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Review of Tuberculosis Prevention, Control and Care in Azerbaijan

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ACRONYMS

ACSM	Advocacy, Communication and Social Mobilization
AEC	Analytic Expertise Center
AFB	Acid-fast bacillus
AR	The Republic of Azerbaijan
ART	Antiretroviral therapy
BCG	bacille Calmette-Guérin (Antituberculosis Vaccine)
BSC	Biosafety Cabinet
CAT	Category
CCM	Country Coordinating Mechanism
CM	Capreomycin
CMS	Central Medical Store
CS	Cycloserine
CSO	Civil Society Organization
CU	Coordination Unit
CXR	Chest X-ray
DOT	Directly Observed Treatment
DR	Drug resistance
DR-TB	Drug-Resistant Tuberculosis
DST	Drug-Susceptibility Testing
EIDSS	Electronic Integrated Disease Surveillance System
EMEA	European Medicines Agency
FELTP	Field Epidemiology and Laboratory Training Program
FDC	Fixed-Dose Combination
FLD	First-line drugs
FSU	Former Soviet Union
FWA	Federal Way Assurance
GDF	Global Drug Facility
GDP	Good Distribution Practices
GF	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GIZ/GTZ	German Agency for International Cooperation
GLC	The Green Light Committee
GMP	Good Manufacturing Practice
HEC	Hygiene – Epidemiological Centers
HRD	Human Resource Development
IC	Infection Control
ICRC	International Committee of the Red Cross
IDPs	Internally Displaced People
IDU	Injecting drug user
INH	Isoniazid
INN	International Non-proprietary Names
IPT	Insulin potentiation therapy
IRB	Institutional Review Board
ISC	Innovation and Supply Center
ISO	International Organization on Standardization
KfW	Reconstruction Credit Institute of Germany
KM	Kanamycin
LFX	Levofloxacin
LTBI	Latent Tuberculosis Infection
LPA	Line-probe assay
M&E	Monitoring and evaluation
MDR-TB	Multi-Drug-Resistant Tuberculosis
MFX	Moxifloxacin
MGIT	Mycobacteria growth indicator tube

MoH	Ministry of Health
MoJ	Ministry of Justice
MRA	Medicines Regulatory Authority
MTB	Mycobacterium tuberculosis
MTCT	Mother-to-child transmission
NAP	National Action Plan
NGO	Non-Governmental Organization
NTP	National Tuberculosis Programme
NRL	National Reference Laboratories
OFX	Ofloxacin
OOP	Out-of pocket payments
OPD	Outpatient Department
OR	Operational Research
PAS	Para-aminosalicylic acid
PDR	Poly-Drug Resistant Tuberculosis
PHC	Primary Care Health Facility
PHRC	Public Health and Reforms Center
PIU	Project Implementation Unit
PLWHA	People living with HIV/AIDS
PPD	Purified protein derivative
PTO	Prothionamide
PU	Progress Update
QA	Quality Assurance
QI	Quality Improvement
RAD	Return after default
R&R	Recording and reporting
RIF	Resistance to rifampicin
RMP	Rifampin
SAT	Self-Administrated Treatment
SES	Socioeconomic Status
SES	Sanitary Epidemiological Station
SLD	Second-Line Drugs
SRILD	Scientific-Research Institute of Lung Diseases of AR
SRL	Supranational Reference Laboratory
SSES	State Sanitary and Epidemiological Surveillance
STI	Sexually Transmitted Infection
STID	Specialized Treatment Institution for Detainees
TB	Tuberculosis
TST	Tuberculin Skin Testing
USAID	United States Agency for International Development
UV	Ultraviolet
WB	World Bank
WHO	World Health Organization
XDR-TB	Extensively Drug-Resistant Tuberculosis
Z	Pyrazinamide

EXECUTIVE SUMMARY

KEY FINDINGS:

- Azerbaijan is one of the high TB priority countries of WHO European Region with estimated 10 000 (8300–12 000) incident TB cases (110 in 100 000 population) and 2050 (1780-2300) M/XDR-TB cases emerging per year. A total of 6390 cases, new and relapsed, were notified in 2010 (notification rate of 69.5 per 100,000). The TB notification rate (new and relapses) has been steadily increasing from 59.8 per 100 000 population in 2001 to 69.5 per 100 000 population in 2010, showing the improved case detection and registration.
- In 2010, a total of 584 M/XDR-TB cases were diagnosed (492 in civilian services and 92 in the penitentiary system). In 2011, the accessibility of M/XDR-TB diagnosis increased and 811 patients with M/XDR-TB were diagnosed (724 in the civilian services and 87 in the penitentiary system), representing estimated 100% coverage in the penitentiary system and 60% coverage in the civilian services.
- Building on WHO recommendations, Azerbaijan has visibly improved its TB control programme, compared to the previous country visits.
- A national TB law exists and is currently being revised by national and international experts.
- The country has an excellent TB control programme in the penitentiary services, with a full range of diagnostics, treatment and care provision system.
- There are excellent examples of involvement of Non-Governmental Organizations (NGOs) and other partners in TB prevention and control, particularly in the penitentiary services.
- Diagnosis and treatment of TB, M/XDR-TB is mainly according to WHO recommendations. However, the national guidelines do not fully correspond to the latest international recommendations.
- The national budget for TB control is increased steadily.
- From 2007, with the financial support of the GFATM, the management of the M/XDR-TB according to the international recommendations has become available; by the time of the current review, 1332 M/XDR-TB patients had been enrolled on treatment (880 in civilian and 452 patients in the penitentiary sector).
- From 2011, the first-line anti-TB drugs (FLDs) are procured centrally by the Ministry of Health (MoH) with governmental funding for civilian sector. First-line drugs for the penitentiary sector are still procured through the Global Fund Round 9 grant by the Ministry of Justice (MOJ). Starting from 2013 the first-line drugs will be procured by MOJ.
- Infection control measures have been significantly improved in the recent years.
- M/XDR TB control activities have been integrated into the primary health care services, but also need further strengthening by bringing the services closer to the patients.

KEY CHALLENGES:

- M/XDR-TB diagnostics (Xpert MTB/RIF) is available in the NRL and the penitentiary system, but not routinely accessible for most of the country. The implementation of Xpert MTB/RIF for detection of M. tuberculosis and drug-resistance to rifampicin is foreseen, but not yet in place. Although GFATM currently finances treatment of a cohort of MDR-TB patients there is no clear plan to ensure universal treatment coverage in the civilian services.
- Financing comprehensive TB and MDR-TB services has important gaps. The gap between current diagnostic capacity in the civilian services and the available M/XDR-TB treatment is as high as 55.6%. In 2011, a total of 900 M/XDR-TB patients were diagnosed and these are financed through the Global Fund Round 7 grant.
- Incentive and enablers schemes are only limited to M/XDR TB patients, while drug sensitive patients would also need those support in order to facilitate their treatment adherence. Social support to patients is not standardized and largely depends on the availability of funds from the Global Fund.
- There is no palliative care.
- Other than applying for the Global Fund Transitional Funding Mechanism, there will be little external financing available to support the TB program beyond 2013. USAID will phase out of health technical assistance in 2013.
- The implementation of DOTS and integration of TB into primary health care is very weak.
- The out-patients services for drug-sensitive and M/XDR-TB patients represent two structures with separated personnel and units in the out-patient services. Even if treatment process is coordinated by the TB doctor, the actual follow-up of treatment was often delegated to the nurses. Fragmented services lead to lack of coherent treatment practices and protocols. Furthermore, the directly observed treatment implemented in a patient-centered approach is functional mostly in case of the drug-resistant TB but not in case of drug-sensitive TB.

- Despite existence of an in-country working group and review process for developing and approving new protocols, some protocols have been approved without meeting international standards as defined by WHO.
- The criteria for hospitalization and discharge of TB patients are not clear and consistent.
- The first line oral anti-TB drugs procured by the state funds are loose and single-drug formulations. This may potentially increase the risk of drugs resistance to the first line anti-TB drugs in the country.
- The first line anti-TB drugs such as streptomycin, isoniazid and ethambutol are not WHO pre-qualified.
- With regard to human resources, there are no shortages of TB doctors and specialists however much of this cadre are aging and/or are trained in a highly specialized manner rather than being versed in primary health care. In addition, few skills exist in the area of operational research. Skills for staff are not regularly updated, and therefore some are applying incorrect treatment regimens and do not follow complete diagnosis protocols.
- The collection and use of data to manage patients at the facility level is incomplete.
- There are 200 MDR-TB patients still on the waiting list and 300 were never presented to the M/XDR-TB enrolment committee.
- Guidelines of sanitary epidemiological service (SES) on infection control have not been updated according to the international recommendations. There are practices of the disinfecting the surfaces at the home of the patient adding to stigma and discrimination.
- The duration and extent of hospitalization follows funding needs of the hospitals rather than patients' need and consideration of infection control.

MAIN RECOMMENDATIONS:

1. Develop, budget and endorse a national MDR-TB Action Plan based on the Consolidated Action Plan to Prevent and Combat MDR-TB in WHO European Region 2011-2015 to achieve Universal Access to MDR-TB prevention, diagnosis and treatment.
2. Initiate Drug Resistance Survey by the end of 2012.
3. Develop TB financing plan for 2013 and beyond to ensure adequate supply of quality first and second line TB drugs, expand social support, incentives and enablers for eligible TB patients. Provide palliative care for eligible patients.
4. Embark and expand the molecular diagnosis of TB and MDR-TB to intermediate and peripheral laboratories as soon as possible.
5. Due to the high rates of M/XDR-TB among new as well as previously treated patients, ensure that all TB patients are tested for M/XDR-TB.
6. Ensure that the TB-related guidelines are in-line with the international recommendations by revising existing TB guidelines for case finding and prophylaxis to meet international standards based on WHO review.
7. Improve the out-patient care so that services are brought closer to the patients with patient-oriented approaches. The programme is to support, counsel and assist patients for better adherence to treatment of drug-sensitive and drug-resistant TB.
8. Ministry of Justice to upgrade the existing TB training center in the penitentiary services up to the level of WHO collaborating center.
9. Rationalize the number of hospital beds and improve infection control in health care facilities by updating clinical, social and vital criteria in order to identify need for inpatient service and moment of discharge.
10. Update hospitalization and discharge criteria for all TB patients. Expand involvement of civil society organizations and improve continuum of care (transfer of released patients from prison to civilian sector) across the country.
11. Provide timely and accurate diagnosis of active and latent TB for PLHIV in HIV services.
12. Start early treatment with anti-retroviral for TB/HIV co-infected individuals and provide isoniazid preventive therapy for people living with HIV.

FULL LIST OF RECOMMENDATIONS:

Health system Building block	Area	Action	Timeline	Responsible
Governance	**Management**	– Develop and submit to the Ministry of Health a budgeted Action Plan to achieve Universal Access to MDR-TB prevention, diagnosis and treatment	End 2012	NTP
		– Provide first and second line drugs for all patients	Jan 2013	MoH/NTP
		– Establish TB/HIV collaborative mechanism at national and regional levels.	Dec 2012	MoH
		– Enhance feedback system and share reports with local and facility levels from supervisory and regional coordinator visits.	Dec 2012	NTP/MoH
		– Before approving protocols, to submit the guideline for WHO and GLC/Europe review, in order to align currently developing treatment protocols for adults and children with the latest WHO recommendations.	Dec 2012 Dec 2012	MoH/NTP MoH/NTP
		– Submit national TB guidelines on case finding and prophylaxis as well as the future TB-related guidelines for review by WHO		
Governance	**ACSM**	– Create a position of ACSM focal person at NTP to oversee the implementation and evaluation of the ACSM strategy and yearly plan with budget and specific deliverables.	Sep 2012	NTP
		– Facilitate establishment of patient support groups as part of a comprehensive patient-centered approach to TB care	Dec2012	*PHRC*
		– Promote the use of the Patients' Charter for Tuberculosis Care to emphasize the rights as well as responsibilities of patients	Dec 2012	NTP/MoH and CSOs
Governance	**Operational research**	– Establish advisory committee/working group at NTP to identify operational research priorities and funding sources for operational research, prepare plan for building operational research capacity at NTP, and identify collaborators/partners on operational research.	Sep 2012	NTP
Finance	**Financing**	– Assure funds for the 2nd line drug procurement to cover all patients with drug resistant TB.	Dec 2012	NTP/MoH
		– Allocate funds for additional in-service training and workshops of TB service staff.	Dec 2012	NTP/MoH
		– Assure funds for cash incentives and social support provision for all TB patients (including pan-sensitive TB patients as well).	Dec 2012	NTP/MoH
		– Assure funds for construction of new modern laboratory at STID TB as the separate standard building.	Dec 2013 Dec 2012	MOJ NTP/MoH
		– Assure funds for provision of palliative care		

Service delivery	**Prevention**	– Review algorithm for isoniazid preventive therapy for consistency and adherence to internationally accepted standards of care. – Consider development of separate Contact Tracing guidelines. – Provide TB screening in HIV/AIDS centers. Provide IPT for eligible PLWH/A patients. – Maintain active TB screening and prevention activities among prisoners.	Dec 2012 Dec 2013 Semi-annually	NTP NTP MoJ/MoH
Service delivery	**Diagnosis**	– Ensure all new and previously treated patients have been examined for MDR-TB – Reintroduce supervisory journal note in all TB facilities – Implement rapid diagnostic tools such as GeneXpert for rapid and timely diagnosis of TB and MDR-TB cases at all 5 intermediate laboratories of the network – Ensure bacteriological examinations (smear and culture) are used in all DR-TB patients – Implement a reliable system for Quality Assurance (QA) with adequate funding and reintroduce supervisory journal note in all TB facilities (lab QA for central and periphery). – Improve the rationalization of the laboratory network taking into account the workload of each regional laboratory – Improve country-wide access to M/XDR-TB diagnosis. and monitor the actual access to diagnosis of DR-TB by smear and culture – Systematize case review practices to identify contributing factors to delayed diagnosis. Develop interventions to address delayed diagnosis.	Jun 2012 Jun 2012 Oct 2012 Jun 2012 Jun 2012 Jun 2012 Jun 2012 Dec 2012	NTP NTP NTP NTP NTP NTP/MoH NTP/MoH NTP/MoH
Service delivery	**Treatment**	– Provide Direct Observation of Treatment (DOT) for all TB patients receiving Rifampicin containing treatment regimen – Integrate TB and M/XDR-TB treatment services in primary health care services – Stop using kanamycin in the treatment of drug-sensitive TB, that is in regimens for Category I and Category II. – Submit TB guidelines on case finding and prophylaxis as well as the future TB-related guidelines to the WHO review – Develop and implement plan for palliative care	Jun 2012 Sep 2012 Idem Idem Feb 2013	NTP NTP NTP MoH MoH
Service delivery	**Care**	– Enhance comprehensive and patient-centered approach to TB care (e.g., expand successful MDR-TB outpatient management models). – Provide incentives and enablers for drug-sensitive TB patients as well.	Dec 2013 Feb 2013	NTP NTP

Service delivery	**Infection Control**	– Organize a workshop for chief doctors from *primary health care,* specialized TB facilities and representatives of HEC to present a new TB-IC guideline which is under approval at MoH. Provide an implementation plan for Guideline to participants and a guide how to develop facility IC plans. – Develop and approve minimum set of standards for TB-IC including administrative, environmental and respiratory control measures (very concise document) separately for: 1. Primary Health Care; 2. DOT spots in PHC; 3. Specialized TB OPDs; 4. Specialized TB hospitals; – Appoint a qualified engineer, provide specific training abroad and make him responsible person for monitoring all engineering control measures in civilian as well as penitentiary sector for the country including laboratories and treatment facilities. – Conduct assessment of IC measures at specialized TB facilities during NTP monitoring visits based on the checklist and provide recommendations and onsite trainings for the facility staff.	Dec 2012 Dec 2012 Dec 2012 Annually	NTP/MoH NTP/MoH NTP/MoH NTP
Service delivery	**Special Populations**	– Maintain and ensure sustainability of current referral system between civil and penitentiary system. Continue with the discharge planning process to include civil health prior to inmates' release. – Consider implementation of systematic 3Is (Infection Control, Intensive case finding and Isoniazid preventive Therapy) among People living with HIV/AIDS. – Review the current high-risk population definitions and update categories based on evidence. Consider if recommended testing/screening for administrative purposes (e.g., barbers) is effective from cost and epidemiological yield perspective.	Dec 2012 Dec 2013 End of 2013	MoH/MoJ NTP/HIV Program NTP
Service delivery	**TB in children**	– Use proper dosages for treatment prescription as recommended by WHO – Revise the hospitalization criteria for children and apply respectively.	July 2012 July 2012	NTP NTP
Service delivery	**TB in prisons**	– Align training center of MoJ and upgrade to the level of WHO collaborative center – Construct new modern laboratory as a separate building according to national and international standards	Dec 2013 Dec 2013	MoJ MoJ
Service delivery	**TB/HIV**	– Establish TB/HIV working group for developing mechanism of collaboration and determining roles of TB and HIV services in prevention, diagnosis, treatment of TB/HIV coinfected patients and monitoring of TB/HIV indicators – Integrate diagnosis of active and latent TB in people living with HIV in HIV services as well as initiation and monitoring of isoniazid preventive therapy. – TB clinicians should be aware of patients' HIV status and in collaboration with HIV expert provide ART to TB/HIV coinfected in-patients in need of HIV treatment	Jul 2012 Dec 2012 Dec 2012	MoH, CCM, NTP, NAP NTP, NAP NTP, NAP

Health work force	**Human resource development**	– Establish in NTP CO a position of Human Resource Development (HRD) officer with responsibility of coordination and evaluation of in-service training activities, supportive supervision plans and implementation and leadership in coordination of HRD activities of key stakeholders. – Develop templates of job descriptions for main personnel categories, e.g., treating physician in hospital and ambulatory; TB nurse, epidemiologist; regional coordinator, etc. – Develop a training policy. Ensure that trainings are based on training needs assessment, follow adult learning methods and have training impact measurement indicators in order to monitor the impact of trainings on consequent staff and TB Program performance. – Make a stronger link between supervision and on-the-job training of TB doctors and other staff at facilities in districts. Include penitentiary system.	Jun 2013 Jan 2012 Jan 2012 Jan 2012	NTP Public Health and Reforms Center NTP/MoH
Products, vaccines and technologies	**Medical Products**	– Improve drug storage conditions at district level by providing air conditioning units, thermometers and hygrometers in the drug storerooms – Consider procurement of the 1st line anti-TB drugs through GDF including both pediatric and adult formulations. – Develop concise drug management manual. – Establish/develop a drug management system, processes, software, training of procurement staff, etc. – Improve anti-TB drug management (e.g. forecasting, distribution, rational use) by introducing and implementing drug management software – The MOJ should take over the provision of the first-line drugs for the penitentiary system.	Jun 2012 Dec 2012 Dec 2012 Dec 2012 Jun 2012 to Jun 2013 Jan 2013	MoH /NTP/ Central district clinics MoH MoH/NTP MoH/NTP MoH/NTP MoJ
Information System	**Surveillance, Monitoring and Evaluation (M&E)**	– Ensure active involvement of the M&E unit in the process of electronic data management development. In connection with this, consider and strengthen the surveillance of previously treated TB cases since the retreatment TB case notification trend is one of the most crucial indicators to monitor the NTP performance. – Improve the quality of electronic data management at NRL properly collecting the data on case classification by treatment history and examination purpose, thus facilitating linkage of DST results with routine surveillance data – Strengthen the routine program performance assessment by rearranging field supervision activities related to TB cases treated by FLD and restart usage of standardized field monitoring checklists for both drug sensitive and DR-TB – Strengthen the joint activities of TB, HEC and PHC services in contact investigation and tracing – Rationalize the existing recording and reporting system by phasing out the Former Soviet Union system of case notification and treatment outcome monitoring according to the WHO recommendations	Jul 2012 Jul 2012 Sep 2012 Sep 2012 Dec 2012	MoH/NTP NTP NTP MoH/NTP MoH/NTP

BACKGROUND INFORMATION

Socio-Economic Highlights

Azerbaijan represents the largest economy (AZN 41.5 bln or USD 52 bln in 2010) in Caucasus that has completed its post-Soviet transition into a market-oriented economy. From 2005-2009 Azerbaijan's economy grew highest in the world averaging 20.8 % per year. Large oil reserves are a major contributor to the economy and have largely affected the growth ever since of launch of Baku-Tbilisi-Ceyhan Pipeline. The national currency, the Azerbaijani manat, remains steady mainly due to large monetary reserves (approximately USD 40 bln by January 2012) accumulated within Central Bank and Oil Fund of AR. Annual inflation rate has been relatively high considering diminishing economic growth for the country averaging 5.7% in 2010 and 7.9% in 2011. The country is also leading in attraction of foreign direct investment in the region and ranked within top 20 countries with highest equity capital attraction in absolute terms. After gaining independence in 1991, Azerbaijan became a member of the International Monetary Fund, the World Bank, the European Bank for Reconstruction and Development, the Islamic Development Bank and the Asian Development Bank.

Following rapid economic growth the country has increased public attention directed on social security of population by adopting State Programme for Poverty Reduction and Economic Development for 2003-2005 and extending the list of activities within State Programme for Poverty reduction and Sustainable Development for 2008-2015:

- ensuring sustainable economic development through maintaining macroeconomic stability and balanced development of the non-oil sector;
- increasing income-generating opportunities and achieving substantial reduction in the poorest sections of the population;
- reducing social risks for old age groups, low-income families and vulnerable groups of population by developing effective social protection system;
- continuing systematic implementation of activities aimed at improving the living conditions of refugees and IDPs;
- improving the quality of and ensuring equal access to affordable basic health and education services;
- developing social infrastructure, improving public utilities system;
- improving environmental situation and ensuring sustainable management of environment;
- promoting and protecting gender equality;
- extension of institutional reforms and improving good governance.

Health Highlights

Health financing has increased dramatically in the past years averaging 31.3 % growth rate and totaling AZN 493 mln in 2011. The government has finalized implementation of nine state programs and has drafted renewed documents to be approved in 2012 as a part of State Program for Poverty Reduction and Sustainable Development for 2008-2015.

Key direction of the Public health policy remains improving sanitary conditions through construction, renovation and equipment of medical facilities. During 2005-2010 government has renovated and constructed a total of 350 medical facilities and expects finalization of similar activities for 53 medical facilities in 2011.

In order to increase efficiency of the facilities, Ministry of Health has ratified Health Concept for 2007-2012 to increase mainly directed on increasing efficiency and quality within primary care efficiency. Thus, government has held large-scale activities in regions to decrease the number of unnecessary beds and in-patient facilities by 50%. To increase the quality of primary care MOH has held country wide certification procedure to examine all health providers by type of their specialty. By June of 2011, certification process has affected 979 providers, whereas approximately 90 percent of examined have passed test to be regularly given every 5 years. With regard to policy on regulating out-pocket payments and compliance with legally binding terms of health provision MOH has established public communication line country wide and has recorded over 3700 cases since the beginning of the year.

Country has already adopted plans to reform the financing of health personnel by transforming medical providers employed by the state to the status of state employees for significant rise in remuneration (to be finally declared based on estimates of State Fund for Social Protection of AR.

For past years Government of Azerbaijan has launched a number of progressive health sector reforms addressing the main functions of the health system. These reforms have been derived from the government's strong intention in improving population health on the one hand and its commitments before the international conventions such as Millennium Development Goals. Thus, Azerbaijan has conducted several programs, extensive infrastructure development and capacity building projects, reforming key policy areas and enhancing access to quality healthcare services particularly for specific groups of population under the vertical state programs. Furthermore, the government has taken commitments before the MDGs to fulfill their requirements during the set period of time and has taken a number of progressive steps towards this end.

Health system overview

The health system of Azerbaijan was inherited from the Soviet health system, known as the Semashko model, with an extensive and highly centralized network. According to the Law on the Protection of the Health of the Population (1997) all citizens are entitled to have equal access to and receive healthcare services. Before 2008 only certain population groups (children, pensioners, students, military personnel and conscripts, women during pregnancy and postpartum, disabled patients, refugees and IDPs, those involved in national sports teams and prisoners) were entitled for state services; all others had to pay formal co-payments to receive certain services. The National Concept on Health Financing Reform (2008) reinforces the right of all citizens to a state-guaranteed basic benefit package (SGBBP) that "will include all primary, preventive and public health services such as primary health care, emergency care and the services of certain types of specialists and will be financed through the state budget and mandatory health insurance contributions; supplementary services will be financed through the population's own resources, voluntary health insurance and different financial aids." The clear definition of the scope of state guaranteed BBP is planned to be fully defined and introduced by the end of 2012.

Analyzing the period after independence until today could be divided into two stages:

From independence up to 2005. During this period the health system did not change significantly. It retained the main features of the Semashko system; however the legislative base was prepared for initiating reforms. Within this framework the revision of legislative, executive and financing documents were carried out to amend into the constitutional system.

From 2005. The real active reform phase started and is still in progress. The MOH has committed to real changes to improve the access to health services, efficient use of public funds and increase financial protection of the population aiming to improve population health. One of the big steps toward this was taken in 2008 when the Minister participated in the European Ministerial Conference on Health Systems organized by WHO in Estonia and signed the Tallinn Charter about regular monitoring and reporting on health systems performance.

At the central level, the MOH directly owns the national institutions and the tertiary level (Republican) hospitals including all health services provided in Baku (since 2007), research institutes and the Sanitary-Epidemiological Service (SES) nationwide. At the local level, the local governments own the district hospitals, polyclinics and dispensaries that are also subordinated to the District Health Authorities. District health authorities are subordinated to the MOH in matters of overall health policy. The private health providers (mainly located in Baku) get five-year licenses from the MOH for their activities. MOH is the main regulatory and coordinating body for all health providers in Azerbaijan, including private facilities. Another face of the health system in Azerbaijan is a set of parallel health facilities functioning under different line ministries and enterprises such as Ministry of National Security, Ministry of Defense, Ministry of Internal Affairs, Ministry of Justice, State Customs Committee, State Caspian Shipping Company and State Railway Company, which mainly serve to current and former employees of these line ministries and enterprises; however they are also used for private practice. According to the estimation in 2003, approximately 5% of the population was served in parallel health system but, in recent years the percentage increased significantly. It should be highlighted that currently it is difficult to say what share parallel health system holds in overall health system as there has not been done any deep analysis on this issue. The existing information about total health expenditures is fragmented and not full. Following the beginning of 2012, positive tendency has been spurred by provision of all health facilities within State Oil Company of AR to the Ministry of Health allowing the latter to evaluate the overall expenditures in the health system in the country.

The health system in Azerbaijan is financed through general tax revenues and private payments. The MOH is responsible for the financing of the national institutions and the tertiary level (Republican) providers, research institutes and the SES, while the local level providers are funded through the District Health Authorities. The public funds are allocated for health providers on input based

financial planning and used for the provision of the state- guaranteed basic package of healthcare services by the state owned health facilities and outpatient drugs for certain specific health conditions (diabetes, tuberculosis, chemotherapy, etc.). Parallel health facilities are financed by corresponding line ministries and enterprises, and are steadily gaining a market share as health providers through increased funding and flexible recruitment of human resources. Additionally, in the recent years the President of AR has allocated one-off additional investments directly for the health facilities as a special Presidential health programmes (purchasing of equipment, capital investments for renovation or building hospitals, etc.).
The level of funding of health sector from the government side has been subject of dispute ever since 1991. However, lately the government has invested more in health sector mostly due to the steady growth in oil exports. Public spending has subsequently been enhanced after the approval of state programs and infrastructural projects directed at technical assistance and the reconstruction of health facilities throughout the country. However, the country is yet to convert the benefits of economic growth into a user-oriented health system as well as a system which provides a sustainable and efficient health strategy. At the moment, the main focus of health investments is on the renovation of infrastructural objects. By these means, increased allocations have led to a large number of health facilities being constructed and re-equipped. The Government is also taking responsibility to improve the basic benefit package through the utilization of state-approved programmes on procurement. Still, there are more actions to be taken, particularly in the area of primary care and out-patient treatment.

In the recent years, a number of reforms have been made; one of them is the approval of the National Concept on Health Financing Reform (2008) including Action Plan to Introduce Health Financing Reforms, which defines a formal state guaranteed basic benefit package of services as part of reforms underpinning the introduction of mandatory health insurance. Moreover, within this framework the National Master Plan on the optimization of the health facilities network and health workforce has been implemented. Moreover, fundamental reforms in under- and post-graduate medical education are in place. The state has determined to take measures for capacity building of future professionals through reforming the education system and adapting it to meet international standards. Another major initiative in the field of human resources management may be defined as the certification process designed to test the existing capacity of health specialists. The above-mentioned developments outline the commitment and volume of the self-assigned goals by the government for whom many challenges still remain.

TB epidemiology

Azerbaijan is a High burden MDR-TB country and one of the 18 High Priority TB Countries in the WHO European Region with an estimated 10 000 (8 300–12 000) incident TB cases and 940 (610–1 400) deaths due to TB every year (Source: WHO Global TB report, 2011). A total of 8 394 all TB cases were reported in 2010, including 6 390 (76%) new and relapses. The case detection of new and relapse TB cases has remained low at 63% (53 – 77%).
With an estimated population of about 9 million and an estimated 10 000 tuberculosis cases in 2010, Azerbaijan has one of the highest annual tuberculosis incidences (72.6 per 100 000 population) in WHO European Region, including 140 cases attributable (1.5 per 100 000 population) to HIV infection. Azerbaijan has had a lower HIV incidence than many other countries in the region.
In 2010, 11.6% of new tuberculosis cases tested had multidrug resistant organisms and 47.8% among previously treated had multidrug resistant tuberculosis. The high tuberculosis case rates and the emergence of XDR-TB in some settings (as according to the survey conducted in 2007 12.8% among 431 MDR-TB patients tested for second-line anti-tuberculosis drugs) combine to make the tuberculosis crisis in Azerbaijan a serious public health threat.

Treatment success rates among new pulmonary laboratory confirmed TB cases and previously treated were 62% and 53.2%, respectively (data refers to cohort of 2009 from latest available update of WHO global database on TB as for the last month of the conducted mission (April 2012). Obviously, high default rate contributes to such a low success rates of 16% and 19%, respectively. Also, the proportion of unevaluated cases is significant and stands at11.5% and 12.5%, respectively. Low treatment success rates might be explained by a high proportion of estimated MDR-TB in the respective categories of patients, 22% (17 – 27%) among new and 56% (50 – 62%) among re-treated, however findings of the latest countrywide drug-resistance surveillance detected lower prevalence of MDR-TB, 11.6% (95% CI:

9.4–13.8) and 47.8% (95% CI: 44.7–51.0(. XDR-TB data is not available for 2010 cohort. Treatment success rate for MDR-TB treatment of 2008 cohort was 56.5%.

TB notification rate among inmates is 34 times higher than in general population, about 3.15 per 100 prisoner (Prison population in Azerbaijan in 2010 was 16 509 inmates. Source: medical department of penitentiary system). Treatment success rate among newly detected pulmonary AFB (+) TB cases for the reported period was 62.9%.

1. STRUCTURE OF TB PREVENTION, CONTROL AND CARE

FINDINGS:

Civilian sector

Majority of drug-sensitive TB cases with positive sputum smear are hospitalized during intensive phase of treatment. The outpatient care (e.g. ambulatory care model) is used since the first day in case of M/XDR – TB patients, while following hospitalization criteria are outlined in the national protocols for treatment and care:

- Severely ill patients
- Socially marginalized patients (e.g. homeless patients, patients who are suffering of malnutrition)

The TB programme in Azerbaijan consists of the National TB Programme (NTP), with coordination unit situated in the MoH. The role of the NTP is mainly managerial. Furthermore, its responsibility is also to initiate the policy changes and to coordinate all TB-related activities in the country. Currently the TB Control activities in Azerbaijan are led by the NTP manager, Dr Viktor Gasimov who was assigned by the Ministry of Health. Dr Gasimov is also one of senior officers in the Ministry of Health by heading Surveillance Department, with direct supervision of the Deputy Minister of Health.

The TB care is provided by the three levels: (1) cabinets for directly observed treatment (DOT), established either at the Feldsher Health Care points in the villages or in Central Rayon polyclinics; (2) TB Doctors at the level of multi-profiled Central district/rayon policlinics or dispensary clinics (applicable for the clinics with more than 30 beds capacity); (3) dispensary clinics (secondary level) themselves with beds and outpatient departments (applicable for most of the regions/rayons and districts of Baku city), then SRILD, the tertiary level health care provider) and specialized M/XDR TB hospital. Majority of secondary level TB facilities as well as the SRILD have been recently renovated. The role of the SRILD is dedicated to coordination of National Reference laboratories, liaising with drug stores, provision of clinical advices to country as well as conducting trainings and research. The National Reference Laboratory (NRL) is part of the SRILD.

The vertical structure of TB control program is not fully integrated into the primary health care services. The provision of ambulatory DOT from day one to the M/XDR-TB patients is a first step towards the integration of TB and primary health care services. Financing of TB services is envisioned per number of beds that remains one of the bigger constraints for efficient TB treatment. The number of DOT points is limited and they are usually affiliated with existing health care facilities.

Penitentiary

The structure of TB care provision in penitentiary is divided into two levels: where the first represents the level of pre-trial isolators (SIZO'S) and colonies (primary level of care) with the multi-profile health care (also primary level of care) units and second level denoted by Specialized Treatment Institution for Detainees with TB (STID TB) as tertiary level of care provision. The TB control in penitentiary starts at the level of pre-trial isolators (SIZO's), where all inmates are screened for TB by questionnaire, X-ray and sputum specimens collected for lab analysis. Then all TB suspects are transferred for the further investigation to the STID TB.

Inside STID TB, upon reveal of the TB (disregard of security status) all patients are properly segregated and separated in accordance with their status for having positive or negative BK, MDR TB or drugs sensitive TB and in compliance to the security measures, starting from assessment department. This specialized institution possesses all necessary types of security divisions starting from internal pre-trial department, juvenile department, women's department, high security wing and departments for general prisons population. Inside all that departments and wings appropriate division in accordance with the TB status are taken. All regular colonies and prisons in Azerbaijan have health units, where general practitioner (with adequate training on TB prevention) or Feldsher (also trained on TB) are responsible for the health care provision for the inmates. TB Control project

in penitentiary is covering all the regular colonies and prisons of the country with Active Case Finding, using mobile digital X-Ray, questionnaires and symptoms screening (one time a year). All TB suspects are transferred for further investigation at the STID TB. At STID TB there are 3rd level laboratory and specialized training center which provides unique training on practical management of tuberculosis in prisons. Nevertheless, there seems a need for constructing new laboratory at the separate building tailored as standard 3rd level laboratory as well as upgrading existing training center at STID TB. The level of performance at the STID TB laboratory allows performing all first and second line drugs testing for all inmates.

The central unit is presented by MoJ TB coordinator, under direct supervision of the Head of Main Medical Department of the Ministry of Justice of Azerbaijan. Technically all activities are under supervision of TB coordinator, while STID TB has dual supervision: head doctor of STID TB (under supervision of medical department of MoJ) and head of prison administration (under supervision of Court Decisions Execution of MoJ).

Recommendations:

For MoH and NTP

- To apply criteria for hospitalization to all TB patients (not only M/XDR TB)
- To ensure availability of DOT cabinets integrated into PHC services in all PHC units in the country.
- To optimize usage of TB beds and disconnect financing of the TB services by the number of beds.

For MOJ:

- To construct new laboratory at the separate building fully tailored as standard 3rd level laboratory.
- To upgrade the existing training center at STID TB to the level of WHO collaborative center.

2. SERVICE DELIVERY

2.1. VACCINATION

FINDINGS:

There are two legal documents outlining the framework for the BCG vaccination: Law on Immunizations and the National Calendar on Inoculations. The BCG vaccination is conducted twice: at birth and at the age of seven.

At birth, the BCG vaccine is administered to all newborns in maternity departments, during the period from 3 to 5 days. The BCG vaccine is not administered for underweight infants (less than 2.5 kg); infants who are born with STIs or other infections; infants with damage of nervous system or other injuries; as well as infants with generalized skin rash. All maternity departments have a nurse trained and licensed in BCG administration. For infants who cannot be vaccinated at birth, BCG is administered 1-6 months in case there are no contraindications but no later than 12 months after birth. In case BCG has to be done later than 2 months of age, Tuberculin Skin Test (TST) is administered (2 TU PPD-L, 0.1 ml) intra-dermally, and if the results are negative, the BCG is administered. If the TST is positive, the children are placed on LTBI treatment.

For children born to HIV positive mothers, HIV test is administered to determine HIV status. If the infant is HIV positive, BCG is not administered. Instead the children are monitored by TST, administered every 6 months until they reach the age of five, and on a yearly basis after that until they are 15 years old. If the TST is positive, further evaluation is carried out to rule out active TB disease. LTBI treatment is provided as necessary. If the HIV status is indeterminate then, BCG is administered given that the infant was born healthy and the mother was on HIV treatment prior to giving birth. If the mother or any other family member has active TB, the BCG is administered only if the baby can be isolated from mother or family member for two months. If isolation cannot be done, BCG is not administered but the baby is closely monitored and TST administered every six months until two years of age and on a yearly basis afterwards until 18 years of age.

The vaccine is stored at the Central Medical Warehouse of the Innovation and Supply Center (ISC). The ISC cars transporting the BCG and other vaccines are suitable for transportation of products needing cold chain conditions. The data on BCG coverage were not available but the fist vaccination coverage was estimated to be close to 100%.

RECOMMENDATIONS:

• To revise BCG vaccination policy according to the latest WHO recommendations and conduct BCG vaccination only once at birth.

2.2. LATENT TB INFECTION

FINDINGS:

The main objective of the chemoprophylactic activities is to prevent *MTB* infections or progression of Latent TB Infection (LTBI) into active TB disease. Preventive treatment for six months with isoniazid (INH) is the standard regimen, whereas rifampicin (RIF) for four months is an alternative regimen in the presence of INH resistant microorganisms.

LTBI Diagnosis

According to the decree (Order of MOH No. 120, December 12, 2001), Normative Stipulations for Provision of anti-TB Services in the Republic of Azerbaijan, the TST (2 TU PPD-L, 0.1 ml, administered intra-dermally) remains the main method for diagnosing LTBI.

The TST result is considered negative, indeterminate (2-4mm), and positive (≥ 5mm). The positive results are further differentiated as weak (5-9mm), medium (10-14mm), and strong (15-16mm). Hyperergic reaction is defined as ≥ 17mm for children and ≥ 21mm for adults. TST conversion is defined as a change of ≥ 6 mm compared to the previous TST result.

In case of contact-tracing, the identified individuals are tested within two months from exposure to the index case. TST positive cases are evaluated for active TB (chest x-ray and bacteriological examination). Contacts with negative TST result are followed up by TST every six months for the next two years.

LTBI Treatment

In 2011, the guidelines for chemoprophylaxis have been updated and mostly follow the current international recommendations. Notably, importance of LTBI preventive therapy is recognized as it is incorporated in clinical and TB control program guidelines. However, the guidelines lack specificity and therefore could be cause for misinterpretation in the field. One of the driving criteria for initiation of LTBI treatment is age compared to assessment of exposure in combination with presence of risk factors for progression. New contact tracing guidelines have been developed but have not yet been approved. The review process of those guidelines was also called under question by some of the major stakeholders in the country. Two-step TST testing is not incorporated in guidelines or practices.

According to the policy in the country, prior to initiation of treatment for LTBI, the active TB is ruled out using clinical, bacteriological and radiological examinations. In certain instances LTBI treatment is initiated even if the TST results are negative (e.g., for contacts to TB patients and for groups such as PLHIV with high risk for disease progression). All children between one to 15 years of age are tested annually, and in case of TST conversion the LTBI treatment is initiated.

Recommendation for initiation of anti-LTBI therapy is based on TST results, age, and probable risk for progression to active TB disease. In case of positive TST, LTBI treatment is recommended for all contacts of TB cases below 35 years of age. For those who belong to the age group of 35-50 years of age, treatment is recommended in cases where at least three other risk factors out of total five are present (e.g., HIV infection, diabetes, organ transplant, smoking, etc.). For those belonging to the age group of 50-65 years of age, LTBI treatment is recommended in cases wherea at least two risk factors are present. Consequently, for patients over 65 years of age treatment is recommended only if risks are present in the top category. Anti-LTBI therapy is recommended for TST negative individuals who are HIV positive and who are on immunosuppressive medications.

The main treatment regimen is six months of INH (6H). For adults, 5mg/kg, maximum of 300mg daily is administered. For children, 10mg/kg, maximum of 300 mg, daily regimen is recommended in line with current international guidelines. Pyridoxin (vitamin B6) is administered with isoniazid. In case the index case is diagnosed with drug resistant TB (isoniazid resistance), four months of RIF

regimen (4R) is recommended—daily 600mg for adults, and 10mg/kg for children. In case of resistance to Rifampicin, ethambutol or streptomycin, 6H is recommended.

For contacts of M/XDR cases, LTBI treatment is not recommended. TST testing is conducted two months after exposure and every six months afterwards for two years. If TST positive, clinical, bacteriological and radiological follow up is recommended every six months for two years.

RECOMMENDATIONS:

- Provide for WHO and other stakeholder review of new Contact Tracing guidelines to ensure consistency with internationally accepted standards and recommendations.
- Incorporate two-step TST testing in LTBI algorithm.
- Strengthen Contact Tracing procedures to focus on the systematic assessment of the frequency, intensity and duration of exposure, in combination with other clinical and population factors, to provide the basis for recommendations for initiation of anti-LTBI therapy.
- Consider administration of four months Rifampicin regimen (for contacts to cases with INH resistance) under Directly Observed Therapy (DOT) to eliminate probability of partial compliance and development of RIF resistance.

2.3. INFECTION CONTROL

FINDINGS:

HSS and TB infection Control

TB transmission at health care facilities as well as at community level is a challenge for many countries and can be prevented by sound Infection Control measures. Among efficient ways to achieve that are national level activities including planning, norms and guidelines among others, facility level activities and activities on community level mainly based on patient education.

Since 1995, when Azerbaijan has accepted DOTS as the strategy for TB control, several International partners (WHO, ICRC, KfW/GTZ, KfW/GOPA/EPOS, UNITAID etc.) have been supporting NTP to develop and maintain infrastructure of TB facilities to decrease nosocomial TB infection risk for patients and staff. Among major achievements of joint activities there are improved TB penitentiary treatment facilities, National Reference Laboratory with NTP training center and departments of Baku TB Dispensary #4.

Country has recently developed new TB-IC guideline. All other regulations in the country refer to old norms with focus on disinfection from Soviet era. In order to avoid “double regulations” among different stakeholders, it is very important that all old regulations will be officially substituted with new Guideline after MoH will approve it and all other necessary norms for other stakeholders including SES will be developed in parallel to the standards outlined in the new guideline. As an example: currently SES is conducting TB-IC with an old approach to the problem on community level, meaning that SES is providing disinfection of TB patients’ houses. Such approach besides of being ineffective for TB prevention also can increase the stigma to the disease in the community. After new guideline will be approved such old regulations need to be abolished.

Country strategic plan includes information regarding strengthening of preventive activities with emphasis on the role of SES in this activities (Chapter 5.6) More specific information about the role of SES in TB-IC needs to be outlined in National TB-IC Plan.

Currently country is moving towards strengthening integration of TB services at Primary Health Care Facilities (PHC) which needs a careful planning to ensure proper Infection Control conditions in these facilities that include administrative, engineering and personal protective measures. Taking into account the on-going process of current and planned renovations in several PHC and specialized TB facilities in Baku and regions proper and timely approach to the planning process at national

level can ensure creation of safe environment, in terms of airborne transmitted disease prevention for staff and patients.
The idea on compulsory isolation mentioned in the strategic plan needs further consultation with experts in the field of bioethics and if such approach will be approved by legislation, based on Infection Control needs to prevent Disease transmission at community level facility for involuntary detention needs to be organized with full accordance of International standards for Infection Control. The same recommendation will apply for Palliative care department if planned.
Proper approach to Infection control strategy at facility level, especially separation is mainly connected to the patients' infectiousness and DR profile. This information is based on smear, culture and DST results coming from the laboratories. Unfortunately, in most visited facilities laboratory results meaning smear, culture and DST for the most patients were not available. Strengthening of laboratory capacity and implementation of rapid diagnostic tests will be critical for the country to improve Infection control measures in the facilities.
Some specific major National level findings in TB-IC and main national level recommendations are outlined below in this chapter (Detailed facility risk assessments and facility level recommendations are provided in Annex I).

Coordinating Body
Several people from NTP have attended International courses in TB Infection control in 2008-2009 in Romania, Georgia and Bishkek. By previous IC mission it has been already recommended to develop country coordinating group for Infection Control and further strengthening of this group, development of working agenda and providing budget is important in order to make the committee fully functional.

Infection Control Guideline
Important achievement of NTP work is recently developed new TB-IC guideline which is submitted at MoH for approval. The Russian version of the Guideline has been reviewed by IC consultant during the mission and document is fully in line with current International trends for TB-IC. There is a need for taking additional steps in order to get full advantage of this document.

Surveillance system for TB disease among staff
Currently there is no central registry for surveillance of TB disease among staff. Some alarming findings have been documented in 2011 at the SRILD: 4 cases of TB disease among HCWs during one year. The total number of all workers at the Institute is about 420 (89 doctors (including 14 TB doctors), 134 nurses). This provides 6 times higher risk of getting disease in this facility compared to general population.

ASCM, Staff and patient education
In several visited facilities staff and patient knowledge in TB-IC control has been assessed based on the standard questionnaires. Although the level of knowledge has varied between facilities overall the route of TB transmission was thought to be air-droplet and the belief that TB is transmitted through the general contact with dishes, hand shaking and other belongings, remained strong among staff. Based on provided knowledge, preventive measures at household level mainly mentioned by patients were connected to separation of personal belongings.

Outpatient vis-à-vis Inpatient services
Several studies have demonstrated the facts of nosocomial transmission of different TB strains within the facilities. During assessment visits in most of the specialized TB facilities noninfectious patients with good clinical conditions were kept on hospital treatment. (ref. Annex I) Some of the interviewed patients in sensitive TB treatment departments having SS- laboratory results, mentioned that they were on sixth month of hospital treatment.

Environmental/engineering control
Some of the facilities in the country have ensured control measures such as: ventilation systems at penitentiary system, reference laboratory, regional laboratories, room air cleaners and UV lamps in treatment facilities. Currently there are some companies in the country that have been contracted by NTP for NRL to provide services for ventilation systems and equipment. Nevertheless, certain documentation for provided services (for example: certificates for BSC, ventilation system parameters before and after service) was not provided to NRL. Although the quality of such services remains questionable, at regional level there are no companies or appointed staff for providing preventive as well as problem-oriented services to regional laboratories. This may eventually generate biohazard risk in mentioned facilities.

Personal Protection

There is a centralized procurement system for certified respirators. In all visited facilities proper respirators were provided by central level.

RECOMMENDATIONS:

- There is an urgent need to conduct TB risk assessment in PHC facilities, due to the active process of integration of TB services in these facilities. Based on the risk a minimum set of standards for Infection Control measures at PHC needs to be developed.
- Minimum set of TB-IC standards very concise (one page document) has to be developed by NTP for specialized TB facilities, separately for inpatient departments and separately for OPDs. These standards should outline main airborne Infection Control measures such as: triage, separation and cough etiquette. Standards should be accessible for all staff in the facilities.
- It is important to review existing legislative background, regarding construction/renovation norms of health care facilities and to update them in range with International standards especially taking into consideration an on-going process of active renovations of PHC and TB specialized facilities in the country. At least minimum set of standards or "Master Plan" needs to be developed by MoH in next few months, together with NTP to avoid health care facility construction/renovations without prior planning in terms of TB-IC requirements.
- It is very important to develop a policy regarding duration of hospitalization, in order to avoid patient reinfection and hospital transmission of different strains. Non-infectious patients with good clinical conditions should not be kept as inpatients.
- After official approval of new Infection Control Guideline following steps needs to be carried out by NTP:
- Development of implementation plan for TB-IC guideline
- Organization of workshop for chief doctors of PHC and specialized TB facilities and representatives of SES to present IC guideline, its Implementation Plan and provide knowledge on developing facility specific TB Infection Control Plans.
- It is very important to develop centralized reporting system at NTP for TB disease among staff providing TB services starting from 2012. Such data over years will give good evidence on TB-IC situation in health care facilities.
- During supervisory visits it is important to assign in the groups person responsible for TB risk assessment on facility levels. Appointed person should provide written findings and recommendations for IC measures and also onsite trainings to improve the knowledge in TB-IC. Trainings should include information about routes of disease transmission, ways of precaution at facility level and the knowledge how patients can support TB prevention process at community level.
- Separation policy of patients, for all facilities with inpatient services needs to be based on smear and DR profiles. As current situation does not apply to airtight isolation of patients in single rooms, at least separation of patients by departments needs to be accomplished. As a very minimum, following departments need to be separated SS+/DS, SS+/DR, and SS- and different drug resistance profiles separated within department by rooms. If facility has more capacity to separate by culture S-/C+ and S-/C- and different drug resistance profiles PDR, MDR. XDR will be best approach. In case of lack of DST results (that is currently the main issue) separate departments at least by smear status and by primary and retreatment cases.
- There is a need to appoint a qualified engineer who can be sent abroad for specific training (such trainings are available at TB Training Center in Vladimir Oblast and at Harvard School of Public Health, in US) and can be contracted by NTP and MoJ for long run and will provide above mentioned services in civilian as well as penitentiary sector.

2.4. CASE-FINDING

The aim of activities focusing on TB prevention is to rapidly detect infectious (sputum smear positive) TB cases and promptly initiate treatment, as to decrease the spread of infection. The case finding is mainly passive, with the exception of TB Control project in penitentiary system, where active case finding at entry as well as during stay in used. In 2011, the MOH has approved guidelines for TB case-finding. Case-finding is passive (patients present to primary health care services or TB services with symptoms) or active.

Active case-finding is carried out among risk-groups, which are listed in the guidelines and among household contacts of an index case of tuberculosis.

Case-finding among risk-groups
The x-ray is done in those persons who belong to risk-groups once per year. In case TB is suspected, sputum is collected for smear and culture. Tuberculin skin test (Mantoux) is used for active case-finding among children in all occasions.

Contact tracing
Contact tracing was done using PPD test (Mantoux test) among children and X-Ray/specimens collection in case of adults. If suspects/contacts produce sputum, then samples were sent to TB lab for examination. The contact tracing is commonly done among family members and carried out by the TB services in collaboration with the primary health care services.

The guidelines include a diagnostic algorithm, however, it is not applied in practice and will be revised after the revision of the laboratory network (Annex II).

Penitentiary system
The case finding in the penitentiary system is done at entry to the system (in SIZO) and during stay in the system. The policy is to screen inmates at least yearly but it is not always possible due to high work-load (availability of personnel and x-ray equipment). Nevertheless, the facilities with higher TB incidence are always screened yearly.

The algorithm for contact tracing includes screening of symptoms, questionnaire, sputum samples, and X-ray. In case TB is diagnosed, the contact tracing is done in the barrack of index case. In case of TB symptoms, the inmates can refer to health units in their respective colonies and will be referred to the STID within TB Control project in penitentiary proactively conduct Active Case Finding (see above) with 3 to 5 calendar days due to logistics and security arrangements. However, isolators are available in each colony.

The medical and non-medical staff in the penitentiary system are continuously trained in TB, including in recognizing TB symptoms and issues of TB infection control.

RECOMMENDATIONS:

- To avoid unnecessary mass screening with PPD (Mantoux) test.
- To use modern diagnostic tests (MTB/RIF) for early case detection

2.5. DIAGNOSIS

FINDINGS:

According to the policy, three sputum samples are collected for confirmation of diagnosis, two of them should be sent for culture and following drug susceptibility testing (DST) to the National Reference Laboratory (NRL). Any other biological material should be referred the same way for the culture (and following DST). The policy is to do culture and if positive, DST using conventional methods to all patients at start of treatment. The liquid medium (MGIT) and rapid tests for rifampicin (GeneXpert and HAIN) were available in the NRL, however, there is no clear flow-chart of who are eligible for these tests as the funding is limited. The treatment is usually delayed until the DST on conventional medium will become available.

The sputum is supposed to be collected from rayons(districts) to the appointed centers (sputum brought by the health care worker or the patients would go to the sputum collection center) and from there the NTP car should transport it to the NRL for culture and DST. However, a standardized approach to TB diagnosis is lacking and in some regions patients start tuberculosis treatment based on CXR findings and microscopy.

In 2011, culture was positive in 52.6% (1970 out of 3743) out of all notified new pulmonary patients. The data on culture and following DST coverage were not available. Out of positive cultures, 19.9% (391 out of 1970) was M/XDR-TB. Out of M/XDR-TB patients 21% (82 out of 391) were XDR-TB. Among re-treatment cases 74.3% (3420 out of 4601) were culture positive, however, the number of total culture done was not available. Of culture positive cases 13.9% (476 out of 3420) were M/XDR-TB.

The culture and DST were done only at the NRL and the results are given to the MDR-TB coordinators at the central level, who are supposed to bring the information to the sites. Unfortunately, it was observed that the information on the culture and DST results are reaching the sites several months later. From 2012, the field for culture results has been added to TB registers but the data were not recorded. Clinicians have not been properly trained in importance of sending the samples to the NRL at the start of the treatment and to make use of culture results to improve patient management. It was estimated that approximately 60% of the sputum samples were sent to the NRL for culture.

The TB case detection rate (all forms) was 63%, decreased as compared to the previous year (73%). The ratio male/female among new smear positive was 3.2 in 2010.

2.6. LABORATORY SERVICES

FINDINGS:

Conventional DST and liquid culture has been incorporated into policy and are being rolled out, including Line Probe Assay (LPA) for detecting resistance to Rifampicin (RMP.

MOH pursues the process of optimization and rationalization of the TB laboratory network through creation of intermediate 5 laboratories. Referral system in the civilian sector represents a self-appointment according to the pulmonological symptoms that is conducted by general practitioners from the polyclinics and TB doctors (for the drugs sensitive TB, which needs to be hospitalized for Intensive Phase of treatment). Only 3 out of 5 laboratories (Nakhchivan, Masalli and Zagatala) are fully operational. Unfortunately, there is not yet a final decision on the number of peripheral labs to be linked to each intermediate laboratory and as a result, the number of microscopy tests performed is below the international standards. All supplies are centralized and provided by the NRL to the peripheral laboratories on request. There are no standardized request forms for consumables or other materials. Approved standards for TB case-finding and follow-up of treatment are not yet applied country wide. In some settings, the number of sputum samples collected for diagnosis or for the follow-up of the treatment is not always consistent with the NTP policy. Some of visited laboratories had inadequate equipment, materials and safety conditions, which lead to low-quality and inefficient microscopy and culture services. The system of Quality Assurance (QA) is not

routinely implemented countrywide. There is no reliable supervision mechanism with standardized quality assurance and proficiency testing procedures (internal and external) in all laboratories. The existing transportation system of sputum samples for culture and drug susceptibility tests from the peripheral level to the NRL is weak and there is no systematic timely feedback of results to the regions with a consequence on patient treatment. There is a lack of funds to ensure appropriate maintenance of biosafety equipment in all laboratories. BSCs are not certified on regular basis; therefore laboratory technicians are exposed to infectious materials they are manipulating.

The provision of tuberculosis laboratory services in the country is ensured by a network of 70 microscopy laboratories and 5 laboratories for culture and one National Reference Laboratory. The NRL is the only third-level laboratory in the civilian sector. This lab is performing smear microscopy, culture on solid and liquid media using respectively Lowenstein-Jensen and MGIT 960. Recently, the NRL has been equipped with Line Probe Assay. Drug susceptibility testing of first-line and second-line drugs is also performed on both solid and liquid media. The NRL uses the proportion method of DST on Lowenstein-Jensen medium.

The distribution of microscopy services varies between regions. All peripheral microscopy laboratories are located either at TB dispensaries or at the district general hospital and they are equipped with binocular microscopes. They are performing Ziehl Neelsen (ZN) microscopy only.
Currently, only 3 out of 5 planned intermediate laboratories are operational (Zagatala, Masalli and Nakhchivan) and two laboratories in Ganja and Guba are being renovated. The current population coverage of regional laboratories is inadequate (Zagatala: 180 000 and Ganja: 320 000 population) but it is expected to increase with the linking process with the peripheral laboratories. Actually, some peripheral (Shemkir: 197 000, Tovuz: 162 791, Sheki: 176 000 population) laboratories have the same workload as regional laboratories, which has an impact on the quality of the work.
The National reference laboratory is performing DST for the entire country. Sputum samples from the regions are sent for culture and DST. Some of the staff has been trained at the Supranational Reference Laboratory (SRL) in Borstel, Germany. Currently, 6 doctor bacteriologists, 16 lab technicians, 2 operators and 2 sanitary technicians are working at the NRL. At the moment of our visit, two bacteriologists were on maternity leave which may last up to three years according to the national law in place. Two technicians are working full time with line probe assay and both of them have been trained in Borstel SRL. It is equipped with 4 BSCs class II, 2 BACTEC MGIT 960, 2 LPAs for rapid diagnosis of TB and MDR-TB. Neither Light emitting diode (LED) microscopy nor Xpert MTB/RIF assay are available.
Supervision and quality assurance activities by the NRL have been discontinued since last year by the NTP.
The NRL is supplying all laboratories of the network with reagents and consumables on request. There was no shortage of reagents or consumables in the network of laboratories. All reagents are prepared by the NRL.

Building facility and utility services

Most of the laboratories in the periphery have poor infrastructure conditions. In some of them floors and walls are not easily cleaned. There is no correct labeling of doors or windows and biohazard signs. The electricity supply is not regular in Sheki and there is no emergency electric generator or any other back up power source. During our visit there was a power cut in the laboratory.
The availability of rooms is an issue as well in the TB laboratory network. Only few rooms are available in peripheral laboratories, mainly for sputum preparation and microscopy. The surface allocated for some rooms is too small compared to the recommended standards for the laboratory. In the laboratory of Sheki, for instance, there are no rooms for eating, changing or storage available for staff. Disinfectant solutions and clothes are kept in the same cup board in the microscopy room.
Access to the laboratories is not systematically limited to the laboratory personnel. The majority of the laboratories we have visited are clean and well organized and using disinfectant recommended by the NTP (Dettol 5%, Lysol 5 %).
In general, the communication capacity with the laboratory is weak. In some of the laboratories including of intermediate level, there is no landline telephone, fax service, e-mail or internet access.

Biosafety

Personal protective equipments which are being supplied by the NRL are available in the peripheral laboratories but do not always meet recommended international standards such N95 type of masks. There is no clear access policy and organization in the laboratory and biohazard sign at the entrance of the laboratory was not available in none of the laboratories visited by the team. In some

laboratories there is only one sink for hand washing and staining. Other biosafety devices or systems such as aerosol tight centrifuges with closed cups are lacking. In Zagatala, the only available biosafety cabinet was not working properly; there is no documentation of the last maintenance. At the NRL, the last measurement of the air changes per hour was done in 2010. There is an autoclave for decontamination in all laboratories and incinerators located in the premises of the facility. Recently, the NRL has translated the WHO manual of standard operating procedures into Russian while another version in Azerbaijani language is also planned. The manual covers biosafety, preparation of media and reagents, equipment maintenance and procedures for microscopy and culture.

Equipment and maintenance

Peripheral laboratories are normally equipped with binocular light microscopes for sputum smear microscopy. The quality of centrifuges varies from one laboratory to another. The majority of laboratories have been equipped through the support of German Development Bank support, the Global Fund and International Red Cross and Red Crescent committee. Other types of lab equipment are also available including autoclaves, Biological safety Cabinets (BSC), micropipettes, centrifuges, etc. All three of intermediate laboratories are equipped with binocular light microscopes for ZN microscopy and biosafety cabinets class II for culture examinations.

The technicians at the NRL do not feel safe working with BSC which have not been certified for more than a year. A total of four Biosafety cabinets class II are available at NRL.

In general, the maintenance of the laboratory equipment remains a challenge since there is no maintenance unit and personnel attached to the NTP. MOH checks all BSCs at NRL upon the request NRL has requested Director of the NRL ensured us that he has already requested the local epidemiological unit from the MoH to check all BSCs at NRL.

Quality assurance practices and indicators

The standard operating procedure's (SOP) manual describes procedures and standards for TB laboratory methods including all required topics but has not yet been disseminated to all laboratories of the network. At the NRL, the reagent bottles were labeled with the content, date of preparation and date of expiry. There have been improvements in the quality assurance of culture and DST with the implementation of a system to ensure the quality of the LJ media and record the results for each new batch; however NRL has reported to be purchasing eggs for media preparation from different sources at the next door supermarket.

Although, the preventive measures have been implemented in the laboratory, the contamination rate remains high for LJ, 11.2% on average in 2011. The recommendations made in December during the visit of Dr Marija Joncevska (GLI laboratory consultant) to improve the recording and reporting forms for monitoring the contamination rates by including information on comparison of LJ and liquid media from the same sample is not yet implemented. The NRL is taking part to the proficiency testing organized by the SRL Borstel every year for DST of first-line and second-line drugs.

External quality assessment of AFB smears in place is not reliable and does not work properly. On-site evaluation visits performed quarterly by the NRL have been discontinued by the NTP since last year. The director of the NRL performed only supervisory visits of 12 raions in 2011 and only 6 rayons have been visited during the first quarter of 2012 by the deputy director of the NRL.

The implementation countrywide of a programme for blinded rechecking of slides at regular intervals is not fully in place. The NRL is trying to use an appropriate statistical sample, Lot Quality Assessment Sampling (LQAS) for blinded rechecking of AFB smears but so far the system doesn't work properly because slides are selected by the technicians on the request of the controllers by phone and sent to NRL.

Most of the quality indicators for smears and culture were not possible to calculate because there is no indication on the purpose of the examination in the NRL laboratory register; diagnosis and follow-up results were mixed. For this reason we were unable to calculate the contribution of culture to diagnosis over microscopy or the percentage of smear-positive and culture-negative diagnostic cases. We were also not able to calculate LJ/MGIT indicators since there is no information on comparison of results obtained on both media from the same sample.

The monitoring of the contamination rates for culture on LJ in 2011 has shown poor results with an average of 11.2% in 2011 while the expected contamination rate should be between 2-5% for solid culture); the contamination rate on BACTEC MGIT 960 was in the expected range with an average of 8.8%, it has improved after picking at 20.2% in August 2011(Annex IV)

Between September 2010 and August 2011, the NRL has performed 127 successful and 18 unsuccessful tests with Line Probe Assay. Only 1 result with mixed patterns was found and 14 results

were discrepant as compared with LJ. The rate of positivity of negative control (contamination) equaled 0.

Specimens: collection and transport

The samples of sputum are generally not collected under direct supervision of the laboratory technician. The number of samples collected for diagnosis and monitoring of the treatment is not always in accordance with NTP policy. Normally, three samples should be collected for the diagnosis and two for follow-up of patient's treatment.

The system of transport of sputum samples from the peripheral level to the central level is organized once a week but the system of communication between both levels for feedback of the results of sputum samples processed at NRL is not properly functioning. As an example, the result of a sample sent to the NRL for culture and DST in October 2011, was not yet communicated back to the laboratory which has requested it. All results are supposed to be collected by the regional coordinators and sent back to peripheral laboratories. In general, there are often delays in feedback of results for samples sent to the NRL for culture and or drug susceptibility testing.

Laboratory request forms, registers and report forms for smear and culture examinations are NTP-approved and are used for every patient result; but they are not always properly completed. In some laboratories, microscopy results are not entered into the registers on daily basis and sometimes scanty results are not recorded according to WHO\The Union recommended standards.

The penitentiary system

All TB suspects from pre-trial isolators (SIZO's) and colonies are immediately transferred to STID TB for the further investigation and treatment. The usual length from the patient to be transferred to STID TB does not exceed 5 calendar days. The laboratory service has a great diagnostic capacity for TB and MDR-TB. It is considered as one of the two level 3 laboratories in Azerbaijan together with the NRL. The laboratory uses conventional and liquid media for culture. The laboratory is well equipped including 5 light emitting diode microscopes, 2 BACTEC MGIT 960 machines provided through the GF grant. It is also equipped with the latest rapid diagnostic tools of tuberculosis and detection of rifampicin resistance such Xpert MTB/RIF assay and line probe assay. The implementation of LPA which started in 2008 has been finalized in 2010. The diagnostic algorithm includes smear microscopy, culture and both LPA and Xpert MTB/RIF assay. Currently, the laboratory runs out of cartridges and waiting a supply of 7900 cartridges from FIND through EXPAND-TB project; two shipments were expected respectively in April and October 2012. It is foreseen also to equip 3 peripheral laboratories with Xpert MTB/RIF assays respectively at colony 13 in Kharadagh, in Sizo (BIT) and at the Specialized TB treatment institution (STI_I. The laboratory which took part to the evaluation of the Xpert MTB/RIF has become a training center for TB diagnostics. In order to improve working conditions of the staff, following the recommendations of previous evaluations by different international laboratory experts, recently a decision was taken by authorities of the main medical department of the Ministry of Justice to build a new laboratory; a space has been dedicated for this purpose within the territory of the same penitentiary facility and a plan of the future laboratory was designed by an international expert from the International Red Cross and Red Crescent committee(ICRC).

RECOMMENDATIONS:

- Provide adequate staffing at all peripheral laboratories and intermediate laboratories particularly in Zagatala and Ganja.

- Implement countrywide standardized operating procedures in TB laboratories countrywide according to international standards and translate them in the local language

- Monitor the effectiveness and efficiency of the established logistic system for the transportation of sputum samples between the peripheral laboratories and the NRL

- Report timely back all results of culture and DST performed by the NRL to the regions for a better patient management

- Ensure sputum collection under the direct supervision of the lab technician or the nurse in charge in all TB facilities

- Improve the recording and reporting system at all levels of the TB laboratory network

- Improve physical conditions of the laboratory in Sheki and Ganja by providing additional rooms; cupboards for clothes and storage of reagents and provide an uninterrupted electricity supply in Sheki.

- Allocate proper funding for maintenance of laboratory biosafety equipment and pursue certification of BSCs in all TB laboratories by appropriately trained and certified experts
- Promote a strong leadership of the National Reference Laboratory to oversee all activities performed by the TB laboratory network

- Improve the management of supplies and consumables using NTP-recommended request forms. The request should be based on stock balance and consumption for a defined period of time(e.g., a quarter or half-year)

- Certification of the appropriate functioning of biosafety cabinets in all regional laboratories should be carried out on a regular basis and documented as minimum once per year

- Build the new reference laboratory of the penitentiary sector and replace the centrifuge for handling of sputum samples
- To ensure free access for all TB suspects to modern diagnostic tests (including tests for M/XDR TB)

- To integrate TB services into the terms of reference of primary health care (PHC) providers

- Improve patient selection to impact on the low positivity rate among TB suspects and the workload of laboratory technicians

2.7. TREATMENT

FINDINGS:

In case TB is diagnosed, the treatment with four first-line drugs with or without injectable is started. The decision to include streptomycin or kanamycin into regimen is guided by the country-guidelines.

When the information on drug resistance is received by the clinician, the patient is presented to the M/XDR-TB committee in the SRILD. Unfortunately, there is a limited amount of second-line drugs (SLDs) only available through the Global Fund grant. Thus, in 2011 total of 900 patients with M/XDR-TB were diagnosed, of them 250 were included to the 4th cohort (there were total 362 patients in the 4th cohort); 188 patients were included into 5th cohort (the total size of the 5th cohort is 300 patients). In addition, approximately 200 were on the waiting list of treatment and additional approximately 300 were not presented to the M/XDR-TB committee.

The M/XDR-TB committee recommends the treatment regimen. The treatment regimens were reviewed and they were in-line with the latest 2011-WHO recommendation. From 2007, the current head of the M/XDR-TB committee is participating in the M/XDR-TB committee in the penitentiary system.

The follow–up of the treatment is done by monthly smear and culture until bacteriological conversion, thereafter each two months. The DST is repeated if cultures still positive after 3 months.

Side-effects management is considered as adequate. It was observed, that the clinicians were diligent in following the recommendations and were managing the side-effects well.
The side-effects are recorded into the patient's files. Unfortunately the side-effects are not systematically analyzed in civilian services. The drugs for management of side-effects were free of charge for the patients.

The guidelines for treatment have been approved by the MoH in 2011 and have been distributed to the TB services. Regardless of several revisions by the WHO, there are still some differences with the latest international recommendations. The main difference was observed in recommended treatment regimens for regular and resistant TB.

Regular TB
The radiological findings, instead of history of previous treatment, are used for determining the treatment regimen (inclusion of streptomycin to the regimen). Thus, category I is used in case only one lobe of the lung is affected and streptomycin is added if more than one lobe is affected. It might bring to over-use of streptomycin in new cases. Furthermore, in case of streptomycin resistance, it is encouraged to use kanamycin, which belongs to the second-line drugs and should be reserved for those with poly- and M/XDR-TB.
The issue is even more complicated considering that the quality of x-rays is suboptimal in the periphery and the use and monitoring of locally-recommended "affected site-based" treatment regimens is not possible.
The recommendation to use kanamycin instead of streptomycin in case of resistance to the latter promotes use of a single second-line drug in conditions, where the result of drug sensitivity testing is usually coming after several months of treatment. By that time the intensive phase is commonly completed and injectable should be stopped.

In practical terms it was observed that four first-line drugs (isoniazid, rifampicin, ethambutol, and pyrazinamid) plus injectable was commonly used in both new and re-treatment cases in the periphery as well as in SRILD. Streptomycin was the preferred injectable in the periphery, while the TB department in the SRILD used kanamycin in 22.2% of the cases (8 out of 36 cases reviewed).
The doses of first-line anti-TB drugs were according to the WHO-recommendations.

Drug-resistant TB
According to the approved guidelines, the radiological findings, instead of bacteriological status are used to guide the length of the treatment and the selection of the regimen.
In case of M/XDR-TB, the duration of intensive phase was recommended to be at least 6 months instead of 8 month. The total duration was limited to 24 months, which in some cases might be too

short in case the bacteriological conversion would take longer time than 8 months. The fluoroquinolones were used divided into two daily doses, whereas the international consensus is to administer them once per day to increase the treatment efficiency.
The duration of treatment for patients with mono- and poly-drug resistant TB (particularly when there is resistance to rifampicin) was 12 months, whereas the current international recommendation is 18 months.

Otherwise, the recommended standardized treatment regimens for MDR-TB cases were acceptable, considering the prevailing drug sensitivity pattern: intensive phase consisting of Km/Cm Lfx/Mfx Eto Cs Pas Z and continuation phase of Lfx/MfX Eto Cs Pas Z.

The treatment regimens actually prescribed by the M/XDR-TB treatment committee and used in the M/XDR-TB hospital No 6 were not following the approved country guidelines but according to the latest international recommendations. Total of 42 cases out of 69 were reviewed by the team in the hospital. The standard treatment regimen (Km/Cm, Lfx/Mfx, Pto, Cs, PAS, Z) was used in all cases. The duration of injectable was at least four negative cultures but never less than 8 months – according to 2011-WHO recommendations. In fact, the injectable was kept sometimes longer than necessary – in 3 cases out of 42, injectable was kept for almost one year, even if sensitivity was preserved to fluoroquionolone, injectables and cultures were negative for more than four consecutive months negative. The dosage of drugs was adjusted to body-weight.
There were 10 XDR-TB patients (23.8%) among reviewed cases, all of them receiving Mfx and Cm. They were appropriately on injectable as none of them had still converted. Out of them three had been on treatment for approximately one year.

In the rayons visited, some irregularities were observed in composition of the treatment regimens for M/XDR-TB: in some cases levofloxacin or pyrazinamid were missing from the regimen without further justification. In total of 10 reviewed cases moxifloxacin was used as the first choice in fluoroquinolon-sensitive cases due to the lack of levofloxatin for a period of time. The connection between the duration of injectable and culture conversion as well as total duration of treatment was not possible to determine because the data on culture and DST were at the central rayon level and data on drugs intake at DOT units.

The surgery is conducted in the SRILD. The criteria for surgery, besides the emergency situations, were mainly the presence of large cavity or tuberculoma in cases were one lung was affected. Usually the patient was treated for 3-6 months before the surgery is done. The patients were evaluated for the possible surgery already at the start of treatment.
The infection control measures in the operation theatre and post-operative unit are not adequate.

Treatment outcomes
The treatment success for the new smear positive patients notified in 2009 was 62.0%, 3.1% died, 7.3% failed, 16.0% defaulted, and 11.6% were lost for follow-up. The country-wide information on treatment outcome for the patients notified in 2010 was not available at the time of the mission.

The information on treatment outcome for patients notified in 2010 was possible to collect during the site-visits. The treatment success rate was 61.3% in Shamkir and 86.9% in Ganja. It was observed that the proportion of patients who failed the treatment was very low: 1.6% among all notified patients in Shamkir and 0.3% in Ganja city (Table 1, Table 2). This is very low compared to the high rates of M/XDR-TB revealed during the DRS. The default rates were rather high – 23.0% in Shamkir and 12.8% in Ganja.

TABLE 1. TREATMENT OUTCOME FOR COHORT NOTIFIED IN SHAMKIR RAYON, 2010

New	Cured	Compl	Died	Fail	Def	Tr out	Total	Tx SS	% Tr SS
Q1	5	20	0	0	5	3	33	25	75,8
Q2	1	18	0	1	9	5	34	19	55,9
Q3	4	18	0	1	6	5	34	22	64,7
Q4	2	32	0	2	7	4	47	34	72,3
Total	**12**	**88**	**0**	**4**	**27**	**17**	**148**	**100**	**67,6**
			0%	**2.7%**	**18.2%**	**11.5%**			
All	Cured	Compl	Died	Fail	Def	Tr out	Total	Tx SS	% Tr SS
Q1	8	45	1	0	15	10	79	53	67,1
Q2	2	47	0	1	20	7	77	49	63,6
Q3	5	34	0	1	24	11	75	39	52
Q4	1	48	4	3	15	8	79	49	62
Total	**16**	**174**	**5**	**5**	**74**	**36**	**310**	**190**	**61,3**
			1.6%	**1.6%**	**23.9%**	**11.6%**			

TABLE 2. TREATMENT OUTCOME OF THE COHORT NOTIFIED IN GANJA CITY, 2010

New SS+	Cured	Compl	Died	Fail	Def	Tr out	Total	Tx SS	% Tr SS
Q1	18				2		20	18	90
Q2	6				2		8	6	75
Q3	9				2		11	9	81,8
Q4	7				1		8	7	87,5
Total	**40**	**0**	**0**	**0**	**7**	**0**	**47**	**40**	**85,1**
					14.9%				
New S-									
Q1		30			2		32	30	93,8
Q2		21			4		25	21	84
Q3		16			3		19	16	84,2
Q4		27			13		40	27	67,5
Total	**0**	**94**	**0**	**0**	**22**	**0**	**116**	**94**	**81**
					19.0%				
Extra-pulmonary									
Q1		33			2		35	33	94,3
Q2		18			3		21	18	85,7
Q3		27			0		27	27	100
Q4		21			0		21	21	100
Total	**0**	**99**	**0**	**0**	**5**	**0**	**104**	**99**	**95,2**
					4.8%				
Re-Tx									
Total	**0**	**51**	**0**	**1**	**8**	**0**	**60**	**51**	**85**
				1.7%	**13.3%**				

The treatment success of the M/XDR-TB patients enrolled into the GLC approved project in civilian services was rather low in the first cohort and also in the second cohort (57.7% and estimated 56.9%, respectively). One has to consider that the treatment regimens were suboptimal in those two cohorts as described in the report from the monitoring visits on behalf of the GLC in 2009, 2010, and 2011. It is hoped that the treatment results will improve for the 5th cohort of the patients because the treatment regimens have improved.

The treatment of patients with drug-resistant TB has converted from the mainly hospital-based services to mostly out-patient based care. There is also a good reason for it as the infection control measures are generally not implemented in the TB facilities and it is also much more expensive. The criteria for hospitalization were said to be the clinical condition of the patient. The criteria for discharge from the hospital were: improved clinical conditions of the patients and preferably smear conversion.

Similar information regarding how many patients with regular TB are treated as out-patients from day one was not available. It was estimated that approximately 25% out of M/XDR-TB patients are treated as outpatient from day one. The only civilian hospital for treatment of M/XDR-TB patients is the Dispensary No 6 in Baku. The facility has been refurbished and became operational in 2010. The hospital has capacity of 90 beds but actual number of beds was 78, of which 69 were occupied at the time of the visit. The yearly turn-over is approximately 150 patients.

Outpatient Care

Outpatient care is provided to all patients in the TB dispensaries, now renamed into pneumo-physiology hospitals, or in the DOT points at the primary health care services, such as policlinics and health points. Nevertheless, the patient with regular TB are primarily on self-administrated treatment (SAT). They come to the doctor once per 10 days or two weeks to fetch the drugs for the next period. The M/XDR-TB patients are coming daily, six times per week. Those who cannot consume all drugs at once take the second dose of drugs home. Most often PAS is taken home, which might be a problem during summer period, as the cold chain regime is not followed.
It was observed, that the TB and M/XDR-TB patients are received in separate rooms for drugs intake, served by different staff members, even if there would be only one M/XDR-TB patient in rayon. This is not optimal use of resources.

Based on the treatment outcome data at the sites visited, the treatment *adherence i*s problem in patients with regular TB. Neither incentives nor enablers are provided to the patients and health care staff. In case patient is missing appointment the nurse is trying to find him or her. However, as the defaulter rate is high , then obviously not much effort is put into bringing the patient back. The patients with M/XDR-TB have low default rate and are receiving approximately $ 63 US per months, which is transferred to their account from the GF grant. This support is expected to end once the GF grant ends. The health care workers are motivated to bring the defaulting M/XDR-TB [patients back to treatment. In case the patient cannot come to the DOT point, the health care worked goes home to him or her. However, the patient centered approach is not really used.

Involuntary treatment

Currently there is no law on involuntary TB treatment in Azerbaijan. Furthermore, given that not all patients have access to M/XDR-TB diagnosis and treatment, and the infection control measures are not implemented in most of the facilities, such a law is not possible to implement. Only in case of universal access to diagnosis and treatment using patient-friendly models of care, involuntary separation of patients who refuse treatment may be considered.

Palliative care

There are neither guidelines nor any initiatives for provision of palliative care to those patients who no longer qualify for active TB treatment.

Penitentiary services

The treatment of regular and drug-resistant TB (DR-TB) is concentrated to one facility in Specialized Treatment Institution for Detainees sick with TB (STI), which is situated close to Baku. It is an excellence center for management of TB and M/XDR-TB in prison settings.
The ICRC launched a pilot TB project in the prisons in Azerbaijan in 1995. During the period 1995-1998, the ICRC was working hands-on in implementing the DOTS project in the Central Penitentiary Hospital (CPH). From 1999 onwards, the ICRC has been gradually decreasing its substitution and increasing capacity building and technical assistance. From 2011, the ICRC phased out of TB project. The Ministry of Justice successfully applied to the Global Fund in 2009 and the grant became operational from 2010. The principal recipient is the MoJ. The Green Light Committee approved project on management of M/XDR-TB patients was launched in 2007 under the MoH GF grant round 5.

All inmates are screened at entry to the penitentiary system and once per year during stay in prison. The *TB suspects*, which have not been yet confirmed having TB are referred to the STI admission ward for confirmation of diagnosis (sputum for culture is taken). The STI laboratory is using *rapid techniques for detection of drug resistance* (DR): (1) in cases with smear positive cases, HAIN test is used (DST is done to H R E Ofx and Cm); (2) for other cases GenXpert is used. Therefore resistant case is separated within a week to the MDR-TB department. The infectious cases are separated from others in the admission ward. The XDR-TB patients are planned to be isolated from MDR-TB cases in the nearest future.

The *treatment regimens* are used according to the latest WHO recommendations for regular TB and also in case of M/XDR-TB. The CAT II is used for all drug-sensitive cases, but it is planned to use only CAT I in the future as there is no benefit from adding streptomycin to the treatment regimen in case DST is done for all at start of treatment.
The treatment success of all patients notified in 2010 was 72.4%, while 11.9% failed, most of them MDR-TB (Table 4). Total of 12.7% defaulted.
For M/XDR-TB cases individualized treatment regimens are used, usually composed of second-line injectable, levofloxacin, prothionamid, cycloserine, PAS, pyrazinamid. In case of XDR-TB moxifloxacin is used and any of the injectables to which there is sensitivity. Unfortunately, there is no access to Group IV and Group V drugs, such as amoxicillin/clavulanate potassium, clarithromycin, linezolid, and clofazimine.
The patients with PDR-TB are put on rather extensive CAT IV regimens. Thus, in case of HS resistance the following regimen is favored: R, Z, E, Lfx, Pto for 12 months, even if a 6-9 months course containing R, Z, E and possibly fluoroquinolone should be enough. Given that the regimens are maybe somewhat overtreatment, it is not a major problem.

Side effects are monitored and information is recorded and analyzed within the MOJ project. There are enough auxiliary drugs for side effect management, partly procured by the MOJ partly by the GFATM. Most often side-effects are gastro-intestinal, neurological, and psychological disorders. Hepatitis B and C are a problem as expected based on the incidence of respective diseases in the population and also the prison setting.

The treatment outcome of the first 100 patients with M/XDR-TB enrolled with the support of the ICRC was very good compared to the other GLC approved projects. The interim treatment success was 74.2.0%. The cohort was selective, but nevertheless it is a good outcome (Table 4). The default rate has remained as low as 3%, which is very good. The treatment success of the following cohorts was also very good: 64.8% in 2008; 81.2% in 2009. It was pointed out that somewhat lower treatment success of the cohort that started treatment in 2008 was because the project for released detainees started only from the second half of 2009.

The default rate is low for all TB patients, mainly because the MoJ is implementing the project for follow-up of released detainees. From 2009, the project was supported and carried out by the ICRC in collaboration with the NTP. From 2011, the local NGO is a sub recipient of the GF Round 9 grant for this project. The project is well documented and evaluated for costs involved. Out of all 122 patients released during 2011, none has defaulted. Out of them 70.5% (86 out of 122) continued first-line anti-TB drugs and 29.5% (36 out of 122) continued treatment with SLDs.

The M/XDR-TB patients are getting monthly hygienic parcels and also once at release from prison. In the STI the prisoners are getting daily food supplements and continue the same way after they are released.
The transfer form is sent to the civilian services upon release of the prisoner with TB. The form has a return-stub, which should be sent to the MOJ TB programme with the information about the patient (when he/she reaches the civilian TB services and at the end of treatment). The project team also takes monthly blood tests and sputum analyses and brings it to the STI.

TABLE 4. TREATMENT OUTCOME OF PATIENTS NOTIFIED IN PENITENTIARY SYSTEM, 2010

	TOTAL evaluated	Cured	%	Compl	%	Died	%	Failure	%	Default	%	Trasf	%	Still on Treat	Total notified
New pulmonary SS+	159	116	73	0		4	2,5	20	12,6	18	11,3	1	0,6	0	159
New pulmonary SS-	168		0	128	76,2	2	1,2	8	4,8	29	17,3	1	0,6	0	168
New extra-pulmonary	0			0		0		0		0		0		0	0
Pulmonary Relapse SS+	49	31	63,3	0	0	0	0	17	34,7	1	2	0	0	0	49
Pulmonary after Failure Cat 2 SS+	5	0	0	0	0	2	40	2	40	1	20	0	0	0	5
Pulmonary after Default SS+	33	21	63,6	0	0	3	9,1	5	15,2	4	12,1	0	0	0	33
All pulmonary re-treatment cases SS-	107	46	43	35	32,7	3	2,8	10	9,3	13	12,1	0	0	0	107
TOTAL	521	214		163		14		62		66		2		0	521

TABLE 5. COHORT ANALYSIS OF THE OUTCOME OF M/XDR-TB PATIENTS ENROLLED INTO THE GLC PROJECT IN PENITENTIARY SYSTEM IN 2007

Patient group	Cured	Treatment completed	Failed	Interrupted treatment	Died	Transfer out	Still on treatment	Total
New	1	0	0	0	1	0	0	2
Previously treated with FLD only	22	0	5	0	1	0	0	28
Previously treated with both	26	0	4	2	4	0	0	36
Total	49	0	9	2	6	0	0	66
%	74,20%	0,00%	13,60%	3,00%	9,10%	0,00%	0,00%	100,00%

TABLE 6. COHORT ANALYSIS OF THE OUTCOME OF M/XDR-TB PATIENTS ENROLLED INTO THE GLC PROJECT IN PENITENTIARY SYSTEM IN 2008

Patient group	Cured	Treatment completed	Failed	Interrupted treatment	Died	Transfer out	Still on treatment	Total
New	0	0	0	0	0	0	0	0
Previously treated with FLD only	22	0	1	6	2	0	0	31
Previously treated with both	13	0	4	4	2	0	0	23
Total	35	0	5	10	4	0	0	54
%	64,8%*	0,00%	9,30%	18,50%	7,40%	0,00%	0,00%	100,00%

* Low treatment success rate in 2008 is because 11 MDR-TB patients from 2008 cohort were released in early 2009, when the project for released detainees had not started yet. Thus among 11 cases with released patients treatment results have been as following: 5 defaulted patients, 1 "failure" and only 5 patients were cured.

TABLE 7. COHORT ANALYSIS OF THE OUTCOME OF M/XDR-TB PATIENTS ENROLLED INTO THE GLC PROJECT IN PENITENTIARY SYSTEM IN 2009

Patient group	Cured	Treatment completed	Failed	Interrupted treatment	Died	Transfer out	Still on treatment	Total
New	13	0	1	2	0	0	0	16
Previously treated with FLD only	41	0	3	1	3	0	0	48
Previously treated with both	24	0	3	3	2	0	0	32
Total	78	0	7	6	5	0	0	96
%	81.2%	0.0%	7.3%	6.3%	5.2%	%	%	100,00%

TABLE 8. COHORT ANALYSIS OF THE OUTCOME OF M/XDR-TB PATIENTS ENROLLED INTO THE GLC PROJECT IN PENITENTIARY SYSTEM IN 2010

Patient group	Cured	Treatment completed	Failed	Interrupted treatment	Died	Transfer out	Still on treatment	Total
New	12	0	0	0	0	1	4	17
Previously treated with FLD only	35	0	4	1	2	2	12	56
Previously treated with both	10	0	6	2	2	3	10	33
Total	57	0	10	3	4	6	26	106
%	53.8%	0.0%	9.4%	2.8%	3.8%	5.7%	24.5%	100,00 %

TABLE 9. COHORT ANALYSIS OF THE OUTCOME OF M/XDR-TB PATIENTS ENROLLED INTO THE GLC PROJECT IN PENITENTIARY SYSTEM IN 2011

Patient group	Cured	Treatment completed	Failed	Interrupted treatment	Died	Transfer out	Still on treatment	Total
New	1	0	0	1	0	7	35	44
Previously treated with FLD only	1	0	1	3	1	6	44	56
Previously treated with both	1	0	0	0	1	4	11	17
Total	3	0	1	4	2	17	90	117
%	2.6%	0.0%	0,90%	3.4%	1.7%	14.5%	76.9%	100,00%

RECOMMENDATIONS TO CIVIL SERVICES:

- Provide DOT for all TB patients receiving Rifampicin containing treatment regimen
- Integrate TB and M/XDR-TB treatment services in primary health care services
- Develop and implement plan for palliative care
- Provide palliative care
- Submit already approved TB guidelines on case finding and prophylaxis as well as the future TB-related guidelines to the WHO review
- Stop using kanamycin to first-line anti-TB drugs in the treatment of drug-sensitive TB, that is in regimens for Category I and Category II.

2.8. CARE

FINDINGS:

M/XDR-TB patients who receive out-patient treatment receive an incentive in the form of food package and a small amount of money for transportation as an enabler. During the intensive phase, the auxiliary drugs are provided free of charge to the patients in the hospitals which does not take place during the continuation phase of treatment. As the mission was informed funds were allocated to procure these drugs. There is an example of inter-sector collaboration: a non-governmental organization "Center for Equal opportunities" funded since 2012 by Global Fund and Open Society Institute are involved in palliative care for 15 TB/HIV co-infected patients and collaborates with dispensaries. In 2010 – 2011 psychosocial care to M/XDR-TB patients was provided during the continuation phase by the Red Crescent of Azerbaijan. The project was funded by Eli Lilly and included home visits to provide DOT, consultations to patient and family by a psychologist and facilitation in solving various social problems of the patients. Regardless of the dedication of the project staff of the 38 very difficult MDR-TB patients, mostly ex-prisoners, covered by the project four died and 11 refused treatment, reportedly because of side effects. There are examples of peer support activities in the penitentiary and it is used by "Support to Health" NGO, who also provide psychosocial support to ex-prisoners, however generally organizing peer support remains a challenge. Psychosocial support is offered by a number of NGOs, however they are heavily dependent on donor funded short term projects and their activities are therefore short-lived.

2.9. SPECIAL POPULATION

2.9.1 TB service in Prisons

FINDINGS:

TB control in prisons of Azerbaijan is the best example of the excellent management; proper diagnostic and managerial algorithm at all levels, starting from screening of the inmates at the entry to penitentiary (SIZO's), regularly screening for TB in all colonies and prisons in the country and strong referral system of the TB suspects. One of the important points is that all type of inmates are covered with TB services and have equal and full access to TB diagnosis and proper treatment, including juvenile fugitives, women, TB/HIV, and all other special groups inside penitentiary. No single report on unethical behavior had been revealed during the visit to the penitentiary and interview with the inmates. All interviews had been made privately and by random selection of the prisoners without presence of prison administration and staff.

RECOMMENDATIONS:

for MoH and NTP

- To ensure free access for all TB suspects to modern diagnostic tests (including tests for M/XDR TB)
- To integrate TB services into the ToR of PHC providers

for MOJ

- To share the experience gained by TB control project in penitentiary widely

2.9.2 Migrants

FINDINGS:

There is subjective evidence of movement of population across the borders including territories of the Russian Federation. The team could not document the number of patients who have moved to other countries or are coming from other countries. Interruption and/or inadequate treatment of people crossing the borders is a serious challenge to public health.
In the meantime, WHO Regional Office for Europe has facilitated a consensus paper on Minimum Package of Cross Border TB Control and Care. The Paper which has been discussed and agreed upon with the National TB Control Programme managers of the Region, covers essential measures to ensure timely diagnosis, adequate treatment and through care of the patients.

RECOMMENDATIONS:

for MoH and NTP

- To consider negotiating implementing Minimum Package of Cross Border TB Control and Care with the the countries patients going to and coming from.
- To improve surveillance system to be able to capture the patients crossing the borders

2.9.3 HIV positive individuals: TB/HIV collaborative activities

FINDINGS:

- TB and HIV services poorly coordinate their activities:
- No normative documents regulate coordination and collaboration between TB and HIV services, except recommendation on HIV screening in TB patients and TB screening in people living with HIV (PLHIV).
- Over 74% of PLHIV with active TB are also injecting drug users (IDU) – should be the key focus group for interventions.
- Over 20% of referred PLHIV for TB screening and diagnosis are lost to follow up and their TB status remains unknown
- TB services do not have information on HIV status of their TB inpatients and are not involved in HIV treatment and care.
- Information on prevalence of latent TB in PLHIV and IPT is scarce and roles and responsibilities of TB and HIV services in IPT prescription, monitoring and evaluation are not defined.
- Opioid substitution therapy (OST) is not available at TB hospitals. TB IDU patients seeking drugs are dismissed from hospital before treatment is finished, which contributes to development of chronic and drug resistant TB.
- NGOs working with IDUs or NGOs working in the area of TB are not involved in linking of their clients to TB/HIV services (bringing them to services for early diagnosis, support to TB and/or HIV treatment adherence, including DOT, follow up on regular visits to clinics for monitoring of laboratory markers and health condition).
- There is significant discrepancy in the HIV and TB services with regards to TB/HIV data. Surveillance and monitoring system on TB and M/XDR-TB in PLHIV and IDU has not been introduced.

Diagnosis of HIV in TB patients

According to the MOH Regulation N02/19-7667 as of 22.09.2011 all TB patients should be offered testing on HIV. Samples of blood are collected from patients with active TB and are sent to Republican AIDS Center, regional AIDS laboratories or regional surveillance centers for serological HIV testing. Confirmatory HIV test is performed in the Republican AIDS Center, and health care workers of the Center contact people living with HIV (PLHIV) for further HIV treatment and care. In 2010 out of total 46330 registered TB patients (4801 new TB cases) only 5986 (12.9%) were tested on HIV and 37 identified as HIV infected.

Diagnosis of TB in PLHIV

TB assessment of PLHIV is regulated by the National clinical protocol "Patient evaluation and ART in adults and adolescents" as of 2008, suggesting skin test, X-ray, sputum smear bacteriological survey. All PLHIV are referred for TB assessment to TB dispensary according to their place of living. PLHIV bring results of TB assessment back to the Republican AIDS center. In 2011 of 1052 PLHIV referred to TB service 886 brought results back. About 16% of referred PLHIV have never reached TB service.

HIV burden

Cumulative number of HIV/AIDS cases as of 01.01.2012 is 3267. Of 548 new HIV cases registered in 2011, 57.7% are among injecting drug users (IDUs), 34.1% - heterosexual contacts, 0.9% - among men who have sex with men (MSM), 1.6% due to the mother-to-child transmission (MTCT), and in 5.7% cases mode of transmission is unknown. Estimated number of PLHIV is 5000. M/F ratio is 75%/25%. Thus, HIV epidemic remains concentrating among male IDUs. In total, 895 AIDS cases have been diagnosed. Total number of deaths among PLHIV is 431 (284 due to AIDS). Mortality due to TB is registered in 28.9% of deaths cases; however underestimation is possible due to difficulties of extra pulmonary TB diagnosis and other reasons.

ARV treatment and care

Of 2217 alive patients with HIV in 2011 only 1167 (52.6%) were seen for care. NGOs working with PLHIV are not involved in linking their clients with the AIDS Center for regular health status monitoring. HIV treatment and care available only in Republican AIDS Center until now, will be decentralized to 6 regions in 2012 (Ganja, Shirvan; Guba, Sheki, Lenkoran and Nakhchivan) where about 260 PLHIV will be able to receive an out-patient and in-patient care, including delivery of ARV medications.

Initiation of ART is in line with the WHO recommendations (CD4<350 cells/mm^3). Of 1130 PLHIV eligible for ART 941 are receiving it (83.3%), remaining 17.7% consist of those who refused it or lost to follow up. After 12 months of ART initiation 78.8% continue to take it. Of remained 53 PLHIV (23%) – 18 died, others represent refusals and lost to follow up. CD4 test is recommended to be done at time of HIV diagnosis. However only 248 (43.6%) PLHIV diagnosed in 2011 (548) received it, and in 183 cases (76.6%) CD4 count is <350cells/mm^3, indicating late diagnosis and presentation to HIV service.

TB burden

Out of 2217 PLHIV 743 (33.5%) are registered as having active TB. It is estimated that real number is higher due to undiagnosed cases due to referral. Significant number of TB/HIV coinfected patients 553 (74.4%) are also IDU.

Diagnosis and treatment of TB in PLHIV

There are 9 TB dispensaries in Baku. All PLHIV living in Baku are referred to TB dispensary #4 for TB assessment. Results are given in written to a patient. National clinical protocol on management of TB/HIV co-infected patients is not available as well as any other normative documents which would regulate TB prevention therapy in PLHIV. PLHIV diagnosed with latent TB are given information on IPT and are referred for further care to a TB dispensary according to a place of living. DOT is not available in TB dispensaries for out-patients, and information on IPT uptake is not collected at any level of health care system. In case of diagnosed active TB in PLHIV who also need ARV treatment, persons receive TB treatment in TB dispensary and ARV treatment in the AIDS Center, as no integration of services is available.

Diagnosis and treatment of HIV in TB patients

TB patients being suspected of having HIV (for example, have Elisa positive HIV test) are called by TB expert for consultation with HIV clinical expert who comes from the Republican AIDS center so to take another blood sample for testing. HIV status is not marked in a TB patient record because of wrongly perceived issue of confidentiality. TB clinicians are unaware of HIV status of their patients and treat

only TB. In 2011 active TB was diagnosed in 75 PLHIV, however information on a number of PLHIV who were assessed on TB is not registered.

According to the statistical department data in 2011 new active TB was diagnosed in 4870 people, of whom 3472 were tested on HIV and 9 diagnosed with HIV. These data do not coincide with the data received at the Republican AIDS Center for 2011: 7106 TB patients tested on HIV and 44 diagnosed with HIV. The interviewed statistician admits underreporting, as HIV status is not disclosed to TB clinicians due to confidentiality issue. Important TB/HIV indicators such as TB treatment outcomes in PLHIV, TB mortality in PLHIV, MDR-TB in PLHIV, TB/HIV/IDU, IPT in PLHIV are not collected by the TB service.

According to the chief physician there is no MOH regulation on hospitalization of PLHIV with active TB to the dispensary #7. In 2011 out of 592 in-patients with active TB only 311 (52.5%) were tested on HIV. Results of tests are not known. Only approximate number (5) of active TB patients with HIV is known as those who were hospitalized in 2011 in dispensary #7. Treatment of HIV infection, if required, is provided by an HIV expert from the Republican AIDS Center who brings ARVs for several days and leaves them with patients. HIV status is not recorded in a patient card and TB medical personnel is not involved in provision of HIV treatment and care.
All hospitalized PLHIV with active TB are men and are known to be IDUs. However, opioid substitution therapy (OST) is not available in the hospital. TB treatment continues for 4-8 months, and patients are dismissed from a hospital if they do not follow rules and regulations. According to verbal information about 20% of inpatients are dismissed annually. This indicates how fragmented health system service delivery can contribute to development and dissemination of drug resistant strains of TB bacteria and HIV virus.

Republican Narcological Center is the leading country institution for treatment of drug dependence. Estimated data of drug dependency at country level is not available. By the end of 2011, 1999 drug users of whom 1349 (67.5%) opioid dependent injecting users were registered.

Opioid substitution therapy with methadone (OST)

By the beginning of 2011, 959 heroin drug users were receiving drug dependence treatment in the center of whom 137 were receiving OST with methadone. OST is financed by the MOH and is available also at the Republican AIDS Center. Buprenorphine is not registered and not available in the country. Criteria for OST initiation include: 2 or more ineffective treatment in hospital; desire of a patient; age over 18 years, more than 2 years of being under medical observation by narcologist; medical conditions such as wasting syndrome, HIV infection, TB, diabetes, hepatitis B or C, stomach ulcer, oncological disease. During that year 27 patients (19.7%) stopped it due to different reasons: 6 were imprisoned where OST is not available, 7 died, 11 started desintoxication, 3 - without obvious reason.

In case of hospitalization relatives should receive daily dose of methadone and bring it to the patient. In cases when no relatives are available, medical personnel of the center delivers methadone to patients. In 2011 four patients who started OST at the Republican Narcological Center also were receiving it in hospitals. However there is no link with TB hospitals and provision of OST for those IDUs who are not registered in the Republican Narcological Center but hospitalized for TB treatment.

HIV testing
Blood samples of almost all inpatients and out-patients of the Republican Narcological Center are tested on HIV in the laboratory of the center. In case of HIV positivity invited health care worker from the AIDS Center takes another blood sample for confirmation and follows up on patient HIV treatment and care after drug dependence treatment is finished. In 2011, of 2176 tested patients 31 were HIV positive: 20 IDUs and 11 alcoholics.

Despite of the guidelines to preserve confidentiality of HIV patients in TB facilities, there are cases of disclosure of positive status within penitentiary. Thus, penitentiary are using article 7.3 of the Law on fighting disease caused by Human Immunodeficiency Virus stating that information on HIV status may be distributed following written consent of the HIV patient. By these means, HIV infected prisoners are signing a written consent, that allows penitentiary personnel to reveal the status upon consideration.

TB assessment

An algorithm of TB assessment for in-patients includes X-ray and in case of suspicion, bacteriological investigation of sputum. For further diagnosis and treatment patients are referred to the TB dispensary according to place of living. In 2011, 7 patients suspected of having TB were referred to TB facilities. Diagnosis of latent TB is not available as well as IPT.

RECOMMENDATIONS:

- Establish a TB/HIV coordination working group (WG) under leadership of the MOH or CCM with involvement of the key country experts on TB and HIV. Terms of Reference for the TB/HIV WG should focus on developing collaborative activities on prevention, diagnosis and treatment, monitoring and evaluation of TB/HIV.

- TB/HIV WG should develop an operational manual which would clearly describe procedures and roles of TB and HIV programs in collaboration and integration of HIV and TB services, including services for the most vulnerable populations on both infections. The manual should be endorsed by the MOH for its introduction and implementation in the health system.

- Referrals of PLHIV to TB services for screening should be substituted with integrated TB diagnosis at HIV premises performed by a TB expert (recruited by HIV program or designated by TB program to work at HIV premises).

- TB experts should be aware of HIV status for their patients and in collaboration with HIV experts should provide HIV treatment and care to TB/HIV coinfected patients, especially in hospitals.

For MOH, CCM, NTP, NAP

- Establish TB/HIV working group for developing mechanism of collaboration and determining roles of TB and HIV services in prevention, diagnosis, treatment of TB/HIV coinfected patients and monitoring of TB/HIV indicators

For NTP and NAP

- Develop national clinical protocol on management of TB/HIV coinfected patients based on the WHO recommendations.
- Integrate diagnosis of active and latent TB in PLHIV in HIV service as well as initiation and monitoring of IPT.
- TB clinicians should be aware of patients' HIV status and in collaboration with HIV expert provide ART to TB/HIV coinfected in-patients in need of HIV treatment.
- For reaching the most vulnerable TB/HIV/IDU to integrate and link TB and HIV services with Drug dependence treatment services as well as with NGOs.
- Introduce surveillance, monitoring and evaluation of TB/HIV, including prevention and treatment interventions and outcomes; use the data for managerial decisions in improving of services.

For NTP

- NTP: Increase of HIV testing uptake among TB patients for earlier HIV diagnosis and proper clinical management of TB/HIV coinfected patients.

For NAP

- Involve NGOs in follow-up with patients for regular health status checks for improvement of clinical management and timely initiation of ART.

- Increase HIV testing among IDUs and other risk groups for earlier HIV diagnosis.
- Perform CD4 cell count at the time of HIV diagnosis in all PLHIV for timely ART initiation and better planning of ARV procurement.

For MOH

- Introduce OST in TB hospitals for improvement of TB treatment adherence and outcome for IDUs.

For NTP and Republican Narcological Center

- Introduce and integrate diagnosis of latent TB for in-patients of narcological service.

2.9.4 TB in children

FINDINGS:

According to legislation all children must be vaccinated with BCG from 0 up to 3 years old (in exceptional cases). Then, the services provision for TB in children consistsof routine PPD (Mantoux test) done for all pupils at schools and kindergartens. General pediatricians are responsible for TB detection and services provision. In case of the doubtful result children are referred to two TB institutions: TB department at the National Institute of Lung diseases or Children TB hospital, where both of them are tertiary level of services provision. The treatment of TB among children requires long hospitalization at the Intensive phase and putting children under the risk of the cross – infection. The number of TB beds for children is relatively low, nevertheless the over-hospitalization can lead to the risk of nosocomial TB. The adherence to the treatment at the continuation phase is low, according to the available information, but exact data is unavailable on default rate among children. Some of the specialists apply old dosages (5 mg /kg for H) instead of applying modern one, as recommended by WHO (10 mg/kg for H). Separation of the children in TB treatment facilities is basic (children grouped according to their status in the rooms, but share same corridors and bathrooms).

RECOMMENDATIONS:

- To ensure free access for all TB suspects to modern diagnostic tests (including tests for M/XDR TB)
- By the end of 2012, to elaborate clear criteria for the hospitalisation of the children and apply out – patient model wherever possible. Clinical, social and vital criteria for hospitalisation should be applied for children as it is done for adults (new protocols)
- To ensure infection control separation of the children in accordance to their status (BK positives, MDR TB)
- By 3rd Quarter of 2012, to attract district pediatricians for the treatment and follow up with the children.
- By the end of 2012, to train pediatricians from districts on TB and treatment of TB among children.
- By the 3rd Quarter of 2012, to attract Baku city TB doctors from Institute of Lung diseases for the monitoring / supervision of the TB activities in the districts.

3. HEALTH WORKFORCE

3.1. HUMAN RESOURCES FOR TB PREVENTION, CONTROL AND CARE

FINDINGS:

With regard to human resources, there does not appear to be a shortage of TB doctors and specialists however much of this cadre is aging and/or is trained in a highly specialized manner rather than being versed in primary health care. In addition, few skills exist in the area of operational research. Skills and knowledge of infection control, laboratory service, recording and reporting need to be improved. Skills for staff are not regularly updated, and therefore many are applying incorrect treatment regimens and often do not follow complete diagnosis protocols. Besides, the collection and use of data to manage patients at the facility level is incomplete.

In 2010 there were 338.25 TB doctors in establishment, in employment 288 Full Time Equivalent (FTE), from which 251 physical persons. In 2011 there were 334.25 TB doctors in establishment, in employment 268 FTE, from which 267 physical persons. Which means 85% of establishment for TB doctors was staffed in 2010, which went down to 80% in 2011. In 2011 there were 729 auxiliary staff, including 268,5 TB nurses (out of 334,5 in the establishment). Turnover at the visited facilities was indicated as low. There is less shortage of staff in the urban areas compared to rural areas.

Nation-wide there are 41 TB doctors, including 3 at the SRILD, who are going to retire in the next 5 years, which is 14% of the current number of TB doctors. With the current plans to decentralize DOT services to Primary Health Care (PHC), reducing the number of employed staff due to retirement may be acceptable, however careful planning should be exercised in order to prevent severe shortages of TB doctors especially in the rural areas. Regardless of the government's efforts to attract students to become TB doctors, and especially to work in the rural areas, in 2010 and 2011 there were no medical students undergoing specialization to become a TB doctor.
Anyone working at MDR-TB DOT facility gets an incentive, which is an additional 30 AZN/month. Average gross salary of TB doctor is around 160 AZN/month; average gross salary of TB nurse is 135 AZN/month. These include an additional 15% benefit paid to TB staff. Income taxes amounts to 14%. The salaries are comparable with the salaries of other medical specialists in Azerbaijan, and are just above 116 AZN/month, which is the official cost of living in 2011. However they are below the alternative (non-governmental) cost of living calculated by the Center for Economic Research, which was reported to be AZN 170,25 on the 1st of April 2012.

3.2. OVERALL HR FOR HEALTH

FINDINGS:

There is little turnover among PHC staff, existing turnover mostly results from retirement. Table 10 below (source: MoH) reflects the number of staff and the revised staffing levels, which are suggested by the "Reform in Health" World Bank (WB) project. The table reflects only the current actual numbers of staff in Baku. Depending on whether the suggestion of the WB is accepted, the levels of staffing, especially numbers of PHC nurses may have consequences for the quality of DOT services which are planned to be decentralized from TB dispensaries to the PHC. In any case, PHC staff will have to receive up-to-date training in TB and DOT provision, including communication skills.

TABLE 10. RESOURCE ALLOCATION BY RURAL AND URBAN AREAS

	Villages				Urban locations excluding Baku						Baku					
	Therapist + pediatrician (family		Nurses		therapists (including family		pediatricians		nurses		therapists (including family		pediatricians		Nurses	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
proposed	2066	2295	6197	11475	1923	2164	1170	1560	6186	7447	-	-	-	-	-	-
	2174		8697		2036		1337		6746		-		-		-	
Actual/ current	2041		11983		1546		1480		5421		817,25		777,25		7980,75	
difference	-133		3286		-490		143		-1325		-		-		-	

3.3. TRAINING

FINDINGS:

Previously training activities used to be funded by the Global Fund, accurate records are kept regarding the numbers of people trained and the subjects of trainings and the PIU in conjunction with the CCM/NTP devises a training plan which they submit to the GF for approval. The GF may request some changes in order to achieve efficiency savings. NTP received information about training needs from regular monitoring visits done by the coordinators. Although no training curriculum for in-service training was evaluated by the mission, improvements can be made in the area of training activities in order to improve their efficiency. In order to be effective and have the intended impact, trainings have to follow adult learning methods, which also mean that training needs have to be assessed where possible and training curriculum has to be tailored to address any gaps in staff knowledge or skills. It is advisable to have training impact measurement indicators developed before the training and monitored after the training to evaluate the subsequent changes in staff performance and resulting improvements in the quality of services being provided.

Currently the supervisors (curators) are expected to provide on-the- job training and information to TB doctors, also because there is no other funding for in-service training by the NTP. This is part of the QI effort, further explained in the chapter on Leadership and Governance. Curators provide feedback information about the patients in districts, based on the lab/DST results. There are currently 10 curators, the whole country is divided in clusters of several districts (or "regions") and each curator takes on 5-7 "regions". Monthly each curator goes on supervisory trip of about a week and about 90% of their time works with MDR-TB patients (control of treatment, select new patients for MDR-TB treatment, etc). Once a quarter they collect information about drug-susceptible TB. Curators are part of and report to the treatment & diagnosis department of the NTP. Quarterly meetings in Baku are organized to submit information and lists, especially the new cases, get cross checked between TB service and SES. Supervision used to be done by "regional" supervisors, which was a team consisting of a TB doctor and lab specialist visiting districts quarterly up to 2010. In 2009 in addition, there was also supervision from the national level to the "regions" and if necessary, upon request, to districts. Currently there are no lab specialists doing supervision from the national level.

3.4. STAFF DEVELOPMENT

FINDINGS:

There are two pre- and in-service educational establishments that train TB doctors: Medical University and the Upgrading Training Institute. They base their curriculum on the protocols developed by the NTP. Last curriculum update was in 2011 when the current TB protocols were integrated in the curriculum. Every five years health care staff are required to undergo upgrading training of two months for TB doctors (264 hours), followed by testing and an interview to complete certification. Similarly, every five years there is a 21 day (90 hours) upgrading course for nurses.. There are TB courses of one month (132 hours), which are held every 3 years and available for TB doctors in districts. Besides there are "thematic" courses e.g. TB in children for paediatricians and TB paediatricians, TB-pulmonology for TB doctors, therapists and pulmonologists, TB and lung diseases diagnostics.

SRILD conducts yearly scientific/applied conferences, e.g. in November 2011 at a national conference, funded by Abt Associates, information was given about current TB protocols to approximately 300 participants. Small regional conferences are planned every quarter, but they depend on funds availability, in 2011 two regional conferences were conducted. At such a two-day conference the first day is for giving information on scientific developments, research and practice and the second day on various TB protocols. There is regular monitoring with elements of supportive supervision, such as consultation of TB doctors on difficult cases. MoH maintains close contacts with Russian educational institutions, which sometimes give 3-weeks trainings (TB was or will be included in the plan).

3.5. PERFORMANCE ASSESSMENT

FINDINGS:

Reporting form number 08 is yearly submitted to MoH by all TB facilities, this is the basis for assessing performance of the TB service. During the field visits, mission observed considerable variance in the mechanism of individual performance assessment at the facilities: some of them had yearly activity plans for each staff, others did not. Generally performance assessment was done in the form of monthly reports to MOH based on discussion of cases with each TB doctor.

Job descriptions of staff members, outlining rights and responsibilities of different cadres are not used. In the absence of updated job descriptions, tasks and responsibilities are in principle inferred from conversations with supervisor(s) upon recruitment. There are a number of legislative documents that outline the responsibilities in TB service in general, however they need to be updated. MoH orders number 999, 630 and 1000 from the time of the USSR which specify conditions, responsibilities, rights and authority for TB doctors in general terms.

Typically a job description covers main tasks, responsibilities, authority and working conditions. It also outlines competencies (knowledge, skills and attitude) necessary to perform the job. The mission was informed that a under one of the World Bank projects, started in 2010, job descriptions were developed for all staff categories in health sector, they are not yet approved by the MoJ. Job descriptions can be adjusted per facility to reflect the actual situation at the facility and encompass any significant additional tasks that a staff member may be expected to perform, and upon which remuneration is based.

RECOMMENDATIONS:

For the PHRC

- allocate funds for additional in-service training and workshops of staff involved in the provision of TB related services.

For the NTP

- in order to be effective, trainings have to follow adult learning methods, be based on actual training needs assessment and have training impact measurement indicators in order to monitor the impact of trainings on consequent staff performance.

- make a stronger link between supervision and on-the-job training for TB doctors and other staff at facilities in districts. Supervisors (curators) to follow up the impact of training on staff performance and TB program results.

- in coordination with the MOH and the WB project, develop generic templates for job descriptions for all TB staff to cover main tasks, responsibilities, authority and working conditions.

4. INFORMATION

4.1. *SURVEILLANCE*

FINDINGS:

TB surveillance data collection

TB R&R forms revised according to WHO recommendations have been introduced since January 1 2012, even though still expected to be endorsed by the MoH order . The forms are printed by the NTP regularly with the Global Fund financial support . NTP does not provide standard registers for TB suspects and contacts, therefore district TB facilities do not keep the registers for TB suspects (neither for new, nor for previously treated). They only have a registry for referrals instead, which cannot be considered as a register for TB suspects. Some facilities keep a register for contacts of new TB cases (Zagatala TB dispensary, in-/out-patient facility), which is not standard and needs to be improved by containing information on TB diagnosis, IPT etc. As a result of not keeping the standard registry for TB suspects a registration number is not assigned to a TB case, which clearly qualifies beyond WHO recommended forms. M&E coordination unit (CU) assigns a unique number to a DR-TB patient in the waiting list in order to facilitate NRL work in terms of chemotherapy control.

Laboratory referral forms for microscopy TB-05 are filled in accurately. Instead of TB-06 form for culture and DST NRL provides a separate form, which varies around district TB facilities (whereas Sheki Inter-district Hospital for Lung Diseases uses a more updated form than Zagatala TB Dispensary). This form compiles information on TB case category, examination purpose, sample collection date but misses information on period of treatment. In case when culture result is positive it is up to the NRL to decide on performing or ignoring DST. Both culture and DST results are forwarded to district TB facilities.

District TB facilities keep TB case registry (TB-03) separately for each cohort of TB patients: treated with FLD and treated with SLD. Each treatment case is registered by the TB doctor (e.g. in the Zagatala TB Dispensary) or registry focal person (e.g. in the Sheki Inter-district Hospital for Lung Diseases) who are responsible for record-keeping. At least in some centers, staff will not register a patient who refuses to initiate his/her treatment. AFB (+) results are highlighted within registration form. For case categories as well as for treatment outcome there is only one column that interferes definition of the structure of registered TB cases and monitoring of treatment outcomes. Remarkably, TB-03 has a special column for own patients and one for the patients of another facility. DR-TB case registers have been kept well for long period of time. In 2011, TB facilities in Sheki and Zagatala involved 11 cases into DR-TB treatment (all are pulmonary TB), that included 2 new, 6 failures, 1 RAD and 2 others, 10 are laboratory confirmed MDR-TB, one – MDR suspect (because of Rifampicin borderline susceptibility result). NTP recommends the TB facilities to include in DR-TB case registry all detected DR-TB cases in order to define the waiting list and delay the integration into the DR-TB treatment.

District TB facilities keep patient card TB-01 for both drug sensitive and DR-TB. It contains demographic information on patient, case category, treatment regimen, drug dispensing and side effects. TB-01 includes the treatment outcome of “diagnosis not confirmed”. The form remains at the facility and is not given to patient on hand. On TB-01 for drug sensitive patients drug dispensing on DOT section is marked for 7-10 days, since there is no DOT provided for patients treated with FLD. As for the DR-TB, DOT section is cancelled in TB-01, since its function is carried out by a special register at DOT point. In case of “transfer out” the DR-TB TB-01 form moves by curator system from sender facility to a recipient one.

Case detection, recording & reporting and electronic data management

All 3 main ways of case detection are practiced in the Republic of Azerbaijan: passive (most utilized case detection that is based on the self-referral of the patient to a TB diagnostic unit as well as

referrals from the PHC doctors), active (practiced in some groups of the population, e.g. recruits etc.) and contact investigation. TB cases are faxed to the M&E CU of the SRILD on a monthly basis and are forwarded to MoH/SSES rayon level as emergency cases via forms 089 and 058. Only new (so called primary, i.e. never treated before) TB cases are notified individually (previously treated AFB(+) cases are reported to SSES as an exception). A TB case is notified to SSES in the following time frames: new AFB(-) during 3 days; new and re-treatment AFB(+) during 24 hours. Actions taken by SSES in response to the emergence of new TB case are the following: visiting disease site, defining the number of close contacts, opening an epidemic-card and disinfection of TB nidus.
Number of TB cases reported by the district TB facilities differ between the Bureau for Information and Statistics under the MoH and M&E CU, because case notification to MoH is performed according to the patient's residence permit and not by the actual residence and/or place of treatment, while case notification to M&E CU is done by their registration in district TB-03. To avoid such differences, M&E CU has ordered district TB facilities to register within TB-03 patients treated at another TB facility, but are the residents of their district.

In general, TB R&R in Azerbaijan maintains some elements of FSU system resulting inloss of time with processing and duplicating the efforts of TB control staff at both rayon and central level.

As for the aggregated reporting, TB facilities send TB-07 (reporting form on number of TB cases registered) and TB-08 (reporting form on treatment results of TB cases registered 12-15 months ago) to the M&E CU on quarterly basis between the 10-15th of the month next to the reference quarter. Also, TB facilities provide annual FSU report within form # 8 to the Bureau for Information and Statistics under the MoH in January.

Currently the NTP does not actually use any electronic system for TB R&R. Out of the cases notified to SSES only new TB cases are entered into the Electronic Integrated Disease Surveillance System (EIDSS) on rayon (district) level. This system generates the following reports:

- number of newly diagnosed TB cases,
- number of cases with respiratory system TB out of all newly diagnosed TB cases,
- number of smear positive respiratory system TB cases out of all newly diagnosed TB cases.

District level of TB control is not involved in electronic data management at all (it is only paper-based), but as the representative of Abt. foundation Dr. A. Pasechnikov mentioned, it is planned to automatically link the EIDSS with e-TB Manager by May 2012. Then, NRL (in future regional laboratories too) will enter lab data thus enabling to split the data set in 2 cohorts (one of treated with FLD and another one treated with SLD) and finally, treatment outcomes will be entered by curators (by the TB doctors in future). The M&E CU enters individual TB data compiled in hardcopy into the MS Excel spread sheet that is used as a substitute of a database for never treated TB cases.

TB-HIV data

Register TB-03 incorporates HIV data, however compiled data is incomplete. Ideally, any test results are indicated in TB-HIV column of TB-03, but quite often confirmation of HIV(+) result is not returned to TB facility. Because of the poor feedback from HIV service complete picture on HIV prevalence among TB patients is not available on district level as well as at M&E CU. Sheki TB facility is an exception, because HIV service responsible for confirmation of preliminary HIV(+) result is located near the TB facility. Sheki TB facility keeps a separate non-standard register for TB-HIV. At the moment of visit HIV test results were not specified in TB-03.

Patients with diagnosed TB but not notified

NTP demands from all TB facilities to register TB patients in either TB-03 or the registry for DR-TB treatment. According to regulations private providers do not treat TB meaning that only TB doctors

would treat a case without notification. In 2008 sale of FLD was banned, but current pharmacies are not watched properly. Stigma is a severe issue in the Republic of Azerbaijan. According to unofficial expert estimates by M&E CU unregistered cases may lie between 10-15% out of new TB cases and presumably higher among previously treated.

RECOMMENDATIONS:

- Create the registries for TB suspects and contacts;
- Elaborate a case code for each TB suspect;
- Establish TB case registry with separate columns for each case category and treatment outcome;
- Collect individual data of the previously treated TB cases;
- Notify TB cases by an actual treatment place and not by a patient's residence permit;
- Use rationally the time and efforts of TB control staff by suppressing FSU elements and stick to the WHO recommended monitoring system;
- Adjust the data flow between the district TB facilities, M&E CU, HIV service and NRL.

4.2. *MONITORING AND EVALUATION*

FINDINGS:

Structure of M&E system

M&E CU consists of 5 positions: 4 medical (2 representatives of SRILD – unit coordinator and doctor-statistician, 1 SSES representative responsible for monthly data cross-checking with CU,1 from Statistical department of the MoH) and 1 non-medical staff (an operator). Unit coordinator carries out the function of National TB Correspondent to the European TB network.

There is no coordination at regional level assigned, however curators (TB doctors conducting field supervision visits) take the responsibility of program performance monitoring. At rayon level M&E is the responsibility of rayon TB doctor. They come to CU quarterly with the aggregated report forms and patient name lists. These data are validated by pairing data from SSES and NRL. M&E CU trains the TB doctors and curators in R&R.

DOT and field supervision

During ambulatory phase of treatment DOT is provided only for TB patients treated with SLD at district TB facilities as well as rural PHC units (village medical point served by either DOT nurse or medical assistant). Coverage of village population size DOT points varies from several hundred (village Garadaghli of Sheki with population of 400) to several thousand inhabitants (Behmedli of Zagatala with population of 4 300). Some MDR-TB patients are served at home (Garadaghli). As currently reported, 1 or 2 MDR-TB patients receive treatment at village medical points, whereas slightly bigger number of patients are treated at district TB facilities themselves. At DOT points there are DOT registry, which stays at DOT room and time sheet, which is returned to district TB facility monthly for accounting purposes. Drug sensitive (or patients treated with FLD) TB patients do not get DOT at all. These patients go to district TB dispensary to get drugs for 7-10 days for self-administration.

As mentioned above, a curator system is established for field monitoring and supervision mainly for drug resistant TB control. The country is divided by several areas with one curator for several rayon within division. A curator performs monthly visits in his designated rayon of the country (district TB facilities regularly, rural DOT points once in a month in case of need). The curator system identifies and responds to the existing problems related to the drug resistant TB control. During the field visits the curator checks case registers, drug utilization and side effect management. Recently, standardized checklist has been used for the field monitoring visits. Visit protocols are submitted to

the Treatment-Diagnostic department of NTP only for the cases treated with SLD. The supervision activities related to drug sensitive TB control are carried out poorly.

RECOMMENDATIONS:

- Strengthen the routine program performance assessment by rearranging field supervision activities related to TB cases treated by FLD;
- Restart utilization of standardized field monitoring checklists for both drug sensitive and DR-TB.

4.3. *USE OF DATA FOR DECISION-MAKING*

FINDINGS:

Surveillance data analysis and interpretation, laboratory data
Despite the fact that R&R system in the republic of Azerbaijan is rather weak (only new individual TB case routine notification, misclassifications by treatment history, incomplete data on smear/culture/DST etc.) the policy makers still can benefit from thorough supervision on routine TB surveillance data. If we examine year-to-year changes in TB case notification in Azerbaijan it may be noticed that rate of change exceeds 10% in 2008 (more than 30% in previously treated cases), which is not expected under normal conditions. Annual rate of change that exceeds 10% may possibly indicate missing data. It may hardly be attributed to an actual change within burden of disease. It is quite possible that such a rapid change in case notification is related to FLD sale ban.
On the slides below the rates of change in civil sector new and previously treated TB case notifications are plotted:

FIGURE 1. RATES OF CHANGE IN PREVIOUSLY TREATED TB CASE NOTIFICATION

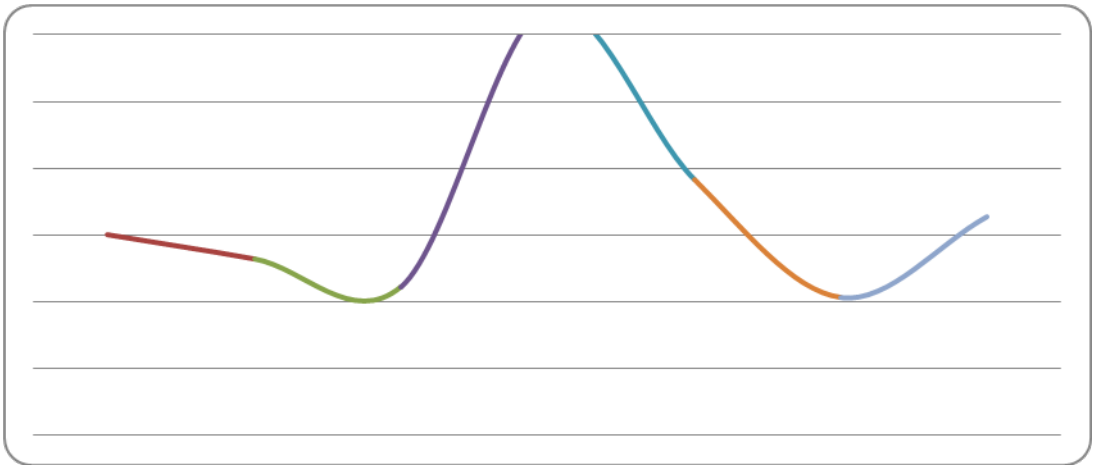
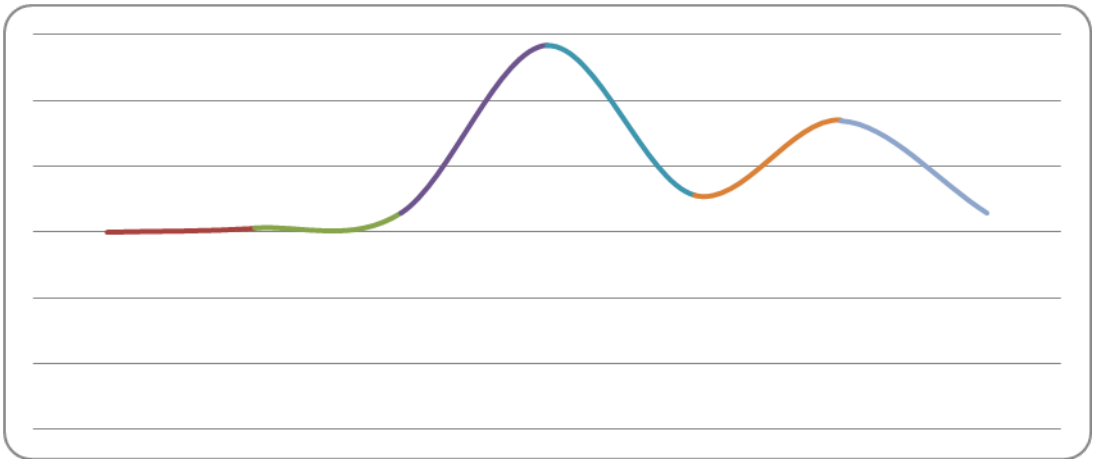


FIGURE 2. RATES OF CHANGE IN NEW TB CASE NOTIFICATION



Routine drug resistance surveillance data is unreliable, incomplete and is a subject to fluctuation on annual basis. Latest preliminary results show almost equal prevalence rates of MDR-TB among new and re-treated cases (10.1% and 13.9% respectively) not likely to describe the real picture of drug resistance distribution. These figures should reconfirm to policy makers that a drug resistance survey should be started as soon as possible.

Key indicators calculated from overall data gathered at rayon and central level from the main TB case (form 03) and lab registers (form 04) can be considered as useful for decision makers if NTP employs the checklists equipped with simple tables enabling such calculations. Current field assessment process at present does not include the monitoring of indicators such as laboratory workload, diagnostic positivity rate, proportion of smear positive pulmonary TB cases, smear conversion rate etc. Since there are no standard registries for TB suspects and contacts it is impossible to calculate the detection rates of active and latent TB by age groups.

RECOMMENDATIONS:

- Conduct drug resistance survey;
- Consider the case finding and laboratory components using WHO recommended indicators for field supervisory activities.

5. MEDICAL PRODUCTS, VACCINES, TECHNOLOGIES

5.1. DRUG MANAGEMENT

FINDINGS:

The 1st and 2nd-line anti-TB drugs are provided free of charge to TB patients. The DOT of the 1st line anti-TB drugs is provided only once a week or once in 10 days. From January 2008 it is prohibited by law to sell the 1st line anti-TB drugs in the pharmacies. There is no in country anti-TB drug manufacturing.

The last GDF order was delivered to the Republic of Azerbaijan in August 2010. Since the order was made with 120% buffer stock the GDF 1st line anti-TB drugs are still available in the country and are used 50% / 50 % along with the 1st line drugs procured with the state budget by the ISC. The selection and quantification was done by the NTP/ SRILD with input from the GDF consultants and KfW for the last order of 1st line GDF drugs with support of KfW. There were several delays in delivery of the drugs due to agreement of contract terms and payment.

Since 2011 the ISC procures the 1st line anti-TB drugs for the civil sector annually based on the drug selection and needs calculation by the NTP/SRILD. The quantifications are based on the number of patients in the previous year, standardized treatment regimen, procurement timelines, and useable stock. The drug needs calculation does not include INH necessary for prophylactic treatment. All oral 1st line drugs are WHO pre-qualified, single loose-formulations (Annex II. List of 1st line (non-GDF), 2nd line anti-TB drugs, BCG, and Tuberculin currently used in the TB network of the Republic of Azerbaijan).

Apart from the NTP budget the ISC procures injectable ethambutol, isoniazid and kanamycin (Annex II). These drugs are included in the essential drug list for hospitals (the ministerial order #130).

The 1st line anti-TB drugs for the penitentiary sector are procured with support of the Global Fund via direct procurement (DP) mechanism through the GDF, and the drug needs calculation is performed with support of the GDF consultants. MOJ will st1rt procuring second-line drugs from 2013.

The 2nd line drugs (Annex II) are procured through Global Fund support according to TGF approved procurement manual for both civil and penitentiary sector. There have been delays in the delivery of the 2nd line drugs and as a result shortage of drugs such as amikacin and Levofloxacin in November and December 2011, respectively. Therefore amikacin was substituted by capreomycin and Levofloxacin was substituted by the moxifloxacin in civil sector. In civil sector there are not enough 2nd line drugs to cover all diagnosed TB patients with drug resistant TB.

The pediatric 1st line anti-TB formulations are not available in the country. No FDCs are used for childhood TB, adult doses of anti-TB drugs are crushed to administer to children. The Republic of Azerbaijan is not eligible for the GDF pediatric grant.

Public sector procurement in the Republic of Azerbaijan is both centralized and decentralized. ISC organizes procurement for medicines determined by the MoH for the capital and Absheron Rayon and medicines for all programs including the NTP for the country and carries out centralized tendering. Public sector request for tender documents and public sector tender awards are publicly available.

ISC must conduct all public procurement through a tender exercise and prefers that the suppliers have a local agent in the Republic of Azerbaijan to ensure all requirements are met and drugs have marketing authorization in the Republic of Azerbaijan. These restrictions limit the possibility that GDF/GLC formulations will be directly procured via the Innovation and Supply Center using the Government funds.

However Amendment to the "Law on Pharmaceutical Products" (February 2007) that was adopted in April 2009 ("Law on Pharmaceutical Products" can be obtained via following link: http://e-qanun.az/files/framework/data/17/f_17911.htm) allows medicines for humanitarian purposes, rare medicines, and medicines used to cure diseases that require specific treatment and WHO pre-qualification medicines to be imported without marketing authorization in the Republic of Azerbaijan only for non-commercial use. In addition the "Law on Public Procurements" (January 2002) allows procurement method from one source (CHAPTER II Procurement Methods Application Conditions, Article 21. Conditions of use of procurement method from one source):

"if procured goods are only available to any specific consignor (contractor) or specific consignor (contractor) possesses rights over such goods (works and services) and if their substitutes or alternate are unavailable;"

"if procurement agency after procurement of goods, equipment, technology or services from any consignor (contractor) arrives to decision to procure them from such consignor (contractor) in view of ensuring their compliance with standardization considerations of existing goods, equipment, technology or services"

According to the amendment of the "Law on Pharmaceutical Products", importation requirements for non-commercial use (which covers the supply of drugs through the GDF/GLC) so far has been rather simple procedure: the MoH addresses the Cabinet of Ministers' State Committee on International Humanitarian Assistance with a request to approve importation of quality-assured drugs supplied with the external support i.e. KfW and the Global Fund. To ensure the quality, set of documents and testing of samples are required. The requested documents include application form from the organization that is importing drugs, a list of countries where these drugs have been registered, a GMP certificate of a manufacturer, instruction on the use of drug products, pharmaceutical standard, information on all testing, quality control methods and quality certificate of the product and samples of drugs are also required.

Based on the permission letter of the Cabinet of Ministers for drug import, the Analytic Expertise Center (AEC) (which acts in the capacity of the Medicines Regulatory Authority (MRA)), issues permission for the distribution and use of the imported drugs. This procedure takes about 2 weeks.

The chapter II: Procurement Methods Application Conditions, Article 21: Conditions of use of procurement method from one source of the "Law on Public Procurements" could allow procurement of the 1st line anti-TB adult and paediatric fixed dose combinations (FDC) since those formulations meet international standards and are only available via the GDF in a cost-effective mode.

In the republic of Azerbaijan, there are legal provisions establishing the powers and responsibilities of the MRA whereas a semi-autonomous agency with a number of functions outlined in the MRA operates as the AEC. In the Republic of Azerbaijan legal provisions exist for controlling the pharmaceutical market. A laboratory for Quality Control testing is a functional part of the MRA. The laboratory has not been accepted for collaboration with the WHO Pre-qualification Program.

Reasons for Quality Control testing are as follows: quality monitoring in the public sector, quality monitoring in the private sector, when there are complaints or problem reports, product registration, public procurement prequalification, public program products prior to acceptance and/or distribution, samples are collected by government inspectors for undertaking post-marketing,

surveillance testing. All drugs including the GDF/GLC drugs undergo the Quality Control before acceptance/distribution. ISC is responsible for the customs clearance of non-GDF 1st line anti-TB drugs (Annex VI). Customs clearance of the 1st line anti-TB drugs procured via the ISC).

In the Republic of Azerbaijan, legal provisions require marketing authorization (registration) for all pharmaceutical products on the market; The process will take about 6 months (180 working days); the registration cost is around 1000-1200 EUR including 18% tax. The registration cost includes fee for applications and expertise. Medicines are always registered by their INN (International Non-proprietary Names) or Brand name + INN. The registration expires in 5 years. Renewal of the registration is cheaper compared to the first time registration. In general, standards and requirements follow European Medicines Agency (EMEA). Explicit and publicly available criteria exist for assessing applications for marketing authorization of pharmaceutical products.. If a product is WHO PQ, the registration time can be reduced to approximately 2 months. There are legal provisions requiring the MRA to make the list of registered pharmaceutical products publicly available and update it regularly. This register is updated every year. All updated list and registration requirements can be accessed through by accessing AEC online portal http://www.pharma.az.
However exceptions/waivers for registration do exist. Medicines for humanitarian purposes, rare medicines, and medicines used to cure diseases that require specific treatment and WHO pre-qualified medicines without marketing authorization in the Republic of Azerbaijan may be imported only for non-commercial use.

RECOMMENDATIONS:

- The importance of FDC and internationally recognized quality assurance standards (i.e. WHO pre-qualification) need to be strongly supported
- Quantification of the second line drugs should be more precise to avoid stock outs and involvement of the GLC expert could be useful. The 2nd line drug needs quantification should be based on DST profile of the DR-TB patient cohort and pertinent treatment regimens including whole treatment duration as well as duration of injectable drug use. The second line treatment regimens should follow the internationally accepted standards.
- Consider avoiding use of the injectable 1st line anti-TB drugs for treatment of patients with regular TB since 1) the drugs used in the republic of Azerbaijan are not WHO pre-qualified and /or similar and 2) it is not proven that the injectable have an advantage over the oral anti-TB drugs
- Consider removing injectable ethambutol and Isoniazid from the essential drug list for Hospitals.
- The Government should consider procurement of the 1st line drugs with the state budget also for the penitentiary system
- Include INH necessary for prophylactic treatment in drug needs calculation for the state procurement of the 1st line anti-TB drugs
- Promote the WHO prequalification process for the AEC quality control laboratory.
- Consider procurement of the 1st line anti-TB drugs through GDF including both pediatric and adult formulations

5.2. VACCINE

FINDINGS:

BCG vaccine is procured by the ISC via centralized procurement on an annual basis. The vaccine needs calculation and quantities for distribution are provided by the MoH Hygiene and Epidemiology Center. Tuberculin is procured by the ISC for the capital and Absheron rayon, other regions of the country procure tuberculin by themselves.
In the policlinics visited by the GDF consultant Tuberculin storage conditions were favorable. BCG vaccine is procured by the ISC via centralized procurement annually. The vaccine needs calculation and distribution is performed by the ISC according to the schedule provided by the MoH Hygiene and Epidemiology Center. The vaccine transportation is provided by the cars of the ISC along with other vaccines; these cars are armed with cold chain equipment.
Tuberculin Skin Test (TST) is procured via decentralized procurement mechanism. ISC procures TST only for Baku and Absheron Rayon. All other rayons procure TST by municipal budget. There is no quality control available for BCG and TST in the country.

Recommendations

- To consider quality control of BCG and TST in the country after importation.

5.3. LABORATORY SUPPLIES

FINDINGS:

Laboratory supplies and equipment are both procured with state funds and the Global Fund. The Global Fund has procured BACTEC MGIT 960, reagents for microscopy, culture, the 1st and 2nd line drug susceptibility testing (DST), biochemical reagents, and respirators for the laboratory network and DOT cabinets; In addition the Global Fund procured the MTB-DR plus kits until now. From the 3rd quarter 2012 EXPAND TB project will be procuring reagents for BACTEC MGIT 960 culture and 1st line DST and MTB-DR plus kits.

The NRL is responsible for provision of reagents for culture and microscopy to regional culture labs and microscopy laboratories in the country. The NRL has experienced shortage of reagents for BACTEC MGIT 960 1st line DST in 2012, also there were MTB-DR plus test kits expiring in November 2012 and it is expected to have quantity of expired MTB-DR plus test in the NRL.

RECOMMENDATIONS:

- Develop concise laboratory supply/reagents management protocol
- Establish/develop a laboratory supply/reagents/equipment management system, processes, training of staff, etc.
- Improve laboratory supply management (e.g. forecasting, distribution, rational use) by introducing and implementing laboratory supply/reagents management software

5.4. MAINTENANCE

Findings

Storage conditions for anti-TB drugs are favorable at the SRILD warehouse and storerooms in rayons. Although in some rayon storerooms air conditioning, thermometer and hygrometer needs to be provided and temperature and humidity monitoring cards need to be introduced. There is no drug management software or any simple electronic drug recording in place in rayons. Stock records are kept in the ordinary notebooks. Stock records were up to date in every facility visited by the mission team. The mission team was not able to visit warehouse of the ISC since special permission from the authorities was required.

At the central level, all stock records are available in MS excel. The figures were up-to-date to amount of drugs at the warehouse. The physical counts and stock record balances agreed for all drugs in prison as well.

Although the NTP has developed recording and reporting forms in 2005 for drug management which have been revised and updated and were in use countrywide. Since the 1st line drugs are not procured through the GDF since 2011 in civil sector the WHO recording /reporting forms are not required to be used and the drug records are kept in the regular note books.

Due to the delays associated with order placement and delivery, there were several reports of stock outs of the 2nd line anti-TB drugs both in the civil and penitentiary sector.

The 1st line GDF drugs are distributed by the NTP from the SRILD warehouse upon requests of TB facilities mainly on quarterly basis. Each TB facility provides the request form that includes drug consumption for the previous quarter with the number of patients treated in the same period ("pull" mechanism).

The state procured 1st line anti-TB drugs are distributed on a quarterly basis. The NTP provides quantities of the 1st line drugs to be distributed on a quarterly basis ("push" mechanism), and then the regional hospitals distribute the drugs to the TB dispensaries and TB DOT cabinet on a monthly basis (Annex VII). Transportation costs of the drugs from the ISC warehouse are covered by the regional hospitals.

ISC has a Central Medical Store (CMS) at National level. There are no public warehouses in the secondary tier of the public sector distribution. Medical goods including the 1st line anti-TB drugs procured by the state funds are directly delivered from CMS to the regional health facilities. There are national guidelines on Good Distribution Practices (GDP). A licensing authority that issues GDP licenses exists. The licensing authority does accredit public distribution facilities. The CMS is GDP certified by this licensing authority, it is not ISO certified.

The MoH Innovation and Supply center is also responsible for BCG vaccine storage and distribution as for other vaccines available in the country. Vaccines including BCG are stored at the Central Medical Warehouse of the Innovation and Supply Center. The mission team was not able to visit the innovation and supply center warehouse, since permission from the pertinent authorities was needed in advance. There are special cars designated for vaccine transportation and the cars are armed with cold chain equipment.

All laboratory supplies and reagents are stored at the NRL. The stock levels of MGIT culture and 1st and 2nd line DST as well as MTB-DR plus were not available at the NRL. There is no electronic program available for needs calculation and stock monitoring at the NRL. The EXPAND TB project TB consultant is seated at the NRL responsible for the stock management and order preparation of the laboratory reagents provided by the EXPAND TB project.

RECOMMENDATIONS:

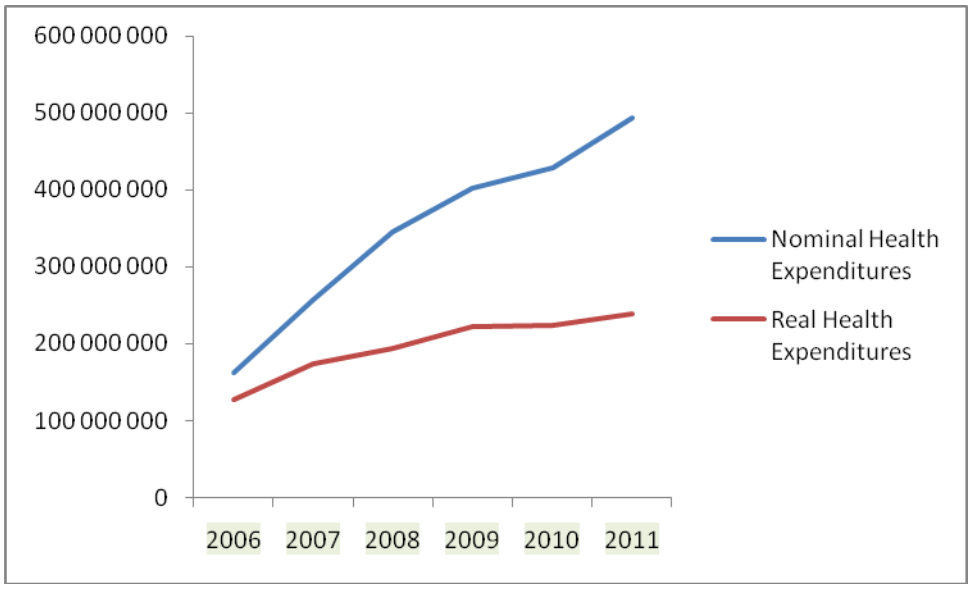
- Develop concise drug management protocol
- Improve drug storage conditions at district level by providing air conditioning units, thermometers and hygrometers in the drug storerooms
- Improve anti-TB drug management (e.g. forecasting, distribution, rational use) by introducing and implementing drug management software
- Improve stock management of the laboratory supplies and reagents at the NRL by introducing electronic software and regular control on the stock levels

6. FINANCING

6.1. AVAILABLE BUDGET AND TRENDS

An efficient health system existsto ensure that people are protected from the financial consequences of illness and death, or at least from the financial consequences associated with the use of medical care. It should be provided that the financial burden for paying for TB services is diminished and distributed fairly among the patients -- fairness in financial contributions meaning that households' expenditures for health services if needed should be attributed to the ability to pay rather than to the severity of illness. Paying for certain healthcare services by the most vulnerable is often unfair as patients are exposed to large expenses, referring to private spending at the moment of utilization of services rather than being covered by some kind of prepayment or patients are exposed to regressive payments, in which those least able to contribute, pay proportionately more than those better-off. Consequently, if the share of prepayment resources (general tax revenues, financing health expenditure, social and private voluntary health insurance) increases, while the share of private expenditures on health in total health expenditures decreases then it might lead to improvement of equity in health financing.

Figure 3. Government Expenditures: Nominal vs Real, 2006-2011.



Source: SSC

State budget of AR is accumulated through tax-based system, heavily dependent on oil extraction. Other than reported, there is additional funding available within parallel facilities, however their role in TB treatment is limited. However, the health budget is sometimes supported by Presidential Administration, as President of AR launches several state investment programs pledging sufficient improvements in technical supply of public health facilities with medical equipment and in 2011 President of AR has signed a decree on allocation of additional AZN 3 mln for construction of TB sanatorium for children and adolescents. Growing health budget in Republic of Azerbaijan is a positive trend, nevertheless health financing in Azerbaijan remains a highly investigated issue providing barriers for quality treatment and universal coverage. Country is on the track to increase the health allocations, however still has to fully utilize the proposed budget. By these means, government of Azerbaijan has spent 88% of AZN 563 mln allocated for 2011. Growing budget is mostly directed on reconstruction and equipment of healthcare facilities.

Noted scenario is also attributable to TB facilities as until 2010 the country was mostly increasing the allocations on TB through construction of clinics, dispensaries and sanatoriums. Thus, from 2006-2011 country has spent AZN 19.4 mln on reconstruction of TB facilities. Following necessary measures on procurement of FLDs MOH has indicated strong covering necessary drugs patients country-wide. Despite clear improvement in coverage of TB patients there are signals of insufficient coverage of TB patients with necessary packages. Taking into account the unused budget and growing number of TB patients there are possible signals for the government to consider on submitting the proposal on extension of the drug procurement program.

RECOMMENDATIONS:

For the MOH

- Conduct jointly with WHO and GF assessment for revision of state program on TB prevention
- Assess cost-efficiency of the TB facilities and reallocate the funds for cost-optimization
- Reallocate undisbursed funds for the benefits of TB program, reconstruction of TB facilities and TB-oriented activities
- Reconsider the benefits package for specialists involved in TB facilities despite of existing guidelines for additional remuneration

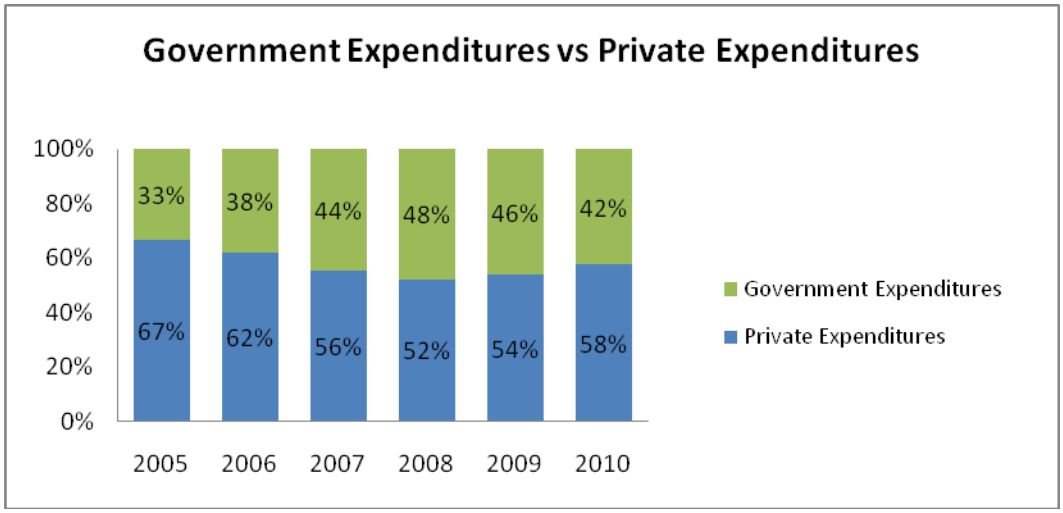
6.2. PATIENT COST, OUT OF POCKET PAYMENT

FINDINGS:

Average Health Expenditure per capita in Azerbaijan maybe considered to identify the governments initiative towards providing care for TB patients. Thus, during 2005-2010, total expenditures per capita has doubled and has been mainly caused by adjustments in consumer prices, internal migration and extensive access for health services. According to SSC, government was responsible for providing an average of AZN 48 AZN per capita out of total AZN 112.5. By these means, measures have been taken to increase the health allocations; however there is still room for improvement. This positive trend might suggest that financial protection is slightly increasing.

Out of pocket payments (OOP) on healthcare services remains a sensitive issue in Azerbaijan as officially all services are free of charge. Nevertheless, the total amount OOP for medical services are quite high in Azerbaijan and are varying from 42% to 73% according to the estimates from public and international estimates correspondingly. Growth in private health expenditures for the past years was slightly restrained in comparison with growth in public expenses; nevertheless amounts paid by users increased in 2010 outlining an upward adjustment for drugs and health services. Along with the official data, the data from the internationally recognized survey, the Living Standard Measurement Survey (LSMS) carried out by the WB in 2009 suggest higher share of private health expenditures, about 73% of total health expenditure which would rank one of the highest in the European region. The LSMS has been recognized by the Government of Azerbaijan. However, according to the both sources the composition of drugs within private health expenditures drugs represents about three-quarters of total private health expenditures. Further studies/analysis on private health expenditures is needed to get the precise picture of total health expenditure structure. It should be highlighted that in the recent years as mentioned above a few reforms have taken place in the health sector that should make a significant contribution to responding to this call. Moreover, the Government of RA identified health as the top priority for government investment.

Figure 4. Government expenditures with Private Expenditures



Source: SSC

OOP by TB patients have been a subject of research within the previous policy reports by GF and GLC. In contrast to overall costs paid for healthcare TB patients at the moment have been transformed into vulnerable group and officially are provided for. MOH is responsible for implementing estimates on daily stay of TB patients during the treatment course and report the daily food expenses at AZN 4. The estimation criteria are based on FSU methods and are reported to be reconsidered within MOH. As mentioned earlier, government provides despite of recent public support the demand for quality is satisfied and considering populated regimen within facilities, transport expenses represent major concern for treatment incentive among diseased.

RECOMMENDATIONS:

- Reconsider disbursement of transportation costs (daily value of AZN 0.8 AZN) for all TB patients
- Conduct a survey on evaluating the existing requirements on TB coverage
- Together with PHRC, reconsider existing guidelines on daily provision of TB patients
- Incorporate monthly assessment of data on facility occupancy rate obtained via form #8 to ensure equal and adequate access for all TB patients (particularly vulnerable group)

6.3. RESOURCE MOBILIZATION AND DONORS

The Global Fund remains main financing donor of all TB-related components and programs within the country. Ever since 2006, GF has provided 17.8 mln for treatment of TB/MDR-TB in Azerbaijan. Total confirmed TB portfolio of the Fund is expected to reach AZN 26.2 mln in by 2015.

Until 2011, GF has also been a major TB drug procurer in the country. Following latest initiatives of SLD procurement by MOH, Fund will also consider reallocating savings within the grants towards more SLD purchasing as well as strengthening and expanding DOTS. In the scenario, MOH is expected to allocate AZN 3.5 mln for in 2912 on FLDs and side-effect drugs, while GF will concentrate their drug portfolio of AZN 3 mln on SLDs. At the moment, nearly 700 DR-TB outpatients are receiving monthly allowances of 55 AZN, while 150 inpatients are provided with prevention packages. MoH has already received approval from GF to deliver SLDs in 2013 and will conduct the procurement activities without external support.

The Global Fund plays vital role in capacity building of the TB staff and arranging the training courses. Current activities are performed by MoH and MoJ and are focused on training and equipping the ministries towards better diagnosis of drug resistant TB and Fund's activities. Project is expected to treat 1720 DR-TB patients over three years and SLDs remains largest budget item.

7. LEADERSHIP AND GOVERNANCE

7.1. *STRATEGY AND POLICY DEVELOPMENT*

FINDINGS:

There is an in-country working group and a special review process for developing and approving new protocols, however some protocols have been approved without meeting international standards as defined by WHO. Financing for comprehensive TB and MDR TB services has some important gaps. Only 2/3 of MDR-TB patients estimated to need drugs actually receive them, and these are financed through the Global Fund Round 7 grant. Cash incentives are provided for M/XDR-TB patients only, and not for drug-susceptible TB patients. There may be a link between the lack of incentives and enablers (transportation money) and high rates of treatment interruption among TB patients. Palliative care does not appear to be provided at all. Other than applying for the GF TFM, there will be little external financing available to support the TB program beyond 2013. USAID will phase out of health technical assistance in 2013. There do not appear to be any clear and consistent criteria and guidelines applied for hospitalization of TB and MDR TB patient, and many staff at the facility level did not consistently apply existing standards.

RECOMMENDATIONS:

For the NTP

- Revise existing TB guidelines for case finding and prophylaxis to meet international standards based on WHO recommendations.

- For future TB related protocols, ensure country approval process includes a review to check compliance with the WHO recommendations and international standards (i.e. treatment protocols for children, prevention guidelines, etc).

For the MOH

- Update MOH policies to include universal access to TB and MDR TB treatment and care. Consider the addition of palliative care to be included in national guidelines.

- Update hospitalization clinical, social, and vital criteria to clarify when patients (including children) receive inpatient service and when they are discharged.

7.2. *GOVERNMENT COMMITMENT*

FINDINGS:

The Government has shown a strong commitment to TB and M/XDR-TB. This has been translated in ensuring adequate staff at the national programme, TB research institute and health care facilities. Despite these, there are still gaps in availability of second line drugs for treatment of all M/XDR-TB patients. M/XDR-TB treatment is largely dependent on GFATM project. WHO and other partners are discussing with the parliament members on drafting a TB law.

RECOMMENDATIONS:

For the MOH

- As the sign of ensured commitment, finalize, endorse and finance the national M/XDR-TB plan with rapid scale up to achieve Universal Access to diagnosis and treatment of M/XDR-TB WHO and other partners to facilitate development of national TB law at Azerbaijan Parliament.

7.3. *LOCAL AUTHORITIES` COMMITMENT*

FINDINGS:

The mission members discussed with the Regional and district governance and found them committed to TB control and care. At some of the districts, the local authorities provide social support for TB and M/XDR-TB patients. In other districts logistic support is provided so that the staff would be available to move around and visit other facilities and patients in their homes, but these activities are largely funded by GFATM and only for MDR-TB patients.

RECOMMENDATIONS:

To NTP

- To continuously advocate for involvement of local authorities in supporting TB prevention, control and care

To local authorities

- To provide social support to all eligible TB patients to improve treatment adherence and outcomes

- To provide logistic support so that the staff may be able to visit patients in their homes, thus improving treatment adherence

7.4. *PARTNERSHIP AND CIVIL SOCIETY INVOLVEMENT*

FINDINGS:

Collaboration between the NTP, international and national civil society organizations (CSOs) in the area of TB control has received a boost especially after the Advocacy, Communication and Social Mobilization (ACSM) training conducted by PATH. Many stakeholders, including local NGOs participated in the formulation of the ACSM Strategy2011-2015 document. For a list and details of NGOs who are or have been involved in TB control see Annex VII.

There is a number of active CSOs with projects for HIV/TB, IDU/TB, Internally Displaced Persons, ex-prisoners and MDR-TB patients. Majority of organizations work on project-base and do not receive core funding, which means most of their activities in the area of TB are short-term.

It was inferred from one interview with a CSO representative that this CSOs have been involved in active case finding activities in the communities where they held mobilizing activities. However they neither received feedback about the impact of their activities in terms of cases referred by them which were actually confirmed, nor were they involved in adherence support activities in the respective communities. Although good collaboration existed during the project span, it would be even more beneficial to provide the CSOs with feedback regarding their contribution to case finding, as well as attract them to take part in adherence support activities.

RECOMMENDATION:

For the NTP and CSOs

- Provide CSOs with feedback regarding their contribution to case finding and other objectives of the national TB control program. CSOs who take part in case finding activities can also be involved in adherence support activities and vice versa: CSOs engaged in adherence support and have good links with the community can contribute to active case finding

7.5. *PATIENT AND COMMUNITIES' PARTICIPATION*

FINDINGS:

An example of community participation was presented to the mission by "Assistance to healthcare development" NGO that have conducted a cascade training for community activists on TB. Printed materials and brochures are prepared for a Training of Trainers (TOT) of 1 day. TOT will cover training delivery as well as prevention and symptoms of TB. After the training the participants will be given materials to deliver education in their communities. The plan is to train 70 community activists.

Whereas the broader community is represented and is involved in the programs of some CSOs, patients' participation remains limited. There are peer to peer information activities in the penitentiary TB program and also activities involving ex-prisoners with TB and MDR-TB, conducted by "Support to Health" NGO. In the civilian sector there have been attempts to increase the involvement of patients through patient groups, but they have not yielded any substantial results so far.

The Patients' Charter for Tuberculosis Care is currently not in use in Azerbaijan. The Patients' Charter outlines the rights and responsibilities of people with tuberculosis. It was developed in tandem with the International Standards for Tuberculosis Care to promote a "patient-oriented" approach and published in 2006. The document bears in mind the principles on health and human rights and promotes ways in which patients, the community, health providers and governments can work as partners.

In an discussion with CSO representatives the mission solicited feedback on how communities' and patients' participation could be improved. The suggestions included:

- Trained and motivated community volunteers can act as liaison between the communities and CSOs. Volunteers can be motivated with little tokens of recognition such as badges, materials, books.

- Patients can be attracted to act as "examples" and participate in peer-education. Example of the ex-prisoners was given by Support to Health NGO.

- When patient groups are formed, they should be stimulated to become organizations or association of TB patients – the role of other CSOs is to do capacity building of the patients' groups.

RECOMMENDATIONS:

For the NTP and CSOs:

- Facilitate establishment of patient support groups as part of a comprehensive patient-oriented approach to TB care
- promote the use of the Patients' Charter for Tuberculosis Care to emphasize the rights as well as responsibilities of patients

7.6. *QUALITY IMPROVEMENT PROCESS*

FINDINGS:

A Quality Improvement (QI) process is established at national and sub-national levels. The need for data and evidence-based approach to policy making and procedures set up is conceptualized at national level. Standard performance indicators are clearly defined and conversantly discussed by facility and clinic managers and staff. Regional TB Coordinator positions are staffed and feedback from QI visits is provided at the NTP level, findings discussed and recommendations made. The challenges of the quality improvement process start with the fact that the roles of regional TB coordinators, who play a critical part in the QI process, are not clearly defined. It was observed that some of them were providing direct patient support. Resources for site visits are not always adequate to meet the need for QI and program support from the national level. Site visit and QI reports are developed but not shared systematically with the field and the clinics. It was not clear if standardized procedures are employed or tools exist to conduct QIs. In addition, it was not clear how substantive are the recommendations to address identified areas for program and operations improvement and if there is follow-up action plan developed.

RECOMMENDATIONS:

For the NTP

- Strengthen the existing QI process by developing standard procedures, tools and visit schedules.
- Clearly define and standardize the role of the regional TB coordinator. Assess their training needs and provide training, based on the results of the training needs assessment.
- Provide immediate feedback upon completion of QI visits. Reflect recommendations and expected follow-up actions in clinic journal or patient charts.
- Share written QI reports within reasonable time with visited sites. Allow for a process for response on the QI reports' findings from the local sites. Develop action plans with clearly identified timeframes and responsible parties to address any areas in need of improvement.

7.7. *LINK WITH OTHER HEALTH INTERVENTIONS AND HEALTH SECTOR REFORM*

FINDINGS:

The link between tuberculosis and HIV

Joint HIV/TB interventions seek to promote synergies between TB and HIV/AIDS prevention and care activities. Existing normative document for collaboration between HIV/AIDS and TB programmes is not comprehensive and does not cover all needs for effective HIV/TB interventions. Coordination of activities between the National HIV/AIDS Control Programme and National TB Programme will require policies to be developed within the Ministry of Health that can then be extended to the institutional and district level. The new policy should improve interventions related to: 1) TB prevention among HIV patients, 2) HIV prevention among TB patients, 3) provide care for PLWHA and 4) provide care for people with TB patients co-infected with HIV (e.g. testing and counselling, treatment), 5) TB case detection among HIV patients, 6) HIV case detection among TB patients, 7) knowledge about TB and HIV among health care workers, family members, volunteers, and establish referral mechanisms between HIV/AIDS programme and TB clinics. Information and education on TB and HIV to increase community awareness of both infections is provided, however seems very limited.

Relationship between the National TB Programme and the National Tobacco Control Programme (not yet in place) must be created within the health care system. Call for an integrated approach to research and control of these formidable public health threats. There are unmet opportunities for prevention and control of tobacco use among TB patients. The current situation shows the necessity to bridge the divide between those working in communicable diseases and those working in NCDs.

RECOMMENDATIONS:

For the NTP and National HIV/AIDS Control Programme

Increase capacity of staff in all settings to provide comprehensive care (e.g. increase ability to provide care for HIV-related illness in TB clinics as well as ability of staff providing care for HIV/AIDS to include follow-up of TB patients.

7.8. *ADVOCACY, COMMUNICATION AND SOCIAL MOBILIZATION*

FINDINGS:

There is an ACSM Strategy 2011-2015 document, integrated and aligned with the TB control strategy. It had been developed by a working group, with technical assistance of PATH and had been submitted for the approval of the MOH by the time of the review mission. Implementation of the strategy had nonetheless begun according to an operational plan. The challenge is to secure funds for the implementation as well as to oversee it. There is no formal ACSM focal person at the central NTP and many activities are carried out by the deputy director of the SRILD in addition to her main workload. ACSM strategy includes hiring a ACSM focal point or coordinator that is considered a significant step for ensuring the implementation of ACSM activities.

Currently implemented activities in the area of advocacy, supported by Abt Associates, include changing different TB protocols and the TB law. A USAID-funded AZ-SHIP Project implemented by Abt Associates in collaboration with NGO "Assistance to healthcare development" and Save the Children includes TB information campaign for general public. Indicators for the success of the campaign will be based on message recall rate and increase in TB case finding. A KAP survey and community mobilization activities with the aim of increasing case finding are planned. A TB film was produced and broadcasted by ACHA with the support of one of the local businesses. It was accompanied by an omnibus study, which reported the knowledge of population about TB and its symptoms and checked message recall rate (40%). The mission observed a general lack of patient education and information materials at the facilities in districts and in Baku at the time of the visit. More information about activities of different NGOs is in Annex VIII.

RECOMMENDATIONS:

For the NTP and donors

- support the implementation and evaluation of the ACSM strategy and yearly plan by securing budget. Create a position of ACSM focal person at NTP to oversee specific deliverables as per strategy and yearly plan.

For the NTP

- continue utilizing the potential of CSOs who are already involved or have been involved in TB related activities, as per ACSM strategy
- Specific training on fundraising is recommended to the NTP and the CSOs supporting the TB control program to try and raise funds from e.g. the local businesses for ACSM activities.

7.9. *OPERATIONAL RESEARCH*

FINDINGS:

Research is included in the Azerbaijan National Tuberculosis Strategy 2011-2015. The Ministry of Health is supportive of doing operational research. There is no advisory committee or working group at NTP to identify research priorities for TB control program. The Research Institute of Lung Diseases (RILD) has a plan of scientific-research work, but it is not always based on TB Program priorities.

Research activities were conducted by local NGOs (KAP surveys, study among refugees, but specific topics were not available); however, NTP and WHO were not well informed on topics and results of those studies. No funding currently is available for OR at NTP.

For research ethics clearance Azerbaijan has an Institutional Review Board (IRB) registered with the Office for Human Research Protections: IRB00006077 Republic Anti-Plague Station IRB #1, Baku, Azerbaijan (Federalwide Assurances [FWA]: FWA00011718 Republic Anti-Plague Station, Baku, Azerbaijan; FWA00014883, Military Medical Department of the Ministry of Defense, Baku, Azerbaijan). This IRB provided ethical approvals for international studies. IRB approval for conducting human subjects' research projects is not required by the country policy. There is a limited understanding of research ethics at NTP.

There is no clear plan on building research capacity for the NTP staff. NTP staff does not seem to have easy access to technical assistance or support on OR. There is no School or Department of Public Health in Azerbaijan. Azerbaijan Medical University in Baku offers to postgradute medical professionals interested in research basic 2-months courses of "data analysis of statistical data in public health", but curriculum could not be checked. The Head of the Department of Medical Information at NTP participated in OR training in Moldova in 2008, but did not have much opportunity to use knowledge and skills. No OR trainings for NTP were done in Azerbaijan in the last 5 years. NTP has in staff data managers, but no trained epidemiologists, statisticians, research assistants, health economists or behavioral scientists. Despite currently limited OR capacity in Azerbaijan, there are existing educational opportunities for building it. The South Caucasus Regional Field Epidemiology and Laboratory Training Program (FELTP, based in Tbilisi, Georgia), the 2-year full-time training and service program in applied epidemiology and public health laboratory practice trains residents in field epidemiology and public health laboratory for leadership positions to improve and strengthen their public health system and infrastructure in Georgia and Azerbaijan. The Ministries of Health and Ministry of Agriculture of Azerbaijan have agreed to participate in the FELTP. Also Caucasus region has an International School of Public Health at Tbilisi State Medical University, Tbilisi, Georgia.

Laboratory and clinical infrastructure is good for performing OR. Conventional and new molecular technologies (e.g., GeneXpert, Hain test) to identify tuberculosis and anti-tuberculosis drug resistance are available. Routine data collection tools (individual patient-level data and aggregated reports) are consistent across the regions. Data in regions currently are collected on paper forms. It is planned to introduce e-TB manager software in few pilot regions for routine data collection. Department of Medical Information at NTP enters aggregate data from reports from rayons in Excel spreadsheet, and very limited individual patient-level data on newly notified TB cases is also entered in Excel. National Reference Laboratory (NRL) enters laboratory results in their own Excel spreadsheet. No patient/case unique identifying numbers is being used at Department of Medical Information and NRL. Computerized electronic database for clinical data is currently not available. E-TB manager is planned to be implemented for recording and reporting purposes at NTP. NTP uses routinely collected data only for standard reporting purpose. Very limited demographic and clinical data are being collected for routine surveillance. Assessment of the quality of data is reported under Surveillance and Monitoring and Evaluation.

It does not seem that there any regulatory barriers for doing operational research, and main perceived barriers for doing OR were lack of funding, identification research priorities based on NTP needs, training for staff, and time.

In terms of specific topics of research work, at the Research Institute of Lung Diseases major research topics currently include methods of rapid diagnosis of drug-resistant TB, surgery in treatment of TB, hepatic diseases in TB patients, extra-pulmonary TB, development of the patient-level electronic database. Some data from research were presented in discussion of the national guidelines including protocols on treatment of side effects (data on viral hepatitis B, C rates and frequency of hepatic adverse events), childhood TB (research on risk groups for TB among children), and surgery (research on indications, surgery procedures and outcomes), but it does not seem that these results had major impact on the guidelines (level of evidence: D). SRILD collaborated with penitentiary system on study on follow up of patients on MDR TB treatment after release from

prison. Two methodological recommendations were recently developed by SRILD (molecular techniques for TB diagnosis; immunological methods of TB diagnosis); these were not available for review. SRILD staff also presented their research findings at several international conferences (international conferences in Turkey, Russia, upcoming IUATLD European region Conference in London, 2012). NTP and WHO plan countrywide drug resistance survey (DRS) in 2012. Abt Associates conducted research on adherence among MDR TB patients, but no details were available.

RECOMMENDATIONS:

- Establish advisory committee/working group at NTP to identify operational research priorities and funding sources for operational research, prepare plan for building operational research capacity at NTP, and identify collaborators/partners on operational research.
- Consider including priority operational research areas in funding requests.
- Prepare plan for building human resource operational research capacity at NTP. Organize operational research trainings in the country. Consider seeking external technical expert assistance for this task (submitting a request for technical assistance to the TB Technical Assistance Mechanism, TBTEAM, may be an option).
- Ensure that all implemented/being implemented databases with personalized patient-level data have unique patient identifiers in all components of database. It is recommended to collect patient-level data not only on newly notified TB cases, but all registered cases.
- Consider following topics for OR:
- Risk factors for primary and acquired drug resistance.
- Molecular epidemiology of TB including drug-resistant TB.
- Study on time to TB diagnosis and detection of drug-resistance and time to initiating appropriate treatment; reasons for delays.
- Development and evaluation of algorithms of rapid diagnosis of TB and drug resistance.
- Risk factors for poor adherence to TB treatment (DS and DR TB).
- Risk factors for poor treatment outcomes (end of treatment outcome [death, failure, default] and relapse) among patients with drug-sensitive and drug-resistant TB.
- Study of adverse effects in patients on different categories of TB treatment.
- Rates and risk factors for LTBI and active TB among healthcare workers.
- Cost-effectiveness studies of different interventions.

Annex I. **TB-IC FACILITY RISK ASSESSMENT**

1. Rayon TB Dispensary in Massali

General information:

Serves a population of 204,000
Renovated in 2008 with help of GF (MoH did renovation, GF provided equipment)
Consists of inpatient department, ambulatory department, and clinical laboratory within a 2 storey building. Sputum laboratory with culturing capacity is in a separate building. X-ray is also in a separate building.

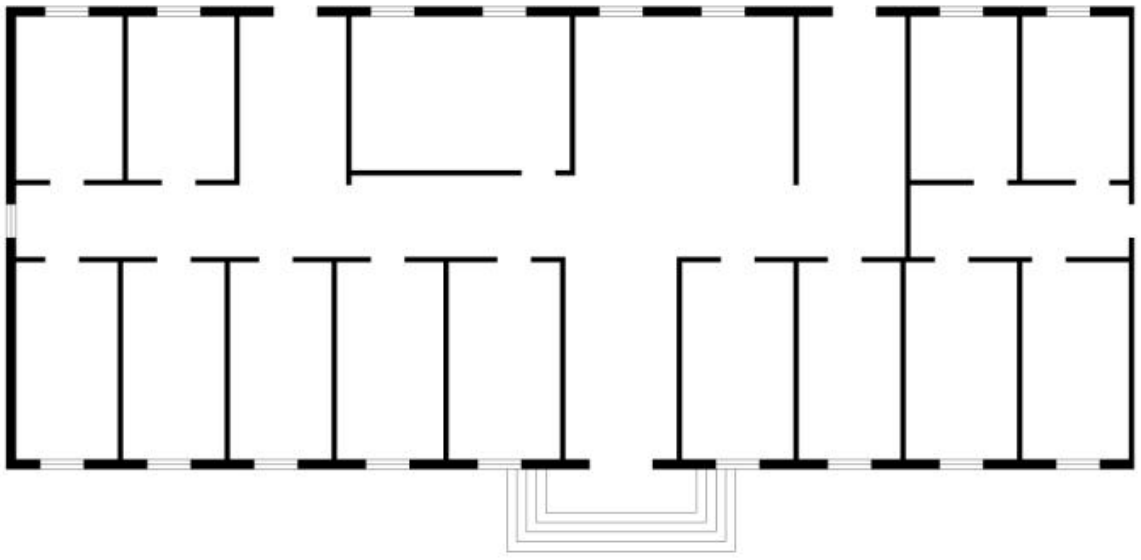
Inpatient Department
35 bed for DS patients only, out of which 20 beds were occupied
All current inpatients were smear negative although 4 out of 12 patients rooms (10 beds) are designated for smear positive if necessary.
1 HIV co-infected patient
Department layout:
Occupies entire 2nd floor of building and is accessed by 2 stairwells that lead to the 1st floor as well as outside. 10 out of 12 patient rooms are on the north side of the corridor. 8 of the rooms have 2 beds, 2 of the rooms have 3 beds
South side of the corridor consists of 1 regular patient room, 1 'intensive care' patient room, 2 toilets (males/female), 1 procedure/DOT room, one common area, and a partially partitioned administrative area.

IC Measures:	Findings:	Recommendations:
Administrative Measures	TBIC Plan: There is no written infection control plan specific for TB. Segregation: Although there is no partitioning between smear negative rooms and smear positive rooms, thought has been given to the location of these rooms, 2 rooms at each end of the corridor have been designated for smear positive patients (2 for men, 2 for women). Even with renovation, it would be difficult to accomplish segregation and given that the IPD is occupied by smear negative patients the majority of the time, the situation can be left as is. There is one HIV positive patient. Patients are meeting with family members outside. Cough hygiene: face masks are available for patients and all patients were seen to be wearing them during our visit. Cough hygiene educational material was not seen. HCW knowledge and education: knowledge of transmission still included the belief that TB can be transmitted by contact (dishes surfaces etc.) There is no regular TBIC training provided by the facility. One doctor stated he had external training in Riga but that it did not include TBIC, one feldsher stated received TBIC training arranged by NTP in Baku but was not able to repeat knowledge learned.	Prepare TB specific IC plan. Do not admitted HIV positive patients unless in poor clinical condition. Treat on ambulatory (home-based care if possible.) Provide annual staff training on TBIC Display cough hygiene educational material

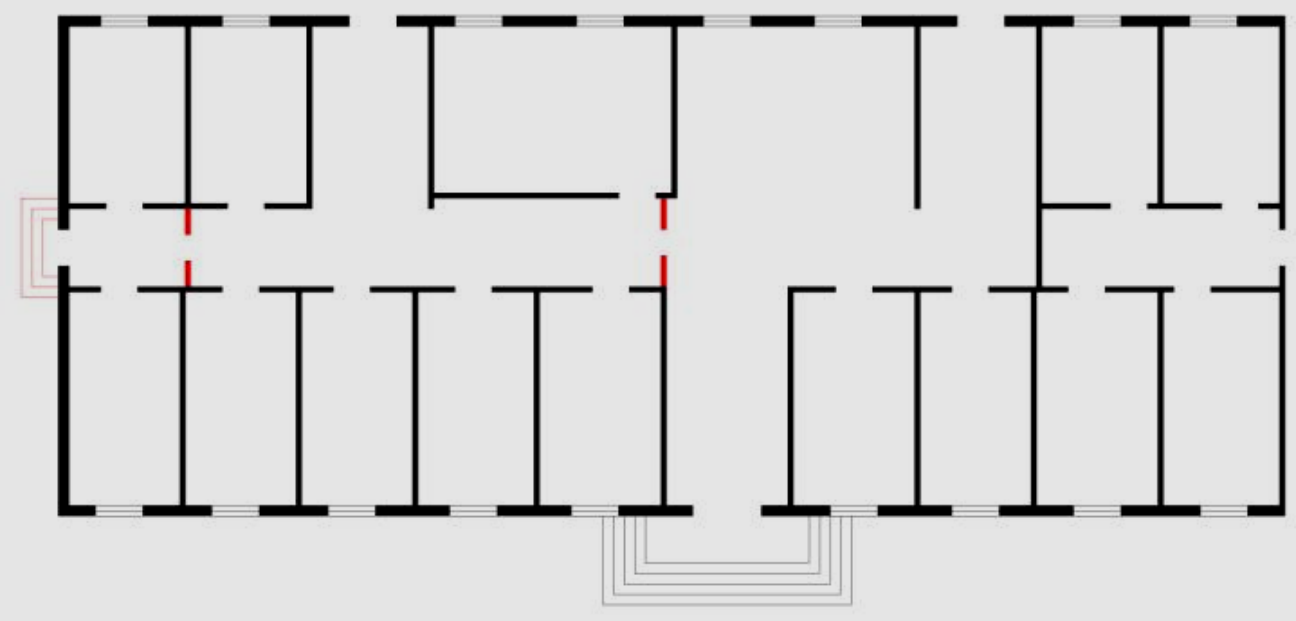
	Patient knowledge and education: knowledge level low. Some education taking place, but no formalized approach, some misinformation being given. Patient education materials minimal. Sputum collection: taking place outside. Observed by lab technician Patient flow: Stairwells leading outside. No issues. Transmission among HCWs: no documented cases since 1986.	
Environmental Measures	All rooms are equipped with enclosed UV air cleaning devices (re-circulators). 13 out of 16 units, although functional, were not turned on. Procedure room equipped with saturation UV light. Windows: only one section (out of 3) of each window is operable (can be opened). Room openings are less than 20% of floor space.	- Consider replacing with upper room UVGI fixtures UV air re-circulators as they are not recommended for health care facilities. (Efficacy of these devices is very low). Consider use of upper room UVGI 24h a day in inpatient care department. -prepare and implement maintenance plan for all UV devices. Which should include: -monthly cleaning of lamp with 70% alcohol -request for measurements and changing when necessary from central level. -If possible at this point replace windows so that all window sections are operable to maximize natural ventilation. At least for future renovations develop a master plan in accordance to IC requirements to avoid inappropriate changes.
Respiratory Protection	-N95 Respirators are available. Respirators were being worn, but some staff appeared somewhat unfamiliar with wearing them. Many were being worn incorrectly. -No fit-testing program	-N95 respirators should be worn at all times in the department if risk is high. High risk should be considered when there are smear positive patients, or patients without laboratory results. (potentially infectious) -Initiate fit testing program.
Ambulatory Department -Consists of DOTs cabinet for 10 MDR patients. 1 doctor office from which 1st lines drugs are dispensed to DS ambulatory patients. 1 reception area and 2 doctors offices for TB suspects, pharmacy, stock room, toilet, waiting area and Chief doctors office.		
Administrative	-See previous section for comments on TBIC plan, HCW and patient knowledge, sputum collection, cough hygiene and HCW transmission rates. - Patient flow: Building design does not permit optimal patient flow. Administration not segregated from patient areas. TB suspects wait in corridor in front of doctor's office. A waiting area (hall) exists but is not used. MDR DOT cabinet does not have a separate entrance and is therefore located as close as possible to one of the back entrances. MDR patients are seen one at a time, with the others waiting outside the	-Use the waiting area for TB suspects instead of waiting in the corridor. -Relocated one of the doctor's offices into the stock room, so that both doctors' offices that see TB suspects are side by side (upon entering the main entrance they will be the 2 rooms to the right). Make partitions as given below, in order to separate low and high risk areas from each other.

	building. Clinical Lab has its own entrance and no connecting doors or airspace that is shared with the rest of the building, but it is not known if patients go in there.	
Environmental	-see previous comments on UV devices and windows	-To reduce risk further and if budget is available, consider the following: Partition in the corridor between the waiting area and chief doctor's office. -Partition in the corridor between the toilet and the MDR cabinet. -Create a separate entrance to the outside at the end of the corridor in front of the MDR cabinet. *Theses 3 things will effectively separate administration, TB suspects, and ambulatory patients on treatment.
Respiratory	-N95 respirators are not always worn on 1st level of building -	-Due to lack of physical separation of the administrative area from TB patient areas, respirators should be worn at all times while inside the building with the exception of the clinical laboratory. If above mentioned recommendations on environmental control will be taken in consideration respirators will be needed only in high risk areas
X-ray		
Environmental measures	-No ventilation in room where x-ray machine is located. A non-functioning air conditioner is located in this room but even if functional does not provide enough air changes per hour for this room.	-Remove air conditioner and install extractor fan to achieve 12 air changes per hour.

Current:



Recommended:



2. Rayon TB Dispensary in Lenkoran:

General Information:
Serves a population of 210 000
Main 2 storey building consists of inpatient department, ambulatory department both on the second floor but separated with locked door in-between. First floor designated for microscopy laboratory and for X-ray.
126 registered cases in 2011 inpatients (DS new and retreatment), 3MDR-TB ambulatory patients, no HIV co-infection

IC Measures:	Findings:	Recommendations:
Administrative Measures	General TBIC Plan: Not available TB-IC committee or responsible person: Not available Cough hygiene: Not observed. During mission patients were staying in the corridor waiting for physician. Coughing patients have not been identified and HCW knowledge and education: Some HCWs have been interviewed during assessment with standard questionnaire and the basic knowledge about the route of disease transmission and needed precautions were missing Transmission among HCWs: no documented cases in last 5 years. Segregation: In outpatient care department not observed. MDR DOT cabinet is place at the end of the main outpatient care department. All patient, suspects, DRS and DRR are waiting in the same corridor and are using the same staircase. Sputum collection: Conducted outside Patient flow: Mixed on the staircases	IC Plan: give specific implementation details. Assign responsible person for IC preferably chief nurse at the facility. Supply surgical masks at registration to all TB suspects. Display coughs hygiene educational material. Create a formalized patient education strategy that includes transmission and protective measures. Stop education on disinfection, separate dishes, separate washing and etc. Provide annual staff training on TBIC within the facility, that includes the details of the facility's IC plan, each individual's responsibilities in carrying out the plan and the function of the IC committee so that all facility staff is aware. Reinforce that disinfection does not decrease transmission, and that physical contact and surfaces play no role in transmission.

	Patient knowledge and education: Knowledge level extremely low. Knowledge of transmission and protective measures is absent (example: one patient reports developing TB after catching cold). No patient education materials.	
Environmental Measures	Natural ventilation: All windows throughout facility were opened during assessment. Unfortunately in OPD, windows are available only on one side of the corridor. Due to this reason patient registration room does not has a window. All other rooms, except registration on this side of corridor are stock rooms. UV saturation lamps in MDR cabinet and in microscopy laboratory. Staffs say they are turned on for one hour at the end of each day. MDR DOTs cabinet has separate patient entrance, staff entrance to cabinet not air tight and staff frequently opening and closing door. Windows in both x-ray rooms small compared to volume of the room (not 20% of floor space). 10-15 x-rays done per day. Registration area partitioned but not all the way to ceiling.	Allocate MDR-TB DOTs cabinet on the first floor with isolated entrance. Extractor fans should be placed in x-ray room to provide 12 air changes per hour. Registration area should be preferably allocated on the first floor in good ventilated area.
Respiratory Protection	N95 Respirators are available. Respirators were being worn. In some cases respirators were being worn incorrectly, people often removing them to talk. No fit-testing program	N95 respirators should be worn at all times when within the building. Initiate fit testing program

3. TB #1 Dispensary in Baku

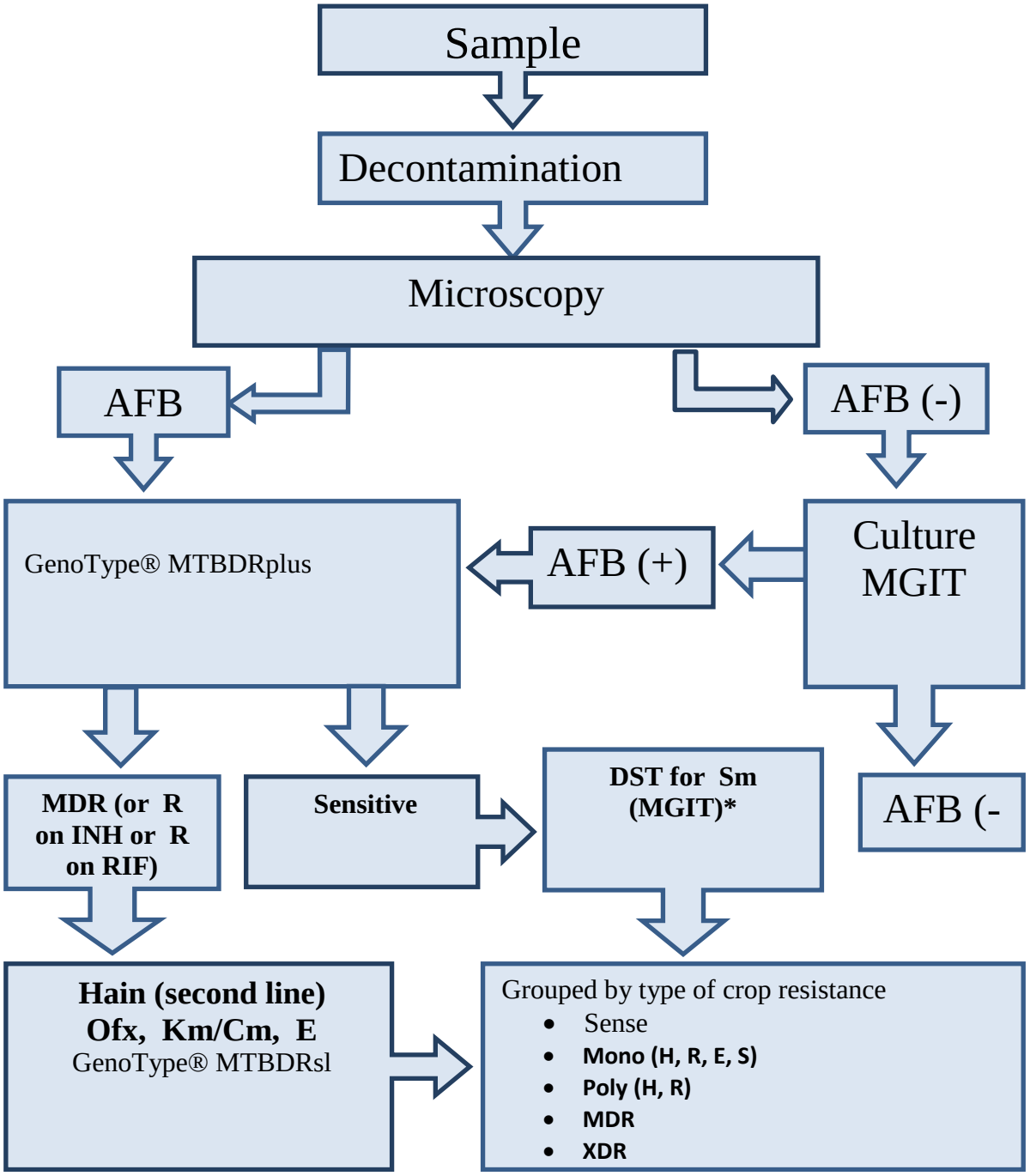
General Information:
Serves a population of 500,000 (official number) 900,000 (reality)
Renovated in 2008 with help of GF (MoH did renovation, GF provided equipment)
Main 4 storey building consists of inpatient department, ambulatory department, Fluro and X-ray. Ambulatory children's depart is in a separate building
140 inpatients (DS new and retreatment), 33 ambulatory MDR patients, no HIV co-infection
Building to be reconstructed in 2013.

IC Measures:	Findings:	Recommendations:
Administrative Measures	General TBIC Plan: There is a written TB infection control plan. Each SOP is time limited with responsible person assigned. However the plan is very general (example: segregation of SS+ and SS- is mentioned, but not how) and much of it is not followed (example: sputum still being collected inside despite SOP to collected outside.) TB-IC committee: Exists. Deputy Chief Doctor of hospital is head of the committee with 5 department heads making up rest of committee. Committee members were not sure how often	Priority recommendation: Separate SS+ and SS- patients onto different floors. SS+ to upper floors, SS- to lower floors. Separate new and retreatment onto different floors also if possible. Designate rooms for newly admitted patient who have not yet revived DST, transfer out to designated area when DST received. IC Plan: give specific implementation

	committee meets some said quarterly and some said twice per month, no one was able to provide minutes of these meetings and it was unclear if they are taken. No one could clearly define the role of the committee. Cough hygiene: face masks are available for patients but inconsistently worn and not by all. Patients could not explain why they should be worn or said they were for the patient's own protection. Scant cough hygiene educational material was seen. HCW knowledge and education: knowledge of transmission still included the belief that TB can be transmitted by contact (dishes surfaces etc.) All staff spoken to had received some kind of TB education within the last year, which contained a section on TBIC. Belief in disinfection as a method to limit transmission remains strong. Transmission among HCWs: no documented cases in last 5 years. Segregation: SS+, SS-, new cases, and retreatment cases exist on every floor (2nd,3rd,and 4th). These same groups are not mixed within individual rooms. All patients eat in common dining area but SS- eat before SS+. Staff rooms are not separate from patient areas. A 'Kafedra' exists on the 4th floor, although it is partitioned, the partition is not airtight and the stairwell to access it is shared with patients. Visitors were seen in patient rooms. Patients are admitted after smear results are received unless in bad clinical condition. Patients awaiting DST results not segregated from those who are confirmed DS patients. Sputum collection: sputum collection taking place inside. Some floors even have designated room. Patient flow: Mixed on the staircases Patient knowledge and education: In IPD knowledge level extremely low. Knowledge of transmission and protective measures is absent (example: one patient reports developing TB after allowing themselves to become chilled). Scant patient education materials. Ambulatory Segregation: MDR patients are well segregated from rest of AMB with own patient entrance. Fluorography has own entrance. No segregation of DS cabinet. Children are seen in a separate building. One stairwell was blocked between 2nd and 3rd floors so that it can only be used by administration. Patient Flow: TB suspects and administration use same entrance. To access the stairwell to the administration level (2nd floor) a person must walk though ambulatory department (and TB suspects.)	details. IC committee: include nurses on committee. Take minutes of meeting that clearly identify IC problems, plan to address that problem, a date to evaluate if the problem has been solved, and a responsible person. Supply surgical masks at registration to all TB suspects. Display cough hygiene educational material. Create a formalized patient education strategy that includes transmission and protective measures. Stop education on disinfection, separate dishes, separate washing and etc. Provide annual staff training on TBIC within the facility, that includes the details of the facility's IC plan, each individual's responsibilities in carrying out the plan and the function of the IC committee so that all facility staff is aware. Reinforce that disinfection does not decrease transmission, and that physical contact and surfaces play no role in transmission. Use entrance hall as waiting area for TB suspects. Administrative staff to use separate entrance into administrative stairwell. Automatic door closure to be installed on door between ambulatory and stairwell. Relocate Kafedra to 3rd floor, partition from patient area, and use administrative stairwell to access. Create separate entrance for ambulatory DOTS cabinet, or find location outside the main hospital building.

	TB suspects walk past DS DOT cabinet to access ambulatory TB doctors. No designated waiting area, TB suspects wait in corridors.	
Environmental Measures	Natural ventilation: Nearly all windows throughout facility were closed during assessment. Dining room windows on 3rd floor mostly not operable. 2 UV saturation lamps in MDR cabinet, only one is functional. Staff says they are turned on for one hour at the end of each day. Although MDR cabinet has separate patient entrance, staff entrance to cabinet not air tight and staff frequently opening and closing door. Windows in both x-ray rooms small compared to volume of the room (not 20% of floor space). 10-15 x-rays done per day. Fluorography room: good. 40-50 fluorography/day, large open windows, separate entrance. Registration area partitioned but not all the way to ceiling.	Extractor fans should be placed in both x-ray rooms and fluorography room to provide 12 air changes per hour. Partition for registration area should be extended to ceiling. Seal door between MDR cabinet and rest of building so that it cannot be opened. To prevent movement of staff and air in and out of MDR cabinet. There are many other renovations that would substantially reduce the risk of transmission but only priority ones have been listed here, given that building will be reconstructed in 2012.
Respiratory Protection	N95 Respirators are available. Respirators were being worn but some staff appeared somewhat unfamiliar with wearing them. Many were being worn incorrectly, people often removing them to talk. No fit-testing program	N95 respirators should be worn at all times when within the building. Initiate fit testing program

Algorithm for TB diagnosis (Abt. Version)



Annex II. Activity of Reference National Laboratory of Baku

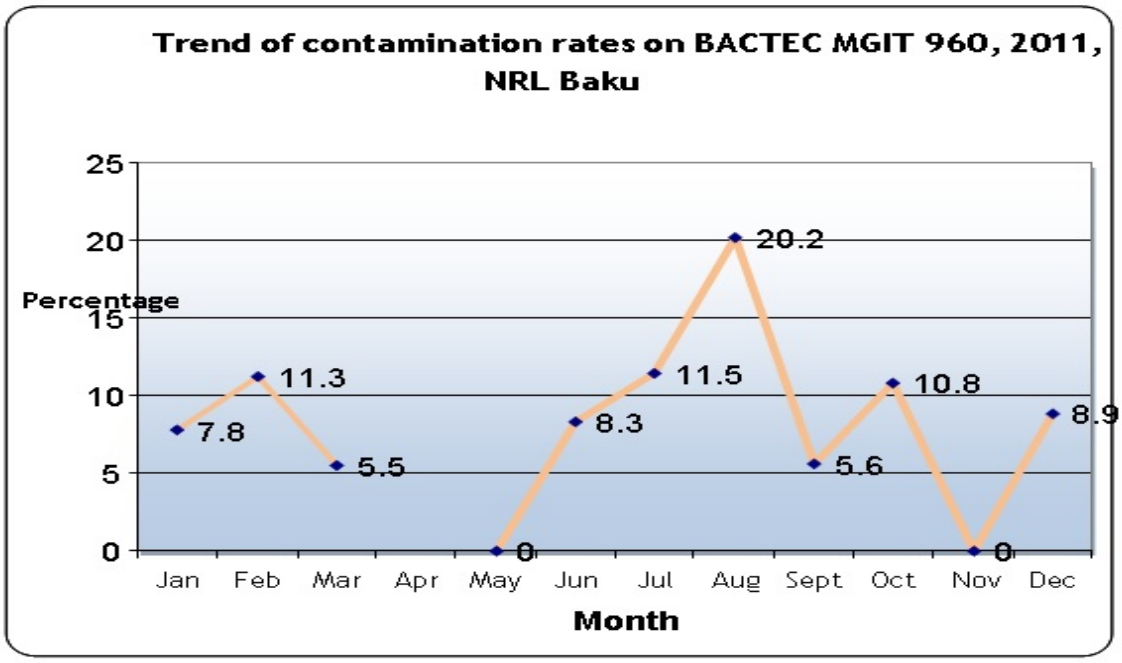
Activity at National Reference Laboratory of Baku in 2011 (Fill out all green cells)

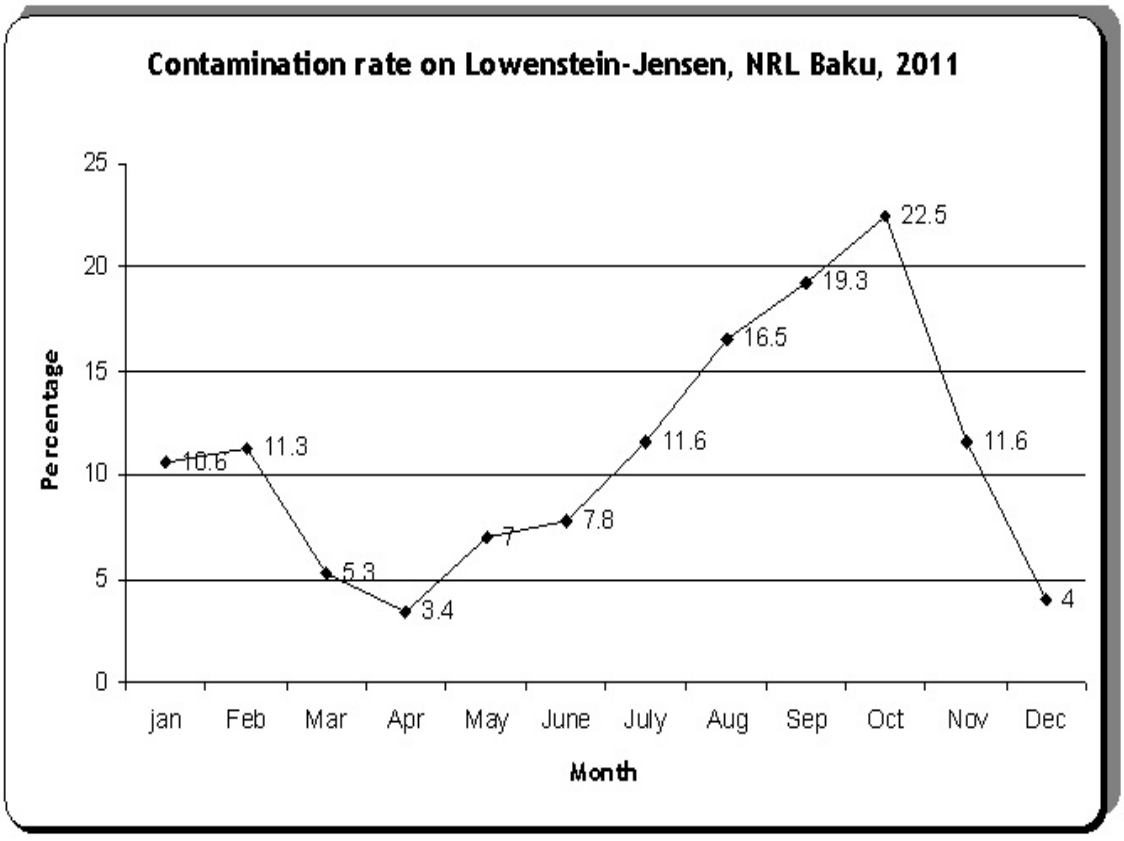
Total of all months	January 2011	February 2011	March 2011	April 2011	May 2011	June 2011	July 2011	August 2011	September 2011	October 2011	November 2011	December 2011	Total of all months	Totals 2011
Number sputum (Slides)	1731	2148	2049	2070	2182	2098	1802	1938	2318	2086	2143	2229	Number sputum (Slides)	24822
MGIT: Number culture on MGIT	765	659	221	0	473	664	778	160	16	107	677	660	Number culture on MGIT	5407
MGIT: Number Pos culture on MGIT	397	289	107	0	294	327	428	80	12	130	313	320	Number Pos culture on MGIT	2802
MGIT: Number Neg culture on MGIT	332	312	115	0	178	309	278	33	4	10	240	240	Number Neg culture on MGIT	2082
MGIT: Contamination rate on MGIT (%)	7.3%	11.3%	8.8%	-	6.0%	8.3%	11.8%	30.0%	8.8%	15.0%	0.0%	8.8%	Contamination rate on MGIT (%)	8.8%
MGIT: Growth rate on MGIT (%)	91.6%	88.7%	88.3%	-	89.6%	97.0%	88.8%	80.3%	100.0%	97.7%	-	88.3%	Growth rate on MGIT (%)	84.0%
MGIT: Number first line DST on MGIT	0	0	0	0	0	0	0	0	0	0	0	0	Number first line DST on MGIT	-
MGIT: Number second line DST on MGIT	0	0	0	0	0	0	0	0	0	0	0	0	Number second line DST on MGIT	-
Lowenstein-Jensen: Number culture on LJ	774	874	918	887	836	880	798	914	1165	1048	1203	1006	Number culture on LJ	11430
Lowenstein-Jensen: Number Pos culture on LJ	333	359	410	303	460	437	397	423	553	422	549	483	Number Pos culture on LJ	5418
Lowenstein-Jensen: Number Neg culture on LJ	392	431	488	437	402	394	333	349	389	335	519	524	Number Neg culture on LJ	4849
Lowenstein-Jensen: Contamination rate on LJ (%)	15.0%	11.3%	8.8%	3.4%	7.8%	7.8%	11.8%	16.8%	18.3%	22.8%	11.8%	4.4%	Contamination rate on LJ (%)	11.3%
Lowenstein-Jensen: Growth rate on LJ (%)	88.8%	88.8%	88.8%	88.8%	88.8%	83.3%	83.3%	84.3%	88.8%	83.4%	84.7%	84.8%	Growth rate on LJ (%)	84.8%
Lowenstein-Jensen: Number first line DST on LJ	291	327	293	471	446	378	320	304	156	308	391	287	Number first line DST on LJ	3904
Lowenstein-Jensen: Number second line DST on LJ	65	50	60	280	336	307	170	233	148	234	391	309	Number second line DST on LJ	2332

	January			February			March			April			May			June		
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nb of Positive MGIT tubes (with growth of only AFB)	280	107	2	172	85	2	48	43	0	0	0	0	174	109	1	201	107	3
Nb of Negative MGIT tubes (with no growth at all)	23	298	8	19	282	1	2	110	3	0	0	0	7	169	0	7	301	1
Nb of contaminated but Pos MGIT tubes (AFB + other m.o.)	72	18	0	13	18	1	4	4	0	0	0	0	0	0	0	22	4	0
Nb of contaminated MGIT tubes (Other m.o., no AFB)	3	28	0	1	41	2	0	4	0	0	0	0	0	0	0	4	42	0
Nb of LJ tubes with growth	403	209	4	440	242	5	501	268	3	692	331	10	601	300	6	562	274	6
Nb of LJ tubes without growth	32	691	18	33	781	4	23	424	22	70	819	4	30	743	8	43	734	3
Nb of contaminated LJ tubes	73	89	3	38	135	3	14	30	0	18	30	0	19	111	1	23	104	0

	July			August			September			October			November			December			Totals		
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nb of Positive MGIT tubes (with growth of only AFB)	207	151	0	37	23	1	8	4	0	84	43	3	0	0	0	217	102	1	1379	878	13
Nb of Negative MGIT tubes (with no growth at all)	11	263	2	1	34	0	0	4	0	2	8	0	0	1	0	18	228	1	90	1731	17
Nb of contaminated but Pos MGIT tubes (AFB + other m.o.)	17	3	0	2	18	0	0	0	0	0	0	0	0	0	0	2	3	0	72	62	1
Nb of contaminated MGIT tubes (Other m.o., no AFB)	2	65	2	2	14	0	0	1	0	2	14	0	0	0	0	13	37	0	31	249	4
Nb of LJ tubes with growth	481	217	33	347	243	2	591	302	56	520	288	23	664	289	13	636	223	34	6740	3183	197
Nb of LJ tubes without growth	41	835	7	31	543	3	74	839	13	37	733	13	137	983	66	38	877	10	633	8984	168
Nb of contaminated LJ tubes	34	128	3	78	181	3	129	315	5	128	335	7	82	183	3	37	80	0	683	1787	23

Annex III. Contamination rates on BACTEC MGIT and Lowenstein-Jensen





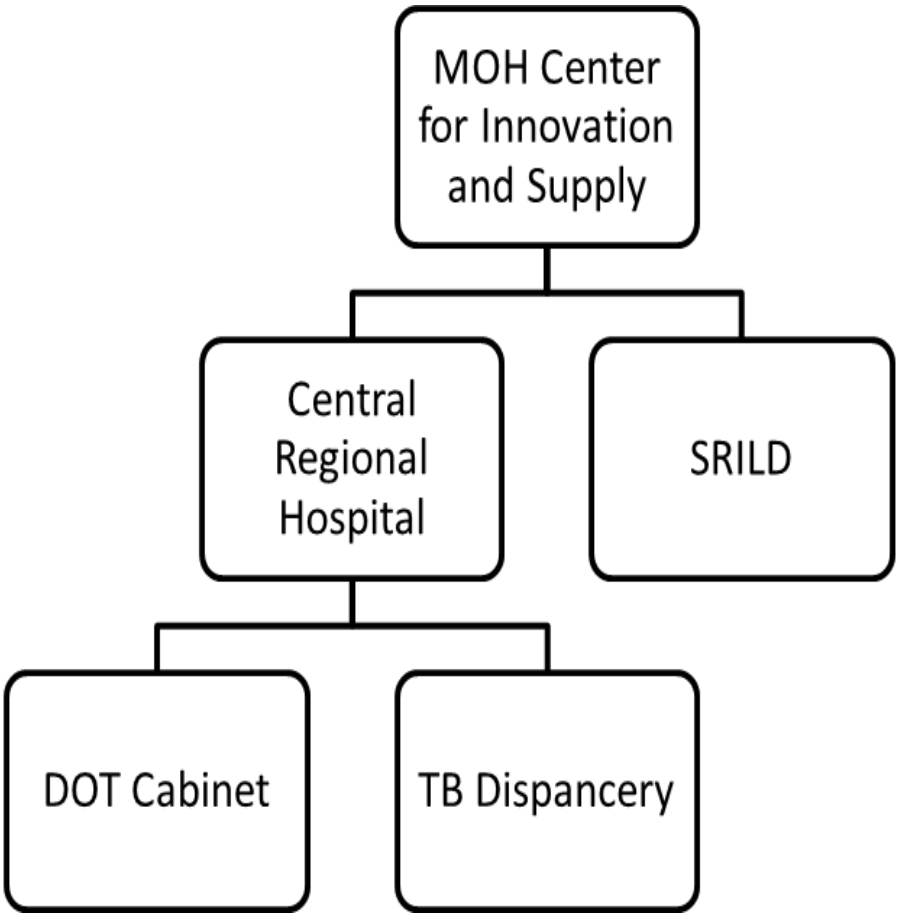
Annex IV. List of the 1st line (non-GDF), the 2nd line anti-TB drugs, BCG, and Tuberculin currently used in the TB network of the Republic of Azerbaijan

Drug name, strength, dosage form	Supplier/ manufacturer	WHO pre-qualification	Reason for purchase
Kanamycin, 1g, powder for injection	Sintez, JSC, Kurgan, Russia	No	Mainly used during the TB hospitals to treat patients with sensitive TB
Etapiam (Ethambutol chlorhydrate), 500mg/3ml, Solution for Injection	Vecchi & C Piam S.a.p.a., Genova, Italy	No	Mainly used during the TB hospitals to treat patients with sensitive TB
Isoniazid 10% 5ml N10	Biosintez,OJSC, Penza, Russian Federation	No	Mainly used during the TB hospitals to treat patients with sensitive TB
Ethambutol, 400 mg, N1000	Lupin Limited, Mumbai, India	Yes	
Isoniazid, 300mg N1000	Lupin Limited, Mumbai, India	Yes	
Pyrazinamide, 500 mg N1000	Lupin Limited, Mumbai, India	Yes	
Rifampicin, 150 mg N1000	Lupin Limited, Mumbai, India	No	
Streptomycin, 1 g	Biximik, OJSC, Russia Federation	Yes	Mainly used during the TB hospitals to treat patients with sensitive TB
Prothionamide, 250mg	Fatol Arzneimittel, Schiffweiler, Germany	Yes	
Cycloserine, 250 mg	Vitas-M Laboratory, Apeldoorn, Netherlands	No	
PASER, 4g	Jacobus, New Jersey,USA	Yes	
Moxifloxacin, 400mg	Cipla Ltd, Patalganga, India	Yes	
Amikacine (Selemycin), 500 mg IM/IV Flacon	Medochemie Ltd, Limassol, Cyprus	Yes	
Amikacin (Zamikan), 500 mg IM/IV Flacon	Asfarma, Istanbul, Turkey	No	
TUBERVAC ® BCG Vaccine (Freeze-Dried), 1 x106 and 33 x 106 Colony Forming Units (C.F.U.), vial plus diluent (1 ml)	Serum Institute of India LTD	Yes	Used in policlinics
Tuberculin purified (PPD) in the standard dilution	"Biolek", JSC	No	Used in policlinics

Annex V. Customs clearance of the 1st line anti-T drugs procured by ISC

Item	Name/Location/Description	Potential Problems
Receiving Agency	*the Azerbaijan Republic Ministry of Health Innovation and Supply Center*	
Drug storage before customs clearance	*the Azerbaijan Republic Ministry of Health Innovation and Supply Center warehouse*	*The GDF consultant was not able to see the warehouse, since permission in advance is needed*
Customs clearance	*the Azerbaijan Republic Ministry of Health Innovation and Supply Center*	
Drug storage after customs clearance	*the Azerbaijan Republic Ministry of Health Innovation and Supply Center warehouse*	*The GDF consultant was not able to see the warehouse, since permission in advance is needed*

Annex VI. Distribution of the 1st line anti-TB drugs



Annex VII. CSOs participating in TB control program in Azerbaijan

NGO/ funding source for TB activity/ target group	Case finding activities	Adherence activities	Indicators
Support to Health (NGO) Funded by: GF R9 from March 2011 Target group: ex-prisoners with TB and MDR-TB	Participate in education work among prisoners.	1 month prior to release the work with the prisoner starts. They are shown a film, given printed information, informed how the treatment will continue and about the importance of adherence. Contact details are exchanged, address of the TB clinic where they have to be registered is provided. MDR patients receive drugs at home in case of serious illness, otherwise in DOTS point and food parcel + juice/chocolate/ yogurt and milk per each day + 26 AZN/mo for transportation which are given to patients if they come to collect drugs (or to the nurse who delivers their drugs at home). Sensitive TB patients get food package + milk + 12 AZN (they come 3 times a week to DOT point to collect a dose for the next day too) Every month every patient is seen at the DOT point by the NGO staff. If there is lack of adherence the reasons are studied and solutions are sought. Families are visited. Some ex-prisoners become homeless. They are assisted, but there are no project funds for it, to get documents (pension, passport, domicile registration) - these are done by volunteers.	87% cure rate among TB and 72% among MDR-TB patients. 2 TB patients were lost out of 92 ex-prisoners. MDR-TB: 55 none were lost (1 died, 2 had treatment failure, 8 (including 6 MDR) went back to prison of which 2 went to prison on purpose to get treatment after 24 months of treatment have passed or if they were excluded from the project). Before the project yearly there used to be around 120 TB patients who were lost to follow up. Currently there are 25 MDR-TB patients and 20 TB patients enrolled in the program.
Azerbaijan Health Communication Association (AHCA)	From 2008 work on communication including on TB, education to TB staff on inter-personal	For TB doctors/nurses: materials on patient-provider communication and psychological support,	Initial omnibus survey + message recall survey (after 3 months) yielding 40% recall as a result

NGO/ funding source for TB activity/ target group	Case finding activities	Adherence activities	Indicators
Funded by: local business Target group: general population, mass media (journalists), school children & TB staff	communication, implemented "development of communication materials on prevention and treatment for TB" Audience: general population and TB patients. TOTAL (company) funded the project – educational documentary (cough to cure) and social advertisement (stigma & early detection of TB) broadcasted in national and regional channels. School children: special printed material were developed (bookmarks)	10 trainings were conducted for 150 people. Printed materials: on adherence for patients and for general population.	
Red Crescent Member of IFRC Use volunteers Health education in communities Has 83 district committees and 7 regional centers	Nurses meet communities at schools, refugee dorms health distribute information materials of Abt and ACHA. Currently 1-2 meetings a month by each district nurse.	38 patients allocated by the NTP: including IDUs, unemployed Each nurse can cover only 5 patients (daily visits). Usually volunteers they receive a small incentive From 2006-08 had a Red Cross project on support to adherence for sensitive TB (home visits). From 2010-11 8 district committees supported adherence of MDR-TB patients (Eli Lilly pays for training and transportation costs for nurses) every day visits are done by nurses. The project will continue and cover 50 MDR-TB patients. There is a psychologist who meets a patient/family once during the project. Support of the NTP is sought in solving social problems. Substantial social-psychological support is not possible (not funded)	Covered 38 MDR patients: 4 died, 11 refused treatment because of side effects. Need for side effect drugs.
HAYAT NGO	Project 1: IDPs	Lack of involvement in	Mobile Xray - 92% turned

NGO/ funding source for TB activity/ target group	Case finding activities	Adherence activities	Indicators
From 2008-11 implemented a TB project. Has a trained team of community mobilizers (at least 5)	funded by the government (support to national and local NGOs): Prevention activities – 2 times - in 2 districts and Baku: community mobilization (round tables, trainings on TB – what it is, prevention, case finding - in each community for selected community leaders and activists) & outreach - mobile Xray project 2 2009-10 funded by the government: migrants on the border with Iran/drug users, alcoholics, ex-prisoners Second project covered 7 hard to reach districts in the South. Testing for TB/HIV Project 3 2010 (GF funded) KAP survey: 286 labor migrants living in AZE who have TB Questionnaire and in-depth interviews in 53 locations World TB day 2012 among IDPs in several districts. With participation of different (foreign) refugee communities	treatment support	up for screening (1120 persons). Xrays were given to NTP. The information about % TB was not communicated back to the NGO Second project: 890 people were tested for HIV and TB. Results were not fed-back. 3rd project: Lobby/advocacy also for TB in informing the parliament based on the KAP survey results, results used in advocacy when the law on social workers was discussed in parliament.
NGO "Center for Equal opportunities" TB/HIV co-infected Global Fund and Open Society Institute since 2012		Provide psychosocial assistance to 15 clients/cases co-infected on palliative care	
"Democratic institute and human rights" NGO harm reduction/ ex-prisoners Global Fund since Jan 2011		Provide psychosocial assistance to 110 IDUs hospitalized (at TB dispensary #7) patients	
Abt Associates USAID	TB film was shown in prime time on national TV	118 PHC doctors trained also on	

NGO/ funding source for TB activity/ target group	Case finding activities	Adherence activities	Indicators
	and will be shown on more regional TV channels + a discussion with a TB doctor	TB/communication with patients	
Joing project by Abt Associates, Safe the Children, "Assistance to health reform development" USAID-funded AZ-SHIP Project General health communication and education including TB	General population – raising awareness and anti-stigma by showing film about TB, working with journalists, and conducting information campaign in metro and busses (brochures, posters, stickers and a film), a briefing was organized on the World TB Day. For the health awareness campaign: community mobilizers selected; 200 children participated in the TB drawing competition. 40 communities were selected based on the following criteria: large villages for more coverage, medical facility present, geographically accessible (to reduce transportation costs), willing to cooperate with the program. A survey was done in 125 villages and 40 were selected. During the village meetings health activists were selected by the villagers, a plan was created on how to address health issues		Message recall (for the media campaign) and increase in the number of cases found. A KAP survey is planned to be conducted in 2013

Annex VIII. List of National Counterparts Participating in Review

Ministry of Health		
1.	Samir Abdullayev	Head of the International department, MOH
2.	Viktor Qasımov	Head of the Sanitary-Epidemiological sector, MOH, NTP manager
3.	Soltan Mammadov	CCM Vice chair
4.	Eljan Mammadbayov	Director of SRILD
5.	Irada Akhundova	Deputy Director SRILD
6.	Yavar Shikhaliyev	Head of the TB Dispensary № 1
7.	Natavan Alikhanova	M&E coordinator, NTP
8.	Inna Mammadova	Statistics specialist, NTP
9.	Aynura Mansurova	Statistics, NTP
10.	Aziz Musayev	Treatment & Prevention coordinator, NTP
11.	Svetlana Mammadova	Treatment specialist, NTP
12.	Naila Mahmudova	Curator NTP
13.	Aida Quliyeva	Curator NTP
14.	Arastun Hasanov	Curator NTP
15.	Jeyhun Aliyev	Curator NTP
16.	Ilhama Jabbarova	Head of the Hospital № 6
17.	Vafa Shahtakhtinskaya	Drug manager, NTP
18.	Rafig Abuzarov	Head of the NRL, NTP
19.	Mehriban Seyfaddinova	Deputy head of the NRL, NTP
20.	Leyla Həsənli	laboratory doctor NRL, NTP
21.	Esmira Yusifova	Head of the inpatient department, Dispensary № 4
22.	Habil Ismailov	Head of the TB Dispensary № 7
23.	Jalil Nazarov	Head of the Central Regional Hospital, Masalli
24.	Azizulla Aliyev	Head of the Lung diseases Hospital, Masalli
25.	Ilyas Samadov	Head of the Central Regional Hospital, Lenkoran
26.	Nuraddin Gurbanov	Head of the Lung diseases Hospital, Lenkoran

27.	Zulfugar Makhmudov	Head of the Central Regional Hospital, Zaqatala
28.	Rovshan Suleymanov	Head of the Lung diseases Hospital, Zaqatala
29.	Machid Aliyev	Head of the Central Regional Hospital, Sheki
30.	Lachin İbrahimkhalilov	Head of the Lung diseases Hospital, Sheki
31.	Mehman Rzayev	Head of the Regional city health department, Ganja
32.	Ali Rustamov	Head of the Lung diseases Hospital, Ganja
33.	Hagigat Gadirova	Director of the Republican AIDS Center
34.	Esmira Almammadova	National coordinator on HIV/AIDS, National AIDS Center
35.	Telman Mammadhasanov	Director, Republic Narcology, Center
36.	Naila Aliyeva	TB Program Coordinator PIU/GF
37.	Khuraman Hasanova	TB M&E specialist PIU/GF
Ministry of Justice		
38.	Rafael Mehdiyev	Head of the Health Department of Ministry of Justice
39.	Fuzuli Huseynov	Senior TB inspector MMD MoJ,
40.	Asker Ismailov	Head of the PIU/GF MOJ
41.	Elmira Gurbanova	PIU/GF MOJ
42.	Mehmet Rahmanov	Head Doctor of the Medical Service Special Treatment Institution of the Penitentiary
43.	Rasim Tahirli	Head of the TB laboratory of the Special Treatment Institution of the Penitentiary
International Organizations		
44.	Kamran Garakhanov	Head of WHO Country Office in Azerbaijan
45.	Charles Lerman	Health Office Director U.S. Agency for International Development
46.	Olga Zues	Chief of Party, Abt Associates Inc
47.	Alexandr Pasechnikov	Senior TB Advisor, Abt Associates Inc

Annex IX. Programme of the visit

11 April 2012
Pick up from the hotel to regions 14:00

TIME	ACTION	VENUE	PARTICIPANTS
9:00 – 10:00	Team meeting	Hotel lobby	All team members
10:00-10:30	Meeting with Head of the WHO Country Office	Hotel	Dr. Kamran Garakhanov Head of the WHO Country Office, Dr Masoud Dara and mission members
10:30-11:00	Meeting with NTP members	Hotel	NTP staff: Dr Irada Akhundova Dr Natavan Alikhanova, Dr Svetlana Mammadova, Dr Aziz Musayev, Dr Mehriban Seyfaddinova, All mission members.
11:30-12:15	Briefing with MOH	MOH	Dr. Viktor Gasimov Head of the Treatment and Prevention Department MOH, Mr Samir Abdullayev, Head of the International Department of the MOH, Prof Eljan Mammadbayov, Director of the SRILD Dr Masoud Dara WHO/EURO Programme Manager, Medical Officer Tuberculosis and M/XDR-TB Programme, Team leader Irina Eramova; WHO/EURO Senior Medical Officer, HIV/AIDS, STIs & Viral Hepatitis Communicable Diseases Dr Kamran Garakhanov, WHO Head of Country Office Dr Javahir Suleymanova, WHO/CO Sevim Ahmedov, Senior TB Technical Advisor, USAID
Departure to Regions			
13:30	Lenkoran, Massali	TB dispensers, MDR TB treatment places, Laboratories	Group 1 Masoud Dara WHO/EURO Programme Manager, Medical Officer Tuberculosis and M/XDR-TB Programme, Team leader WHO consultants: Nestan Tukvadze, Susan Adolph, Veriko Mirtskhulava; Sevim Ahmedov, Senior TB Technical Advisor, USAID Javahir Suleymanova,WHO/CO
		TB dispensers,	Group 2

13:30	Ganja, Shamkir, Tovuz	MDR TB treatment places, Laboratories	WHO consultants: Kai Blondal, GLC, Ekaterina Kurbatova, CDC Bhavna Patel, USAID; Samantha Huffman, GFATM Mehriban Mammadova, USAID AZE
13:30	Zagatala, Sheki	TB dispensers, MDR TB treatment places, Laboratories	Group 3 WHO/EURO: Ogtay Gozalov, Medical Officer, Tuberculosis and M/XDR-TB Programme; Alain Disu, WHO/CO Russia; Ucha Nanava, WHO consultant,
13:30	Work in Baku (Including 12/13 April)	SRILD, Abt Associates	Irada Akhundova, deputy Director of the SRILD Nonna Turusbekova, WHO counsultant Olga Zues, Chief of Party, Abt Associates
13:30	Work in Baku (including 12/13 April)	AIDS Center, TB Dispensary №4, №7, SRILD, Republican Narcology Center	Irina Eramova, WHO/EURO Senior Medical Officer, HIV/AIDS, STIs & Viral Hepatitis Communicable Diseases; Orkhan Javadov, WHO/TA; Hagigat Gadirova, Director of the National AIDS Center; Esmira Almammadova, National coordinator on HIV/AIDS Esmira Yusifova, Head of the inpatient department, Dispensary № 4; Habil Ismayilov, Head doctor, Dispensary №7; Inna Mammadova, Head of Information Department, SRILD; Telman Mammadhasanov, Director, Republic Narcology, Center

GROUP 1

TIME	ACTION	VENUE	PARTICIPANTS
12 April work in Lenkoran From NTP: Svetlana Mamedova; Vafa Shaxtaxtinskaya, Observers: Khuraman Gasanova PIU/GF;			
12 April	Work in Lenkoran	TB facilities	Masoud Dara WHO/EURO Programme Manager, Medical Officer Tuberculosis and M/XDR-TB Programme, Team leader Nestan Tukvadze, WHO consultant, Susan Adolph, WHO consultant, Veriko Mirtskhulava, WHO consultant, Sevim Ahmedov, Senior TB Technical Advisor USAID Javahir Suleymanova, WHO/CO
13 April	Work in Massali and departure to Baku		

GROUP 2

TIME	ACTION	VENUE	PARTICIPANTS
12 April work in Ganja From NTP: Aziz Musayev, Rafig Abuzarov			
12 April - 13 April	Work in Tovuz, Shamkir, Ganja	TB facilities	WHO consultants: Kai Blondal, GLC, Ekaterina Kurbatova, CDC Bhavna Patel, USAID Samantha Huffman, GF
13 April departure to Baku			

GROUP 3

TIME	ACTION	VENUE	PARTICIPANTS
12 April work in Zagatala From NTP: Natavan Alikhanova; Mehriban Seyfaddinova Observer: Alexandr Pasechnikov, Abt Associate			
12 April – 13 April	Work in Zagatala, Sheki	TB facilities	WHO/EURO: Ogtay Gozalov, Medical Officer, Tuberculosis and M/XDR-TB Programme, Alain Disu, WHO/CO Russia; Ucha Nanava, WHO consultant,
13 April departure to Baku			

14 April Saturday
Pick up from the hotel 9:00

TIME	ACTION	VENUE	PARTICIPANTS
9:30 – 10:30	Meeting with Head and Deputy of Head of the Health Department of Ministry of Justice	MOJ	Mr. Rafael Mekhtiyev Head of the Health Department of Ministry of Justice, Dr. Fuzuli Huseynov, Senior TB inspector MoJ, Asker Ismailav, Head of the PIU/GF MOJ, Elmira Gurbanova PIU/ MOJ Mission members
11:30-13:30	Site visit	Specialized Treatment Institution for Detainees with TB (STID TB)	Masoud Dara WHO/EURO Veriko Mirtskhulava, WHO TA Sevim Ahmedov, USAID Bhavna Patel USAID Ogtay Gozalov WHO/EURO Kai blondal GLC Samantha Huffman GFATM Ekaterina kurbatova CDC Alain Disu WHO Nonna Turusbekova TA WHO Javahir Suleymanova, WHO/CO
15:30	Abt Assosiate	Abt office	Masoud Dara WHO/EURO Programme Manager, Medical Officer Tuberculosis and M/XDR-TB Programme, Team leader; Bhavna Patel, USAID, Sevim Ahmedov, Senior TB Technical Advisor,USAID;

			Kai Blondal, GLC, WHO counsultant; Javahir Suleymanova, WHO/CO

15 April Sunday free day

16 April, Monday
Pick up from hotel 9:00

TIME	ACTION	VENUE	PARTICIPANTS
9:00 – 12:30	**Site visit**	**Dispenser N 1 DOT point, Child TB out-patient department**	**Masoud Dara WHO/EURO Programme Manager, Medical Officer Tuberculosis and M/XDR-TB Programme, Team leader Ogtay Gozalov, Medical Officer, Tuberculosis and M/XDR-TB Programme, WHO/EURO Sevim Ahmedov, Senior TB Technical Advisor,USAID; Nestan Tukvadze, WHO consultant Susan Adolf, WHO consultant Javahir Suleymanova, WHO/CO**
9:00 – 13:00	**Site visit**	**Hospital # 6**	**Kai Blondal, GLC, WHO consultant Alain Disu, WHO/CO Russia Bhavna Patel, USAID Ekaterina Kurbatova, CDC Samantha Huffman, GFATM**
9:00 -13:00	**Site visit**	**Center for Analytical Expertise of Medicine,**	**Veriko Mirtshulava, WHO consultant, Vafa Shakhtakhtinskaya, Head of the Pharmacy SRILD, NTP**
9:00 – 13:00	**Site Visit**	**M&E department**	**Ucha Nanava, WHO consultant Natavan Alikhanova, M&E specialist, NTP**
13:30	**SRILD Meeting with Director of the SRILD and NTP members**	**Drug stores, TB register, NRL, Child TB in-patient department**	**All participants Prof Eljan Mammadbayov Director of the SRILD and NTP staff**
16:30	**Meeting with USAID Mission in Azerbaijan**	**USAID Land Mark plaza**	**Dr Masoud Dara, WHO/EURO Programme Manager, Medical Officer Tuberculosis and M/XDR-TB Programme, Team leader, Dr Kamran Garakhanov, WHO HoCO, Sevim Ahmedov, Senior TB Technical Advisor,USAID, Javahir Suleymanova, WHO/CO**

17 April Tuesday
Pick up from hotel 12:00

TIME	ACTION	VENUE	PARTICIPANTS
10:00	morning meeting of mission members	Hotel	All mission members
12:00	Debriefing with MOH		Dr Masoud Dara WHO/EURO Programme Manager, Medical Officer Tuberculosis and M/XDR-TB Programme, Team leader Dr Kamran Garakhanov, WHO Head of Country Office Dr Javahir Suleymanova, WHO/CO Sevim Ahmedov, Senior TB Technical Advisor, USAID Bhavna Patel, Senior Health Policy Advisor ,USAID, Bureau for Europe and Eurasia Sandra Irbe. GFATM Portfolio manager Samantha Huffman, GFATM Program Officer
13:00-17:00	Debriefing , Round Table	Lung Disease Institute Meeting room	All mission members, National authorities, NTP,PHRC, RC, MOJ,PIU/GF,LFA

17 or 18 April: departure

Annex X. List of Mission Members

Name	Organization/Position
Masoud Dara	WHO/EURO Programme Manager / Medical Officer Tuberculosis and M/XDR-TB Programme Division of Communicable Diseases, Health Security & Environment
Ogtay Gozalov	WHO/EURO Medical Officer, Tuberculosis and M/XDR-TB Programme Division of Communicable Diseases, Health Security and Environment The Regional office for Europe /World Health Organisation
Irina Eramova	WHO/EURO Senior Medical Officer, HIV/AIDS, STIs & Viral Hepatitis Communicable Diseases, Health Security & Environment WHO Regional Office for Europe
Alain Disu	WHO/CO Russia
Javahir Suleymanova	WHO/CO Azerbaijan NPO on CD
Ucha Nanava	WHO consultant
Nestani Tukvadze	WHO consultant
Kai Blondal	GLC, WHO consultant
Orkhan Javadli	WHO consultant
Nonna Turusbekova	WHO consultant
Veriko Mirtskhulava	WHO consultant
Susan Adolph	WHO consultant
Sandra Irbe	Global Fund to Fight AIDS, Tuberculosis and Malaria Fund Portfolio Manager Eastern Europe and Central Asia The Global Fund to Fight AIDS, Tuberculosis and Malaria
Samantha Huffman	Global Fund to Fight AIDS, Tuberculosis

	and Malaria **Program Officer** **Eastern Europe and Central Asia** **The Global Fund to Fight AIDS,** **Tuberculosis and Malaria**
Ekaterina Kurbatova	**The U.S. Centers for Disease Control and Prevention (CDC)** **Senior Service Fellow MDR-Team,** **International Research and Programs** **Branch Division of TB** **Elimination/NCHHSTP**
Sevim Ahmedov	**Senior TB Technical Advisor** **USAID/Washington** **Bureau for Global Health** **Office of Health, Infectious Diseases and Nutrition**
Bhavna Patel	**Senior Health Policy Advisor ,USAID,** **Bureau for Europe and Eurasia**
Mehriban Mammadova	**USAID AZE**

Annex XI. Field Visits

Visit to Lenkoran

Visited dates: 11-12 April

- Total area 70 km2 (30 sq mi)
- Total population 210 000

1.TB Hospital
TB Hospital consist of in-patient (35 bed) and out-patient departments
Total staff: 50
Nurses - 16
Doctors - 7

2. TB-Laboratory
Microscopy, sputum specimen collection
Total staff:

3. DOT points
4 DOT points
Placed: 1 in TB Hospital, 3 in the Villages

TB Hospital In-patient department:
35 bed for DS patients only, out of which 14 beds were occupied
12 current inpatients were smear negative

MDR
3 in DOT (TB Hospital, Lenkoran) 7 in DOT (Villages)

Surveillance
2011 last quarter (October, November, December)
Total: 50

2011 last quarter (October, November, December)				
TB	**Extrapulmonary**	**Pulmonary**		
	9	**41**		
		new	**retreated**	
		34	**7**	
SS +		**10**		
SS + C +		**8 (2)**		
SS -		**24**	**7**	
C +				**1**

2011 Year			
Total TB cases	**216**		
TB	**Retreated**	**NEW**	
	82	**134**	
		Extrapulmonary	**Pulmonary**
		23	**102**
Children		**2**	**6**
SS +			**60**
SS + C +			**52 (8)**
SS -			**42**
C +			

For 2011: 203 samples sent to NRL from which 120 was MDR Treatment monitoring

2010: Total registered TB cases: 170
Default- 4 out-patients

2011: Total registered TB cases: 216
Default- 5 out-patients

TB/HIV

HIV screening among TB patients:

Among new: 100%
Among: in-patients 100% (2/3 time during the treatment period)
Retreated: very low

TB/HIV co-infected patient receive TB treatment in the hospital in separate ward

Visit to Masalli

Visited dates: 13 April

- Total area 70 km² (30 sq mi) 0,72 th sq. km

- Total population 205 800

1.TB Hospital
TB Hospital consist of in-patient (35 bed) and out-patient departments
Total staff: 42
Nurses - 19
Doctors - 5

2. TB-Laboratory
Culture, Microscopy, sputum specimen collection
Total staff: 1

3. DOT points
4 DOT points
Placed: 1 in TB Hospital, 3 in the Villages

TB Hospital In-patient department:
35 bed including for pulmonary, out of which 20 beds were occupied
12 current inpatients were smear negative

MDR
11 MDR patients: 8 in Hospital #6 (Baku); 3 in DOT (Villages)

Surveillance
2011 last quarter (October, November, December)
Total: 50

2011 last quarter (October, November, December)				
TB	**Extrapulmonary**	**Pulmonary**		
	6	**17**		
		New	**Retreated**	
		15	**2**	
SS + C +		**4**		
SS -		**11**		**2**

2011 Year			
Total TB cases	**136**		
TB	**Retrited**	**NEW**	
	39	**97**	
		Extrapulmonary	**Pulmonary**
		22	**75**
Children		**1**	**8**
SS + C +	**19**		**47**
SS -	**20**	**22**	**38**

For 2011: 270 samples sent to NRL from which 79 was MDR Treatment monitoring
2010: Total registered TB cases: 119
Default - 0

2011: Total registered TB cases: 136
Default - 3 out-patients

TB/HIV
HIV screening among TB patients:

Among new: 100%
Among: in-patients 100% (2/3 time during the treatment period)
Retreated: very low

One TB/HIV co-infected patient receive TB treatment in the hospital in separate ward.

Visit to Tovuz, Shamkir, Ganja

Team members:

Bhavna Patel, USAID
Ekaterina Kurbatova, CDC
Kai Blondal, GLC,
Mehriban Mammadova, USAID Mission
Samantha Huffman, Global Fund
Accompanied by representatives from the NTP: Aziz Musayev (head of the MDR-TB committee), Rafig Abuzarov (head of the NRL), Ayda Gulieva MDR-TB coordinator for 6 rayons, including Tovuz and Shemkir in the region (NTP, Baku)

Sites visited:
1) Tovuz - TB dispensary, MDR TB treatment point, smear microscopy lab, drug store for the TB dispensary, interview with 2 patients
2) PHC point – feldsher-obstetrics point, where 1 MDR-TB patient was receiving treatment
3) Shemkir - TB dispensary, MDR TB treatment point, smear microscopy lab, drug store for the TB dispensary
4) Ganja - TB dispensary, MDR TB treatment point, smear microscopy lab, empty culture lab, drug store for the TB dispensary,
5) Ganja general primary health care center (policlinic No 1) DOT point for MDR-TB patients and DOT point for MDR-TB patients

Overall:
In the rayons visited paper forms and registers are used. All forms are standard. However, staff was often not able to provide even basic indicators on program performance (how many new/retreatment cases were notified by smear/culture status, treatment outcomes), they do not seem to analyze and use their routinely collected data. There is a lack of human research capacity to do OR, many areas are understaffed and operational research is not considered. The country is divided between 10 coordinators in terms of monitoring of MDR-TB -related activities. One of the coordinators monitors Baku city. Most of the coordinators are based in Baku and carry out monthly monitoring visits to the sites where patients are on treatment. One of them accompanied Group 2 during the site visit. She is responsible for 6 rayons (Table 1). There were total 21 MDR-TB patients on treatment in her work-area. In addition 20 patients are on the waiting-list.

Currently, there was no MDR-TB coordinator appointed for Ganja city, where 24 MDR-TB patients were on the waiting-list.

Human resources
The number of positions and actual staff available was not very much discrepant at the places visited, except for laboratory services, what was severely understaffed. The use of the time of the clinicians and nurses is a different issue, as the work could have been organized better. In overall the average age of personnel was far below the retirement age. The personnel (doctors and nurses) had received training in TB and MDR-TB, however the understanding in the some areas, particularly laboratory aspects, infection control and recording and reporting was weak.

Case-finding and diagnosis
The general policy for case-finding and diagnosis:
In 2011, the guidelines have been approved for case-finding. The guidelines have not been submitted to the WHO for comments and the time was too short to be able to comment on them during the mission.

Case-finding is passive (patients present to primary health care services or TB services with symptoms) or active. Active case-finding is done in risk-groups, which are listed in the recently approved MoH guidelines. The x-ray is done once per year for those who belong to risk-groups and in case TB is suspected, sputum is collected for smear and culture.

According to the policy, three sputum samples are collected for confirmation of diagnosis, two of them should be sent for culture and following drug sensitivity testing (DST) to the National Reference Laboratory (NRL). Any other biological material should be referred the same way for the culture (and following DST). The sputum is supposed to be collected from rayons to the appointed centers (or the patients would go to the center) and from there the NTP car is bringing samples to the NRL.

We were not able to verify how many of the samples are sent to the NRL for culture and following DST as there was no information on that at the sites.
It was told that in the in-patient facilities the sample is sent for culture probably for 60% of the patients. The answers of the tests were supposed to be brought back by coordinators. The coordinators would leave the culture and DST results at the sites, where the results were said to be added to the patient's files. The culture results were not recorded in TB registers. Furthermore, in case the patient was discharged before the culture result came; the information would stay with the hospital. From 2012, the field for culture was included in TB registers, unfortunately not filled in.
At the out-patients' facilities the sputum was said to be sent for culture even less frequently.

There was no information on how many patients were notified with drug-resistant TB (DR-TB) in 2011. However, the lists of patients known to have DR-TB in the area, including those still on the waiting list for treatment, were available.

Laboratory issues
Commonly the smear laboratories would have self-made safety hood for preparation of smears, unfortunately mostly without fan to direct the air-flow. The quality assurance (QA) was said to be done every 6-months (previously it was quarterly) using random sampling, but we were unable to get the recent QA protocol at the sites. The supplies were provided by the NTP. The procurement of supplies was based on demand rather on planned distribution system. There were recently no gaps in lab supplies.
Treatment
The guidelines for treatment have been approved by the MoH in 2011 and have been distributed to the TB services. Regardless of several revisions by the WHO, they are not in-line with the latest international recommendations. The two main differences are in recommended panel to be set up for the DST and even more importantly in treatment of regular and resistant TB.
Regular TB – the radiological findings, instead of history of previous treatment, are used for determining the treatment regimen (inclusion of streptomycin to the regimen). Thus, category I is used in case only one lobe of the lung is affected and streptomycin is added if more than one lobe is affected. It might bring to over-use of streptomycin in new cases. Furthermore, in case of streptomycin resistance it is encouraged to use kanamycin, which belongs to the group of second-line drugs and should be reserved for those with poly- and M/XDR-TB. It is even more difficult considering that the quality of x-rays is suboptimal in periphery. In terms of implementation of the recommendation on S resistance - and also it is estimated that approximately 60% of pulmonary patients are sent for culture and DST and the answers are coming back several months after, therefore the possible information on S resistance would come after the intensive phase is over.

The regimens observed at the sites visited were used in a mixed manner that is with or without streptomycin (more based on subjective feeling than anything else) for new cases and with streptomycin in re-treatment cases. Use of Km in drug sensitive TB was not observed during the visit.

Drug-resistant TB – the radiological findings, instead of bacteriological status are used to guide the length of the treatment and the selection of the regimen.
The recommended DST panel is not the one allowing composition of individualized regimen based on DST but includes more drugs than necessary for minimum panel (H,R, second-line injectable, fluoroquinolone). Also the fluoroquinolones are recommended to take twice per day, whereas the recommendation is to take them once per day. The treatment regimens are therefore different from those recommended in recent WHO guidelines.
Otherwise, the recommended drugs in the regimen are fine: Km/Cm Lfx/Mfx EtoCsPasZ/Lfx/EtoCs PasZ.
The duration of mono-and poly-drug resistant TB patients is 12 months, whereas for those resistant to R it should be actually 18 months.

At the sites irregularities were observed in composition of regimens, Z was missing in 4 cases, Lfx was not used in case of resistance to fluoroquinolne in one case. Mfx was used instead of Lfx in 10 cases and Am was used instead of Cm (this was due to lack of Lfx for period of time). Two cases did not have fluoroquinolone in the regimen.
The duration of use of injectable was observed to be 6 months. The connection between the duration of injectable and culture conversion as well as total duration of treatment and culture conversion was not possible to determine because the data on culture and DST were at the central rayon level and data on drugs intake in DOT places.

Follow-up of treatment and side-effects management – the follow-up of treatment and side effect management is overall in-line with the international recommendations. It was observed, that the clinicians were diligent if following the recommendations and were managing the side-effects well.

Drug management
There have recently been gaps in provision of pyrazinamide and levofloxacin and capreomycin. However, it was not possible to identify when, at what level, and for how long the drugs were missing.
The first-line drugs (FLDs) in fixed dose combination (FDC) procured through the GDF mechanism were finishing and the ISC had provided drugs procured via the country open tender. Most of the FLDs were by Lupin. Kanamycin and streptomycin as well as injectable rifampicin were by Ukraine and Russian producers.
The single drugs were: Rifampicin, Isoniazid, ethambutol, Pyrazinamide and Streptomycin (some of them injectables). The doctors explained that they were using FDCs supplemented with single drugs, and that they switched exclusively to single drugs when they ran out of FDCs.

All TB hospitals and dispensaries are required to keep stock records. It was said that usually the request is done quarterly to the Innovation Center (previously NTP). However, it was then also pointed out that it is done more according to demand, not quarterly. The size of buffer-stock was not clear. There were no drugs which were dangerously close to the expiratory date.
Only one site had information of current stock. It might be due to several reasons, one of them the undefined number of patients receiving TB treatment but not notified in TB register for DOTS.

The Monthly Procurement Forms are used to get the SLDs form the NTP. In this case the NTP MDR-TB coordinator brings the drugs from the NTP and calculates how much have been consumed and how much is needed.

The storing conditions were overall fine. The refrigerators for PAS are available everywhere. The temperature was not measured in the refrigerators. Second dose of PAS was given to patients to take home, which might affect the quality of PAS.

Recording and reporting
There are many forms, registers and reports for TB and MDR-TB. However, it is very difficult to get data, particularly recent data (cohort analyses). Furthermore, the essential information regarding MDR-TB patients at the sites is not available (lab data and data on drugs intake are in separate files and facilities).
The registers for regular TB do not contain information on culture and DST (not recorded). The outcome failure in case of MDR-TB is commonly not used. The failure and death rates are very low. Defaulter rate was more reliable in Ganja.

Infection control (IC) issues – the guidelines have been approved and the training conducted. The facility specific TB IC plans have not been developed and the person responsible for implementation of that plan has not been identified. The patients were isolated into different rooms based by smear status. However, the patients were still mixing in the departments. The UV light were available and maintained in the MDR-TB DOT points, unfortunately those were mainly uncovered UV light which could be used only after reception. The respirators were available at all sites, not fit-tested. It is not clear how much they are used in every-day work. Some healthcare workers were wearing surgical masks.

Patient-related issues
The knowledge of patients with TB seemed to be rather good, although there was not much time to assess it. The patient with MDR-TB told that it takes them several hours to visit the DOT point daily (by foot, by bus, car). That is a considerable burden for them. PHC providers should be more engaged in provision of TB care.
The reimbursement of transportation (55 AZM per month is transferred to the bank account of all MDR-TB patients but not for patients with regular TB).
There are no palliative care guidelines not provision of palliative care.

ACSM
There was no time to collect detailed information of the ACSM activities. Leaflets were noticed on the tables in TB facilities.

Tovuz

General

Total population	162,791
Of them adults	118,084
Of them children 0-13 years of age	32,999
Of them children 14-17 years of age	11,708

Health care services:
Total number of hospitals 9, of them one for TB.
Total number of facilities for general practitioners – 26
Total number of health points (facility without a doctor) – 19
There is regional development plan, which includes building and major refurbishment of the health care facilities, including TB facilities. The funding is coming mainly from the MoH. The regional government contributes with furniture and minor equipment.

TB drugs: the funding for the FLDs is provided by the region, but the procurement is done centrally by the MOH/Innovation Center
SLDs: NTP

Motivation of young personnel to come to work at the site – It is depending on the particular site, but in general there is possibility to offer a bit higher salary and land for house.
There are known to be total of 9 HIV positives in the rayon; no information was available on ARV treatment.

Children
No children with TB were diagnosed in 2011. There were 38 children diagnosed with LTBI and started on 3-months of isoniazid, supervised by parents. The BCG coverage was said to be approximately 97%; done once at birth. Mass tuberculin skin test screening is done once per year for all children aged ≥5 years. In case Mantoux test is more than 5 mm, LTBI treatment is started.
In contact always only one Mantoux was done, never two-step skin test. LTBI treatment is done in all children in contact with TB patient.

Notification
Data were not readily available for 2011. What we were able to collect is presented below.
The yearly summary report by the doctor was different from the data we summarized at the site from the quarterly reports.
(a) Information for 2011 from the doctor:
New cases 82
Of them pulmonary 60: SS+ 37 (61.7%) and SS- 23.
Of them extra-pulmonary 22

Re-treatment cases – it was not possible to find information by different categories. In total there were 21 drug sensitive re-treatment cases and two MDR-TB, (no denominator, therefore no conclusion possible).

Out of all 60 new pulmonary cases 22 had no DST and 11 had DST, of them 1 was MDR-TB.
Number of culture done was not available.

(b) Table 1 Information from quarterly reports for 2011.

	New cases				Re-treatment cases			
	SS+	SS-	Extrapulm	TOTAL new	SS+	SS-	Extrapulm	Total re-Tx
Quarter 1	4	7	2	13	1	0	0	1
Q2	7	9	3	19	5	0	0	5
Q3	2	13	0	15	7	0	0	7
Q4	12	8	2	22	5	1	2	8
Total	25	37	7	69	18	1	2	21
%	40,3	59,7	10,1	79,3	94,7	5,3	9,5	100,0
	of pulm	of pulm	of new		of pulm	of pulm	of re-Tx	
MDR	2 MDR-TB				1 MDR-TB			

Out of 60 new cases 59 (98%) were tested for HIV, which is a good coverage.

The doctor did not have readily available the information on treatment outcome. Treatment outcome was calculated for 2010 from the quarterly reports at the sites:
New smear positive: 18 cured and 1 died
New smear negative: 33 completed
New extra-pulmonary: 12 completed and 1 transfer out
Re-treatment cases: 11 cured, more detailed about treatment outcomes of re-treatment cases was available.

TB department
Dilapidated facility for 20 beds, no patients. The facility is housing DOT point for MDR-TB patients. The regular TB patients are coming to fetch the drugs to the reception of the doctor every 7-10 days. There is 1 TB doctor, 1 head of department.
There is one radiologist, but the x-ray equipment (from 1989) was broken for the last 2 months. The patients were sent for x-ray to central hospital.
DOT point is located close to the entrance in the building. Open UV lamp in DOT point, cleaned regularly with alcohol. Respirators available.

The patients from the villages were referred to TB dispensary or confirmation of the diagnosis and the sputum would be collected then and sent to Baku, the coverage was unclear.

More information on smear microscopy laboratory and drug supply in available in the annexes – the questionnaires.
Smear microscopy laboratory with self-made safety hood without fan to direct the airflow. The doctor working on 50% position, experienced and well trained, QA was said to be done usually quarterly, but sometimes once per half year. QA protocols were not found at the time of the visit.

MDR-TB - 3 patients were on treatment, coming 6 times per week, the regimens were without pyrazinamide.
We spoke with 2 patients:
One new case, diagnosed in with TB and thereafter with MDR-TB in Baku, now living at home in the rayon. It takes 1 hour to come to DOT point by bus (2 AZN). Tolerates drug well, no known contact with person sick with TB.
One re-treatment case, sick for several years (from 2003). Has been defaulting several times because he had no money to pay for drugs. Now jobless, has 1 room apartment where he is living with his 3 small children and wife. The children have been screened and isoniazid was given for some time. He has had two operations during the treatment (appendicitis and occlusion of GI tract). Culture negative for the last 2 months, have been on treatment for total of 15 months.

Health point – serving 3800 population. The nurse is vaccinating children and doing other minor health-care related errands. Is participating in contact tracing around TB cases if asked for, but it is usually done by SES. In 2012, contacted 3 persons and send them for screening. She does not really know how many TB cases she has in the village.

One patient is receiving MDR-TB treatment in the village and is coming daily to the nurse who is working there. A separate room assigned for 1 patient. Treatment still in the intensive phase. Z included into the regimen. No information on bacteriological status at the place. UV lamp cleaned, room clean, drinking water for patients available. No problems.

Shemkir

Total population	197,000
Of them adults	125,300
Of them children 0-13 years of age	66,220
Of them children 14-17 years of age	4,180

11 hospitals, of them 4 in town, 3 in villages and 4 in smaller places than villages, total 559 beds.
37 out-patient facilities
32 health-points (facility without a doctor)

There are no NGOs working in the rayon. No social support is available from the rayon administration. HIV tests are done in Baku (blood is sent).

TB hospital for 50 beds (no children beds). The renovation is planned in 2013 and the facility would have 40 beds after that. There are two floors, first floor for out-patients and administration and second floor for in-patients. There were 7 patients currently in the hospital. All hospitalized patients were smear-positive, so no placement according to smear status done. Ventilation via open windows. Facility was dilapidated.
The staff was overall rather young, 9 positions of doctors, all filled. Out of them there were 4 TB doctors and a head doctor.
The total number of new TB patients notified in 2011 was 140, of them 67 sputum smear positive.
More data on notification were not readily available. The treatment outcome data was summarized during the mission for the cohort notified in 2010 (Table 2). The death and failure rate is very low in both, new, and re-treatment cases. The defaulter rate is as high as 18.2% among new and 23.9% among re-treatment cases. They also transfer out a lot – 11.5% and 11.6%, respectively. It might be also in fact defaulters. It was interesting to observe that the number of re-treatment cases was almost double the number of new cases. Could it be due to notification of chronic cases and seasonal treatments? No explanation was given.
There were 2 MDR-TB patients on treatment from 2010 and 3 from 2011. The DOT for MDR-TB point was looking similar to the one in Tovuz. Regular TB patients were visiting the doctor every 7-10 days.

Table 2 Treatment outcome for cohort notified in 2010

New	Cured	Compl	Died	Fail	Def	Tr out	Total	Tx SS	% Tr SS
Q1	5	20	0	0	5	3	33	25	75,8
Q2	1	18	0	1	9	5	34	19	55,9
Q3	4	18	0	1	6	5	34	22	64,7
Q4	2	32	0	2	7	4	47	34	72,3
Total	12	88	0	4	27	17	148	100	67,6
			0%	2.7%	18.2%	11.5%			
All	Cured	Compl	Died	Fail	Def	Tr out	Total	Tx SS	% Tr SS
Q1	8	45	1	0	15	10	79	53	67,1
Q2	2	47	0	1	20	7	77	49	63,6
Q3	5	34	0	1	24	11	75	39	52,0
Q4	1	48	4	3	15	8	79	49	62,0
Total	16	174	5	5	74	36	310	190	61,3
			1.6%	1.6%	23.9%	11.6%			

Ganja

There are TB dispensary and 3 DOT points:
Policlinic 1 DOT point (visited)- 1 doctor and 2 nurses
Policlinic 2 DOT point - 2 doctors, 3 nurses
Policlinic 3 DOT point - 2 doctors and 2 nurses
In addition there is 1 pediatric TB doctor covering 4 children policlinics.

In 2011, 311 patients were notified:
189 new: SS+ 94, SS- 55, Extra-pulmonary 40
122 re-treatment cases: 17 relapses, 82 after failure and after default, 23 others.
There were 18 children sick with TB in 2011 (none with MDR-TB).

It was said that in 2010 there were 333 TB cases notified, but the treatment outcome was available for only 284 (Table 3).
As seen there are problems with recording and reporting. This might be due to the use of the traditional recording and reporting system which has been joined with the internationally recommended one. The 2012 TB registers have space to record culture and DST but those are not filled in.

TB Dispensary in Ganja serves territory of approximately 800 000 population (320 000 population in town, of them 102,000 children under 18 and in addition 6 rayons). The hospital has 2 floors, total 70 beds.
The cosmetic reparation work has been done on the second floor. At the time of the mission there were 90 patients. The administrative IC measures - no IC plan nor person assigned for it, two different sections for SS+ and SS- patients, but door was open in between. Ventilation via open windows, UV lamps in some places, but not sufficient. Respirators available.

First floor is in a very bad condition – it is empty now. Previously there was DOT point and a home for few homeless TB patients (and previous TB patients).
There are 8 TB doctors, 1 lab doctor, 1 head doctor, 28 nurses. Three positions for the lab technicians are vacant. The lab is doing smears for the penitentiary system also.

The detailed information on smear microscopy lab, and drug supply is provided in the annex (check-list).

The culture laboratory has been built by the MoH. The standard lay-out of a culture and DST lab was provided to the MOH by the ICRC lab consultant. However, few weeks ago FIND consultant form the NRL was assessing the lab and came up with a list of problems, including ventilation is not properly working, water is not in most of the room, doors have an opening under them, etc, which have to be fixed before the equipment procured years ago by the KfW could be installed. The furniture will be provided by the Ganja municipality. One GeneXpert instrument is planned to be placed in this lab.

It was told that sputum from approximately 60% of pulmonary TB patients is sent to NRL for culture and DST, but the real data was not available.

It was told that all TB patients are tested for HIV, but the numbers were not available. The blood samples are taken in TB Dispensary, but the tests are done in HIV/AIDS Center in the town. The CD4-cells count is done in Baku, the results are provided to TB doctors, but the HIV management is still done by the HIV/AIDS center. Currently there were three patients with TB/HIV co-infection diagnosed in Ganja. All HIV positive patients in the region are sent to this TB dispensary for TB screening. Isoniazid prophylactic therapy (IPT) is not used.

The treatment outcome was summarized during the visit for 2010 (Table 3). There are almost no failures, although, there were 11 MDR-TB patients on treatment, of them one in Baku. The defaulter rate is somewhat high, but realistic given the circumstances.
From 2008 there have been 47 patients diagnosed with MDR-TB, of them 4 died, 3 are chronic cases without treatment, 3 defaulted and 11 are on treatment, the rest of 26 are on the waiting list for treatment.

Social support is provided only to the MDR-TB patients (50 AZN per month for transportation).

Table 3 Treatment outcome of the cohort notified in 2010

New SS+	Cured	Compl	Died	Fail	Def	Tr out	Total	Tx SS	% Tr SS
Q1	18				2		20	18	90,0
Q2	6				2		8	6	75,0
Q3	9				2		11	9	81,8
Q4	7				1		8	7	87,5
Total	40	0	0	0	7	0	47	40	85,1
					14.9%				
New S-									
Q1		30			2		32	30	93,8
Q2		21			4		25	21	84,0
Q3		16			3		19	16	84,2
Q4		27			13		40	27	67,5
Total	0	94	0	0	22	0	116	94	81,0
					19.0%				
Extrapulm									
Q1		33			2		35	33	94,3
Q2		18			3		21	18	85,7
Q3		27			0		27	27	100,0
Q4		21			0		21	21	100,0
Total	0	99	0	0	5	0	104	99	95,2
					4.8%				
Re-Tx									
Total	0	51	0	1	8	0	60	51	85,0
				1.7%	13.3%				

DOT point in Policlinic No 1

There were two DOT points, one for MDR-TB (6 patients) and one for regular TB, which is also the reception room of the TB doctor. The doctor said she has 1-3 consultations per day and most of her reception time is dedicated for reception of regular TB patients who are coming to fetch their next amount of drugs, which is given home for 10 days. Currently there were 26 patients with regular TB on treatment.

MDR-TB patients come to DOT point 6 days per week. Out of the 6 MDR-TB patients 4 were not receiving fluoroquinolone. Although it was said that he was receiving but for one of the patients It was also not in the drug-box. There were changes from Lfx to Mfx and back and also from Cm to Am and back (based on availability of drugs). Pyrazinamide was in the regimen. Lfx was changed recently out for Mfx. It was not possible to correlate the duration of use of injectables with culture results and because the documents were not in the DOT point.

PAS was taken out to room temperature, but it was told that it was done just before our visit.

Table 4. Catchment area for the MDR-TB coordinator accompanying the Group 2 (Source: local municipalities)

Rayon	Population	
Akstafa	Total population	82, 167
	Of them adults	62,607
	Of them children 0-13 years of age	14,541
	Of them children 14-17 years of age	5,019
Dashkasan	Total population	33,184
	Of them adults	25,131
	Of them children 0-13 years of age	6,636
	Of them children 14-17 years of age	1,417
Shamkir	Total population	197,000
	Of them adults	125,300
	Of them children 0-13 years of age	66,220
	Of them children 14-17 years of age	4,180
Tovuz	Total population	162,791
	Of them adults	118,084
	Of them children 0-13 years of age	32,999
	Of them children 14-17 years of age	11,708
Qazakh	Total population	91,491
	Of them adults	64,693
	Of them children 0-13 years of age	21,130
	Of them children 14-17 years of age	5,668
Gadabay	Total population	94,500
	Of them adults	67,211
	Of them children 0-13 years of age	18,400
	Of them children 14-17 years of age	8,889

Visit to Zagatala, Sheki,

All patients provided with full scope of diagnostic and care at the hospitals. Children covered with BCG on 95 – 98% base. Drugs provision for children is done on very regular base. Some dosages prescription (in Zagatala) does not fully corresponding to the latest WHO recommendations. Preventive therapy with Isoniasid is provided for 3 month according to WHO recommendations. Mantoux test (PPD test with 2 TE) routinely applied to all children at school age. Family contact screening (in term of children) is done properly using observation and active screening (Mantoux, MMR, laboratory check of sputum).

All drugs – sensitive Phase 1 patients receive their treatment on in – patient model of care disregard of clinical / social or other indications.
Patients receive FLD disregard of DST results and registered at the waiting list for SLD provision.

Lab register TB-04 assessment for 2012 I quarter

Zagatala	Examination purpose			
	Total	Diagnostic	Chemotherapy control	Status unknown
Number of examined patients	110	22	88	-
Number of smears done	212	41	171	-
Number of AFB(+) patients	9	0	9	-
Number of AFB(+) smears	19	0	19	-

Lab workload – 212/1lab technician*66 =3 (benchmark 2-22)
Diagnostic positivity rate – 0/22=0
Control positivity rate – 9/88=11%
Smears per diagnostic patient – 41/22=1.9 (benchmark 2.5-3)
Smears per control patients – 171/88=1.9 (benchmark 1.5-2)

Sheki	Examination purpose			
	Total	Diagnostic	Chemotherapy control	Status unknown
Number of examined patients	120	67	53	-
Number of smears done	305	199	106	-
Number of AFB(+) patients	4	2	2	-
Number of AFB(+) smears	8	4	4	-

Lab workload – 305/2 lab technicians*66 =2 (benchmark 2-22)
Diagnostic positivity rate – 2/67=3%
Control positivity rate – 2/53=4%
Smears per diagnostic patient – 199/67=3 (benchmark 2.5-3)
Smears per control patients – 106/53=2 (benchmark 1.5-2)

2012 I quarter case notification:
Zagatala, AFB(+) pulmonary TB is 27% of all pulmonary (benchmark >65%) and new AFB(+) pulmonary TB to all other new TB ratio is 0.25 (benchmark 1);
Sheki – 13.5% and 0.2;
Shamkir – 19% and 0.26

2011 I quarter TOM for new AFB(+):
Zagatala, 100% cured (2 cases);
Sheki – 86% cured (6 cases), 14% died (1 case);

Shamkir, 50% cured (4 cases), 50% transferred (4 cases);
Tovuz, 100% cured (4 cases).

2011 I quarter TOM for re-treated AFB(+):
Zagatala, 50% died (1 case), 50% failed (1 case);
Shamkir, 50% cured (2 cases), 25% died (1 case), 25% defaulted (1 case)

Report on field visit to Special Treatment Institution for Detainees with TB (STID TB) of Ministry of Justice.

STID TB: the special institution had been established in 1995, when ICRC launched a pilot TB project in the prisons in Azerbaijan. During the period 1995-1998, the ICRC was working hands-on in implementing the DOTS project in the Central Penitentiary Hospital (CPH). From 1999 onwards, the ICRC has been gradually decreasing its substitution and increasing capacity building and technical assistance. From 2011, the ICRC phased out of TB project. The Ministry of Justice successfully applied to the Global Fund in 2009 and the grant became operational from 2010. The principal recipient is the MoJ. Currently STID TB accumulates all prisoners with all forms of TB. It has:

Assessment department (with two wings for sensitive and M/XDR TB)
Department for drugs sensitive TB (with separation for AFB positive and AFB negative and Phase 1 and Phase 2 sub departments)
M/XDR TB department (with special wing for XDR TB)
Laboratory department (including bacteriology laboratory and biochemistry laboratory)
X-Ray department (equipped with digital X-ray machine)
Women department (with separation for Phase 1 and Phase 2 and M/XDR TB cases)
Pre-trial department (SIZO, with separation for AFB positive and AFB negative and Phase 1 and Phase 2 sub departments and M/XDR TB cells)
High security department (with separation for AFB positive and AFB negative and Phase 1 and Phase 2 cells and M/XDR TB cells)
Pharmaceutical department (pharmacy and drugs storage facility)
Each department has inner yard, separated from other departments and prisoners with different TB status are not mixed.

The laboratory of the STID TB is 3rd level laboratory, which performs all tasks for Culture and DST for all inmates and TB suspects from penitentiary system, including DST for first and second line drugs. That laboratory also use the most modern technologies recommended by WHO and in full compliance with WHO recommendation and standards.

STID TB has special training center, which performs all type of trainings on TB, M/XDR-TB, Infection Control, management of TB in penitentiary etc for the staff of Ministry of Justice and for the other countries. The curricula and the content of the trainings are in full compliance with WHO modules and recommendations.

Diagnostics for TB (and TB/HIV), treatment and care provision are in full compliance to WHO recommendations. None of privately interviewed patients has reported about any unethical behavior or discrimination from the staff side. The result of the efforts taken by MoJ lead to decrease in mortality rates (26 times less in comparison with 1995), incidence and prevalence of TB.

Currently STID TB of MoJ is the unique TB center of excellence of TB control in prisons. MoJ of Azerbaijan is eager and keen to officially upgrade the status of the training center of STID TB to the level of WHO Collaborating center.

Main recommendations:
By the end of 2013, to align training center of MoJ and upgrade to the level of WHO collaborative center
By the end of 2013, to construct new modern laboratory as the separate standard building

Other recommendations:
To share the experience gained by TB control project in penitentiary widely

Visit to the TB Dispensary No 6 for MDR-TB patients

Team members:

Bhavna Patel, USAID
Ekaterina Kurbatova, CDC
Kai Blondal, GLC,
Samantha Huffman, GF
Accompanied by representatives from the NTP: Aziz Musayev (head of the MDR-TB committee),

The Dispensary No 6 is serving all country and is the only in-patient facility for MDR-TB patients.

The hospital has capacity of 90 beds but actual number of beds was 78. Occupancy was 69 patients.
There are three floors:
I floor – administration, x-ray unit (digital x-ray), combined smear microscopy laboratory and biochemistry lab, drug store, canteen for smear negative patients
II floor - department for SS negative patients. The unit for personnel is outside the department
III floor – department for SS+ patients, the unit for personnel is outside the department

The building has mechanical ventilation, but the number of air exchanges was not known to the staff and the ventilation has not been monitored. The staff is wearing respirators; fit testing has not been done. The respirators, which were provided to us, were not fitting well. The doors of the department for SS+ patients were opened and the patients spending time in the hallway. The UV lights were in the lab and in the procedure rooms.

There are total of 12 doctors working on 19 positions and 24 nurses working on 48 positions. Of them there are 6 TB doctors
Among doctors there is one lab doctor (3 positions) and among nurses 7 lab technicians (10 positions)

The drug store was in good order. The SLDs were distributed monthly based on the monthly request forms and drugs were calculated per patient for two months. The stock records have been computerized.
The FLDs were available from the ISC. The request was placed once per year and distributed quarterly with approximately 30% buffer stock. The drugs available from ISC were: H, E, Z. The stock records etc paper-based. All drugs were presented good expiration dates.

The admission of the patients to the hospital is done based on the decision of the MDR-TB committee. The criteria for admission were (non-written policy): co-morbidities, no possibility to stay at home due to infectiousness (small children at home, no separate room for sleeping), emergency situations.
Criteria for discharge: smear conversion, stable condition. However, it was observed that the patients in the department for SS neg cases had been often on treatment for more than 6 months. The average hospitalization time was 6 months.

In total, approximately 25% of MDR-TB patients are hospitalized. The turnover in the hospital was approximately 150 patients per year.

The treatment regimens are recommended by the MDR-TB Committee. Total of 42 cases out of 69 in the hospital were reviewed by the team. The standard treatment regimen (Km/Cm, Lfx/Mfx, Pto, Cs, PAS, Z) was used in all cases. The duration of injectable was at least 4 negative cultures but never less than 8 months – according to 2011-WHO recommendations. In fact, the injectable was kept sometimes longer than necessary – in 3 cases out of 42 injectable was kept in almost 1 year, even if sensitivity was preserved

for fluoroquionolone and injectables, cultures were more than 4 times negative. Among reviewed cases there were 10 XDR-TB patients (23.8%), all of them on Mfx and Cm. They were appropriately on injectable as none of them had still converted. Out of them 3 had been on treatment approximately 1 year. The dosage of drugs was adjusted to body-weight appropriately.

It was observed, that the NRL is reporting borderline DST results. That has to be discussed with the NRL, as it is confusing for the clinicians.

The doctors can change the treatment regimen in case of problems and present the case to the MDR-TB Committee. They can also stop drugs/ interrupt treatment for short periods of time in case of side effects. The side-effects management was adequate, side effects recorded.
The head doctor had been trained in Estonia on MDR-TB management and was also part of the MDR-TB Committee.

Visit to the TB department in the Scientific Research Institute of Lung Diseases (SRILD)

Team members:
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Accompanied by representatives from the NTP: Aziz Musayev (head of the MDR-TB committee),

The department has 50 beds, actual occupancy 48 patients. Department needs refurbishment. The SS- and SS+ are not separated into different rooms. The proportion of SS+ was not available at the time of the visit.
Ventilation is produced via open windows; UV light is available only in room for procedures; staff are equipped with face-masks.
There is 1 head of department, 3 doctors.
The patients are sent to this department from the out-patient reception in SRILD.
Rapid DST is not used for separating the cases. Usually sputum is taken for conventional smear and culture.

Both, new and retreatment cases are prescribed HREZ + injectable. Out of 36 cases reviewed 8 (22.2%) had Km instead of S. The drug resistance pattern was not known and Km was added based on the history of previous Km use.

Consider using rapid R test to diagnose drug-resistant TB at least among sputum smear positive patients at hospitalization to the. It is particularly important for prompt isolation of the DR-TB patients because infection control measures, including separation of DR-TB patients has not been currently implemented. Furthermore, earlier diagnosis will facilitate initiation of earlier treatment.

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