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## **MISSION** REPORT

# Tuberculosis in Latvia

22 – 26 October 2012

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22 – 26 October 2012



This report of the European Centre for Disease Prevention and Control (ECDC) was coordinated by Marieke J. van der Werf.

*Contributing authors (in alphabetic order)*

Vahur Hollo, European Centre for Disease Prevention and Control  
Kristin Kremer, WHO Regional Office for Europe  
Roxana Mindru, Support Expert European Centre for Disease Prevention and Control  
Andreas Sandgren, European Centre for Disease Prevention and Control  
Szabolcs Szigeti, WHO Regional Office for Europe – Country Office for Hungary  
Marieke J. van der Werf, European Centre for Disease Prevention and Control  
Elena Yurasova, WHO Regional Office for Europe – Country Office for the Russian Federation

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## Abbreviations

AFB	Acid-fast bacilli
AIDS	Acquired immunodeficiency syndrome
ART	Antiretroviral therapy
BCG	Bacillus Calmette–Guérin
BSL	Biosafety level
CDPC	Latvian Centre for Disease Prevention and Control
CTLD	Latvian Centre for Tuberculosis and Lung Diseases
DOT	Direct observation of treatment
DOTS	Directly observed treatment, short course – the basic package that underpins the WHO Stop-TB Strategy
DR TB	Drug-resistant TB
DST	Drug susceptibility testing
ECDC	European Centre for Disease Prevention and Control
EQA	External quality assurance
FDC	Fixed dose combination
GDP	Gross domestic product
HIV	Human immunodeficiency virus
IGRA	interferon-gamma release assay
IPT	Isoniazid preventive therapy
LPA	Line probe assay
M&E	Monitoring and evaluation
MDR TB	Multidrug-resistant tuberculosis (resistant, at least, to isoniazid and rifampicin)
NGO	Non-governmental organisation
NRL	National reference laboratory for TB
NTP	National tuberculosis control programme
PDR TB	Polydrug-resistant tuberculosis
PHC	Primary healthcare
PLHIV	People living with HIV/AIDS
PWID	People who inject drugs
REUH	Riga Eastern University Hospital
SLD	Second-line drug
SNRL	Supranational reference laboratory
TB	Tuberculosis
VNTR	Variable numbers of tandem repeat
WHO	World Health Organization
XDR TB	Extensively drug-resistant tuberculosis

## Executive summary

The European Centre for Disease Prevention and Control (ECDC) and the World Health Organization Regional Office for Europe (WHO/EURO) regularly collaborate on tuberculosis (TB) surveillance, prevention and control in the European Union. Based on a request from the Ministry of Health of the Republic of Latvia, dated 14 May 2012, ECDC and WHO/EURO conducted a joint country visit – in collaboration with the Latvian national technical counterparts – from 22 to 26 October 2012, with the objective of providing a comprehensive overview of tuberculosis prevention, control and care in the country, and presenting the health authorities with key recommendations and suggested actions to improve work in this area.

### Main objectives

- To provide a comprehensive overview of TB prevention, control and care in the country
- To present the health authorities with key suggested actions to improve TB prevention, control and care

### Specific objectives

- To assess TB prevention, diagnosis, treatment and care services in terms of quality, pertinence, access, availability and use
- To assess the TB surveillance system with regard to quality and completeness of epidemiological TB data, data on drug-resistant TB, and TB/HIV data
- To review the social determinants of TB and M/XDR TB and the interventions to address them
- To assess the links, synergies and opportunities for TB control in relation to health system strengthening and other disease-specific interventions, including management of TB/HIV co-infection
- To assess the role and involvement of civil society organisations in TB-related activities
- To assess partnership, coordination and collaboration on TB control with national and international stakeholders, including the Ministry of Justice

In close coordination with the Ministry of Health, a team of seven international experts conducted the country visit. Technical reports, surveillance data, national reports and epidemiologic data were reviewed. The review team conducted field visits to hospitals, outpatient clinics, laboratories, general practitioners' offices and other institutions. The selection of the site visits was proposed by the health authorities and agreed with the country visit team. The teams interviewed health authorities, healthcare staff, staff from the epidemiological centre, employees of TB laboratory services, and personnel at non-governmental organisations (NGOs). TB prevention, control and care interventions were assessed based on six health system building blocks.

### Key findings

- Patients are adequately diagnosed and treated
- The percentage of TB patients for whom the diagnosis is bacteriologically confirmed by the laboratory is high and there is an excellent coverage of drug-susceptibility testing
- Latvia is well known for its *WHO Collaborating Centre for Research and Training in Management of Multidrug-Resistant Tuberculosis*
- There is a consilium that discusses treatment for patients with MDR TB and other difficult-to-treat patients
- A National Plan to prevent and combat M/XDR TB is available and outlines major approaches to the management of MDR TB and TB/HIV. This plan is not approved by the Ministry of Health
- The Latvian TB surveillance system functions well and provides almost all essential epidemiological data; there is a legal foundation for the system

### Key challenges

- The National TB strategy and TB guidelines are not available in writing
- Guidelines for TB-HIV co-infection are not available
- There is no clear delegation of responsibilities and accountabilities for managing some of the basic pillars of TB care, e.g. planning and resource allocation, case finding and management, national laboratory functions, etc.
- There is no coordination of monitoring of health financing of TB care

## Key opportunities

- The Centre for Disease Prevention and Control has the possibility to establish effective coordination between TB, HIV and other health programmes
- The restructuring of the public health structure provides an opportunity to improve and clarify the TB surveillance system
- The laboratory at the Centre for Tuberculosis and Lung Diseases is a supranational reference laboratory
- Good collaboration between the national TB programme and active NGOs.

## Key suggested actions

- Develop a National TB strategy with specific and realistic indicators
- Designate clear responsibilities by ensuring accountability for performance outcomes with regard to all key stakeholders
- Develop guidelines for case finding and case management – including assignment of responsibilities for case finding and contact tracing – and ensure adequate financing
- Develop guidelines for TB-HIV co-infection according to international recommendations
- Consider the establishment of a partnership among and between governmental organisations, NGOs, civil society, and professional organisations to control TB in Latvia



# 1 Background information: Health system overview

## 1.1 Structure of the general health services in Latvia

The Latvian Ministry of Health is the central overseeing institution in the health sector. It is responsible for public health, healthcare, pharmacy, and legal circulation of drugs. The Ministry's main task is to implement a national policy to safeguard public health, promote prevention by promoting healthy lifestyles, as well as to create conditions for citizens to get cost-effective, accessible and high-quality healthcare services.

In general, the Latvian health system is based on a contracting model, which has been in effect since the 1990s. The stewardship function has been divided between the Latvian Ministry of Health (MoH) and the National Health Service (NHS). While the MoH is responsible for assigning, regulating and supervising responsibilities of the different actors in the system, the NHS finances the services, monitors the pattern of utilisations, manages the contractual relationships and prepares policy interventions.

On 1 April 2012, the new Centre for Disease Prevention and Control (CDPC) was created. This centre is responsible for epidemiological surveillance; the monitoring of diseases; the collection of statistical data on prevention of infectious diseases; measures taken in disease control; national immunisation programmes; cooperation with WHO, the Commission and ECDC, as well as with other national public health institutions. Functions such as treatment of infectious diseases and quality control of laboratories are covered by the Riga Eastern Clinical University Hospital. Undergraduate and postgraduate training in infectology, epidemiology and laboratory diagnosis are the responsibility of Riga Stradiņa University and Latvian University; Riga Eastern Clinical University Hospital is also involved.

Healthcare services are provided by the state, the municipality, and private inpatient and outpatient healthcare institutions. Patients can receive healthcare services (financed through the State budget) only in those healthcare institutions that have signed an agreement with the NHS. The healthcare system is subdivided in (1) emergency medical care, (2) primary healthcare, (3) secondary healthcare (inpatient and outpatient), and (4) tertiary healthcare (inpatient and outpatient).

Primary healthcare providers are family doctors (including paediatricians and internists), physician's assistants, nurses, midwives, dentists, dentist's assistants, dentistry nurses and hygienists.

To access secondary care, a referral from a family doctor is required. Some specialists such as oncologists, gynaecologists, psychiatrists, TB specialists, endocrinologists, dermatologists, narcologists, ophthalmologists, paediatricians, paediatric surgeons, as well as emergency medical assistance, can be accessed without referral from a family doctor. If patients are covered by private health insurance or pay for their own healthcare, specialist care can be accessed without referral.

Secondary and tertiary healthcare is provided by three national-level hospitals, seven regional hospitals, and 11 local hospitals. In addition, there are nine hospitals that take care of chronic and elderly patients, and 12 specialised hospitals.

The public expenditure on health is estimated to be 3.4% of the gross domestic product (GDP), which is extremely low in comparison with other EU countries. The private expenditure is very high, with 39.1% in 2010<sup>1</sup>. Within the state budget, the share of public expenditures on healthcare show a decreasing trend since 2007, falling from 11.8% to 9.2% of the total budget in 2010<sup>2</sup>. The average number of physicians per 1 000 population was 2.91, and 11 920 hospital beds were available for the total population (2010 data).

## 1.2 Structure of the TB programme

The TB programme functions are covered by different institutions in Latvia. The CDPC is responsible for TB surveillance. Currently, the TB database is being transferred from the Centre for TB and Lung Diseases (CTLD) of the Riga Eastern Clinical University Hospital (REUH) to the Centre for Disease Prevention and Control. All other functions of the National TB programme are currently still performed by the National TB and Lung Centre. The National TB and Lung Centre has not been officially assigned to perform these functions.

<sup>1</sup> World Health Organization. Global Health Expenditure Database. [Internet]. 2013 [cited 2013 Apr 10]. Available from: [http://apps.who.int/nha/database/StandardReport.aspx?ID=REP\\_WEB\\_MINI\\_TEMPLATE\\_WEB\\_VERSION&COUNTRYKEY=84608](http://apps.who.int/nha/database/StandardReport.aspx?ID=REP_WEB_MINI_TEMPLATE_WEB_VERSION&COUNTRYKEY=84608)

<sup>2</sup> Mitensbergs U, Taube M, Misins J, Mikitis E, Martinsons A, Rurane A, et al. Latvia: Health system review. Health Systems in Transition, 2012; 14(8):1–191

The (REUH) is responsible for the treatment of infectious diseases, quality control of laboratories, and undergraduate and postgraduate training in infectology, epidemiology and laboratory diagnosis.

### 1.3 Structure of TB prevention and care services

Patients can access pulmonologists or general practitioners (GPs) for signs and symptoms that might be related to TB. Pulmonologists are directly accessible specialists, i.e. there is no need for referral from a GP to get access. The NHS has signed agreements with 109 pulmonologists in 131 different workplaces.

There are seven inpatient TB hospitals in Latvia: the CTLD central hospital and Ceplīši hospital (both under the auspices of REUH); Liepājas regional hospital; Jēkabpils regional central hospital; Strenču psychoneurological hospital; Daugavpils regional hospital; and one prison hospital. There are 23 ambulatory/outpatient pulmonary clinics that provide DOT, also known as 'DOT cabinets'.

Psychiatric hospital patients with TB are transferred to the special TB/psychiatric hospital in Strenči, which has 50 beds for TB patients and about 80 patients per year.

Problematic patients, such as alcohol or drug abusers, in need of mandatory hospitalisation are referred to Ceplīši hospital, which has 70 beds. In 2011, 148 patients were treated over the whole year; nine of these patients died. At the time of the visit there were 42 patients at the hospital. The hospital receives mainly difficult-to-treat patients, such as alcohol abusers, drug users and former prisoners. There are separate wards for drug susceptible and multidrug/extensively drug-resistant tuberculosis (M/XDR TB) patients.

Homecare is available in Riga if a patient cannot attend the health clinic. Latvia has given priority to develop and strengthen homecare and wants to make it more available to the population.

### 1.4 TB programme collaboration

There does not seem to be any formal collaboration between the national TB and HIV programmes, except for the referral of patients. The recent establishment of CDPC, which is responsible for both TB and HIV, offers the opportunity for collaboration, interaction and joint strategies between these two programmes.

### Epidemiology

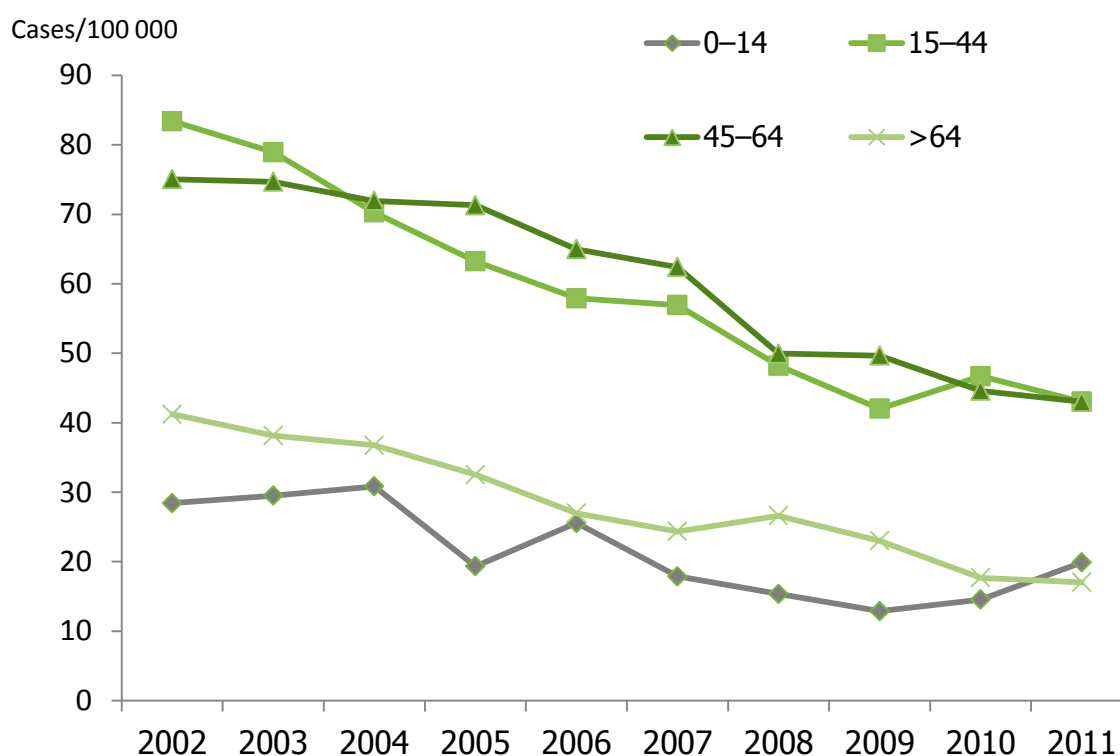
In 2011, the Latvian TB Registry (part of the Latvian Centre for Disease Prevention and Control – HIV/AIDS, STD and TB Risk Analysis and Prevention Unit) reported a total of 885 TB cases (788 new, 83 relapses and 14 previous defaulter cases). This corresponds to a notification rate of 39.7 per 100 000 population (Table 1). Sixty-seven percent of the TB patients were male, and the median age was 41 years (range: 0–88) for all registered cases. WHO estimates that the case detection rate was 93% (82–110%) in 2011. Eighty-two percent of all notified cases had pulmonary TB, 10% had extrapulmonary TB (mostly lymphatic or pleural), and 8% had both pulmonary and extrapulmonary sites. Three patients had disseminated TB. TB meningitis was not reported in 2011. Culture confirmation was available in 76% of all TB cases. Forty-three percent of all pulmonary TB cases were smear positive. In total, 788 (89%) cases were new cases, 83 (9%) were relapses, and 9 (2%) were reported after default. Since 2001, the total TB case notification rates have declined steadily by 4 to 7% annually, until 2010, when a decline of only 1.5% was reported. In 2011, a 0.9 percentage point increase was observed in the total notification rate. Age-specific rates have been highest in middle-aged patients and younger adults, followed by children and the elderly (see Figure 1). Rates were higher in males than females in all adult age groups. While the rates in adults show a decrease over time, rates in <15-year-olds have increased in the last two years. The mean age of patients who were previously not treated was 40.2 years in 2011, and has shown a decreasing trend in the last three years.

**Table 1: Tuberculosis notification rates per 100 000 population\* by case category, 2001–2011**

Year	New TB	Previously treated cases	Total
2001	68.8	14.0	82.8
2002	61.5	12.5	74.0
2003	59.5	9.8	69.3
2004	55.4	9.7	65.0
2005	50.4	8.3	58.7
2006	46.8	7.5	54.3
2007	44.4	7.3	51.7
2008	38.0	6.3	44.3
2009	34.4	6.1	40.5
2010	34.6	4.4	39.0
2011	35.3	4.4	39.7

\* Population data extracted from Eurostat, 10 October 2012

Total notification rates differ by region and are highest in certain border regions, for example Liepāja (68 cases per 100 000 population in 2011), Rezekne (65) and Ludza (61). Lower TB notification rates are reported in the northern part of the country: Aluksne (9), Valka (14) and Ventspils (15). The capital Riga reports most cases; however, notification rates per 100 000 in Riga have been comparable to the national level (see Annex 4).

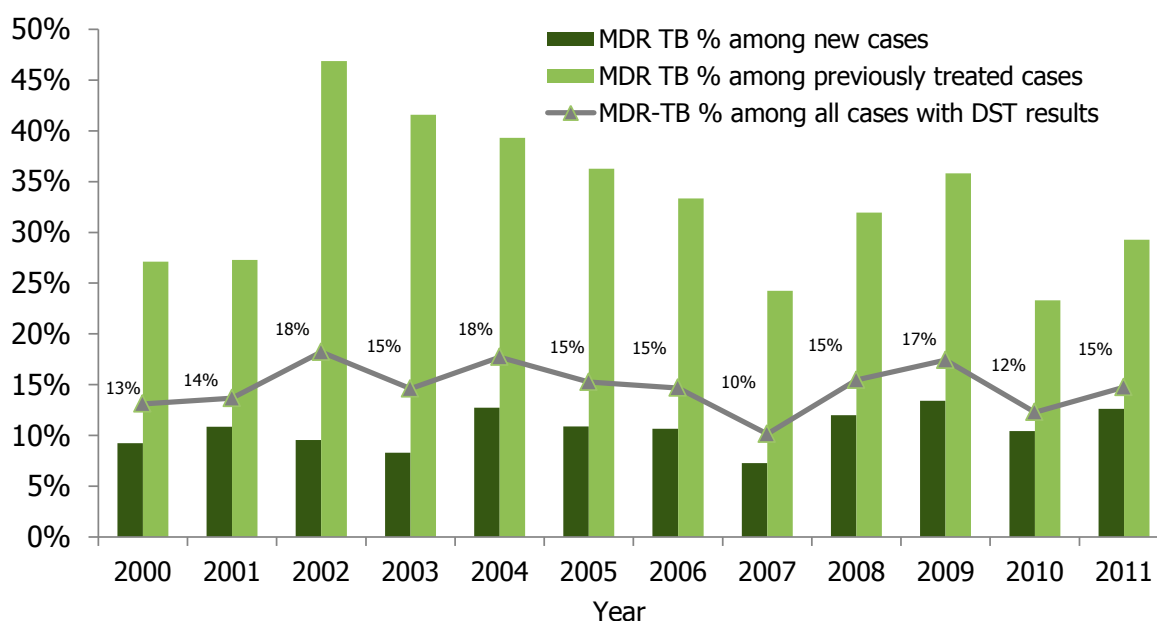
**Figure 1: Age-specific notification rates by age groups, 2002–2012**

## MDR TB

The culture confirmation rate has been stable between 76–78%. Drug susceptibility testing (DST) is done for most culture-positive cases. In 2011, 96% of all culture-positive TB cases had a DST done. Some type of resistance was identified in 34% of *Mycobacterium tuberculosis* strains that were tested. Twelve percent of the new cases, and 30% of the previously treated cases, were MDR TB cases. Out of 95 cases reported for 2011 (Table 2 and Figure 2), 15% had MDR TB. The proportion of MDR TB cases has decreased slightly since 2001. The proportion of XDR TB cases has been stable in last four years; yearly between 14 and 18 new XDR TB cases are identified among all MDR TB cases. In 2011, 14 XDR TB cases (15% among all MDR TB) were detected.

**Table 2: MDR TB cases by previous treatment status, 2000–2011**

Year	New MDR TB	Previously treated MDR TB	Total MDR TB
	N (%)	N (%)	N
2000	83 (55)	67 (45)	150
2001	99 (66)	51 (34)	150
2002	91 (40)	135 (60)	226
2003	80 (46)	94 (54)	174
2004	114 (58)	81 (42)	195
2005	95 (59)	66 (41)	161
2006	85 (60)	57 (40)	142
2007	59 (60)	40 (40)	99
2008	82 (64)	46 (36)	128
2009	83 (63)	48 (37)	131
2010	64 (73)	24 (27)	88
2011	71 (75)	24 (25)	95

**Figure 2: Percentages of MDR TB cases by previous treatment, 2001–2011**

## TB-HIV

The prevalence of HIV infection among TB patients remains one of the highest in the European Union (9.9%, 74 cases among new and relapses in 2011) and has been increasing in the last few years. It should be noted that in 2010 Latvia was one out of only nine EU/EEA countries that managed to report both high-coverage and representative data on HIV/TB co-infection. In 2011, 752 (85%) TB patients were reported with known HIV status (see Table 3).

TB is the most common AIDS indicator disease (there were 424 HIV patients in total with pulmonary TB in 1990–2011).

According to the TB registry data, antiretroviral therapy (ART) has been provided to 60–76% of all notified TB-HIV co-infected patients in the last three years.

Surveillance on TB/HIV exists, but TB and HIV registers are separate; manual verification is required to identify and verify TB/HIV patients. ART drugs to treat HIV infection are in the list of reimbursable drugs.

**Table 3: HIV-TB co-infected cases 2009–2011**

Year	All TB cases (N)	Cases with known HIV status*		HIV positive	
		N	%	N	%
2009	977	830	85.0	73	8.8
2010	935	794	84.9	71	8.9
2011	885	752	85.0	71	9.4

\* Testing coverage for HIV among all TB cases was estimated and is based on calculations from MDR TB Registry data, because of lack of the variable/code for negative test registration in general TB database.

## Childhood TB

Rates of notified TB among children under 15 years of age have been increasing since 2009, from 14.9 to 19.9/100 000 in 2011 (Figure 1). The increasing rate also reflects an increase in the absolute number of cases (from 40 to 61). The increase was greater in the 5–14-year age group (31%). This trend, unless it can be explained by changes in current physician reporting practices, suggests ongoing transmission of TB.

## Vulnerable populations

Apart from people living with HIV, the TB control system in Latvia has identified other vulnerable populations with respect to TB, for example prisoners and the homeless. Additional potential risk factors for TB that were identified in the TB Registry in 2011 included alcohol abuse, former imprisonment, drug abuse, being a close contact of a TB patient, being unemployed, and smoking (Table 4). According to the Latvian Prison Administration, Ministry of Justice (MoJ), 43 new TB cases were reported among a population of 6558 prisoners in 2011, a rate that is 17 times higher than in the general population. Thirty-nine TB cases diagnosed in the prison hospital were male and four female. Their median age was 34.2 years, which is substantially lower than that of all other TB cases (40.2 years). Among TB patients diagnosed in prison, the age group most affected were adults between 25 and 44 years of age.

**Table 4: Prevalence of known risk factors for TB among TB patients, 2011**

Risk group	Number	% of all TB cases
Unemployed	440	56%
Smoking	395	51%
Close contacts of TB patient	220	28%
Alcohol abuse	174	22%
Former imprisonment	77	10%
Drug addicted	46	6%
Homelessness	28	4%

Source: Latvian TB Registry

In 2011, TB was diagnosed among six healthcare workers, including five medical doctors.

In 2011, almost half (108) of the patients found with active case finding were close contacts of active TB patients. More female than male patients were found by screening, namely 38% of all female and 31% of all male TB patients. The mean age of patients diagnosed through screening was 32 years; in patients diagnosed after complaints, the mean age was 43 years of age. The majority (77%) of TB cases diagnosed in children were found after screening.

## Treatment outcome data

The Latvian TB control system has taken many measures to maximize treatment success while attempting to minimise the risk of MDR TB among previously treated cases. In the 2010 cohort, treatment success among new culture-positive pulmonary TB cases was 75.1%. In the still-on-treatment category, 10% were MDR TB cases.

At the same time, the data point to some gaps in the management of TB. For example, the treatment success rate for previously treated cases was only 61.1% in the 2011 treatment cohort. The 2009 MDR TB cohort, which was assessed in 2012, achieved a 65% success rate. Even more complicated patient categories seem to be HIV- and TB co-infected patients; success rate among those was 57% for the 2010 cohort, and the mortality rate was high, up to 20% (Table 5).

**Table 5: Treatment outcome of confirmed pulmonary TB cases**

Patient status	New cases (2010)	Relapses (2010)	MDR TB (2009)	HIV-positive patients (2010)
<b>Cured and completed</b>	447 (75.1%)	55 (61.1%)	80 (65%)	32 (57%)
<b>Failure</b>	3 (0.5%)	-	6 (5%)	1 (2%)
<b>Default</b>	37 (6.2%)	9 (10.0%)	22 (18%)	7 (12%)
<b>Transferred out</b>	-	-	1 (1%)	-
<b>Died</b>	50 (8.4%)	7 (7.8%)	14 (11%)	11 (20%)
<b>MDR TB</b>	58 (9.8%)	19 (21.1%)	(1; still on treatment)	5 (9%)
<b>Total</b>	595	90	124	56

## Epidemiological studies

In total, 15 epidemiological studies using surveillance data on MDR TB, treatment outcome analysis, or other aspects of TB data have been published in peer-reviewed journals since 2003. No studies have been carried out assessing the completeness of data reporting in Latvia, for example capture-recapture studies.

## 2 Service delivery

### 2.1 Prevention

#### Contact tracing and outbreak management

##### Observations

There is a Cabinet Regulation on contact tracing (No. 744, 19 September 2006), stating that it is the responsibility of the clinic/treating physicians to perform contact tracing. In several places that the ECDC–WHO team visited, this is carried out by the outpatient clinics physicians together with the nurses and, in some cases, with assistance from the patient's GP. There is no specific budget line for contact tracing activities and the costs are covered within the existing budget of the clinic. Concerns were expressed regarding a new rule for funding contact tracing. Under the new rule, costs are only covered up to a certain ceiling (i.e. for a fixed number of patients per month), which could negatively affect contact tracing activities in Latvia. Discussions are ongoing about the possibility of additional payments when the quota is reached.

Contact tracing mainly relies on collecting contact information by asking the patient. Patients are asked to inform family members and send them to a TB clinic for testing. For children with TB, a letter sent to the school informs school administrators that one of their students was diagnosed with TB. It also invites school staff and students to come in for testing. Adults with TB warrant a letter which is sent to the workplace, along with an invitation to all employees to be tested. As no special resources are dedicated to contact tracing, there are no visits to the family, schools, workplace, or places the patient visits for social purposes. Particularly, there is no risk evaluation of close contacts, who have a high priority to get tested.

Screenings are done by X-ray and by recording a history of symptoms; children receive the tuberculin skin test (TST), and in some cases interferon-gamma release assays (IGRAs) are also used. The ECDC–WHO team was informed that if no active TB is diagnosed, a follow-up is organised, and about 50% of the contacts will come for the planned follow-up visits.

Several healthcare workers expressed concerns about the future of contact tracing activities and there are suggestions that contact tracing in Latvia is suboptimal (increase in childhood TB is an indicator of ongoing transmission).

- Although there is a focus on contact investigation, the completeness and timeliness of contact investigation is not systematically documented. Moreover, there appear to be no uniform policies and standards for conducting contact investigations.
- The identification of risk groups could be improved by genotyping *M. tuberculosis* isolates in order to identify and trace outbreaks more accurately.

##### Suggested actions

- There should be an increased focus on contact tracing and investigation, with development and dissemination of policies, procedures, and standards.
- Integrate genotyping data with conventional epidemiological data to provide a comprehensive picture of TB transmission in the country.
- It should be made clear who is responsible and who is paying for contact tracing activities.
- Contact tracing support should be provided by epidemiologists and coordination should be ensured at both the central and the local level.

#### Chemoprophylaxis

##### Observations

Isoniazid preventive therapy (IPT) is provided to children (<18 years) with positive skin test and/or IGRA; identified contacts are sent to the paediatricians at CTLD for management. For all other contacts, follow-ups every six months for two years are arranged. An opportunity for prevention may be lost by not testing other groups for latent TB infection (LTBI) and, when appropriate, using preventive treatment.

##### Suggested actions

- Consider IPT for other risk groups if latently infected cases are found.

#### Vaccination

##### Observations

Cabinet Regulation No. 330 (29 September 2000) states that BCG is free of charge for all newborns. Latvia also has approved an immunisation plan for 2012–2014, which supports the implementation of a Cabinet Regulation

which calls for universal BCG vaccination. BCG vaccination is provided to all newborns on the 2nd to 5th day after birth, without booster vaccination at older age.

## Infection control

### *Observations*

Specific national guidelines for infection control are not available in Latvia. Each hospital is responsible for its own infection control plan, both in terms of development and implementation. All clinics visited by the ECDC–WHO team take a similar approach, which includes the implementation of some administrative measures, for example separate wards for MDR TB cases and an isolation unit for palliative care of untreatable cases. All smear-positive patients initiate treatment in a hospital and are hospitalised at least till smear conversion. Compulsory isolation for treatment of infectious defaulters and problem patients is well-organised. Generally, there are one or two, sometimes four to five patients to a room, but in isolation there is often only one patient per room. The clinics have UV lamps, rely on natural ventilation, and the ECDC–WHO team was informed that the staff wear respirators; patients wear surgical masks.

The special infection control division at REUH ascertains that infection control regulations are followed in the different clinics. At LIC (of REUH), there is a separate entrance for infectious patients. There are also isolation boxes for cases suspected to have an infectious disease. The separate entrance and isolation boxes are used for all infectious diseases, not just TB.

In general, the ECDC–WHO team experienced that the natural ventilation was not adequate and the effect of the UV lamps can be questionable where there is poor air circulation.

Infection control measures at the sites for sputum collection varied. In one GP practice in Riga, sputum collection was performed in a general treatment room without any particular infection control measures. The sputum collection process was also observed in two outpatient clinics. In the Riga clinic, facilities were excellent and infection control measures were in place; patients were instructed on how to generate sputum and then went to a dedicated room for sputum collection which included two sputum collection booths, both with separate air-disinfecting systems. Time for disinfection was taken into consideration. In the outpatient department in Liepāja, a small room was used. During collection, a nurse was in an adjacent small room, separated by a sliding window. The sputum collection room needed work to its walls. The ventilation system was suboptimal.

Although establishing an infection control plan is under the auspices of each hospital, the ECDC–WHO team observed that not all hospitals and clinics actually had such plans. In 2011, TB was diagnosed among six healthcare workers, including five medical doctors, which suggests poor infection control.

### *Suggested actions*

- Ensure that infection control plans are in place and implemented in all healthcare facilities that manage TB suspects and patients.

## 2.2 Case finding

### Diagnostic policies: methods and results (case finding by type/ classification)

#### *Observations*

Passive case finding usually occurs through patient self-referral to GPs or pulmonologists. Active case finding involves the screening of persons with a public function, such as teachers and social workers, and of those belonging to risk groups. Identification of suspects is done by general practitioners and pulmonologists. Seventy-six percent of TB cases are detected among symptomatic patients through their self-referral to a health facility. Persons with symptoms can visit primary healthcare providers or an outpatient TB department. In the primary healthcare system, patients are interviewed and examined by a general practitioner (or a paediatrician). In an outpatient department, a pulmonologist conducts these tasks. If a person is suspected to have TB, the general practitioner will refer the patient to a pulmonologist. The primary healthcare doctor does not receive an incentive for the referral of TB suspects.

Pulmonologists in hospitals receive TB suspects that are referred by TB doctors from TB 'cabinets', by GPs or by psychiatric clinics. In addition, hospital specialists also see patients that were admitted to other departments of the hospital. The pulmonologist performs a chest X-ray and an interview. If the chest X-ray is abnormal or if the patient reports TB symptoms, the pulmonologist will ask for three sputum samples that will be sent to the laboratory for smear microscopy and culture.

TB cases are also diagnosed after X-ray screening, e.g. in connection with a X-ray exam required for certain jobs (Cabinet Regulation No. 494, of 27 November 2001). Chest X-rays are also taken in certain instances when working conditions are harmful to the health of an employee (Cabinet Regulation No. 419) and after contact



tracing. Screening is normally performed by a general practitioner. Screening of healthcare personnel working with TB is done through yearly chest X-rays, and in case of cough also by sputum smear microscopy.

Contact tracing is the responsibility of the pulmonologist. Contact tracing for TB is described in Cabinet Regulation No. 744. Screening of contacts is usually initiated at the initiative of GPs and TB doctors and consists of an initial physical examination, followed by laboratory tests and medical observation.

It is not clear if there are significant diagnostic delays, and if so, whether they are due to late self-referral to medical facilities or factors within the health system.

HIV testing for new TB patients is carried out at the TB hospital on all patients with suspected TB. Pre- and post-test counselling is provided by TB doctors.

Case finding among social risk groups is done mainly through a system of preventive X-ray examinations (Cabinet Regulation No. 413) for homeless people that are arrested, asylum seekers, and individuals in illegal immigrant camps. There is also a compulsory health certificate system in Riga for clients of night shelters. Every guest of the night shelter for the homeless has to present – within three days – a health certificate, which also includes TB test results. In Riga and in Liepāja City, homeless people visiting the shelter with symptoms suspicious for TB will be referred to the TB outpatient department for further investigation. HIV-positive persons are informed about TB through educational materials at medical and social service locations as well as NGO sites and are encouraged to visit a GP in case of respiratory or other symptoms. Screening of homeless people and persons visiting soup kitchens has proven to be very effective, leading to the diagnosis of 6 to 17 TB cases (0.8%– 2%) and 3–19 TB cases annually (0.4%–4.2%) over the course of several years, respectively. In 2009, the screening of soup kitchen visitors was stopped. Also, funding for effective active case finding activities is currently under discussion and may be discontinued.

Finally, TB case detection is carried out in general hospitals by TB doctors among patients that show respiratory symptoms.

Sputum collection procedures were checked by interviewing staff at three different sputum collection points. Staff dedicated to sputum collection supplied good information to patients about the sputum collection procedure and checked the quality of the sputum. In case of insufficient sputum quality, patients are requested to submit another specimen. Patients are usually instructed to submit three or four sputum samples, including one morning sample. Patients that do not show up for delivery and/or submission of subsequent sputum samples are contacted by phone to come to the clinic to deliver the sample(s).

### **Suggested actions**

- Develop clear guidelines on TB detection and diagnosis, defining the term 'TB suspect', the roles of primary healthcare (PHC) and specialised TB services, the necessary examinations at each level, the flow of information and the referral/counter-referral system. These guidelines should be part of the national guidelines for TB/MDR TB control.
- Develop the mechanism for supervision and monitoring of TB-related activities at PHC settings; TB services or CDPC should ensure the effectiveness of all implemented activities.
- Ensure that the general practitioners have the knowledge and the skills to identify TB suspects.
- Establish a formal information flow between the general practitioners and TB doctors about referred TB suspects and examination outcomes.
- Continue active case finding among social risk groups in collaboration with NGOs.
- Contact tracing should be strengthened; this needs human and financial resources, especially during outbreaks.
- Ongoing active TB case finding activities, such as screening of the homeless and HIV-positive people should be continued and expanded to cover the entire country – in collaboration with NGOs.
- Assess whether active screening of other risk groups is cost-effective.
- Re-start screening of soup kitchen visitors.
- Consider to limit sputum collection to two sputum samples, including one morning sample, thus following recent WHO recommendations.

## **2.3 Laboratories**

In order to evaluate the laboratory diagnosis of TB and the TB laboratory network the team visited TB laboratory service units at REUH's CTLD and the Liepāja Regional Hospital for Lung and Communicable Diseases. The National Reference Centre for Microbiology and Virology at the Latvian Infectiology Centre (LIC) was also visited. Unfortunately, no TB laboratories at the lowest level, level 1, could be visited.

## Organisational structure of the laboratory network and staffing

The TB laboratory network in Latvia consists of 21 laboratories at three levels: 16 microscopy laboratories (level 1), four culture laboratories (level 2), and one laboratory which performs a full range of TB diagnostics (level 3). The 16 laboratories that perform sputum smear microscopy are fairly evenly distributed geographically. These laboratories are part of the primary healthcare structure and are, for example, private laboratories or laboratories at hospitals or health centres (polyclinics). The four culture laboratories are located at Liepāja Hospital, Daugavpils Hospital, Jēkabpils Hospital, and Olaine Prison Hospital. These laboratories perform sputum smear microscopy, decontamination of specimens and inoculation on two tubes with Löwenstein-Jensen medium. Microscopy activities are usually only offered locally, but culture is also performed for various level-1 laboratories, which refer their samples to these laboratories. All positive cultures are sent to Latvia's only level-3 laboratory for identification and DST.

The level-3 laboratory is established at the REUH's CTLD. This laboratory performs microscopy, culture on both Löwenstein-Jensen and mycobacterial growth indicator tube (MGIT) media, identification, drug susceptibility testing (DST) to first- and second-line anti-TB drugs, and molecular assays. The laboratory receives primary specimens from all parts of Latvia for culture, identification, and DST.

In addition to the laboratory network described above (which, in many ways, still follows the traditions established by TB laboratory networks in former Soviet countries), a molecular TB diagnostic point and TB genotyping facilities have been established at the National Reference Centre for Microbiology and Virology at the LIC.

### Observations

Latvia boasts a high rate of laboratory confirmation of TB and an excellent coverage of DST, yet coordination, quality control and monitoring of the laboratory network is lacking. The TB laboratory at the CTLD serves as the national reference laboratory, but a clear mandate for this function is lacking. In addition, there is no laboratory strategic plan.

The TB laboratory at the CTLD is very well equipped and performs quality-assured conventional and molecular diagnosis of TB, including drug susceptibility testing of all *M. tuberculosis* complex isolates in the country. At this laboratory, a safe and correct workflow is realised. Both fluorescent and traditional light microscopes are available and inoculation is generally performed on two tubes of solid media. For patients with a high risk of MDR TB (relapses, previously treated cases, known contacts of MDR TB cases), patients co-infected with HIV, new smear-positive cases patients, and children, inoculation is performed on one liquid and two solid media. Positive cultures are identified by an immunochromatographic test for MPT64 detection. DST for first-line drugs is performed on solid media and/or MGIT, and MDR TB strains are subjected to second-line DST. For smear-positive specimens the line probe assay (Hain GenoType MTBDR<sub>plus</sub>) for detection of mutations that predict MDR is performed.

The annual workload of the laboratory consists of 25 000 specimens for TB diagnosis and treatment follow-up (Löwenstein-Jensen media and microscopy), 1 000 samples for DST to first-line drugs and 200 samples for DST to second-line drugs on Löwenstein-Jensen medium. In total, 3 000 specimens are inoculated in the automated liquid culture system (mostly in MGIT, blood samples in BacT/ALERT); 700 samples are subjected to first-line DST and 200 samples to second-line DST on liquid medium. Interferon-gamma release assays (IGRAs) (T-SPOT TB) are also performed, mainly for paediatrics cases. The laboratory at the CTLD centrally procures Löwenstein-Jensen medium for all culture laboratories. The staffing in this laboratory appeared to be sufficient for the current workload and staff are well-trained and knowledgeable because of their generally long experience in the field of TB laboratory diagnostics at the national reference level. The laboratory at the CTLD has various international collaborations, for example within the framework of the TB PAN NET project (Pan-European Network for the Study and Clinical Management of Drug-Resistant Tuberculosis, an FP7 Collaborative Project), 2009–2013, and in the European Reference Laboratory Network for TB (ERLN-TB) since 2010. Moreover, the laboratory is a WHO Supranational Reference Laboratory for Ukraine.

The LIC is established in a new building. The general microbiology and virology laboratories are very well equipped. The biosafety-level-3 laboratory in the Centre is of a high standard. At the LIC, two GeneXpert machines (Cepheid) are in use; one is located in a molecular microbiology laboratory, the other one in the biosafety-level-3 laboratory. The Xpert MTB/RIF assay is used for testing of HIV patients and other patients suspected of TB. Genotyping of *M. tuberculosis* is also carried out in this facility.

When the ECDC–WHO team visited the Liepāja Regional Hospital, the bacteriology laboratory was staffed by only a nurse who substituted for the absence of the regular staff – two employees were at a conference and one was on sick leave. She said she was helping out in the laboratory regularly (once a week) and used to laboratory work. The laboratory performs primary isolation, Ziehl-Neelsen microscopy, and culture. The work load consists of about 10 to 15 samples per day, received from the ambulatory or the pulmonology section of the hospital.

### Suggested actions

- Rapid diagnosis should be ensured for all eligible TB cases, either by liquid culture or Xpert MTB/RIF testing
- A national TB reference laboratory should be officially assigned to ensure coordination and quality of the TB laboratory network; it is advised to formally nominate the laboratory that has been acting as a national TB reference laboratory for more than one decade.
- A national TB laboratory development plan should be developed by 2013, following commitments to the Consolidated Action Plan to Prevent and Combat M/XDR-TB, 2011–2015.
- Sufficiently trained staff and biosafety should be ensured at all levels of the TB laboratory network; on-site training and monitoring visits by level-3 laboratory staff are recommended to achieve this.

## Quality control of smear microscopy, culture, and drug-susceptibility testing of first- and second-line drugs

### Observations

At the TB laboratory at the CTLD all necessary components of a quality management system are in place, such as standard operating procedures, temperature monitoring of equipment, maintenance of equipment, and appropriate internal and external quality assurance procedures. The laboratory successfully participates in quality control schemes for drug susceptibility testing (DST), diagnosis, and molecular tests. The laboratory participates in the proficiency programme for external quality assurance from the INSTAND Society for Promoting Quality Assurance and Standardisation in Laboratory Medicine (Germany). Since 2010, this external quality control programme is provided within the European Reference Laboratory Network of Tuberculosis (ERLN-TB) for microscopy, culture isolation, identification of Mycobacteria, DST (conventional and molecular methods), and detection of *M. tuberculosis* with amplification techniques. Every year the laboratory participates in an external proficiency programme for first-line DST provided by the Supranational Reference Laboratory at the Swedish Institute for Infectious Disease Control (SMI). In 2008, the laboratory officially became the WHO Supranational Reference Laboratory for Ukraine. The laboratory has since been providing support to strengthen the national TB reference laboratory in Ukraine and has been monitoring the proficiency of that laboratory.

The TB laboratory at the CTLD used to play a role in ensuring the quality of the TB laboratory network before the reforms in 2009 because of which, as a consequence, they lost their mandate to do this. Before that reform this laboratory was conducting supervision of culture laboratories. It still performs training and re-training of laboratory personnel involved in TB diagnostics.

External quality assessment of microscopy procedures in laboratories in Latvia used to be offered by the Centre up until 2011 and consisted of a panel of five fixed smears twice a year. In 2011, this exercise was performed for the last time and only 12 laboratories took part. The results of the exercise were not known at the CTLD laboratory. In 2012, no quality assurance or monitoring of the laboratory network took place.

### Suggested actions

- A system for quality assurance and monitoring of tuberculosis laboratories should be established in Latvia; the level-3 laboratory in the country should get the mandate and the human resources to provide quality assurance and monitor TB laboratories.

## Use of molecular methods and quality control

### Observations

Molecular methods for the diagnosis of TB are available at two locations in Riga, at CTLD and LIC.

At the CTLD's TB laboratory, smear-positive samples are subjected to line-probe assay testing (GenoType MTBDR<sub>plus</sub>) for the detection of mutations in the *rpoB*, *katG*, and *inhA* genes to enable prediction of resistance to rifampicin and isoniazid. Following the results of this assay, appropriate DST is initiated. Until July 2010, the TB laboratory at the CTLD performed genotyping of *M. tuberculosis* by spoligotyping, and IS6110 restriction fragment length polymorphism (RFLP) typing, mainly for research purposes. At the time of reforms, those techniques and the respective laboratory staff member were relocated to the LIC; the techniques were stopped at CTLD. In 2007, CTLD took part in the Xpert MTB/RIF alpha trial for development of a prototype of the Xpert MTB/RIF test (FIND). The laboratory also participated in the FAST-XDR-DETECT project (2008–2012; FP7 Collaborative Project), which aimed at the development of a two-step approach plate system for the fast and simultaneous detection of MDR and XDR *M. tuberculosis*.

At the LIC, two GeneXpert machines are available for general microbiology detection and testing for TB and rifampicin resistance (Xpert MTB/RIF) of HIV patients. Genotyping of *M. tuberculosis* is also carried out in this facility. In 2010, a highly skilled former staff member of the level-3 laboratory transferred to this facility to improve knowledge transfer. Variable numbers of tandem repeat (VNTR) typing is only applied for research purposes. DNA is isolated at the CTLD and needs to be transported to this facility in order carry out the genotyping.

### **Suggested actions**

- Rapid diagnosis through molecular methods should be ensured for all eligible TB cases.
- Consider placement of an Xpert MTB/RIF assay at the CTLD.
- Consider the use of genotyping to support countrywide public health, e.g. by typing outbreak isolates and MDR TB isolates.

## **2.4 TB case management (including MDR TB and TB/HIV)**

### **Treatment policies (regimens, definitions, place of treatment, supervision of treatment)**

#### **Observations**

The National TB Strategy is not available in writing. The National Guidelines for TB Control were published in 1997. Updated guidelines are available in draft format but have not been officially approved. They incorporate the latest WHO and international recommendations for TB and MDR/XDR TB control.

The WHO Collaborating Centre for MDR TB Control Research And Training in Riga is well-known and respected in the WHO European Region for its high-level training courses for national medical workers and international TB managers.

There seems to be a lack of clear delegation of responsibilities and accountabilities in respect to the management of some basic components of TB care, e.g. planning and resource allocation, case finding and management, national reference laboratory functions, etc. There is no coordination of monitoring of health financing of TB care.

The National Plan to prevent and combat M/XDR TB in Latvia was developed in line with the WHO's *Roadmap to prevent and combat drug-resistant tuberculosis*<sup>3</sup>. A draft version of the National Plan is available; it outlines major approaches to the management of MDR TB and TB/HIV. The draft document has not been approved by the MoH.

TB doctors treating TB patients use the information that they received during postgraduate training courses on TB control at the Centre for Tuberculosis and Lung Diseases. The courses include detailed information on TB epidemiology and pathogenesis, drug resistance, TB diagnostics and treatment, TB drugs, TB treatment monitoring, etc., all in accordance with the WHO TB control policy and international standards for TB control. Doctors use the course materials to decide on treatment for TB patients.

Pulmonologists in Latvia refer complicated cases (all MDR TB patients, TB/HIV co-infected patients, children, etc.) to the TB consilium in Riga. The TB consilium meets once per week and consists of four pulmonologists from the Centre of Tuberculosis and Lung Diseases. Pulmonologists from the regions are supposed to participate in the consilium at least once per month. During a consilium meeting, all TB patients that are presented are discussed and an agreement on the treatment regimen is reached and recorded on a patient form which also bears the signatures of the members of the consilium. MDR TB cases are evaluated by the consilium every three months.

An analysis of case histories and medical documentation at selected visited TB facilities suggests that the case management of TB and MDR TB patients seems to conform to WHO recommendations. In the Liepāja TB cabinet, the diagnosis for some patients was based on chest X-rays and clinical picture, without any bacteriological confirmation. Outpatient files, bacteriological test forms, and treatment cards were available for TB patients. The TB forms do not meet the WHO-recommended standards, but they are approved by Latvia Infectology Centre Regulation 242 of 9 December 2010. There is no formal supervision mechanism in place. Unofficial support and supervision is provided by TB specialists from the Riga Centre for TB and Lung Diseases.

GPs do not provide contact tracing. They follow the Health Agency regulations on TB (not available in writing). There is no clear definition of a TB suspect; usually, a TB suspect is a patient with respiratory symptoms and cough (no clear threshold on duration of cough). The ECDC–WHO team visited a GP in Riga who informed us that usually two to three cases per month are suspected of TB, and two cases per year are confirmed as TB patients.

#### **Suggested actions**

- Develop a TB strategy with specific and realistic indicators; designate clear responsibilities by ensuring accountability for performance with regard to all key stakeholders.
- Develop guidelines for case finding and case management, including the assignment of responsibilities for case finding and contact tracing, and ensure adequate financing.

<sup>3</sup> World Health Organization, Regional Office for Europe. Roadmap to prevent and combat drug-resistant tuberculosis. The consolidated action plan to prevent and combat multidrug- and extensively drug-resistant tuberculosis in the WHO European Region 2011–2015. Copenhagen: WHO/EURO; 2011.

- Complete the development of the National Recommendations/protocol for TB and MDR TB case management, in accordance with WHO recommendations. The final document has to be approved by the MoH and distributed to health practitioners.
- TB treatment guidelines should be updated according to the WHO *Treatment of tuberculosis: guidelines for national programmes*<sup>4</sup>; treatment regimens for TB/HIV should also be adjusted.
- Develop guidelines on infection control for TB institutions, facilitate the analysis of infection control, and develop infection control plans.
- Establish an official system for the supervision of TB doctors and GPs involved in TB detection and treatment, complete with the designation of a responsible agency and the allocation of the necessary resources.
- Improve collaboration with NGOs and social services in order to improve communication and support of TB patients, and ensure better adherence to treatment; consider the establishment of an alliance of governmental organisations, NGOs, civil society, professional organisations, etc., to control TB in Latvia.

## TB/HIV

### Observations

#### TB/HIV situation

There are no clear recommendations on when to start ART. Instead, the initiation of therapy is decided on an individual basis. The national criteria for starting ART include a threshold for CD4 less than 200/mm<sup>3</sup>. This also applies for patients with TB/HIV. No preventive treatment with isoniazid is offered to HIV-infected persons, even if they had contact with TB patients.

HIV-positive patients are screened for TB. Measures include checking for TB-associated symptoms, chest X-ray (in case of cough), sputum smear and culture of three samples. TB suspects are referred to a TB outpatient clinic for diagnosis and treatment. There is no specific follow-up for HIV-infected persons, except a recommendation that they should get screened (chest X-ray) once a year. There is no follow-up of HIV-infected patients referred for TB screening, and no formal feedback is provided by TB services. Co-trimoxazol preventive treatment is offered to all HIV patients and it is prescribed by infectologists.

There is a special approach for HIV patients who are known drug abusers. Methadone replacement therapy is offered to these patients. In the Infectology Centre, a full-time narcologist also consults HIV patients.

In the Infectology Centre, patients are not separated based on their infection status, but rather on behavioural aspects, e.g. drug use. There are no UV lamps or other tools due to financial constraints.

Usually new TB patients that are also infected with HIV start TB treatment in a hospital. After two months they continue the TB treatment as outpatients and get a consultation with the Infectology Centre in Riga or with one of the six infectologists in the regions. Apparently many TB patients prefer to obtain ART treatment in Riga because of confidentiality issues.

Patients receive ART drugs for the duration of three months. TB doctors are not involved in consultations by infectologists of HIV patients.

Treatment of TB for HIV-positive patients does not differ from TB treatment of HIV-negative patients. The HIV status of TB patients is mentioned in the outpatient files.

A rapid diagnostic test (GeneXpert) is available at the Latvian Infectology Centre. If HIV-infected persons have TB symptoms, they are referred to TB services for further diagnosis. The outpatient TB facilities do not perform triage for HIV patients, other TB suspects and TB patients on treatment. No special infection control measures are taken – apart from UV lamps and adjusted timetables for different categories of patients.

Health education on TB for HIV patients is provided at TB facilities, by HIV organisations and NGOs that support social risk groups (shelters for the homeless). However, available materials are scarce and sometimes out of date. HIV materials were available at TB facilities, but their number and variety was limited.

#### Joint body for coordination, planning and monitoring

Written guidelines on TB/HIV collaborative activities were not available during the mission.

There is a National HIV, Tuberculosis and STI Prevention Coordination Commission under the MoH – a governmental advisory committee for the implementation and coordination of the national response to HIV/TB/STI.

<sup>4</sup> World Health Organization. Treatment of tuberculosis: guidelines for national programmes. Geneva: WHO; 2010.

TB control and HIV control are both assigned to the responsibility of the newly established Latvian Centre for Disease Prevention and Control, providing a unique opportunity for coordination, planning and monitoring of activities of the two programmes, as well as collaboration with narcologists and other related services.

The HIV inpatient and outpatient Department of the Infectology Centre of Riga (Riga East Clinical University Hospital) provides infectious disease diagnostics, including HIV, as well as treatment for HIV patients. TB/HIV smear/culture-negative cases can be treated at the Infectology Centre; all other TB/HIV cases are referred and treated at TB facilities.

### Guidelines to decrease the HIV burden in TB patients and the TB burden in HIV persons

Clinical guidelines on HIV and ART for infectologists – based on the 2008 WHO recommendations – were approved in 2009 and are available in writing. The new 2012 guidelines entitled *WHO policy on collaborative TB/HIV activities – Guidelines for national programmes and other stakeholders*<sup>5</sup> and the 2010 *Antiretroviral therapy for HIV infection in adults and adolescents*<sup>6</sup> have not been incorporated into the national recommendations. One of the major shortcomings of the Latvian guidelines is that they do not specifically recommend ART treatment for people with CD4 counts below 350 cells/mm<sup>3</sup>.

### Suggested actions

- TB/HIV control guidelines and clinical protocols should be developed and approved to provide clear case management for detection, diagnosis, treatment and follow up, as well as the distribution of responsibilities among TB, HIV, and PHC services; clear lines of command and communication would also be helpful.
- Active TB case finding for HIV patients – through symptom-based screening and X-ray examination – should be included in the new guidelines on TB/HIV control and case detection.
- Joint indicators for TB/HIV control should be developed; reporting and recording should be improved according to WHO recommendations on monitoring and evaluation of TB/HIV collaborative activities (i.e. data on ART and CT availability compared with ART and CT eligibility).
- IPT for HIV patients should be offered. If needed, operational research should be organised to collect the evidence.
- ART guidelines need to be updated in accordance with international recommendations which specify that ART should be offered to all TB patients, independent of their CD4 count.
- Infection control plans and measures for facilities working with TB/HIV patients should be developed and implemented.
- Health education on HIV and TB for TB/HIV patients should be improved, supported by tailored training materials; partnerships with NGOs would be useful to disseminate information among the homeless, HIV-positive people, and injecting drug users.
- More collaboration and joint planning are required from TB and HIV programmes to coordinate TB/HIV recording and reporting. HIV surveillance should have data on the availability of ART and co-trimoxazol preventive in order to compare availability with eligibility. Introduction of joint indicators for TB/HIV control effectiveness according to WHO recommendations on monitoring and evaluation of TB/HIV collaborative activities could help the Latvian CDPC to ensure effective planning, monitoring and evaluation, resulting in recommendations for decision-makers.
- Coordination of TB doctors and infectologists who treat the same TB/HIV patients needs to be strengthened, thus putting the patient in the centre.

## Monitoring of treatment and policy on non-attendance of patients

### Observations

All TB treatment should be observed by a doctor or a nurse (DOT). Treatment observation can be done in the hospital for inpatients, in outpatient clinics (TB cabinets) or by general practitioners. If necessary, treatment and DOT can be provided at the home of the patient.

DOT and social support (transportation costs) are provided to all patients in Riga and Liepāja though TB services, in the other regions through GPs (DOT only). To improve the adherence of TB patients to treatment there is an ongoing collaboration between TB doctors and GPs who are involved in DOT. For example in Liepāja, GPs meet TB doctors or TB doctors visit GPs once a month. GPs do not receive any additional money for DOT, as it is in their job description. Transport cost subsidies are available only for Liepāja City, for patients in the Liepāja region compensation is not available.

The default rate of the 2009 MDR TB cohort was 18%.

<sup>5</sup> World Health Organization. WHO policy on collaborative TB/HIV activities – Guidelines for national programmes and other stakeholders. Geneva: WHO; 2012.

<sup>6</sup> World Health Organization. Antiretroviral therapy for HIV infection in adults and adolescents. Geneva: WHO; 2010

### Suggested actions

- Patient support should remain a priority to ensure successful completion of TB treatment

## Treatment results

### Observations

The treatment success rate among newly detected TB cases with laboratory confirmation was 76% in 2010 (Table 6). The overall treatment success rate in new laboratory-confirmed pulmonary TB cases has been stable throughout the last five years.

Among MDR TB cases, the treatment success rate was 10 percentage points lower than the treatment success rate of new confirmed TB cases. Of 124 MDR TB patients registered in 2009, 80 (65%) were successfully treated, six (5%) failed treatment, 14 (11%) died, 22 (18%) defaulted, one (1%) left the country, and one (1%) was still on treatment after 24 months of treatment.

**Table 6: Treatment outcome, new pulmonary culture positive cases, 2006–2010**

Year	Success N (%)	Died N (%)	Failed N (%)	Defaulted N (%)	Still on Treatment N (%)	Transferred N (%)	Total N
2006	594 (77)	64 (8)	5 (1)	46 (6)	67 (9)	0 (0)	776
2007	634 (82)	54 (7)	1 (0)	32 (4)	51 (7)	0 (0)	772
2008	484 (76)	59 (9)	6 (1)	26 (4)	63 (10)	3 (0)	641
2009	443 (75)	51 (9)	3 (1)	32 (5)	63 (11)	0 (0)	592
2010	451 (76)	47 (8)	3 (1)	37 (6)	58 (10)	0 (0)	596

### Suggested actions

- Countrywide implementation of social support, e.g. providing incentives and compensation of travel costs to improve treatment adherence of patients.

## Access to drugs and drug management

### Observations

TB drugs are free of charge to all TB patients. According to TB doctors, all first-line and second-line TB drugs are available as needed and free of charge for patients; no drug shortages were experienced. Drugs for side effect management and treatment are not free for outpatients (only for inpatients in the hospitals).

### Suggested actions

- To ensure adherence to TB treatment, drugs for the treatment of side effects should be free of charge for inpatients and outpatients.

## Palliative care

### Observations

The team was informed that the Ceplīši hospital has nine beds for untreatable patients/palliative care, i.e. TB patients who are resistant to (almost) all available TB drugs. These patients are in the Ceplīši hospital voluntarily and get symptomatic treatment. If possible, compassionate drugs are used. In 2011, there were 16 untreatable patients; during the country visit there were five untreatable patients.

## Side effect management

### Observations

The team was informed that drugs for the management of side effects are available. These drugs are free of charge for inpatients. Outpatients need to pay a co-payment for the drugs to manage side effects.

### Suggested actions

- See above section: 'Access to drugs and drug management'

## Compassionate use of drugs

### Observations

The team was informed that, if possible, compassionate drugs are used for untreatable patients.

## 2.5 Vulnerable populations

### Prisoners

#### *Observations*

Latvia has one of the highest rates of prisoners in the EU. As of 1 January 2012, 6558 prisoners (295 prisoners/100 000 population) currently serve time in prison. There are 12 prisons in Latvia, five of which are remand prisons. Each prison has a medical unit, where an initial medical check-up and screening is performed. The Riga prison has a hospital with 100 beds, in which there is a special TB ward with 70 beds. There are three TB doctors and 29 nurses working in the prison hospital.

According to the Latvian Prison Administration, MoJ, a total of 79 TB cases were reported in Latvian prisons in 2011, 43 of these were first diagnosed in prison. The majority of these cases 70% (30/43) was diagnosed during imprisonment, while the remainder was diagnosed upon arrival at the prison. The 43 new TB cases were reported among a population of 6558 prisoners, a rate 17 times higher than the national average.

The number of new TB cases in prison decreased at a higher rate than the rate for the population as a whole. In 1998 and 1999, the TB prevalence was 25 times higher in the prison population compared with the general population. A significant decrease was observed until 2008, thereafter the number of newly diagnosed TB cases in prisons have increased or reached a plateau. The proportion of MDR in Latvian prisons has increased from 9% (71/361) in 1999 to 22% (11/51) in 2008 and 28% (11/39) in 2011. So far in 2012, four MDR TB cases have been diagnosed. A majority of these MDR cases were among TB/HIV co-infected patients (75%). Former imprisonment has also been observed as a risk factor. In 2011, 77 cases had a history of imprisonment (10% of all TB cases).

The number of HIV cases has increased steeply in the prisons. Prisoners are only tested upon admission to the prison and not during the prison term, based on the assumption that there is very little transmission of HIV in prisons. Condoms are not available inside the prison, but are available at the visitors' area. Only a small proportion of the HIV-positive prison population is on ART (35/461), and about half of those on ART are TB/HIV co-infected. In 2011, there was no substantial increase in absolute numbers of TB/HIV co-infected prisoners, but the proportion of co-infected TB cases increased to 31%. None of the HIV patients receive IPT while in prison.

The MoJ and CTLD have been cooperating since 1996/1997. In 2011, an agreement between MoJ and MoH was signed, specifying that MoH and MoJ share the costs of medical care in prisons. The costs for TB and HIV drugs have always been covered by MoH.

Active case finding was described to be rather intense, with entry screening upon admission to the prison and X-rays performed routinely once per year. In addition, a TB test is offered to all patients who ask for medical assistance. Discussions with a former prisoner on the implementation of this policy did not confirm the yearly follow-up screening.

Opiate substitution therapy has been available in Latvian prisons since 1 April 2012, but only if it was initiated prior to imprisonment; no new prescription of OST is initiated while in prison.

NGOs have carried out various activities in the prison system, for example the Association HIV.LV ([www.apvienibahiv.lv](http://www.apvienibahiv.lv)), which contributed to five projects, three of which were related to TB/HIV/HepC. As a result, 500 prisoners were tested for HIV, 400 for hepatitis C and 200 for TB. Through these screening activities, 18 HIV-positive and two TB cases were discovered, which had slipped through the regular prison health screenings. Another project provided information on TB/HIV/HepC to about 400 prisoners.

When prisoners on TB treatment are released, the civil healthcare system is informed and the TB register is updated, which in turn informs local physicians who practice near the former prisoner's residence. About half of the released prisoners are lost in this transition. NGOs are not involved in this process.

#### *Suggested actions*

- Ensure proper handover of TB patients upon release so that the number of lost patients can be reduced, for example by involving NGOs.
- Ensure the implementation of the annual medical TB screening for all prisoners.

### Homeless people, alcoholics and people who inject drugs

#### *Observations*

Homeless people, alcoholics and injecting drug users are acknowledged as risk groups in Latvia and in need of targeted interventions. Alcohol abuse in particular, reported to be present in 22% of all TB cases, represents a major challenge to treatment adherence. Latvia has a range of different services that target these populations, not always directly focused only on TB, but awareness of the problems seems to be adequate and all major questions are addressed.



### Ceplīši hospital

In the Ceplīši hospital, patients can be hospitalised against their will. The Ceplīši hospital receives most of the difficult-to-treat patients such as alcohol abusers (69% of the patients at Ceplīši), drug users (5%) or former prisoners (53%).

In 1990, a law was passed that authorises the head state epidemiologist to take decisions on involuntary hospitalisation.

Most patients are referred to Ceplīši hospital for involuntary hospitalisation because they are drunk and cause problems in the ward; for this type of mandatory referral no further legal steps have to be taken.

If a patient wants to discontinue treatment or leave the hospital, this has to be requested in writing, i.e. by submitting a letter which clearly states that the patient does not want to continue treatment. At this point, the head state epidemiologist has the right to retain the patient in the hospital involuntarily. This almost never happens during the initiation phase of treatment. Usually, requests to discontinue treatment are submitted during the continuation phase, at which point in time the outpatient clinic can ask the head state epidemiologist's office for the involuntary hospitalisation of the patient. If granted, the patient will be transferred to Ceplīši hospital, in some cases with police assistance. Involuntary hospitalisation involves a minimum stay of three months at Ceplīši, after which the patient has the legal right to request his discharge; legal assistance to this process is possible. The law on involuntary hospitalisation states that if the patient escapes during the first three months of involuntary hospitalisation, his involuntary hospitalisation will last another full three months, regardless of the time already spent in the hospital. The team observed that the hospital has only one guard, so it is probably not impossible for patients to leave the hospital in the first three months.

Latvia does not have a law that allows for compulsory treatment. The team asked whether the doctors had any experience with TB cases that were involuntarily hospitalised and refused treatment, but none of the doctors could recall such an event.

Alcohol consumption is not permitted in Ceplīši hospital, but as alcohol from the surrounding community is smuggled into the hospital, alcohol abuse in patients constitutes a problem.

Homeless people and those without income can stay for the whole duration of treatment. MDR TB patients, for example, stay up to 36 months. The average stay is 99 days until cure, but most patients have already been treated before hospitalisation at Ceplīši. Of the drug-sensitive patients, 56% are cured; 35% of MDR TB patients are cured.

Several patients interrupted treatment at Ceplīši: 33% of the drug-susceptible cases and 19% of the MDR TB cases interrupted treatment. Drug users are those who most often interrupt treatment and leave because they cannot get drugs. Combination drug users that mix drugs, alcohol and tobacco are least likely to interrupt treatment as they face only minor supply problems. Opioid substitution treatment is continued at Ceplīši but it is not initiated by the hospital physicians. Narcologists are the only ones who can prescribe opiate substitution therapy; if necessary, the hospital can consult narcologists and OST can then be initiated.

Social service support is provided by one social worker at Ceplīši hospital. The patients get assistance with documentation, passport applications, income support, pensions, arrangements for a place to live or temporary shelter, and receive help when they transfer to an outpatient clinic.

### The Red Cross night shelter

The Red Cross Latvia is active in the work of TB prevention and control in Riga. The Red Cross runs one of the city's night shelters for homeless people, financed by Riga municipality. The night shelter has room for about 60 persons per night, but even if filled to capacity, persons in need will not be rejected.

The Red Cross shelter accepts drunken people, which other shelters refuse. Clients need a health certificate in order to stay in the common sleeping areas of the shelter. Clients who do not present a health certificate within four days are no longer welcome. If clients are suspected to have TB, they will not be able to stay at the night shelter and will be referred – or in some cases transferred by a special transport unit – to a TB clinic to get a health check. Certificates are issued for 3, 6 or 12 months, depending on the medical doctor's judgment.

In 2011, 3289 different persons used the night shelter services, an increase of 3%, or 107 persons, over the previous year. In the first six months of 2012, 2294 persons used the night shelter services, 624 persons (37%) more than during the same period in 2011.

The Red Cross shelter features an area which offers more privacy and real beds that is reserved for sober clients. There are also some single rooms for rent, where clients can stay as long as they want.

The Red Cross also operates a harm reduction centre which mainly provides education, training, and HIV and TB testing – all funded by Riga municipality. The centre provides information about TB, supports public education campaigns for World TB Day, and refers clients to facilities that offer health checks. Activities include school visits, where students receive information about the Red Cross. Students interested in volunteer work receive training on topics such as HIV, TB or first aid. For example, student volunteers received training at the CTLD on TB and then

take their knowledge back to their communities as part of a public awareness campaign. On World TB Day, students distributed informational materials.

### Harm reduction centres

There are 17 harm reduction centres in Latvia, 13 of which are run by the municipality, two by the state, and two by NGOs. The ECDC–WHO team visited the centre run by the NGO DIA+LOG, which is one of the biggest centres in Riga.

### Homeless Day centre in Riga

The Day centre, funded by Riga municipality, has been running for three years and is the only centre of its kind in Riga. It is for homeless people and all services are offered free of charge provided that the clients can present proof that they belong to a low-income group.

About 100 clients visit the centre in summer, twice as many during the winter months. The centre is open seven days a week (November to March).

Staff includes social workers and a psychologist. No training activities are provided to the clients and there are no harm reduction services for drug users available because there are reportedly not many (if any at all) drug users among the centre's clients.

### Liepāja HIV counselling centre

The counselling centre is a day centre mainly intended for HIV-infected people. It also serves as a harm reduction centre offering a methadone programme, testing for HIV and hepatitis, and a needle exchange. The centre also provides information about TB and health issues in general. Staff includes a social worker, a nurse, a psychologist and support staff. Work is supported by several volunteers. The centre is funded by Liepāja municipality, but the methadone programme is state-financed.

The centre has around 30 visitors per day, about 10% of them are drug users and even fewer are alcoholics. Most of the clients pay daily visits to the centre, for example those in the methadone programme. A counselling programme for alcoholics is run by the centre's social worker who uses a tool for gauging the amount of alcohol consumed and helps to determine progress. This programme is mainly directed at those who are not yet ready to stop drinking. A narcologist is available if the clients want to go further and be referred to free detoxification treatment.

If clients have health problems, they are referred to a clinic. TB suspects are first referred to a GP, who will send suspected cases to a TB clinic. The centre follows up with clients who went to a GP.

### Centres, clinics and hospitals – summary

There are several harm reduction centres offering needle exchange as well as testing for HIV and hepatitis B and C, in some instances combined with opioid substitution therapy (OST). Some centres offer alcohol counselling and refer clients to narcologists, but there is no standardised approach to identify problem drinking (e.g. AUDIT) or diagnose alcohol-use disorders. An example of good practices is the health certificate required for the homeless before they are granted access to shelters and day centres in Riga.

### Suggested actions

- Develop a standardised approach to identify problem drinkers and diagnose alcoholism among TB patients. It is recommended to pilot the use of the AUDIT tool and to strengthen the collaboration between pulmonologist, psychiatrist and narcologists.
- Offer access to counselling for individuals with problem drinking; start implementation of a programme for treating alcohol abuse among TB patients to improve treatment adherence. Latvia has participated in meetings on an Estonian pilot project for the treatment of alcohol abuse to prevent MDR TB; it is encouraged to learn from the Estonian experiences.
- Ensure close collaboration with NGOs that work with these populations.
- Implement more combined service centres that can provide DOT, ART, OST and needle exchange, thus creating a 'one-stop shop' which offers low-threshold services.

## Children

### Observations

The rate of childhood TB is relatively high in Latvia and incidence rates indicate ongoing transmission. However, treatment outcome for children is excellent, but there are no child-friendly drug formulations available.

There is a special paediatric TB ward at CTLD of REUH to which all TB (and suspected TB) cases under the age of 14 years are referred. During the intensive phase of treatment, children are hospitalised and schooling is provided by special teachers that come to the hospital.

BCG vaccination is under the responsibility of the National Health Services and managed under the current National Immunisation Plan; BCG vaccination is currently part of the National Immunisation Schedule.

Concerns were expressed regarding the quality of contact tracing, especially when identifying contacts who are children.

***Suggested actions***

- Contact tracing must be ensured, see suggested actions for contact tracing and outbreak management.
- Child-friendly drug formulations should be made available.

## 3 Health workforce

### 3.1 Human resources for TB prevention, control and care

#### Observations

At the peripheral level, TB suspect identification is performed by family doctors or pulmonologist. Sputum collection is guided by nurses. The sputum samples are processed by laboratory workers. If the laboratory result is positive, TB treatment is initiated by a pulmonologist in a hospital or an outpatient clinic. Treatment observation can be performed by family doctors or by nurses who work at DOT centres. Pulmonologists will pass on information to the TB Registry and inform the TB Registry about the treatment outcome.

At the central level, there is one pulmonologist for the TB Registry. This pulmonologists and three other pulmonologists form the TB consilium that gives advice on treatment of MDR TB cases and other difficult-to-treat patients.

BCG vaccination is given by general practitioners.

The team was informed that job descriptions for pulmonologists and nurses are available but are kept in very general terms and do not specify TB-specific tasks. The job descriptions could not be shown to the team.

#### Suggested actions

- To structure the human resources for TB control and to ensure that all healthcare workers are informed about their tasks it is suggested to develop clear and specific job descriptions. These can be included in a human resources plan (see below).

### 3.2 Human resources plan

#### Observations

The team was informed that there is no human resources plan available for the TB programme. The development of a human resources plan for the health sector was started by a working group, but has not been finalised.

The team was informed about several (potential) challenges for human resources in TB control. Three of the 26 regions have no pulmonologist for the treatment of TB patients. At Ceplīši hospital, most doctors were close to or above retirement age. The team was informed that TB specialist is not considered an interesting specialisation. In 2012, only one doctor applied for a residency in pulmonology. Also, a considerable number of health workers leave Latvia to work in other countries.

#### Suggested actions

- It is suggested that a general or TB-specific human resources plan should be developed that lists the challenges for human resources for TB control and that includes actions to ensure a sufficient number of well-trained personnel for TB control.

### 3.3 Training status of TB human resources

#### Observations

Certification and re-certification of TB nurses and TB doctors is defined per law. The law specifies that certification is done by the medical universities or schools for nurses. Recertification is done by the Latvian Medical Association. To be recertified a nurse or a doctor needs to participate in fee-paying courses, offered by the Latvian Medical Association. There is no specific organisation responsible for the quality of the courses.

The doctors and nurses the team met during the country visit reported that they had received training from the Centre for Tuberculosis and Lung Diseases in the last two years. Not all nurses in the TB ward of the Liepāja hospital had received TB-specific training.

#### Suggested actions

- Continue the TB-specific training courses at the Centre for Tuberculosis and Lung Diseases and ensure that all individuals working with TB patients are informed about the latest recommendations and know how to implement these.
- Consider training of general practitioners in the identification of TB suspects.

## 3.4 Training policies and methods

### Observations

Latvia's training centre for TB opened in 2000. Initially, the training centre was part of a joint project with the US CDC. Thereafter, the training centre became a WHO Collaborating Centre for Research and Training in Management of MDR TB. It is currently responsible for the content of the training courses, while the TB foundation of Latvia is responsible for the logistics and organisation of these courses.

The training centre, currently lead by Dr Vaira Leimane, conducts approximately four training courses per year in Latvia and four abroad. The participants of the international courses pay a course fee which covers the costs and generates a (small) profit for the centre. The profit from the international courses is used to fund TB training courses for Latvian healthcare workers.

The MDR TB board identifies the training needs for the healthcare workers in Latvia. The WHO Collaborating Centre develops the course and ensures accreditation of the course.

In 2012, a training course for nurses was conducted. For 2013, a training course for doctors/TB specialists is scheduled.

### Suggested actions

- Continue the training courses for nurses and doctors and assess whether other healthcare workers need to receive (short) training courses.

## 4 Information

### 4.1 Overall structure and organisation of the surveillance system

#### Observations

The Latvian TB surveillance system works well and supplies essential epidemiological TB data to the Latvian TB programme as well as to ECDC and WHO. The legal base for the TB reporting and recording system is provided through Latvia's epidemiological safety law, which was approved by the Latvian parliament in 1997, with some amendments later. This law has instigated a number of Cabinet Regulations which determine the procedures of the surveillance system, such as Cabinet Regulations No. 7 (*Procedures for registration of infectious diseases, 1999*)<sup>7</sup> and 746 (*Procedures of establishment, updating and maintenance of registry of patients who are ill with certain diseases, 2008*)<sup>8</sup>.

Currently, the national TB Registry operates under the auspices of the Latvian CDPC, HIV/AIDS, STD and TB Risk Analysis and Prevention Unit, and acts as a separate entity located at REUH (since April 2012). The head of the TB register, a nurse for MDR TB registry data management (part time), and a public health analyst are in charge of the data. The recent restructuring of the public health systems through the formation of the Latvian CPDC provides an opportunity to improve and clarify the TB surveillance system in terms of roles, tasks and mandate within TB control.

All data collection, reporting and recording is paper-based, except for two locally designed Microsoft Access databases for TB and MDR TB cases. The databases are deployed on desktop computers, which are not connected to the internet in order to make the data less vulnerable. Limited case-based data have been submitted to the system starting in 1996, and functionality for complete TB cohort analyses has been in place since 2000. According to the epidemiological safety law and the Cabinet Regulations, healthcare providers notify the Centre for Disease Prevention and Control for every suspected, confirmed or discarded TB case within three days by sending a filled in notification report.

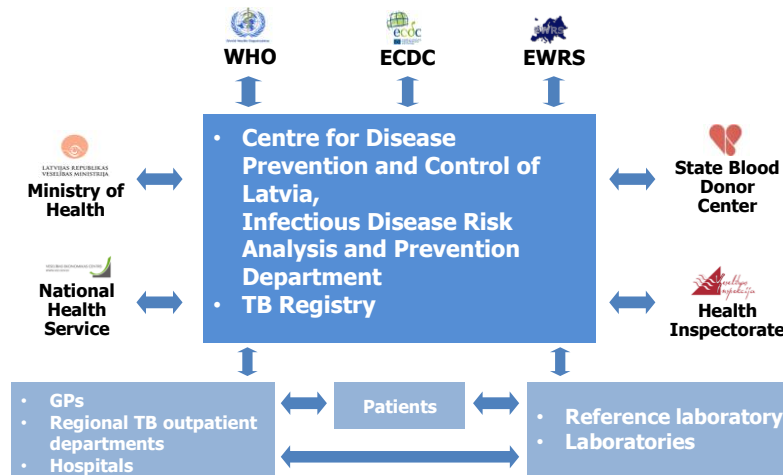
Only MDR TB cards are archived in the register, the non-MDR TB ones are sent back to the district pulmonologists and stored with patient records. The design of the databases has not changed since their implementation 12 years ago. The database does not support the registration of HIV-negative tests, which makes it impossible to calculate testing coverage.

On 1 April 2012 the TB Registry was transferred to CDPC, which allows better data exchange with other infectious disease databases (e.g. HIV), the vital registration system, and the population registry. Although still without a proper legal foundation and framework, TB data are linked with the HIV registry and the vital registration system.

Regular reporting of surveillance data provides support to the TB control programme and is helpful for case management and decisions at the policy-making level (Figure 3).

<sup>7</sup> <http://www.likumi.lv/doc.php?id=20667>

<sup>8</sup> <http://www.likumi.lv/doc.php?id=181288>

**Figure 3: TB information flow**

Source: Latvian CPDC

## Suggested actions

- Define the mandate and role of the TB surveillance system within CPDC and for TB control.
- Provide a legal foundation for all registration forms currently used in TB control; this could help to assess the epidemiological situation and meet the TB programme's objectives.
- Update TB registry databases, allowing for electronic web-based reporting, enhanced analysis, and better use of the data for sustainable TB control activities. This would also allow to merge the TB and MDR TB databases.
- Define and provide a legal foundation for the responsibilities of a district pulmonologist for TB control, including reporting and recording system. Consider an electronic data exchange system at the central and district levels.
- Include the registration of HIV status (positive/negative/not tested) in the database to calculate testing coverage.
- Automatic linkage of the TB Registry database with the *Mycobacterium* laboratory database should be considered.
- Consider to carry out an in-depth analysis of the registry data in order to find better scientific evidence for planned TB activities targeted at TB elimination.

## 4.2 Data linkage with general surveillance system and laboratory surveillance

### Observations

On 1 April 2012, the TB Registry was transferred to the CPDC, which made it possible to link TB data with other infectious disease databases. TB data are linked with the HIV registry and the vital registration system, despite the lack of a proper legal foundation. The collection of laboratory data works well, but only a paper-based data exchange format exists.

### Suggested actions

- Provide a legal foundation for data linkages with the HIV registry.
- Automatic linkage of the TB Registry database with the *Mycobacterium* laboratory database should be considered.

## 4.3 Policies and systems for recording and reporting

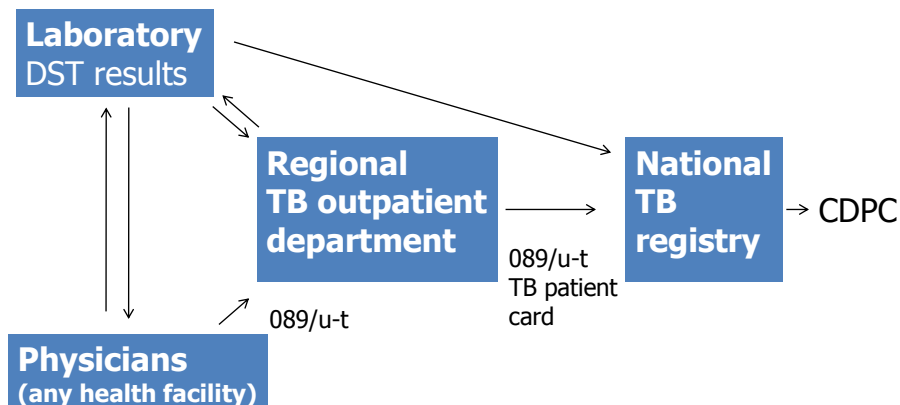
### Observations

The epidemiological safety law and Cabinet Regulations states that healthcare providers should notify the Centre for Disease Prevention and Control of every suspected, confirmed or discarded TB case within three days, by sending a report. In reality, regional healthcare providers refer patients to TB outpatient departments (according to

the patient's place of residence); the TB Registry receives a report for every confirmed case of TB from the TB outpatient department (Figure 4).

The persons who process TB data at the central level are experienced, dedicated and well-trained in TB. The regional pulmonologists are also in charge of TB registration. Their roles are not officially assigned and remunerated. The paper-based local (regional) TB registers are managed by 35 pulmonologist across the country. Collaboration with the central TB Registry works well.

**Figure 4: TB data reporting**



Source: Latvian CPDC

## Suggested actions

- Define and provide a legal foundation for the role of the district pulmonologist as the person responsible for TB control, including recording and reporting.
- Consider the gradual replacement of paper-based registers by electronic reporting and recording, both at the central and district levels.

## 4.4 Forms and registers

### Observations

TB registration form No. 089, annex to Cabinet Regulation No. 746, is the only official form for TB notification. The very functional MDR TB cards currently in use (initial form, follow-up form, and side effects registration sheet), TB district registers, and treatment administration sheets are neither officially approved nor completely implemented.

### Suggested actions

- Analyse the paper-based registration forms and updates, based on international recommendations, case management needs, and best surveillance practices.
- Officially approve recording and reporting forms for TB.

## 4.5 Methods of analysis

### Observations

Up to 1 April 2012, the head of the TB Registry has been responsible for all outputs based on the TB database:

- Public online service monthly and annual reports for CPDC: <http://www.spkc.gov.lv/tuberkuloze>. Data files are sent to ECDC; TB management data go to WHO.
- Annual report presented to the National Pneumologists Society.
- Weekly MDR TB updates for the MDR TB consilium.
- Research projects (including register linkage studies).

On 1 April 2012, after the transfer of the TB Registry to CDPC, responsibilities and tasks were gradually taken over by the CDPC's HIV/AIDS, STD and TB Risk Analysis and Prevention Unit.

Microsoft Access and Excel 2003 are used for data extraction and analysis. The production of reports is time-consuming (e.g. the inclusion of previously treated cases to annual cohort). Some advanced functionalities are



included in the database, e.g. the development of aggregated tables from the database. However, these functionalities have not been updated since the initial development of the software.

### **Suggested actions**

- Consider using statistical analysis software that allows in-depth analysis of TB data.
- Application of modern IT methods to create a new TB Registry database would improve the quality and timeliness of the TB Registry outputs.

## **4.6 Use of surveillance data for decision making**

### **Observations**

There is a well-established reporting system for surveillance data (Figure 4). It is, however, not clear to what extent surveillance findings have been used for policy making and whether TB control decisions are based on surveillance data from the TB Registry.

### **Suggested actions**

- CDPC and TB healthcare systems – under their respective mandates – should use the potential of the TB Registry data for planning and implementing coordinated TB control activities.
- Use surveillance reports for policy making.

## 5 Medical products, vaccines and technologies

### 5.1 Drug management (forecasting, availability, procurement and supply)

#### Observations

The forecasting, planning, availability, procurement and distribution of TB drugs is under the auspices of the central pharmacy at Riga Eastern University Hospital. Planning is based on last year's prescribed doses. The MDR TB consilium authorises the use of second-line drugs and the consilium is in close communication with the central pharmacy. There is a 2012 partnership agreement between the Ministry of Health of Latvia, the Ministry of Social Affairs of Estonia, and the Ministry of Health of Lithuania on *Joint procurements of medicinal products and medical devices and lending of medicinal products and medical devices procurable centrally*<sup>9</sup>.

No concerns about the availability of drugs were expressed.

### 5.2 Vaccines (procurement and supply)

#### Observations

Vaccinations are centrally planned. Vaccines are procured and supplied under the auspices of the National Health Service. In 2011, 33 890 LVL were spent on vaccines.

When Latvia experienced BCG supply problems a few years ago (before the 2012 partnership agreement came into effect), Latvia bypassed the Danish manufacturer and imported the vaccine via Estonia and Lithuania.

No concerns about the availability of vaccines were expressed.

### 5.3 Laboratory supplies

#### Observations

Solid media is centrally procured by the TB reference laboratory at CTLD.

No concerns about the availability of laboratory supplies were expressed.

### 5.4 Maintenance

#### Observations

The equipment at the level-3 laboratory at CTLD is well maintained and maintenance is appropriately recorded.

The level-2 laboratory in Liepāja has some very old equipment (centrifuge and incubators) and maintenance of the equipment appears to have been discontinued. The biosafety cabinet was not working properly while the decontamination of clinical samples and inoculation procedures continued.

#### Suggested actions

- Ensure that the laboratory development plan includes appropriate guidelines for the maintenance of equipment and biosafety measures and that these are implemented.

### 5.5 Introduction of new tools (diagnostics, drugs)

#### Observations

IGRA is not regularly used for the identification of latent TB infection. When IGRA is used, it is mostly used to support the diagnosis of active TB in children and for the confirmation of LTBI in children. Molecular typing is only

<sup>9</sup> <http://www.likumi.lv/doc.php?id=248008>

performed for research purposes, not for public health purposes. Latvia participates in clinical trials of two drug candidates.

### **Suggested actions**

- Consider the use of IGRA (in combination with TST) for the identification of latent TB infections, as support for the provision of IPT.
- Develop an algorithm for the use of Xpert MTB/RIF for the rapid diagnosis of TB and rifampicin resistance.
- Explore the possibility to implement molecular typing at a programmatic level to assist in outbreak/contact investigation.

## 6 Financing

### 6.1 Financing TB care in Latvia

The findings from the country visit show that although there is a comprehensive financial data collection system managed by the National Health Service and East Riga University Hospital, there is no consistent and up-to-date follow-up on the TB control budget. The main deficiency of the reporting system is a missing organisational process which regularly reviews and analyses the expenditure data and their composition. Regular reviews of these data would also ensure the completeness of the budget data. This factor may explain the inconsistent finance data of the TB Control Programme in Latvia.

While the total budget for TB control was reported in the WHO tuberculosis finance profile<sup>10</sup> to be approximately USD 5 million in 2011, the NHS informed the mission team in its presentation that it spent USD 13.3 million<sup>11</sup> (LVL 7.2 million) on TB care in 2011, Table 7. Domestic funding accounted for 100% of the total funding in 2011, which was approximately 1.4% of the public expenditure on health, if total expenditure on TB care is calculated based on 2011 NHS data and total expenditure on public health in Latvia on the latest available year (2010)<sup>12</sup>. The WHO tuberculosis finance profile indicates that approximately USD 4000 per patient was spent in 2011.

No funding gap was reported, but there are specific financing gaps in important functions. There are also services missing in the NTP, such as case finding, security conditions in the central hospital with regard to involuntary hospitalisation, and travel cost reimbursement for patients from remote rural areas. These factors can be clearly associated with the epidemiological patterns of TB in the country, especially with the relatively high incidence rate.

First, the financing of active case finding is not adequately regulated. On the one hand, the NHS informed the mission team that there is a separate budget line for case finding at the CDPC. The CDPC, on the other hand, told the mission team that it does not have a dedicated budget line for active case finding of TB suspect patients apart from its budget item for contact tracing, which includes all communicable diseases. Secondly, Ceplīši hospital staff members in charge of involuntary hospitalisation of MDR/TB patients told the mission team that the hospital is severely understaffed in terms of security personnel because there is only one security guard for the entire hospital. Finally, there is no reimbursement of travel costs for TB patients or for persons suspected of TB who live in remote areas where it can be difficult to ensure early detection and provide DOT.

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<sup>10</sup> Generated 16 September 2012

<sup>11</sup> Calculated with 0.544 LVL/USD on 31 December 2011 ([http://www.bank.lv/en/monetary-policy/exchange-rate-policy/exchange-rates#Different date](http://www.bank.lv/en/monetary-policy/exchange-rate-policy/exchange-rates#Different+date)).

<sup>12</sup> Data source: World Health Organization. Global Health Expenditure Database. [Internet]. 2013 [cited 2013 Apr 10]. Available from: <http://apps.who.int/nha/database/DataExplorerRegime.aspx>  
Estimate for the public expenditure on health was LVL 521 million in 2010 (last available year).

**Table 7: Budget of TB care, financed by the National Health Service in 2011**

Providers	Services	Payment mechanisms	Costs in LVL (thousands)	Costs in USD (thousands)	%
Outpatient centres	Case finding				
	Pharmaceuticals	Central procurement of East Riga University Hospital; costs of people living in prison are covered by the MoH and MoJ from line item budget	549	1 008	7.6%
	Outpatient services	Mixed system: (1) fixed monthly income; (2) fee for episode of care	698	1 283	9.6%
	Laboratory, diagnostics	Fee for services	414	761	5.7%
BCG vaccination	Outpatient services	Central procurement by the NHS	34	62	0.6%
Inpatient	Hospital services	Hospital and service-specific global budget	5 551	10 204	76.5%
<b>Total budget</b>			<b>7 245</b>	<b>13 319</b>	<b>100%</b>

Data sources: National Health Service to the WHO–ECDC mission, 2011 financial year

Apart from the financing of inpatient care, which is financed by institution-specific prospective global budgets, the NHS finances outpatient care through a mixed output-based payment mechanisms with volume limit. The NHS informed the country visit team that it is going to take steps to introduce an output-based payment mechanism in order to increase efficiency and create a more transparent financing mechanism in the near future. Within the TB budget, hospital services dominate the expenditures, making up 77% of the total budget, while outpatient services accounted only for approximately 10% of the total expenditure on TB. BCG vaccines are procured by the NHS. The pharmaceuticals for MDR TB are purchased and distributed by East Riga University Hospital.

Outpatient health providers do not receive any additional financial compensation from the NHS if a patient sees a specialist more than seven times a month on average. Putting such (and other) limitations on the reimbursement of treatment costs of contagious diseases could severely jeopardise the quality of care. Fortunately, the low costs of outpatient treatment ensure that TB care in Latvia is only marginally affected by this rule. It still stands to reason that service patterns should be carefully analysed. Cancelling any financial ceilings on the treatment of TB and other priority communicable diseases should be considered.

## Suggested actions

- Based on the good practice established by the municipality of Riga and lessons learned from other countries, the NHS should reimburse travel costs for low-income TB patients.
- Funding for case finding and contact tracing should be clarified and unambiguously assigned to CDPC; in addition, an adequate budget line from either the Ministry or the NHS is needed.
- Additional funds for Ceplīši hospital would improve security with regard to involuntarily hospitalisation and thus ensure successful treatment.
- In order to compile a comprehensive and coherent finance and performance profile, regular meetings between NHS, CDPC and the East Riga University Hospital (and other relevant stakeholders) should be established.
- Calculate the total and public expenditure on TB control, using a standard and transparent methodology, in order to develop a sound basis for a performance and efficiency analysis of the TB programme.
- Consider the cancellation of financial ceilings in the treatment of outpatients with regard to TB care.

## 7 Leadership and governance

### 7.1 National TB strategy and plan

#### Observations

Currently there is no TB control plan or national TB strategy. The Association of Doctors of TB and Lung Disease has written a draft TB control plan several years ago. This plan was not adopted by the Ministry of Health. Recently the plan has been adjusted. The team was informed that the adjusted plan contains guidelines on TB diagnosis and treatment, but does not cover public health actions for TB control. The adjusted plan still needs to be finalised.

Latvia has a National Response Plan to prevent and combat multidrug- and extensively drug-resistant tuberculosis in Latvia (2012–2015). This plan was adopted by the Ministry of Health. The team was informed that no budget was made available for the implementation of the plan.

#### Suggested actions

- Develop a TB control plan or a national TB strategy and endorse it.

### 7.2 Organisational structure of the TB prevention and control framework

#### Observations

On 1 April 2012 the Latvian Centre for Disease Prevention and Control (CDPC) was established during the reorganisation process of the former vertical TB control programme. The aim of this measure was to integrate the TB control programme, which up to 2009 had autonomous governance structure, into the general health system, which is based on a contracting model. The new Centre took over all public health functions of TB control, especially with regard to strategy, the assessment of performance, and contact tracing.

The main responsibilities with regard to TB control are regulated in the *Act on Epidemiological Safety*<sup>13</sup>. During the reorganisation – and despite the regulations in the Act on Epidemiological Safety – no comprehensive and integrated accountability arrangements were made, missing out on the opportunity to ensure that all important tasks were assigned to those stakeholders who play a relevant role in implementing the TB programme within the context of the health system. The lack of a clear and integrated accountability framework leads to gaps in governance, for example problems of competences (e.g. active case finding), the supervisory role of a national reference laboratory, and organisational uncertainties in the supervision of the National TB Registry. Other problems include monitoring, financing, the assessment of performance, and the planning of realistic targets. The ECDC–WHO team illustrated the current structure of the TB programme within the health system context in Table 8.

Despite the strong support of all priority stakeholders at the government level for a TB programme based on a comprehensive strategy, Latvia neither has an approved TB control plan nor a national TB strategy. The Association of Doctors of TB and Lung Disease several years ago draft a TB control plan, which is still under discussion by the Ministry of Health. Recently the plan has been adjusted. The policy targets under consideration are presented in Table 9. The team was informed that the adjusted plan contains guidelines on TB diagnosis and treatment. The adjusted plan still needs to be finalised.

Latvia developed a National Response Plan to prevent and combat multidrug- and extensively drug-resistant tuberculosis for 2012–2015, but no budget was made available for implementation of the plan.

<sup>13</sup> Cabinet Regulation No. 7 (adopted 5 January 1999): 'Procedures for Registration of Infectious Diseases'.

Cabinet Regulation No. 746 (adopted 15 September 2008): 'Procedures of establishment, updating and maintenance of registry of patients who are ill with certain diseases'.

**Table 8: Current organisational structure and accountability framework of TB prevention and control in Latvia; policy targets under consideration for the Latvian TB programme**

Tasks/stakeholders	Gaps or uncertainties and inconsistencies	Ministry	CPDC	East Riga University Hospital CTLD	General practitioners	Regional TB outpatient departments	Reference laboratory at CTLD	National laboratory network	Medical department of Latvian prison administration	Professional association LSLP	NGOs	National Health Service
<b>STEWARDSHIP</b>												
Supervising the operation of the TB programme	X	X										
Monitoring health financing	X		X									X
Assigning competences and delegating responsibilities within a clear accountability framework to the key stakeholders, in accordance with the expected performance dimensions	X	X										
Monitoring treatment outcomes and epidemiological trends through the National TB Registry	X		X	X								
Performance assessment of TB programme	X											
Planning targets and developing strategies	X		X									
Involving all stakeholders in partnership	X											
<b>SERVICES</b>												
Formulating guidelines										X		
Providing DOT						X						
Services for the homeless						X						
Services for prisoners								X				
Providing laboratory diagnosis							X	X				
Ensuring TB screenings for people living with HIV												
Defining the role of a national TB reference laboratory to ensure coordination and quality of the TB laboratory network	X	X										
Active case finding; developing methods for risk-group screening	X											
Contact tracing			X		X	X						
Forced treatment and isolation				X								
Securing the safe and stable delivery of medicines for M/XDR TB patients				X								
<b>FINANCING</b>												
Paying for contract tracing services												X
<b>RESOURCES</b>												
Educating providers to improve treatment outcomes												
<b>POLICY TARGETS</b>												
Proportion of detected TB patients >90% and MDR TB patients >85%												
Successfully treated primary detected TB patients >85%												
Successfully treated MDR TB patients >70%												
Incidence should be decreased below the current level (38/100000)												

The Ministry of Health considers several policy targets for the TB control (Table 8) but the target for decreasing the incidence rate, which is fairly high in compared with other countries within the WHO European Region, seems to be not very specific and unreasonably cautious in the sense that it is not challenging for the stakeholders and does not encourage them to increase their performance. The target should be easily reached, simply by slightly improving TB prevention.

The positive features of the TB control in Latvia include a well-designed, comprehensive monitoring and data collection system on TB care, managed by National Registry.

But the findings of the evaluation also clearly show that the monitoring system for TB policies and strategies is fragmented, tends to ignore the connections to other important aspects of the policy cycle, and does not provide a comprehensive picture of TB care. In particular, the health financing aspects of the monitoring system appear to be marginalised. The most important problem lies in the fact that there is no formal organisational process to synthesise and review the outputs and outcomes of the various monitoring subsystems. No performance assessment is carried out. Nevertheless, the sophisticated IT background and data collection of the Latvian health system would make it technically possible to produce a comprehensive and detailed analysis.

As the mission illustrated in the section on financing, very significant inconsistencies were observed between the budget of the TB programme (as indicated in the WHO financial profile) and the total amount reported by the National Health Service. The large difference (USD 8.3 million) might be explained by a lack of coordination in monitoring the financing of the TB programme. Although country data correspondents should coordinate their reporting with all TB control programme units, it seems that the Latvian data correspondent did not have the financial report cleared by the National Health Service, most likely because TB care was only recently integrated into the general health system, and the former NTP managers had difficulties to get access to financial data.

Latvia does not have a specific platform or partnership established which engages its stakeholders in a transparent and participatory way. The NGOs that are involved – and mainly provide social care for the homeless and people living with HIV – seem to be cooperative and share their experience with other main stakeholders.

The team was informed that the Red Cross was involved in health communication activities for TB on World TB Day. Folders about TB were available at several of the visited places, such as the AIDS Counselling Centre, DIA+LOGS Support Centre, and the Red Cross Social Centre.

The Centre for Disease Control and Prevention is currently involved in the data collection for the TUBIDU project. For this project, injecting drug users visit a centre where they are tested for HIV, syphilis, and hepatitis B and C. They are also questioned about whether they had been in contact with a TB patient, whether they ever had TB and whether they had symptoms of TB. Employees of the Centre for Disease Prevention and Control were not aware of other operational research programmes.

The TB control programme includes activities that are not evidence-based, e.g. active screening by chest X-ray for teachers and healthcare workers. It could be beneficial to evaluate these activities through operational research. Certain TB control activities recommended by WHO, such as isoniazid preventive therapy (IPT) for HIV-infected individuals, are currently not implemented in the Latvian TB programme.

## Suggested actions

- MoH should play a more active stewardship role in ensuring that the policy cycle for the TB programme is in operation and that the most important functions of the policy cycle, such as comprehensive monitoring, evaluation, planning and implementation as well as involvement of the stakeholders in the partnership, are properly linked to each other.
- MoH should delegate responsibilities within a clear accountability framework to the key stakeholders in accordance with the expected performance dimensions.
- Delegate the supervisory role of the national TB reference laboratory to a laboratory with extensive experience in TB diagnosis to ensure coordination and quality of the TB laboratory network.
- Assign case finding to the CDPC and ask the National Registry (partly operated by East Riga University Hospital) for close cooperation.
- Ensure the supervision of the National Registry in a way that it effectively serves the data needs of both the CDPC and the providers responsible for treatment outcomes.
- Set up platform for partnership in the form of transparent and regular consultations which involve all the important key stakeholders, e.g. CDPC, NHS, East Riga University Hospital, professional associations, NGOs.
- Finalise the national TB strategy in a coherent health system context, complete with realistic and specific targets, especially with regard to incidence rates.
- Develop a comprehensive performance monitoring framework that assesses the gaps in performance and the progress towards the target at national/regional level.
- Ensure regular cooperation and data clearance with regard to the monitoring of health financing (between NHS and the WHO data correspondent, East Riga University Hospital, CTLD).

## 7.3 Strategy and policy development (orders and guidelines, adoption of new tools)

### Observations

The development of TB guidelines is the responsibility of professional organisations in Latvia.

## 7.4 Advocacy, communication and social mobilisation

### Observations

The team was informed that the Red Cross performs health communication activities for TB on World TB Day. Folders about TB were available in several of the visited places, such as the AIDS Counselling Centre, DIA+LOGS Support Centre, and the Red Cross Social Centre.

## 7.5 Operational research

### Observations

The Centre for Disease Control and Prevention is currently involved in the data collection for the TUBIDU project. For this project, injecting drug users visit a centre where they are tested for HIV, syphilis, and hepatitis B and C. They are also questioned about whether they had been in contact with a TB patient, whether they ever had TB



and whether they had symptoms of TB. Employees of the Centre for Disease Prevention and Control were not aware of other operational research programmes.

Certain TB control activities recommended by WHO, such as isoniazid preventive therapy (IPT) for HIV-infected individuals, are currently not implemented in the Latvian TB programme.

## Suggested actions

- Consider evaluation of activities that are not evidence based through operational research.
- The Latvian TB programme should initiate operational research to assess the effect of IPT on TB incidence in HIV-infected individuals.
- The Latvian TB programme should evaluate, through operational research, the recommendations published in *WHO policy on collaborative TB/HIV activities – Guidelines for national programmes and other stakeholders*.

Further suggestions for operational research include:

- the investigation of the diagnostic delays and risk factors for patient and health system delays; and
- the determination of risk factors for the transmission of (MDR) TB by systematically applying genotyping.

# Annex 1. Terms of reference of the country visit

## ECDC and WHO Regional Office for Europe joint tuberculosis country visit

Latvia, 22–26 October 2012

### Preamble

Upon discussion with relevant national authorities, the European Centre for Disease Prevention and Control (ECDC) and the WHO Regional Office for Europe (WHO/EURO) it has been agreed to carry out a TB country visit in collaboration with the National technical counterparts.

### Terms of reference

#### *Main objectives*

- To provide a comprehensive overview of TB prevention, control and care in the country
- To present the health authorities with key suggested actions to improve TB prevention, control and care

#### *Specific objectives*

- To assess TB prevention, diagnosis, treatment and care services in terms of quality, pertinence, access, availability and use
- To assess the TB surveillance system with regard to quality and completeness of the epidemiological data of TB, drug-resistant TB and TB/HIV
- To review the social determinants of TB and M/XDR TB and the interventions to address them
- To assess the links, synergies and opportunities for TB control in relation to health system strengthening and other disease-specific interventions, including management of TB/HIV co-infection
- To assess the role and involvement of civil society organisations in TB-related activities
- To assess partnership, coordination and collaboration on TB control with national and international stakeholders including the Ministry of Justice;

#### *Technical areas to be covered during the visit*

##### Special focus

- Strategy and financing of TB programme
- TB Surveillance and recording & reporting
- TB case finding and Laboratory system
- TB/HIV co-infection

##### Other areas

- Structure of health system, TB programme and TB care services
- Human resources and training for TB Control
- TB case management and drug management
- MDR TB and XDR-TB, including Infection Control
- TB control in vulnerable populations (e.g. drug addicts, alcoholics, prisoners, migrants, children etc.)
- Outbreak management, contact tracing and infection control
- Introduction and use of new tools in TB control
- Advocacy and community involvement

##### Expected outcomes

- A briefing note/presentation by the mission members before the end of the mission
- A comprehensive draft report of the mission within three months after the visit
- Finalised report of the mission within two weeks after receiving the feedback on the draft report

## Annex 2. Programme of the country visit

WHO and ECDC Latvia country visit on TB issues

Latvia, 22–26 October 2012

### Agenda

Team leader: Marieke J. van der Werf (ECDC)

Co-team leader: Kristin Kremer (WHO Regional Office for Europe): TB case finding and laboratory system

Team:

Andreas Sandgren (ECDC): TB control in vulnerable populations and outbreak management, contact tracing and infection control

Vahur Hollo (ECDC): TB surveillance, recording and reporting

Szabolcs Szigeti (WHO Country Office, Hungary): Strategy and financing of TB programme, Structure of health system

Elena Yurasova (WHO Country Office, Russia)

Roxana Mindru (Support expert, ECDC): TB case finding and laboratory system

<b>Monday, 22 October</b>	<b>Overview on TB issues, meeting stakeholders, Ministry of Health, 72, Brīvības St., Riga</b>
09:00–10:00	Opening of Country Visit Welcome by Mrs Ingrīda Circene, Minister of Health Welcome by Dr Aiga Rūrāne, Head, Country Office in Latvia, World Health Organization Regional Office for Europe Welcome by Dr Inga Šmate, Director of CDPC Overview of the health system in Latvia, representative of Ministry of Health Country visit objective and aims, presentation by ECDC
10:00 – 13:00	Detailed view on specific TB issues: Strategy and TB programme, Ms Gunta Grīse, Public Health Dept, MoH Financing of TB programme, Assoc Prof Maris Taube, Director of National Health Service Surveillance and Recording & Reporting, TB/HIV co-infection, Dr Jurijs Perevoščikovs, Director of Infectious Diseases Risk Analysis and Prevention Dept, CDPC
13:00–14:00	Lunch
14:00–16:30	TB case finding and Laboratory system, Dr Ģirts Šķenders, Centre for Tuberculosis and Lung Diseases, Riga East Clinical University Hospital; representative of National Reference Laboratory Imprisonment TB situation, Mr Rolands Girgensons, Medical Unit of Latvian Prison Administration, Ministry of Justice Presentations by NGOs working with vulnerable groups (Mrs Vivita Ķikule–Red Cross; Mr Aleksandrs Molokovskis Society 'Association HIV.LV')
16:30–17:00	Discussions <b>Participants:</b> Ministry of Health Dr Vaira Leimane, Head of WHO Collaborating Centre for Research and Training in Management of MDR TB Dr Regīna Fedosejeva, Medical Unit of Latvian Prison Administration, Ministry of Justice Riga East Clinical University Hospital (RAKUS) TB Register (Dr Vija Riekstiņa) National Health Service, Assoc Prof Maris Taube Dr Egils Harasimjuks Head of Health Inspection, Mrs. Ilona Liskova Dr Anda Nodieva, Association of Latvian Tuberculosis and Lung Diseases Doctors Coordination Committee on HIV/TB/STI Spread Restriction Asoc. Prof. Alvis Krams, Association of Doctors of TB and Lung Diseases

<b>Tuesday, 23 October</b>	TB, MDR TB, XDR TB inpatient treatment and TB/HIV inpatient treatment; TB laboratory case-finding
09:00–13:30 Site visit	Centre of Tuberculosis and Lung Diseases (TB Register, WHO Collaborating Centre for Research and Training in Management of MDR TB, TB Laboratory-DST testing) Mandatory Department 'Ceplīši' (Priežu iela 1, 'Ceplīši', Tīnūžu pag., Ikšķiles novads) (Dr Vija Riekstiņa, phone: 371 2632 1130; Dr Ingrīda Sniedze; Mrs Iveta Volkovska-Cielava, phone: 371 2925 5812; 371 2021 4323)
13:00–13:20	General practitioner at Stopiņi Outpatient Department; Dr Vēsma Strautmane, (Institūta iela 20, Ulbroka, Stopiņu novads) (Dr Ingrīda Sniedze; Mrs Iveta Volkovska-Cielava, phone: 371 2021 4323)
13:30–14:30	Lunch
14:30–17:00 3, Linezera St., Rīga	Sessions in parallel: National Reference Laboratory (Gene Expert) (Dr Ingrīda Sniedze 29101175, Mrs Iveta Volkovska-Cielava) HIV Inpatient and Outpatient treatment, Infectology Centre of Latvia (Riga East Clinical University Hospital) (Dr Inga Šmate)
<b>Wednesday, 24 October</b>	<b>Ambulatory treatment and contact investigations in vulnerable groups</b>
09:00–10:30 Site visit 5, Nicgales St., Rīga	Outpatient Department of Centre for Tuberculosis and Lung Diseases, Riga East Clinical University Hospital TB treatment, DOT, Harm reduction (TB/HIV co-infection, syringe exchange) (Dr Gunta Kirvelaite, 371 2643 2701; Dr Nicole Werner-Keišs, 371 2863 4899, Dr Ingrīda Sniedze; Ms Elīna Upīte)
11:00–12:00	General practitioner at Primary healthcare institution AURA-R – Dr Elza Seržante
12:30–13:30	Lunch
14:00–14:30	AIDS Counseling Centre, CDPC, Kliņānu Dr Ingrīda Sniedze,
14:30–15:00	DIA+LOGS Support Centre (Syringe exchange), 135 Dzirnāvu St, <u>Dace Mazcerīte</u> , Ruta Kaupe, 29412855,
15:30–16:00	RedCross Social Centre 'Gaiziņš', 7 Gaiziņa St, Vivita Kīkule
16:30–17:00	Day Centre for homeless people and low income persons, 57 Katoļu St
<b>Thursday, 25 October</b>	<b>Site visit Liepāja Hospital</b>
08:00	Departure from hotel
11:30–11:45	HIV Counseling Centre (7, Flotes St, Liepāja); (Ms Madara Lapsa, 371 26308079)
12:00–15:30	Liepāja Regional Hospital Lung and Communicable Diseases Inpatient Dept; Liepāja Regional Hospital Lung and Communicable Diseases Outpatient Dept, Clinical-diagnostic Laboratory (K.Zāles laukums 2 – Sample collecting) (TB culture, one of five laboratories for TB culture diagnostics), (Slimnīcas iela 25, Liepāja) (Dr Vija Riekstiņa, phone: 371 2632 1130; Dr Ģirts Šķenders)
16:00	Departure to Riga
10:30 Parallel session of Mr Szabolcs Szigeti to NHS, Rīga	Health System Review of the European Observatory on Health Systems and Policies (Health financing, planning and assessment issues), NHS Director Assoc. Prof. Maris Taube, Mr Uldis Mitenbergs (HIT Latvia team) Payment mechanisms with regard to TB programme, Deputy Director Inga Milaševiča CCēsu iela 31 k-3 (6. ieeja, 2. stāvs), Rīga (Mrs. Iveta Volkovska-Cielava, phone: 371 2021 4323)

<b>Friday, 26 October</b>	Final report, <b>Ministry of Health, 72, Brīvības St, Riga</b>
09:00–12:00	Preparation for final report
12:00–13:00	Lunch – if needed
13:00–15:00	<p>Closing event – ECDC/WHO final report</p> <p><b>Participants:</b>  Ministry of Health  Saeima, Subcommittee of Public Health  Dr Vaira Leimane, Latvia WHO CC  Dr Regīna Fedosejeva, Dr Roberts Girgensons, Medical Unit of Latvian Prison Administration  Ministry of Justice  Riga East Clinical University Hospital (RAKUS)  CDPC  TB Register  Prof Ludmila Vīksna, Chief of Infectology Chair, President of the Latvian Infectologists Association  National Health Service  Dr Egils Harasimjuks Head of Health Inspection, Mrs. Ilona Liskova  NGOs involved (Dialogs, Trepes, HIV.lv, Latvijas Tuberkulozes fonds, Mozaika, Red Cross)  Dr Anda Nodieva, Association of Latvian Tuberculosis and Lung Diseases Doctors  Coordination Committee on HIV/TB/STI Spread Restriction  Dr Vaira Leimane, Head of WHO Collaborating Centre for Research and Training in Management of MDR TB</p>

## Annex 3. List of people met

### *Monday, 22 October 2012*

Inga Šmate	Centre for Disease Prevention and Control
Santa Līviņa	Ministry of Health
Jurijs Perevoščikovs	Centre for Disease Prevention and Control
Dace Vijuma	Ministry of Health
Gunta Grīse	Ministry of Health
Regīne Fedosejeva	Ministry of Justice
Roberts Girgensons	Ministry of Justice
Ģirts Šķenders	Mycobacteriology laboratory, TLDC, Riga East University Hospital
Alvils Krams	Latvian Society of Lung Physicians, Riga East University Hospital
Vaira Leimane	WHO Collaborating Centre for Research and Training in Management of MDR TB
Vija Riekstiņa	National TB Registry, TLDC, Riga East University Hospital
Andra Cīrule	Centre of TB and Lung Diseases, Riga East University Hospital
Anda Nodieva	Latvian Society of Lung Physicians
Ingrīda Sniedze	Centre for Disease Prevention and Control
Egils Harasimjuks	Health Inspectorate
Aiga Rūrāne	WHO Country Office Latvia
Elīna Upīte	Centre for Disease Prevention and Control
Iona Liskova	Health Inspectorate
Liene Dišlere	Centre for Disease Prevention and Control
Iveta Volkovska-Cielava	Centre for Disease Prevention and Control

### *Tuesday, 23 October 2012 – Centre for Tuberculosis and Lung Disease*

Ģirts Šķenders	Mycobacteriology laboratory, TLDC, Riga East University Hospital
Alvils Krams	Latvian Society of Lung Physicians, Riga East University Hospital
Vija Riekstiņa	National TB Registry, TLDC, Riga East University Hospital
Vaira Leimane	WHO Collaborating Centre for Research and Training in Management of MDR TB
Andra Cīrule	Centre of TB and Lung Diseases, Riga East University Hospital
Ingrīda Sniedze	Centre for Disease Prevention and Control
Iveta Ozere	Centre of TB and Lung Diseases, Riga East University Hospital

### *Tuesday, 23 October 2012 – Mandatory Department of Ceplīši*

Rita Puķe	Mandatory Department of Ceplīši
Edīte Kreigert'	Mandatory Department of Ceplīši
Pēteris Griņuks	Mandatory Department of Ceplīši

*Tuesday, 23 October 2012 – Infectology Centre, Riga East Clinical University Hospital*

Velga Kūse	Infectology Centre
Gunta Stieve	Infectology Centre
Ilse Bivzoča	Infectology Centre

*Wednesday 24 October 2012 – Outpatient Department of Centre for Tuberculosis and Lung Disease, Riga East Clinical University Hospital*

Gunta Kirvelaite	Outpatient Department of Centre for Tuberculosis and Lung Disease
Vaira Leimane	WHO Collaborating Centre for Research and Training

*Wednesday 24 October 2012 – Dialogs Support Centre*

Bils Muižnieks	Dialogs Support Centre
Lidija Jefimova	Dialogs Support Centre

*Thursday 25 October 2012 – HIV Counseling Centre*

Iveta Mackare	HIV Counselling Centre
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*Thursday 25 October 2012 – Liepāja Regional Hospital Lung and Communicable Diseases Outpatient Department*

Andris Kristons	Outpatient Department
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*Thursday 25 October 2012 – Liepāja Regional Hospital Lung and Communicable Diseases Inpatient Department*

Mārcis Kristons	Inpatient Department
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## Annex 4. Notification rates for new TB cases 1998, 2007–2011 (per 100 000 population)

	1998	2007	2008	2009	2010	2011
Rīga	62.4	47.9	42.4	36.8	34.9	38.3
Daugavpils	50.6	38.6	38.3	31.3	23.9	24.2
Jelgava	35.2	45.4	36.5	32.0	23.0	24.8
Jūrmala	72.9	39.6	27.0	39.5	37.6	30.5
Liepāja	80.0	43.2	18.8	37.7	39.1	40.7
Rēzekne	75.5	49.3	47.1	44.8	31.2	20.1
Ventspils	19.3	38.9	27.6	23.2	14.0	28.2
Aizkraukles rajons	53.9	27.3	20.0	15.1	40.0	29.7
Alūksnes rajons	51.4	28.4	24.7	16.6	25.2	8.5
Balvu rajons	104.7	61.8	44.4	45.1	30.5	23.1
Bauskas rajons	102.4	93.9	43.2	29.6	42.1	48.4
Cēsu rajons	39.0	35.1	35.4	19.6	19.7	21.7
Daugavpils rajons	47.3	72.9	64.0	52.3	61.1	48.4
Dobeles rajons	70.7	39.3	29.1	21.3	34.9	24.3
Gulbenes rajons	75.3	22.7	38.4	23.4	23.7	28.0
Jelgavas rajons	28.3	37.8	32.3	32.1	29.4	29.4
Jēkabpils rajons	68.0	64.4	53.5	38.6	44.8	25.6
Krāslavas rajons	71.1	41.6	45.4	27.8	20.5	17.9
Kuldīgas rajons	70.2	44.4	56.1	56.6	48.6	34.6
Liepājas rajons	117.6	52.2	45.9	53.3	56.0	68.1
Limbažu rajons	54.0	63.1	39.9	21.5	22.7	22.9
Ludzas rajons	82.8	63.2	45.1	55.6	53.2	60.9
Madonas rajons	92.4	50.9	30.5	21.4	26.5	41.3
Ogres rajons	53.5	40.8	51.2	26.2	26.1	24.6
Preiļu rajons	85.8	33.7	44.7	40.0	46.0	37.9
Rēzeknes rajons	97.7	76.1	62.3	91.0	58.7	64.6
Rīgas rajons	46.8	35.2	29.8	24.6	32.2	25.6
Saldus rajons	58.9	51.4	52.0	52.5	50.0	42.0
Talsu rajons	54.6	17.1	28.0	28.2	17.5	22.0
Tukuma rajons	66.8	40.0	18.3	36.6	31.3	37.1
Valkas rajons	62.5	21.9	28.6	12.9	6.9	13.8
Valmieras rajons	41.2	49.6	41.3	24.2	45.8	17.1
Ventspils rajons	14.2	28.6	21.6	29.0	29.2	14.8
<b>Total Latvia</b>	<b>74.0</b>	<b>47.2</b>	<b>40.3</b>	<b>36.6</b>	<b>36.6</b>	<b>35.2</b>

Source: Latvian TB Registry



## Annex 5. Registration card for TB patients

Facility :	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/>
		Regional code	No.
<b>REGISTRATION CARD OF TB PATIENT</b>			
1. _____			
Name, Surname	Personal code: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
2. Date of birth	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
3. Gender: male – 1; female – 2	<input type="checkbox"/>		
4. Place of residence : city – 1, rural area - 2	<input type="checkbox"/>		
5. Homeless : Yes – 1	<input type="checkbox"/>		
6. Country of birth _____	<input type="text"/> <input type="text"/> <input type="text"/>		
7. Occupation	<input type="text"/> <input type="text"/> <input type="text"/>		
8. Date registered (day, month, year)	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
9. Category of patient	<input type="text"/> <input type="text"/> <input type="text"/>		
10. Diagnosis	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
11. Date of notification of TB the first time	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
12. Diagnosis detected :	<input type="checkbox"/>		
by preventive examination – 1; by complaint – 2; by examination postmortem – 3;			
13. Diagnosis confirmed :	<input type="checkbox"/>		
1. smear : pos. - 1; neg - 2; unknown - 3			
2. culture: pos. - 1; neg - 2; unknown - 3			
3. histological – 3; by X– ray examination - 4; other- 5			
14. Risk factors :	<input type="checkbox"/>		
1. Alcohol use	<input type="checkbox"/>	5. Close contact with patient	<input type="checkbox"/>
yes– 1	2. Drug abuser	<input type="checkbox"/>	6. Diabetes mellitus
	3. Former prisoner	<input type="checkbox"/>	7. Immunosuppression, hormone use
	4. HIV infected	<input type="checkbox"/>	8. Smoking
		<input type="checkbox"/>	<input type="checkbox"/>