Xpert MTB/Rif
What place for TB diagnosis in MSF projects?

Francis Varaine, MSF
Geneva, 29/11/10
Introduction

- Excellent performances, rapid results, and easy to use

Questions

- Where and how are we going to use it?
- Will it be available for those most in need?
- Will it be adapted to field conditions?
- What will be the impact?
Introduction

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Background

TB in MSF projects

- **Total** 30,000 TB cases per year
  - 70 projects in 40 countries
  - Various types of projects (TB vertical, TB-HIV, PHC…)

- **MDR TB** 1000 cases per year

- **Various epidemiologic settings**
  - High and low HIV prevalence
  - “High” and “low” MDR TB prevalence
Where are we going to use the Xpert?

Priorities

• High HIV and “low” MDR TB prevalence (Eastern Africa)
• High HIV and “high” MDR TB prevalence (Southern Africa)
• “High” MDR TB prevalence (Caucasus, Central Asia)

For each type of setting specific questions
High HIV, «low» MDR TB prevalence

• Main objective: improve TB detection

  Example Homa-Bay (Kenya) *
  – 33% PTB M-, 75% HIV+, prevalence MDR TB: 1.4%
  – **Culture+ in 18%** of smear negative TB suspects (519/2823)
  – 2/3 of culture+ patients not detected by clinical algorithms (320/500)

• Xpert to be performed 3 times in >80% of TB suspects?
  – 27% of smear- started on treatment not confirmed by culture (120/451)
  – **Culture is an imperfect gold-standard**

• Need for clear articulation with clinical algorithms

«High» MDR TB, high HIV prevalence

- Additional objective: rapid MDR TB detection

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<th>PTC</th>
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<td>N (%)</td>
<td>269</td>
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<td>Full susceptible</td>
<td>236 (88.0)</td>
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63% HIV +

**«High» MDR TB, high HIV prevalence**

- Additional objective: rapid MDR TB detection

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63% HIV +

- PPV for Rif resistance in demonstration studies was 72-85 % in sites with prevalence between 4.4 and 6.6%

- Updated version of Xpert?

- Rif resistance to be confirmed by conventional techniques

*Boehme C. Feasibility and impact of using Xpert MTB/Rif: results from demonstration studies. Berlin 2010*
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«High» MDR TB prevalence

- Main objective: rapid MDR TB detection

Karakalpakstan*

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*HS Cox, et al Multidrug-resistant Tuberculosis in Central Asia. Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 10, No. 5, May 2004
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«High» MDR TB prevalence

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- Need for conventional DST to detect DR TB other than MDR TB

*HS Cox, et al Multidrug-resistant Tuberculosis in Central Asia. Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 10, No. 5, May 2004
Other key issues

• **Access for those most in need**
  – Cost
  – Availability

• **Operational aspects in field conditions**
  – Electricity
  – Maintenance and calibration
  – Storage conditions
  – Waste management

• **Large impact studies needed**
  “The ultimate impact of any tuberculosis test should be measured by its capacity to generate a beneficial therapeutic outcome in as many patients as possible”*

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* *New Diagnostics Working Group of the Stop TB Partnership: Pathways to better Diagnostics for Tuberculosis A blueprint for the development of TB diagnostics*
Conclusion

- **MSF will introduce Xpert in a phased manner**
  - How to articulate with other diagnostic tools?
  - Operational constraints and cost-effectiveness?

- **Potential significant improvement in TB diagnosis**

**Point-of-care non-sputum based test needed**
- All forms of TB including extra-pulmonary TB and patients unable to produce sputum (children)
- Rapid and usable at most peripheral level
What will be the impact?

- Impact studies needed