What is the role of the TB-laboratory in modern TB control?

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Diagnosis –the first step

The ***sensitive, specific and timely diagnosis*** of TB, and of MDR-TB, is crucial for the proper control of TB globally.

Cases not detected will not be treated and cured and will thus continue to transmit the disease.

New drugs – demand new tests
New tests - demand new knowledge

Aim

To correctly and rapidly separate TB-patients that are likely to respond to standard chemotherapy from those likely to fail.

How to do it?

Test susceptibility to rifampicin and INH.

MDR-TB detected.

Drug susceptibility testing (DST)

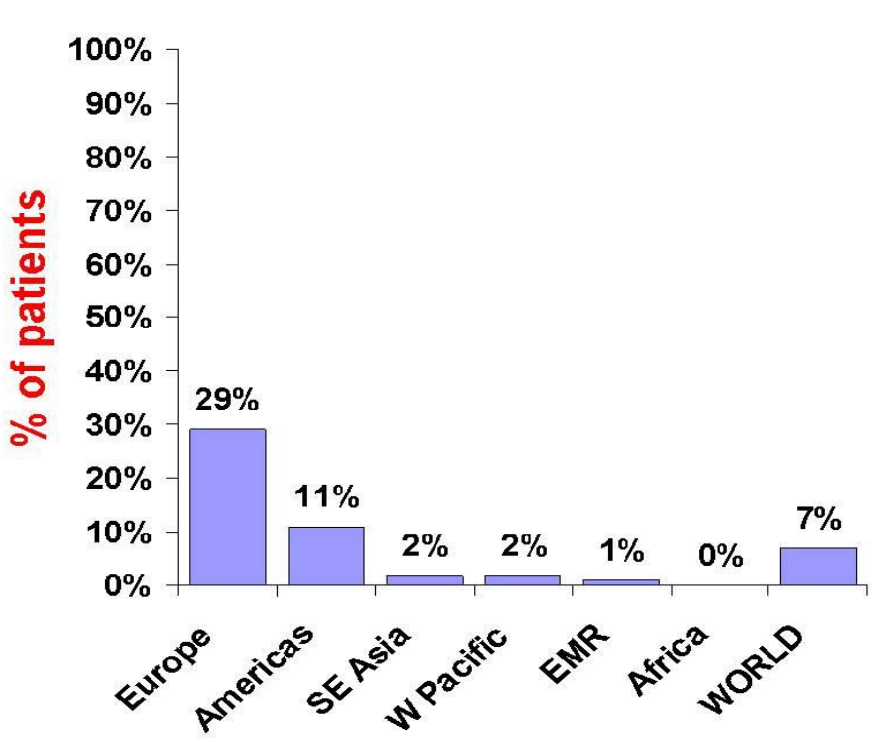
Solid medium	1 month
Liquid medium	1 week
Molecular test	**1 day**

Indirect (testing isolates) vs **direct** (clinical specimens) **testing**.

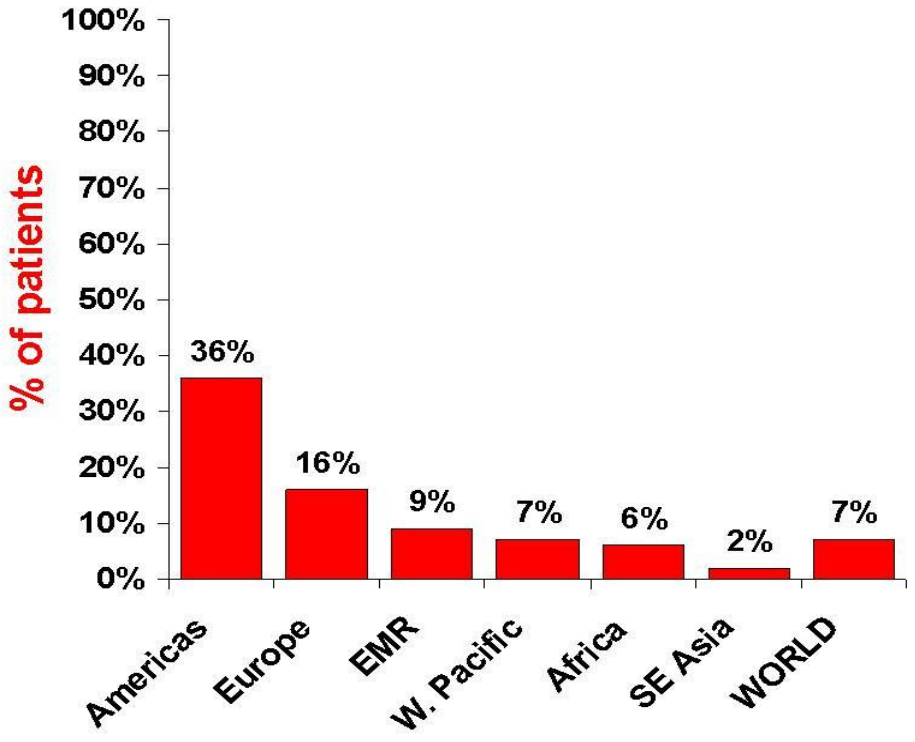
Rapid detection of resistance offers an early warning system for MDR-TB

- Prompt identification of patients with resistant strains
- Prompt modification of drug regimens to ensure early non-infectiouness and cure
- Directed infection control measures
- Reducing development and spread of MDR-TB

Proportion of TB patients tested for MDR-TB remains low



New



Previously treated

Drug susceptibility testing (DST)

Important to get it right!

Incorrect DST-reports will result in…

- **False susceptible results:**

Delayed adjustment to improve the therapy

Prolonged infectiousness, and thus further spread of resistant TB

Worsen clinical conditions and possible death of the patient

- **False resistant results:**

Unnecessary change of the standard TB chemotherapy

Less effective, longer and more costly treatment of the patient

To meet the demand we need to

- **Increase the Quantity of DST**
- create capacity

- **Increase the Quality of DST**
- QMS, SOP, IQC, EQA

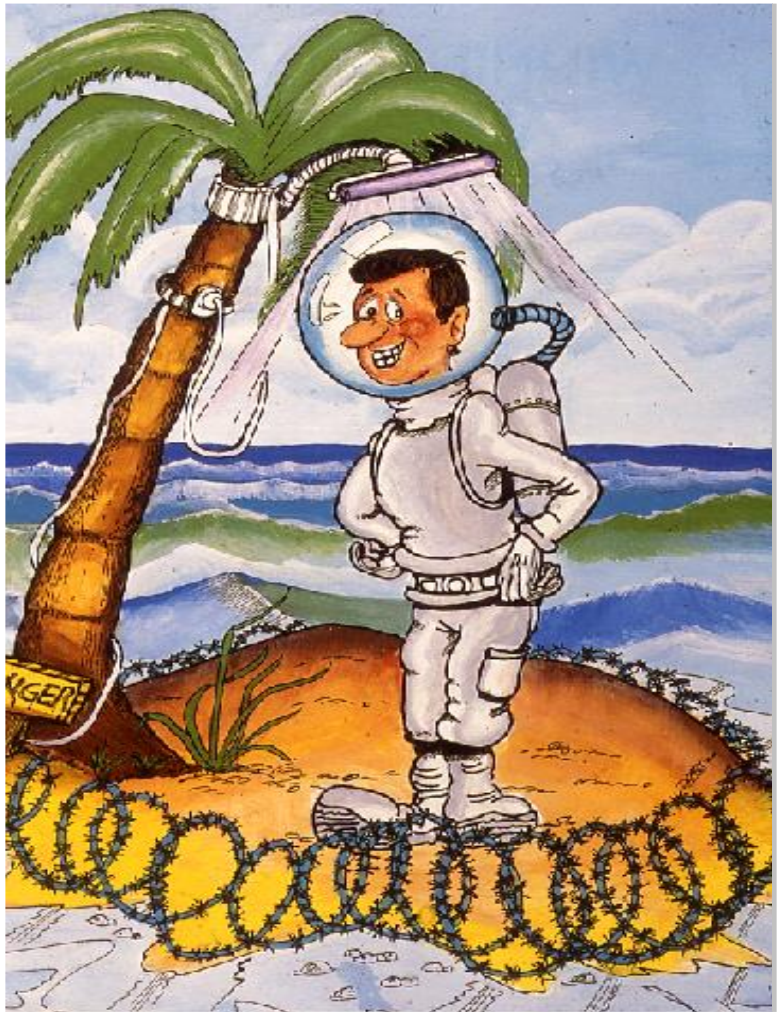
MDR-TB and New Drugs

- TB diagnostic laboratory algorithms need to be updated to meet the demands related to new treatment recommendations.
- DST of Bedaquiline and Linezolid should be implemented.
- DST methods need to be developed for additional drugs used today or planned to be used in the near future.
- Optimally no new drug should be introduced in the therapy before the possible resistance to it can be tested in the laboratory.
- Molecular testing will become increasingly important over time. More research needed for the new and repurposed drugs.
- To ensure high-quality laboratory services, there is a need to develop and implement QC/EQA for all relevant DST methodologies.

Molecular typing of M tuberculosis offers

1. Increased understanding of the epidemiology
2. Identification of risk groups and risk settings
3. A tool for improved infection control
4. Improved characterization of failure cases
5. A tool for TB lab QC

This is **not** the way….



Collaboration is the key

- **TB is a global public health problem –**
- **we must join forces to control it!**