

Organization of TB Laboratory Network in Latvia

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Diseases

Key requirements for good network

- Algorithm-based selection of high risk patients
- Reliable, regular specimen transport
- Infrastructure development and maintenance
- Staff training and retention plans
- Integrated internal QC and external QA
- Rapid, effective communication of results

(from Karin Wayer's presentation at The Union world conference in Paris 2006)

Key principles

- Use existing resources (e.g. Primary Health Care services)
- Collaborate with other programs (e.g. AIDS or Malaria) for specimen transport, supervision, EQA.
- Accessible for patients, keep low patient costs
- Good quality or not at all

TB Laboratory Network in Latvia

National Reference Laboratory

Culture, Drug Susceptibility Tests, Culture Identification, Supervision, Staff training, and Quality control.

Jekabpils

Culture laboratory +
Microscopy center

Rezekne

Culture laboratory +
Microscopy center

Liepaja

Culture laboratory +
Microscopy center

Daugavpils

Culture laboratory +
Microscopy center

Central prison

Culture laboratory +
Microscopy center

“Lielberze”

Culture laboratory +
Microscopy center

“Ceplisi”

Culture laboratory
+Microscopy center

←MDR-TB hospitals

Saldus

Microscopy
center

Talsi

Microscopy
center

Ventspils

Microscopy
center

Ludza

Microscopy
center

Valmiera

Microscopy
center

Aizkraukle

Microscopy
center

Gulbene

Microscopy
center

Tukums

Microscopy
center

Madona

Microscopy
center

Strenci

Microscopy
center

Balvi

Microscopy
center

Kraslava

Microscopy
center

Preili

Microscopy
center

Bauska

Microscopy
center

Limbazi

Microscopy
center

TB Laboratory Network in Latvia

Microscopy Centers – integrated in Primary Health structures – Laboratories at policlinics and/or hospitals.

All medical laboratories are audited and certified by HEALTH STATISTICS AND MEDICAL TECHNOLOGIES STATE AGENCY. Auditing criteria are based on international standards for testing and medical laboratories (ISO 17025, ISO 15189).

Internal Quality Control – staining and microscopy of known positive and negative smear.

External Quality Assessment provided by NRL: panel of 5 fixed smears twice a year; Monitoring the quality of sputum smear microscopy procedure during supervisory visits.

TB Laboratory Network in Latvia

Culture laboratories – performs decontamination of specimens and inoculation on 2 tubes of solid media (Löwenstein-Jensen, LJ).

Positive cultures sent to NRL for identification and Drug Susceptibility Tests (DST).

Centralized supply of solid media.

TB Laboratory Network in Latvia

National Reference Laboratory- performs smear microscopy (light and fluorescent), inoculation of specimens on 2 tubes of solid LJ media or for patients with high MDR-TB risk (i.e. relapses, retreatment, known contact with MDR-TB) 1 MGIT and 2 LJ. MGIT are incubated in BACTEC MGIT 960 machine.

TB Laboratory Network in Latvia

National Reference Laboratory- on 1st positive culture DST for 1st line drugs (+ Kanamycin on LJ) is performed, if MDR-TB strain is detected – 2nd line DST is performed.

Positive cultures are identified by niacin and nitrate reduction test for LJ and by RNA hybridization for MGIT tubes with GenProbe AccuProbe[®] Culture Identification Test (www.gen-probe.com).

TB Laboratory Network in Latvia

National Reference Laboratory- in collaboration with CDC on going study on Assessing the Use of a Rapid Diagnostic Test for MDR-TB in Latvia.

Methods

Respiratory specimen from high risk patient



Decontamination and concentration



Inoculate:
LJ slant
BACTEC bottle



Culture positive



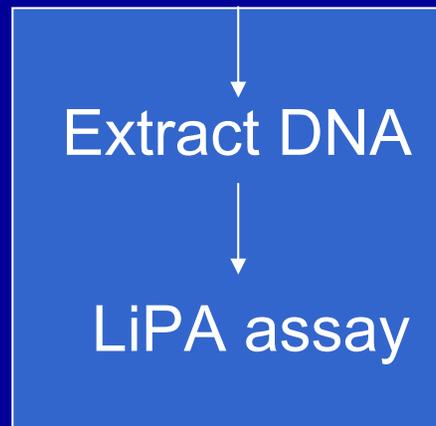
Perform DST



AFB smear



Positive for AFB

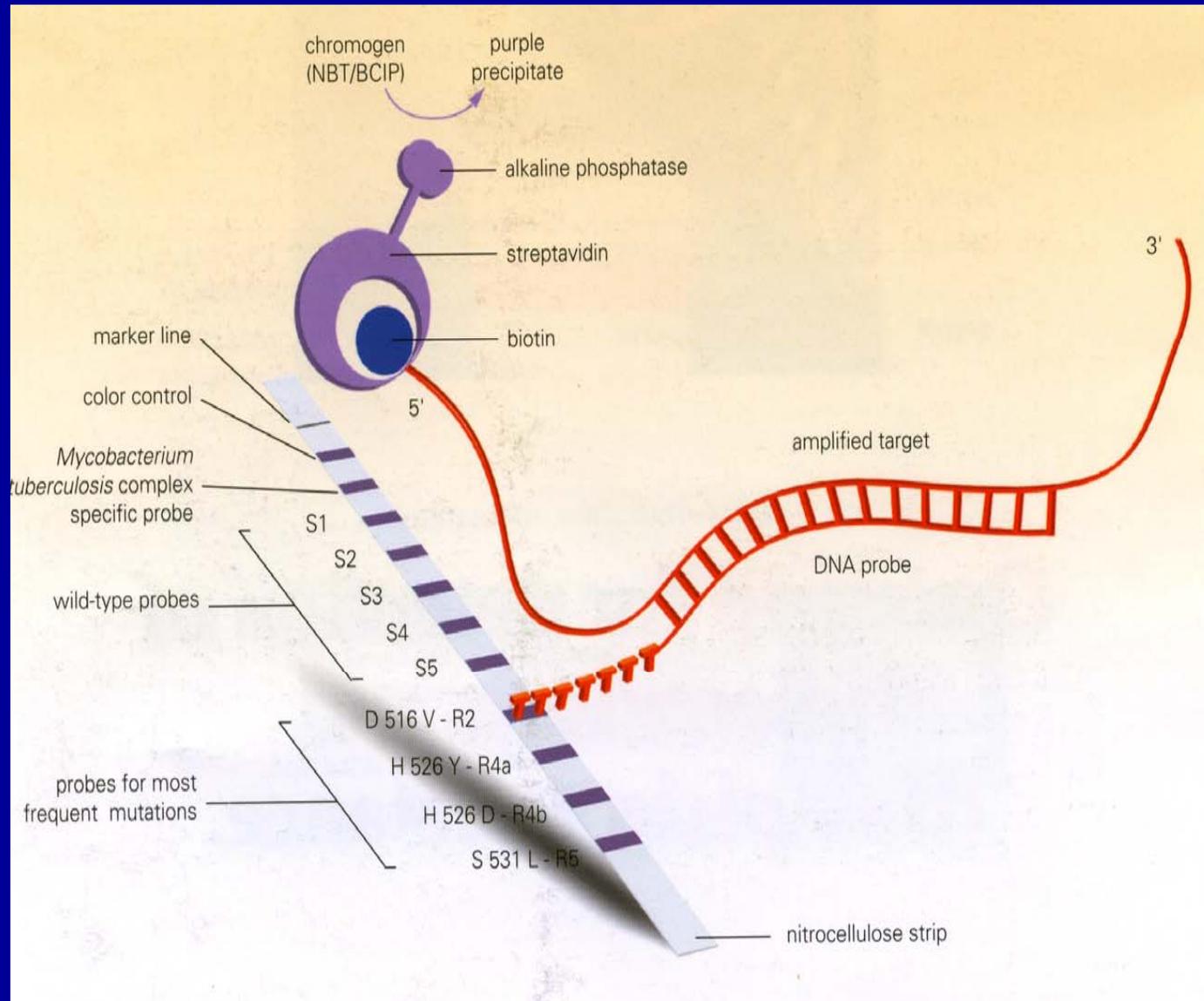


Extract DNA



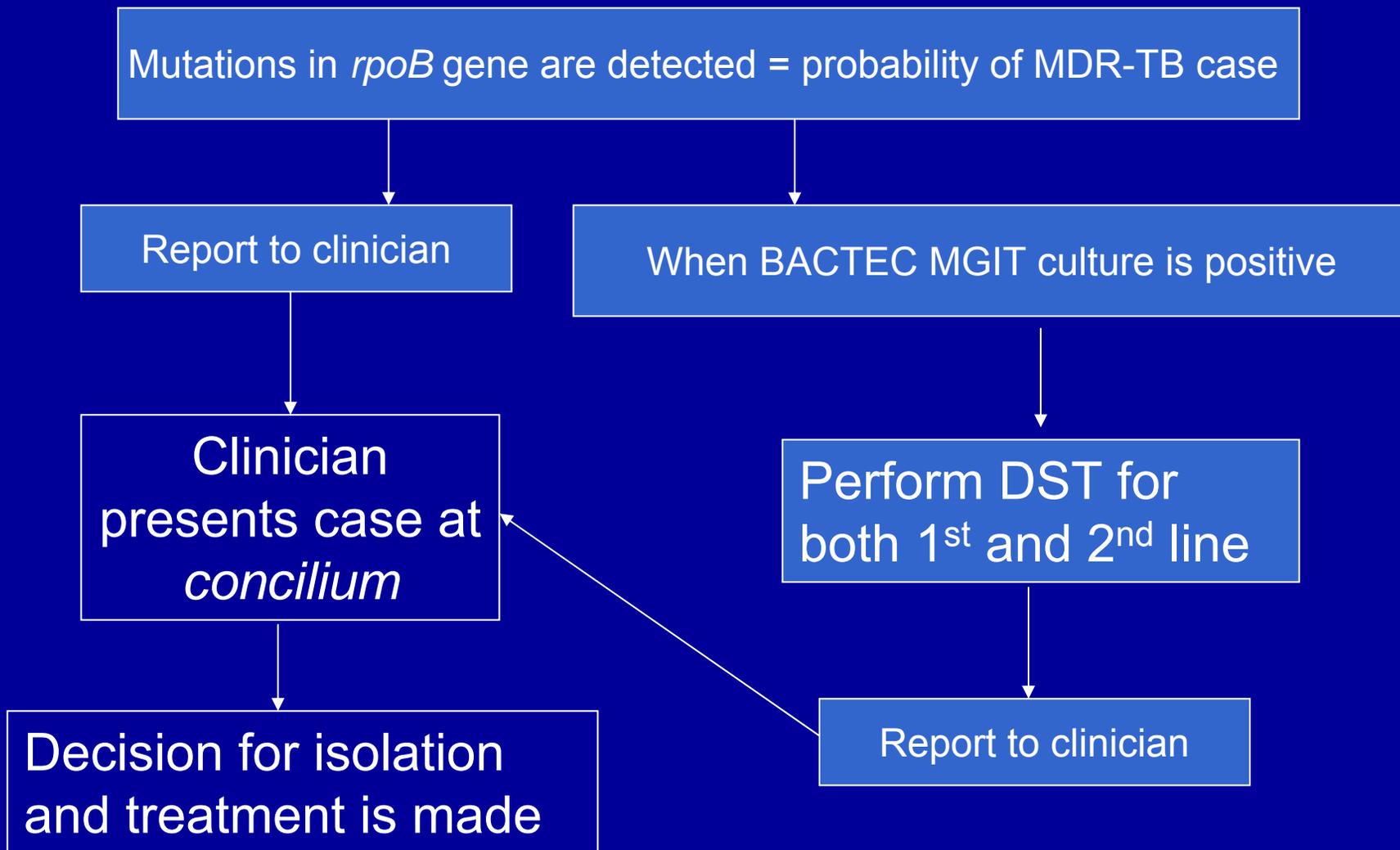
LiPA assay

LiPA Rif TB Assay*



*Purchased from Innogenetics, www.innogenetics.com

Methods



EQA for NRL

NRL participates in an external proficiency programmes for Mycobacteriology (AFB microscopy, culture, identification of Mycobacteria, some DST)

INSTAND (Institut für Standardisierung und Dokumentation im Medizinischen Laboratorium E.V. Düsseldorf), www.instand-ev.de or

LABQUALITY, www.labquality.fi

EQA for DST

- NRL yearly participates in an external proficiency programme for 1st line DST provided by Supranational Reference Laboratory in Swedish Institute for Infectious Diseases Control.

Networking

- The experience gained and technical questions solved within Baltic-Nordic TB Laboratory Network formed of mycobacteriologists from Estonia, Latvia, Lithuania, Poland, Germany, Finland, Sweden, Denmark and Norway meeting once or twice a year.
- 1 round for external proficiency testing for quinolons DST in 2002 (I. S. Johansen et al, Drug susceptibility testing of *Mycobacterium tuberculosis* to fluoroquinolones: first experience with a quality control panel in the Nordic-Baltic collaboration, INT J TUBERC LUNG DIS 7(9):899–902)
- 2 rounds for external proficiency testing for 2nd line DST – in progress.