

Xpert MTB/Rif

What place for TB diagnosis in MSF projects?

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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**

** Huerga H. et al. Added value of culture in the diagnosis of TB in smear negative suspects - high HIV prevalence area. Union conference, Berlin 2010*

«High» MDR TB, high HIV prevalence

- Additional objective : rapid MDR TB detection

Khayelitsha (SA)*

	NC	PTC
N (%)	269	261
Full suscept	236 (88.0)	223 (84.0)
MDR	14 (5.2)	20 (7.7)

63% HIV +

**Cox HS, et al. (2010) Epidemic Levels of Drug Resistant Tuberculosis (MDR and XDR-TB) in a High HIV Prevalence Setting in Khayelitsha, South Africa. PLoS ONE 5(11): e13901.*

«High» MDR TB, high HIV prevalence

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- 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*

«High» MDR TB prevalence

- Main objective : rapid MDR TB detection

Karakalpakstan*

	NC	PTC
N (%)	106	107
Full suscept	55 (51.9)	21 (19.6)
MDR	14 (13.2)	43 (40.2)

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

«High» MDR TB prevalence

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Karakalpakstan*

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N (%)	106	107
Full suscept	55 (51.9)	21 (19.6)
MDR	14 (13.2)	43 (40.2)
H(ESZ)	25 (23.6)	30 (28.0)

- 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”*

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

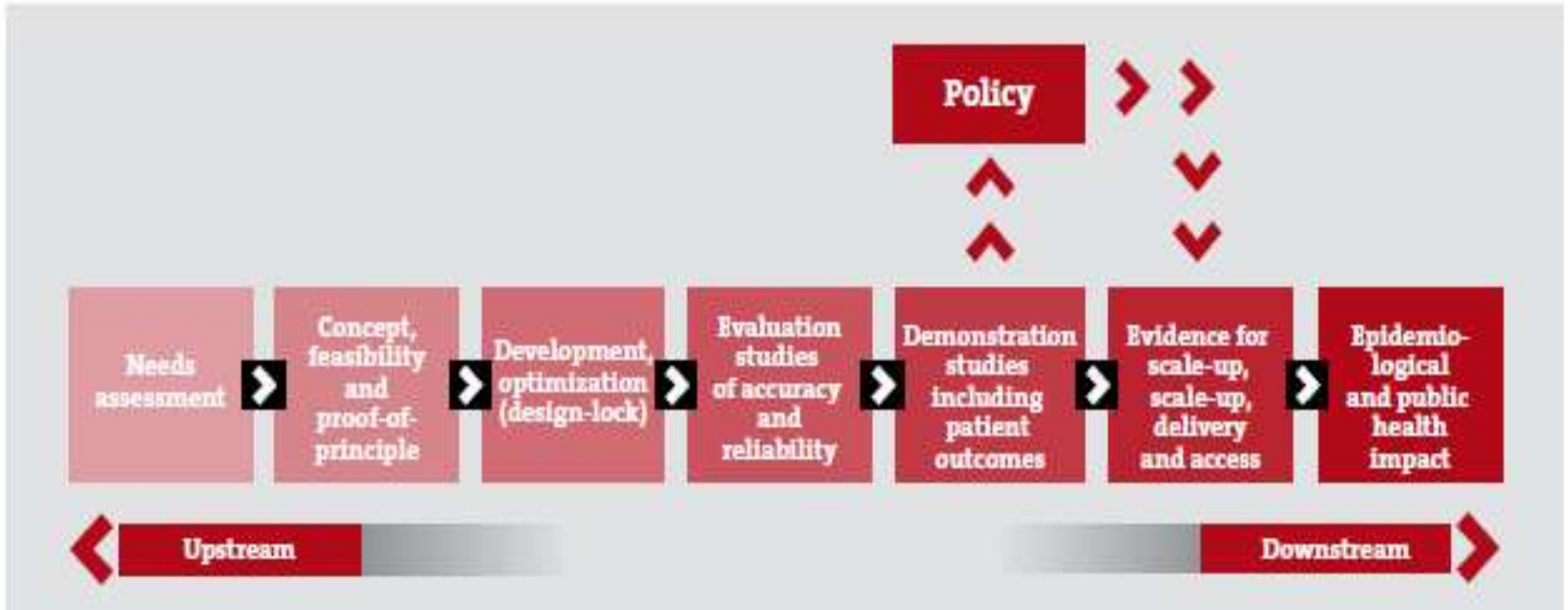
Conclusion

- **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