The emergence of multidrug-resistant *Mycobacterium tuberculosis* (MTB) and the close association of MTB with HIV accentuates the need for simple, rapid and affordable methods of anti-TB susceptibility testing, especially in resource constrained settings.

The resazurin microtitreplate assay (REMA) is an innovative colorimetric assay using redox indicator salts to detect MTB cell growth and viability in a week.

### AIMS/OBJECTIVES

- To assess the performance of the REMA assay against the gold standard DST (drug susceptibility testing) method in a high TB burden reference laboratory.

### RESULTS

Preliminary data:

- The sensitivity and specificity of the REMA was found to be 89% (24/27) and 88% (8/9) respectively for the diagnosis of MDR-TB
- Hundred percent of the fully susceptible MTB isolates were correctly detected when compared to the gold standard DST
- Time to detection was within a week of plate inoculation.

### METHODS

- Forty well characterised MTB isolates comprising of 27 MDR-TB, 10 susceptible and 3 mono-resistant were evaluated against 1st and 2nd line antituberculous drugs by the colorimetric method using the Resazurin Microtitre plate Assay (REMA)

- Isolates were characterised using the indirect susceptibility testing method on Middelbrook 7H10 (M7H10) agar
  
  - rifampicin (1ug/ml), isoniazid (0.2ug/ml), kanamycin (2ug/ml), moxifloxacin (2ug/ml)

- REMA testing was performed in a 96 well microplate containing Middelbrook 7H9 broth (M7H9) and antituberculous drugs
  
  - isoniazid (8.0-0.125ug/ml), rifampicin (8.0-0.25ug/ml), kanamycin (20-2.5ug/ml) and moxifloxacin (0.06-8.0ug/ml)

- Plates were incubated at 37°C for 8 days

### CONCLUSION

- The REMA study has shown to have good correlation and improved turnaround times in comparison to the conventional DST

- In a high throughput tuberculosis reference laboratory, the REMA has shown to be useful for the diagnosis of MDR-TB