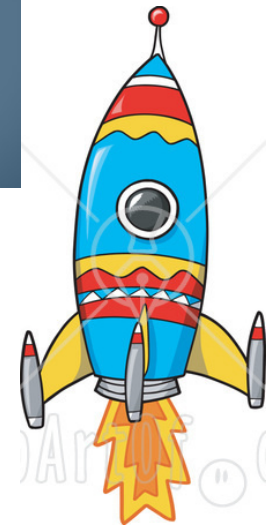
Sweet Home Alabama



Bureau of Clinical Laboratories



Alabama has Lots of ...



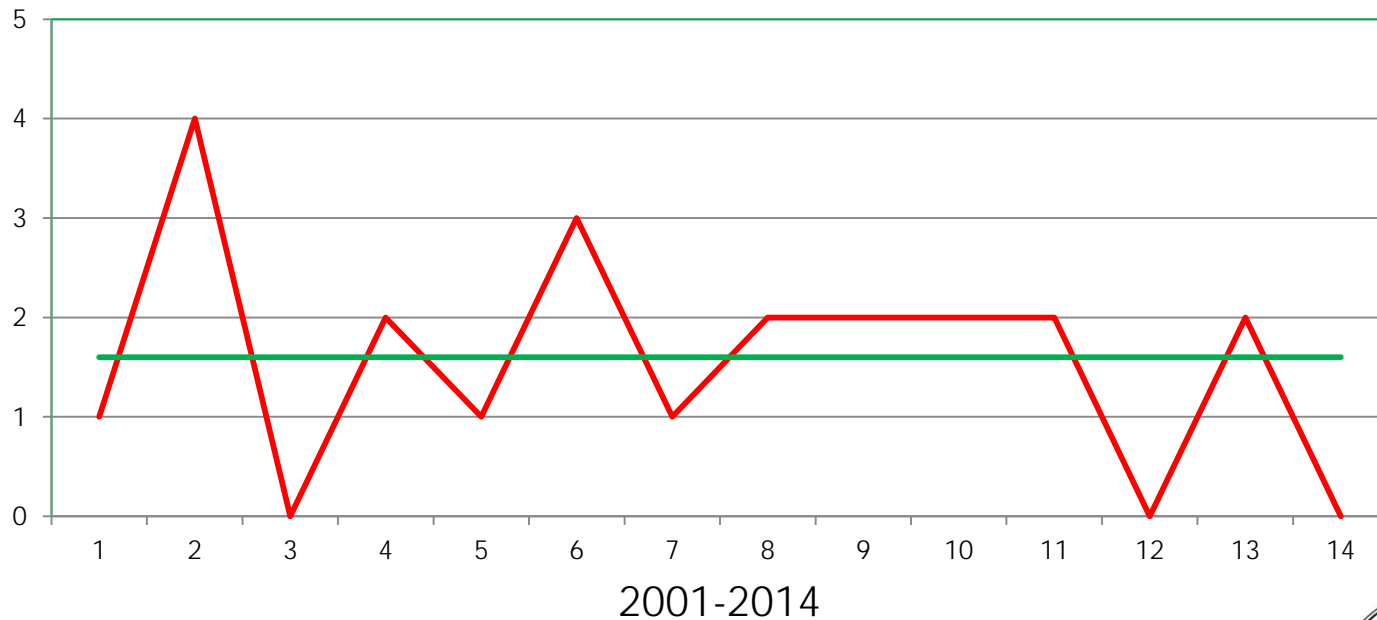
And Plenty of

TB



BUT Not Much Rifampin Resistance

Rifampin Resistant Cases in Alabama



Case Study

- Female College Student from Nigeria
- Freshman with clear x-ray from August, 2013
- Father died of mysterious illness



October 8, 2013

- Smear is Numerous (4+).
- NAAT+ by GeneXpert MTB/RIF
- Rifampin Resistant by GeneXpert



MDDR & DST

- **10-9** Sent to CDC for MDDR.
- **10-15** CDC results showed INH, Rifampin, Ethambutol and Ofloxacin mutations.
- **10-22** Direct Agar Proportion DST showed resistance to INH, Rifampin, Ethambutol, Ofloxacin, and low dilution of Streptomycin.
- **11- 4** Sent to National Jewish Health for Linezolid and Moxifloxacin DST.



Further Testing

- **11-5** Indirect Agar Proportion DST showed resistance to INH, Rifampin, Ethambutol, Ofloxacin, and low dilution of Streptomycin.
- **11-14** CDC Indirect Agar Proportion DST showed resistance to INH, Rifampin, Ethambutol, Ciprofloxacin, and Ofloxacin.
- **11-15** National Jewish Health results showed resistance to Moxifloxacin.
- **4-9-14** Sent to FL for MIC's



DST Results

Resistant

- INH
- Rifampin/Rifabutin
- Ethambutol
- All Fluoroquinolones
- Low level Streptomycin

Sensitive

- PZA
- Ethionamide
- Kanamycin
- Amikacin
- Capreomycin
- PAS
- Cycloserine



MDR or XDR?

This patient met the criteria of being resistant to:

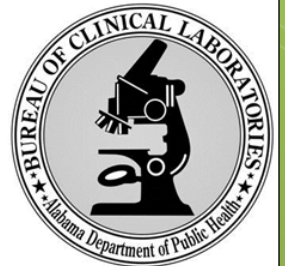
- First line drugs of INH and Rifampin
- Resistant to all fluoroquinolones
- **BUT** was sensitive to the injectables (Amikacin, Capreomycin, Kanamycin)



The answer is:

MDR

Pre-XDR



More

- Lived in a Dormitory.
- Attended a small church.
- Had a group of friends from Nigeria.



Contact Study

- T-Spot was utilized.
- 592 were tested.
- 13 were positive.



The Rest of the Story

- All 13 TBI were treated successfully with Linezolid.
- Case was closed January 23, 2015.
- In March 2015 the patient developed “cold-like” symptoms.



Spring 2015

- 3-13 Smear negative X 4
- 3-13 GeneXpert X 2 / Both negative
- 4-1 Growth of TB on the four cultures ranged from one colony to 1+
- 4-2 Sent to CDC for MDDR and DST



DST Results

- **4-6** MDDR results showed INH, Rifampin, Ethambutol, PZA and Ofloxacin mutations.
- **5-1** Indirect Agar Proportion DST showed INH, Rifampin, Ethambutol, Ofloxacin, and Streptomycin, and PZA resistance.
- **5-6** CDC DST results showed INH, Rifampin, Ethambutol, PZA, Ciprofloxacin and Ofloxacin resistance.
- **5-21** Sent to National Jewish Health for TB DST testing.



Current DST Results

Resistant

- INH
- Rifampin/Rifabutin
- Ethambutol
- All Fluoroquinolones
- Streptomycin
- PZA

Sensitive

- Ethionamide
- Kanamycin
- Amikacin
- Capreomycin
- PAS
- Cycloserine



Current Therapy

- Imipenem
- Capreomycin
- PAS
- Bedaquiline
- Cycloserine
- Ethionamide
- Linezolid



Lessons Learned

- Rifampin resistance is a possible indication of an MDR/XDR case.
- All screening must be done in the US.
- The end of treatment is not always easy to determine.



Questions ?

TB or not TB?



Alabama Shakespeare Festival in Montgomery

