Implementation of Xpert MTB/RIF in Republic of Moldova

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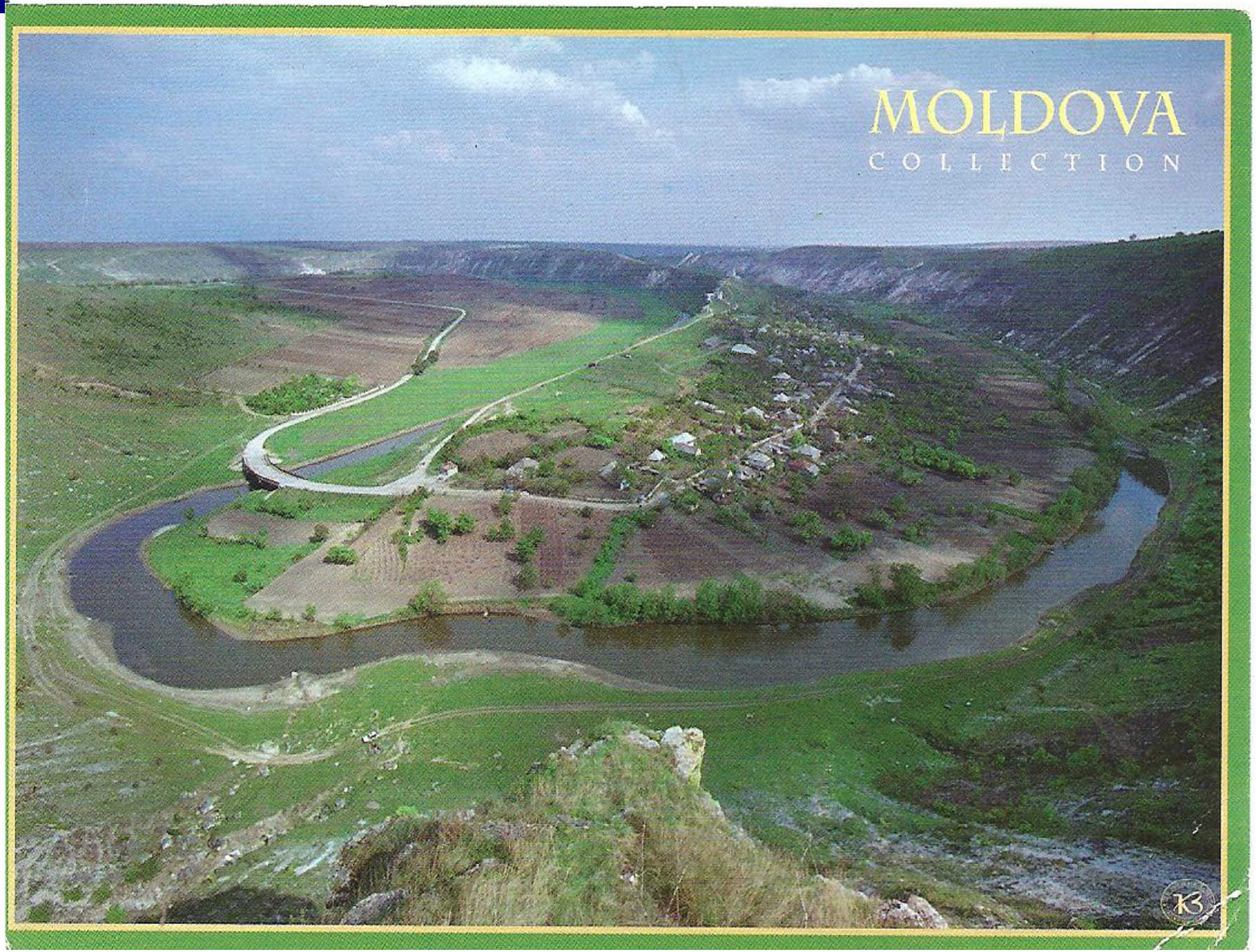
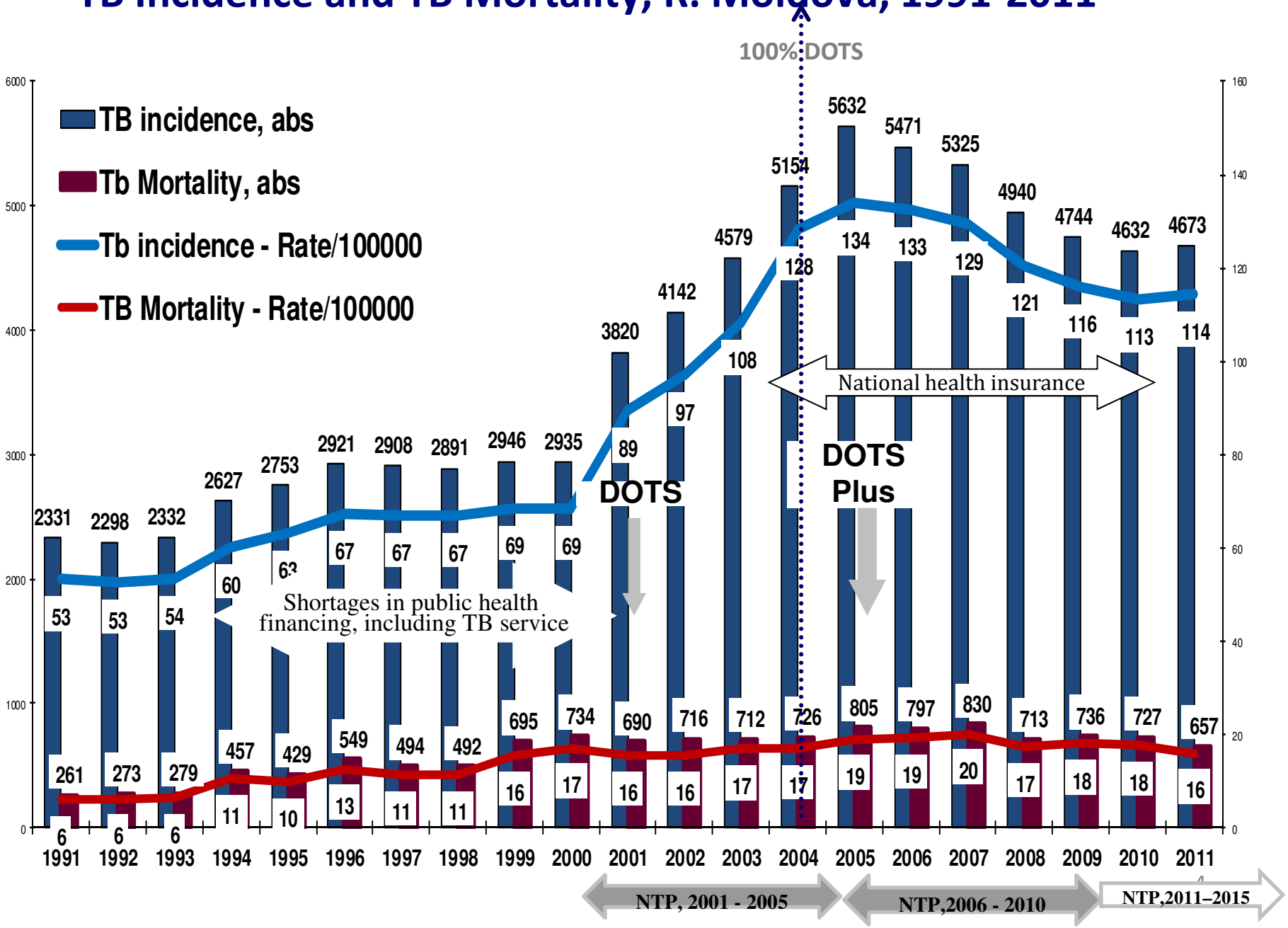

MOLDOVA
COLLECTION

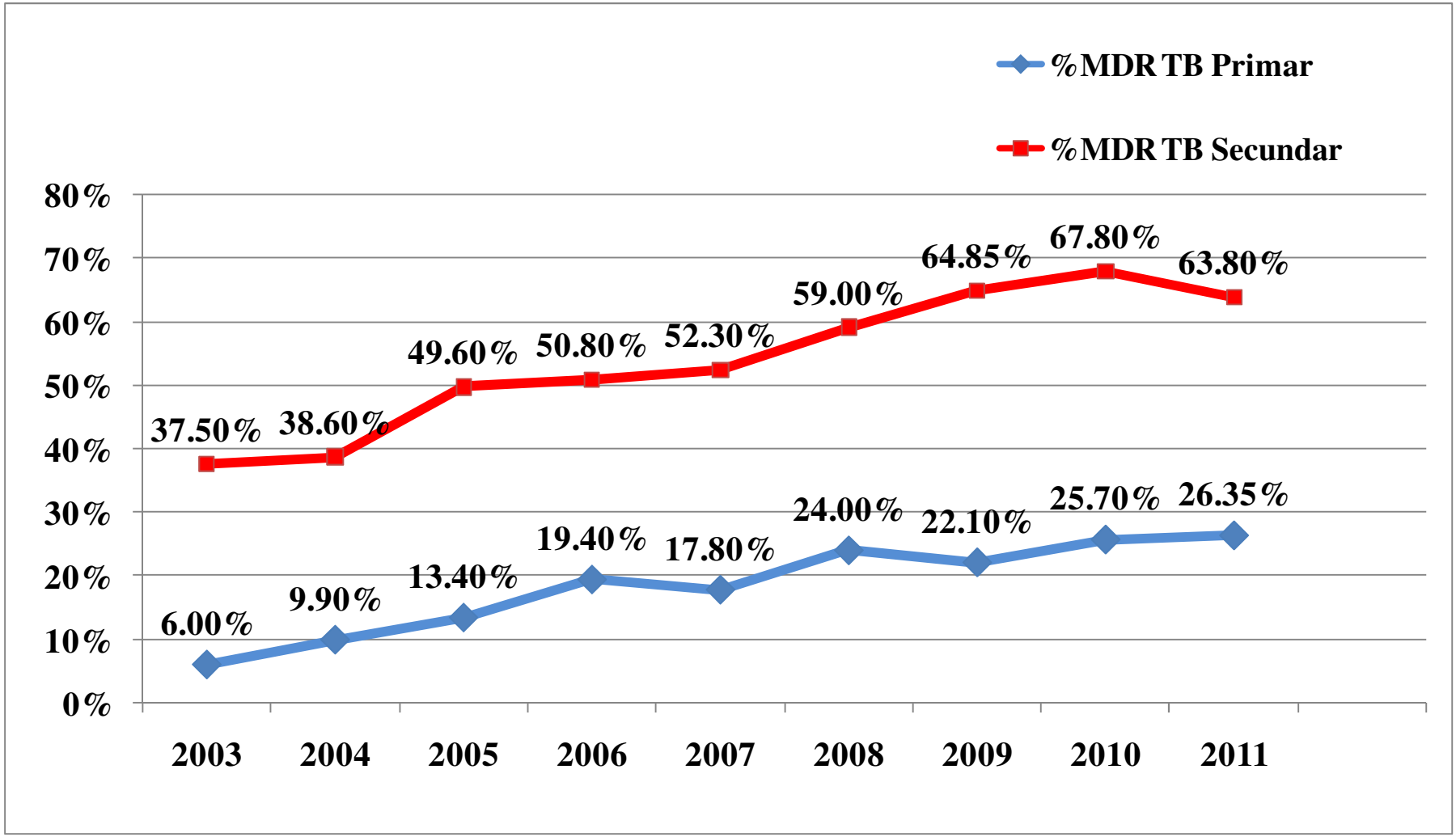
REPUBLIC of MOLDOVA

- **Population**: 4,0 million
- **Surface**: 33.7 thousand sq. km
- **Population growth**: - 0,08 % (est.)
- **Life expectancy**: 70.8 years
- **Population below poverty line %**: 29.5
- **GDP (US$)**: 5.328 billion
- **GDP per capita (US$)**: 2.400
- **Migration**: 360.000–800.000 persons

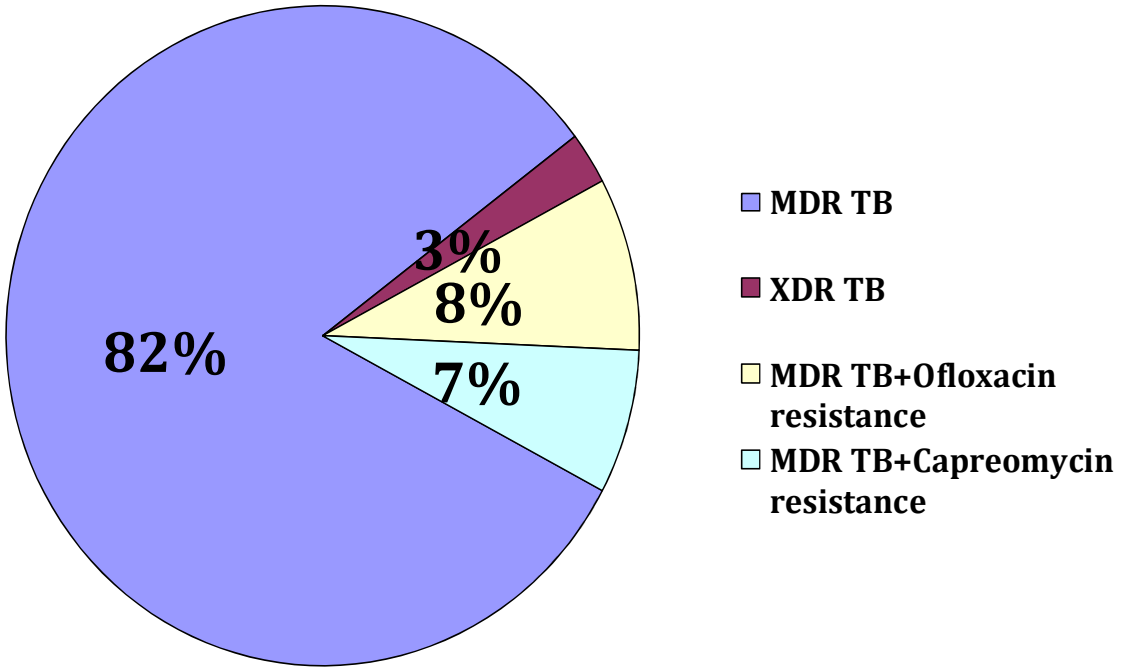
TB Incidence and TB Mortality, R. Moldova, 1991-2011



MDR TB, new cases and retreatment, R. Moldova, 2003 – 2011,%



The rate of XDR TB among the patients with TB resistance. R. Moldova, 2006 - 2011



The number of patients with XDR TB. R. Moldova, 2006-2011

TB cases per year with (abs.):	2006	2007	2008	2009	2010	2011
MDR TB cases	605	822	1202	1141	1150	947
XDR TB cases	1	6	13	9	8	11

Causes of TB epidemic in Moldova

1.Socio-economical crisis

2.Massive migration of population

3.Unemployment;

4.Shortages in public health financing, including TB service:

a) deficiency of the cooperation between the TB service and both, Primary Health Care and Public Health Centers;

b) insufficient support of implementation and inadequate financing of the programme;

c) lack of antituberculosis drug supply during 1996-2001

5.Tuberculosis in prisons

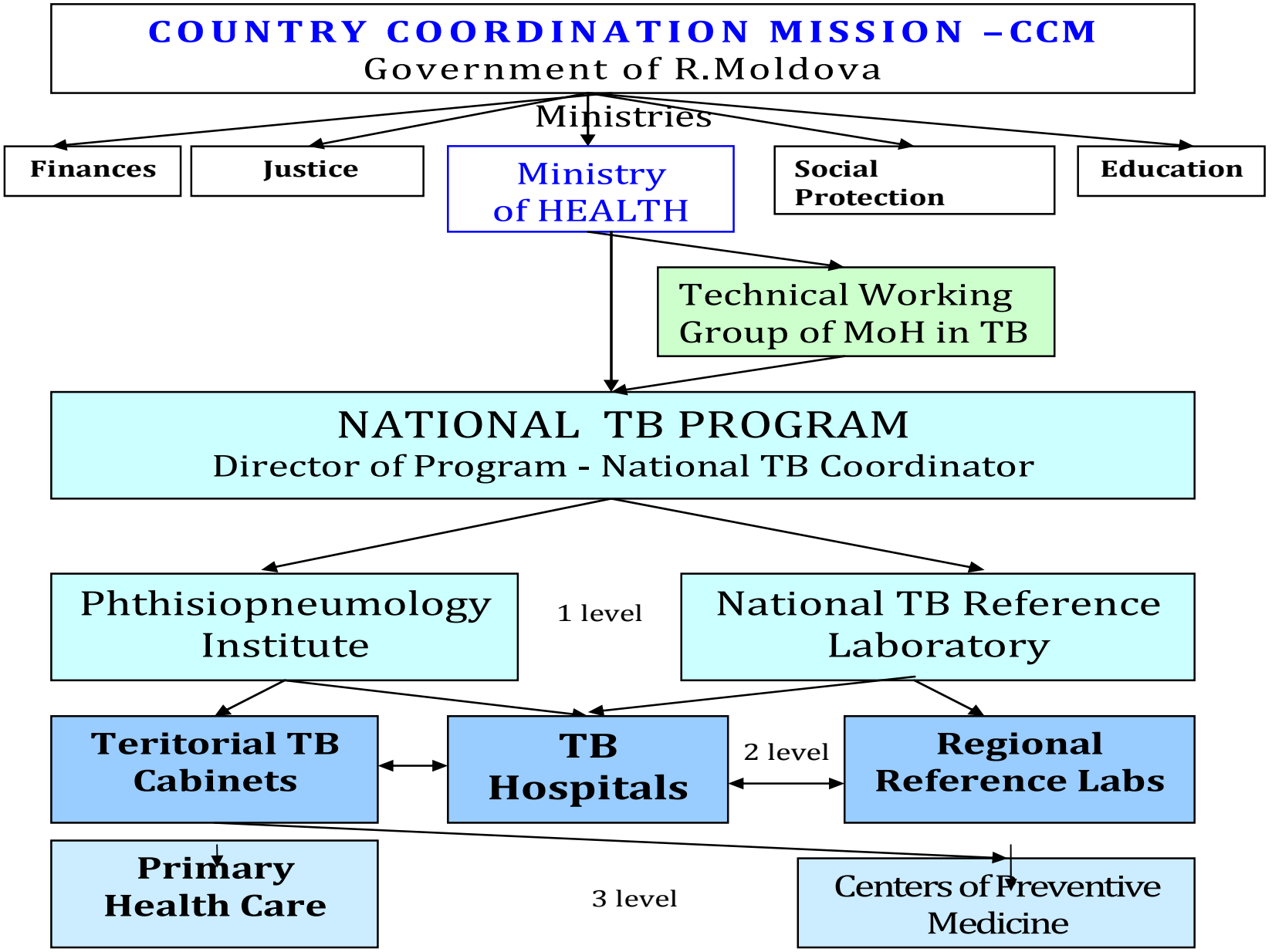
6. High levels of MDR-TB

Reasons of TB Resistance in Moldova

1. Poor infection control in TB hospitals
2. Low compliance of treatment
3. The lack in surveillance of the treatment (~ 60% of DOT)
4. Very low treatment success rate of new and re-treatment TB (52,4%)
5. Increasing of number of patients with TB/HIV co-infection;
6. Deficiencies in drug supply during 1997-2001

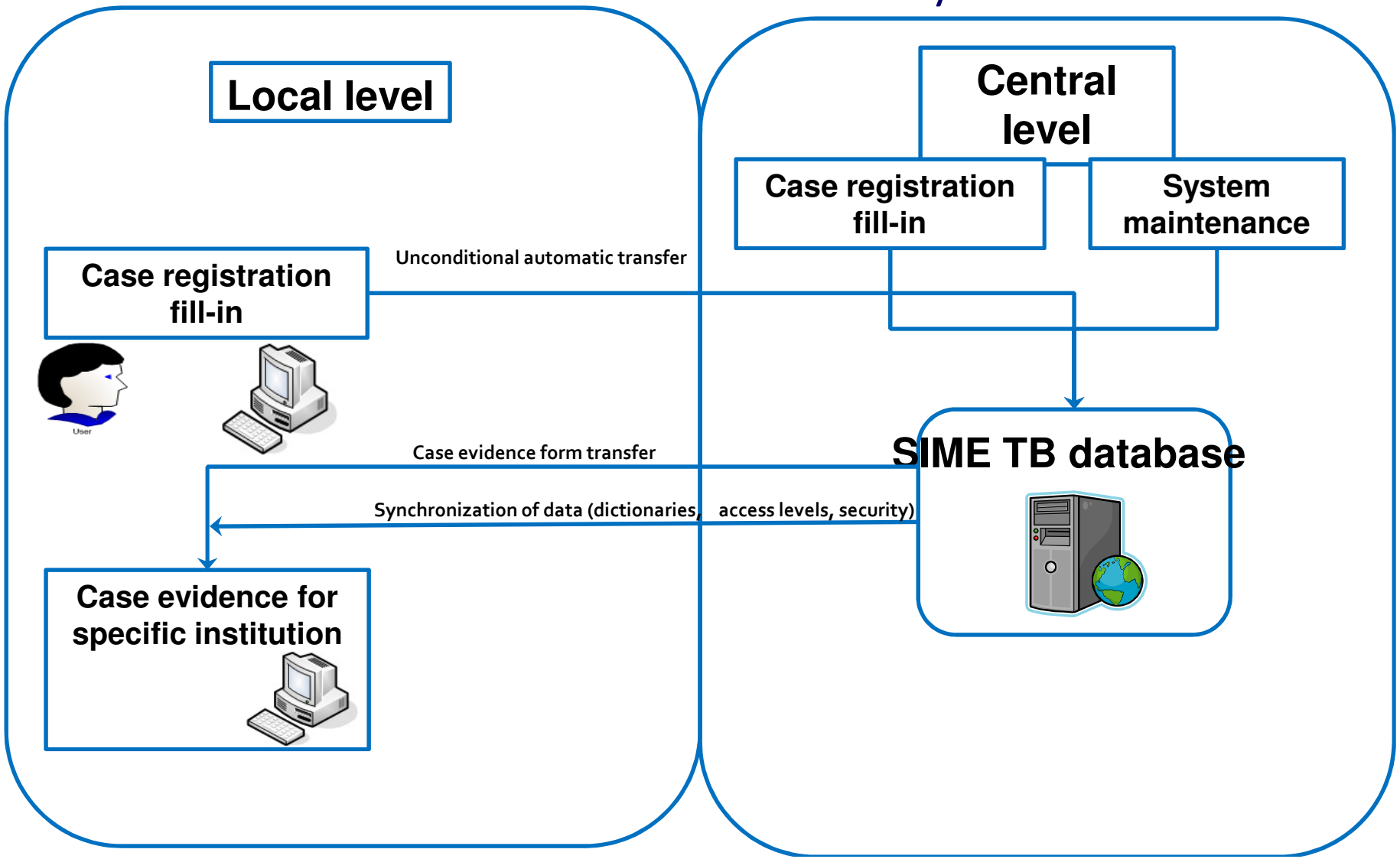
Our achievements in TB control

THE STRUCTURE OF THE TUBERCULOSIS CONTROL SERVICE

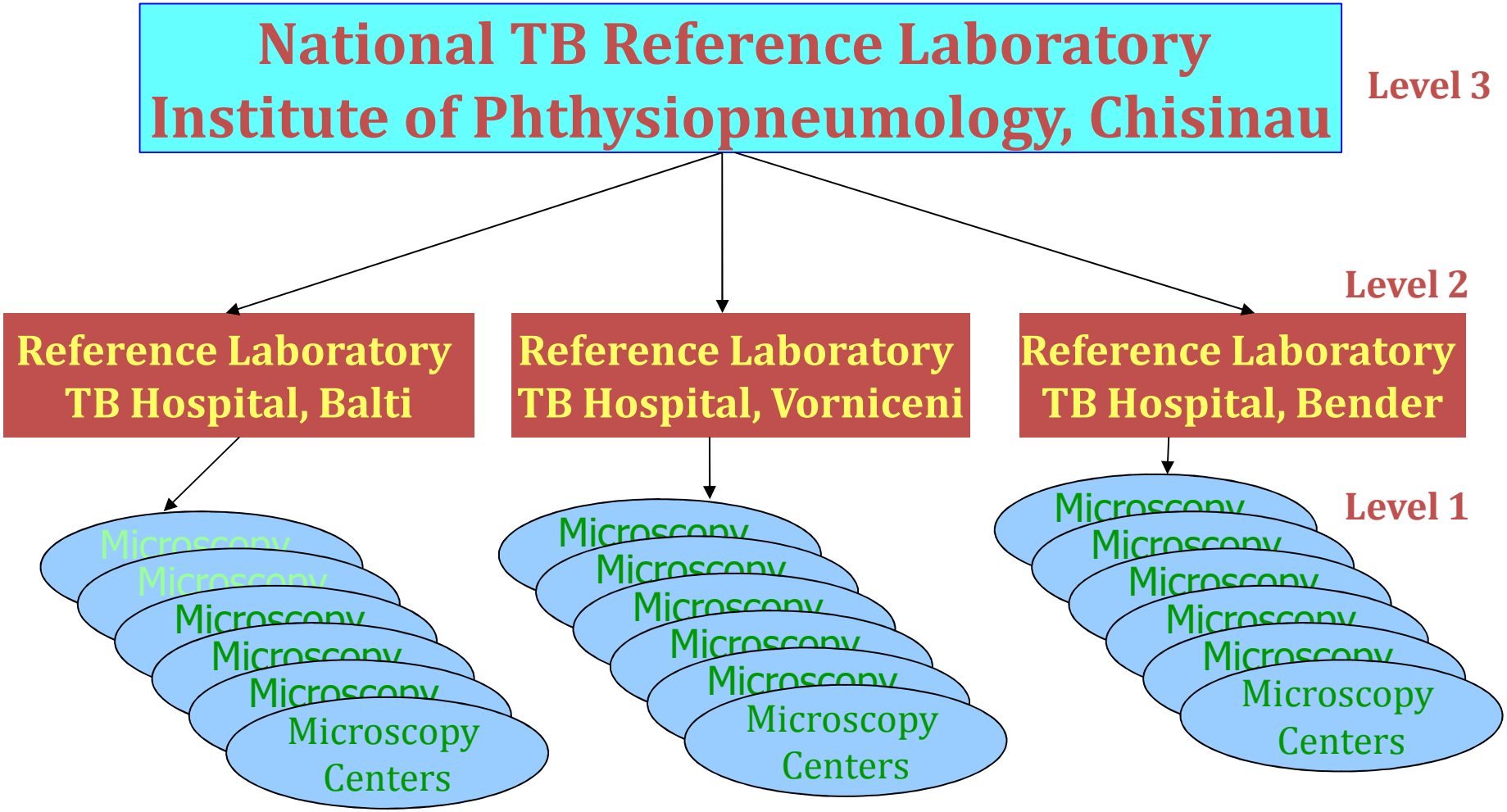


SIME TB

electronic system for notification of TB cases – clinicians&laboratory



TB laboratory network in R.Moldova



Task of TB laboratory services

LEVEL 1

Microscopy Centers

1. TB Diagnosis, follow-up treatment SSM

- Receipt of specimens
- Preparation and staining SSM
- ZN microscopy /recording
- Reporting of results
- Maintenance of lab register
- Management reagen& supplies
- Internal QC

2. Send samples for culture to RL or NRL

3.Participate in EQA for SSM

Location: TB cabinets
municipaly/raionaly (59)

Staff: 1-2 persons

Workload ~2000 SSM/year

Coverage: ~100.000 pop.

LEVEL 2

Reference laboratory

1. All functions of level 1 for SSM + FA

2. Diagnosis of TB by culture
(classic LJ+BACTEC)

- Decontamination specimen
- Isolation and identification *MTB*

3. DST for 1&2 line drugs

4. EQC for MC (EQC panel, monitoring visit)

5. EQA for culture & DST

6. GenoType® MTBDRplus

Location: Reg. TB Hospitals

Staff: 7-13 persons
Workload ~10000 SSM; ~10000 culture; ~3000DST/year
Coverage: ~ 1 mln population

LEVEL 3

National TB Reference Lab

1-6. All functions of level 1&2 Laboratories

7. Identification of MOTT
(Probe Tec system+ GenoType® Mycobacterium CM

8. Develop protocol&guides

9. Organizing trainings

10.M&E visits to RL&MC (NTP)

11. Organize&conduct DRS

12. Conduct research

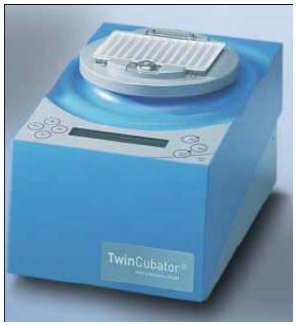
13. Lab equipment, supplies

Location: PPI - NTP
Staff: 25 persons
Workload ~25.000 SSM; ~30.000 culture; ~10.000 DST.
Total investigations ~ 100.000/year
Coverage: Countrywide

Implementation of TB rapid methods R.Moldova

- MGIT 960 - 2005
- ProbeTec - 2008

- MTBDRPlus - 2009
- MTBDRsl - 2011



- MODS - 2011
- Xpert - 2012
- PyroMark - 2012

Country's eligibility for Xpert MTB/RIF

- The country has extremely **high burden of drug resistance** and increase of TB/HIV co-infection;
- The network of **laboratory services** is well developed and processes the full range of investigations;
- Universal **access to treatment of MDR-TB** and ARV treatment;
- Appropriate **infrastructure** (including power supply, storage space, waste management, etc. as required for the technology)
- Qualified medical **staff**
- Small territory, reliable **transportation**, etc.

Timeline of project Implementation

Xpert is part of the new NTP 2011-2015

- **January 2012** - received in country, investigations in NRL
- **February 2012** – in-country staff training
- **February 2012** - TB Reach evaluation visit
- **March 2012** – distributed to all territories (order by MofH)
- **March – April 2012** – installed in place by designated company
- **April 2012 –** UPS procurement, should be distributed
- **April 2012 –** received QC specimens, tested in NRL, should be distributed in the territories

Equipment distribution

Xpert - 25 equipments (G4 – 9, G2 – 16)
Cartridges - 12000

Civilian TB services – 21 (84%):

- NRL – 2
- Chisinau city – 5
- Regional RL city Balti – 2
- Regional Bender RL Transnistria – 3
- 9 district TB institutions

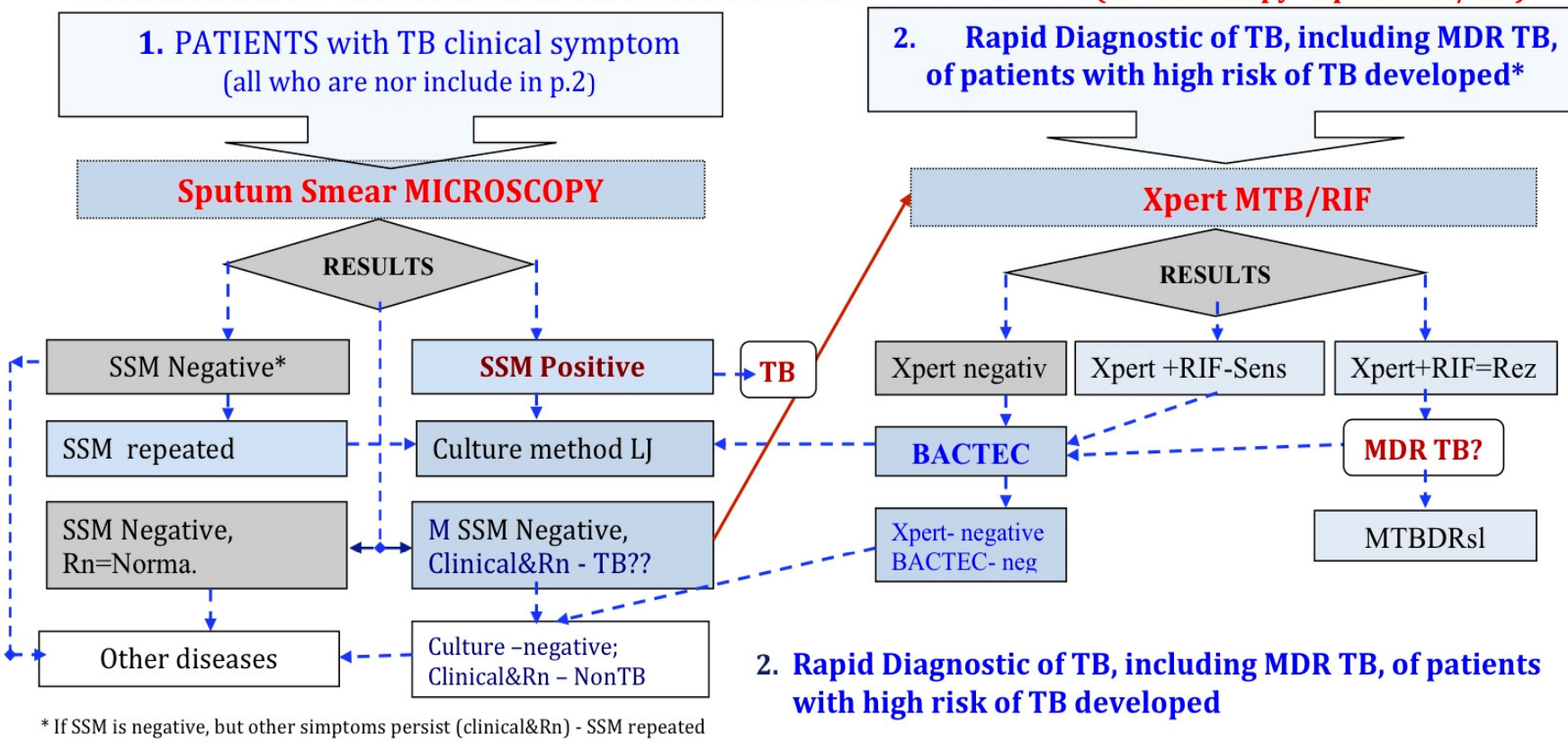
Penitentiary TB services – 2 (8%):

- Central Prison Hospital Pruncul – 1
- Pre-trial isolators in Chisinau and Balti – 1
- NB: Other penitentiary institutions 'assigned' to civilian services in respective areas

AIDS services – 2 (8%):

- Regional AIDS Centre Chisinau ans Balti (Northern part) – 2

EXAMINATION OF DIFFERENT GROUPS OF PATIENTS FOR TB DIAGNOSIS (SS Microscopy - Xpert MTB/RIF)



* If SSM is negative, but other simptoms persist (clinical&Rn) - SSM repeated

2. Rapid Diagnostic of TB, including MDR TB, of patients with high risk of TB developed

A. Patients with TB symptoms, who had contact with TB MDR;
B. Children with TB symptoms, in special from contact with TB MDR;
C. HIV positive patients, with TB symptoms;
D. Patients from prison, with high risk to be infected with MDR TB;
E. Vulnerable groups: homeless, drug users, immunosuppressive, memorializes;
F. Groups of enhanced risk that have suggestive TB symptoms, -medical workers from labs, or the ones who take care of the MDR TB patients;
G. Patients with suspected of relapse of TB, but with repeated SSM results negative;
H. Patients with clinical symptoms of extrapulmonary TB

TB 05/12

PROGRAMUL NAȚIONAL DE CONTROL AL TUBERCULOZEI
EXAMENE MICROBIOLOGICE PENTRU DIAGNOSTICUL TUBERCULOZEI
MICROSCOPIA şi Xpert MTB/RIF

SOLICITANT: unitatea medicală / secția ..... / .....Tel.....

- Medic ..... Nr. de expediere secție.....

PACIENT: NPP ..... Sex..... data naşterii (z/l/a) ...../...../.....

- Raionul..... Localitatea..... Strada..... Nr.....
- IDNP .....
- Motiv examinare: Diagnostic*..... Urmărire tratament/luni tratament ..... Altele (se indică) .....
- Tip pacient: Caz nou Recidivă Abandon Eşec Altele (se indică) .....
- Clasificarea afecțiunii: Pulmonară Extrapulmonară Localizare .....

PROBA: Data colectării sputei (zi/luna/an) ..... / ..... / .....

- Tip produs patologic: Sputa Altele (se indică) .....

LABORATOR: Primit: data..... ora..... de către .....

- Conformitate la recepție: DA NU Detalii..... Aspectul vizual al sputei: Salivar Mucopurulent Purulent Hemoptic

REZULTATUL ANALIZEI

1. Microscopia Zeihl-Neelson **2. Microscopia Fluorescentă** **3. Xpert MTB/RIF**

Data	Proba	Microscopia		Xpert MTB/RIF				
		Zeihl-Neelson	Fluorescentă	Negativ	Pozitiv Rif-sens**	Pozitiv Rif-rez**	Invalid	Eroare
	1							
	2							

Preliminary results

Total	MTB Not detect	MTB RIF –	MTBRIF+	Invalid	No result
184*	118 (63,6%)	35 (19%)	25 (13,6%)	6 (3,3%)	1 (0,5%)

* including 16 extra-pulm.- all neg.

** main errors 5011, 5007, 5006

Preliminary results

	SSM+	SSM-
MTB detect	39	7
MTB Not detect	1	105

	MGIT+	MGIT-
MTB detect	31	4
MTB Not detect	4	47

	LPA MTBDRplus +	LPA MTBDRplus -
MTB RIF+	24	0
MTB RIF-	3	7

Some problems

- Lack of the initial training for national trainers
- 1 equipment- damaged
- Lack of tubes for sputum processing in the territories
- Not graduated pipettes in the package – for 0.5 ml, 1 ml.
- Lack of Internet connection in the regions to include all in the networking system

Not resolved Questions

- Errors, invalid tests - should be repeated?
- 1 or 2 sputum per patients?

Challengers and Issues

MDR-TB treatment

Challenge to manage the potentially increased number of diagnosed MDR patients

Funding

Concerns about funding for next years- project duration

Equipment maintenance

After expiration of warranty

Expected outcomes

Implementation of rapid methods for detection TB and tested drug resistance have to improve

- the early diagnostic and decrease the time of appreciate the correct treatment
- the early diagnostic of children
- the infection control and decrease the transmission infection in hospitals
- the treatment success rate

Thank you!