

The UKZN “outbreak”

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The Tugela Ferry event

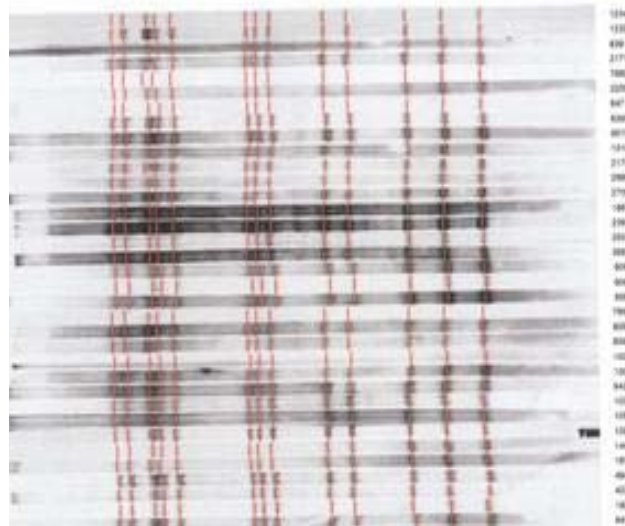
- In Tugela Ferry HIV/TB co-infected patients, responding to ARV but **not** to ATT, were identified early 2005
- This prompted culture and susceptibility testing
- Infection with highly resistant *M.tuberculosis*
- IS 6110 genotyping:
 - 13/16: one strain with known pattern
 - KZN strain

Susceptibility pattern

- Isoniazide R
- Rifampicine R
- Pyrazinamide R
- Ethambutol R
- Streptomycin R
- Kanamycin/amikacin R
- Ciprofloxacin/ofloxacin/gatifloxacin/moxifloxacin R
- Ethionamide S
- Cycloserine S
- Capreomycin ?
- PAS ?

What is the KZN strain ?

The KZN IS 6110 fingerprint



The KZN strain

- 1995
 - IS 6110 RFLP study on MDR cases referred to the provincial MDR referral hospital
 - 40 % one RFLP profile
 - MDR
 - isoniazide R
 - rifampicin R
 - streptomycin R
 - search for organisms with the same profile in a collection of non-MDR isolates:
 - present: fully susceptible
- Conclusion:
 - dominant strain amongst MDR
 - locally developed resistance

After 1995

- RFLP on collection of MDR isolates from each year till 2002
 - present in each year
 - prevalence: 30 – 50 %
 - resistant to a variable number of drugs
 - 2 – 5
 - all quinolone susceptible
 - all kanamycine susceptible
 - province-wide distribution
 - progression into a genotype family

2006

- All TB culture and susceptibility testing concentrated in one laboratory
 - same methodology
 - one data-base
- Data base search for X-DR isolates
 - present in patients from 28 of ... provincial hospitals (incl. CoSH)
 - even geographical distribution
 - no RFLPs available (yet)

Genotyping July 2005 – June 2006

- 102 MDR (incl. XDR) isolates from Church of Scotland Hospital (CoSH), Tugela Ferry
- spoligotyping

Spoligotyping

MDR		XDR	
Total no.	no. (%) KZN strain	Total no.	no. (%) KZN strain
102	60 (59)	61	52 (85)

remaining 9:
Beijing strains

Conclusion

- X-DR epidemic in KZN
- 2 strains involved
 - KZN
 - Beijing
- The KZN strain has evolved over a decade
 - family of strains
 - increasingly resistant

Action plan

- Survey in 10 of the hospitals in which X-DR patients have been found
 - completed before 31-12-2006
- Continuous analysis of the laboratory data-base
- Spoligotyping immediately on all positive MGIT cultures
 - Isolation of identified cases
 - Intensive contact tracing
- Spoligotyping on a subset of non-MDR isolates