In the name of GOD

A regional report on Millennium Development Health related Goals in Economic Cooperation Organizations (ECO) countries (Goals 4, 5 and 6)

June. 2010

Institute of Public Health Research
(Recently renamed as National Institute of Health Research (NIHR))
Tehran University of Medical Sciences

Economic Cooperation Organization (ECO)

The United Nations Children's Fund (UNICEF)

Economic Cooperation Organization

REPORT – Final – June 2010

Consultancy Team

The project has been offered by The Economic Cooperation Organization (ECO) Secretariat to Institute of Public Health Research (Recently renamed as *National Institute of Health Research (NIHR))*, Tehran University of Medical Science to prepare an analytical regional report on Millennium Development Goals Numbers 4, 5, and 6. UNICEF has covered the consultancy costs.
The consultancy team included:

- Professor Hossein Malekafzali Ardakani, MD, PhD
  The project manager
  Epidemiology and Biostatistics Department, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
  Email: malekafzali@sina.tums.ac.ir
  http://www.tums.ac.ir/faculties/malekafzali

- Professor Kourosh Holakouie Naieni MD, PhD
  The executive manager of the project
  Epidemiology and Biostatistics Department, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
  Email: holakoin@tums.ac.ir
  http://www.tums.ac.ir/faculties/holakoin

- Assistant Professor Arash Rashidian, MD, PhD
  The member of the project's team
  Director, National Institute of Health Research (NIHR)
  Health Management and Economics Department, School of Public Health
  Tehran University of Medical Sciences, Tehran, Iran,
  Email: arashidian@tums.ac.ir

- Dr Parviz Vazirian, MD , MPH
  The member of the project's team
  Consultant officer, World Health Organization
  Email: parviz_vazirian@yahoo.com

- Dr Ghobad Moradi, MD, MPH
  The member of the project's team
  PhD student of Epidemiology
  Epidemiology and Biostatistics Department, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
  Email: gh.moradi@gmail.com

- Dr Ali Mirzazadeh, MD, MPH
  The member of the project's team
  PhD student of Epidemiology
  Epidemiology and Biostatistics Department, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
  Educational Manager, Regional Knowledge Hub for HIV/AIDS Surveillance, Iran
  Email: ali.mirzazadeh@hivhub.ir
  http://www.hivhub.ir/en/staff/mirzazadeh

Acknowledgment

We would like to express our gratitude to all those who help us to complete this project. We want to thank the ECO secretariat, especially Dr Davoud Rezaie and Dr Muzaffer Alacaogullari for their kind and intensive efforts to arrange the country visits with the best knowledgeable persons on MDGs from the both governmental and nongovernmental health sectors.
We have furthermore to thank the Iranian Embassy and Consulate in the visited countries, in supporting the team members in the countries by providing the transportation, translator and arranging the visits of the related stakeholders in the country.
Our colleagues in WHO and UNICEF offices in the ECO countries supported us scientifically in the research work. We want to thank them for all their help, support, interest and valuable hints.

Please cite this document as

A regional report on Millennium Development Health related Goals in Economic Cooperation Organizations (ECO) countries (Goals 4, 5 and 6), National Institute of Health Research (NIHR) [formerly the Institute of Public Health Research], Tehran University of Medical Sciences, 2010

Preface

Economic Cooperation Organization (ECO) is an intergovernmental regional organization established in 1985 by the Islamic Republic in Iran, the Islamic Republic of Pakistan and Republic of Turkey. In 1992, ECO developed and evolved into a dynamic organization with 10 Member States to include seven new members, namely: Islamic Republic of Afghanistan, Republic of Azerbaijan, Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan, Turkmenistan and Republic of Uzbekistan.

The ECO has already entered into new areas for cooperation which are important for all member states and they have shown interest. Among others these new areas include reactivation of health section and MDGs within the secretariat. Relevant international organizations also supported this new orientation.

Millennium Development Goals (MDGs) emanating from the United Nations Millennium Summit held in December 2000 have emerged as the key strategic tools for raising awareness, advocacy, alliance building, and renewing the political commitment towards the promotion of Sustainable Human Development at the country level based on a global consensus.

The fight against poverty in all its dimensions, and the promotion of sustainable development particularly within the context of the MDGs remain the overall priority of the Governments of Economic Cooperation Organization (ECO) member states and ECO.

In this regard, ECO organized two High Level Expert Group (HLEG) Meetings to overview MDGs implementation in December 2006 and February 2008 in Ankara and Islamabad, respectively and the third one is going to be held on 12-13 January 2010 in Tehran.

The 2nd ECO HLEG Meeting on Human Resource Development and MDGs (Islamabad, 11-12 February, 2008) while reviewing the current situation of MDGs implementation in the region, came to the conclusion to recommend selection of three health-related MDGs i.e. MDG numbers 4, 5, and 6, as priority areas within organization's further activities in this field.

Therefore, based on the recommendation of the afore-mentioned event and also other main ECO decision-making meetings, the ECO has benefited from expertise an international consultant involved on these issues and as a result this descriptive and analytical regional report on current trends and progress reports of ECO member states on these MDGs has been prepared. Under the agreed MoU between UNICEF and ECO to promote mutual cooperation and exchange of information, UNICEF has supported ECO in successful accomplishment of this activity.

I must thank the UNICEF and the Consultant Team for their cooperation and support in accomplishing this task successfully.

I hope that the valuable recommendations of this report would be materialized. Based on the findings and recommendations of the report, the Secretariat with the help of the concerned authorities of the member states as well as with that of the International organizations, will continue to identify Regional projects which are beneficial for the member states.

Mohammed Yahya Maroofi
ECO Secretary General

Abbreviations

AIDS	Acquired immunodeficiency syndrome
DOTS	Directly Observed Treatment, Short Course
GDP	Gross Domestic Product
DHS	Demographic Health survey
ECO	Economic Cooperation Organization
EECAR	Division of Eastern Europe and Central Asian Republics
FP	Family Planning
GF	Global fund
HIV	Human immunodeficiency virus
IMR	Infant Mortality rate
MDG	Millennium Development Goals
MH	Maternal health
MICS	Multiple Indicator Cluster Survey
MoH	Ministry of Health
MMR	Maternal Mortality rate
NGO	Non-Governmental Organization
PHC	Primary Health Care
PLWHA	People living with HIV/AIDS
RH	Reproductive health
STI	Sexual Transmitted Infection
TB	Tuberculosis
U5MR	Under 5 Mortality rate
UN	United Nations
UNAIDS	the Joint UN Program on HI
UNGASS	United Nations General Assembly Special Session
UNCT	United Nations Country Team
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
USAID	United States Agency for International Development
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Program
WHO	World Health Organization
VCT	Voluntary Counseling and Testing (for HIV)
XDR-TB	Extensively Drug-Resistant Tuberculosis

Table of Content

Chapter1- Executive summary

The present report on ECO countries' progress toward achieving the health related MDGs (4, 5 and 6) is a joint initiative of National Institute of Health Research (NIHR) affiliated to Tehran University of Medical Sciences and the ECO secretariat.
MDGs have emerged as the key strategic tools for raising awareness, advocacy, alliance building, and renewing the political commitment towards the promotion of Sustainable Human Development at the country level based on a global consensus. In the Millennium Declaration member states committed themselves to reducing human poverty by 2015.
Due to identical economic and social conditions in most of the member states, there is a similarity in problems faced by their health sectors. Thus, there is a vast scope to benefit from each other's experiences in strengthening health facilities for the benefit of the people in the ECO region.
The consultancy project has been done in several phases. The first phase included a critically and deeply review of the last country's MDG report and check the reported trend for each goal.
To complete the available data and update the country situation regarding the MDGs objectives, a comprehensive literature review has been done.
In the next phase, the main stakeholders, from both governmental and international organizations, in the country has been visited and interviewed by the research team. A specific data extraction toolkit was applied to extract the findings into tables and list all the important pros and cons regarding the country health care services and public health programs.
Beside the situation analysis, the main objective of the report is to provide evidence based recommendations to every country and the whole region to raise the portability of achieving the MDGs in 2015.
The main actions in preparing the report are listed as:

1. Literature review included scientific journals, databases and reports (Gray Literature),
2. Reviewing documents available from MOH in the country (published and unpublished sources)
3. Reviewing documents available from the UN agencies in the country (published and unpublished sources)
4. Visit the country and interview with stakeholders and experts in MOH and UN agencies
5. Interview with the key informants
6. Discussion in expert groups about results and methods
7. Reviewing WHO and UN MDG-related documents and electronic sources
8. Reviewing international and national related sources and services
9. Data cleaning and collation
10. Illustrate the trend and create the appropriate tables and graphs accordingly.
11. Suggesting the evidence-based recommendations based on the valid well-defined sources findings.

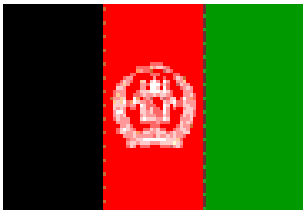
This report includes twelve chapters. In the beginning chapter a brief review of the report, executive summary and the methodology which has been applied in the project is presented.
In the next ten chapters, the health system and the current situation regarding the MDGs of the ECO countries has been reviewed in details. Each country report consists of the following subheading:

- **Demographic and socioeconomic status**
  The major demographic, socioeconomic and health indicators as well as population pyramid has been reported for each country.
- **Methodology and visits:**

Countries which have been visited by the research team, a list of countries' stakeholders in both governmental and nongovernmental organizations have been mentioned here. The other countries which were not visited directly by the research team, the main search strategy to find out the health status and MDGs indicators level were reported.

- **MDGs and indicators related to health status:**
  In every country, 4, 5 and 6 MDGs has been reported in details as well as their indicators. The exact definition and the target of each goal have been mentioned and the health system was evaluated weather they have applied and report the same definition. From the beginning of 1990 to the end of 2008, all the reported statistics on each indicator has been summarized in a table.
- **26 Recommendations based on the level of indicators for each goal for each country**
  Based on the available statistics, the in-depth interviews and literature review, specific recommendation to improve the health system to achieve the MDGs has been listed at the end of each section.

Chapter2. Islamic Republic of Afghanistan



Afghanistan demographic and socioeconomic status

Afghanistan is a landlocked country. Mountain ranges divide the country into high areas of planes in the north, a mountainous central area, mountains and foothills in the east and southeast and low lands in the south and the west. The topography of Afghanistan contributes negatively to the overall socioeconomic development. There are different population estimates for Afghanistan; the most reliable source states the population as 27,445,000. It is distributed in 34 provinces and 395 districts. According to available demographic data (of course to be revisited once a proper census is carried out), the distribution of the population varies dramatically across country. In 2001, the 77 districts with a population density below 20 inhabitants per square kilometer hosted 13% of the country population, scattered over 55% of the country area. In the 120 districts with a density inferior to 30, totaling 70% of the country area lived 24% of the country population. 34% of the total population lived in the 71 districts with density above 100 inhabitants. (1) The percentage of rural population is 71% while that of urban population is 29%.

Figure 2.1- Afghanistan map and its geographic status

Afghanistan's social indicators, which were low even before the 1979 Soviet invasion, rank at or near the bottom among developing countries, preventing the fulfillment of rights to health, education, food and housing. Since the fall of the Taliban almost many years ago, important progress has been achieved in all sectors, but much remains to be done in order to reach a significantly strengthened social infrastructure, realize the rights to survival, livelihood, protection and participation, and reach the Millennium Development Goals (MDGs). The 2004 Human Development Index of the United Nations ranks Afghanistan at 173 of 178 countries; only a few countries in sub-Saharan Africa are behind. At the end of major conflict in 2002, Afghanistan had a per-capita income of less than US$ 200, one of the lowest in the world. About 70 % of the population lived in extreme poverty, and Gross Domestic Product (GDP) stood at only US$4 billion (2). Over last recent years, Afghanistan's formal economy has performed strongly, albeit starting from a very low base. Non-drug GDP has increased more than 50 percent, primarily reflecting the recovery of agriculture from severe drought, a revival of economic activity and the initiation of

reconstruction. Recent positive growth performance has been supported by the Government's sound macroeconomic policies – a highly successful currency reform, a prudent "no-overdraft" policy prohibiting domestic financing of the budget deficit, a conservative monetary policy that brought inflation down to 10 % annually, and good management of the exchange rate. Progress also has been made in mobilizing domestic revenue and in trade and financial sector reforms (3).Some demographic and socioeconomic indicators are shown in below tables.

Table 2.1- Socio economic indicators of Afghanistan (4)

Indicator	amount	Year	references
Crude Birth Rate(births/1,000 population)	48	2002	4
Total Fertility Rate	6.3	2005	4
Crude Death Rate(deaths/1,000 population)	17.2	2002	4
Life Expectancy at Birth	M:47 F: 45	2008	4
Adult Literacy Rate	31%	2005	4
Per Capita Income (US $)	400	2008	27
Per Capita Income (PPP)	700	2008	27
Human Development Index	0.352	2007	28
Total health expenditure as percentage of Gross Domestic Product	5.4	2006	29

The key to long-term economic development will be a strong local private sector. The informal economy in Afghanistan continues to be dominant, accounting for 80 to 90 percent of the total economy; women work primarily in this sector. The legal portion of the sector is centered on agriculture, commerce, manufacturing, handicrafts and transport. However, illicit activities include the extensive opium production that blights Afghan society, along with widespread unauthorized timber harvesting and mineral extraction. (3)

Table 2.2- Afghanistan population distribution by age and sex-2009(30)

Table 1.1: Current and Projected Population by Age and Sex

Source: BUCEN-IDB

Age Group	Male - 2000	Male - 2020	Female - 2000	Female - 2020
0-4	2,207,282	3,730,806	2,114,055	3,544,040
5-9	1,774,871	3,251,402	1,688,245	3,075,845
10-14	1,491,487	2,861,180	1,417,136	2,706,561
15-19	1,272,563	2,455,370	1,204,047	2,318,871
20-24	1,095,001	2,115,451	1,022,406	1,993,649
25-29	931,427	1,770,060	888,309	1,665,551
30-34	777,073	1,464,878	732,963	1,377,738
35-39	646,743	1,220,037	608,566	1,144,142
40-44	531,174	1,019,626	501,675	949,622
45-49	427,572	836,938	412,436	802,214
50-54	338,659	663,485	332,932	641,366
55-59	261,157	513,189	261,416	506,842
60-64	192,258	377,658	194,259	384,090
65-69	131,723	258,180	136,131	273,874
70-74	80,863	160,008	85,571	176,564
75-79	42,680	84,375	45,437	97,334
80+	24,478	47,647	25,603	57,694

Afghanistan's first and only census was conducted in 1979, shortly before the country was invaded by the then-Soviet Union. As a result, there has been considerable doubt about its population size. A census was planned for 2008 but has now been delayed to September 2010, according to the United Nations. The UN Population Division estimates that the population was about 14 million in 1979, but the U.S. Census Bureau puts it at a little below 16 million. The Afghanistan census count was about 13 million. An anomaly in Afghanistan is the reporting of population by sex. Females are underreported relative to males in the younger age groups (below age 15). Son preference is prevalent in the country. Sex-selective abortion is not a likely cause for the underreporting of females, especially given the lack of ultrasound machines. More than likely, some girls are reported as boys since some stigma is attached to families who have only girl children and some families may not wish to report the presence of girls. (31)

A brief summary of the country's health system

During 2002-2004, the Ministry of Public Health made impressive post conflict achievements. Numerous policies and strategies to guide the health system development and investment have been elaborated, including a national health policy 2002, the Interim Health Strategy 2003, the National Health Policy 2005 to 2009 and National Health Strategy 2005 to 2006, the National Salary Policy, the Basic Package of Health Services (BPHS), the Essential Package of Hospital Services (EPHS), the Recommended Human Resource Development Policy and the Reproductive Health (including Family Planning) Strategy. The MoPH is undergoing Priority Reform and Restructuring (PRR) and important progress has been made both at central and provincial level. (5)

The coverage of PHC is increasing in the country. International organizations contribute to nearly 96% of the funding for health sector while 5.4 percent of the GDP is allocated to health sector. The World Bank, USAIDS and the European Commission are the three main donors. In addition, WHO, UNICEF and UNFPA are mobilizing resources. The Basic Packages Health System (BPHS) which has been prepared by the MoPH and covers 82% of the population aims at a wider and equitable coverage of health services. More recently, an Essential Package of Health Services (EPHS) has also been developed as a complement of BPHS.

The lack of sufficient Human resources is one of the major challenges in the health sector; therefore, partners have been working on a five-year initiative to increase the number of midwives and health professionals. Regarding the health facilities, there are 21 special hospitals, 5 regional hospitals, 30 provincial hospitals, 57 district hospitals, 372 comprehensive health centers, 728 basic health centers and 184 sub-health centers in Afghanistan (6)
The aim of "National Health policy 2005-2009" is to:
"Develop the health sector to improve the health of the people of Afghanistan, especially women and children through implementing the basic package of health services and the essential package of hospital services as the minimum of health care to be provided at each level of the health system"

Country's health system findings and comments:

- Consistent insecurity remains to be a major challenge for delivery of public health services.
- Although there is belief in overproduction of medical doctors, the medical officers are not adequately skilled after their initial (pre-service) training to address proficiently the core health issues
- In contrary to medical doctors there is a felt need for other health workers including midwives. While a lot of activity and efforts have been placed on community midwifery programs, this has remained restricted to Kabul and it is not clear if it was replicated at provincial and district levels out of Kabul.
- The out of pocket health expenditure is as high as 29 USD per capita per annum, therefore, the high cost of health care services contributes to more poverty production as compared rather than poverty reduction. The financing of health sector remains to be one of the most important challenges as the major funding for health is provided from external sources which is not predicable.

Methodology and visits:

The evaluation team conducted the evaluation based on these ways:

1. Reviewing documents available in journals, books, reports, and internet
2. Reviewing documents available from MOH in the country (published and unpublished sources)
3. Reviewing documents available from the UN Agencies in the country(published and unpublished sources)
4. Visit the country during the 20-23 June and interview with related persons in MOH and UN agencies:
    a. Dr.M.A.Fatmi The Minister of Public Health
    b. Dr.F.Kakar Technical Deputy Minister of Public Health.
    c. Drs.Nadera Hayat Borhani Deputy Minister of Public Health
    d. Dr.Amir M.Ansari Public Relations Specialist, MOPH.
    e. Dr.MKSeddiq NTP Manager MOPH.
    f. Dr.Mohammad Hafiz Rasooli Technical Advisor MOPH
    g. Dr.Javad Mofleh Surveillance& DEWS Director MOPH.
    h. Dr.Najibullah Safi National Malaria & Leishmania Control Program
    i. Oussama Tawil UNAIDS Country Coordinator Kabul Afghanistan
    j. Dr.Annie Begum Team Leader WHO.,Kabul Afghanistan.
    k. Dr.Ahmed Abd El Rahman Medical Officer WHO Kabul Afghanistan
    l. Gerald Gutner Deputy Representative UNFPA.,Kabul,Afghanistan
    m. Dr.Bashir Najib,UNFPA Programme Manager.Kabul Afghanistan
    n. Dr.Saifurahman Director of HIV/AIDS MOPH. Kabul. Afghanistan
    o. Dr.Sarvar Ahmad Zai Assistant Director HIV/AIDS MOPH.Kabul Afghanistan.
    p. Mrs.Karin Incharge of M&E.UNISEF. Kabul, Afghanistan.
5. Key informant interviews
6. discussion in expert groups about results and methods
7. Reviewing WHO and UN MDG-related documents and international and national related sources and services
8. arrangement and template planning for gathered data and analysis and assessment of the collected data
9. putting data in its related category and table and designing the best presentation methods
10. inserting related data and findings under each indicator's category
11. making proper recommendations related to each indicator's category according to the findings

Goal 4: Reduce Child Mortality

Considering that there was no reliable data available for 1990, the global target for reducing child mortality was modified in accordance with Afghanistan local situation.

4-1: Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.

Global MDG Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Afghanistan MDG Target: Reduce by 50 percent between 2003-2015, the under-five mortality rate, and further reduce it to 1/3 of the 2003 level by 2020

Table 2.3- Under-five mortality rate in Afghanistan (7, 8, and 32)

Years	Source (8)	Estimated for MDG by UN (32)	Source (7)
1990	139	260	
1995	166	257	
2000	122	257	250
2005		257	210
2006			
2007		257	

Table 2.4- Under-five mortality rate in Afghanistan by cause of death

	2000	2003	2004	2005
Pneumonia mortality proportion (under 5),percent	22	22	23	23
Pneumonia under 5 mortality rate per 1000	55	51	51	48
Pneumonia victims (under-5),yearly, thousands	55	50	53	54
Diarrhea mortality proportion (under 5), percent	23	22	22	22
Diarrhea mortality rate (under 5, per 1000 LB	58	51	48	46
Children under 5 dying from diarrhea yearly thousands	57	50	51	51

4-2. Indicator: Infant mortality rate

Definition: The infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1,000 live births in a given year.

Global MDG Target: Reduction of infant mortality rate by two thirds, between 1990 and 2015

Afghanistan MDG Target Reduce by 50 between 2003-2015, the infant mortality rate, and further reduce it to 1/3 of the 2003 level by 2020

Table 2.5- Infant mortality rate in Afghanistan (7, 32, and 8)

Years	source (7,8)	Estimated BY UN Site (32)
1990		168
1991	97	
1993	107	
1995	110	165
1997	86	
1999	88	
2000		165
2005		165
2007		165

4-3: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

Table 2.6- Proportion of 1 year-old children immunized against measles in Afghanistan

Years	source (9)	source (32)
1990		20
1991		19
1992		22
1993		25
1994		40
1995		41
1996		42
1997	57	48
1998	40	40
1999	40	40
2000	37	35
2001	46	46
2002	39	44
2003	50	50
2004	61	61
2005	64	64
2006	68	68
2007	70	70
2008	75	

Goal 4 findings and comments:

- The researchers of this report believe that with the current trend we can't expect to reach the goals of these MDG goals by 2015.
- Afghanistan has a very high child mortality rates. It is ranked as the third highest under five mortality rate at 257 deaths per thousand live births, following Sierra Leone and Angola in 2005
- For monitoring and evaluating this MDG indicator a highly precise and valid information system is in fact one of the crucial needs in order to be used by all national and international organizations. It is possible through improving national information system or periodical

surveys accepted by all experts and organizations. Proper access to up-to-date statistics on child mortality is also essential.

- High level of neonatal deaths causes the overall infant mortality rate to remain high despite of a relative improvement in immunization coverage. Even though, the immunization rate is not the same in urban and rural areas, being higher in urban areas and causing a 20% lower rate of infant and child mortality in the cities. The measles immunization program has covered 75% of the children under 12 months with the same rate for boys and girls.
- Infectious diseases remain to be the most important causes of child mortality in Afghanistan. A number of cost effective and short time actions must be taken such as immunization, increased availability of antibiotics and oral re-hydration solutions, promotion of exclusive breast feeding in the first six months of life and micronutrient supplements.
- Lack of access to clean water and improved sanitation facilities are the major causative factors. Sixty nine percent of rural and 39% of urban households have no access to drinking water from an improved source, 41% and 13% of rural and urban households respectively do not have access to improved sanitation facilities.(10)
- Spread of diarrhea is one of the major reasons for under-five mortality and parasitic diseases are also very common.(11)
- Risk factors for high IMR in Afghanistan are :
    - Inadequate breastfeeding
    - Incorrect treatment of common but life threatening illnesses such as diarrhea
    - Poor health care seeking practices and superstitious believes
    - Inadequate health care at community/basic health centre levels
    - Lack of access to health services
- It is important to consider the social determinants effecting child mortality while addressing this issue such as:
    - Education
    - Fertility
    - Nutrition
    - Poverty

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

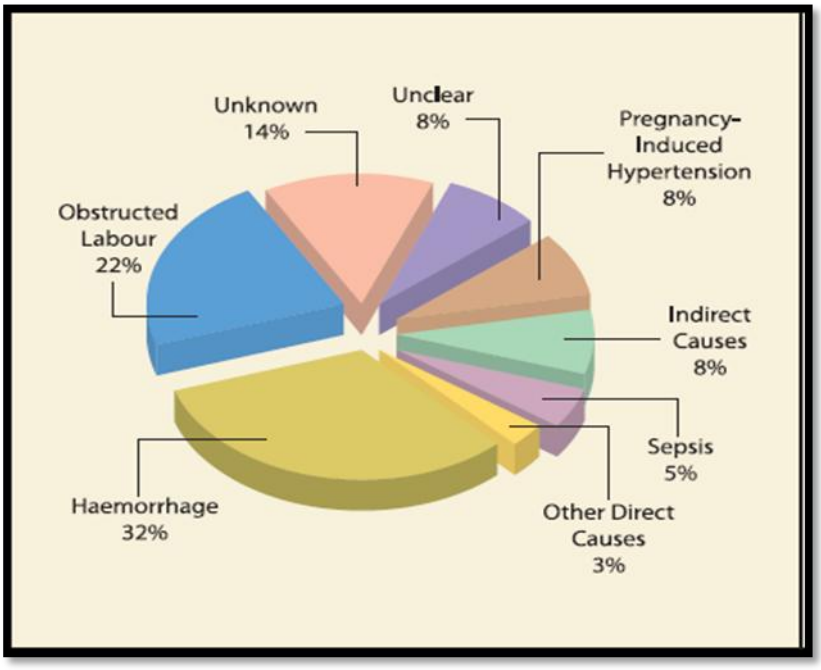
Global MDG Target. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Afghanistan MDG Target. Reduce by 50 percent between 2002 and 2015 the maternal mortality ratio, and further reduce the MMR to 25 percent of the 2002 level by 2010

Table 2.7- Maternal mortality ratio in Afghanistan

Years	vital statistics registries (9)	WHO model (32)
2002	1600	
2005		1800

Figure 2.2- Causes of Maternal Mortality in Afghanistan 2002 (9)



5-2: proportion of births attended by skilled health personnel

Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.

(Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.)

Global MDG Target. Reduce by three quarters, between 1990 and 2015, the proportion of births attended by skilled health personnel

Afghanistan MDG Target. Reduce by 50% between 2002 and 2015 the proportion of births attended by unskilled health personnel and further reduce it to 25% of the 2002 level by 2010

Table 2.8- Use of skilled birth attendants (10)

Years	Source(32,MICS2000,MICS2003)
2000	12.4
2003	14.3

Goal 5 findings and comments:

- Afghanistan is one of the countries with high maternal mortality rate (MMR) at 1600 IN 2002 deaths per 100,000 live births. The lack of skilled delivery and inadequate emergency obstetric care especially in the rural areas are among the obstacles to reach the MDG target.
- The shortage of qualified female health workers constricts the access of women's to proper health care. 9 out of 10 deliveries takes place at home and 8 out of 10 deliveries are being attended by unskilled personnel
- Most of the deaths occur near the time of delivery or soon after termination (11), therefore, special attention should be paid to both expansion of BPHS in order to ensure timely and affordable access for all women and investment in the training of female skilled attendants.
- Awareness raising and access to birth control must be considered among priorities.
- Importance should be given to antenatal care and its quality and availability. Also women should be educated to understand when to seek care.
- There is not sufficient data available for MMR except for data available by a few studies which have not been consistently carried out each year
- The CDC estimated that 78% of the maternal deaths investigated were preventable.
- Major causes of MMR in Afghanistan include hemorrhage, obstructed labor, pregnancy induced hypertension and sepsis.
- As in the case of social determinants affecting the child mortality rate, there are some factors which should be considered in order to help equitable access to health care by the women thus decreasing the MMR, e.g. roads and transport system should be improved. The contributing social factors can be summarized in the following bullet points:
    - *Education*: Females have high illiteracy rate and their knowledge on health issues is poor. The de facto exclusion of women from school has meant a few trained female health workers.
    - *Geographic accessibility and poor transportation*: The MMR varies widely among rural and urban areas that have lesser accessibility to health services, education and proper food.
    - *Poverty:* Two third of the population in the lowest consumption quintile sought no medical attention, and those that did went to a traditional healer (12) In contrary those

with better economic status seek proper medical care. Female-headed households are concentrated in the poorest quintile of the population (13)

- *Cultural tradition:* Due to cultural matters, women abstain from discussing their problems especially those related to Reproductive Health (including Family Planning). They refrain from going to male doctors thus the lack of female skilled health workers already discussed is a very important factor.

- Implementing partners who are supporting the provision of birth spacing/ Family Planning services should engage communities in the dissemination of appropriate FP information and the promotion of FP methods. Mass media efforts should be directed to families/couples to broaden their understanding about FP (including the contraceptive benefits, the non-contraceptive health benefits, and the limitations of methods) and provide them with the necessary information about how to obtain these methods. As well, messages should be directed at providers to increase their knowledge about evidence-based decision making regarding indications and precautions. Interpersonal communication materials should be made available to all community-based and facility-based providers and should include action-oriented health-seeking messages.
- The input and support of religious leaders at the national and local level should be sought in an effort to harmonize messages about BS/FP with Islam and what is thought to be acceptable within the context of Afghan society and culture. Reproductive Health (including Family Planning) services should be made available at the most peripheral levels of the health system to increase continuous and uninterrupted access to the patient's method of choice.

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Global MDG Target 6: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Afghanistan revised MDG Target 6: Have halted by 2020 and begun to reverse the spread of HIV/AIDS

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

Table 2.9- HIV/AIDS indicators in Afghanistan

Years	Total number of people infected with HIV (24)	People living with HIV, 15-49 years old, percentage-Estimated (15,32)	AIDS deaths Estimated (32)
2000		0.01%	
2001			100
2005		Below 0.1%	
2007			100
2008	504		

6-2: Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

Table 2.10- Condom use rate of the contraceptive prevalence rate in Afghanistan (16, 32)

Year and indicator	2003	2005	2006
Condom use to overall contraceptive use among currently married women 15-49 years old, percentage	5.8	8.1	11.8

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

There isn't any information about Condom use at last high-risk sex in Afghanistan.

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

There isn't any information about Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS.

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

Table 2.11- Contraceptive prevalence rate (32)

Series	2000	2003	2005	2006
Current contraceptive use among married women 15-49 years old, any method, percentage	4.9	10.3	13.6	18.6

6-6: Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

There is no data available in Afghanistan about Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Goals 6 (HIV/AIDS) Findings and Comments:

- Although Afghanistan maintains a low prevalence of HIV/AIDS, it is at a high risk of epidemic spread of the virus (17) and the most recent HIV outbreak has been reported in Afghanistan where narcotics are now being injected (rather than traditionally inhaled) (18)
- The development of the National Strategic Plan was initiated by the HIV/AIDS Technical working group in Afghanistan. Technical Working Group on HIV/AIDS in Afghanistan was established in May 2002. National Guidelines on Voluntary Counseling and Testing (VCT) have been developed with several policy documents of the Islamic Republic of Afghanistan reviewed for inclusion of HIV/ AIDS
- There is no enough data available for the country. Afghanistan is still in the process of providing systematic data on the prevalence of HIV/ AIDS. Blood banks and the Voluntary

Confidential counseling and Testing Centers (VCCT) are the only sources of information on HIV/AIDS prevalence in the country.

- In Kabul, 3 % of injecting drug users surveyed were HIV-positive, although this number may well rise because half of the survey participants said they had shared needles or syringes. (19)
- Widespread poverty, high unemployment, low literacy, a large number of vulnerable groups, the low social status of women, sex slavery and prostitution, drug production and trafficking, a large number of drug abusers and Injecting Drug Users IDUs), the poor social and public health infrastructure, lack of blood safety and injection practices, and, perhaps more than anything, a limited knowledge of HIV/AIDS among Afghans - all these factors contribute to making conditions for an HIV/AIDS epidemic highly favorable
- Despite the fact that the Ministry of Counter Narcotics with the Drug Demand Reduction Unit of MoPH have developed The National Harm Reduction Strategy for IDU (Injection Drug User) and HIV/AIDS Prevention in Afghanistan. A study by the Government and UNODC (2005) revealed approximately one million drug users in the country, 14% of them IDUs. Lack of comprehensive knowledge among them increases the chances for an epidemic
- Poor blood transfusion services and lack of proper monitoring the blood and blood products remain a matter of high concern. Efforts should be focused to increase blood safety in the health facilities.
- HIV education and prevention trainings for health care workers should be further supported. Operations research and surveillance activities should be facilitated and conducted
- Aware raising among the public, especially those at high risk and distribution of condoms and other harm reduction initiatives should be paid attention.
- Coordinated policy, followed by decisive action without delay. Targeted resource allocation within comprehensive preventive programs and services must be provided by the Government. Capacity development in the health care system must also be accelerated and the affected communities assisted. The country should move towards a cultural environment in which the HIV/AIDS threat is acknowledged, and strong support is provided to fight it. Social discrimination and the stigma associated with HIV/AIDS should be addressed head-on with realistic and culturally sensitive public awareness campaigns. Policy

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Global MDG Target 6: Have halted by 2015 and begun to reverse the spread of Malaria

Afghanistan revised MDG Target 6: Have halted by 2020 and begun to reverse the spread of Malaria

Table 2.12- Malaria cases In Afghanistan (35)

Year	Total Malaria Reported By Health Post	Total Clinical Cases	Total Cases
2002		212228	626839
2003		224662	585602
2004	10307	31355	273377
2005	78769	210250	326694
2006	155110	328278	414407
2007	182819	369081	461283

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

- There are two measures for introducing this indicator:
    1. Children under 5 sleeping under insecticide-treated bed nets, percentage
    2. Children under 5 with fever being treated with anti-malarial drugs, percentage

There isn't any data for Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures in Afghanistan.

Goals 6 (Malaria) findings and Comments:

- In 1949, a successful vertical control program was established and services delivered through a network of more than 300 malaria units supported by the Institute of Malaria and Parasitic Diseases. By 1970, falciparum malaria was almost eradicated, and vivax malaria incidence was very low. However, the control program gradually broke down because of geopolitical events and war, following the invasion of Afghanistan by the Soviet Union in

1979. In 2004, malaria control programme rehabilitated with integration of case management and surveillance into the Basic Package of Health Services. The national strategy for malaria control was developed in April 2005 and updated in 2007(35)

- A national malaria prevalence survey conducted by the MOH/IMPD between October-November 2002 (the peak period for *P. falciparum* transmission) revealed that 10% of the population living at an altitude below 1500m is infected with *Plasmodium* parasites. Malaria accounts for around 10% of all reported febrile illnesses and contributes to widespread anaemia in Afghanistan (12% of the population, and nearly 30% of children under five years of age have haemoglobin levels less than 11g/dl) In 2002 some 590,176 suspected and confirmed malaria cases were reported from all sources (health facilities and malaria centres) indicating an annual national incidence of 204/10,000 for 2002. Recorded incidence ranged from less than 10/10,000 population per year (South West and Central Regions) to more than 500/10,000 population per year (Eastern and North Eastern regions). *P falciparum* accounted for 20 % of confirmed malaria cases, ranging from less than 2% in Paktika province to 35% in Takhar province. In 2003 some 591,441 suspected and confirmed cases were reported indicating an annual national incidence of 197/10,000. Incidence ranged from less than 7/10,000 population per year (southern region) to 1,955/ 10,000. *P. falciparum* accounted for 7% of all confirmed malaria cases ranging from 0.002% in Wardak province to 31% in Takhar province. (Source: MRCs, NHMIS in some provinces and NGOs facility reports).(34)
- Afghanistan is considered to have the 4th largest malaria burden worldwide of any country outside Africa and the 2nd highest in the WHO Eastern-Mediterranean Region. Malaria is endemic in large areas of Afghanistan below 2000 metres above sea-level and is highly prevalent in river valleys used for growing rice. With an estimated population of 25,320,900 (80% of whom live in rural areas) and a recorded annual incidence of 240 episodes per 1,000 population in the more endemic rice growing areas in north-eastern and eastern Afghanistan7, the upper estimate for the annual incidence would be 3,000,000 cases.(34)
- Malaria transmission in Afghanistan is intensely seasonal and unstable in many parts of the country. The duration and intensity of transmission is altitude, temperature and rainfall dependent. All age groups are equally affected, except in the eastern region where those under 15 years of age are more affected, suggesting more intense transmission in this area. Malaria incidence is increasing, and is again at levels equivalent or even surpassing those prior to the eradication era. True incidence data are unavailable. Out of the 3,000,000 estimated cases of malaria per year in Afghanistan, in 2002 some 590,176 suspected and confirmed cases were reported from all sources, indicating an annual national incidence of 204/10,000 for 2002. Contributing factors to the increased incidence of malaria include population movement, lack of health infrastructure, poor access to health care, lack of adherence to treatment regimes, use of poor quality and counterfeit medicines, vulnerable malnourished population, and increasing resistance of P. falciparum to chloroquine, the most widely used antimalarial drug.(34)
- Afghanistan has the second highest reported burden of malaria in Eastern Mediterranean Region and the fourth highest worldwide. As most of the country is deserted and mountainous, distribution of malaria is restricted to ecologically favorable areas.
- Malaria is a challenge in Afghanistan considering the limited resources. USAIDS, European Commission, World bank and Global Fund are the main funders for AIDS, TB and Malaria in Afghanistan. Mobilization of funds is mandatory for achieving malaria eradication status.
- The Strategic plan for Malaria Control for Afghanistan has been updated recently to span 2008-2012. National Malaria and Leishmaniasis a department of PJC and Preventative Medicine of MOPH is responsible for implementing this strategic plan.

- Initial control effects brought a marked decline in the number of reported cases from 626,839 cases in 2002 to 271,763 in 2004, however from 2004, the number of reported cases increased to reach 433,412 cases in 2007 which means 19 cases per 1000 population (23)
- All age group up to age 30 are at approximately equal risk of developing malaria probably due to the lack of development of functional immunity in the population (24)
- All socioeconomic sectors should be involved and high level advocacy should be promoted in order to create awareness and of the impact and magnitude of malaria problem.
- Mechanisms best supporting intersectoral and intrasectoral collaboration, public private partnership and cross border coordination should be developed
- Community partnership is equally important as fund raising. Community should be involved in anti-malarial activities especially through aware raising. Local development associations should be absorbed.
- The multilateral and bilateral agencies can facilitate resource mobilization and multisectoral collaboration. Meanwhile, NGOs can also play a vital role in social mobilization and implementation of community programs.
- Population coverage of insecticide treated nets (ITNs) is very low. Only about 5% of the population used ITNs (less than 10% living below 1500m).
- Mild anaemia is very common in Afghanistan. 12% of the population and nearly 30% of children under five years of age had hemoglobin less than 11 g/dl. Falciparum malaria is one of the many causes.
- Further studies should be made for targeting of interventions, and for Programme monitoring and evaluation in implementation areas

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Global MDG Target 6: Have halted by 2015 and begun to reverse the spread of TB

Afghanistan revised MDG Target 6: Have halted by 2020 and begun to reverse the spread of TB

Table 2.13-Afghanistan Incidence, prevalence and death rates associated with tuberculosis

Series	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Tuberculosis incidence rate per year per 100,000 population	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3
Tuberculosis prevalence rate per 100,000 population	436.5	429.2	422.0	414.7	407.5	397.3	397.3	387.4	374.0	372.7	345.9	326.3	304.2	307.7	282.7	266.6	250.8	238.3
Tuberculosis death rate per year per 100,000 population	49.6	48.8	48.1	47.3	46.6	45.6	45.6	44.6	43.1	43.1	40.7	38.7	36.4	36.8	34.5	32.9	31.0	30.1

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Table 2.14- statistics related to TB in Afghanistan including DOTS coverage (25,32)

indicator	2000	2001	2002	2003	2004	2005	2006	2007
DOTS coverage (%)	15	12	38	53	68	81	97	97
Notification rate (new and relapses cases/100,000 pop)	34	47	62	60	76	87	98	106
Notification rate (new ss_cases/100,000 pop)	14	22	29	28	34	40	48	49
Case detection rate (all new cases, %)	20	28	35	34	43	50	55	61
Case detection rate (new ss + cases, %)	18	29	39	37	45	52	63	64
Treatment success (new ss+ patients, %)	85	84	87	86	89	90	84	--
Tuberculosis detection rate under DOTS, percentage	18.4	28.6	38.7	37.2	45.4	52.4	63.1	64.3

Goals 6 (Tuberculosis) Findings and Comments: (26)

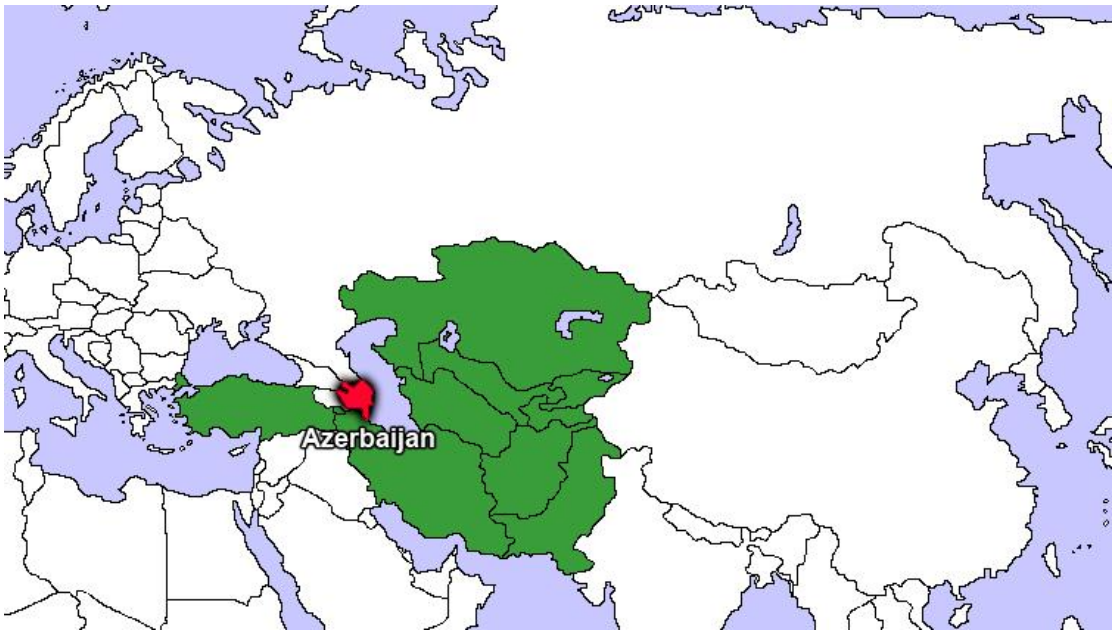
- According to the WHO-TB country profile, Afghanistan is the second highest TB burdened country in the Eastern Mediterranean Region and one of the 22 high TB-burdened countries in the world. With an estimated annual risk of infection of 2.55%, the incidence of sputum positive cases is calculated at 143 patients per 100,000 persons per year, and all active cases at 319/100,000 population per year. Assuming a population around 22.6 million, WHO estimates that 70,000 new cases and 20,000 deaths occur annually. Over 14,000 of these would be women in their reproductive age, a highly vulnerable group, which accounts for 65% of all cases of TB presenting to public clinics.(34)
- TB is one of the major health problems in Afghanistan especially affecting the young females. Afghanistan is among the high 20 countries in TB prevalence The difference in case numbers between men and women could result from men seeking treatment from non-DOTS private practitioners whereas women would use DOTS public health facilities that report statistics
- The EPI program was introduced in Afghanistan in 1978. However, major progress has been achieved since 2001 when the MoPH introduced need based structural changes in the program
- Young women constituting about 70% of all adult cases of TB that are reported by public health facilities Factors that contribute to the high prevalence of malaria and TB include: ¨ Population movements, ¨Lack of health infrastructure, ¨Poor access to health care, ¨Use of poor quality and counterfeit medicines, ¨Lack of adherence to treatment regimes, ¨ Malnourishment, and ¨Increasing resistance of vectors to chloroquinine¨, the most widely used anti-malarial drug.

- The increase in access to the BPHS has contributed to the detection and treatment of tuberculosis.
- As the severity of disease and mortality is higher among malnourished people it is vital to focus on the poor in any strategy to halt and reverse the spread of TB.
- Targets to meet this goal include influencing the provision of foreign aid to help Afghanistan develop sustainability, and working with the private sector to ensure that the benefits of new technologies are made available to the population
- Afghans continue to perceive security as the most striking challenge and although the number of Afghan National Police ANP) has increased in the past year, the force's ability to maintain law and order should be enhanced.

References

1. CCS for WHO and Islamic Republic of Afghanistan 2005 -2009
2. UNDP Human Development Report: 2004
3. United Nations System 2004
4. http://www.emro.who.int/emrinfo/index.asp?Ctry=afg CCS Afghanistan
5. Briefing note on Reproductive Health (including Family Planning) in Afghanistan, WHO-Afghanistan
6. UNICEF: Best Estimates of social indicators for children in Afghanistan 1990-2005 MICS 2000
7. Lancet 2005
8. Government of Afghanistan (2004b)
9. UNICEF ACO & CSO (2003)
10. 10-AHS 2006
11. WHO report 2004
12. National Risk and Vulnerability Assessment 2003
13. World Bank 2005
14. ICRC
15. UNAIDS
16. MICS 2003
17. Afghanistan Human Development report 2007
18. UNODC 2005
19. Todd et al., 2007
20. National Malaria Prevalence Survey (Afghanistan) 2002
21. Strategic plan for malaria control and elimination in WHO Eastern Mediterranean Region 2006-2010
22. World Malaria Report 2008, WHO
23. Afghanistan Annual Malaria Journal 1 April 2009
24. Suleman, 1988, unpublished observation
25. Annual Report and Statistics of TB in Afghanistan 2008, MOPH Afghanistan, WHO and Stop TB Partnership, Afghanistan
26. Global Tuberculosis Control 2009, WHO
27. CIA World Factbook
28. http://en.wikipedia.org/wiki/List_of_countries_by_Human_Development_Index
29. http://www.who.int/countries/afg/en/
30. USAID
31. http://www.prb.org/Articles/2009/afghanistan.aspx
32. UN MDG Monitoring website
33. UNGASS Report 2008
34. GLOBAL FUND WEBSITE
35. EMRO website

Chapter3. Republic of Azerbaijan



Azerbaijan demographic and socioeconomic status

The Republic of Azerbaijan is located at the west of the Caspian Sea. Its area is 89,600 square kilometers (33,436 square miles) in the framework of borders adopted by the UN. Azerbaijan borders with Iran (south), Armenia and Turkey (west), and Georgia and Russia (north). Azerbaijan is a mountainous country with high Caucasus Mountains peaks in the north and center, Lesser Caucasus in the west, and Talish Mountains bordering Iran. Important rivers include Aras, Kura and Alazani. Offician currency is Manat (new Manat since 2006). The capital city is Baku. Azerbaijan is divided to 66 rayons (administrative regions), 13 urban districts and 1 autonomous republic (Republic of Nakhichevan). About 20% of its land is occupied by Armenia. The official language is Azeri. The largest religious group is Shia Islam. Over 90% of the population are Azerbaijanis. The country has enjoyed growing oil and gas revenue in recent years. It is classified as a lower-middle income country by the World Bank. In 2006 it was ranked 97th on the Human Development Index. The Gross National Income per capita is estimated at 2550 US dollars in 2007 (UNICEF).

Figure 3.1-Azerbaijan map and its geographic status

In 2008 Azerbaijan's population was estimated at about 8347,300. About 48 percent of the population lives in rural areas. Twenty-five percent of the population are aged under 15 years and 7 percent are over 65 (10). Official data indicates that as a result of Armenia's occupation of Dagligh Garabakh there were about one million people refugees and internally displaced persons (IDPs) representing 12% of the population. The majority of these (over 65%) were internally displaced persons from Dagligh Garabakh and nearby territories (28).

Population growth rate in 2006 was 18 per thousand. The population growth has declined in recent years mainly due to reduced birth rate. The resulting situation has posed a considerable challenge for the social sector. In 2005 life expectancy was estimated as 70 years for males and 75 years for females, while UNICEF provides a lower life expectancy of 67 years (population average) in 2007. About 4.0% of GDP and 4.3% of the governmental budget is spent on health care. There are other estimations that indicate state spending on healthcare is about 1% of GDP (0.8% of the GDP in 2003) (18).

Some demographic and socioeconomic indicators are shown in tables 3.1, 3.2.

Table 3.1-Azerbaijan demographic data (population in 100) by age and gender, 2007(State Statistical Committee, 21)

age group	women	men	total	percent
<1	687	802	1489	1.75
1-4y	2265	2643	4908	5.75
5-9y	2661	3031	5692	6.67
10-14y	3967	4253	8220	9.63
15-19y	4528	4756	9284	10.88
20-24	4138	4309	8447	9.9
25-29	3528	3460	6988	8.19
30-34	3226	2921	6147	7.2
35-39	3408	3043	6451	7.56
40-44	3620	3221	6841	8.02
45-49	3326	3095	6421	7.53
50-54	2202	2022	4224	4.95
55-59	1467	1334	2801	3.28
60-64	750	627	1377	1.61
65+	3504	2533	6037	7.08
Total	43277	42050	85327	100

Table 3.2- Socioeconomic status and indicators of Azerbaijan

Indicator	Value	Year	Reference
Crude birth rate	13.6	2002	13, 15
Total fertility rate	1.8 1.8	2002 2007	15 22
Crude death rate	5.7 7	2002 2007	13, 15 22
Life expectancy at birth	72[1] 68	2006 2007	21
Adult literacy rate	99.9 95	2007 2000	MDG report 4
Per capita income (US $)	2550	2007	22
Human Development Index	0.758	2006	1
Total health expenditure as percentage of Gross Domestic Product	3.6	2005	5
Percentage of out of pocket expenditure to total health expenditure	58	2006	5
Percentage of governmental budget for health care to total government budget	4.2	2007	5

Methodology and visits:

The evaluation team conducted the evaluation based on these ways:

- Reviewing documents available in journals, books, reports, and the internet.
- Reviewing documents available from governmental sources (published and unpublished sources)
- Reviewing documents available from the UN Agencies in the country (published and unpublished sources)
- Visiting Azerbaijan in July 2009 and interviewing some key informants within the UN agencies (including WHO, UNICEF, UNFPA), Ministry of Economic Development and the MOH.
- Discussion in expert groups about results and methods
- Reviewing WHO and UN MDG-related documents and international and national related sources and services
- Arrangement and template planning for gathered data and analysis and assessment of the collected data
- Putting data in its related category and table and designing the best presentation methods
- Making proper recommendations related to each indicator's category according to the findings

A brief summary of the country's health

State is the major provider or health services in the country. The health system is mainly based on former Soviet model (Figure 3.2).

Primary health care is delivered through a network of health faculties that include feldsher ambulatory posts (FAPs), rural ambulatory clinics, outpatient polyclinics, primary health facilities, women's consulting centers, and delivery hospitals. The Sanitary Epidemiological Stations (SESs)

[1] Other estimates are lower than this. The World Bank estimated life expectancy at birth in 2001-2 was about 65 years (68 years for women and 62 years for men) (12,15). UNICEF estimate for 2007 stands at 67 years (22), and the World Health Statistics 2009 report it at 68 for 2007 (29).

directly report to the MOH and are responsible for immunization services. SESs do not vaccinate people. Vaccinations are administered through primary health care facilities. SESs are also responsible for certain public health roles (water and food sanitation, infectious disease control).

Secondary health services are provided by specialized dispensaries, polyclinics, and hospitals. Tertiary health services are provided within regional, municipal, and district general hospitals, specialized referral hospitals, dispensaries, and clinical research institutes.

Azerbaijan has 1830 FAPs, 680 rural medical ambulatory clinics, 360 rural district hospitals and 112 district polyclinics. Rural hospitals have an average of 32 beds. 82 municipal SESs are staffed by specialist physicians and provide a vertical system of care. In addition to the national hospitals situated in Baku, there are 63 central district hospitals with 233 beds on average. There are about 90 specialized dispensaries and several sanatoria that providing post-discharge and rehabilitation care. More than 95% of hospitals are state owned. Azerbaijan has a large number of hospital beds (827 per 100000 in 2003) (13).

The Health in Transition report by the European Health Observatory for Health Systems and Policy (Holley et al 2004) provides a concise, albeit a little bit out of date, summary of Azerbaijan's health system and the challenges that the country health system faces (12,13).

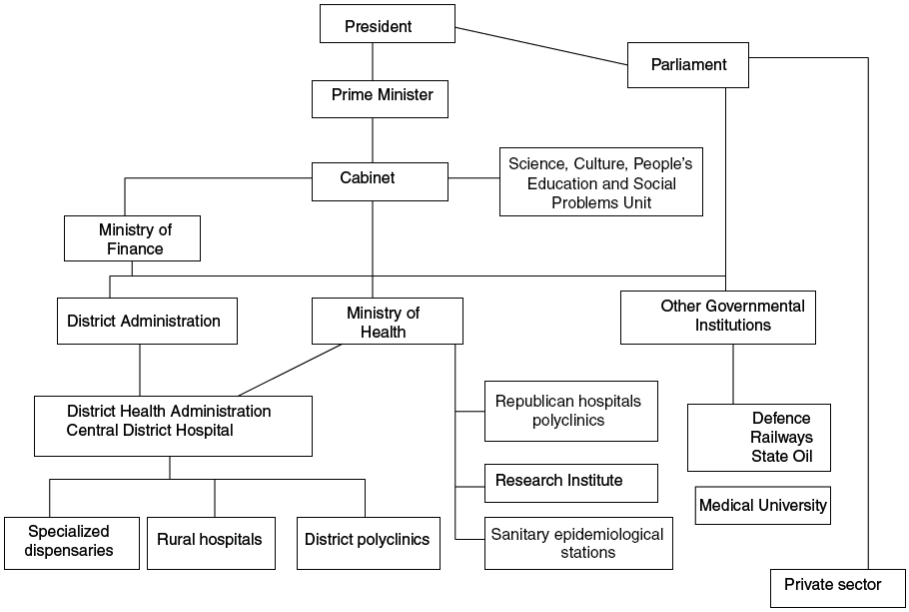


Figure 3.2-The organizational chart of health care system in Azerbaijan (13)

The government's expenditure on social sector has increased in recent years (see Figure 3.3 reported from Reference 5). As the graph shows this increased expenditure, however, in health sector has been more limited.

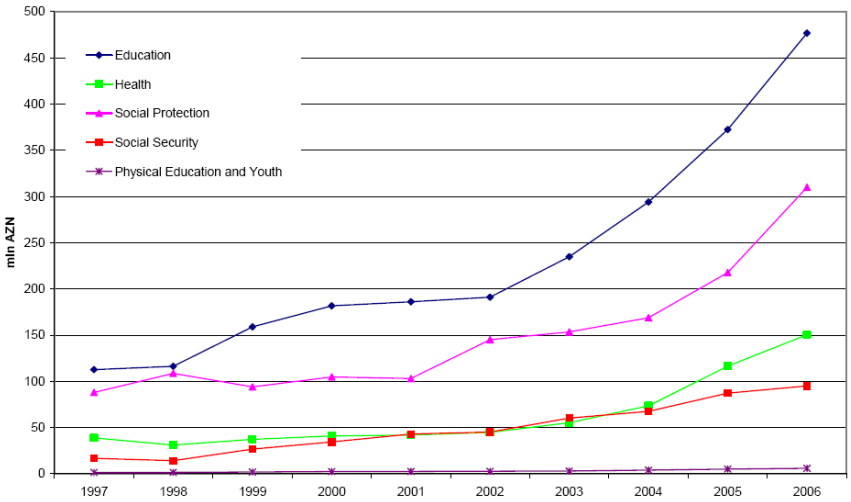


Figure 3.2-state budget expenditures in the social sector, 1997-2006

The governmental healthcare expenditure compared to other countries in Europe (12) and also in ECO region is low. Despite the real growth in government healthcare expenditure in recent years (27 US$ in 2006 - due to improved national revenues), still the government expenditure for healthcare is small compared to other countries with similar economic status. In 2007 only about 4% of the total governmental budget (equivalent to 1% of the GDP) was spent on health care (5) (see figure 3.3). According to the WHO data, in 2003 the state budget expenditure on health care was at the similar level of 0.8% of GDP, which was the lowest in Europe (12).

While the total health expenditure amounts to about 4% of the GDP, this situation has resulted to an out-of-pocket of proportion of total health expenditure of about 60% in 2006 (3,5)[2]. This is a very high proportion compared to international figures as well as to other transition countries and tackling it should be considered a priority in Azerbaijan. The Azerbaijan Economists' Union and UNICEF report (5) mentions this figure is lower than what reported in previous years (which were all over 60%)[3]. If this is the case Azerbaijan may be moving in the right direction in tackling the problem.

Access of the vulnerable groups in Azerbaijan to medical care (including basic primary health care) seems to be an issue. A study reported that about 85% of the women had at least one barrier for seeking medical care. Among all, financial issues were the most frequently cited barriers for seeking care (5). These financial issues may include indirect costs of accessing healthcare (e.g. for traveling to facility, or cost of buying required equipment) as well as informal payments.

The 2003 World Bank Poverty Assessment reported that informal payments for service provision vary with the quality of services provided. For example charges for child delivery vary from 100–150 US$ in town hospitals to 500–700 US$ in Baku (14). This was up to 18 times the average monthly salary in Azerbaijan (13). Azerbaijan is committed to fight against corruption and acknowledges this problem (18). Tackling the issue of informal charges in healthcare should be seen as a priority and should involve different approaches including improving the salaries and working conditions of healthcare human resources.

[2] Similar estimate of 57% is reported for 2001 (12)
[3] Like many other figures, there are uncertainties here as well. The WHO estimate for out of pocket healthcare expenditure in Azerbaijan in 2001 is 57% (12).

A 2004 opinion survey in Azerbaijan suggested that only 30% of people had confidence in the MOH, which was among the lowest in the country (15; citing from http://www.transparency-az.org). The report did not suggest why this is the case, however, issues of affordability (especially informal payments) and quality of service may have contributed to the public dissatisfaction with the healthcare system.

In the last two decades the bed occupancy rate in Azerbaijan has plummeted from over 70% to about 25% (13). This is while in this period there has been no substantial change in the number of beds (a slight reduction) and the population has increased (13). There has been no clear evidence of reduced length of stay in hospitals either. This picture may reflect demand side problems as people may have difficulty to afford healthcare. It may also reflect diminishing quality of services in hospital sector (supply problems), resulting in reduced utilization (15).

Goal 4: Reduce Child Mortality

4-1: Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.

Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015
Azerbaijan target: Reduce by two-thirds, between 2001 and 2015, the under five mortality rate (2)

Table 3.3- Under-five mortality rate in Azerbaijan (1990-2007)

Years	US Bureau of Census 1999 (4)	Vital statistic registry (10 , 16,18)	Other estimates (5-8, 15,22,29)	DHS 2006 (3)	RHSA 2001 (3)	World Bank estimate (16)	MICS 2000 (4)	Subgroups / Inequity (3, 16)
1990		41	98			106	110*	
1992-1996				79				
1995						102		
1996		39					102	
1996-2000	93		88		92			
1997-2001				66				
2000		25	92-102			97	108*	MICS: urban 79, rural: 122
2002		23				96		
2003		20						
2004 (2002-2006)				50				DHS: male: 56; female: 42. Urban 45; rural 54
2007		16	39					

4-2. Indicator: Infant mortality rate

Definition: The infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1,000 live births in a given year.
Country definition: It has been suggested that Azerbaijan used the Soviet era definition for infant mortality until 2001 (16). However, it seems that Azerbaijan continues to use the Soviet definition of a live birth resulting in an infant mortality rate of about 25% lower than other studies (13: *cited from:* UNICEF. Social monitor 2003. Florence, UNICEF, 2003). As it can be observed in the table there no clear change in official figures for this indicator around 2001, while other countries who changed the definition reported substantial modifications in their estimate for infant mortality. AzDHS and other international surveys have used WHO definitions for the calculation if infant mortality (3).
Target: Reduction of infant mortality rate by two thirds, between 1990 and 2015

Table 3.4- Infant mortality rate in Azerbaijan from different sources (1990-2007)

Years	vital statistics registries in SSC 2007 (2,10)**	Vital statistical registries: From other sources (13, 18)	Other estimates (8,9, 15,29)	UNICEF (13,22)	World Bank (13, 16)	DHS 2006 (3)	RHSA* 2001 (3)	Subgroups / Inequity (16)	MICS 2000 (4)
1990		22.9		78	84				86*
1993	28								
1994	25								
1995	23	24.3		34	81				
1991-1995							86		
1992-1996						67			
1996	20	20.8		34					79
1997	20	19.4		34	79.8				19.4
1998	17	16.6		36					
1999	17	16.5		34					
2000	16	12.8			78			MICS: urban 63, rural 92	85
1996-2000			82				74 (62-87)		
1997-2001						55 (42-68)			
2001	17	12.5	81	74	77				
2002	17	12.8		74	76				
2003	16	12.8							
2004	14								
2004 (2002-2006)						43 (95% CI: 32-54)		DHS: male: 48; female: 38 Urban 40; rural 47	
2007	12		34	34				Male:36; female: 33 (29)	

RHSA: Reproductive Health Survey of Azerbaijan **. There are some discrepancies between the figures reported from SSC and what appears in the official SSC publication "women and men in Azerbaijan 2007", page 172. This column which is the SSC report in 2007, may include some corrections made more recently.

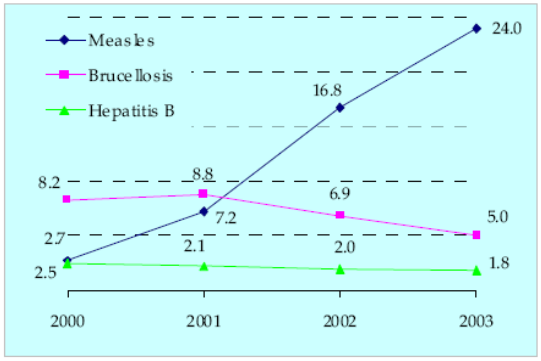
4-3: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

Table 3.5- Proportion of 1 year-old children immunized against measles in Azerbaijan

Years	Administrative data (13)	UNICEF, WHO (22, 29)	DHS 2006 (3)	Equity
2000		99		
2002	97			
2006			67.3 (highest estimate)	Male: 71.8; female: 62.2; urban: 80.1; rural: 55.4
2007		97		
2008	86			

Official estimates from the SSC suggest that the incidence of measles was increasing in years 2000-2003 (18, page 41 – see figure here), while the WHO reported 0 cases of measles reported in 2007 (29).



Source: SSC

Figure 3.3- Incidences of measles, hepatitis B and brucellosis (per 100000 populations)

Important findings and comments on Goal 4

During the MICS 2000 study, it was identified that only 1.9% of children had a vaccination card at home, suggesting it was difficult for families to plan for their children vaccination (4). Similarly AzDHS 2006 concluded that about 40% of children aged 18-29 months had not received all basic vaccination as recommended by the WHO[4] (3,5). If other vaccines that are part of Azerbaijan's MOH vaccination program are taken into account (e.g. hepatitis B vaccine), then 60% of the children in the DHS sample were not fully covered. Another important finding in this study was that the vaccination coverage was much less in areas other than the capital. For example, 3.5% of Baku children in this age group received no vaccine at all, while the corresponding figure for the rest of Azerbaijan was 16%. These findings are despite the fact that official figures for vaccination coverage are high and promising.

A survey of primary care facilities in south Azerbaijan found that no FAPs had refrigerators and 91% did not have cold boxes (15). These figures question the accuracy or feasibility of achieving vaccination statistics as reported in official statistics. Also vaccination effectiveness may be less than standards due to low maintenance of cold chain.

[4] Includes BCG, measles (or MMR), polio and DPT vaccines.

The problem of accuracy of infant and under-5 mortality figures also remain. We mentioned that there may be 25% under-reporting of infant mortality figures due to the way the live birth is defined. Others suggest that up to 50% of infant mortality may be missed out as many such cases may not have even been registered at birth (18). The "survey on registration of infant birth and mortality in Azerbaijan" (carried out by SSC, Sida and the Swedish Statistical Office in 2003) suggested that 15% of births and 55% of infant mortality cases had not been registered in 2002.

Equity issues exist in Azerbaijan as it is observed in many other countries around the world. Baku children enjoy better coverage of health services (including vaccination), and have lower reports of mortality than the rest of the country. Also there are differences due to socioeconomic status.

Generally the mortality figures are improving in line with MDG goals whether we accept international figures or formal statistics from national authorities. There are concerns, however, on effectiveness and coverage of primary care services

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

Target 6: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Azerbaijan target: reduce the maternal mortality ratio by 2015 to the level of 1990

Table 3.6- Maternal mortality ratio in Azerbaijan (1990-2008)

Years	vital statistics registries (10,11)	UNICEF, UNFPA, WHO and World Bank (13, 16)	MICS 2000 (4)	UN MDG REPORT modeled data (also 22)
1990	9.3			
1991	10.5			
1992	17.6			
1993	34.4			
1994	43.8			
1995	37.0			
1996	44.1			
1998	41.1		79*	
1999	43.4			
2000	37.6	94		
2001	25.4			
2002	19.9			
2003	18.5			
2004	25.8			
2005	28.9			82
2006	34.2			
2007	35.5			

* Indirect estimate using sisterhood method.

5-2: Proportion of births attended by skilled health personnel

Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.
Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.

Table 3.7- Proportion of births attended by skilled health personnel[5] (1997-2005)

Years	Routine reports (18)	MICS 2000 (4)	RHA 2001 (18)	Subgroups / Inequity
1990	97.3			
1996-2001			89%	
2000		87.5		MICS; Urban 95%, rural 82%.
2002	99.7			
2003	99.7			
2002-2006			76.9	DHS; urban: 89.7; rural: 63.3
2002-2007	88 (UNICEF 22)			

Important findings and comments on Goal 5

The MICS 2000 mentioned that "the official figure *[for MMR]* may underestimate the ratio by as much as 50 percent (UNICEF and Republic of Azerbaijan)" (4).

Underestimation of maternal mortality in routine data is a possibility since an increasing number of deliveries have happened at home in recent years (16). Based on the Reproductive Health Survey in 2001, in rural areas 35.5% of women delivered at home and this was almost twice the rate of urban women (7). There are suggestions that this rate has increase compared to previous years because of increasing costs of receiving care and affordability issues (13).

High number of abortions may contribute to maternal mortality in Azerbaijan (life time estimate for every woman was 2.9 in 1999-2001 and 2.3 in 2003). It seems that some women use abortion as a way of Family Planning(16). Some has even claimed that abortion is the most common method of contraception in the country (16). There is also evidence that abortion is being used as a sex-selection practice[6]. All these suggest that tackling the issue of abortion requires multi-factor initiatives. Any such initiative should include educational campaign and community oriented interventions.

The recent years' increase in MMR official figures seems to be mainly due to improving registration and reporting systems (5) and does not suggest worsening of the situation. A World Bank survey carried out in December 2004 did not find any maternal mortality in the pilot districts in south Azerbaijan (15).

[5] In AzDHS 2006, skilled providers included doctors, nurses, midwifes, and feldshers. In MICS 2000 it was defined as doctors, midwifes and auxiliary midwives.
[6] An unofficial report in 2006 indicated that newborn boys were three times more than newborn girls (19).

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS
Azerbaijan target: same as above (2)

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.
We did not find exact figures for the above indicator (HIV prevalence among pregnant women) in the reports available to us in Azerbaijan. However, a range of other indicators relevant to this target are reported underneath.

Table 3.8- HIV/AIDS indicators related to indicator 6-1 in Azerbaijan 2000-2008

Years	New cases of HIV/AIDS (18)	Total number of people infected with HIV (21)	Total number of people infected with HIV (13,16,18)	Prevalence of HIV among adults aged ≥15 years per 100 000 population (29)	Antiretroviral therapy coverage among people with advanced HIV infection (%) (29)
2002		390			
2003	114	485	556		
2004		572*	706*		
2005		704			
2006		762			
2007		1026		120	14

*Up to November 2004 (18)

6-2: Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

Table 3.2- Condom use rate of the contraceptive prevalence rate in Azerbaijan

Years	Source of data	
	DHS 2006 (3)	MICS 2000 (4,16)
2000		<1 %
2006	2.2 %	

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

Condom use at last high-risk sex .This indicator was available for 2006. According to azDHS 2006 it was 30% for male respondents in 2006 (3, 25).

Also WHO estimated that in 2007 the prevalence of condom use by adults (15–49 years) at higher-risk sex to be less than 1% among women and 26% among men (29).

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.
According to the AzDHS 2006 (3), the relevant values stood at:

Table 13.2 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse, by having one sex partner who is not infected and has no other partners, and by abstaining from sexual intercourse, by background characteristics, Azerbaijan 2006.

	Women					Men				
	Percentage who say HIV can be prevented by					Percentage who say HIV can be prevented by				
Background characteristic	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms, and limiting sexual intercourse to one uninfected partner[1,2]	Abstaining from sexual intercourse	Number of women	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms, and limiting sexual intercourse to one uninfected partner[1,2]	Abstaining from sexual intercourse	Number of men
Age										
15-24	27.4	25.5	17.3	22.8	2,875	40.4	45.8	36.5	36.2	738

In summary the general knowledge on HIV/AIDS is not promising (Table 3.10).

Table 3.3- Proportion (%) of people aged 15-24 with comprehensive knowledge of HIV/AIDS

Year		Source of data
2000	2	MICS (4,25)
2006	4.8	azDHS (3,25)
2002-2007	5	UNICEF (22)
2007	5 (among male only) 6 (among female only)	WHO (29)

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

Table 3.4- Contraceptive prevalence rate in Azerbaijan

Data source	Subgroup Inequity (modern methods only)	Any modern method	Any method	Year
MICS (4)	Urban 19.3; rural 11.6	15.8	55.1	2000
Population reference bureau (16)		12	55	2003
DHS (3)		14.3	51.1	2006

6-6: Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

In AzDHS 2006 there was almost no difference between orphans and non-orphans in school attendance (ratio almost equals to 1) (3,25). In the survey in total 2.6% of children were orphans (i.e. mother, or father or both were dead) (25). Like other countries in this region, this indicator is not a good and proper indicator for assessing HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population

Important findings and comments on Goals 6 (HIV/AIDS):

Data provided by the SSC suggests that contraceptive usage in Azerbaijan has been decreasing in the period 2000-2006. This decrease has mainly occurred in the (oral) hormonal contraception methods. For further information please see reference 11 page 196.[7]

The general public figure for use of modern contraception methods appear to be low in different surveys. However, in areas where certain pilot projects are underway up to 20% of couples use such methods which are significantly higher than the average usage (24).

A survey in 2005 that was conducted in five districts in Azerbaijan observed that men and women in this communities desired small families (26). However the respondents reported the following difficulties in use of modern contraception techniques:

- despite community interest, lack of knowledge of contraception was prevalent
- they were fearful of side effects and little opportunity existed for counseling on side effects
- few health workers were trained on contraception techniques
- a legislation that only allowed gynaecologists to prescribe contraception (who are mostly located in urban hospitals)
- the main barrier was insufficient contraceptive supply
- few of the facilities surveyed had any contraceptives available

Azerbaijan is observing a rapid increase in the number of HIV/AIDS cases. The figures still are too small to cause alarm. But if we compare this with an extremely low level of reported knowledge about HIV/AIDS in the public it will be an issue for concern.

The reported incidence of HIV/AIDS per 100,000 population has increased from 0.04 in 1996 to 1.41 cases in 2003 (16). WHO also reported the prevalence in 2007 at about 120 per 100000 population, and rising (29).

It is estimated that about 1300 women over 15 live with HIV/AIDS in Azerbaijan (22). UNAIDS estimated the number of infected individuals as about 1400 (range 500-2800) (16). For 2007, the UNICEF estimated that 4700 (low estimate) to 16000 (high estimate) people lived with HIV in the country (22).

[7] Note the graph on page 196 of the reference 11. The figures on the vertical line seem to be proportions while they vary between 0-3. Is this a typing error? If the figures are correct then one should conclude that in 2000 about 2.5% of sexually active women used hormonal contraception and about 1.5% used IUD. On the other hand it may represent all *women 15-49 years* (and not those sexually active).

AzDHS 2006 reports only 4.8% of women and 5.3% of men aged 15-24 had comprehensive correct knowledge of AIDS prevention (3). This figure in MICS 2000 is about 2% for those aged 14-59 (4). In this study 9% were aware of the three main methods of preventing HIV/AIDS and 5% correctly identified the main misconceptions (4).

Azerbaijan has one of the lowest reported levels of comprehensive knowledge on HIV/AIDS in the world (29).

A coherent and massive campaign for increasing general knowledge on HIV/AIDS, especially in vulnerable groups (such young people) seems very necessary in Azerbaijan.

The treatment coverage for those people suffering AIDS is also low (about 14%) and further funds and resources should be targeted towards HIV/AIDS prevention and treatment.

With current trends, Azerbaijan is unlikely to meet MDG targets for HIV/AIDS.

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 3.5- Number of cases reported with malaria in Azerbaijan (1990-2008)

Years	Number (16,18,27, 29)
1990	22
1993	23
1994	667
1995	2838
1996	13135
1997	9911
1998	5175
1999	2315
2000	1526
2001	1058
2002	506
2003	482
2004	386
2005	242
2006	143
2007	110*
2008	73

* the malaria incidence in Azerbaijan in 2007 was 1.29 per 100000 population.

Mortality due to malaria is not a problem in Azerbaijan. Malaria mortality rate reported in this country for 2006 is reported at 0 (29).

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

Table 3.6- Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures in 2000 and 2005 in Azerbaijan

Year	Children under 5 sleeping under insecticide-treated bed nets, percentage. MICS 2000 (4,22)	Children under 5 with fever being treated with anti-malarial drugs, percentage MICS 2000 (4, 29)
2000	12*	<1% (primachin)
2003-2007	1*	1%

* Only 11% of the bed nets are impregnated with insecticides, hence 1% of children sleep under impregnated bed nets (4,22,29).

Important findings and comments for Goals 6 (Malaria):

WHO estimates that 80% of Azerbaijan population lives in areas prone to malaria risk (16). So the risk for malaria is existent.

Azerbaijan faced a resurgence of malaria in the 90s due to displacement of people because of war and challenges the country faced at the time (23,27). “Only 20 cases of Plasmodium vivax malaria were reported in 1990 but this rose to over 13 000 in 1996. By the end of the 1990s the rate had returned towards its earlier level, although transmission continues in some areas.” (quoted from 13)

There is evidence that local people in endemic rural areas use self treatment for treating malaria, and hence the registration data may underestimate the real number of cases (18).

Azerbaijan is certain to meet MDG targets for malaria control, unless unexpected situations occur. Although prophylaxis for malaria is low, because of good case detection and management the situation is under control.

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 3.7- TB prevalence, incidence and death rates in Azerbaijan

Years	Tuberculosis incidence rate per year per 100,000 – estimated (13, 16,20,29)	TB cases registered per 100000 (21)	New TB Cases per 100000 Incidence (21)	Tuberculosis death rate per year per - 100,000- modeled (15,16,29)	Tuberculosis prevalence rate per 100,000- Modeled- estimated (15,16,29)
1990	35-37				58
1995	44				
1996	66				
1997	61				
1998	59				
1999	58				
2000	64-75	180	65		113
2001	60				
2002	63	178	55		
2003	82	167	48	12	50 109 (WHO estimate)
2004		79	45	11	
2005		64	44		
2006	77	82	44		
2007	77	92	44	10	86

Number of tuberculosis cases reported in 2007 was 1356 (29).

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Table 3.8- Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Years	case detected rate All forms (13,15)	Tuberculosis detection rate under DOTS, percentage Estimated (20,29)	Tuberculosis treatment success rate under DOTS (20,29)	DOTS population coverage (15,20)
1995		5		-
2000		6	91	-
2002		44	84	-
2003	25	30	70	48
2004	20	44	60	
2005		55	59	
2006			60	100
2007		46-50		

Important findings and comments on Goals 6 (Tuberculosis)

Tuberculosis is still an important health issue in Azerbaijan. The country has one of the highest levels of MDR reported in the world. Data generally suggests that DOTS is not fully and successfully implemented in the country.

Success rate under DOTS has decreased in recent years.

Case fatality rate in 2003 was 14% (high) (15,16).

The highest rate of multiple drug resistant (MDR) TB has been recorded un Baku with 22.3% TB cases were MDRs (20). Multi-drug resistant tuberculosis has been a substantial problem in prisons (16). In recent years the ministry of justice has implemented a successful program to tackle the issue in prisons and available data suggests the project is effectively implemented in the country.

DOTS as a policy has the government backing in Azerbaijan, however, it has not received enough support for full implementation in the country (20). It is important to integrate the DOTS program into the PHC.

In over a decade the reported tuberculosis incidence has doubled (rising from 37/100 000 in 1990 to 63/100 000 in 2002. Some sources estimate that the 'true scale of the problem' may even be bigger (6). The number of TB cases is three times higher for men than women (16).

A report suggests that DOTS population coverage in 2003 was 48% (15). This may seem different from the low actual detection rate of TB under DOTS. The population coverage is probably referring on the existence of the service in the area and may not necessarily mean that it is a pro-active coverage of the population in need of care.

Azerbaijan faces important obstacles to tackle the tuberculosis problem. It seems that country as a whole (e.g. other ministries) is committed to investment and effective interventions for reducing tuberculosis incidence and improving treatment success. This should be matched by the MOH in Azerbaijan. There is evidence that new programs are being implemented in recent years. These should continue to enable the country to achieve MDG targets for tuberculosis.

General comments and recommendations

While it seems that Azerbaijan is making good progress on some important MDG targets (e.g. poverty reduction), the progress in health target may not as bold as others. It is in a way reflected in national reports. The MDG progress report 2005 (2) is in a way silent on health related targets.

The amount spent on 'practical research' on health which is currently only about 0.8 of the total spent on healthcare which is increasing compared to the past (5). Further investment on health system research will provide the background for Azerbaijan's health system.

Since 1995 there is a small market for voluntary health insurance coverage in Azerbaijan. In 2004, less than 0.2% of the population was covered by this type of insurance (12,13,15). The voluntary insurance is much more expensive than most people can afford (12,13).

This increased expenditure should be used for improving public access to healthcare (via subsidies and social insurance programs), improving primary care capacity, and improving the human resource for health situation in Azerbaijan. Implementing the government plan for 2006-10 period in which there is a commitment to 'health financing and compulsory medical insurance' is an essential part of this.

Further investment in primary care is essential. Estimations suggest that in 2007 only about one sixth of state budget expenditure on health care was spent on primary care (5).[8]

Some reports have suggested that expansion of primary healthcare services is essential (e.g. maternal and child health clinics) for improving mother and child health outcomes in Azerbaijan (15). Others have focused on over-staffing and extra number of facilities as a chronic feature of healthcare system in Azerbaijan (13,15). These may suggest that while infra-structure seems to be further than required, there may still be shortcomings for certain care facilities[9]. Re-visiting the roles of current facilities may also result in steering the resources towards provision of the services most required.
Problems with some indicators and quality of data are acknowledged in official reports in Azerbaijan and efforts are made to improve quality of data (18).

Azerbaijan has preferred to consider the 2001-2002 period as the baseline year for MDG goals (18). One stated reason for this is that there is a lack of data for some indicators in 1990, and hence such baseline is not existent (18). However, it seems that the other reason relates to the difficult time that Azerbaijan has in 90s as a result war and the problems the country faced in early years after its independence (18). Many health indicators deteriorated in these years, and hence improving over 1990 situation may seem more of a challenge to the country than improving over 2001-2 situation.

Formal reports state that Azerbaijan is likely to meet the main MDG target of poverty reduction (18) and it seems most international reports agree with that. At the same time it is acknowledged that meeting health related MDG targets (goals 4-6) may be more problematic. There are good

[8] See reference 5 page 60. Total state budget healthcare expenditure (SBHE): 30 AZN; primary care SBHE: 4.9 AZN.
[9] Note that the focus in here is on 'facility' as a distinct entity, and hence there is this notion of extra facilities (e.g. number of hospital beds). Here we do not address the issues of quality and standards. For example the quality of hospital beds in Baku may vary greatly with those in Lankaran, and some may not meet international standards. Also there are reports that a large proportion of primary care facilities lack basic resources such as running tap water, reliable electricity supply or means of transport (15).

progress signs in management of malaria, and it seems the AIDS is not a major health treat for Azerbaijan. Although the threat is increasing the country may not meet the MDG target for HIV/AIDS. However more comprehensive work is required for meeting the targets of reducing maternal mortality and TB prevalence and improving TB treatment under DOTS. For IMR different data suggests that the goal will be met (whether we agree with official data or survey and estimate data). Reforms in primary health system in the country will help to sustain this progress (18).

For AIDS although the problem is not big in Azerbaijan, it seems more caution is required and concentrated work (especially community education) is required. Most people do not have comprehensive knowledge of HIV and AIDS and the majority of sexually active people do not use preventive contraception methods.

The limited use of modern contraception methods also seems to contribute to maternal mortality. There is evidence that abortion is used as a contraception method, which can increase maternal mortality.

Acknowledgements

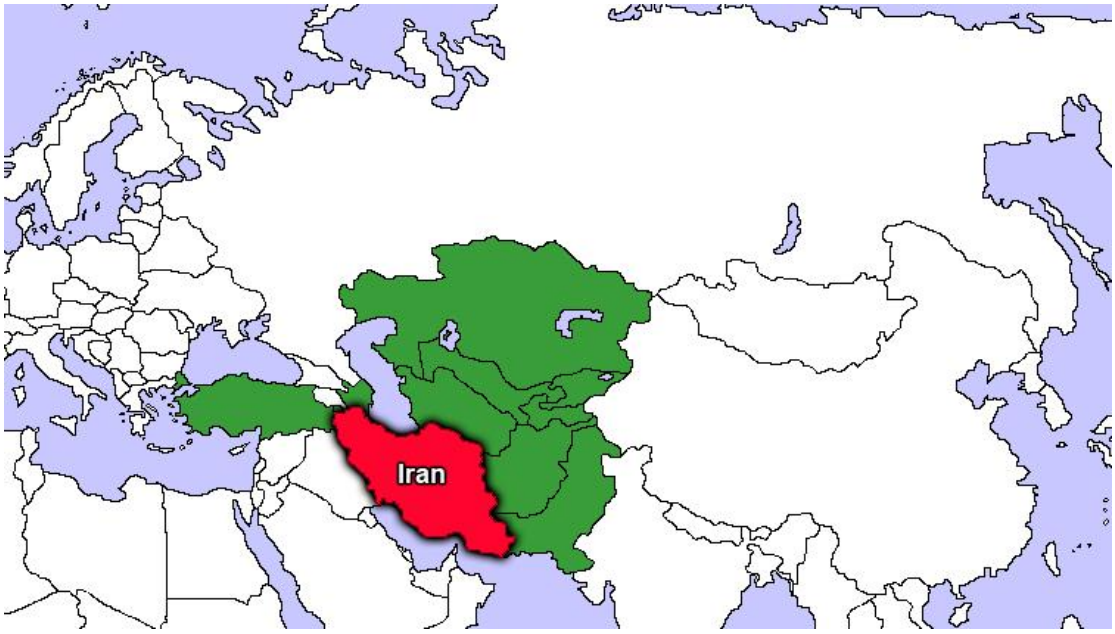
The authors thank colleagues at the Economic Cooperation Organization (ECO) Secretariat in Tehran for arranging and facilitating the visit to Baku and for their cooperation and comments on the report, including Dr Davoud Rezaee, Muzaffer Alacaogullari and Mr Saffari. Special thanks to Muzaffer Alacaogullari for accompanying AR in his visit to Baku and provision of excellent support and facilitation. We would also like to thank the following individuals in Baku for generous provision of data, advice, insight and feedback, and for spending time with us in meetings and discussions: Dr Elkhan Gasimov (WHO), Dr Natik Umarov (UNICEF), Dr Kamran Garakhanov (WHO), Dr Javahir Suleymanova (WHO), Jamal Guliyev (Ministry of Economic Development), Siraj Mahmudov (UNICEF), Mohamed Bendriss Alami (UNICEF), Farid Babayev (UNFPA), Rashed Mustafa (UNICEF), and Dr Samir Abdullayev (Ministry of Health).

References

1. "New UN data shows progress in human development". United Nations Development Programme. 18 December 2008. http://hdr.undp.org/en/mediacentre/news/title,15493,en.html. Retrieved 26 March 2009
2. Azerbaijan: when east meets west. MDG progress report to the 2005 World Summit
3. State Statistical Committee (SSC), Macro International Inc. and USAID. *Azerbaijan Demographic and Health Survey 2006*, 2008.
4. *Azerbaijan Multiple Indicator Cluster Survey 2000* MICS 2000. 2000, Baku: UNICEF. (conducted by the State Statistics Committee)
5. Azerbaijan Economists' Union and UNICEF. *Budget investments in health and education of Azerbaijani children*. 2008, Baku.
6. UNICEF, WHO, the World Bank and UN Population Division, *Levels and Trends of Child Mortality in 2006: Estimates Developed by the Inter-agency Group for Child Mortality Estimation*, New York, 2007
7. Adventist Development and Relief Agency (ADRA), Azerbaijan Ministry of Health, State Committee of Statistics et al. *Reproductive Health Survey Azerbaijan, 2001. Final report*. Baku/Atlanta, 2003.
8. UNICEF, WHO, World Bank and UNFPA Inter-agency group estimations, www.childmortality.org
9. *US Bureau of Census 1999.* Cited in : *Azerbaijan Multiple Indicator Cluster Survey 2000*. 2000, Baku: UNICEF.
10. State Statistical Committee (www.azstat.org) and other sources referring to the SSC.
11. State Statistical Committee of the Republic of Azerbaijan. *Women and men in Azerbaijan 2007*. 2007, Baku.
12. European Observatory on Health Systems and Policies. *Health Care Systems in Transition: Azerbaijan HiT summary*. 2005.
13. Holley J, Akhundov O, and Nolte E. *Health care systems in transition: Azerbaijan*. WHO Regional Office for Europe for The European Observatory on Health Systems and Policies. 2004, Copenhagen.
14. World Bank. *Azerbaijan Republic poverty assessment. Volume II: The main report*. Washington, D.C., World Bank, 2003.
15. Human Development Sector Unit, Europe and Central Asia Region. *Azerbaijan Health Sector Review Note. Vol I*. Report No. 31468-AZ. 2005, World Bank.
16. Human Development Sector Unit, Europe and Central Asia Region. *Azerbaijan Health Sector Review Note. Vol II*. Report No. 31468-AZ. 2005, World Bank.
17. United Nations. *The Millennium Development Goals Report 2009*. 2009, New York.
18. State programme on poverty reduction and economic development 2003-2005. *Azerbaijan progresses toward the achievement of the Millennium Development Goals, progress report – 2003/2004*. 2005, Baku.
19. United Nations Development Programme and State Committee for Family, Women and Children's Issues of the Republic of Azerbaijan. *Azerbaijan Human Development Report 2007: Gender attitudes in Azerbaijan: trends and challenges*. 2007, Baku.
20. USAID. *Azerbaijan tuberculosis profile*. January 2009. www.usaid.gov
21. State Statistical Committee of the Republic of Azerbaijan. www.azstat.org, accessed August 2009.
22. UNICEF. www.unicef.org, accessed August 2009
23. Vatandoost H, Ashraf H, Lak SH, Mahdi RE, Abai MR, Nazari M. Factors involved in the re-emergence of malaria in borderline of Iran, Armenia, Azerbaijan and Turkey. *Southeast Asian J Trop Med Public Health*. 2003;34 Suppl 2:6-14.

24. UNFPA Azerbaijan. Azerbaijan.unfpa.org. accessed August 2009
25. HIV/AIDS Indicators Country Report Azerbaijan 2000 – 2006. http://www.measuredhs.com/hivdata/start.cfm. accessed August 2009.
26. Bradley J, Mursagulova N, Nosa M, Searing H. Supply and demand challenges to modern contraceptive use in Azerbaijan. *Eur J Contracept Reprod Health Care*. 2007; 12(2):175-83
27. Ministry of Health. *National malaria elimination strategy in Azerbaijan for the years 2008-2013*. 2008, Baku.
28. State Committee on Problems of Refugees and Internal Displaced Persons, 2007.
29. World Health Organization. World Health Statistics 2009.
30. Westoff CF et al. Recent trends in abortion and contraception in 12 countries. USAID, Claverton, 2005.

Chapter4. Islamic Republic of Iran



Iran demographic and socioeconomic status

Islamic Republic of Iran, comprising an area of over 1.648 million sq. km. (seventeenth in the world and is the fourth largest country in Asia), located in southwest Asia and is among the Middle East Countries. Iran is bounded by Armenia and Caspian Sea, Azerbaijan and Turkmenistan on the North, Afghanistan and Pakistan on the East, Persian Gulf and Sea Of Oman on the South, and Iraq and Turkey on the West. Iran's population is about 70 millions, including 29% rural and 71% urban residence. Dependency rate of the population is 28/72 (Population below 15 and above 64 divided by population between 15 and 64). Literacy rate for male and female above 6 years old are 83.5% and 70.4%, respectively. Life expectancies at birth are 71 and 69 years for female and male, respectively. The rank of Iran in human development ranking index 2007/2008 was 94.Shia Islam is the official religion and Persian is the official language. The country's economy is a mixture of central planning, state ownership of oil and other large enterprises, village agriculture, and small-scale private trading. Its economic infrastructure has been improving steadily over the past two decades but continues to be affected by inflation and unemployment. In the early 21st century the service sector contributed the largest percentage of the GDP, followed by industry (mining and manufacturing) and agriculture. In 2006, about 45% of the government's budget came from oil and natural gas revenues, and 31% came from taxes and fees. In 2007, the GDP was estimated at $206 billion ($852 billion at PPP), or $3,540 per capita ($10,840 at PPP). Iran's official annual growth rate is at 6%. Because of these figures and the country's diversified but small industrial base, the United Nations classifies Iran's economy as semi-developed. At the end of Iranian calendar year 1385 (2006), according to the Administrative, the country has 30 provinces, 293 districts, 885 cities, and approximately 68,000 villages. (1, 2 , 3 ,4,)

Figure 4.1- Iran map and its geographic status

Some demographic and socioeconomic indicators are shown in tables 4.1, and 4.2.

Table 4.1- Iran population distribution by age and sex-2008(5)

Age groups	Male	Female	Total	Percent
0-4	2801568	2662410	5463978	7.75
5-14	6261769	5955882	12217651	17.33
15-24	8954752	8783431	17738183	25.16
25-34	6498136	6280347	12778483	18.13
35-44	4593224	4417058	9010282	12.78
45-54	3178544	3099637	6278181	8.91
55-64	1649985	1702448	3352433	4.76
65-74	1220701	1096167	2316868	3.29
Over 75	707683	632040	1339723	1.90

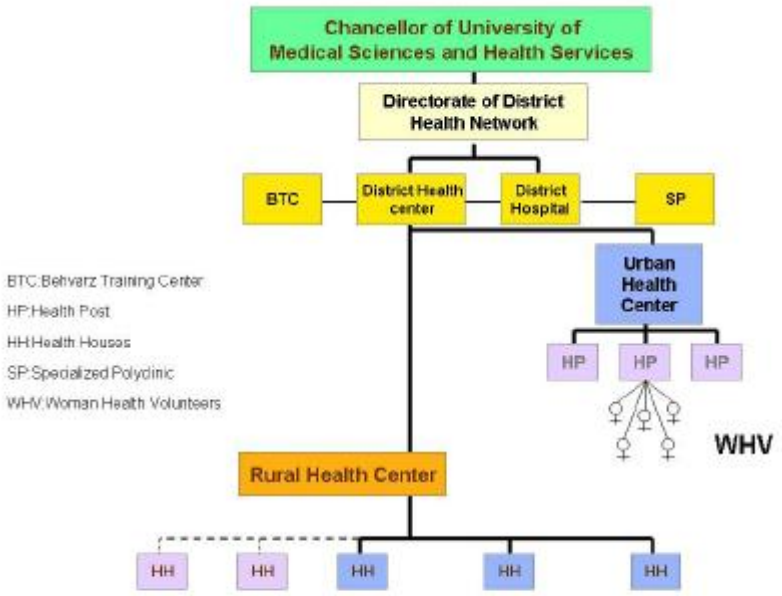
Table 4.2- Socioeconomic status and indicators of Iran

Indicators	Value	year	Reference
Crude Birth Rate(births/1,000 population)	17	2008	6
Total Fertility Rate	1.7	2008	7
Crude Death Rate(deaths/1,000 population)	6	2008	6
Life Expectancy at Birth	Total=71.4 M=69.65 F=72.72	2009	8
Adult Literacy Rate	Total=84 M=88.7 F=80.3	2006	9
Per Capita Income (US $)	3540	2007	10
Per Capita Income (PPP)	10840	2008	10
Human Development Index	0.759	2007	7
Total health expenditure as percentage of Gross Domestic Product	7.8	2006	11
Percentage of out of pocket expenditure to total health expenditure	41.9	2004	12
Percentage of governmental budget for health care to total government budget	10.3	2003	41

A brief summary of the country's health system

Primary Health Care (PHC) was the leading strategy for achieving WHO's goal of Health for All by the year 2000. The PHC network of Iran is an integrated health-care delivery system. The rural health centre is a village-based facility staffed by a general practitioner, several health technicians and administrative personnel, and has 1 —5 health houses under its supervision. The 'health house' is the most peripheral rural facility in the network, covering an average of 1500 people. Generally one male and one female villager known as 'Behvarz' work in each health house. Their principal duty is the provision of PHC services for the covered population. Every health house covers one or several villages (satellite villages). A village on the route to urban areas is accessible to a larger population, and is usually the site of establishment of the health house. (13) A schematic diagram of the PHC network is presented in figure 4.2.

Figure 4.2- The organization chart of health system in Iran (1)



In 2007 there have been 2306 health centers in urban and 2558 health centers in rural areas, and 17,151 health houses. In the year of this study, the country has had 799 health care centers (including hospitals, maternities, and sanatoriums) with 119,902 beds, of which 65% has been affiliated to the Ministry of Health. In the past three decades, the Islamic Republic of Iran has adopted a policy aimed at more strongly addressing the needs of its population, and substantial progress has been achieved both in the social and economic sectors. Since the revolution of 1979, a Primary Health Care network has been established throughout the country. In rural areas, each village or group of villages contains a Health House, staffed by trained "Behvarz" or community health workers – in total, more than 17,000, or one for every 1,500 inhabitants. These Health Houses, which constitute the basic building blocks for Iran's health network, are the health system's first point of contact with the community in rural areas .In addition, Rural Health Centers were put in place. They include a physician, a health technician and an administrator, and deal with more complex health problems. On average, there is one Rural Health Center per 7,000 inhabitants. In urban areas, similarly distributed urban health posts and Health Centers have been established. The whole network is managed and administered through District Health Centers, answerable to the Ministry of Health and Medical Education. The universities of medical sciences, of which at least one exists in each province, play an important role in medical education and in the provision of health services. The Chancellor of the university as executive director of the provincial health services is also in charge of all district health centers and hospitals.(13,40)

Country's health system findings and comments:

- As there is a suitable primary health care available in Iran, achieving major part of MDGs goals for health would be easily possible.
- Iran spends 6% of GDP or US$ 432 per capita on health that is higher than many countries in the Middle East and North African Regions. Between 1980 and 2001 the government spent between 10 and 12% of its annual national budget on health which is between 26 and

50% of the overall health spending of the country The government provides strong support to different health financing schemes to ensure that these are viable and able to provide a good level of coverage to the people.(13,40)

- Iran has high out-of-pocket expenditure in health and it is one of the major problems of health financing in Iran. From 1980 to 2001, High out-of-pocket expenditure has increased from 48% to 58% of the total health expenditure. (40)
- Nearly 100% of rural population has access to PHC services delivered in Health Houses and family physician in Rural Health centers. Urban coverage, although is less in percentage but is well Compensated by private outlets. (40)
- Iran has a well developed and active private sector; concentrated in urban areas and playing a major role in the provision of secondary and tertiary care. In the year 2002 it controlled 7.4% of health care centers, 10.2% of hospital beds, 37.8% of medical laboratories, 27.5% of rehabilitation facilities and 90.6% of drugstores. (40)
- The health indicators of Iran show a consistent improvement and now are near those for developed countries. The pattern of the burden of disease shows a definite shift towards non communicable diseases and is evidence that Iran has completed the epidemiological transition. However the burden of Road Traffic injuries is very high which indicates the need for a program addressing road traffic injuries. The Ministry of Health and Medical Education is the main policy making body in the country it has a directorate responsible for preventive programs and its performance has been very good in the recent years.(40)
- The Iranian health system is based on the model of public provision of services with subsidies coming through different organizations. At the national level, MOH is exercising the governance, policy-making, planning, financing and steering the programs. At the provincial level, the Universities of Medical Sciences and Health Services are responsible to provide health services and environmental health.(40)
- The health information system in Iran has problems. The information system mainly covers the primary health care network and is based on the data gathered from defined populations in rural. However, the expansion in PHC network did not keep pace with the growing urban population. The urban areas are not covered. This factor has led to the information system catering for about 40% of the population. The hospitals are not connected to the system. (40)

Methodology and visits:

The evaluation team conducted the evaluation based on these ways:

1. Reviewing documents available in journals, books, reports, and internet
2. Reviewing documents available from MOH in the country (published and unpublished sources)
3. Reviewing documents available from the UN Agencies in the country(published and unpublished sources)
4. meeting with experts in the country during the August 2009 and interview with related persons in MOH and UN agencies
5. Key informant interviews
6. discussion in expert groups about results and methods
7. Reviewing WHO and UN MDG-related documents and international and national related sources and services
8. arrangement and template planning for gathered data and analysis and assessment of the collected data
9. putting data in its related category and table and designing the best presentation methods
10. inserting related data and findings under each indicator's category
11. making proper recommendations related to each indicator's category according to the findings

Goal 4: : Reduce Child Mortality

4-1: Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.

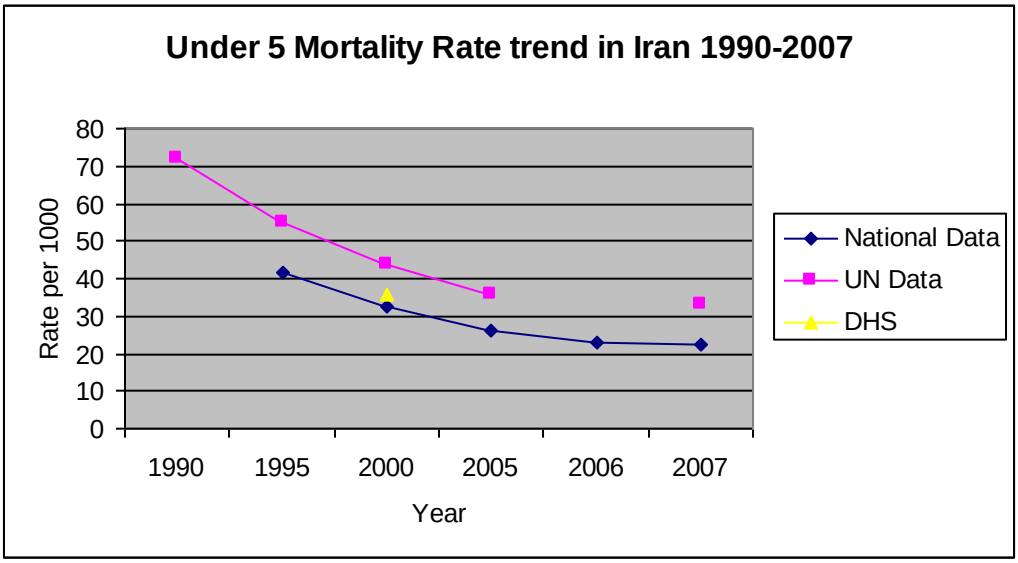
Country definition: the same

Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Table 4.3- Under-five mortality rate in Iran in different sources (1990-2007)

Years	Estimated for MDG by UN &UNICEF (17,19)	MOH& rural health report (14,1518)	DHS (16)	Subgroups / Inequity
1990	72			
1995	55	41.8		
2000	44	32.3	36	
2005	36	26.19		Tehran=13.9 Sistan7&balochestan=39.97
2006		22.81		
2007	33	22.53		Tehran=8.13 Sistan7&balochestan=32.11
Latest MDG Report 2003		39.7		

Figure 4.3- Under-five mortality rate in Iran in different sources (1990-2007)



4-2. Indicator: Infant mortality rate

Definition: The infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1,000 live births in a given year.

Country definition: the same

Target: Reduction of infant mortality rate by two thirds, between 1990 and 2015

Table 4.4- Infant mortality rate in Iran in different sources (1990-2007)

Years	MOH (14,18)	Estimated BY UN Site and Childinfo, UNICEF (17,19)	DHS (16)	Subgroups / Inequity
1990		54		
1991				
1992				
1993	37.2			
1994	32.7			
1995	33.1	43		
1996	30.2			
1997	31			
1998	27.2			
1999	28			
2000	26.7	36	18.3	
2001	25.2			
2002	25.1			
2003	24.2			
2004	22.2			
2005	20.8	31		Tehran=9.85 Sistan&balochestan=29.88
2006	19			
2007	18.9	29		Tehran=6.09 Sistan&balochestan=26.3

Figure 4.4- Iran IMR trend from 1990 to 2007

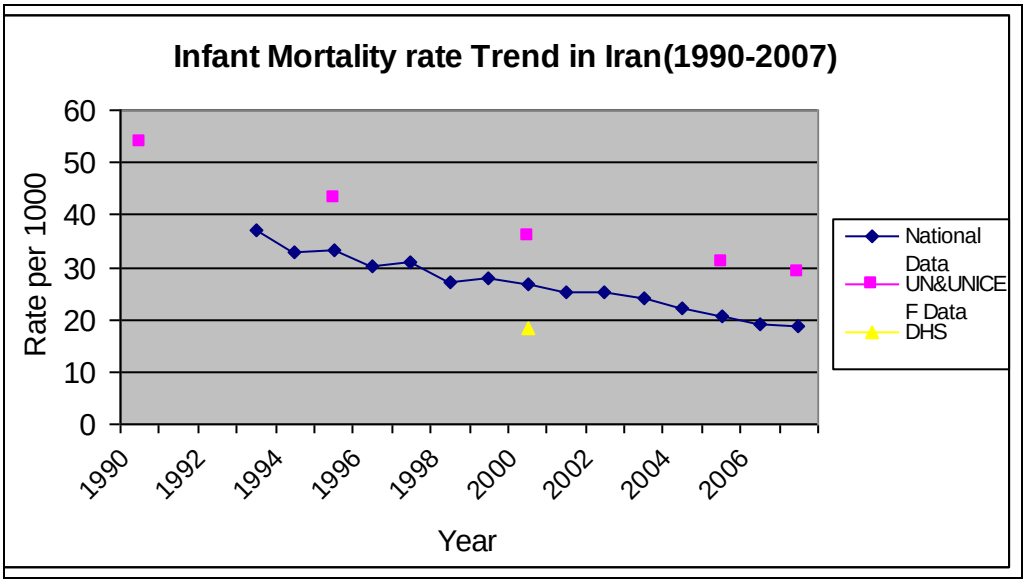
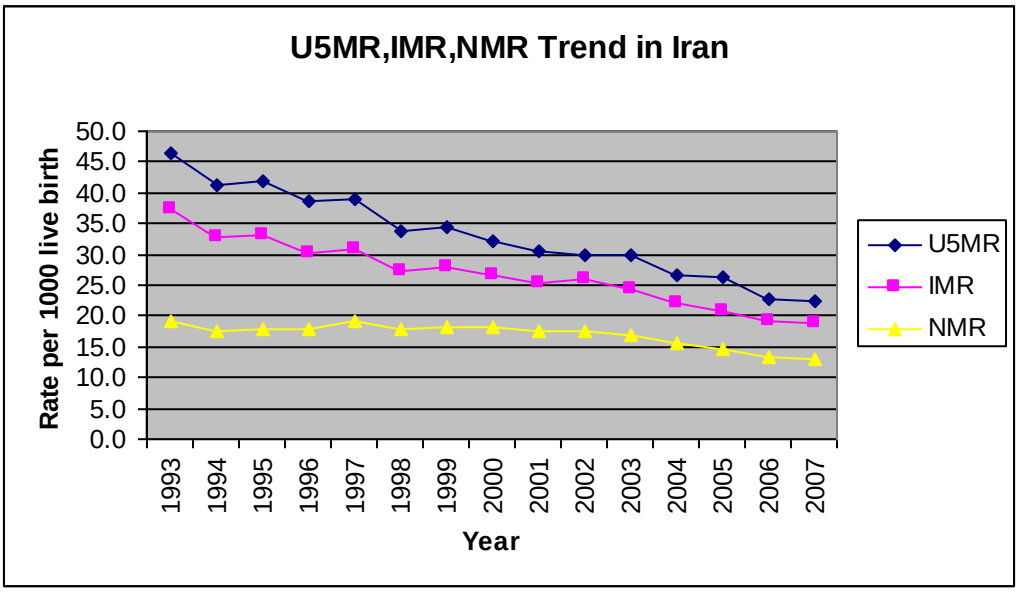


Figure 4.5- Iran U5MR, IMR and NMR trend from 1993 to 2007



4-3: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

Table 4.5- Proportion of 1 year-old children immunized against measles in Iran

Years	administrative (19)	DHS (16)
1990	85	
1991	84	
1992	96	
1993	96	
1994	97	
1995	95	
1996	99	
1997	95	
1998	99	
1999	99	
2000	99	85
2001	96	
2002	99	
2003	99	
2004	96	
2005	94	
2006	99	
2007	97	

Goal 4 findings:

There are some differences between MOH data, DHS result, UN and UNICEF estimations and other surveys for IMR and U5MR in Iran. Infant mortality rates and under 5 mortality rates as reported by the Ministry of Health in Iran are lower, compared to survey estimates for the same years.
According to different sources, Proportion of 1 year-old children immunized against measles indicator has always been higher than 94 percent since 2000, and it shows the good state of the indicator.
Under 5 mortality was measured in 2000 with DHS. Mortality rate is available for 1-59 months old children in recent two years: 5.9 per 1000 in 2007 (1386) and 5.2 per 1000 in 2008 (1387).

Goals 4 comments:

For monitoring and evaluating this MDG indicator (goals 4 of mortality indicators) a highly precise and valid information system is in fact one of the crucial needs in order to be used by all national and international organizations. It is possible through improving national information system or periodical surveys accepted by all experts and organizations. Proper access to up-to-date statistics on child mortality is also essential.
There are a few numbers of surveys and even studies that represent child mortality rate. DHS was performed just once in 2000 and there were no more studies after that to show a clear picture of the

indicator's status. It is recommended to extend studies concerning mortality and to perform national surveys (MICS&DHS) in reasonable intervals.
Although there is a good health service delivery and coverage in Iran's health system, there is not a proper data system for collecting and preparing recurrent reports with comprehensive coverage. It is suggested to establish a good information system for gathering data and preparing infant and under 5 mortality rate with an ample coverage both in urban and rural areas.
Extant data and expert's observations show that the majority of infant's death happens at initial periods of life and the main reasons are attention to prenatal care.
Though there isn't a suitable system for collecting data about infant's mortality, the data gathered from health houses in rural areas is a good source for measuring this indicator's goals.
For indicator of Proportion of 1 year-old children immunized against measles, based on existing data, indicator's goal is achieved and Iran doesn't have any problem reaching this goal. It is recommended to follow up immunization activities.
For indicator of Proportion of 1 year-old children immunized against measles, in order to evaluate vaccination quality and to prove available data, it is suggested to perform some serologic surveys of coverage based on a proper methodology every once in a while. Cluster sample survey can be used as an alternative.
As a high amount of infant mortality involves infants less than one-month-old, there should a plan for reducing infants' mortality.
In order to improve the quality of care in hospitals and health centers new technologies should be implemented.
Iran need to Identification of causes of infant mortality and establishment of a suitable mechanism for its prevention and control.
Iran need Outpatient emergency care network is completed.
Iran need Re-emerging and newly-emerging diseases are Managed and controlled.

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

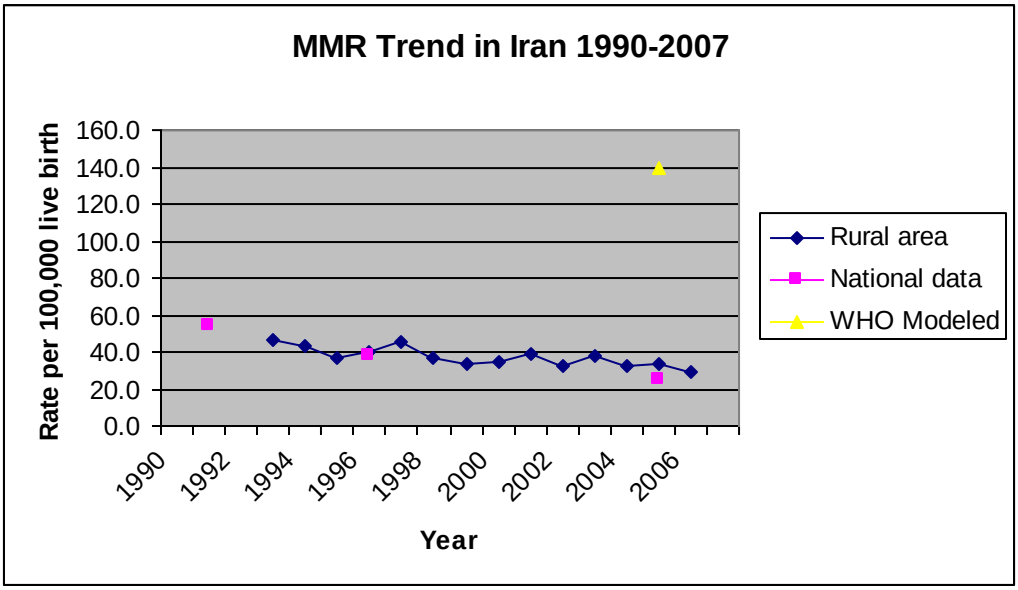
Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

Target 5. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Table 4.6- Maternal mortality ratio in Iran (1990-2007)

Years	vital statistics registries (14.)	WHO model (15)	Rural area (18)	Sub groups
1990				
1991	54			Rural=80 Urban=29
1992				
1993			46.5	
1994			43	
1995			36.3	
1996	37.4		40.5	Rural=54.5 Urban=37.4
1997			45.7	
1998			36.6	
1999			34	
2000			35	
2001			38.73	
2002			32.37	
2003			37.39	
2004			32.88	
2005	24.6	140	33.93	
2006			29.45	
2007			30.55	

Figure 4.6- Maternal Mortality ratio Trend in Iran (1990-2007)



5-2: proportion of births attended by skilled health personnel

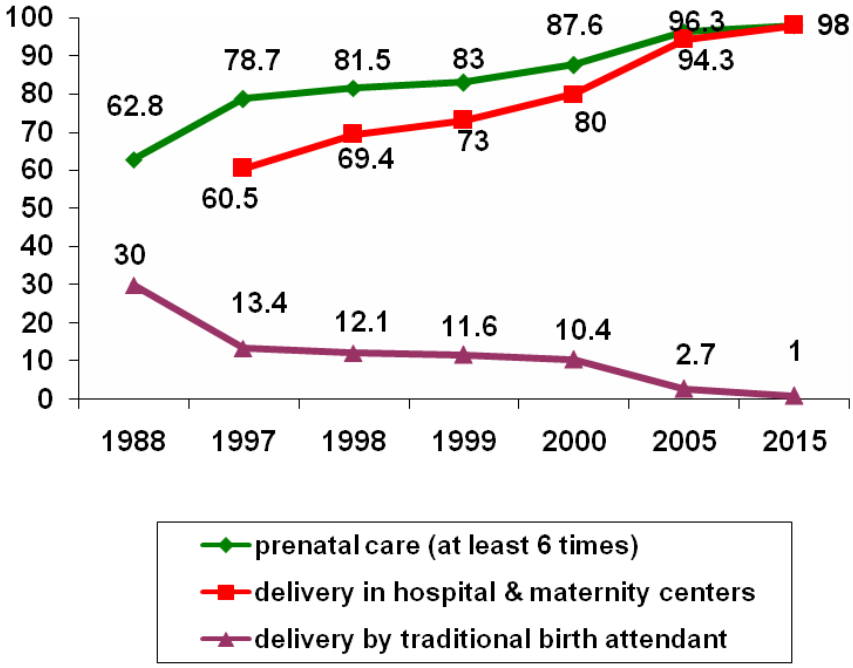
Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.

(Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.)

Table 4.7- Proportion of births attended by skilled health personnel (1997-2005)

Years	MICS,DHS 2000,IMES 2005 (14,15,16)
1997	86.1
2000	89.6
2005	97.3

Figure 4.7- Proportion of births attended by skilled health personnel (1997-2005)



Goal 5 findings:

1. In IR Iran in 1990 the MMR was between 75 and 90 per 100,000 births. Therefore the country's target is 18-22/100,000 births.
2. As the initial year for evaluation of MMR was considered 1990 (or 1369) in MGD, there was no study available in Iran in that year concerning Maternal Mortality Ratio. In order to evaluate MMR in 2015 (1394) the survey results of 1988 and 1991 (1367 and 1370) were used. A survey, including one percent of country's population, was conducted in 1988 (1367) to evaluate health and population criterions. According to this survey the Maternal Mortality Ratio through all the country was 90.6 per 100,000 live births. Again, in 1991 the same survey was conducted with similar method and MMR was estimated as 54 6 per 100,000 live births in all the country parts. As it didn't sound logical to have a reduction of 91 to 54 through three years, the criterion number of MMR in 1990 (1369) was assumed as 75 to 90. According to Millennium Development Goals this criterion must reach the number of 18 to 22 per 100,000 live births by 2015. (14, and 37)
3. The precise level of maternal mortality is not accurately known. While the Ministry of Health reported for 2005 a figure of 24.6 maternal deaths per 100,000 live births other available data suggest far higher levels ranging from 140 based on UN modeled.
4. 97 percent of childbirths are in hospitals. The percentage of unskilled **births attended** is significantly decreasing, i.e. it reduced from 10.4% of all childbirth in 2005 to 2.7% in 2005. This criterion has a high level in Iran in such way that even in rural area it was 95.56 in 2007. One of the successful programs in Iran concerning this criterion is the administration of some programs like training experienced midwives in rural area. Paying attention to midwife and child delivery services can take an important role in reducing hospital deaths. (20,16)
5. The coverage of prenatal care services in Iran is high .prenatal care of at least 6 times in was 94.3 percent in 2005. In addition the coverage of postnatal care (at least twice) changed from 31% in 2000 to 87% in 2005. (20,16)

6. In 1997 from all maternal deaths, 43 percent happened in hospitals. But in 2005 it reached 82 percent. During these years the number of hospital deliveries had increased as well (from 78.8 percent in 1997 to 96.3 in 2005). It shows that the development trend in the country caused an increase in availability of hospital services for mothers and it makes it essential to pay more attention to the services provided in hospitals. (37,36)

7. In 2001 the National Maternal Mortality Surveillance System was launched, replacing the Reproductive Age Mortality Survey, which had been in place since 1996. Its purpose is stated to be: investigation of reported cases, detecting preventable factors in each case, designing and implementing interventions in the health system or community, gathering data to assess the impact of interventions, and preventing similar death in future.Since this system began, the number of maternal deaths has hardly changed From then on, numbers have been steady (fluctuating between 273 and 332). In 2001 the number reported was 222 and in 2002 it was 308 in 2003 it was 332 and in 2004 it was 278 and in 2005 it was 295. and the total for 2007 was 318 deaths .also A multi-source death registration system began in 1997 and now covers all provinces.(14,36,37)

Goal 5 Comments:

1. The researchers of this report believe that with the current trend we can expect to reach the goals of this program by 2015.
2. The Maternal Mortality Ratio (MMR) in IR Iran is estimated by some international bodies as 140/100,000 births. The Ministry of Health declares it as 24.9/100,000 but there is the probability that it is not fully the correct number and the best source of maternal deaths should be clarified.
3. health ministry should be acute about MMR through proper methods and strategies to clarify the presented statistics in order to be used as an authentic source of MMR in Iran.
4. The recommendations of the Maternal Health Committee should be published annually, widely disseminated and targeted at specific groups.

5. A 97 percent of deliveries are in hospitals in Iran and following the process of standardization of common cares and non-hospital maternal cares, in order to achieve MDGs, it is recommended to standardize professional cares of pre-partum, pregnancy, delivery, and post-partum in hospitals for experts and other health care providers in the form of Mother-friendly hospitals. The goal is to improve the quality of hospital services especially in Maternal and Midwife emergencies in the form of some classes for mothers to be prepared for delivery.(۳۶و۳۷)
6. If following strategies would be taken in Iran the decreasing trend of maternal deaths continues:
   - SDH insight toward Maternal Mortality
   - Improvement of hospital services
   - Improvement of non-hospital services in Maternal and Midwife emergencies
   - Increasing the coverage and quality of Reproductive Health (including Family Planning) services for vulnerable mothers
   - Facilitation of Maternal and Midwife emergencies services
   - Increasing the awareness of people about Maternal and Midwife emergencies and making it necessary to use the services delivered at health centers(37و36)

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 6: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

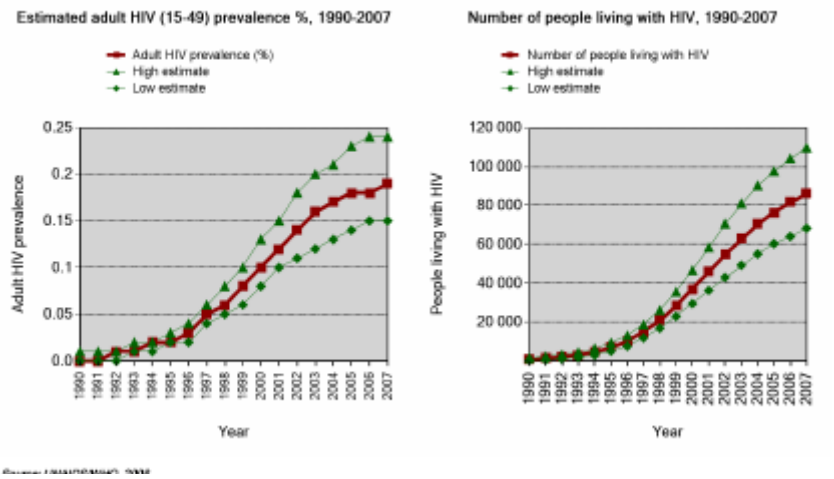
Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

Table 4.8- HIV/AIDS indicators related to indicator 6-1 in Iran

Years	New Cases of HIV/AIDS (24)	Total number of people infected with HIV (24)	People living with HIV, 15-49 years old, percentage-Estimated (15)	AIDS deaths Estimated (15)
Before 2000	2427			
2000	548			
2001	1527		0.1	1000
2002	1720			
2003	2327			
2004	3116			
2005	2310			
2006	1881			
2007	1941			
2008	1086	18881	0.2	4300

It is estimated by WHO that less than 0.1 percent of women aged 15-24 are infected with HIV. However the researchers of this report didn't attained and published information about this subject.

Figure 4.8- Epidemiologic fact sheet on HIV and AIDS-iran-2008 UNAIDS (23)



6-2:Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

Definition &Method of computation for computation:

Definition: Ratio of condom use to contraceptive prevalence. It is expressed as a percentage of all current contraceptive use among married women 15-49 years old.
Method of computation:

$$\text{Condom use ratio} = \frac{\text{Contraceptive prevalence, condom use}}{\text{Contraceptive prevalence}} \times 100$$

Contraceptive prevalence, condom use is the percentage of women married or in-union aged 15 to 49, whose sexual partner is currently using a male condom.
Contraceptive prevalence is the percentage of women married or in-union aged 15 to 49, who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used.

Table 4.9- Condom use rate of the contraceptive prevalence rate in Iran

Years	source	
	DHS (16)	Routine Reports (16,33,34,35)
1992		9.9
1997		7.4
2000	7.99	7.6
2001		
2002		8.2

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

Condom use at last high-risk sex .This indicator, for researchers of this report, was not available.

According to the below references which were published in 2007(1386), there was no information preceding this year to be generalized for all country.

1. health ministry; second report of Islamic Republic of Iran about monitoring commitment declaration passed in exclusive UN assembly concerning HIV/AIDS; Andishmand publication; 1386 (21)
2. health ministry of health; second report of Islamic Republic of Iran about monitoring commitment declaration passed in exclusive UN assembly concerning HIV/AIDS; control disease center; 1385 (22)

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

This indicator was not calculated

According to the below references which was published in 2007(1386), there was no information preceding this year to be generalized for country.

1. health ministry; second report of Islamic Republic of Iran about monitoring commitment declaration passed in exclusive UN assembly concerning HIV/AIDS; Andishmand publication; 1386(21)
2. health ministry of health; second report of Islamic Republic of Iran about monitoring commitment declaration passed in exclusive UN assembly concerning HIV/AIDS; control disease center; 1385(22)

3. in Iran's MDG 2006 Report there is a similar report about this criterion which is a little different from the definition of given criterion.
4. "In 2004, *percentage of population aged J*5-24 *years with comprehensive correct knowledge of HIVIAIDS* (Indicator 19B) had increased to 8.6 percent, at least twice the number reported for 2003 (4.09 percent). For awareness-raising in this regard, 6hours of learning has been introduced for the first year of upper secondary. Similarly, life-skills based HlV*I*AIDS education has been initiated in lower secondary on a limited basis.(27)"

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

Table 4.10- Contraceptive prevalence rate in Iran

Years	Contraceptive prevalence rate (15)	DHS (16)	Routine reporting From Rural are (18)
1992	64.6		
1994	72.2		
1996	74.2		
1997	72.9		
2000	73.8	73.8	
2002	73.3		
2004			66.2
2005			66.9
2006			66.58
2007			66.17

6-6: Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

There is no data available in Iran about Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years in Iran. In fact, like other countries in this region, it is not a good and proper indicator for HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population

Goals 6 (HIV/AIDS) Findings and comments:

Registered HIV/AIDS cases in Iran up to the end of 2008: 18881 HIV/AIDS infected people have been diagnosed from which 93.5% are male and 6.5% are female. Up to now, 1730 AIDS cases have been found and 2945 infected people died.
39.6% of HIV infected people are among the age group of 25-34 years old people which is the highest level among different age groups. From all registered cases in the country from 1984, the main causes are respectively:

1. Using shared injecting tools among IDUs (69.3%)
2. Sexual intercourse (8%)
3. Using blood products (1.3%)
4. Mother to child transmission (0.6%)
5. Unknown transmission way (20.8%) (23)

- Recently years the trend of transmission has changed from intravenous drug users to high-risk sexual behavior. The threat of AIDS spread through sexual contact requires a new element to be introduced into contraceptive education and FP practice. This threat may also break with established methods by extending contraceptive advice to a larger constituency. A large cohort of the population is entering the reproductive age, and increased services will therefore be required to promote sexual health and responsible behavior among these adolescents.
- People cannot afford to get married so young, and are getting married older. The gap is being filled by more prostitution. In our culture we have a problem with high-risk behavior and extra-marital sexual activity
- Iran has an intense epidemic of HIV among IDUs which it means prevalence is always over five percent in at least one defined sub-population but it is below one percent in pregnant women in urban areas
- Reported HIV prevalence among IDUs varies from 6.1% to 24% (CDC, 2005).
- Because of high prevalence of drug injection, particularly among the prison population halting and reversing the HIV/AIDS epidemic by 2015 is one of the major challenges in Iran.
- The strongest weapons for controlling the problem are public discussion, dissemination of information, reducing discrimination, and anti-retroviral treatments. The priority challenge in this context is to provide the appropriate information about the avoidance of infection to adolescents.

- One of the Major challenges for the field is a long way that the country still has to go to assure comprehensive and right-based HIV/AIDS care for all its citizens, especially the vulnerable and the historically marginalized people. Active involvement of policy makers, religious authorities, health care workers, and most outstandingly "real" people in the society, is essential. Stigma is one of the main important challenges in this region.

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 4.11: Prevalence and death rates associated with malaria in Iran (1990-2007)

Years	Number of Malaria cases (26)	Incidence per 100,000 (27)
1990	77470	
1991	96340	
1992	76971	
1993	64581	
1994	51089	
1995	67532	
1996	56362	94
1997	38684	63
1998	32951	53
1999	23110	37
2000	19716	31
2001	19274	30
2002	15558	24
2003	23562	35
2004	13821	20
2005	18966	30
2006	15909	23
2007	15712	23

- For introducing the indicators of 6-7, three measures are usually used in different sources of MDG monitoring and evaluation and also MDG reports taken from different countries:
  - Malaria incidence rate per year in the country
  - Number of malaria cases per year in the country
  - Death rate

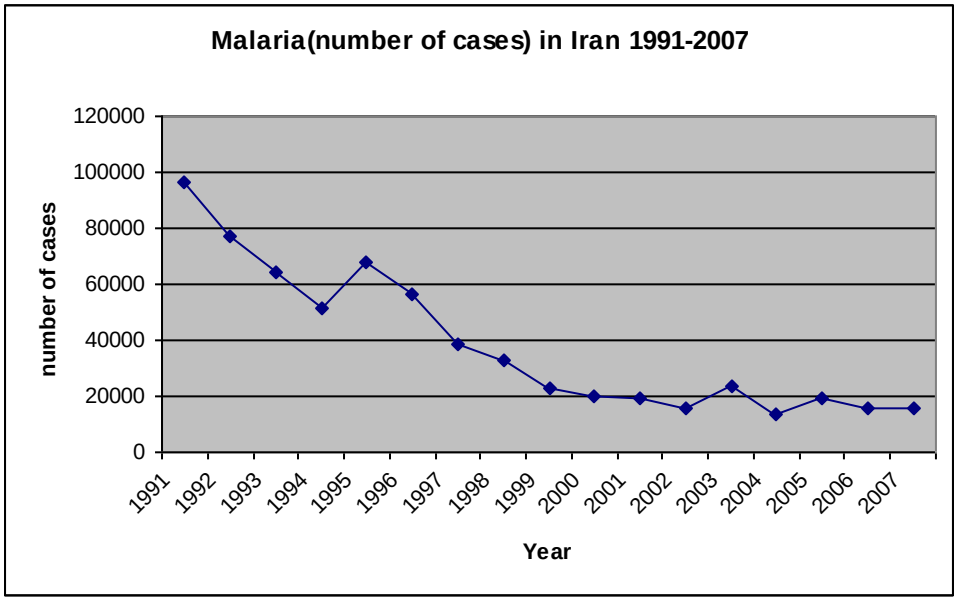


Figure 4.9- "Malaria reported case in IR Iran,1991-2007" (16,26,27)

Deaths caused by malaria are rare, as it was only one in the last MDG report.
"Number of malaria deaths (Indicator 21A) in Iran had been one reported death in 2005 (27)"

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

- There are two measures for introducing this indicator:

1. Children under 5 sleeping under insecticide-treated bed nets, percentage
2. Children under 5 with fever being treated with anti-malarial drugs, percentage

There isn't any data for Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures in Iran. Of course in second MDG report there is this information: "Based on the most recent studies carried out and also routine surveillance proportion of population in malaria risk areas using effective malaria prevention (the proportion of protected at risk population through IRS is >80% and treatment coverage is >95% (27)

Goals 6 (Malaria) Comments:

- Malaria is one of the major public health problems in Iran. The main malaria endemic areas of Iran are located in the south-eastern part of the country, consisting of three provinces: the Sistan and Baluchistan province, the Hormozgan province and the tropical part of Kerman province with a combined population of approximately 3 million and this region is considered to be "refractory malaria region". The south-eastern provinces of Iran are less developed compared with the other parts of Iran; they are bordered in the east by

Afghanistan and Pakistan; besides these two factors the ecologic and whether condition all together intensify the problem of malaria.

- Illegal traverse over south-eastern borders especially by afghan and Pakistani people, behavior changes of parasite transmitters, reactivation of non-active centers, shortage of skilled personnel are some of the problems confronting malaria control in disease localized regions.
- As Pakistan's malaria epidemic especially at Baluchistan state has a negative impact over Sistan and Baluchistan province, this disease can not be completely eliminated unless malaria control program gets improved in Pakistan.
- malaria control in Iran is possible when it would be controlled in neighbor countries so it is recommended to perform malaria control programs together with these countries
- Iran should be able to control and eliminate malaria in all its regions
- According to Iran's strategic approach, main strategies for malaria control are:
  1. facilitating the process of accessing diagnostic and treatment services for vulnerable population
  2. improving the process of accessing preventive services for vulnerable population
  3. supporting and strengthening malaria control program in the case of critical epidemic incidences
  4. supporting countries and elevating the capacity of malaria control program in national and provincial levels with the cooperation of other concerned groups
  5. supporting countries to develop and protect malaria-eliminated regions and eliminating malaria wherever it is possible
  6. strengthening systems of malaria controlling, monitoring and evaluation and applied research(28)

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 4.12- TB prevalence, incidence and death rates in Iran

Years	Tuberculosis incidence rate per year per 100,000 – estimated (15)	Notification rate New TB Cases per 100000 Incidence Surveillance of MOH: (30)	Tuberculosis prevalence rate per 100,000- Modeled-estimated (15)	Tuberculosis death rate per year per -100,000- modeled (15)
1990	35.8		49.6	4.2
1991	37		51.3	4.3
1992	40.6		56.2	4.7
1993	38.7		53.6	4.5
1994	39.7		55	4.6
1995	39.7		54.9	4.6
1996	38.9		61.1	4.5
1997	34.6		52.5	4

Years	Tuberculosis incidence rate per year per 100,000 – estimated (15)	Notification rate New TB Cases per 100000 Incidence Surveillance of MOH: (30)	Tuberculosis prevalence rate per 100,000- Modeled-estimated (15)	Tuberculosis death rate per year per -100,000- modeled (15)
1998	32.3		45.3	3.8
1999	31.2		40.8	3.7
2000	30.9	18	39.5	3.6
2001	30.1	18	38.4	3.5
2002	29	17	37.1	3.4
2003	27.4	16	35.1	3.2
2004	25.2	15	32.4	3
2005	23.7	13	30.6	2.8
2006	22.7	13	28.8	2.7
2007	21.7	13	27.4	2.6

Following points are noteworthy about this indicator:

1. For introducing this MDG indicator in different TB reports and monitor and evaluations of MDG, four indicators from TB program are used:
   a. TB incidence rate
   b. TB prevalence rate
   c. TB death rate
   d. Notification rate
2. All these four measures are presented in above table and below graphs.
3. Three first measures in above table are determined by World Health Organization or through modeling. Notification rate is determined according to national surveillance.
4. TB incidence, prevalence, mortality and notification rates have decreased significantly from 1990 to 2006 in Iran.

There is a great difference between notification rate and the estimated incidence rate by World Health Organization. In general, one of the problems in this country is the lower rates of diagnosis cases comparing with estimated rates.

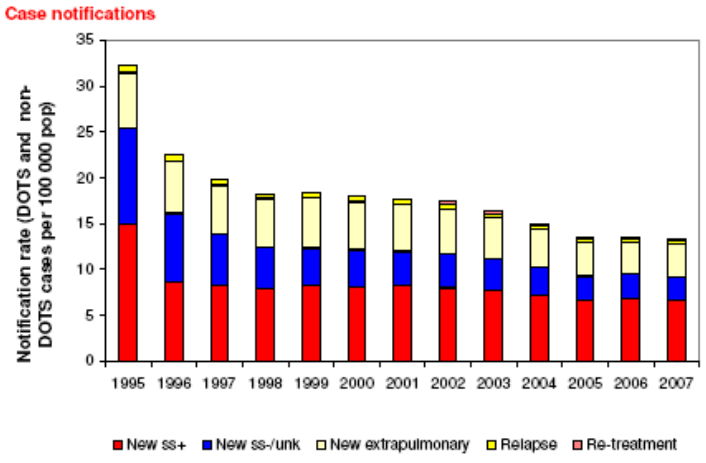


Figure 4.10- TB notification rate per 100000 in Iran (30)

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Table 4.13- Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Years	case detected rate All forms (30)	DOTS coverage (30)	case detected rate Smear positive (30)	Tuberculosis treatment success rate under DOTS, percentage Country data (15)	Tuberculosis detection rate under DOTS, percentage Estimated (15)
1990					
1995					42.3
1996				86.7	
1997				84.4	12.2
1998				82.7	35.4
1999				81.7	54.2
2000	56	96	59	85.3	58.4
2001	57	100	61	84.5	61.4
2002	57	100	61	85.2	61.3
2003	57	100	62	84.1	62.3
2004	57	100	63	83.6	63.3
2005	54	100	62	82.5	62.3
2006	57	100	67	83	67.4
2007	59	100	68		68.1

For introducing this indicator there are some measures which are presented in the table. These measures are:

a. case detected rate (All forms)
b. case detected rate (Smear positive)
c. Tuberculosis detection rate under DOTS, percentage(Estimated)
d. Tuberculosis treatment success rate under DOTS, percentage (Country data)
e. DOTS coverage

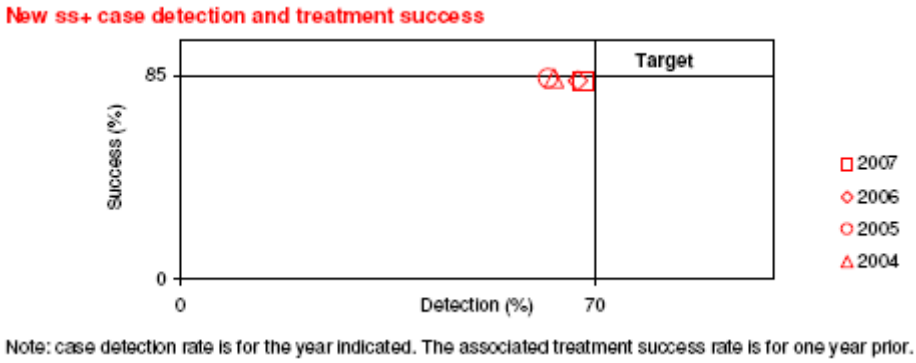


Figure 4.11- new smear positive case detection and treatment success (30)

Goals 6 (Tuberculosis) Comments:

1. Considering above tables and graphs, it is feasible to achieve tuberculosis indicator goals in Iran.
2. According to Iran and WHO reports, this country had achieved the goal of 100 percent coverage of DOTS and most other indicators. In this step, quality improvement and elevation must be considered.
3. There is a decreasing trend in TB notification rates from 143 per 100,000 [1964] to 13 per 100,000 [2006]. The latest estimated incidence rates are 23 per 100,000 for all forms of TB and 11 per 100,000 for smear positive pulmonary TB (WHO Global TB Report 2007).(32)Even yet TB affects around 16,000 people and kills around 2,000 people every year in Iran.
4. TB is increasingly concentrated in certain vulnerable populations in the community includes: populations include those who live in the 7 provinces, Patients suffering from MDR-TB, prisoners and people living with HIV/AIDS are vulnerable populations. (32)
5. Some points about Vulnerable group for tuberculosis in Iran are below:

   1- Vulnerable populations include those who live in the 7or 8 provinces in the southern and eastern part of Iran. These provinces account for 50% of TB cases in Iran but comprise only 23% of the total population (16.6 million). The incidence of TB is at least double the national average in these provinces, even in one of them 10 times more.(32)

   2- MDR-TB cases are also a vulnerable group in Iran. Although the only DRS conducted in Iran in 1997-8 has been seriously biased. It should be mentioned that the number of confirmed MDR-TB cases detected in 2006 was 31 (which nearly half of them were Afghan). These cases start MDR-treatment only at one specialized center which is located in Tehran, and thus patients with MDR-TB do not always have good access to MDR care, particularly diagnostic services. (32)

   3-Prisoners: the notification rate of TB has always been extraordinary high among prisoners. The data OF 2005 indicated that out of around 200,000 prison populations in Iran, there were 350 cases of TB (in 2005). This means the notification rate is around 175 per 100,000 populations. TB incidence rate among prisoners is at least 5 times higher than the national average. HIV-TB co-infection is an important problem, particularly among IDUs. (32)

   4-People living with HIV/AIDS (PLWHA) are also vulnerable populations. HIV/AIDS is at the concentrated level of epidemic in Iran . TB is the leading causes

of opportunistic infection among PLWHA. Although HIV sero-prevalence study has not yet been conducted among TB cases (it is in the process), but based on the routine reporting system, 1.8% of newly diagnosed TB cases in 2005 (173 case) were HIV positive. (32)

6. Some countries are complaining about unreal estimations by world health organization. ECO secretariat can support them technically and directly through applying good methodology for TB incidence estimation. Indicators of TB diagnosis rate and especially smear positive TB arte have been always less than estimated rates.
7. Although there is a good data collection system in Iran for TB program, it is not used properly for preparing reports and doing research projects.
8. TB program should be administered appropriately for HIV/AIDS people.

References

1. Hossein Malekafzali, MD, PhD, Kourosh Holakouie Naieni, Parvin Tajik,Ghobad Moradi, Anahita Enzevaie, Ahmadreza Shamshiri,External Evaluation of the 1st Phase of GFATM HIV/AIDS Project in Iran2005-2006, Institute of Public Health Research (IPHR),2009
2. The framework document of the Global Fund to AIDS, TB and malaria. Geneva :GFATM, 2001.
3. Al, Abbasi et. Country report for family planning health activities. s.l. : UNFPA, 2009.
4. CIA World Fact book. ""Iran"". https://www.cia.gov/library/publications/the‐worldfactbook/ geos/ir.html. Retrieved on 2008‐03‐04.
5. statistics Web Site, available at: http://www.sci.org.ir/portal/faces/public/sci/
6. BUCEN-IBD. (Bureau of the Census Inter-American-Development Bank)
7. Un data-http available at http://data.un.org/
8. CIA World Fact book available at:https://www.cia.gov/library/publications/the-world-
9. factbook/geos/ir.html World Bank/WDI Database-2007
10. Un index:http://www.who.int/countries/
11. World Bank/WDI-2006
12. Philip Musgrove,1 Riadh Zeramdini,2 & Guy Carrin3- Special Theme -Basic patterns in national health expenditure– Bulletin of the World Health Organization 2002, 80
13. Movahedi M, Haghdoost AA, Pournik O, Hajarizadeh B, Fallah MS. Temporal variations of health indicators in Iran comparing with other Eastern Mediterranean Region countries in the last two decades. Journal of Public Health. 2008.
14. Mministry of Health, IR Iran. Personal communication, August and September 2009
15. MDG goals indicators available at http://mdgs.un.org/unsd/mdg/Data.aspx
16. Iran DHS 2000 report ,2001,MoH&UNICEF
17. Child info,UNICEF,Available at: http://www.childinfo.org/mortality_underfive.php
18. RURAL HEALTH SYSTEM REPORT(ZIJE HIATI),2009,Moh
19. Source: emro http://www.emro.who.int/vpi/measles/coverage.htm -Source of data is the WHO/UNICEF joint reporting form
20. IRAN IMES 2005
21. health ministry; second report of Islamic Republic of Iran about monitoring commitment declaration passed in exclusive UN assembly concerning HIV/AIDS; Andishmand publication; 1386
22. health ministry of health; second report of Islamic Republic of Iran about monitoring commitment declaration passed in exclusive UN assembly concerning HIV/AIDS; control disease center; 1385

23. UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance ,Epidemiological Fact Sheet on HIV and AIDS Core data on epidemiology and response 2008 Update Iran (Islamic Republic of), Unaids, unicef, WHO
24. HIV/AIS STATISTICS IN IRAN,CDC,2009(1388)
25. UNAIDS Website
26. UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance ,Epidemiological Fact Sheet on HIV and AIDS Core data on epidemiology and response 2008 Update Iran (Islamic Republic of), Unaids, unicef, WHO.
27. Epidemiological situation in emro countries, World malaria annual report, available at: http://www.emro.who.int/rbm/epidemiology
28. Secound Iran MDG s goals report,2008,
29. Strategic Malaria Program ,CDC,2009
30. TB country profile Estimated TB prevalence from WHO SITE country profile From WHO website and http://www.indexmundi.com/iran/tuberculosis-morbidity.html
31. TB WHO country profile available at: http://apps.who.int/globalatlas/predefinedReports/TB/PDF_Files/irn.pdf
32. TB global fund proposal available at:http://www.theglobalfund.org/programs/country/?lang=en&CountryId=IRN
33. 1992 Knowledge, Attitudes and Practice Surve
34. 1997 Knowledge, Attitudes and Practice Survey
35. Socio-economic Survey of Iranian Households
36. J.O. Drife, MD FRCOG FRCPE FRCSE,,REPORT BY EXTERNAL CONSULTANT PROFESSOR JAMES DRIFE TO THE WORLD HEALTH ORGANISATION ON MATERNAL MORTALITY SURVEILLANCE SYSTEM IN THE ISLAMIC REPUBLIC OF IRAN, 2008
37. Goal 5 – improvement of maternal health through pregnancy health, Maternal office, 2009
38. World Health Statistics 2008,Avalable at: http://www.who.int/countries/irn/en/
39. Seyed Enayatollah Asaei, UNICEF Iran's specialist for early childhood development (http://www.unicef.org/iran/media_4427.html))
40. Health Systems Profile- Islamic Republic of Iran, Regional Health Systems Observatory-EMRO,2006
41. www.rpi.edu/~hugheg/ssme/Health_financing_data.xls

Chapter 5. The Republic of Kazakhstan

Kazakhstan demographic and socioeconomic status

Republic of Kazakhstan is located in central Asia as the council of Eastern Europe. It has a territory 2,7249,00 square kilometer but only 15,776, 492 inhabitants, i.e. 5.6 person per square kilometer. In this case, Kazakhstan has one of the least population densities all around the world.

It is neighbored clockwise from the north by Russia, China, Kyrgyzstan, Uzbekistan, Turkmenistan, and also borders on a significant part of the Caspian Sea. The capital moved in 1997 to Astana from Almaty, Kazakhstan's largest city.

Figure 5.1-Kazakhstan subational devitions and the most important cities

Kazakhstan is ethnically and culturally diverse. Kazakhs are the largest group. Kazakhstan allows freedom of religion, and many different beliefs are represented in the country. Islam is the primary religion. The Kazakh language is the state language, while Russian is also officially used as an "equal" language (to Kazakh) in Kazakhstan's institutions.

There are 16 administrative regions in the country, included 14 oblasts (Provinces), and two cities, included Astana and Almaty (Figure 5.1).

In 2007, the country female to male ratio was 1.078. About 60% of the people are less than 34 years old, which indicated a young population structure. You can see the population structure in details in Table 5.1.

Table 5.1- Population of Kazakhstan in 2009 by sex and age group

Age group	Male	Female		Total	Percent	Cumulative Percent
under 1	179,571	170,511		350,082	2.22	2.22
1-4	595,273	564,931		1,160,204	7.35	9.57
5-14	1,175,921	1,123,866		2,299,787	14.58	24.15
15-24	1,536,377	1,492,648		3,029,025	19.2	43.35
25-34	1,244,549	1,251,377		2,495,926	15.82	59.17
35-44	1,033,781	1,100,696		2,134,477	13.53	72.7
45-54	931,119	1,075,262		2,006,381	12.72	85.42
55-64	484,122	640,439		1,124,561	7.13	92.55
65-74	293,927	488,510		782,437	4.96	97.51
Over 75	115,911	277,701		393,612	2.49	100
Total	**7,590,551**	**8,185,941**		**15,776,492**	**100**	

Source: *Agency for Statistics of the Republic of Kazakhstan, 2007*

The most important development / Health indicators of Kazakhstan are presented in Table 5.2. Women had an expectancy of being alive at birth to 72.43 years which is about 10 years more than men. Surprisingly in 1999, more than 99% of the population was literate.

Generally, Kazakhstan is middle to high income country which is obvious from the Per Capita income of 2536$. It means that in compare to other countries, Kazakhstan has a 62nd rank in the World Bank list 2008.

The country human development index is equal to 0.810 in 2007.
As a general view, about 10.7% of total governmental budget is spent for health care activities.

Table 5.2 - The recent most important development indicators, Kazakhstan

Indicators	Value	Year	Ref.
Crude Birth Rate	22.75	2008	(1)
Total Fertility Rate	2.68	2008	(1)
Crude Death Rate	9.74	2008	(1)
Life Expectancy at Birth **Men** **Women**	 61.91 72.43	2008	(1)
Adult Literacy Rate **Men** **Women**	 99.8 99.3	1999	(1)
Per Capita Income (US $)	2536	2008	(1)
purchasing poverty power (PPP)	11,314	2008	(1)
Human Development Index	0.810	2007	(1)
Total health expenditure as percentage of Gross Domestic Product	2.5	2005	(2)
Percentage of out of pocket expenditure to total health expenditure	35%	2006	(3)
Percentage of governmental budget for health care to total government budget	10.7	2008	(1)
Government health expenditure per capita	214USD	2006	(4)

Source: *Agency for Statistics of the Republic of Kazakhstan*

A brief summary of the country's health system

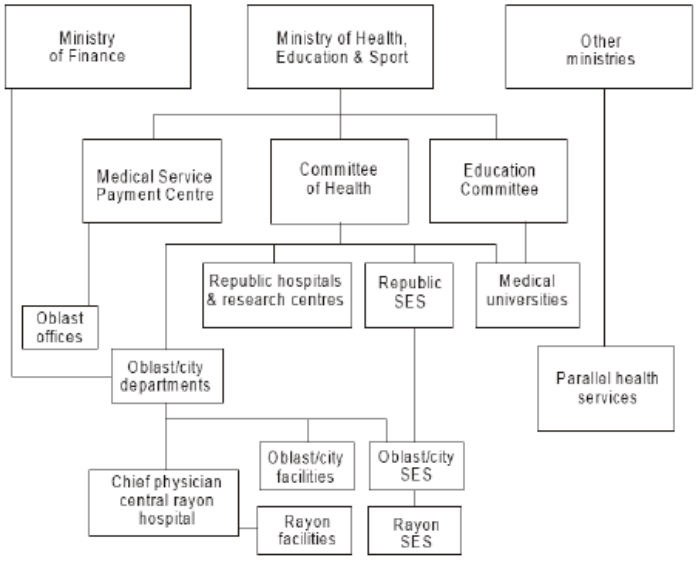


Figure 5.1- Health care system - main chart

There are 16 administrative regions in the country, included 14 oblasts (Provinces), and two cities, included Astana and Almaty. The budgets provided from two different sources, Republication and local sources.
The Committee of Health is the top of the health system hierarchy. It's the major policy maker in health system in Kazakhstan (5). Beside this, all the health care services have been done by oblast departments (Figure 5.1). 14 oblast and 14 city health departments are the key bodies in health system and they run the hospitals and polyclinics. In the oblast, the administration is run by Akims (governors).

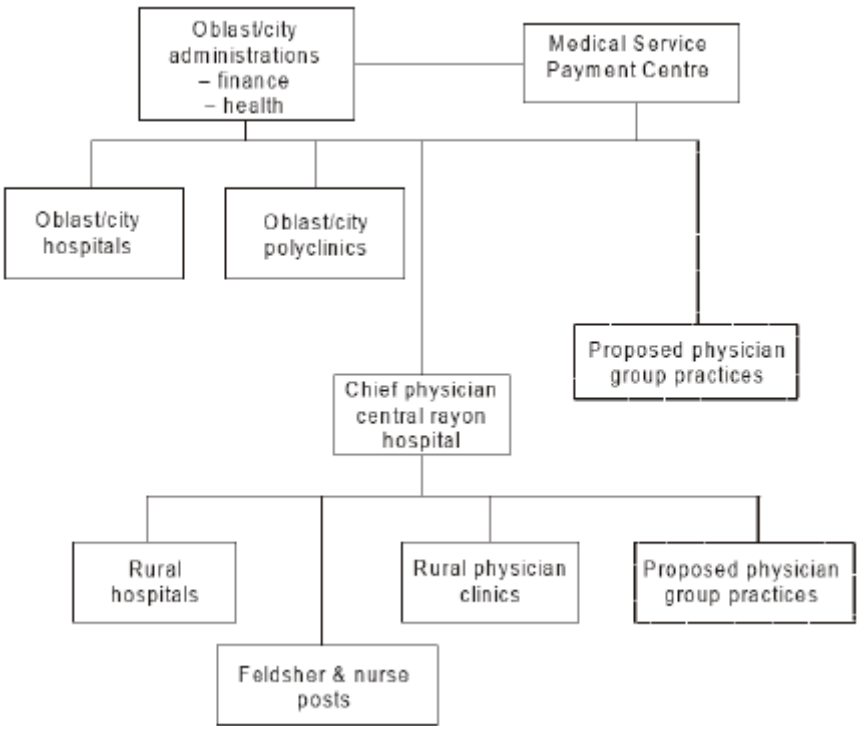


Figure 5.2- Regional and local health care system

The governmental revenue and local sources both together provide the resources for health departments. Rayons (districts) are the subdivision of the oblasts. The management of basic primary and secondary health care is delegated to chief physician of the central rayon hospital. Health care has been delivered somewhat differently in rural and urban areas. In rural areas, primary care is delivered through feldsher posts, rural physician clinics, and small rural hospitals. In urban areas, primary and secondary care is delivered by polyclinics, basic secondary care by district (rayon) hospitals, more specialized secondary care in regional (oblast or city) hospitals, and tertiary care in national specialist institutes (6). Throughout the system the tendency has been to refer patients to a higher level of care (Figure 5.2).

Ministry of Health in 1992 on the concept of Health Care Reform has been listed the following reforms (6):

1. the establishment of a health insurance scheme
2. the decentralization of administration
3. the reduction of hospital beds
4. priority for primary health care
5. the right to private practice for health care professionals
6. the patient's right to choose a doctor
7. Improved training for health care professionals.

The country has already achieved three of the global Millennium Development Goals (MDGs) including the reduction of poverty by half, universal primary education, and gender equality in education. It has now set more ambitious development goals and targets on these MDGs, known as MDG+. These include MDG1+: halving the proportion of people in rural areas with incomes below the subsistence minimum; MDG2+: ensuring universal secondary education; and MDG3+: ensuring adoption and implementation of measures aimed at increasing representation of women and men in legislative and executive bodies; ensuring legislative and executive measures to prevent and eliminate violence against women; and ensuring sustainable gender mainstreaming in national planning and budgeting.

Methodology and visits:

The country visits has been done from 19/06/2009 to 21/06/2009. The most involved stakeholders from both governmental organizations and international parties were visit. The list of the visited persons was listed in the following table.

Table 5.3- List of the persons visited in the country

Name	Position	Contact inf.
Dr Alexander Kossukihn	Assistant Representative, UNFPA	kossukin@unfpa.org
Irina Savtchenko	Epidemiologist - UNAIDS Coordinator for Kazakhstan, Kyrgyzstan and Turkmenistan	savtchenkoi@unaids.org
Pavel Ursu	Head of WHO country office in Kazakhstan, WHO	urp@euro.who.int
Zhanara Bekenova	National Officer, Communicable Diseases, WHO	bzh@euro.who.int
Alena Sialchonak	Deputy Representative, UNICEF	anurgabilova@unicef.org
Aliya Kosbayeva	National Officer Health and Nutrition, UNICEF	akosbayeva@unicef.org
Aigul Nurgabilova	Nutrition Project Officer, Family and Community Empowerment, UNICEF	anurgabilova@unicef.org
Asya Kasenova	the Head of Social and Demography statistics, Statistics Agency, Kazakhstan	asya_kasenova@bk.ru

All the above listed persons were approached individually or in short groups, by a semi-structure interview. They have been asked to explain about these topics:

- General health statues regarding their field of activates
- The last situation of the country on each MDGs 4, 5 and 6.
- The source of the data
- The validity of the reported statistics
- What's the meaning of the findings and what are their interpretations.
- The national and sub-national plan / Interventions to address the MDGs

The content of the interviews were recorded and then drafted by one educated person into a data-extraction toolkit (Appendix 1).

Under five mortality rate

MDG DEFINITION

The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates(7).

Target. Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

Trend Analysis

The under five Mortality rate (U5MR) in 1990 in Kazakhstan has been reported as 34 (per 1,000 livebirths). In this case, the goal of the country in 2015 is 11.3 (per 1,000 livebirths). Based on the routine reports from the ministry of health, the trend of U5MR is slightly downward from 27 (per 1,000 livebirths) in 2000 to 13.0 (per 1,000 livebirths) in 2006. The observed trend indicates that Kazakhstan has been decreasing the U5MR for about 2.2 per year. If such trend continues to 2015, Kazakhstan would have U5MR equal to about 11 (per 1,000 livebirths) in that time(8).

As you can see in **Error! Reference source not found.**, there is a considerable gap between routine system reports and national surveys (Multiple Indicator Cluster Survey - MICS) estimates of U5MR(9).

In the first MICS survey in 2000, U5MR was about twice higher than the routine system report. Such difference continues for the next round in 2006(9).

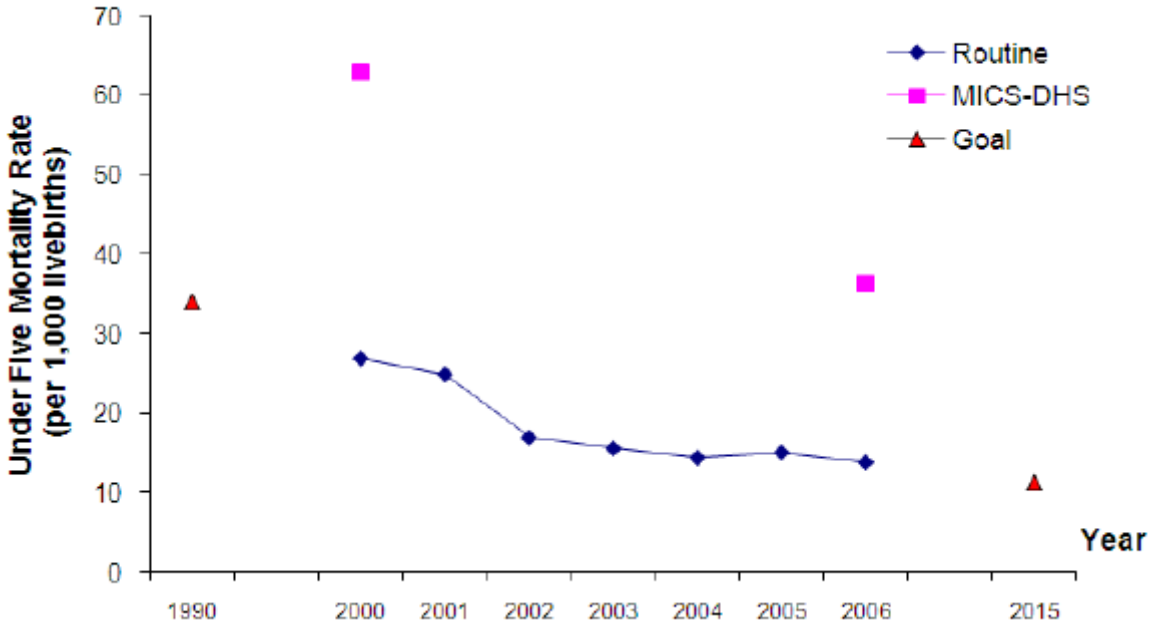


Figure 5.3- The trend of under five mortality rate in Kazakhstan by difference data resources, from 1990-2006

Table 5.4- The trend of under five mortality rate (per 1,000 livebirths) in Kazakhstan

	Routine (10)	MICS – DHS
1990 Baseline	34	
2000	27	*63(11)
2001	25	
2002	17.01	
2003	15.67	
2004	14.5	
2005	15.15	
2006	13.9	36.3(9)
2015 Goal	11.3	
*DHS1999- for the 10-year period preceding the survey		

Some of the huge difference between these two data sources could be explained by the different definitions of Livebirth (or Stillbirths) between MICS and Kazakhstan (Table 5.5). Kazakhstan definition excluded some part of the childhood death cases from both dominator and nominator of the formula for calculating U5M rate. Such modification decrease U5MR in compare to WHO definition which has been used in MICS. Since 2008, the country definition differed from WHO recommended definition(12), but later the ministry changed the stillbirths' definition into WHO definition. The effect of this revision on U5MR is an increase in the reported child death rates from 2008 forward.

However, after discussing with the country experts on child health mostly believe that this is not a good/enough explanation for such huge difference between MICS and routine reports. Although the system indicated that there is a distinguished differences between the definitions, but in practice the health care providers has been used to apply WHO definitions. So, the other scenario for U5MR from 2008 upward would not be any changes in the trend due to the new definition.

Moreover, only differences contributed by the early neonatal period (0-6 days after birth) can be attributed to definitional differences between the Kazakhstan and WHO categorization. Such effect is diluted for the rates which has been calculated for the next life periods, such as neonatal (7-28 days after birth), post-neonatal period (29- 365 days after birth) and of course child mortality.

Table 5.2– Livebirth definitions used in Kazakhstan compared to those recommended by WHO

A baby born after 28th weeks of pregnancy				
	No life signs	No breathing, but other life signs are present	Dies during the first seven days of life	Survives through the first seven days of life
Kazakhstan	Stillbirths		Livebirths	
WHO	Stillbirths	Livebirths		
A baby born before 28th weeks of pregnancy or with the body weight less than 1,000 gr and length less than 35 cm				
	No life signs	No breathing, but other life signs are present	Dies during the first seven days of life	Survives through the first seven days of life
Kazakhstan	Stillbirths	Miscarriages		Livebirths
WHO	Stillbirths	Livebirths		

The other and the more important possible explanation for the differences between routine and MICS reported numbers for U5MR is the underreporting that naturally happened in passive routine system reports(9-11). This is the case that happen in mostly all the developing countries. The coverage of health system, sensitivity and specificity of detecting childhood dead, registration and reporting especially in the past decades, not only had huge effects on the trends but also affected the goal. As you can see, U5MR in 1990 was 34 (per 1,000 livebirths). Based on the MICS data, if we apply the correction fraction, i.e. 2, on the baseline in 1990 we would have about 68 (per 1,000 livebirths) in 1990 instead of 34. It means that Kazakhstan had an error in estimating the baseline and subsequently would have it in the goal for 2015.

In 2006, based on the MICS report Boys has an U5MR of 41.7 (per 1,000 livebirths) in compare to girls with U5MR 30.3 (per 1,000 livebirths). This gender inequality has been reported from other countries and mostly explained by the lower immunity response in boys than the girls in the childhood.

When we looking at the rural and urban areas, we found that base on MICS2006, U5MR in rural areas was about 42.6 (per 1,000 livebirths), while at the same time U5MR in urban areas as not more than 30.2 (per 1,000 livebirths). It means that rural children had a 1.5 time higher risk of mortality in the 5 years of their life in compare to urban children.

Infant Mortality Rate

MDG DEFINITION

The infant mortality rate is typically defined as the number of infants dying before reaching the age of one year per 1,000 live births in a given year(7).

Target. Reduce by two thirds, between 1990 and 2015, the infant mortality rate

Trend Analysis

The reported infant mortality rate (IMR) as the baseline in 1990 was 26.4 (per 1,000 lifebirths). In order to reach the millennium development goal, the country has to decrease it to 8.8 (per 1,000 lifebirths) in 2015.

Figure 5.4 shows that according to routine system reports, IMR in Kazakhstan has been decreasing during the past two decade for about 4 cases per five year.

In compare to two national surveys in 1999 (DHS) and 2006 (MICS), the routine system report has been missed many infant dead cases. Some of the differences between routine system report and other data sources are due to definitional differences which have been presented in previous section in Table 5.5.

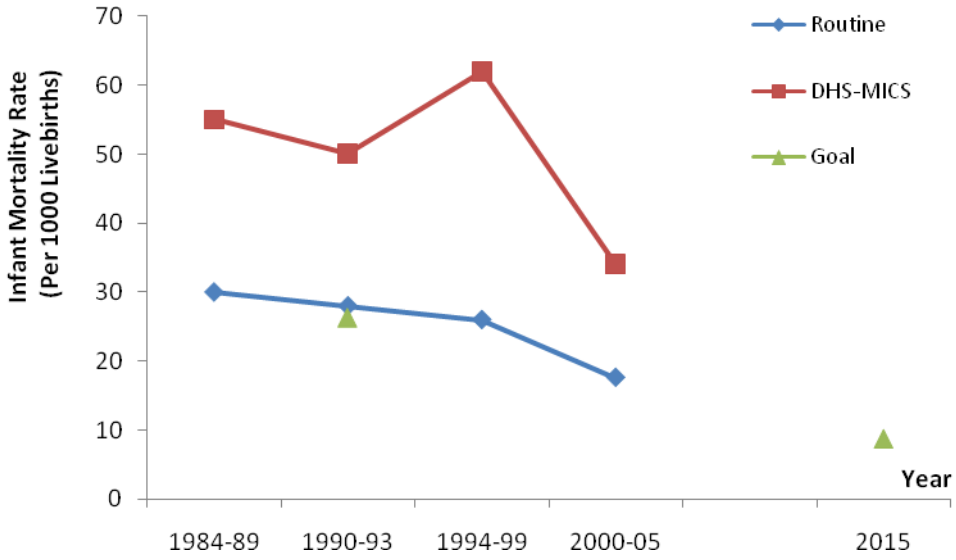


Figure 5.4- Infant mortality rate, Kazakhstan, 1984-2005

Table 5.6-The trend of Infant mortality rate (per 1,000 livebirths) in Kazakhstan

	Routine (10)	MICS - DHS
1990 Baseline	26.4	
1984-89	30	55(11)
1990-93	28	50(11)
1994-99	26	62(11)
2000-5	17.6	34(9)
2015 Goal	8.8	

Based on the DHS and MICS results, the trend in IMR was almost parallel with the routine system reports with a 5 cases decrease per five year. The IMR rose from 50 (per 1,000 lifebirths) in 1990-93 to 62 (per 1,000 lifebirths) in the next five years. As it is illustrated in Figure 5.5, it's mostly due to chance as the confidence interval indicated there is no significant increase in IMR in this period.

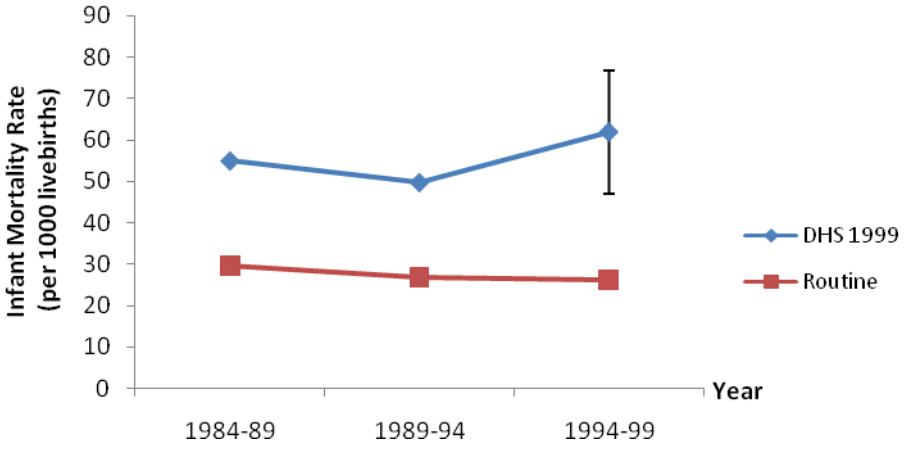


Figure 5.5- Infant mortality rate, Kazakhstan, 1984-2005

Only 35% of the new born infants were exclusively breastfed. The breastfeeding is not continued to two years after birth as recommended protocol, in most of the cases. It means many mothers stop breastfeeding too early (9).

The major mortality cause of new infant is related to high risk conditions in the perinatal period. It congenital abnormalities are the responsible for only 22% of the infant deaths (Figure 5.6).

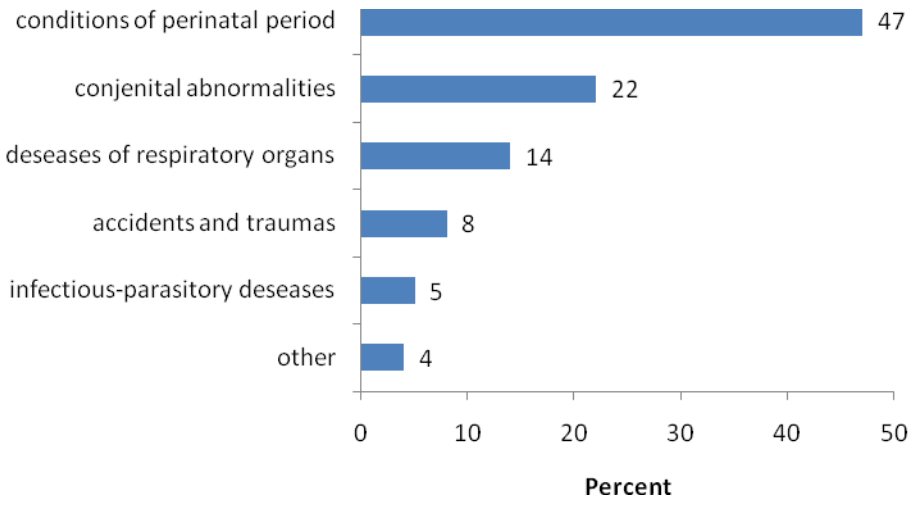


Figure 5.6- The cause of infant mortality rate, Kazakhstan 2001-5

Comments/General Imprecation

- There has been a difference between Kazakhstan's definition on stillbirth and live birth and the WHO recommended definition. They are going to change the definition in 2008.
- The trend of under five mortality is downward, but not enough to reach the MDG.
- There is a considerable difference between routine system reports and national surveys regarding the estimate of under five mortality rate.
- The health system lost children more from rural areas then the urban areas.
- Under five boys had a constant higher risk of mortality than under five girls. In compare to other countries, the ratio is prominent.
- The trend of the under five mortality rate was compatible with the infant mortality rate

Immunization against Measles

National program

The national strategy for vaccinate the children in Kazakhstan has been approved by the Decree of the Government of the Republic of Kazakhstan as of 23 May 2003 N 488. Measles' vaccine has been inoculated to children in 12-15 months after the birth.

Trend Analysis

According to the routine system report, more than 99% percent of the target population was vaccinated against measles in 2006. At the same time, the results of the MICS 2006, the percentage of vaccination was estimated as 94.7%(9). The difference is partly due sampling variability that accompany with MICS survey. The other possible explanation is over reporting that always accompany with routine reporting system. However, even in worse scenario, Kazakhstan has a good coverage of vaccination against measles during the recent years, and it is approved by having no outbreaks of disease in recent decade (Figure 5.7).

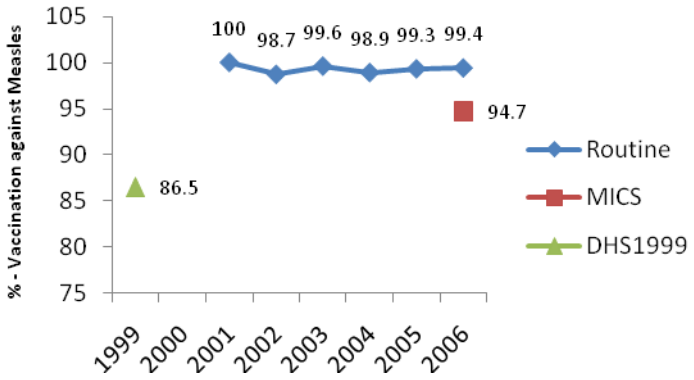


Figure 5.7- The percent of children who have been vaccinated against measles, Kazakhstan 1999-2006

Maternal Mortality Rate

DEFINITION

The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births(7).

Target. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Trend Analysis

The reported maternal mortality rate (MMR) as the baseline in 1990 was 75.8 (per 100,000 lifebirths). In order to reach the millennium development goal, the country has to decrease it to 18.9 (per 100,000 lifebirths) in 2015(8).

Generally, on average Kazakhstan was able to decrease MMR from 75.8 (per 100,000 lifebirths) in 1990 to 36.9 (per 100,000 lifebirths) in 2004(13). It means that, MMR has been decreased annually for about 2.7 cases. The observed trend in recent years, 2000- 2006, did not show any significant improvement regarding MMR in Kazakhstan. Moreover, there is a slight increase in 2005 and 2006.

There is a huge gap between the MMR calculated from routine system reports and what has been reported in MICS in 2006. According to MICS 2006, MMR was estimated at about 70 (per 100,000 lifebirths) which is 1.5 time higher than the routine system report(9). It manes there are many maternal cases in Kazakhstan that has not been detected by the routine reporting system.

The other explanation is the sampling error that has been accompanies with MICS results. Even by counting the sampling error, there is still a big gap between two systems.

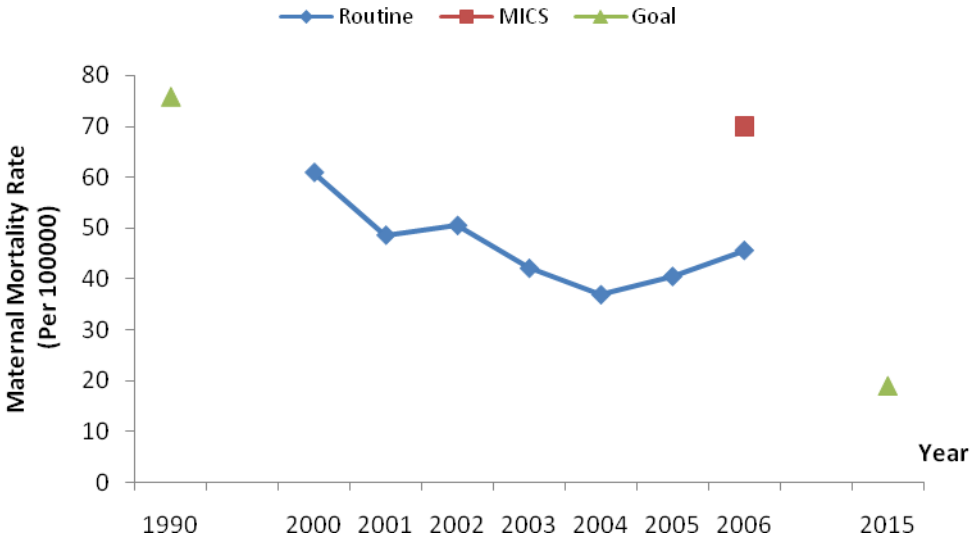


Figure 5.8- Maternal mortality rate in Kazakhstan per 100,000 livebirths, by different data sources

Table 5.3-Maternal mortality rate in Kazakhstan per 100,000

	Routine (10)	MICS (9)	Baseline and Goal
1990 Baseline			75.8
2000	60.9		
2001	48.6		
2002	50.5		
2003	42.1		
2004	36.9		
2005	40.5		
2006	45.6	70	
2015 Goal			18.95

The most couses of maternal mortality is illustrated in Figure 5.9. The leading casue of death was obstetric hemorrhage with 29.4%. from the official reports of the kazakhestan statistics aganecy, there is a significant differences between the MMR due to hemorrhage in rural and urban areas in 2006 was 21 and 11.2 (per 100,000 lifebirths), respectively. Such difference indicated inadequate obstetric care in rural territories. Based on routine system reports, one out of seven maternal deaths occurs due to abortion. Regardless of the promotion of contraceptives, abortion is still one of the major family planning methods. In 2006, more than 130 thousands abortions have been registered. If we added the illegal abortion to the list, there is a strong doubt that one out of three pregnancies ended with abortion. The abortion induced mortality ratio among pregnant women in rural areas is 3-4 times higher than the ratio in urban areas(8).
Thus, more than 50% of the reported maternal mortality could be prevented. Kazakhstan still continues to loss pregnant women due to preventable morality causes(14).

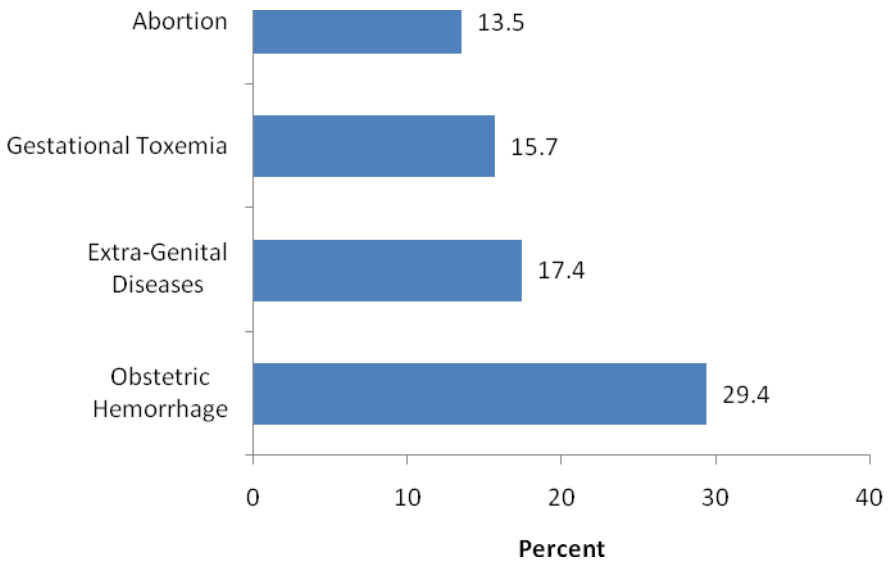


Figure 5.9- The cause of maternal mortality in Kazakhestan in 2004-6

Antenatal care and assistant during delivery

Antenatal clinics registered more than 70% of the pregnant women up to 12 gestational weeks.
According to MICS 2006, the percentage Coverage of antenatal care (by a doctor, nurse, or midwife) is high in Kazakhstan with 99.9% of women receiving antenatal care at least once during the pregnancy.

Antenatal care in all regions of Kazakhstan is 100%. Coverage of antenatal care in urban area is 100%, while in rural areas this indicator is lower by only 0.3% points.
The Percent of women aged 15-49 with a birth in two years preceding the survey (MICS) by type of personnel assisting at delivery has been reported in Table 5.8. Generally, more than 99% of deliveries has been done under supervision of an educated personnel(9).

Table 5.4- Assistant during delivery, Kazakhstan, 2006

Region	Medical doctor	Nurse / Midwife	Auxiliary Midwife	Traditional Birth attendants
Urban	88.7	10.8	0.3	0.1
Rural	72.5	26	1.4	0

According to the official reports, about 100% of the deliveries have been done in hospitals. All of these evidences indicated that although the coverage of the health care is good, but the quality of the cares is not adequate.

Important notes / Comments

- Abortion as a method of Reproductive Health (including Family Planning) is a main cause of prevented maternal mortality especially in rural areas. The promotion of other save reproductive methods is highly recommended.
- The quality of health care during the antenatal period and maternity hospitals as well as providing safe drugs and blood components should be improved
- Obstetric care should be served to all the pregnant women, without regionalization limits.
- Improving the access of young women and adolescents to health care services, especially reproductive services.

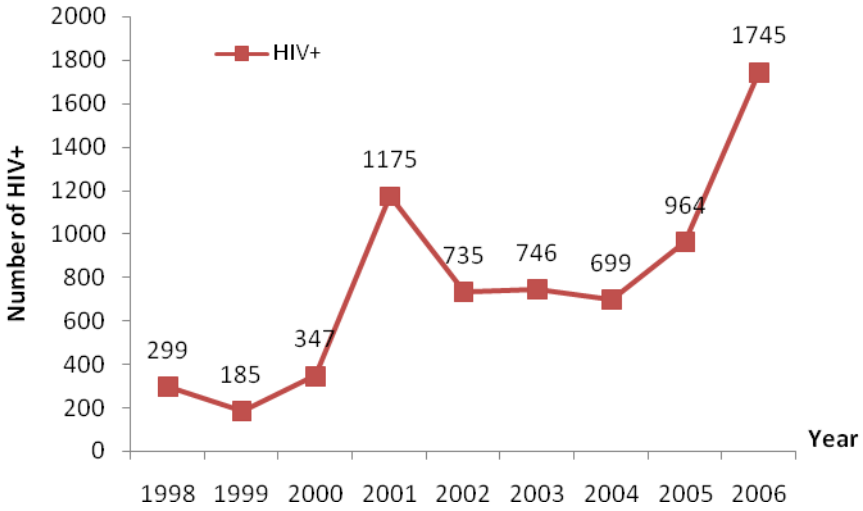
Combat HIV/AIDS, Malaria and other diseases

HIV PREVALENCE AMONG PREGNANT WOMEN AGED 15-24 YEARS

DEFINITION

HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

The number of new reported HIV+ cased from 1998 to 2006 has been increasing exponentially. In 2001, the country had an epidemic of HIV in the south oblast in a Hospital due to infected blood transfusion(15).



Based on the reports from the sentinel sites through the country, the prevalence of HIV positive among injecting drug users and sex workers (the most high risk population in the country) was 3.9% and 2.3% in 2007, respectively(16).

As there is a high level of stigmatization and discrimination regarding the HIV among the people, it's highly possible that there are a more positive cases whom living as hidden population in the country.

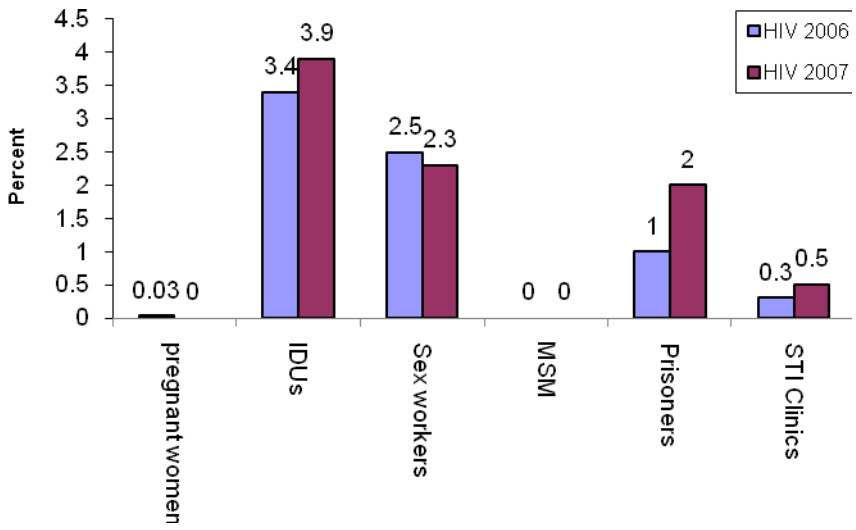


Figure 5.10- HIV prevalence among different most-at-risk groups in kazakhstan, 2006-7

As you can see in Table 5.9, drug injection and sexual high risk behaviors has been remained constant among IDUs and sex workers during 2006-7. As an indicator for injecting drugs, high prevalence of HCV among prisoners (more than 40%) point out that prisons are high risk places for further epidemic(17).
High level of Syphilis among sex workers indicated the high risk behaviors which have been done by about 25% of them.

Table 5.9- HIV, HCV and Syphilis prevalence among most at risk population, Kazakhstan, 2006-7

Most at Risk Groups	HIV		HCV		Syphilis	
pregnant women	0.03	0	1.92	1.3	3.34	2.3
IDUs	3.4	3.9	64.5	65.7	11.1	11.3
Sex workers	2.5	2.3	17.3	19.2	26.2	23.9
MSM	0	0	1.4	1.8	2.8	3.1
Prisoners	1	2	40.1	43	13.6	12
STI Clinics	0.3	0.5	5	5.1	18.7	16.5

The estimated coverage of IDUs, SW and MSM by HIV prevention is 24%, 50% and 5% respectively.
Official data report that 72.7 % of HIV cases occurred due to unsafe drug injection practices, 19% account for sexual transmission. Officially, 640 people developed AIDS (including 41 children), 506 of them died (including 3 children). Although HIV cases have been registered in regions of Kazakhstan, three oblasts are most severely affected by the epidemic: Karaganda oblast, Pavlodar oblast and Almaty city, which account for about 56% of HIV cases(8).

Condom use rate of the contraceptive prevalence rate

Definition

Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception(7)

According to findings from MICS 2006, only 50.7% (54% urban vs. 46.5% rural) of women currently married or in union use any type of contraceptives routinely. Moreover, condom is only applied by 4.8% (6% urban vs. 3.3% rural) of women currently married or in union(9).

Condom use at last high-risk sex

Definition

Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

There is no data available in the last MDG report of Kazakhstan

Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition

Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

The reported percentage of knowledgeable people aged 15-24 years on at least two majors ways of transmission and rejecting three most misconception of HIV and AIDS, indicates that only 1 out of 5 young women living currently in Kazakhstan has the comprehensive knowledge on this issue. Proportionally, the knowledge of rural inhabitants is lower than those living in cities (Table 5.10).

Table 5.10- Comprehensive knowledge of HIV/AIDS transmission-MICS2006

Sub-Groups	Know 2 ways to prevent HIV transmission	Correctly identify 3 misconceptions about HIV transmission	Have comprehensive knowledge (identify 2 prevention methods and 3 misconceptions)
Living Area			
Urban	53.7	39	23.8
Rural	52.2	32.5	20
Age Groups			
15–19	47.4	36.2	22.2
20–24	53.4	37.2	22.7
15–24	50.1	36.7	22.4
25–29	53.4	37.4	22.6
30–34	54.9	35.9	22.3
35–39	55.7	37.5	22.2
40–44	54.7	35.3	22.4
45–49	53.8	34.9	21.3
Total	53.1	36.3	22.3

Contraceptive prevalence rate

Definition

The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

According to findings from MICS 2006, only 50% of women currently married or in union use any type of contraceptives routinely(9). The percentage of using contraceptive among urban women is little bit lower than the urban inhabitants (Table 5.11).

Table 5.11- Use of contraceptive - MICS 2006

Living Area	Not using any method	Any Scientific Method	Traditional Method only	Any method
Urban	46	52.2	1.8	54
Rural	53.5	44.4	2.1	46.5
Total	49.3	48.7	2	50.7

The most popular contraceptive method is IUD with the percentage of 36.2% in all women. Condom is only applied by 5% of the enrolled eligible women in the survey (n=8349). The percentage of contraceptive usage regarding different methods is shown in Figure 5.11.

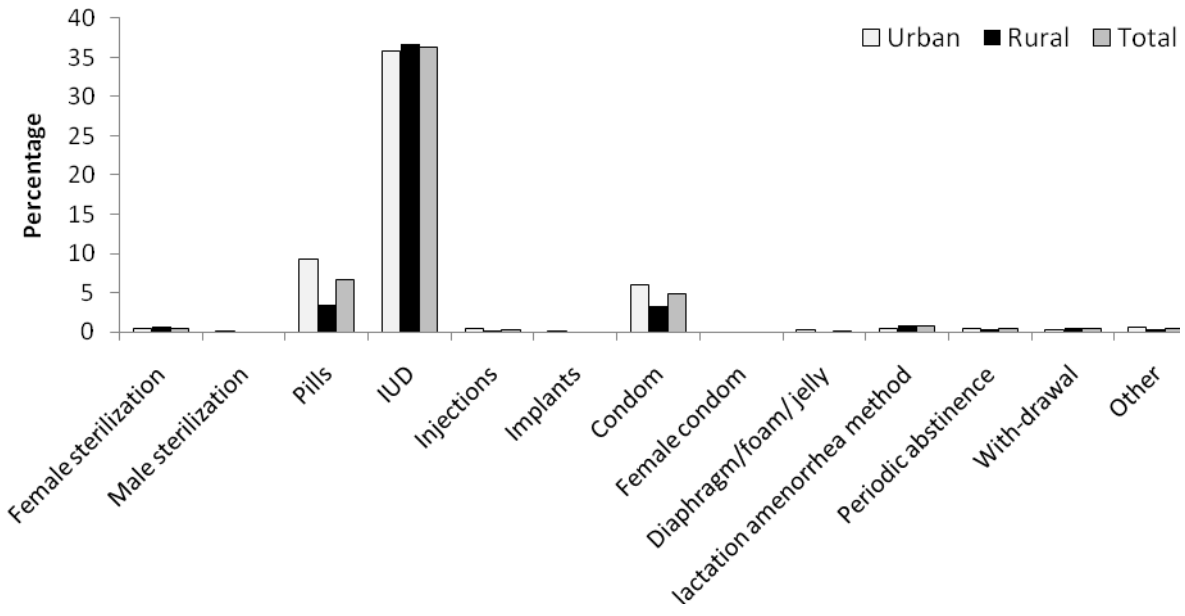


Figure 5.11- Percentage of differnt type of contraceptive methods, MICS 2006

Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition

Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

There is no data available in Kazakhstan about Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years. In fact, like other countries in this region, it is not a good and proper indicator for HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population

Important notes / Comments

- In some sections such as Condom use rate of the contraceptive prevalence rate / Condom use at last high-risk sex there is no updated reports available.
- The prevalence rate of condom use is too low among men and women in Kazakhstan.
- The comprehensive knowledge of the general population, in all age and social groups, on HIV transmission and prevention is very low. Misconception on the route of transmission and relationship with infected people is popular.
- Stigmatization and discrimination is a usual all around the county and is one of the important confounder to effective planning and control strategies.

- All stakeholders, government, public agencies, NGOs, social societies and UN agencies should be involved much in the issue based on the national strategy to combat against HIV and AIDS.
- In Kazakhstan had a nosocomial HIV epidemic in south oblast. However it has been used to make a specific strategy to blood safety improvements after the outbreak. It means threats could be served as opportunities to improve the health system skills to control and prevent further transmission of HIV.
- Harm Reduction converges for most at risk population should be increased in all the regions in the country.
- Needle exchange program in prisoners has been established as an effective strategy to control the transmission of HIV in prisoners. However, Kazakhstan does not support such intervention in the country.

Prevalence and death rates associated with malaria

Definition

Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

The last local cases of malaria were registered in 1967, and from 1968 on, only imported cases were reported in the country. From 1990-1997, a growth in the number of imported malaria cases was registered in the country and the first malaria case due to local transmission was reported in 1992. In 2000, 7 local malaria cases were registered within the area of South Kazakhstan and Almaty (18). In fact, it is not a public health problem in the country.

Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition

Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

There is no reported data on Malaria in Kazakhstan. In fact, it is not a public health problem in the country.

Prevalence and death rates associated with tuberculosis

Definition

Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

The reported incidence cases of TB in Kazakhstan has been increasing from 70 (per 100,000) cases in 1995 up to maximum 165 (per 100,000) cases in 2002. Such rising is mostly explained by under reporting of the routine system in 90s(19). After implementing DOTs and improving its coverage, the incidence has been increasing about 10-15 cases per year from 2002 to 2006 (Figure 5.12Figure 5.).

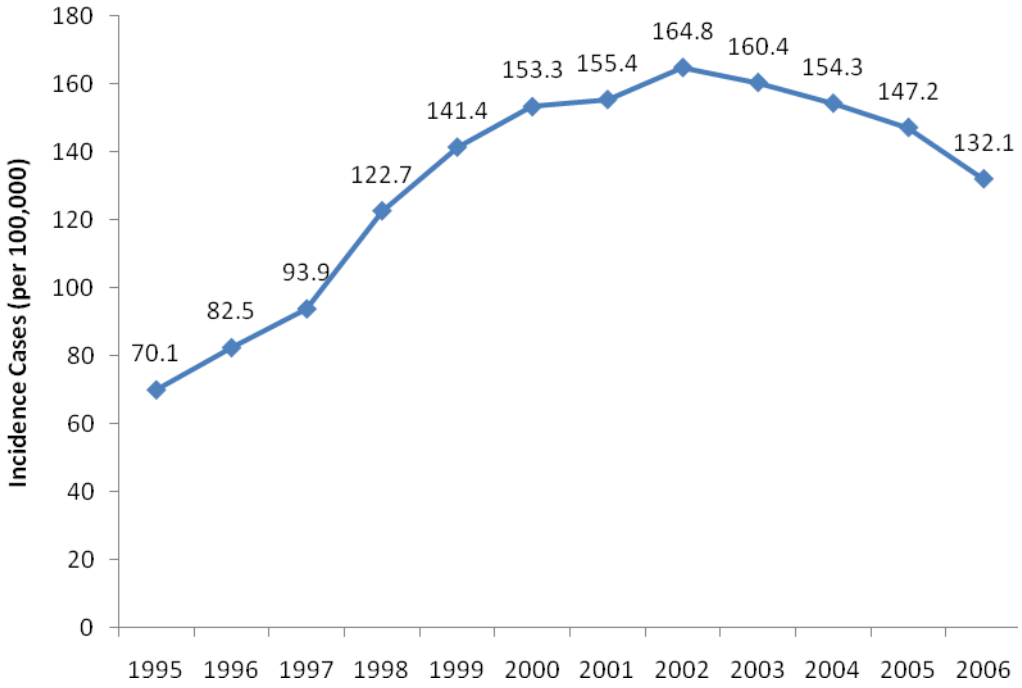


Figure 5.12- Incidence cases of Tuberculosis in Kazakhstan per 100,000

The mortality of diagnosed TB cases has been increasing during recent years. Based on the health system report, in 2006, only 20.3 out of 100,000 was due to TB (Figure 5.13).

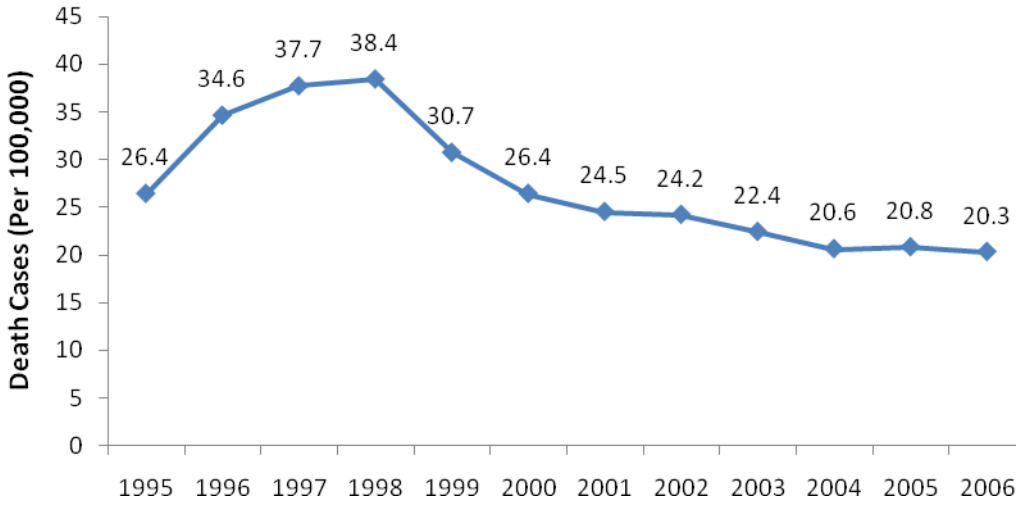


Figure 5.13- Death cases due to Tuberculosis in Kazakhstan

Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition

The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

DOTs has been implemented in 1999 in Kazakhstan. Since 1999, the coverage of DOTs in Kazakhstan has reported as 100%(20). The percentage of estimated new infectious tuberculosis cases detected DOTS case detection and treatment strategy was estimated as 93.2% and 94.5% in 2000 and 2002, respectively(21). The detection rate has been increasing from 2002 to 2005 to the level of 72% (Figure 5.14).

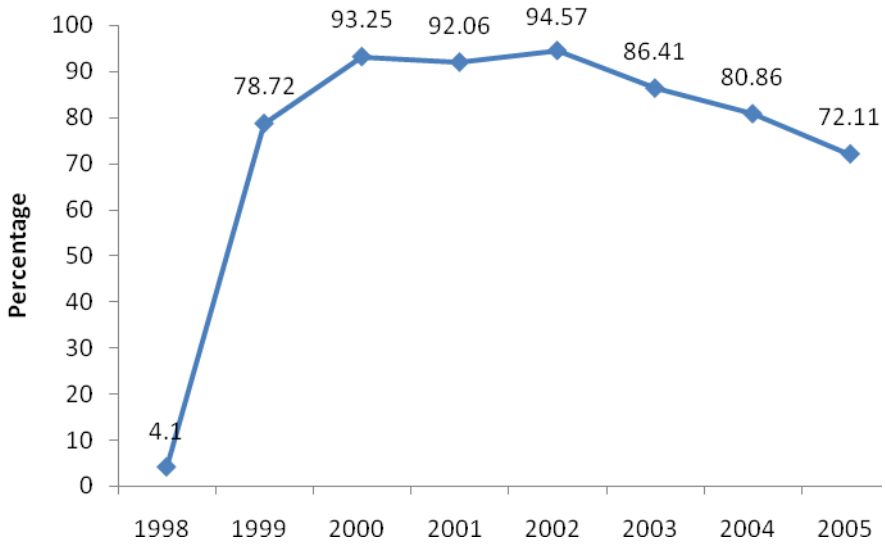


Figure 5.4- DOTS detection rate in Kazakhstan from 1998 to 2005

Important notes / Comments

- TB is still a major health problem in Kazakhstan
- DOTS has been settled down in the country from 1999. However, the cases detected by DOTS has been decreasing during recent years.
- Such decreasing the in the DOTS detected rate Drug resistance is a threat to the public health and the reported number of multiple drug resistance is a
- From 2003 onward, the incidence rate will continue to decrease at 4% per year in Eastern Europe at the same rate as observed from 1980-1990 before the collapse of the Soviet Union.
- The difficulties of managing TB in Kazakhstan are closely linked to HIV/AIDS and drug resistance, and specific solutions will be needed for these problems in these regions.
- An enhanced DOTS strategy is necessary to control tuberculosis in Kazakhstan.

Acknowledgment

I should thank the Iran Embassy in Kazakhstan (Almaty and Astana office) for the effective cooperation on schedule the meeting with the governmental and non-governmental organization during the country visit as well as providing the facilities for person-assist translation from Kazakh and translating the original documents in Russia.

Refernces

1. Unpublished data, Agency for Statistics of the Republic of Kazakhstan, 2009.
2. World Bank, WDI.
3. WHO European HFA-DB.
4. WHO NHA series.
5. UNDP. Human development report, UNDP, Kazakhstan, 1998.
6. European observatory on heath care systems, Health care systems in transition in Kazakhstan,1999.
7. UNITED NATIONS (2001). Indicators of Sustainable Development: Guidelines and Methodologies. Sales No. E.01.II.A.6. Available from http://www.un.org/esa/sustdev/natlinfo/indicators/isd.htm.
8. Millennium Development Gaols in Kazakhstan, 2007.
9. The Agency for Statistics of the Republic of Kazakhstan, Multi - indicator Cluster Survey. 2006.
10. Agency for Statistics of the Republic of Kazakhstan.
11. Demographic and Health Survey in Kazakhstan, 1999.
12. Analysis of infant and child mortality rates: Problems, Resolutions ways. UNICEF/WHO, Astana, 2006.
13. Demographic and Health Survey in Kazakhstan, 1995.
14. Analysis of the causes of death among pregnant women, women in labor and birth in the Republic of Kazakhstan in 2006, Almaty, Research Center of Obstetrics, Gynecology and Perinatology, 2007.
15. Data from republican AIDS centre, Kazakstan, 2007.
16. Results of Sentinel epidemiological surveillance in Republic of Kazakhstan for 2006 presented at the meeting in Almaty on April 9-0, 2007.
17. Report on the results of sociological survey: knowledge of HIV/AIDS, attitude, practice among students and working young people of Kazakhstan (prepared for the Republican AIDS Center). Kazakhstan, Almaty-2006. Center for Public Opinion Surveys.
18. Malaria Vectors and Approaches to their Control in malaria affected countries of the WHO European Region - The proceedings of a Regional Meeting on Vector Biology and Control - Almaty, Kazakhstan. 2001.
19. The National Centre of the Republic of Kazakhstan on problems of tuberculosis (statistic yearbook), the Agency for Statistics of the Republic of Kazakhstan.
20. World Health Organization. "Kazakhstan Country Profile." World Health Organization Global Tuberculosis Database. Available at http://www.who.int/globalatlas/predefinedReports/default.asp.
21. Ekaterina Bumburidi, S. Ajeilat, A. Dadu, I. Aitmagambetova, J. Ershova, R. Fagan, M.O. Favorov, Progress Toward Tuberculosis Control and Determinants of Treatment Outcomes-Kazakhstan, 2000-2002, CDC, April 28, 2006 / 55(SUP01);11-15

22.

Chapter 6. Kyrgyz Republic

Kyrgyzstan demographic and socioeconomic status

Kyrgyzstan is a landlocked, mountainous country of 198,500 square kilometers bordering Kazakhstan, Uzbekistan, Tajikistan and China. It gained independence in 1991. Kyrgyzstan is a small and very mountainous state in central Asia. . Some 35.8 percent of the populations were classified as urban and 64.2 percent live in rural district. It is one of the least urbanized of the former Soviet republics (the rural population is growing faster than that in the towns) and was among the last to develop its own cultural nationalism. Agriculture is the main source of income for the predominantly rural population.
The capital city is Bishkek, and political-administrative divisions include seven oblasts and 64 rayons. Ethnic groups are: Kyrgyz 64.9%, Uzbek 13.8%, Russian 12.5%, Dungan 1.1%, Ukrainian 1%, and Uygur 1%, other 5.7% (1999 census).

Figure 6.1- Kyrgyzstan map and its geographic status

In 2007 Kyrgyzstan's population was estimated at 5,189,837 people. In 2007 some 30.6 percent of the population was 14 years of age or younger, and only 5.4 percent was 65 years of age or older. The birth rate was 23.1 births per 1,000 populations. The death rate was 7 per 1,000 populations.
In 2006 overall life expectancy was 63.5 years for males, 72.1 years for females.
Estimated median age in 2009 was 24.4 years for total population, 23.6 years for male and 25.3 years for female. Estimated population growth rate in 2009 was1.36% and country comparison to the world rank is 96.Estimated net migration rate was -2.57 migrant(s)/1,000 population and country comparison to the world is146.(1,2,3,4,5,30) Some demographic and socioeconomic indicators are shown in tables 6.1, 6.2.

Table 6.1- Kyrgyzstan population distribution by age and sex -2007 (5)

Age groups	Male	Female	Total	Percent
0-4	270323	257751	528074	10.2
5-14	537647	519848	1057495	20.4
15-24	558420	548926	1107346	21.3
25-34	409482	407385	816867	15.7
35-44	331272	339543	670815	12.9
45-54	245869	265910	511779	9.9
55-64	100563	115098	215661	4.2
65-74	73203	99844	173047	3.3
Over 75	38577	70176	108753	2.1

Table 6.2- Socioeconomic status and indicators of Kyrgyzstan

Indicators	Value	year	Reference
Crude Birth Rate	23.1	2007	6
Total Fertility Rate	2.5	2005	7
Crude Death Rate	7	2007	6
Life Expectancy at Birth	Total=69.43 M.=63.5 F =72.1	2006	5
Adult Literacy Rate	Total =98.7 M= 99.3 F= 98.1	2005	7
Per Capita Income (US $)	956.4	2008	7
Per Capita Income (PPP)	1,790	2007	8
Human Development Index	0.696	2005	7,8,11
Total health expenditure as percentage of Gross Domestic Product	6.6	2007	9
Percentage of out of pocket expenditure to total health expenditure	30.6	2001	10
Percentage of governmental budget for health care to total government budget	9	2003	36

A brief summary of the country health system

The Kyrgyz health system is based on the Semashko model developed under the Soviet Union .Kyrgyzstan inherited the Soviet system of free universal health care, which in Kyrgyzstan's case generally provided sufficient numbers of doctors, nurses, and doctor's assistants, as well as medical clinics and hospitals. In 1991 Kyrgyzstan had 15,354 doctors, or 34.2 per 10,000 people. Paramedical workers totaled 42,448, or 94.6 per 10,000 people. In the post-Soviet era, Kyrgyzstan's health system has suffered increasing shortages of health professionals and medicine. Like other Central Asian countries, Kyrgyzstan has continued the Soviet practice of state enterprises having their own clinics and sanatoriums. With the dissolution of the Soviet Union, Kyrgyzstan's residents lost the right to free treatment in the hospitals of other former republics, making unavailable many types of specialized treatment that the Soviet system had apportioned among adjacent republics. Kyrgyzstan's post-Soviet financial crisis has reduced government support of the Soviet-era health system, forcing government planners to formulate an ambitious health care delivery reform program(12).

Health-care reform has been ongoing for 10 years within the framework of the Manas National Health-Care Reform Project (1996-2005). The implementation of Manas in the development of an internationally recognized, health sector reform model with the following building blocks: increasing the focus on primary health care and family medicine, restructuring service delivery, and introducing a new health-care financing model(9).

However, over the recent past years, the Kyrgyz Republic has been successful in significantly reducing excess capacity and increasing the efficiency of inpatient facilities, while at the same time strengthening primary health care (PHC) services by organizing more than 700 Family Group Practices (FGP) nationwide, retraining PHC staff in family medicine, and increasing funding for PHC. Outpatient specialty and diagnostic care, and health promotion activities, are provided by Family Medicine Centers (FMC) at regional (oblast) and district (rayon) levels.(14)

Organizational structure of the health care system: Kyrgyzstan health services are organized and administered at three levels: national, oblast, and rayon. Kyrgyzstan is divided into six oblasts each of which is headed by an Oblast Administrator (Akeem). In each oblast there are several rayons (districts) headed by rayon administrators appointed by the Akeem. There are 42 rayons. Beneath the rayon are the village administrations.Seventeen cities are administered separately by city administrations. The main factors involved in management of health services are the Ministry of Health, the Ministry of Finance, and oblast health administrations. The main responsibilities of each actor are summarized below and an organizational chart depicting the administrative structure of the health system is given in below figure (15).

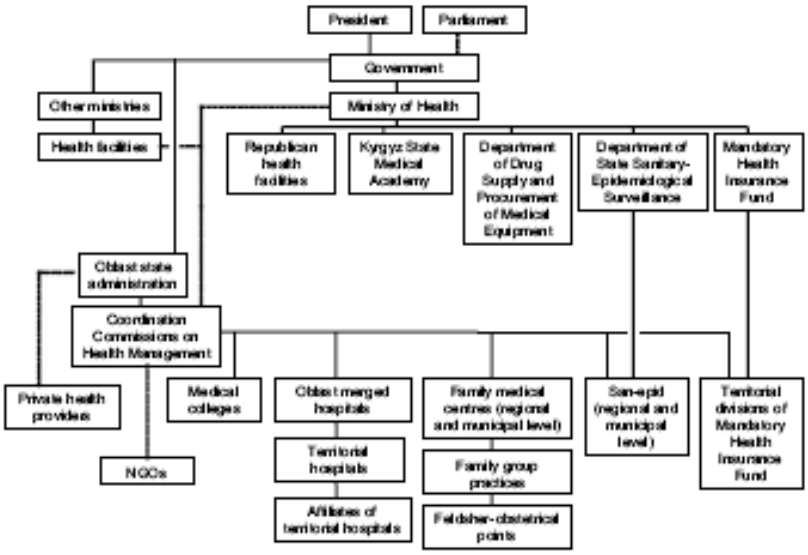


Figure 6.2-organizational structure of the health care system in Kyrgyzstan (15)

Country's health system findings and comments:

Achieving the MDG targets for some of goals and indicators in health will be difficult. Both the quality and accessibility of health care in Kyrgyzstan have deteriorated sharply over the past decade .Kyrgyzstan's health care system needs to continue reforms and increased resources to improve the quality of services, to rationalize the delivery structure and to increase equity. There are problems with low quality of health care. (16)
Some of problems are:

1. Primary health services have survived from the Soviet period, but due to the severe decline in the quality and infrastructure of these facilities, most patients choose to bypass them and seek care at urban hospitals and polyclinics.
2. One of the main gaps in the health system in the last years is the high turnover of personnel because of the low salaries.
3. Low levels of resource mobilization for health care in the country due to limitation of recourses in country and limited human resource capacity at different levels
4. High out-of-pocket share in health spending undermines financial protection objectives and places a disproportionate burden on poor households
5. Rapidly increasing drug prices limit access to medicines
6. Ensuring universal access to qualified obstetrics and childbirth services is still a problem, however, especially in rural areas.

Goal 4: Reduce Child Mortality

4-1. Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.
Country definition: Before 2003 Kyrgyzstan used the live birth definition of the former Soviet Union. Kyrgyzstan, from 2003, has adopted an international definition of live births (with increased registration of neonatal deaths, rising by approximately 50% from 2003 to 2004). (17)
Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Table 6.3- Under-five mortality rate in Kyrgyzstan from different sources (1990-2008)

Years	vital statistics registry (18)	Estimated for MDG by UN (19)	MICS (20)	*Subgroups / Inequity*	other sources Estimation (SOWC) (17, 21,22,23)
1990	41.3	75			95
2000	33.2	51		33.2: [Min=23.7&Max =43] [Male=37.4&Female=28.7]	70
2001	29.5				
2002	29				
2003	27.1				
2004	31.8				
2005	35.1	43		35.1: [Min=30.3&Max= 51.2] [Male=38.5&Female=31.5]	67
2006	35.3	41	44	MICS : [M=56, F=31]	
2007	35.3				
2008	31.5				
Latest MDG 2009	35.3 (2007)			[Min=28.9&Max=63.7] [Male=38.3&Female=32]	

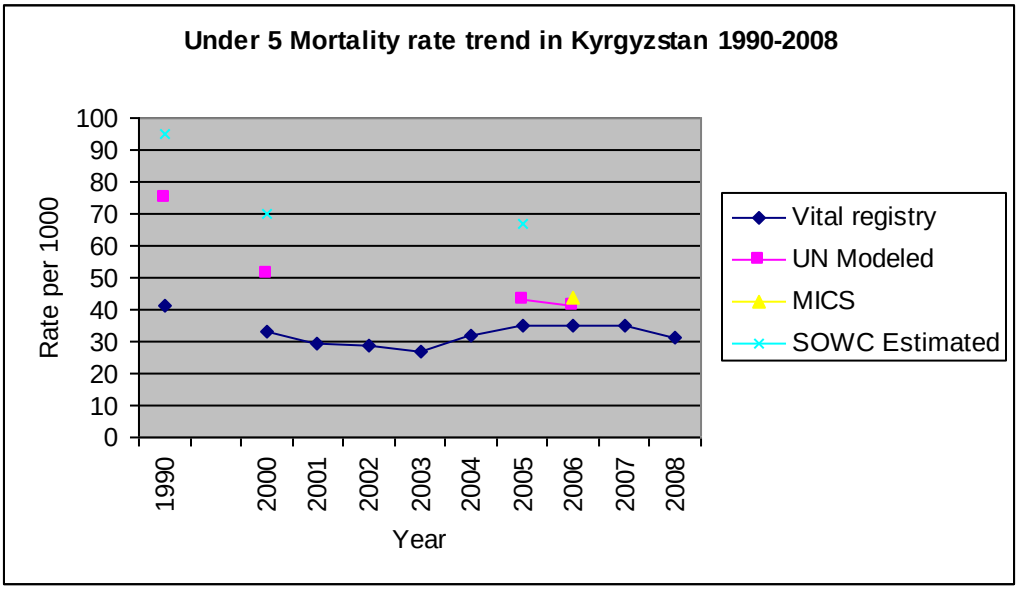


Figure 6.3- Under-five mortality rate in Kyrgyzstan from different sources (1990-2008)

4.2. Indicator: Infant mortality rate

Definition: The infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1,000 live births in a given year.
Country definition: Before 2003 Kyrgyzstan used the live birth definition of the former Soviet Union. Kyrgyzstan, from 2003, has adopted an international definition of live births (with increased registration of neonatal deaths, rising by approximately 50% from 2003 to 2004) (17).

Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Table 6.4- infant mortality rate in Kyrgyzstan (1990-2007)

Years	Vital statistics registries (18,21)	Estimated by UN Site (19)	household surveys (DHS&MICS) (20,24)	Estimation By other references (17,22)	Subgroups / Inequity
1990	30	63		68.2	[Min=26&Max=34.7] [Male=33.4&Female=26.4]
1991	29.7				
1992	31.5				
1993	31.9				
1994	29.1				
1995	28.1	53		63	[Min=17.9&Max=35.8]
1996	25.9				
1997	28.2		66		

Years	Vital statistics registries (18,21)	Estimated by UN Site (19)	household surveys (DHS&MICS) (20,24)	Estimation By other references (17,22)	Subgroups / Inequity
1998	26.2				
1999	22.7				
2000	22.6	44		61.3	[Min=17.8&Max=26.2] [Male=26&Female=19]
2001	21.7				
2002	21.2				
2003	20.9			59	
2004	25.7				New live birth definition after this year
2005	29.7	37		58	[Min=25.3&Max=46.5] [Male=32.4&Female =26.8]
2006	29.2	36	38		MICS : [Male=48&Female=27] [Urban=31& Rural=43]
2007	30.6			42	[Min=25.8&Max=59.6]

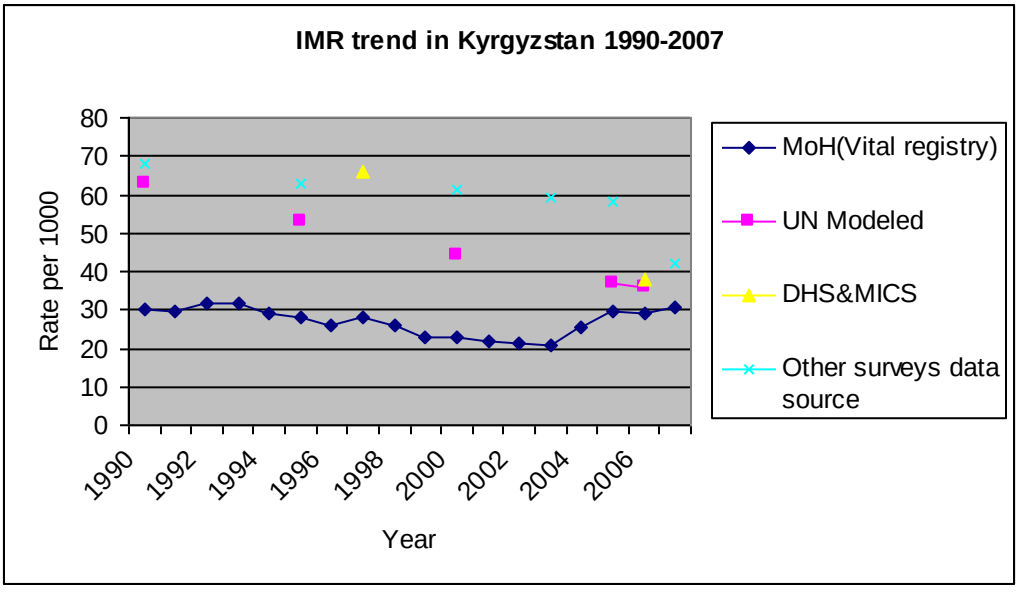


Figure 6.4- IMR trend in Kyrgyzstan 1900-2007

4-3.indicator: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

Table 6.5- Proportion of 1-year-old children immunized against measles (1990-2008)

Years	Administrative data (18,21)	Estimated by WHO (19)	Subgroups/ Inequity
1990	95.5		Min=90.2&Max=98.9
1991			
1992		94	
1993		93	
1994	94	88	
1995	92.9	97	
1996	88.3	98	
1997	97.1	98	
1998	98	98	
1999	97.5	99	
2000	98	98	Min=92.3&Max=99.8
2001	98	99	
2002	99.7	98	
2003	99.3	99	
2004	99.3	99	
2005	98.9	99	Min=98.3.&Max=99.5
2006	97.3	97	
2007	98.8		
2008	99.1		

Goal 4 findings:

1. There are significant differences between MOH data, MICS, UN, WHO estimations and other surveys for IMR and U5MR. All surveys show much higher estimates than the estimates based upon the register information, Infant mortality rates and under 5 mortality rates as reported by the Ministry of Health in Kyrgyzstan are significantly lower, compared to survey estimates for the same years.
2. The existing discrepancy between registered infant and under 5 mortality rates and data survey before 2003 might be partially explained by the fact that official estimates of infant mortality used protocols established during the Soviet regime.
3. There are factors that contribute to discrepancy in IMR and U5MR calculations:
    a. The use of the Soviet definition of a live birth is still in use, reducing IMR by 22-25 percent;
    b. Misreporting of births and infant deaths by medical personnel;
    c. The two main problems is that live births are reported as still births or miscarriages and post-neonatal deaths as child deaths (27).
1. Aggregate data mask disparities by urban and rural areas, and by oblast *but there are disparities in Infant and Under-five Mortality Rate* (27).

2. based on experts idea along with the moratorium on the administrative punishment of doctors for increased indicators, this measure resulted in a decreased gap between the official statistics on infant mortality and survey results on the issue
3. According to health ministry report during recent years the coverage proportion of 1-year-old children immunized against measles, based on administrative method, have been over 88 percent and in most of the years it was more than 95 percent which is a proper coverage. Although it is easy to evaluate the indicator through this method, it is not accurate .Immunization coverage is a key contributor to reducing child mortality. Available data shows that immunization coverage in the Kyrgyz Republic is high. There are no significant disparities in immunization coverage either (27). Under five mortality rate is dependent also on the appropriate and integrated management of childhood illness and immunization coverage. (32)

Goal 4 Comments:

1. According to UN's suggested estimation, the infant and under 5 mortality rate are high in Kyrgyzstan. If they would be really true, appropriate actions should be taken to reduce child mortality rate.
2. In fact one of the crucial needs for goals 4 mortality indicators is a highly precise and valid information system in order to be used by all national and international organizations for monitoring and evaluating this MDG indicator. It is possible through improving national information system or periodical surveys accepted by all experts and organizations. Infant and under 5 mortality rate are higher than official statistics for these areas.
3. For monitoring and evaluation of this indicator, valid and accurate methods and data should be found. Right now, this country uses its own national data to determine indicator's rates while UN uses modeling; these two have a significant difference. It is suggested ECO secretariat design and perform a unique method for evaluation of this indicator in region's countries, in order to have a comprehensive valid evaluation
4. The gaps and differences between country reports and UN estimations are decreasing gradually and it is a good point which can illustrate the improvement of reporting system in this country.
5. The largest contributor to infant and under-five deaths is deaths during the prenatal and neonatal period. Infant deaths during this period are related to undiagnosed problems during pregnancy and poor quality of management of deliveries and newborns. it show to need for improvements in effective prenatal care(27)
6. For indicator of coverage of 1 year-old children immunized against measles, based on existing data, indicator's goal is achieved and Kyrgyzstan doesn't have any problem reaching this goal. It is recommended to follow up immunization activities.
7. For indicator of coverage of 1 year-old children immunized against measles It is suggested to perform some serologic surveys of coverage rate based on a proper methodology every once in a while in order to evaluate vaccination quality and to prove available data. Cluster sample survey can be used as an alternative.
8. Coverage evaluation or cluster survey method can improve the quality of the data reported. ECO secretariat can provide technical and economical assistance for state members to perform periodical surveys.

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during

pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

Target: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Table 6.6- Maternal mortality ratio in Kyrgyzstan (1990-2008)

Years	vital statistics registries (18)	UN Modeled (19)	MICS (20)	Surveillance According to NCS (21)	Estimation (22)	Subgroups/ Inequity
1990	62.9					[Min=46.6&Max=90.]
1991	55.6					
1992	49.9					
1993	44.5					
1994	42.7					
1995	44.3					[Min=27.2&Max=160.]
1996	31.5					
1997	62.7					
1998	33.6					
1999	42.3			46.1		
2000	45.5			46.5	110	
2001	43.8			49.9		
2002	53.5			58.4		
2003	49.3			53.1		
2004	50.9			46.4		
2005	60.1	150		61		[Min=20.3&Max=94.8]
2006	55.5		104	53		
2007	51.9			62.3		[Min=26&Max=100.6]
2008	58.9					

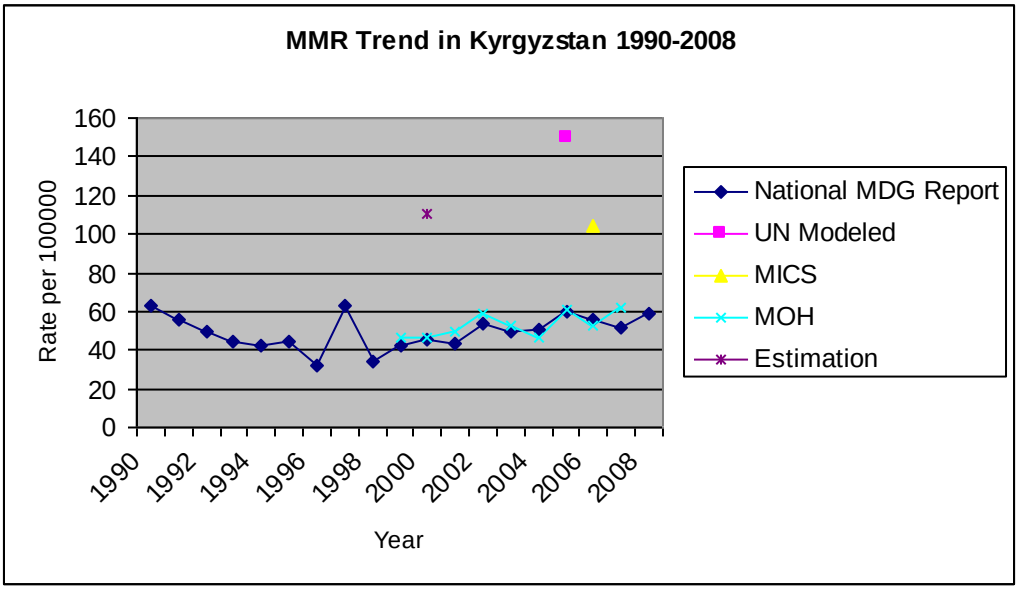


Figure 6.5- Maternal mortality ratio trend in Kyrgyzstan 1990-2008

Table 6.7: Maternal mortality ratio and other related index of MMR in Kyrgyzstan (1990-2008) (22, 27)

Indicators at a glance	Kyrgyzstan	European Region	CIS	CARK	EUR B+C
Contraceptive prevalence rate (CPR) all methods	60				
CPR for modern methods	49				
Unmet need for contraception	11.6				
Number of abortion per 1000 births (2007)	108.1	388.24 2006	541.32	170.2 2006	493.33
Ante natal care coverage	97%				
Skilled attendance at birth	97%				
Number of EmOC facilities	71				
Number of EmOC facilities per 500 000 *	6.77				
Number of caesarean sections per 1000 births (2007)	58.36	213.85 2006	146.75	63.54 2006	192.53
CS rate where known	6.1				
Rate of complications (% all births)	15				
Reported maternal mortality ratio (MMR)	60.85	12.77 2006	27.5 2006	36.73 2006	24.37 2006
Adjusted maternal mortality ratio (2005)	150	47	51		
Lifetime risk of pregnancy related death 1:	240				

5-2: proportion of births attended by skilled health personnel

Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.
Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.

Table 6.8- Proportion of births attended by skilled health personnel in Kyrgyzstan (1990-2009)

Years	Routine Reports (18,21)	UN data & DHS&MICS (20,24)	Subgroups / Inequity
1990	98.9		
1991	98.9		
1992	98.7		
1993	98.3		
1994	98.2		
1995	98		
1996	98.1		
1997	98.3	98.1	[Urban=99&Rural=97]
1998	98.5		
1999	98.5		
2000	98.6		[Min=97.4&Max=99.4]
2001	98.7		
2002	98.8		
2003	98.9		
2004	98.2		
2005	97.9		[Min=96.9&Max=99.3]
2006	98.4	97.6	[Urban=99&Rural=95]
2007	98.4		
2008			
2009			

Goal 5 findings:

1. The precise level of maternal mortality is not accurately known. While the Ministry of Health reported for 2005 a figure of 60.1 maternal deaths per 100,000 live births other available data suggest far higher levels ranging from 150 based on UN modeled and 104 based on MICS 2006 per 100,000 live births. A valid and accurate method should be considered.
2. The measurement of maternal mortality suffers from many of the same problems experienced with measuring maternal mortality in other parts of the world. Measurement of maternal mortality suffers from several problems: (i) it is often underreported since women die outside the health system. In countries where a large percentage of women give birth at home, the problem of underreporting is magnified; (ii) maternal mortality may be misclassified. Health workers may not know why a woman died, or whether she was or had recently been pregnant. Even if the health worker does know, the information is not always

recorded. Deaths are sometimes intentionally misclassified, especially if they are associated with clandestine abortions, (iii) Methods used to calculate maternal death rates are often complex and costly to use. The actual number of maternal deaths in a specific place at a specific time is relatively small. Therefore, very large populations must be surveyed in order to get accurate estimates(27

3. *There are Disparities in Maternal mortality* rate which are noted across oblasts, rayons and towns. (27).
4. Coverage of skilled attendance is high (98%) but there are concerns with quality of care. According to the 1997 DHS, 9.4 percent of women from poor households were likely to deliver at home, compared to 0.7 percent in the richest quintile (27).
5. Three leading causes of maternal deaths are pregnancy disorders (gestosis), sepsis (infection) and bleeding. The high prevalence of pregnancy disorders is caused by lack of timely antenatal care (27).
6. Coverage of antenatal care (by a doctor, nurse, or midwife) is nearly a standard in Kyrgyzstan with 97 percent of women receiving antenatal care at least once during the pregnancy. The TREND FROM 1997 TO 2006 : the overall number is the same but the role of the doctor has vastly increased. From 65% to 85%.(28,31)
7. Maternal mortality is dependent on the appropriate care of women during pregnancy, labor, delivery, and post partum, but is especially linked to the quality of hospital obstetric care for normal delivery and emergency care. It is highly dependent on competent provider skills. In the Kyrgyz Republic women have good access to antenatal and delivery care, with 97% of pregnant women receiving Antenatal Care and 97% delivering with a trained provider in hospitals. In addition, improved perinatal care practices have been introduced in 48% of all maternities, where monitoring data indicate an increase in active management of the 3rd stage of labor, and a decline in post partum hemorrhage. An additional achievement in Kyrgyzstan is the high contraceptive prevalence rate (47.8%), which is associated with fewer unplanned pregnancies, abortions and deliveries, and lower pregnancy related deaths. Despite these achievements, maternal mortality in Kyrgyzstan is still unacceptably high (32).

Goal 5 Comments:

1. The accurate and valid amount and the best source of maternal mortal rate should be clarified in Kyrgyzstan.
2. According to UN suggested model, the indicator rate is too high for Kyrgyzstan (150). If it would be really true, appropriate actions should be taken to reduce maternal mortality ratio.
3. Providing enough assistance for reducing maternal mortality ratio in this country can be a main base of support from ECO secretariat. ECO can help Kyrgyzstan through performing valid and continuous studies and surveillances for monitoring and evaluation of this indicator.
4. Despite significant progress there remains scope to reduce maternal mortality further and to improve the quality and impact of maternal health care as outlined in the RH strategy. Specific challenges include:
    a. Ongoing revision of protocols to provide the basis of improved maternal health care.
    b. Addressing the inadequate infrastructure for provision of universal quality services
    c. Training and motivation of service providers to address capacity and distribution issues.
    d. Strengthening of prevention activities including raising awareness of MCH issues, improved nutrition and improved access to family planning.

e. Improved quality of care through training, adoption of WHO compliant protocols and through developing and implementing performance monitoring and clinical case reviews. (29)

5. Further declines in maternal mortality are dependent on three key factors
   i. the scale-up of training and mentoring to remaining maternities to implement effective perinatal care practices;
   ii. training and mentoring on the management of obstetric emergencies, including hemorrhage and eclampsia, and
   iii. sustained access to Reproductive Health (including Family Planning) services and contraceptives especially for women living in rural and remote areas.(32)
6. *There are Disparities in Maternal mortality* rate are noted across oblasts, rayons and towns. it should be noted in the country maternal health program

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 6: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

Table 6.9- HIV/AIDS indicators related to indicator 6-1 in Kyrgyzstan (2000-2008)

Years	Total number of people infected with HIV (1,18)	Number of newly detected case of HIV/AIDS (1,19,21)	People living with HIV, 15-49 years old, percentage estimates (19)	AIDS deaths-estimated (19)
1987-2000	53	53		
2001	202	149	0.1	100
2002	362	160		
2003	494	132		
2004	655	161		
2005	826	171		
2006	1070	244		
2007	1479	409	0.1	500
2008		552		

Table 6.10- HIV prevalence among IDU, SW, MSM and prisoners (27) - (2005-2006)

Impact indicator in 2007 (27)		
1.	Percentage of SW who are HIV infected	**1.42%**
2.	Percentage of MSM who are HIV infected	**1%**
3.	Percentage of IDU who are HIV infected	**7.40%**
4.	Percentage of adults and children with HIV known to be on treatment 12 months after initiation of antiretroviral therapy	**67.61%**

- HIV prevalence rate among 15–24 years old pregnant women has not yet been evaluated through suitable methodology; this information was not accessible for researchers of this report. In this country no method and data collection process is being used to find the trend of this indicator.
- In fact four initial items in the table 6.9 are considered as proxies for introducing this indicator whenever there is no exact valid data for this indicator.
- Table 6.10 presents HIV **prevalence among IDU, SW, MSM and prisoners** which is the best proxy for this indicator in countries like Kyrgyzstan in which HIV/AIDS is not a generalized epidemic situation and is mainly intense among high risk groups.

6-2: Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

Table 6.11- Condom use rate of the contraceptive prevalence rate in Kyrgyzstan

Years	Source of data	
	DHS 25	**MICS** **20**
1997	9.6	
2006		**12.1**

This indicator was considered as a proxy for AIDS control and it was evaluated just twice without a remarkable change. It needs to be evaluated periodically.

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

Condom use in last high-risk sex .This indicator, for researchers of this report, was available just 2 times in Kyrgyzstan in 2006 and 2007. According to MICS 2006, it was 56% and according to UNGASS 2007, it was 65%. (20, 26)

This indicator should be measured annually and its trend must be considered fully.
Some behavioral indicators which are measured in Kyrgyzstan are presented in the table below:

Table 6.12- Behavioral indicator related this indicator in Kyrgyzstan in 2007

Behavioral indicator(27)		
1.	Percentage of young women and men aged 15-24 who have had sexual intercourse before the age of 15	**63.30%**
2.	Percentage of women and men aged 15-24 who have had sexual intercourse with more than one partner in the last 12 months reporting the use of condom during their last sexual intercourse	**80.44%**
3.	Percentage of SW reporting the use of a condom with their most recent client	**83.52%**
4.	Percentage of MSM reporting the use of a condom with their most recent client	**81%**
5.	Percentage of IDU reporting the use of a condom with their most recent client	**10.7%**
6.	Percentage of injecting drug users reporting the use of sterile injecting equipment the last time they injected	**84.00%**

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

This indicator was calculated by MICS in 2006 and it was 20.3 percent. Again, indicator was calculated by UNGASS in 2007 and the result was 31.76 %.(31.76% of young women and men aged 15-24 who both correctly identify ways of preventing the sexual transmissions) (20, 26)

This indicator should be measured annually and its trend must be considered fully.

Table 6.13- knowledge related indicators of HIV/AIDS in Kyrgyzstan 2007

Knowledge and Behavior related indicator(27)		
1.	Percentage of young women and men aged 15-24 who both correctly identify ways of preventing the sexual transmissions of HIV and who reject major misconceptions about HIV transmission	**31.76%**
2.	Percentage of SW who both correctly identify ways of preventing the sexual transmissions of HIV and who reject major misconceptions about HIV transmission	**35.51%**
3.	Percentage of MSM who both correctly identify ways of preventing the sexual transmissions of HIV and who reject major misconceptions about HIV transmission	**89%**
4.	Percentage of IDU who both correctly identify ways of preventing the sexual transmissions of HIV and who reject major misconceptions about HIV transmission	**63.60%**

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

Table 6.14- contraceptive prevalence rate in Kyrgyzstan (1990-2008)

Year	Routine Reports	UNGASS (25)	Surveys		Subgroups / Inequity
1997				59.5	
2006	39.4		47.8		[Min=35.1&Max=55.6]
2007	35.9				
2008		49			

This indicator should be measured annually and its trend must be considered fully. Goal rate for this indicator and its suitability or unsuitability shall be defined in MDG.

6-6: Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

There is no data available in Kyrgyzstan about Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years in Kyrgyzstan. In fact, like other countries in this region, it is not a good and proper indicator for HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population

Goals 6 (HIV/AIDS) Findings and comments:

- HIV incidence rate in Kyrgyz Republic is 26.1 per 100,000 people, but it is estimated by experts that today around 4,200 people are living with HIV/AIDS in the country. The highest HIV prevalence in the country is registered in the group aged 20-39, which is 77.4% of all the registered cases. The main way of HIV transmission is still injecting drug use. Out of 1358 registered HIV-infected people in KR, 980 (72%) are injecting drug users. Share of a sexual way of transmission has been increased from 3% in 2001 to 23.6% (321 cases) in 2007. 0.9% (13 cases) was from mother to child transmission, 3 % (41 cases) – nosocomial and 0.07% (1 case) homosexual. HIV-infection incidence has been increased among women from 9.5% (2001) to 22% (2007). According to SES' data, HIV/AIDS epidemic in Kyrgyzstan is on the concentrated stage, due to the HIV prevalence in sentinel group of IDUs is 7.4%. As of January 1, 2008 number of officially registered PLHIV is 1479, out of which 1358 are citizens of the country. 108 are AIDS patients. 166 HIV-infected have died, including 83 died of AIDS (27)
- Based on UNODC's evaluation on IDU, conducted in 2006, about 50% of IDUs are covered by prevention programs. It is necessary to expand harm reduction programs, consider SEP and methadone substitution therapy (MST).(27)
- It is necessary to develop tools and methods to make prevention programs reach unorganized youth, migrants and street children.
- For expansion of prevention programs on STI, it is necessary to introduce programs on social marketing of condoms.
- Citizens of the country, including representatives the vulnerable groups have no access to anonymous voluntary testing and psycho-social consulting. The system of VCT should be developed
- ECO secretariat can support member states through administration of surveys or establishment of monitoring bases to evaluate the indicator annually among the most vulnerable groups of population.

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Target: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 6.15- Incidence of malaria in Kyrgyzstan

Years	Routine Reports Incidence per 100000 (34)
2000	.2
2001	.6
2002	55.3
2003	9.3
2004	1.9
2005	4.4
2006	6.2
2007	1.8

Malaria incidence rate in Kyrgyzstan from 1990 to 2000 was very low and through all this years it was less than 0.5% per 100000 people. Moreover, according to country's health ministry there was no death caused by malaria after 2000.

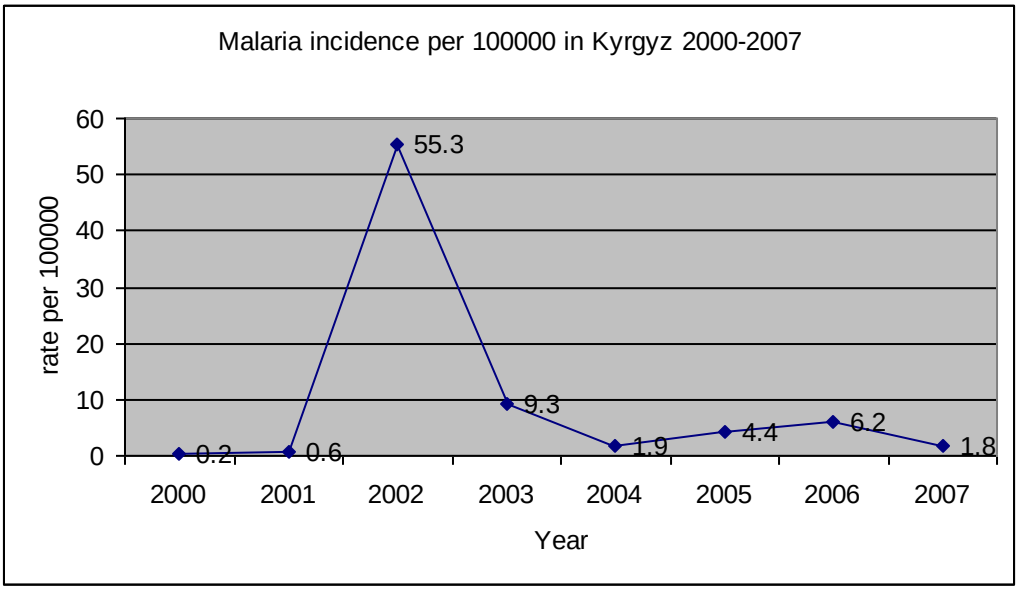


Figure 6.6--Malaria incidence rate in Kyrgyzstan (2000-2007)

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate ant malarial drugs.

There isn't any data for this indicator

Goals 6 (Malaria) findings and Comments:

1. Malaria incidence rate in the country is low and it has some variations; the peak of prevalence happened in 2002. Based on current status of the malaria in Kyrgyzstan MGG goals are achievable.
2. Now, malaria is not an important problem in Kyrgyzstan and desired goals had been achieved.
3. There is no data to control for 6-8 indicators in Kyrgyzstan. This indicator is not controlled normally in malaria program. It seems it is necessary to put measurement of this indicator in malaria reporting program and to establish required definitions. It is recommended ECO secretariat, like other countries, defines proper tools and methodologies for this indicator and introduces an easier way for data gathering and evaluation.
4. There are some questions for evaluating parts of this indicator in classic MICS, but they have been omitted from questionnaire in MICS 2006.

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Target: Have halted by 2015 and begun to reverse the incidence of tuberculosis and other major diseases

Table 6.16- TB prevalence and death rates in Kyrgyzstan (1990-2008)

Years	Tuberculosis incidence rate per year per 100,000 – estimated (35,19)	Tuberculosis prevalence rate per 100,000- modeled (19,35)	Incidence per 100000 data from NCS&MOH and surveillance (21)	Tuberculosis death rate per year per 100,000 population- modeled From UN SITE (35,19)	Subgroups / Inequity
1990	54.9	90.1	52.5	8.3	Incidence: [Min=3.4&Max =29.9]
1991			56.3		
1992			57.2		
1993			53.7		
1994			58.6		
1995	76.9	118	71.6	11.2	Incidence: [Min=54.3&Ma x=83.6]
1996	94.2	142	85.9	13.7	
1997	109.8	166	110.5	16	
1998	124.6	148	121	18.2	
1999	130	147	131.8	19	
2000	134.9	156	150.9	19.7	Incidence: [Min=86&Max= 142.]
2001	134.9	169	167.8	19.7	
2002	133.3	153	147.7	19.5	
2003	128.3	145	138.2	18.7	
2004	125.2	139	129.2	18.3	
2005	123.9	136	125.3	18.1	Incidence: [Min=70.2&Ma x=181]
2006	122.7	135	121.2	17.9	
2007		134	115.5	11.2	
2008			106	9.9	

For introducing this MDG indicator three indicators from TB program are used:

- TB incidence rate(Estimated by WHO and Notified by the country)
- TB prevalence rate
- TB death rate

All these three indicators are presented in above table.
In current routine TB reporting system and in most of the prepared reports usually TB incidence rate is evaluated and this indicator can be extracted from the reporting system. References of the above indicators are:

- National Health ministry reports
- WHO website
- National MDG 2009 report

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Target: Have halted by 2015 and begun to reverse the incidence of malaria and other major disease

Table 6.17- TB detection and treatment in Kyrgyzstan (1990-2009)

Years	case detected rate All forms (35,21)	case detected rate Smear positive (35,21)	Tuberculosis detection rate under DOTS, percentage Estimated (19)	Tuberculosis treatment success rate under DOTS, percentage-Country data (19)	DOTS coverage (35,21)
1990					
1995					
1996			2.9	87.5	
1997			3.5	75.6	
1998			30.8	82.2	
1999			57.5	82.8	
2000	89	43	41.9	82	85
2001	-	-		81	85
2002	93	52	48	82	98
2003	25	56	55.8	84	100
2004	88	61	60.7	85	100
2005	92	68	65.6	85	100
2006	89	64	63.2	82	100
2007	88	60		-	100
2008					100
2009					

For introducing this indicator some measures are offered. These measures are:

- Case detected rate (All forms)
- Case detected rate (Smear positive)
- Tuberculosis detection rate under DOTS strategy
- Tuberculosis treatment success rate under DOTS strategy
- DOTS coverage throughout the country

These measures shown in above table.

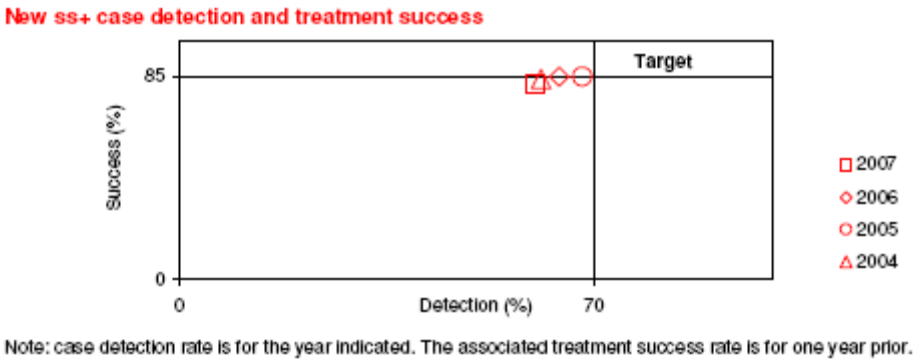


Figure 6.7- New smear positive case detection and treatment success in Kyrgyzstan (2004-2007)

Goals 6 (Tuberculosis) Comments:

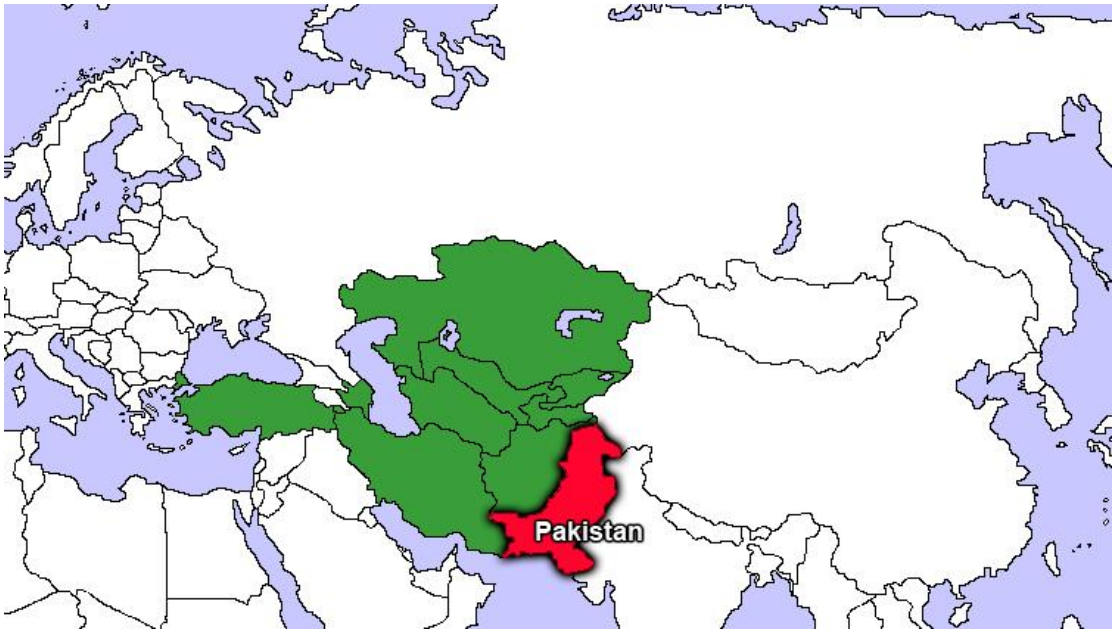
1. TB incidence and prevalence indicators in Kyrgyzstan have increased about 3 times from 1990 to 2001. Since that time they had a slight decrease. Considering current status, it is difficult to achieve indicator goal by 2015. This is true as well about TB death rate.
2. TB incidence rate is high in this country, and it should be recognized as a basic health priority and required tools should be provided.
3. ECO can help Kyrgyzstan to control Tb
4. Tb case detection rate especially for smear positives have been always lower than estimated rates during recent years. This indicator should be improved.
5. Treatment success rate has been higher than 80 percent since 2000 which is not far behind Tb program goal (85 percent).
6. The rate of detection under DOTS strategy is low and this rate should reach at least 70 percent. This country needs to try more to achieve goals. ECO can assist Kyrgyzstan through this process.
7. According to Kyrgyzstan and UN reports this country achieved the goal of 100 percent of DOTS strategy coverage since 2003. In this step improvement of quality and evaluation should be magnified.
8. Generally speaking, one of the problems in this country about Tb is the low number of detection comparing with estimated rates. Some countries are complaining about unreal estimations by world health organization. ECO secretariat can support them technically and directly through applying good methodology for proper TB estimation.

References

1. The EFA 2000 Assessment ,Kyrgyzstan Country Reports by UNESCO, available at: http://www.unesco.org/education/wef/countryreports/tajikistan/rapport_1.html-
2. Kyrgyzstan profile in Library of Congress , Federal Research Division, Country Profile available at: http://lcweb2.loc.gov/frd/cs/profiles/kyrgyzstan.pdf
3. Country General information available at wikipedia site : http://en.wikipedia.org/wiki/Demographics_of_Kyrgyzstan#Population)
4. Kyrgyzstan profile in central international agency world fact book, available at: https://www.cia.gov/library/publications/the-world-factbook/geos/kg.html
5. National statistical committee of the Kyrgyz republic, women and men in the Kyrgyz republic, UNFPA, Bishkek 2007
6. BUCEN-IDB2007. (Bureau of the Census Inter-American-Development Bank)
7. UNDP DATA available at: :http://hdrstats.undp.org/countries/data_sheets/cty_ds_KGZ.html
8. who country profile: http://www.who.int/countries/kgz/en/
9. Manas talimi report-2008-MoH of Kyrgyz
10. Philip Musgrove, Riadh Zeramdini, & Guy Carrin- Special Theme -Basic patterns in national health expenditure– Bulletin of the World Health Organization 2002, 80
11. UN DATA available at: http://data.un.org/
12. Kyrgyzstan health system, Data as of March 1996 avalable at:http://www.photius.com/countries/kyrgyzstan/society/kyrgyzstan_society_health_care_system.html
13. health indicator from MoH.. http://www.mdgmonitor.org/factsheets_00.cfm?c=KGZ&cd=417
14. TB Global fund available at global website
15. Adilet-Sultan Meimanaliev,Ainoura Ibraimova,Bolot Elebesov and Bernd Rechel, Health Care Systems in Transition, World Health Organization 2005, on behalf of the European Observatory on Health Systems and Policies
16. World Health Organization Regional Office for Europe Copenhagen 1996,Health Care Systems in Transition Kyrgyzstan, , CARE 04 03 06 Target 36.01.01
17. Zulfiqar A. Bhutta & Yasir P. Khan; Bishkek, 2009. Maternal and newborn health in Kyrgyzstan and chui oblast
18. The second periodic progress report on the millennium development goals in the Kyrgyz republic .MDG,MoH OF Kyrgyzstan.2009.
19. 19. MDG indicators from UN site\unstats Millennium Indicators Kyrgyz. http://mdgs.un.org/unsd/mdg/
20. Multiple Indicator Cluster Survey,Kyrgyz Republic, 2006, National Statistical Committee of the Kyrgyz Republic and UNICEF
21. MoH (Ministry of health),official reports.
22. Adilet sultan meimanaliev remigijus prochorskas,EUROPE WHO ,Availability of data in CIS countries on the health related indicators of the Millennium Development Goals
23. UNICEF:(SOWC -Childinfo.org) available at: http://www.childinfo.org/
24. Kyrgyz Republic Demographic and Health Survey(DHS), 1997 http://www.indexmundi.com/kyrgyzstan/condom-use.html
25. UNGASS 2007, Kyrgyzstan: Progress towards Universal Access and The Declaration of Commitment on HIV/AIDS,Data from Kyrgyzstan UNGASS country progress reports (2003, 2005 and 2007) and additional correspondence with country.
26. Follow-up to the UNGASS,Declaration of Commitment on HIV/AIDS,Country report, Reporting period: January 2006 -December 2007, THE KYRGYZ REPUBLIC)

27. Report No. 33102-ECA,Operationalizing the Health and Education MDGs in Central Asia.(In Two Volumes) Volume II:Kyrgyz Republic Health and Education Case Studies.June 2005,Human Development Sector Unit.Europe and Central Asia Region
28. TRENDS IN CHILD INDICATORS,KYRGYZSTAN,1997-2006,Based upon surveys.,Dirk Westhof,UNICEF
29. Desk Review on the Progress in Maternal Health Achieved in Eastern Europe and Central Asia.Linking the national reporting and commitments on MDG 5 targets March 2009.Sue Newport
30. Country cooperation strategy at a glance, WHO, WHO/CCO/06.04/Kyrgyzstan
31. Summary of TRENDS IN SOCIAL INDICATORS- KYRGYZ EPUBLIC, 1996-2006.
32. Joint Midterm Review,Manas Taalimi Health Reform Program,May 2008
33. The Kyrgyz Republic,2003,millennium development goals progress report
34. Ministry of Health, Malaria division, Official data
35. tuberculosis indicators from country profile in the WHO website available at: http://www.indexmundi.com/kyrgyzstan/tuberculosis-morbidity.html
36. www.rpi.edu/~hugheg/ssme/Health_financing_data.xls

Chapter 7. Islamic Republic of Pakistan



Pakistan Demographic, Socioeconomic and Geopolitical Status

Pakistan occupies some 803,940 Sq Kilometers, a fourth of the size of India and 3.5 times as big as the UK with the river Indus flowing from Himalayas to Karachi, forming a vast fertile densely populated alluvial floodplain in the East, bounded in the north and west by mountains rising to 8,611 Km and 8,126 at Nanga Parbat and mostly flat plains and deserts to the South. The geographical and climatic features are the principal determinants of the regional variations in population density. Major features of the population data are: 1) approximately 1/3 of the population lives in the urban areas and 2) The country is marked by a large youth population. (1)

Figure 7.1- Pakistan map and its geographic status

Table 7.1- Population Density of Pakistan 1998 (39)

Pakistan area	Area km	Population	%	Population Density (per sq.km.)
AJK	-	2,915,000	2	-
BALOCHISTAN	347,190	6,566,000	5	18.9
FATA	27,220	3,176,000	2	116.7
ISLAMABAD	906	805,000	1	888.5
NWFP	74,521	17,744,000	13	238.1
PUNJAB	205,345	73,621,000	54	358.5
SINDH	140,914	30,440,000	23	216.0
PAKISTAN TOTAL	796,096	135,267,000	100	169.9

Table 7.2- Population characteristics of Pakistan 2002(40)

Population characteristics	
Population*	145.5
World ranking**	6
Growth rate	2.1%
Population density	166 persons/sq.km.
Urban Population	32.5%
< 15 Years	43.4%
15-64 years	53.09%
> 65 years	3.5%
Population Doubling Time	33 years
Sex Ratio (Male: Female)	108.5:100

It is the most populous country in the Eastern Mediterranean Region with a population of 149.5(2000-2002) million spread over four provinces (Punjab, Sindh, North West Frontier Province and Baluchistan) and four federally administered areas. These are further divided into 126 districts, which have 8575 union councils and 50 568 villages.(2) The population is expected to reach 168 million by the year 2010 with the current growth rate of 1.9%.(3)The average adult literacy rate is just above 50% with an urban bias and significantly lower female literacy (32%).(4) Pakistan's ranking is 142 in the human development index (HDI).(5) The GDP per capita of the country was US$ 580 in 2003.(6) Pakistan is an Islamic republic with a parliamentary system of democracy. The Prime Minister is executive head of the government, with provincial governments in the four provinces. The geopolitical situation in Pakistan has been affecting the economy of the country for the past two decades. The fallout of the Afghan war and the situation after 11 September 2001 has had significant impact on all the social sectors in Pakistan. Large-scale, unregulated internal and international migration poses the threat of epidemics and outbreaks of disease. In 2001, the Government of Pakistan announced a plan to devolve financial and administrative authority to the district level with the aim of scaling up investment in the social sector and enhancing rational utilization of services in pursuit of poverty reduction and the MDGs. Since the devolution plan has been in place, performance has been mixed, with some improvements in the health sector.(7) The Pakistan Poverty Assessment Survey (2000–2001)(8) estimates that 32% of the Pakistani population lives below the poverty line, of whom two-thirds are transitory poor.(9) The country has had variable periods of economic growth since independence. Periods of low growth rate (1990s) have alternated with periods of high growth (1980s) and for the last 2–3 years the country has shown an impressive growth trajectory, although the social indicators have yet to catch up.(6)

Table 7.3- Socioeconomic status and indicators of Pakistan

Socio-economic data	Year	Estimate	Source
Gross national income, ppp, per capita (Int.$)	2006	2 410	World Bank
Per capita total expenditure on health (Int.$)	2005	49	World Health Statistics 2008, WHO
General government expenditure on health as % of total government expenditure on health (Int.$)	2005	1.5	World Health Statistics 2008, WHO
Adult literacy rate, both sexes (%)	2006	50	UNESCO
Adult literacy rate, male (%)	2006	67.7	UNESCO
Adult literacy rate, female (%)	2006	39.6	UNESCO
Net primary school enrolment ratio, male (%)	2006	73	UNESCO
Net primary school enrolment ratio, female (%)	2006	57	UNESCO
Human Development Index (ranking)	2007/2008	136	UNDP
Human Poverty Index (ranking)	2007/2008	77	UNDP

Table 7.4- Health Expenditure in Pakistan

Indicators	1996	2000	2002	2005
Total health expenditure as percent of GDP	2.5	2.8	2.6	2.4
Total health expenditure in US $ per capita (average exchange rate)	16	14	13	13
Total government health expenditure on health as % of total expenditure on health	5	4	4	5
Private expenditure in health as % of total expenditure on health	67.4	67	65.3	72.3
Total public sector health expenditure in billion Pak Rupees		24.28 billions in US $	28.81 billions in US $	40 billions in US $

Source: A Country specific Strategic Analysis for Reaching the Millennium Development Goals 4 and 5 in Pakistan, Ministry of Health and UNICEF

A brief account of health care system of Pakistan

Organizational structure of public system: Under the Pakistani constitution, health is primarily the responsibility of provincial governments, except in the federally administered territories. The Federal Government is however, responsible or planning and formulating national health policies, although the responsibility for implementation rests largely with the provincial governments. The federal Ministry of Health is responsible for the implementation of some vertical programs on AIDS and malaria, and extended program of immunization. Health care provision in Pakistan comprises private and public services. The private sector serves nearly 70% of the population, is primarily a fee for service system and covers the range of health care provision from trained allopathic physicians to faith healers operating in the informal private sector. Neither private, nor non government sectors work within a regulatory framework and very little information is available regarding the extent of human, physical, and financial resources involved. The public sector comprises more than 10,000 health facilities ranging from Basic Health Units (BHUs) to tertiary referral canters. At present a BHU covers around 10,000 people whereas the larger Rural Health Centers (RHCs) cover around 30000-450000 people. In Pakistan, Primary Health Care (PHC) units comprise both BHUs and RHCs. Currently there are 22tertiary care facilities in Pakistan, which are mostly teaching institutions located in the major cities. TP Less than 30 % of the population uses the facilities of the PHC units and some studies indicate that, on average, each person visits a PHC facility less than once a year. Planning for health care in Pakistan comprises a formal planning, which resolves around the production of 5-15 year long term plans, short-term plans (ADP) and annual recurrent budgets. The Federal Ministry of Planning and Development, popularly known as Planning Commission, is primarily responsible for long term and strategic planning, and the Ministry of Health and Provincial Health Departments design their plans in line with the overall policies of the Planning Commission. Developing appropriate plans that can be implemented requires information on health status in conjunction with other social development indicators. 'Needs assessment' for health care programmes in Pakistan is usually based on the size of the population in an area. the specific needs of that area are often not taken into account directly, nor are issues such as access to services and disease pattern .Whereas the private sector is primarily a fee-for-service system. The public health sector at present generates a negligible amount of resources through token user charges. The main source of financing of the public sector is the government. Capital investment in the public sector is financed through Annual Development Plans (ADPs) that also include external funding derived from foreign aid (overseas funding) from both bilateral and multilateral organizations. Federal government substantially finances provincial development budgets, but the provinces make independent regarding allocation of funds over

various sectors. The provincial non envelopments budgets are funded from provincial government revenues, although the Federal Government covers existing deficits through non obligatory grants. Although public sector expenditure on health has remained less than 1% of GNP for a long time, per capita health expenditures have increased enormously in last decades. The total percentage of GNP spent on the health in Pakistan ranges between 3 and 4 percent, with 2-3 percent of GNP spent on private health care.(37)

Below is a brief account of different components of health system in Pakistan including Governance, Health finance, Health services, Human resources, and Health Information system and some comments on each of them. The Federal Ministry of Health and provincial health departments are the main organizations for maintaining the health system. However, there is a limited capacity for policy development especially in line with WHO policy analysis tools. The latest National Health Policy was prepared in 2001, it emphasizes on protecting people against hazardous diseases, promoting Public Health and upgrading curative care facilities(12) However, it has not been revised since then and is not suitable for the current epidemiological trends and burden of disease. The estimated total health expenditure in Pakistan is US$ 18 per capita of which public expenditure on health is US$ 4 per capita. (10) However, during 2003–2004, public health expenditure was estimated at Rs 32.80 billion (US$ 565 million) of which Rs 8.5 billion (US$ 146 million) was development and Rs 24.30 billion (US$ 418 million) recurring, which is 0.84% of GNP. Pakistan still faces the challenge of high out-of-pocket payment accounting for over 75% of total health expenditure. There is limited experience with social health insurance, except for the employees' social security insurance (ESSI) scheme under the Social Welfare Department. (11) Regarding the Service delivery, the package of the public sector Primary Health Care has not been revised since 1980. The essential MNCH services have limited availability and accessibility. Community base family oriented services are limited to 59% of the population covered by Lady Health Workers. Outreach services are only limited to EPI and lack regular support and supervision. Clinical services are not available for evidence based interventions, due to lack of clear policy, inadequate provider skills and irregular availability of essential commodities as ORS, antibiotics and contraceptives. (12) There is also a need for capacity building in Lady Health Workers. A major challenge is the imbalance in the health workforce and the lack of nurses, paramedics, skilled birth attendants and health system managers. Currently, for every three physicians there is one nurse and almost 70% of deliveries are not conducted by a skilled birth attendant.

Table 7.5- Human resources for health in Pakistan

personnel	Year		
Health personnel	1990	2000	2003
Registered doctors	52 794	92 734	108 062
Registered nurses	16 948	37 623	46 331
Registered lady health workers (LHWs)*	—	43 000	71 600
Population per doctor	2 082	1 529	1 404
Population per nurse	6 374	3 732	3 296

* LHW Programme started in 1993 SOURCE: Pakistan Country Cooperation Strategy for WHO and Pakistan 2005-2009

There has been insufficient development of an information culture and use of evidence in informing decisions by policy-makers and programme managers, and information systems are not geared to monitoring progress including that of the MDGs. The health management information system (HMIS) established in the 1990s suffers from inaccuracy of data reported and infrequent reporting by health facilities. The HMIS needs updating to cover the hospital sector and additional resources to sustain its operational costs. (11)

Methodology and Visits

The evaluation team conducted the evaluation based on these ways:

1. Reviewing documents available in journals, books, reports, and internet
2. Reviewing documents available from MOH in the country (published and unpublished sources)
3. Reviewing documents available from the UN Agencies in the country(published and unpublished sources)
4. Visit the country during the 31 August to 10 September 2009 and holding interviews with related persons in MOH and UN agencies including:
    i. Muhammad Aslam Khan, Director, Malaria control, Ministry of Health, Islamabad
    ii. Muhammad Mukhtar, Senior Scientific Officer, Incharge Research and Development wing
    iii. Dr Qutbudin Kakar, WHO, M.O.R.B.M
    iv. Dr Qudsia,
    v. Dr Hassan
5. Key informant interviews
6. discussion in expert groups about results and methods
7. Reviewing WHO and UN MDG-related documents and international and national related sources and services
8. arrangement and template planning for gathered data and analysis and assessment of the collected data
9. putting data in its related category and table and designing the best presentation methods
10. inserting related data and findings under each indicator's category
11. making proper recommendations related to each indicator's category according to the findings

Goal 4: Reduce Child Mortality

4-1: Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.
Country Definition: Pakistan has adopted the international definition of live births. That is taken as a rate per 1,000 live births.

Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Table 7.6- Under-five mortality rate in Pakistan

Years	Source(13)	Estimated for MDG by UN(27)
1990	140	132
1995		119
2000	105	106
2005	100	95
2007		90
PRSP Target 2005-06	80	
MTDF Target 2009-10	77	
MDGs Targets 2015	52	

4-2. Indicator: Infant mortality rate

Definition: The Infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1000 live births in a given year
Country definition: Pakistan has adopted the international definition of live births
Target: Reduction of infant mortality rate by two thirds, between 1990 and 2015

Table 7.7- infant mortality rate in Pakistan

Source (13)	Estimated by UN Site(27)	Years
102	102	1990
	93	1995
77	84	2000
73	76	2005
	73	2007
63		PRSP Target 2005-06
65		MTDF Target 2009-10
40		MDGs Targets 2015

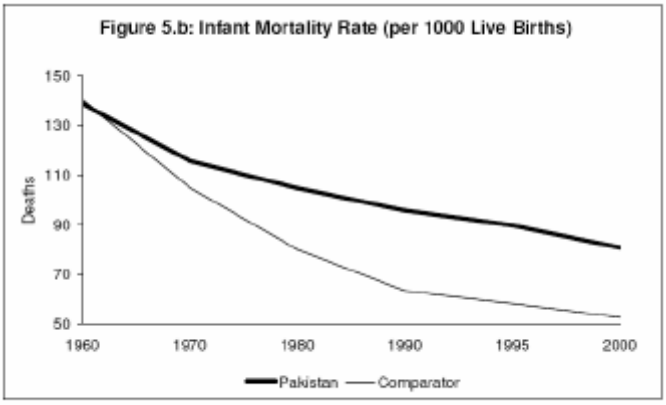


Figure 7.2- Infant mortality rate Trends in Pakistan (38)

The major causes of post-infant and under-five mortality are diarrhea (24%) and pneumonia (22%). Therefore there has been an increasing use of ORT from 19% to 48% in the last 10 years and an increase of 16% to 50% in the use of antibiotics in the last 15 years. This problem can be addressed by advocacy on the importance of hand washing.(14)

4-3: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

Table 7.8- proportion of 1-year-old children immunized against measles (1990-2008)

Years	Source (13)	Estimated by WHO (27)
1990	80	50
1995		47
2000	57	56
2005	78	75
2006		80
2007		80
PRSP Target 2005-06	80	
MTDF Target 2009-10	90	
MDGs Targets 2015	90	

Goal 4 findings and comments:

Pakistan has the eight highest rates of newborn deaths in the world, the main causes of death in the first month of life include birth asphyxia, infections including sepsis and causes related to prematurity. Skilled birth attendance is 39% and post natal care is as low as 22% which have great implications on newborn and maternal deaths. Although the mortality of children under five years of age has decreased from 130 per 1,000 live births in 1990 to 94 in 2006, it still needs to be controlled. At present the under-five mortality rate is about 90 per thousand live births and infant mortality rate is 70 per thousand live births. This implies that 432,000 deaths under-five and 248,170 neonatal deaths occur every year in Pakistan. Low awareness, poor health practices and lack of medical services, including antenatal care and skilled attendants at birth, contribute to Pakistan's high maternal mortality and infant mortality rates. There is considerable difference in

mortality trends and availability of health services in different provinces of the country and also among rural v/s urban and poor v/s rich, being higher in the urban and poor and lowest in Punjab. Health services are not available in remote areas. The natural disasters e.g. the earthquake in 2005 has destroyed a considerable proportion of health service facilities (as much as three quarter of health facilities in the earthquake stricken areas). The inconsistency caused by Afghan war and the conflicts between militants and armed forces in NWFP and FATA have caused negative effects on health care delivery and accessibility in many areas. Malnutrition in the mothers of children under five has affected their health and their children's health. The chance for underweight children dying in the first year of their life is 68%. Although exclusive breast milk provides sufficient nutrition for children under 6 months of age and has protective qualities, only 37% are exclusively breastfed. (15).The prevalence of under-weight children has been stagnant around 40% from 1990s showing no reduction in the underlying cause of under-five mortality. In Pakistan, the coverage of fully immunized children in 12-23 month age bracket increased from 53 in 2000-01 to 77 % in 2004-05. (16)Immunization coverage is different in different provinces. This issue needs great attention.

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

Target 5. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Table 7.9- Maternal mortality ratio in Pakistan

Years	Source (16)	WHO model (27)
1990	550	
2000	350	
2005	400	320
PRSP Target 2005-06	300	
MTDF Target 2009-10	300-350	
MDGs Targets 2015	140	

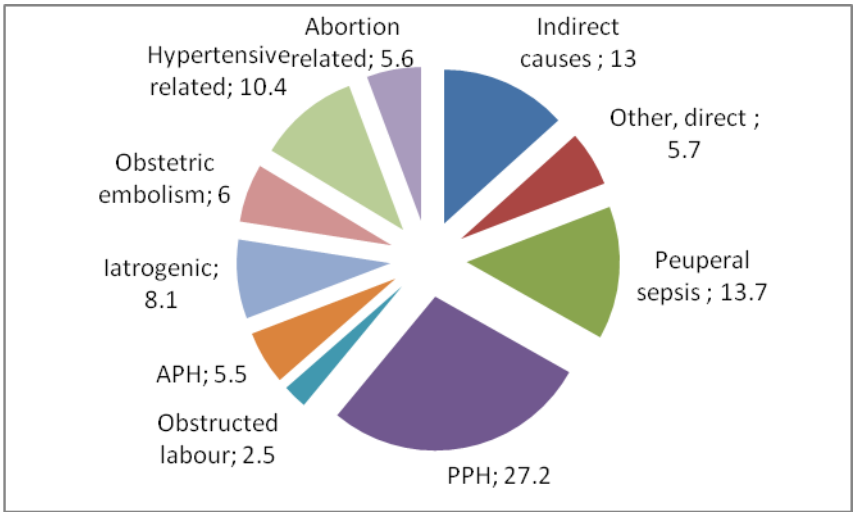


Figure 7.3- Causes of maternal deaths in Pakistan 2005 (15)

5-2: proportion of births attended by skilled health personnel

Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.(Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.)

Table 7.10- proportion of births attended by skilled health personnel in Pakistan

Years	source (16)	Estimated by WHO (27)
1990	18	
1991		18.8
1999		18
2000	40	
2005	48	31
2007		38.8
PRSP Target 2005-06	75	
MTDF Target 2009-10	60	
MDGs Targets 2015	90	

Goal 5 Findings and Comments:

Goal five aims at reduction of maternal mortality by three quarters between 1990-2015. The Prime Minister of Pakistan has committed to provide universal coverage to Reproductive Health (including Family Planning) by 2015 and had emphasized it in the foreword to MDGR 2005. Contraception need and proportion of fertility among married women 15-19 years have been proposed as new indicators to monitor the progress towards achieving the target. In 1994, the *Lady Health Worker Program* was started to address some of the short comings in the basic health care services. The number of lady health workers had reached 95,000 by November 2005. The *National Maternal and Child Health (MCH)* has also been launched since year 2000 with the aim to tackle

inequities in quality health services in different parts of the country. Many of the factors described in the previous section on *Goal 4 Findings and Comments* effect the maternal health as well, including disproportionate availability of health services, lack of awareness, lack of medical services, poor health practices, including antenatal care and skilled attendants at birth causing a maternal mortality rate of 276 deaths per 100,000 live births. Mothers who do not space their pregnancies are at higher risks. Other attributable causes are high fertility rates, illiteracy, and malnutrition and low skilled birth attendance rate. The chief causes of death are eclampsia, hemorrhage and sepsis while 8 % of maternal deaths are caused by low quality obstetric emergency care services.

As a solution it is vital to conduct training for health workers dealing with Gynecology and Obstetrics. Further advocacy and aware raising on maternal, newborn, antenatal care and child health needed.

The contraception prevalence rate (CPR) had increased between 1991-2001 it is still low, that is 30% out of which only 22% accounts for modern methods of contraception. The failure of traditional methods leads to high rates of surreptitious abortions that is 29,000 abortions per year. Further complicating the issue, there are no adequate availability, accessibility and proper quality of post abortion care. These factors contribute to reproductive morbidities and complications. The health sector needs to be improved in terms of Reproductive Health (including Family Planning) services. This is one of the most cost-effective yet efficient ways to improve maternal, new born and child health. These measures should be supported and promoted within the religious, social and cultural norms of the country, taking into account the high risk population including adolescent girls and those living in remote rural and tribal areas. Special attention should also be paid to maternal malnutrition which leads to maternal anemia, low birth weight and fetal loss.

The national program for Reproductive Health (including Family Planning) and primary health care (commonly known as Lady Health Workers Program) that is contributing for achieving the above mentioned MDGs. This is a government founded program that is providing Reproductive Health (including Family Planning) and primary health care services at the doorsteps of communities. At present about 10000 Lady Health Worker (LHWs) are working across the country particularly in rural and less developed urban areas.

The main role of LHWs is health education and health promotion. The scope of work of LHWs can be summarized as under:

- To organize community by developing women groups and health committees in her area. The LHWs arrange meeting of these groups in order to effectively involve them in family planning, primary health care related community development activities.
- Act as a liaison between formal health system and the people and ensure coordinated support from non-governmental organizations and other departments.
- To motivate and counsel clients for adoption and continuation of Family Planning methods.
- To coordinate with local traditional birth attendants / midwives or other skilled birth attendants and local health facilities for appropriate antenatal natal and postnatal services.
- As part of their tasks, LHWs undertake nutritional interventions such as anemia control, growth monitoring, assessing common risk factors causing malnutrition and nutritional counseling. LHWs promote nutritional education with emphasis on breast-feeding.
- To coordinate with extended program for Immunization (EPI) for immunization of mothers against tetanus and children against immunizable diseases. The LHWs trained in giving vaccines themselves ensure timely vaccinations with support from the local health facility/EPI staff.

- To carry out prevention and treatment of common ailments e.g. malaria, diarrheal diseases, acute respiratory infections, and intestinal parasite etc. LHWs are also involved in TB-DOTS and Malaria Control.
- To disseminate health education messages on community hygiene and sanitations as well as information regarding preventive measure against spread of HIV/AIDS.(ref: Pakistan governmental letter to ECO)

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 6: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

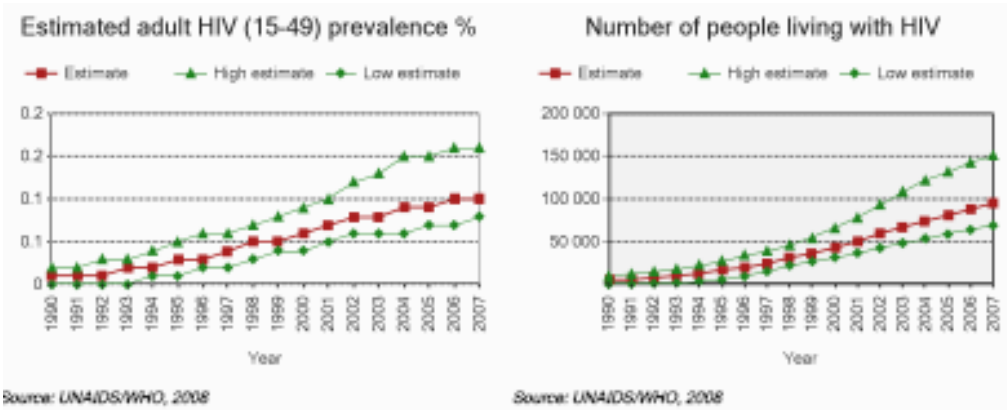
Table 7.11- HIV/AIDS indicators in Pakistan

Years	Total number of people infected with HIV (27)	People living with HIV, 15-49 years old, percentage-Estimated (27)	AIDS deaths Estimated (27)
2001		0.1	1000
2007	85000	0.1	5000

Based on UNAIDS website last estimated numbers in Pakistan are below(28,33):

- Number of people living with HIV are 85000 [46000 – 210000]
- Adults aged 15 to 49 HIV prevalence rate is 0.1% (0.1%-0.2%)
  - Adults aged 15 and up living with HIV are 84000 (45000-210000)
  - Women aged 15 and up living with HIV 14000 (6600-36000)
  - Deaths due to AIDS 3000 (700-4900)
  - HIV Prevalence in Most-At-Risk Populations
- IDUs: 26% (Karachi), 12% (Sargodha), 9.5% (Faisalabad), 24% (Quetta), 8% (Larkana) (mid 2005 (
- Sex Workers: 2% (Karachi), <1% (Lahore & Rawalpindi

The HIV epidemic is changing rapidly in especially among injecting drug users. Estimates in 2004 indicate a move from a nascent epidemic to a concentrated epidemic among injecting drug users in Sindh, a situation not very different from other countries of Asia and the rest of the world**(29)**



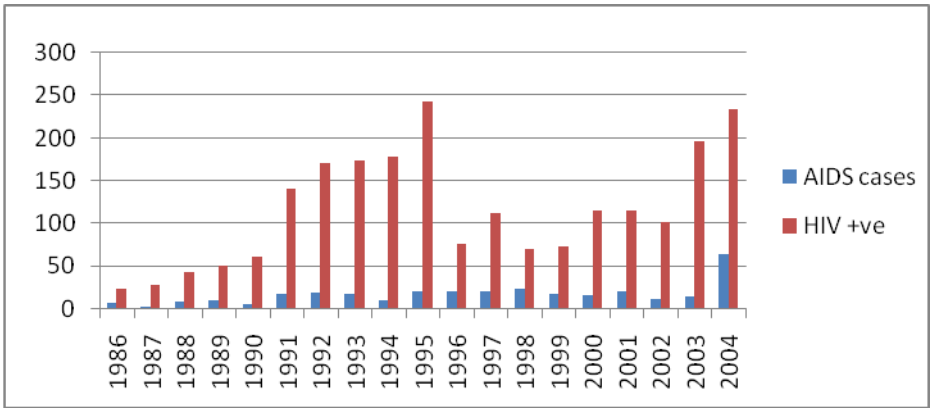


Figure 7.4- Epidemiologic fact sheet on HIV and AIDS-pakistan-2008 UNAIDS (29)

6-2: Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

Definition &Method of computation for computation:

Definition: Ratio of condom use to contraceptive prevalence. It is expressed as a percentage of all current contraceptive use among married women 15-49 years old.

- Method of computation:

$$\text{Condom use ratio} = \frac{\text{Contraceptive prevalence, condom use}}{\text{Contraceptive prevalence}} \times 100$$

Contraceptive prevalence, condom use is the percentage of women married or in-union aged 15 to 49, whose sexual partner is currently using a male condom. Contraceptive prevalence is the percentage of women married or in-union aged 15 to 49, who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used.

Table 7.12- Condom use rate of the contraceptive prevalence rate

Year	Routine Reports (27)
1990	2.7
1993	4.5
1995	3.7
1997	4.2
2001	5.5
2003	6.4
2006	5.2
2007	6.8

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

There isn't any data for this indicator in Pakistan.

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

This indicator was 3 in 2007 based on UN MDG goals data monitor(27,29)

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

Table 7.13- Contraceptive prevalence rate in Pakistan

Years	Contraceptive prevalence rate (27)
1991	11.8
1993	21.9
1995	17.8
1997	23.9
2001	27.6
2003	32.1
2006	26
2007	29.6

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

There is no data available in Pakistan about Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years. In fact, like other countries in this region, it is not a good and proper indicator for HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population

Goals 6 (HIV/AIDS) Findings and comments:

The HIV epidemic in Pakistan is currently in its early stages, and according to new research[1] it is most prevalent among injecting drug users. However, the research has identified several factors which indicate a strong possibility of the epidemic spreading. First, the most-at-risk populations in Pakistan (people who inject drugs, and men, women and transgender people who sell sex) were found to have very high levels of sexually transmitted infections (STIs) other than HIV. Second, they were found to have severely limited or no access to sexual health services, and limited knowledge of the risks of STIs and HIV. Third, the research identified complex sexual and social networks between at-risk populations and the general population, which are potential routes for HIV transmission. Individually, these conditions give cause for concern; combined, they indicate the need for immediate action. Until now, limited data made it difficult to grasp the scale of the unfolding epidemic and to identify ways to tackle the problem. This new evidence provides a clear course of action for policymakers and other stakeholders. One of the Major challenges for the field

is a long way that the country still has to go to assure comprehensive and right-based HIV/AIDS care for all its citizens, especially the vulnerable and the historically marginalized people. Active involvement of policy makers, religious authorities, health care workers, and most outstandingly "real" people in the society, is essential. Stigma is one of the main important challenges in this region In Pakistan, the national response to HIV/AIDS is spearheaded by the Ministry o fHealth's NACP, which is a federal-level program supported by implementation units at the provincial level working under Provincial Departments of Health. For this reason, initial strategic planning efforts have been undertaken at the central level, with significant input from key provincial partners. One advantage of this kind of centralized planning process is that such an approach will facilitate the integration of HIV/AIDS prevention strategies into the plans of other government departments and ministries. The model of strategic planning which has been followed in the development of the National HIV/AIDS Strategic Framework is a process, rather than a single planning event. This process is comprised of several steps: situation and response analysis, strategic framework formulation, and resource mobilization .Although HIV prevalence is still low in Pakistan at present, there is an urgent need for prioritized and coordinated action to contain epidemic. There is a lack of inter- sectoral collaboration. New organizational structures and a proper advocacy to introduce AIDS as a societal issue rather than a mere health issue are recommended. Also new forums should be established such as websites and or newsletter to share and update information among different stakeholders. Little work has been done in regard with school initiatives and street children; in addition to these there are other vulnerability factors including poverty, gender inequalities, low levels of education and literacy recent documentation Poverty is undeniably on the rise in Pakistan, and that there are at least 36 million people (or 6 million households) that fall below the poverty line. (18) Research shows a close relationship between the two. Services should be designed, expanded and implemented for the youth. They should be treated as high risk group. Very little progress has been achieved on the management of STIs and raising awareness among the public with often inaccurate messages. Pakistan has currently a total number of some 53.6 million youth many of whom are unemployed and out of school (19) in order to build an effective response to prevent HIV among the public, they should be provided with information, skills and tools to protect themselves against HIV. Large number of migrants is another underlying cause for increase in prevalence of HIV. A significant number (around 4 million) are employed overseas especially in Gulf countries (20) In addition, the country has hosted millions of Afghan refugees over the last three decades and is even now hosting around 2.5 million Afghan refugees (21). Screening of blood and blood products remain to be an important issue although some progress has been achieved. It is estimated that 40% of the 1.5 million annual blood transfusions in Pakistan are not screened for HIV. (22) There is general resistance in applying of blood safety laws in private sector which needs to be addressed and people should be motivated to participate in voluntary and non remunerated blood donation. Facilities should be provided for preparation of blood components and proper use of whole blood should be encouraged. In addition, the unsafe use of syringes needs to be addressed in this country. Concentrated epidemic among Injecting Drug Users (IUDs) and MSMs and Hijra sex workers (HSWs) with highly prevalent risky behaviors is a threat. This epidemic can best be controlled by working in a targeted manner. Te primary focus should be to reduce HIV in the high risk groups. There is a felt need for having operational and formative research in this area to expand and improve mapping of the target group.

It is imperative to increase funding and to ensure sustainable funding for a more unified approach to STI control – this must be a priority in Pakistan's HIV and AIDS response and in its public health policy. Programmed components should include:

1. Targeted behaviors change communication campaigns to increase knowledge about HIV and other STIs, particularly for male, transgender and female sex workers and their clients.

2. More and more accessible comprehensive sexual and Reproductive Health (including Family Planning) services for female sex workers, which must include family planning, antenatal care, and counseling, prevention, testing and treatment for STIs, including HIV.
3. More and more accessible comprehensive sexual health care services for male and transgender sex workers, which should include counseling, prevention, testing and treatment for STIs, including HIV.
4. Better access to condoms and lubricants, especially in places commonly visited by injecting drug users and sex workers and their clients.
5. Investigate the best way to provide STI training for private-sector health care providers, especially those who care for sex workers and injecting drug users.
6. Better access to clean needles and syringes for injecting drug users, including those in prison, and a trial of oral substitution therapy for injecting drug users.
7. Training and other initiatives which help reduce stigma and discrimination, particularly among health care providers, and which ensure the protection of all people's rights to receive sexual health information, commodities and services. (34)

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Target 8 Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 7.14- Prevalence of malaria in Pakistan

Years	Number of Malaria cases(35)
1990	79689
1991	66586
1992	99015
1993	92634
1994	106586
1995	111836
1996	98035
1997	77480
1998	73516
1999	91774
2000	82526
2001	104003
2002	101761
2003	125152
2006	124910
2008	128570

Table 7.15: Burden and cases and death of malaria in Pakistan 2006 (23)

Estimated burden of Malaria		Estimated cases and Deaths			Estimated cases and deaths per 1000 (2006)		
	Age group	Numbers	Lower	Upper	Per 1000	Lower	Upper
Malaria cases	All ages	1499000	1145000	212000	9.0	7.0	13
	<5 years	645000	493000	866000	34	26	46
Malaria deaths	All ages	1400	850	2000	0.01	0.01	0.01
	<5 years	660	410	970	0.04	0.02	0.05

- For introducing the indicators of 6-7, three measures are usually used in different sources of MDG monitoring and evaluation and also MDG reports taken from different countries:
  - Number of malaria cases per year in the country(shown in above table)
  - Malaria incidence rate per year in the country(shown in below figure)
  - Death rate(it is rare)

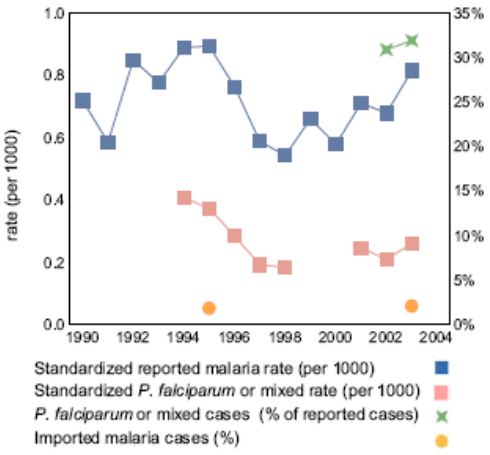


Figure 7.5- malaria incidence per 100000 trends in pakistan 1990-2004 (31)

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalari drugs.

- There are two measures for introducing this indicator:

1. Children under 5 sleeping under insecticide-treated bed nets, percentage
2. Children under 5 with fever being treated with anti-malarial drugs, percentage

There isn't any data for Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures in pakistan. Of course based on UN MDG Goals monitor there is Children under 5 with fever being treated with anti-malarial drugs, percentage was 3.3 (27)

Goals 6 (Malaria) findings and Comments:

Malaria has been a major public health problem in Pakistan and will continue to pose serious threat to million of people due to poor environmental and socioeconomic conditions conducive to the spread of disease. Transmission is seasonal and large-scale epidemics have been reported in the past, the recent was during 1973 –77 when Annual Parasite Incidence (API) reached up 13 per thousand population. The current API level is 0.682 per thousand populations, and as high as 18 per thousand certain districts. These statistics are unreliable because about 21% of population uses government health facilities. According to 1988 Malaria Review mission report; the disease incidence is at least five times higher than what is being currently reported.The main malaria endemic areas are located in the Baluchistan state .Following the resurgence of malaria after the eradication programme of the 1970s, malaria has been a persistent problem in Pakistan. There were an estimated 1.5 million malaria episodes in 2006, accounting for one quarter of all cases in the WHO Eastern Mediterranean Region. Most cases occur between July and November. Almost all are confirmed as malaria, and about 30% are due to P. falciparum. Routinely-collected data suggest that incidence was roughly stable between 2001 and 2007. Deaths are reported sporadically. IRS has been used selectively and covered about 300 000 households in 2006. The NMCP delivered 240 000 LLINs in 2006, far fewer than needed to protect the population at risk. Information about the provision of antimalarial medicines has not been provided by the NMCP. Government funding for malaria control has been approximately US$ 1 million annually since 2002, boosted by Global Fund grants in 2004 and 2005.Based on global fund malaria proposal challenges that the control programme continues to face include: (i) adherence to and awareness of available guidelines; (ii) weak technical leadership at both federal and provincial levels; and (iii) and staffing constraints. Despite an overall increase in the number of malaria control staff, a number of key posts remain vacant and the National Institute of Malaria Research and Training urgently requires strengthening. Provincial-level control programmes still struggle with phasing out old "eradication" strategies such as active case detection, while access to rapid diagnosis and prompt treatment in health facilities remains inadequate. Monitoring and evaluation must be improved, especially in districts where RBM activities have been initiated. This includes establishing a system for quality assurance of laboratory diagnosis and strengthening the existing surveillance system in collaboration with. malaria control in Iran is possible when it would be controlled in neighbor countries so it is recommended to perform malaria control programs together with these countries

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 7.16- TB prevalence, incidence and death rates in Pakistan

Years	Tuberculosis incidence rate per year per 100,000 –estimated(27)	Tuberculosis prevalence rate per 100,000- Modeled- estimated (27)	Tuberculosis death rate per year per - 100,000- modeled(27)	Notification rate New TB Cases per 100000 Incidence Surveillance of MOH:(32)
1990	181.3	429.7	49.3	-
1991	181.3	428.4	49.2	-
1992	181.3	427	49.2	-
1993	181.3	425.6	49.1	-
1994	181.3	424.1	49	-
1995	181.3	422.3	49	-
1996	181.3	421.2	48.9	-
1997	181.3	420.8	48.9	-
1998	181.3	415	48.5	-
1999	181.3	419.9	49.1	-
2000	181.3	412.9	48.6	7.7
2001	181.3	406.3	48.1	23
2002	181.3	375.6	45.4	35
2003	181.3	354.6	43.7	46
2004	181.3	332.7	41.6	61
2005	181.3	289.4	37.5	90
2006	181.3	260	34.5	110
2007	181.3	222.6	29	141

Following points are noteworthy about this indicator:

1. For introducing this MDG indicator in different TB reports and monitor and evaluations of MDG, four indicators from TB program are used:
    a. TB incidence rate
    b. TB prevalence rate
    c. TB death rate
    d. Notification rate
2. All these four measures are presented in above table and below graphs.
3. Three first measures in above table are determined by World Health Organization or through modeling. Notification rate is determined according to national surveillance.
4. TB incidence, prevalence, mortality and notification rates have not decreased significantly from 1990 to 2006 in Pakistan.

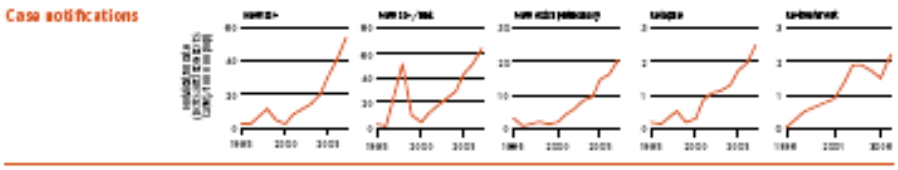


Figure 7.6- TB notification rate per 100000 in Pakistan (30)

Table 7.17- TB indicators in Pakistan (30)

	2000	2001	2002	2003	2004	2005	2006	2007
DOTS coverage (%)	9.0	24	44	66	79	100	100	99
Notification rate (new & relapse cases/100 000 pop)	7.7	23	35	46	61	90	110	141
% notified new & relapse cases reported under DOTS	100	53	90	100	100	100	100	100
Notification rate (new ss+ cases/100 000 pop)	2.3	7.4	11	14	20	31	41	54
% notified new ss+ cases reported under DOTS	100	57	94	100	100	100	100	100
Case detection rate (all new cases, %)	4.1	12	19	25	33	49	59	76
Case detection rate (new ss+ cases, %)	2.8	9.1	13	17	25	38	50	67
Treatment success (new ss+ patients, %)	74	77	78	79	82	83	88	–
Re-treatment success (ss+ patients, %)	54	–	66	66	78	76	77	–

Note: notification, case detection and treatment success rates are for the whole country (i.e. DOTS and non-DOTS cases combined).

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriological confirmed or diagnosed by a clinician.

Table 7.18- Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Years	case detected rate All forms (32)	case detected rate Smear positive (32)	Tuberculosis detection rate under DOTS, percentage Estimated (27)	Tuberculosis treatment success rate under DOTS, percentage Country data (27,32)	DOTS coverage (32)
1998	-	-	3.7	-	-
1999	-	-	2	-	-
2000	4.1	2.8	2.8	74	9
2001	12	9.1	5.2	77	24
2002	19	13	12.7	78	44
2003	25	17	17.2	79	66
2004	33	25	25	82	79
2005	49	38	37.6	83	100
2006	59	50	49.9	88	100
2007	76	67	66.7		99

For introducing this indicator there are some measures which are presented in the table. These measures are:

a. case detected rate (All forms)
b. case detected rate (Smear positive)
c. Tuberculosis detection rate under DOTS, percentage(Estimated)
d. Tuberculosis treatment success rate under DOTS, percentage (Country data)
e. DOTS coverage

Goals 6 (Tuberculosis) Comments:

Considering above tables and graphs, it is not feasible to achieve tuberculosis indicator goals in Pakistan. Some countries are complaining about unreal estimations by world health organization. ECO secretariat can support them technically and directly through applying good methodology for

TB incidence estimation. Indicators of TB diagnosis rate and especially smear positive TB arte have been always less than estimated rates.In 2007 the estimated prevalence, incidence and mortality of TB are 223, 181 and 29 per 100,000 population respectively. Every year, around 300,000 people develop TB which is responsible for 5.1% of the total national disease burden. TB is the third largest contributor to the infectious disease burden in Pakistan. Pakistan ranks eighth among high burden countries (HBC) and contributes 55% of disease burden in the Eastern MediterraneanRegion (EMR). It ranks 6th regarding the estimated number of MDR-TB cases worldwide (Global Tuberculosis Control 2009; Epidemiology, Strategy, Financing; WHO).Since 2001 case notifications for all and sputum smear positive cases (SS+) have increased year by year. WHO estimates a case detection rate (CDR) of 84% for all cases and 66 **%** in new SS+ cases for 2007. The NTP reported a TSR of 91 % for 2007 and DOTS coverage of 100% (national surveillance data 2009). 248,144 case notifications (all forms) in 2008 relate to a notification rate of 141 per 100,000 population. However, estimates of TB prevalence and incidence are based on TB disease prevalence survey conducted in 1987 and are probably much higher taking into account the role of private providers in TB control, health seeking behavior of the general population and involvement of only a few parastatal health care providers, which report their data to the NTP (part of the prison sector). To determine the true disease burden a disease prevalence survey will be conducted in 2010 with financial assistance of USAID and technical assistance from TBCAP.

Drug resistant Tuberculosis: WHO has estimated an annual incidence of around 13,218 culture positive MDRTB cases based on an estimated primary resistance of 3.2% and resistance in retreatment cases of 35%. A study published in the IUALTD journal in 2008, although not representative for a specified annual cohort of notified smear positive new and retreatment cases, conducted by Aga Khan University[3], shows 1.8 % primary resistance. A countrywide representative Drug Resistance Survey (DRS) will be conducted in 2010 (GF R6). Current practice: In some tertiary teaching hospitals but also in the private sector specialists are offering MDR-TB care with wide variation in diagnosis and treatment practices. Diagnosed and/or suspected cases of MDR-TB are being treated with locally procured SLD of unproven quality. Around 600 DR and MDR-TB cases are currently under treatment in the public sector. Reported treatment outcomes from different treatment sites differ between 45 and 65%. In addition a few XDR-TB cases have already been confirmed in the country.

TB/HIV: Pakistan has a concentrated HIV epidemic confined to persons at high-risk for HIV infections (such as injecting drug users and sex workers). HIV prevalence rates in some localized IDU populations are over 25%. There are an estimated 85,000 HIV positive cases in Pakistan but prevalence in the general population is below 1%. Collaborative TB/HIV activities were introduced through GF R6. 14 voluntary counselling and testing (VCT) centres were selected as sentinel sites and linked with ARV centres for screening of TB in HIV positive clients and HIV screening for TB patients. National guidelines were developed for TB/HIV co-infection and prevention. Further enhancement of TB /HIV will be addressed through public sector funds by the National AIDS & TB Control Programs.

TB diagnosis and care is integrated into the primary health care system. The diagnostic centre is responsible for TB diagnosis, registration, treatment initiation, follow-up examinations, assessing treatment outcome, quarterly report preparation and submission to the district health office (DHO). A network of more than 4,872 Basic Health Units (BHUs) and 4,916 Dispensaries are providing treatment to TB patients. A diagnostic centre along with its attached treatment centres forms a Basic Management Unit (BMU) for TB control. The treatment centre supplies anti-TB drugs and ensures that directly observed treatment (DOT) is carried out through selected treatment supporters. Each centre is linked with the community through Lady Health Workers (LHW), one LHW for 1000 households. The program has developed a set of operational guidelines and training materials for various staff cadres to maintain standardized diagnosis and care. Other enabling inputs of the program, to effectively implement DOTS in a district, include implementation planning; staff training and supervision; additional drugs, laboratory supplies and print materials; monitoring support; and mass awareness, patient education and community mobilization.(36)

References:

1. Based on Population Reference Bureau: Source: Pakistan Census Organization, Census Report of Pakistan. GOP, Islamabad, 1998
2. Annual Report of the Director-General, Islamabad, Ministry of Health, 2001.
3. Population Census Organization, 2003.
4. Pakistan Integrated Health Survey, 2001.
5. Human development report 2004, Cultural liberty in today's diverse world. New York, UNDP, 2004.
6. Pakistan Economic Survey 2003–2004.
7. Devolution in Pakistan, ADB/DFID/WB study 2004.
8. Pakistan poverty assessment: poverty, vulnerability, social gaps and rural dynamics, Islamabad, World Bank, 2002.
9. Centre for Research of Poverty Reduction and Income Distribution, Pakistan, 2003.
10. The world health report: changing history, Geneva, World Health Organization, 2004.
11. Pakistan Country Cooperation Strategy for WHO and Pakistan 2005-2009
12. A Country specific Strategic Analysis for Reaching the Millennium Development Goals 4 and 5 in Pakistan, Ministry of Health and UNICEF
13. www.crpird.org
14. Children Survival in Pakistan : an update for 2008- Paper prepared by Dr Z.A. Bhutta for UNICEF Pakistan Country Office
15. Pakistan Annual Report 2008
16. Pakistan Millennium Development Goals Report 2006
17. http://www.unicef.org/infobycountry/pakistan_pakistan_statistics.html
18. Towards a National Poverty Strategy in Pakistan, Planning Commission, Government of Pakistan,1999
19. National AIDS control Program (2005), Situation Assessment of Adolescents in selected districts of Pakistan for life skills and HIV prevention, NACP, Islamabad
20. IBID
21. UNHCR- Pakistan (www.un.org.pk/unhcr/afstatstat.htm)
22. World Bank (2007), HIV/AIDS in Pakistan
23. World Malaria Report 2008
24. World TB Report 2008
25. TB Free Pakistan, National TB Control Program Pakistan
26. www.who.int
27. MDG goals indicators available at http://mdgs.un.org/unsd/mdg/Data.aspx
28. UNAIDS website ,country profile
29. UNGASS report 2008
30. http://www.unaids.un.org.pk/
31. Epidemiological situation in emro countries, World malaria annual report, available at: http://www.emro.who.int/rbm/epidemiology
32. TB country profile Estimated TB prevalence from WHO SITE country profile) -From who and http://www.indexmundi.com/iran/tuberculosis-morbidity.html
33. *US Census Bureau **UNAIDS ***WHO/UNAIDS/UNICEF Towards Universal Access, April 2007
34. Confronting the HIV challenge in Pakistan: Urgent need for health services in most-at-risk communities, policy briefing,no1 April 2009
35. malaria situation in EPIDEMIOLOGICAL DATA Who site
36. TB GLOBAL FUND PROPOSAL
37. Health Systems Profile- Pakistan, Regional Health Systems Observatory- EMRO

38. Successful Transition towards a Virtuous Cycle of Human Development and Economic Growth: Country Studies, ECONOMIC GROWTH CENTER YALE UNIVERSITY available at: http://www.econ.yale.edu/~egcenter/
39. Pakistan Census Organization, Census Report of Pakistan. GOP, Islamabad, 1998
40. *Based on 2002 estimations, NIPS, Islamabad ** Population Reference Bureau: Source: Pakistan Census Organization, Census Report of Pakistan. GOP, Islamabad, 1998

Chapter 8. Republic of Tajikistan

Tajikistan demographic and socioeconomic status

The Republic of Tajikistan is a small country .The area is 143,100 square kilometers. It borders with Uzbekistan, Kyrgyzstan, Afghanistan and China. Only 10 per cent of its territory is suitable for cultivation; 90 percent is covered by mountains. Tajikistan is divided to 4 provinces and 79 districts. Tajikistan is a multi-ethnic country. The majority of its population is Tajik: one of the most ancient peoples of the world, related to the Iranian group of people and having an ancient and rich culture. The main language used in the country is Tajik. The largest religious group is Sunni Muslim (five-sixths). The country is a low income group country (based on World Bank 2004 criteria). It is the poorest of the former Soviet republics and, ranking 122nd on the Human Development Index, in fact one of the poorest countries in the world. The proportion of health budget to GDP is 4.4%.The literacy rate is 99.7% for men and 99.3% for women (UNESCO/MOH, 2004).

Figure 8.1- Tajikistan map and its geographic status

In 2008 Tajikistan's population was estimated as about 7,215,700 people. The average density was 51.3 people per square kilometer, but the population was concentrated heavily in the western, southwestern, and northwestern regions. About 26.6 percent of the populations are classified as urban and 73.4% live in rural districts, the lowest percentage of urban population among the former Soviet republics. In 2006 an estimated 700,000 Tajikistanis, mostly men, spent some or all of the year as migrant workers in Russia and other countries, creating a significant male-female imbalance in the adult population and in this year ,the net migration rate was about 2.5 per 1,000. In 2008 some 35.8 percent of the population was 14 years of age or younger, and only 4.1 percent was 65 years of age or older. Population growth rate in 2007 was 1.895%.The population has grown rapidly while at the same time the country lacks high productivity employment opportunities. The resulting situation has posed a considerable challenge for the social sector.

In 2006 overall life expectancy was 64.9 years: 62 years for males, 68 years for females. The fertility rate, four children per woman, was the highest among the former Soviet republics.

Despite these challenges, however, Tajikistan displays potential in many areas. Ranking third in per capita water resources worldwide, Tajikistan has great opportunities for producing hydropower. Its mountains also bear other resources such as coal, gold, silver, tungsten, and uranium. The country continues its complex transition from an authoritarian Soviet system to a pluralistic free market economy. Many social indicators are improving, but significant challenges remain. In Tajikistan, nearly all indicators associated with long-term problems of human capital building – malnutrition,

ill health, low levels of schooling – are more common among the poor. Dealing with these challenges requires effective social services, yet their quality and coverage need to be significantly improved; in fact, it is their deterioration that helps to explain many of these challenges in the first place. (1, 2, 3, 4)
Some demographic and socioeconomic indicators are shown in tables 8.1, 8.2.

Table 8.1- Tajikistan population distribution by age and sex-2008(10)

Age groups	Male	Female	Total	Percent
under1	99500	95400	194900	2.7
1-4	357000	338700	695700	9.6
5-14	865400	833700	1699100	23.5
15-24	834100	814200	1648300	22.8
25-34	529800	535900	1065700	14.8
35-44	399200	415400	814600	11.3
45-54	281000	289200	570200	7.9
55-64	114200	114600	228800	3.2
65-74	86700	89000	175700	2.4
Over 75	52700	70000	122700	1.7
Total	**3619600**	**3596100**	**7215700**	**100.0**

Table 8.2: Socioeconomic status and indicators of Tajikistan

Indicators	Value	year	Reference
Crude Birth Rate	27.2	2008	9
Total Fertility Rate	3.3	2007	5
Crude Death Rate	6.9	2007	9
Life Expectancy at Birth	Total=64.9 M= 62 F =68	2006	8
Adult Literacy Rate	Total=99.5 M=100 F= 99	2004	4,8
Per Capita Income (US $)	701.9	2007	7
Per Capita Income (PPP)	2019	2008	7
Human Development Index	0.673	2007	5
Total health expenditure as percentage of Gross Domestic Product	4.4	2003	8
Percentage of out of pocket expenditure to total health expenditure	34	2001	6
Percentage of governmental budget for health care to total government budget	4.8	2003	45

A brief summary of the country's health system

After nearly seventy years of inclusion in the Soviet states, with its avowed aim of modernization, Tajikistan had a level of health care that was low both in absolute terms and by Soviet standards. State expenditure for health care and medical equipment in Tajikistan was a fraction of the average for the Soviet Union. Tajikistani regimes had long regarded social needs such as medical care as less important than economic development. In 1986, according to government statistics, Tajikistan had 325 hospitals with a total of 50,115 beds, 697 outpatient clinics, 1,313 paramedic and midwife facilities, and 567 maternity and pediatric clinics and hospitals. During the 1990s, in conditions of deep economic decline and under-financing, the Tajikistan's health system experienced profound disintegration; much of the existing infrastructures became dilapidated and large numbers of qualified health workers have been lost because of migration. In 1994 the Ministry of Health reported 59,000 hospital beds. As in other parts of Central Asia, a large proportion of health care professionals in Tajikistan were members of non-indigenous nationalities, especially Russians, Ukrainians, and Jews, many of whom emigrated after 1989.In 1994 the republic had 13,000 doctors, one for every 447 inhabitants, by far the worst proportion among the Central Asian republics. The number of other health care workers, 80.3 per 1,000 inhabitants, was also far below the level for other republics. Rural Tajikistan suffered a particular deficiency of health care professionals. Dushanbe felt this scarcity less than the rest of the country. Critical shortages in the state budget had led to that the public spending on health was less than 1USD per capita, thus forcing the households to pay substantial amounts of money for essential services from the pocket, both formally and (predominantly) informally.The situation has been changing since the beginning of 2000s, after the general economic stabilization allowed for launching of structural reforms.Since independence, steady reductions in the state health budget have further eroded the salaries of medical professionals and the availability of care (In 1992 the Ministry of Health already had the smallest budget of the state ministries). For that reason, health planners have considered privatization of the national health system an urgent priority. In the mid-1990s, however, little progress had been made toward that goal.*(11*)

Provision of health care in Tajikistan is predominantly public; the private sector is under-developed. Health care institutions are organized at four levels: central, regional (oblast), district and jomoat (primary health care at community level).The organization chart of health care system in Tajikistan is shown in next page (12)

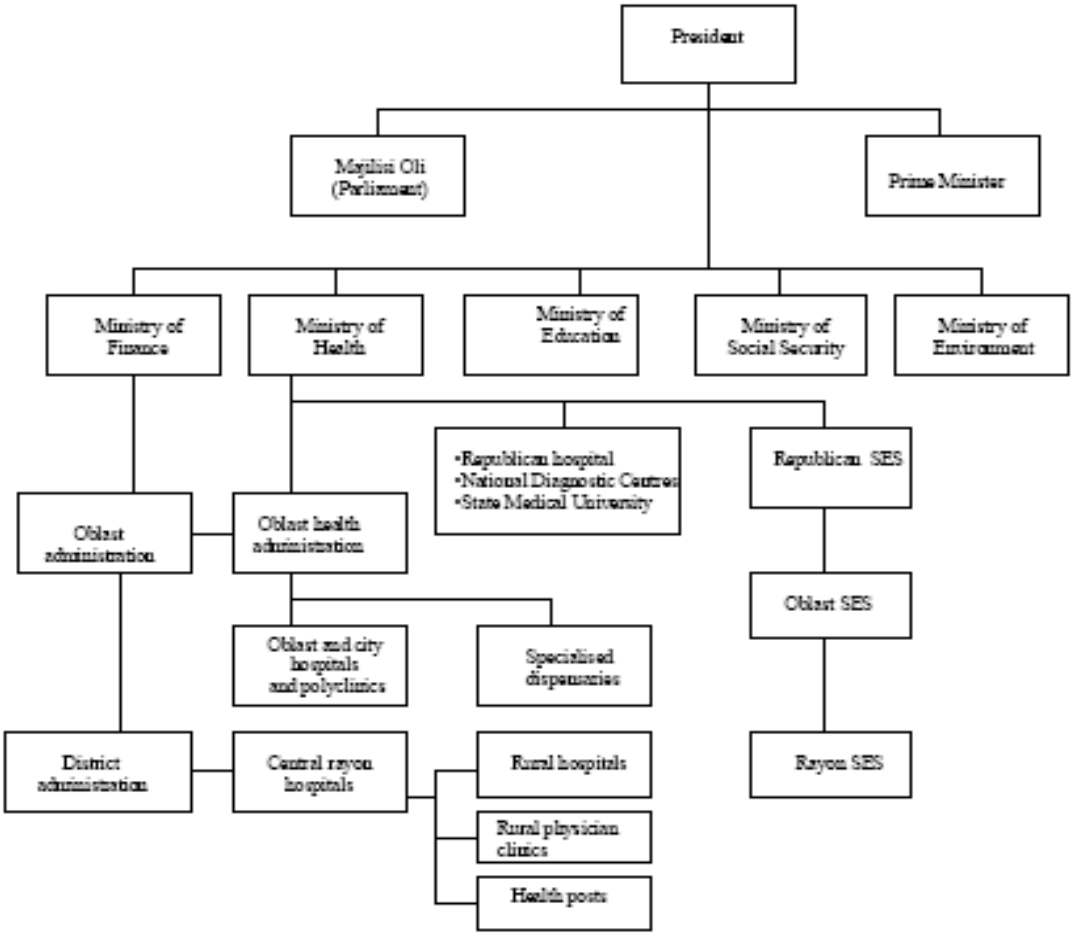


Figure 8.2- The organization chart of health care system in Tajikistan (13)

Country's health system findings and comments:

1. Achieving the MDG targets for health will be extremely difficult. Primary health services have remained from the Soviet period, but due to the severe decline in the quality and infrastructures of these facilities, most patients choose to bypass them and seek care at urban hospitals and polyclinics. Both the quality and accessibility of health care in Tajikistan have been deteriorated sharply over the past decade. Tajikistan's health care system needs major reforms and increased resources to improve the quality of services, to rationalize the delivery structure and to increase equity. There are severe problems with low quality of health care including the relevant evidence-based skills of health workers, adequate infrastructure, essential equipment, supplies and drugs.(14)
2. As a result of the economic transition and the civil war, public health spending fell from 4.5% of GDP in 1991 to less than 1% of a much lower level of GDP in 2002. Only 15.9% of the total budget expenditures on health are allocated to the primary health care system (Conception of health reform of the RT, 2002). At just US$ 2.2 per capita in 2003 (State Statistical Committee, 2005), health spending is far too low to operate the current system, much less to meet critical investment needs or direct resources to the country's most vulnerable groups. As the Government's role in health care declines, the health system is becoming increasingly dependent on informal private payments to pay for basic services and

on foreign aid to relieve the acute shortage of essential drugs and medical equipment. Even after including personal payments, the per capita expenditure on health care at about US$ 12 is extremely low and insufficient to provide even the most essential of health care (15,16,17)

3. Mistrust in the primary health system is deep that even fully rehabilitated and equipped local facilities have trouble attracting patients. Rehabilitating the primary health infrastructure will therefore require not only direct financial investment for upgrading the standard of services but also time and effort to strengthen the links between the health system and local communities. Health care reform has not been a priority in Tajikistan. It does, however, face many similar problems to other former Soviet countries, though greater prosperity will be required before these can be tackled effectively. (18)
4. Tajikistan's health care system is largely based on hospital-based tertiary care. Preventative and primary health services are underutilized, or of poor quality. (19).
5. Tajikistan has inherited the Soviet medical system, rigidly structured around an elaborate network of health facilities, Although theoretically free of charge, the under-funding means that patients pay for almost all services – they will pay for drugs, dressings, and doctors will expect additional payments. The government recognizes the need for health reform, and has focused on providing a more cost-effective service, based on improving the quality of primary care, and at the same time reducing dependence on secondary services.(20)
6. A national survey showed that there are some financial barriers potentially inactivating utilization of basic services. These barriers can only be reduced by mobilizing more public resources to fund the health sector, providing incentives for family doctors to stop requiring payments from patients, and increasing the availability of prescription drugs in PHC facilities. (21)

Methodology and visits:

The evaluation team conducted the evaluation based on these ways:

1. Reviewing documents available in journals, books, reports, and internet
2. Reviewing documents available from MOH in the country (published and unpublished sources)
3. Reviewing documents available from the UN Agencies in the country(published and unpublished sources)
4. Visit the country during the 20-23 June and interview with related persons in MOH and UN agencies
5. Key informant interviews
6. discussion in expert groups about results and methods
7. Reviewing WHO and UN MDG-related documents and international and national related sources and services
8. arrangement and template planning for gathered data and analysis and assessment of the collected data
9. putting data in its related category and table and designing the best presentation methods
10. inserting related data and findings under each indicator's category
11. making proper recommendations related to each indicator's category according to the findings

Goal 4: Reduce Child Mortality

4-1: Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.

Country definition: Before 2003 Tajikistan used the live birth definition of the former Soviet Union. Tajikistan, from 2003, has adopted an international definition of live births (with increased registration of neonatal deaths, rising by approximately 50% from 2003 to 2004. (22)

Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Table 8.3- Under-five mortality rate in Tajikistan in different sources (1990-2008)

Years	Estimated for MDG by UN (24)	MICS (25,26)	UNICF (27)	Subgroups / Inequity	Vital statistic registry (23,29)
1990	117		117		
2000	94	126	94	MICS: [Min=45&Max =150] [Male=130&Female=126]	
2005	74	79	74.1	MICS: [Min=54&Max =102] [Male=92&Female =66]	
2006			68		
2007	67		67.3		21.5
2008					21.9
Latest MDG Year2003 (28)		126 Based MICS 2		MICS: [Min=45&Max =150] [Male=130&Female=126]	

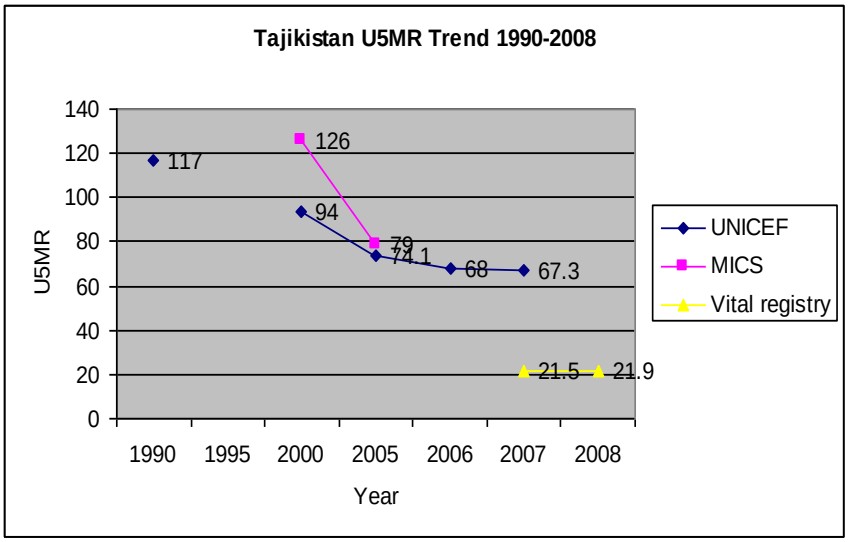


Figure 8.3- Under-five mortality rate in Tajikistan in different sources (1990-2008)

4-2. Indicator: Infant mortality rate

Definition: The infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1,000 live births in a given year.

Country definition: Before 2003 Tajikistan used the live birth definition of the former Soviet Union. Tajikistan, from 2003, has adopted an international definition of live births (with increased registration of neonatal deaths, rising by approximately 50% from 2003 to 2004. (22)

Target: Reduction of infant mortality rate by two thirds, between 1990 and 2015

Table 8.4- Infant mortality rate in Tajikistan in different sources (1990-2008)

Years	vital statistics registries (23,29)	Estimated BY UN Site (24)	MICS (25,26)	Estimation By other references (30)	Subgroups / Inequity
1990	40.9	91		91	
1991	40.6				
1992	45.9				
1993	47				
1994	40.6				
1995	30.9	89		90	
1996	31.3				
1997	30.7				
1998	23.4				
1999	19.4				
2000	15.5	75	89	75	MICS : [Min=36.7&Max=102] (Male=94&Female=83
2001	27.9				
2002	17.2				

Years	vital statistics registries (23,29)	Estimated BY UN Site (24)	MICS (25,26)	Estimation By other references (30)	Subgroups / Inequity
2003	13.5				
2004	13.5				
2005	14.1	62	65	59	MICS: [Min=46&Max=81] [Male=75&Female=54]
2006	14.5			56	
2007	14.2	57			
2008	15.2				

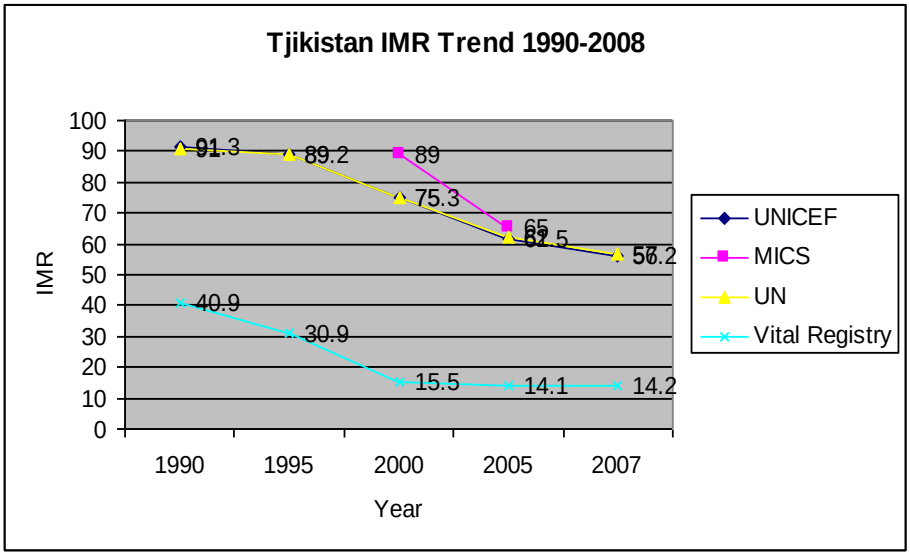


Figure 8.4- Tajikistan IMR trend from 1990 to 2008

4-3: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

Table 8.5- Proportion of 1 year-old children immunized against measles in Tajikistan

Years	Administrative data(23,29)	Estimated (24)	MICS (25,26)
1990			
1991			
1992	72	68	
1993	84	81	
1994	84	73	
1995	81	70	
1996	87	79	
1997	95	84	
1998	94	83	
1999	90	79	

Years	Administrative data(23,29)	Estimated (24)	MICS (25,26)
2000	90	87	85
2001	97	86	
2002	96.5	86	
2003	97.7	87	
2004	97.5	89	
2005		86	91.5
2006		87	
2007		85	
2008	86		

Goal 4 findings:

1. There are significant differences between MOH data, MICS, UN, WHO estimations and other surveys for IMR and U5MR. Infant mortality rates and under 5 mortality rates as reported by the Ministry of Health in Tajikistan are significantly lower, compared to survey estimates for the same years.
2. The existing discrepancy between registered infant and under 5 mortality rates and data survey before 2003 might be partially explained by the fact that official estimates of infant mortality used protocols established during the Soviet regime.
3. Based on MICS2000 and 2005 there are some inequities for U5MR and IMR (more than 2 times) in this area. Infant mortality rates are higher in rural areas. Infant and under-five mortality rates are almost five times higher in children born to mothers with little or no education as compared to those with higher education. Based on MICS 2005 concerning region, results indicate the highest level of childhood mortality rates occur in Khatlon (above 80 per thousand) while the lowest are seen in DRD, GBAO and Dushanbe (less than 60 per thousand
4. MICS 2000 and MICS 2005 showed 89 and 65 for IMR .In the MICS, infant and under-five mortality rates were calculated based on an indirect estimation technique; the so-called “Brass method”. The Brass method estimates mortality rates from aggregate information concerning the number of children born to women in five-year age groups as well as the proportion of children in each group who die.(MICS200)
5. Mortality rates for infants and children under five are disturbing. Inadequate pre- and postnatal care, malnutrition and poor recognition of danger signs for childhood illnesses are leading causes of death
6. Based on literature review and data in Tajikistan, some of the major challenges in reducing infant and children mortality in the Republic of Tajikistan are as follows.(36):
    a. Low quality of pre-natal, neonatal ,and post-neonatal care
    b. Low practice of exclusive breast feeding and good nutrition practices for young children;
    c. High percentage of home births unattended by skilled personnel;
    d. Deterioration of the quality of the primary health care services, shortage of the qualified medical personnel especially in rural areas, lack of basic medications especially in rural areas, lack of basic medical equipment and toolkits, poor infrastructure;
    e. Lack of systematic training of health care workers on new methods of pediatrics;
    f. Low accessibility of Reproductive Health (including Family Planning) service in remote villages, due to the lack of transportation and communication facilities;

g. Low sanitation standards in health care facilities;
h. Lack of standardization of primary healthcare services;
i. Migration\outflow of healthcare workers due to low wages;
j. Low financing of the primary health sector

7. According to different sources, Proportion of 1 year-old children immunized against measles indicator has always been higher than 85 percent since 2000, and it shows the good state of the indicator.
8. There is no significant difference between the data in administrative method and MICS results and other estimations for indicator of Proportion of 1 year-old children immunized against measles.

Goals 4 comments:

1. In fact one of the crucial needs for goals 4 mortality indicators is a highly precise and valid information system in order to be used by all national and international organizations for monitoring and evaluating this MDG indicator. It is possible through improving national information system or periodical surveys accepted by all experts and organizations. Rates of infant and under 5 mortality are higher than official statistics for these areas.
2. It looks under five mortality rate in 1990 was at least 126 per 1000 live birth. We expect for 2015 this indicator will be 42 per 1000 live births. Based on MICS 2005 this indicator is 79/1000 live birth. In this case the country is going to will have achieved the MDG target in 6 years. It can be achievable if the country focuses on PHC strategy.
3. Key risks to child health include low quality and inaccessibility of Reproductive Health (including Family Planning) services, prevalent waterborne diseases, malnutrition, and the threat posed by vaccine preventable diseases, particularly measles. Needed actions at the national level include further promotion of breastfeeding, through the training of trainers on breastfeeding counseling and review of the national policy and strategy for the promotion of breastfeeding?
4. To meet the MDG target for reducing child mortality Tajikistan must improve the nutrition status of children, improve awareness of basic health in households and strengthen the ability of the basic health care system to provide quality child care and Reproductive Health (including Family Planning) services and vaccinations in local communities.
5. The evidence leads to the conclusion that most infant deaths in Tajikistan are reasonably preventable by addressing inadequate prenatal care services, Failures of prenatal care and delivery conditions are implicated in most neonatal deaths, even though most mothers receive some kind of formal care compromised delivery conditions and the incidence of infectious diseases.

   For indicator of Proportion of 1 year-old children immunized against measles, based on existing data, indicator's goal is achieved and Tajikistan doesn't have any problem reaching this goal. It is recommended to follow up immunization activities.

   For indicator of Proportion of 1 year-old children immunized against measles It is suggested to perform some serologic surveys of coverage rate based on a proper methodology every once in a while in order to evaluate vaccination quality and to prove available data. Cluster sample survey can be used as an alternative.

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

Target 5. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Table 8.6- Maternal mortality ratio in Tajikistan (1990-2008)

Years	vital statistics registries (23,29)	WHO model (24)	MICS (26)
1990	97.7		
1991	100.7		
1992	119.8		
1993	124.4		
1994	121.5		
1995	96.3		
1996	84.5		
1997	64.6		
1998	66.5		
1999	53		
2000	44.6		
2001	46.1		
2002	45		
2003	36.5		
2004	39		
2005	33.2	170	97
2006	43.4		
2007	43.2		
2008	28		

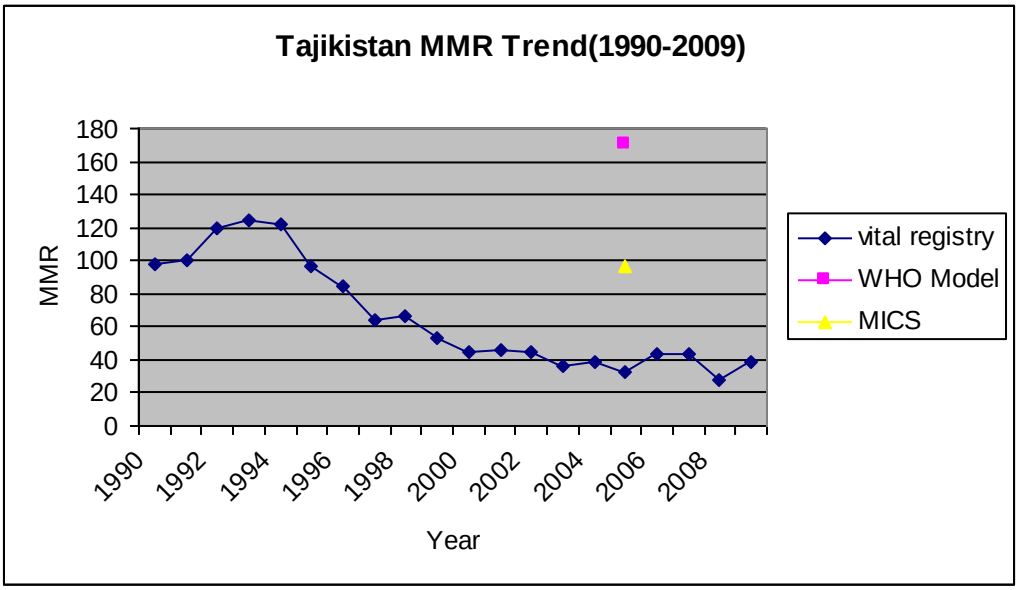


Figure 8.5- Maternal Mortality ratio Trend in Tajikistan (1990-2008)

5-2: proportion of births attended by skilled health personnel

Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.

(Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.)

Table 8.7- proportion of births attended by skilled health personnel (1997-2005)

Years	Routine Reports (23,29)	MICS (25&26)	Subgroups / Inequity
1997	74.5		
1998	78.5		
1999	82.5		
2000	79.1	71.3	
2001	87.2		
2002	88.7		
2003	88.1		
2004	90.1		
2005		83.4	Min=75& Max =95

Goal 5 findings:

1. The precise level of maternal mortality is not accurately known. While the Ministry of Health reported for 2005 a figure of 33.2 maternal deaths per 100,000 live births other available data suggest far higher levels ranging from 170 based on UN modeled and 97 based on MICS 2005 to over 1,000 maternal deaths per 100,000 live births.
2. The most common cause of deaths for reported cases of maternal mortality is bleeding (37%) followed by eclampsia (19%) and infection (16%). The Ministry of Health has established a system to review the factors leading to maternal deaths which are notified to them, but there are issues of confidentiality and attribution of blame which severely limit the effectiveness of this process. (31)
3. The quality of pregnancy and postnatal care facilities are not good in rural areas.
4. The use of modern contraception is low and unmet need is high. This is largely due to limited access..
5. Pregnancy, delivery and the postpartum period remain hazardous for most Tajik women and maternal mortality is high. Many women deliver at home and access to effective skilled attendance at birth is low.
6. **About proportion of births attended by skilled health indicator, Skilled** assistance at delivery is defined as assistance provided by a doctor, nurse, midwife or auxiliary midwife. Skilled assistance at birth can be life saving and most women in Tajikistan are delivered by a skilled birth attendant. The Multiple Indicator Cluster Survey carried out in 2005 found that overall 83% of births were attended by skilled personnel.
    - Skilled attendance is slightly higher in urban areas as compared to rural areas skilled attendance was higher in urban areas (89%) as compared to rural areas (81%). The presence of skilled attendants at delivery has increased since MICS 2000.
    - Educated women are more likely to have delivered with the assistance of skilled personnel (Based on MICS 2005 less than two thirds of women with little or primary education had their deliveries assisted by skilled personnel whereas almost all women with higher education benefited from skilled assistance at delivery).
    - The richest quintile of the population is more likely to have skilled assistance at delivery (The age of women and wealth of the households were also important factors in having skilled assistance at delivery).
    - The numbers decrease gradually from 94% of women 15-19 years of age to less than 75% of women over 40 years of age. Only 69% of the poorest women had skilled assistance at delivery, while for the richest this figure was 91 %.(37)

Goal 5 Comments:

1. The correct number and the best source of maternal deaths should be clarified in Tajikistan.
2. The achievements regarding a functioning Reproductive Health (including Family Planning) system are considerable but as with maternal health they cannot be sustained in the medium term without continuous assistance.
3. Although there is no accurate information on ‘unmet need’ for family planning, given the low contraceptive prevalence, the high proportion of short inter-birth intervals, higher CPR where supply is the greatest and relative frequent use of abortion there is a presumed very high level of unmet need for modern contraception
4. ECO can support the MoH of Tajikistan in ensuring that strategies to improve Reproductive Health (including Family Planning) Tajikistan do not have a formal population policy for

Family Planning. Access to a range of modern contraceptive methods has been available for just over a decade but availability and coverage remain very inadequate.

5. Survey information suggests that the contraceptive prevalence rate for modern methods is slightly higher than 33% (Goscomstat RT 2006). The most popular method is IUD which is used by one in four married women in Tajikistan. The next most popular methods are the Lactational Amenorrhea Method (LAM), Depo Provera and the oral combined hormonal pill; each of these methods accounts for 2-3% of married women. Using condoms is very low and used by only 1% of women(38,39)
6. **The important Comments about proportion of births attended by skilled health** indicator are:
    - The provision of delivery assistance by skilled attendants can greatly improve the outcomes for mothers and infants with the use of technically appropriate procedures, accurate and speedy diagnosis and treatment of complications.
    - Tajikistan has noted an important progress in providing skilled assistance at delivery; however there is still room for further improvement.

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 6: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

Table 8.8- HIV/AIDS indicators related to indicator 6-1 in Tajikistan 2000-2008

Years	New Cases of HIV/AIDS (23)	Total number of people infected with HIV (23)	People living with HIV, 15-49 years old, percentage-Estimated (34)	AIDS deaths Estimated (34)	Prevalence in 15-24 woman antenatal clinics (23)
Before 2000	2				
2000	7				
2001	37		0.1	100	
2002	30				
2003	41				
2004	198				
2005	189				.5
2006	204				.1
2007	239		0.3	500	.3
2008	373	1422			.1

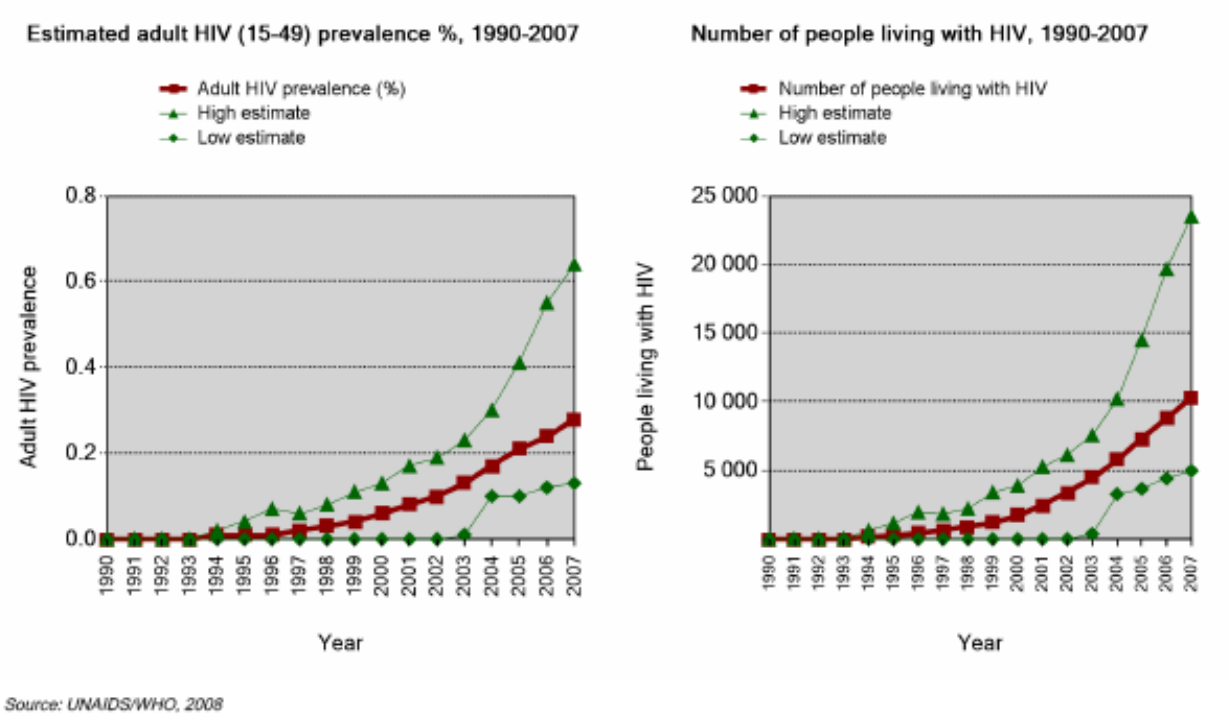


Figure 8.6- Epidemiologic fact sheet on HIV and AIDS-tajikistan-2008 UNAID(34)

6-2: Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

Table 8.9- Condom use rate of the contraceptive prevalence rate in Tajikistan 2000-2008

Years	Source of data	
	Routine Reports (23,29)	MICS & WHO (24,25,26)
2000	10.3	1.2
2001	1.9	
2002	3.5	
2003	6.5	
2004		
2005		3.7
2006		
2007	1.4	
2008	2.8	

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

Condom use at last high-risk sex .This indicator, for researchers of this report, was available just once in Tajikistan in 2007. According to UNGASS, it was 65% in 2007. (32)

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

This indicator was calculated by MICS in 2005 and it was 2 percent. The minor rate was 2 and the major was 11.4.Again, indicator was calculated by UNGASS in 2007 and the result was 11.(26, 32)

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

Table 8.10- Contraceptive prevalence rate in Tajikistan

Years	MICS (25,26)	Subgroups / Inequity
2000	33.9	
2005	37.9	[Min=27.9 &Max =46.3]

In addition above studies, some survey information suggests that the contraceptive prevalence rate for modern methods is slightly higher than 33% (Goscomstat RT 2006). The most popular method is IUD which is used by one in four married women in Tajikistan. The next most popular methods are the Lactational Amenorrhea Method (LAM), Depo Provera and the oral combined hormonal pill; each of these methods accounts for 2-3% of married women. Using condoms is very low and used by only 1% of women.(39)

6-6: Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

There is no data available in Tajikistan about Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years in Tajikistan. In fact, like other countries in this region, it is not a good and proper indicator for HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population

Goals 6 (HIV/AIDS) Findings (40, 41, 42, 43, 44)

1. Estimations related to some HIV/AIDS indicators are being presented in above tables and graphs and texts.
2. From all 1422 cases by the end of 2008, 1148 cases were men (80.7%) and 274 cases were women (19.3%).
3. it was transmitted through following ways:
    a. Sexual: 364 cases (25.5%)
    b. Blood and blood products: 802 cases (56.3%)
    c. Drug injection: 786 cases (55.2%)
    d. Mother to child: 11 cases (0.7%)
4. According to health ministry reports, results taken from monitoring bases are as follows.
    a. There are 231 cases under retroviral treatment.
    b. Harm reduction is not practiced for drug users.
    c. There is not enough equipment for diagnosing Virus and CD4.
    d. There were 48 cases with TB/HIV in 2008.
5. HIV/AIDS is a rising threat among youth in Tajikistan. Despite gaps in data, available evidence indicates that HIV is spreading rapidly. For instance, 373 new HIV positive cases were registered during 2007-2008 only
6. Based on UNICEF site, there is a taboo on sexual education in families and the absence of youth-friendly health services and life-skills education in formal and non-formal educational settings means that young people are not learning about the dangers of HIV/AIDS, sexually transmitted infections and drug use, including individual protective measures. Voluntary, anonymous counseling and testing for young people are limited.
7. It is driven largely by the dramatic increase of intravenous drug users (IDUs) in Central Asia, which is a nexus for the transit of heroin. IDUs account for 70 percent of new HIV infections. More than two third of the HIV cases are less than 29 years old. Official statistics indicate that the 20-29 age group is most affected.
8. Another concern is a dramatic increase in the number of SWs in the country. According to the UNAIDS survey in 2003 the approximate number of SWs in the country was 8,000.
9. According to the latest estimates, about 450 to 600 thousand labor migrants, predominantly young men (18-49 years old), leave the country annually for seasonal work. There is a high incidence of unprotected sexual contacts among this group, and as a consequence, a high risk for HIV infection. This means that the spouses of labor migrants are also at a high risk. The 2005 sentinel surveillance data showed a 2.2 % HIV infection rate among the labor migrants.

Goals 6 (HIV/AIDS) comments (40, 41, 42, 43, 44):

- In general, there is still insufficient reliable data available on the knowledge, attitudes and behavior of the general population and vulnerable groups and it should be noticed.
- As a high amount of population is young and there is a high level of migration, training young people and migrants can be useful. Expansion of the prevention program on raising awareness among labor migrants and their families about HIV/AIDS should be planned and performed continually.
- Behavioral change programmers, including mass media campaigns aimed at increasing public awareness on HIV/AIDS should be planned.
- Religion is not active about AIDS. It should make religion to participate more.
- There should be planning for increasing the awareness of political groups. Required political and administrative commitment concerning AIDS control should be formed.

- According to Tajikistan's health ministry experts, it can be useful to have some training courses for physicians.
- Some regional sessions could be hold by ECO for sharing experiences.
- Young people life skills education should be noticed: The life-skills health education program gives young people the tools they need to protect themselves from HIV/AIDS, sexually transmitted infections and drug abuse. It also provides access to child- and youth-friendly information and services so that young people can make informed choices and lead healthy lives.
- Rapid spread of HIV/AIDS should be noticed. Especially HIV/AIDS/STI prevention activities should be noticed among Injecting Drug Users and Sex Workers.
- Acceleration of antiretroviral treatment of people living with HIV/AIDS. Improvement of capacities for HIV counseling and testing services in the country
- Expansion of Harm reduction for IDUs is an urgent need.
- increasing support of People Living with HIV and AIDS, so that they can advocate on behalf of HIV prevention and care and eventually reduce stigma and discrimination

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 8.11- Prevalence and death rates associated with malaria in Tajikistan (1990-2008)

Years	Incidence (23,29,24)	Number (23,29)	Death (24)
1990	2.8	173	
1991	4.8	282	
1992	5.1	406	
1993	10.6	619	
1994	41	2410	
1995	105	6103	
1996	185	16561	
1997	513	29794	
1998	334	19351	
1999	224	13493	
2000	3115	19064	
2001	184	11382	
2002	99.6	6160	
2003	87.8	5428	
2004	56.9	3577	0
2005	35.2	2309	0
2006	19.2	1344	0
2007	9.4	635	0
2008	4.2	318	0

- For introducing the indicators of 6-7, three measures are usually used in different sources of MDG monitoring and evaluation and also MDG reports taken from different countries:
  - Malaria incidence rate per year in the country
  - Number of malaria cases per year in the country
  - Death rate
- According to Tajikistan ministry of health reports, there is some evidence related to high incidence rate of malaria in the country since 1990. These three measures are being presented in the above table. Incidence per 100000 trends is being shown in the graph. The data are the results of the surveillance of malaria in routine system.
- Although incidence rate of malaria is low in 1990 and before, in the years following there is a great increase and variation. The peak of incidence was at 1997.
- According to Tajikistan's ministry of health data, the number of cases infected by falsiparom malaria is so reduced that it came from 831 cases in 2000 to 2 cases in 2008.
- There is not any case of death caused by malaria during recent years.

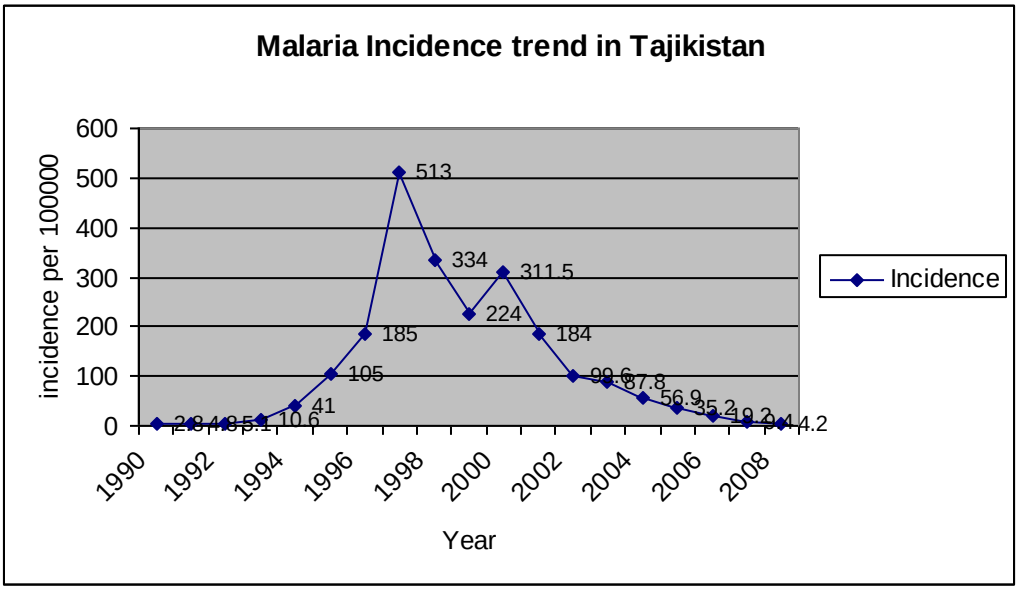


Figure 8.7- malaria incidence per 100000 trend in Tajikistan (1990-2009)

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

Table 8.12- Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures in 2000 and 2005 in Tajikistan

Year	Children under 5 sleeping under insecticide-treated bed nets, percentage(25,26)	Children under 5 with fever being treated with anti-malarial drugs, percentage (25,26)	Subgroups / Inequity
2000	1.9 all and (32.2 only in high risk area)	68.9 only in high risk area	
2005	1.3	1.9	For 1 st Bed nets [Min=0] [Max =3.2]

- There are two measures for introducing this indicator:
    1. Children under 5 sleeping under insecticide-treated bed nets, percentage
    2. Children under 5 with fever being treated with anti-malarial drugs, percentage
- First indicator was measured through MICS study In Tajikistan twice, in 2000 and 2005. The results were:
    1. 1.9% of all population and 32.2 percent in high risk areas in 2000.
    2. 1.3 % of all population in 2005. Its minimum percentage was 0 and its maximum was 32 percent.
- Second indicator was measured through MICS study In Tajikistan two times, in 2000 and 2005. The results were:
    1. 68.9% of all population in 2000.
    2. 1.9% of all population in 2005

Goals 6 (Malaria) Comments:

1. The current status of malaria control in Tajikistan is acceptable, especially after 1997 epidemic peak, and it is possible to reach MDG goal about this disease. It seems the strategies taken to control this disease in Tajikistan were effective. It is recommended to continue these strategies and control the program.
2. According to MICS results in 2000 and 2005 the indicator of 6-8(Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures) are low and there should be planning for their increase. But this indicator is not meaningful for the whole country and it should be defined for high risk areas.
3. For Indicator6-8,(Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures**)**,it is recommended to calculate the rates of this indicator in shorter time intervals in high risk areas. This indicator is not usually controlled in malaria program. An alternative way for this case is to put the process of controlling this indicator in malaria surveillance program, and sure there should be some definitions as well. It is suggested ECO secretariat define tolls and proper methodology for this indicator like other countries and tries to prepare the bases for gathering and calculating the indicator.

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 8.13- TB prevalence, incidence and death rates in Tajikistan

Years	Tuberculosis incidence rate per year per 100,000 –estimated (24)	Tuberculosis prevalence rate per 100,000- Modeled- estimated (24)	Tuberculosis death rate per year per - 100,000- modeled (24)	New TB Cases per 100000 Incidence Surveillance of MOH (23,29)
1990	111.8	195.5	22	44.2
1991				38
1992				30.9
1993				31.7
1994				30.2
1995	64.8	106.2	12.4	28.4
1996	81.6	133.7	15.6	27.8
1997	86.1	141.1	16.5	33.5
1998	97.4	159.5	18.6	40.3
1999	104.7	170.7	19.9	41.6
2000	117.4	192.2	22.5	44.9
2001	135.7	222.1	26	55.6
2002	153.5	250.2	29.4	49.6
2003	164.9	261	31.3	66.5
2004	180.7	281.7	34.7	66.6
2005	192.2	287.9	37	83
2006	203.8	297.7	39.2	81
2007				93

For introducing this MDG indicator in different TB reports and monitor and evaluations of MDG, four indicators from TB program are used:

1. TB incidence rate
2. TB prevalence rate
3. TB death rate
4. Notification rate

All these four measures are presented in above table and below graphs. Three first measures in above table are determined by world health organization or through modeling. Notification rate is determined according to national surveillance. TB incidence, prevalence, mortality and notification rates have increased significantly from 1990 to 2006 in Tajikistan. There is a great difference between notification rate and the estimated incidence rate by world health organization. In general, one of the problems in this country is the lower rates of diagnosis cases comparing with estimated rates.

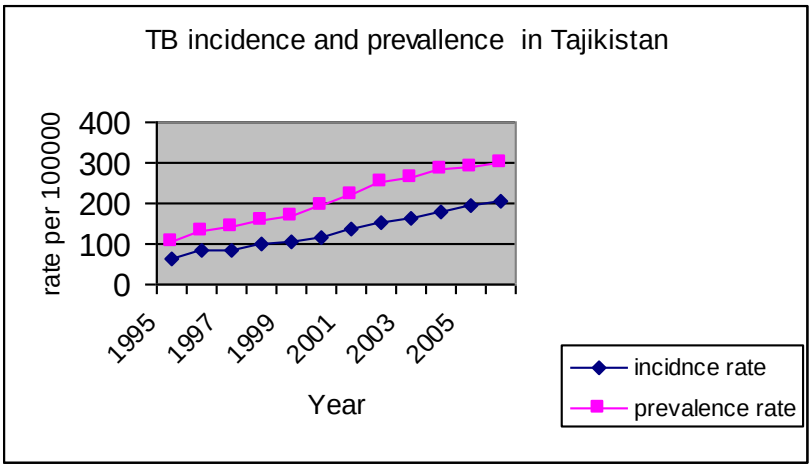


Figure 8.8- TB incidence and prevalence in Tajikistan

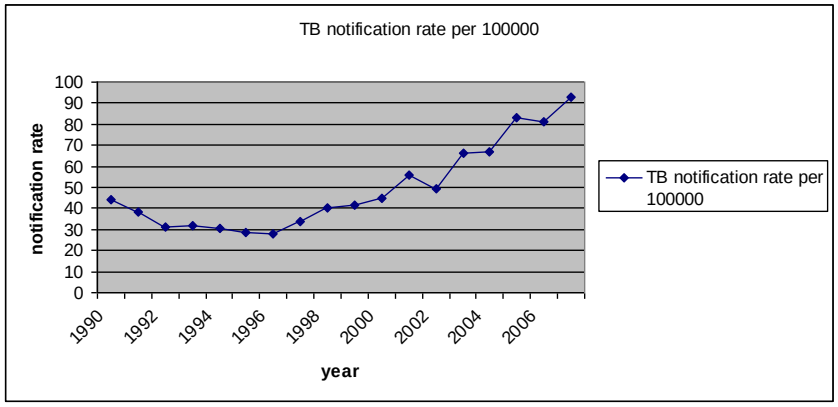


Figure 8.9- TB notification rate per 100000 in Tajikistan

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Table 8.14- Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

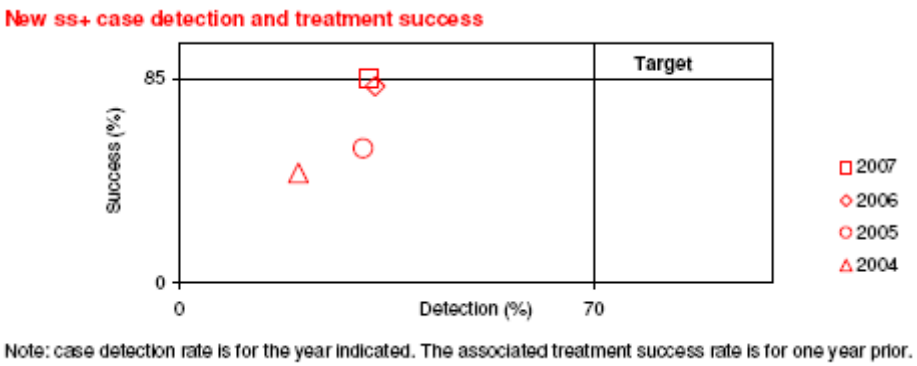
Years	case detected rate All forms (23,33)	case detected rate Smear positive (23,33,24)	Tuberculosis detection rate under DOTS, percentage Estimated (23,33,24)	Tuberculosis treatment success rate under DOTS, percentage Country data (23,33,24)	DOTS coverage (23,33,24)
2000	38	13			
2001	41	19			0
2002	7.1	16	2.3	78.5	13
2003				86	13
2004	38	20	11.4	83.8	32
2005	42	31	22.9	86.2	61
2006	37	33	32.7		79
2007	39	32			100

For introducing this indicator there are some measures which are presented in the table. These measures are:

a. case detected rate (All forms)
b. case detected rate (Smear positive)
c. Tuberculosis detection rate under DOTS, percentage(Estimated)
d. Tuberculosis treatment success rate under DOTS, percentage (Country data)
e. DOTS coverage

Three measures of case detected rate (all forms), case detected rate (smear positive), and tuberculosis detection rate under DOTS percentage (estimated) are very low in Tajikistan. DOTS coverage and Tuberculosis treatment success rate under DOTS have had a good status in Tajikistan during recent years.

Figure 8.10- New smear positive case detection and treatment success



Goals 6 (Tuberculosis) Comments:

1. Concerning indicators given about TB and as it was presented in tables and graphs, Tajikistan doesn't have a good perspective toward MDG goals related TB. it is difficult to achieve Tb indicator goals in this country
2. TB incidence is high in this country and its trend was getting higher through preceding years. TB must be considered as a basic health priority and required facilities should be provided for controlling it.
3. Indicators of TB diagnosis rate and especially smear positive TB arte have been always less than estimated rates. These indicators are too far from expected state and should be improved.
4. According to Tajikistan and WHO reports, this country had achieved the goal of 100 percent coverage of DOTS in 2007. In this step, quality improvement and evaluation must be considered.
5. Proper action plan and should be taken and best strategies should be chosen for controlling of TB.
6. Preparing technical and economical supports for TB control in Tajikistan can be a significant support provided by ECO secretariat.
7. Some countries are complaining about unreal estimations by world health organization. ECO secretariat can support them technically and directly through applying good methodology for TB incidence estimation

References

1. The EFA 2000 Assessment ,Tajikistan Country Reports by UNESCO, available at http://www.unesco.org/education/wef/countryreports/tajikistan/rapport_1.html
2. Library of Congress – Federal Research Division Country Profile: Tajikistan, January 2007,avalable at: http://lcweb2.loc.gov/frd/cs/profiles/Tajikistan.pdf
3. Country general information available at wikipedia site : http://en.wikipedia.org/wiki/Demographics_of_Tajikistan#Population)
4. Country profile in mental health section of WHO available at : http://www.who.int/mental_health/evidence/atlas/profiles_countries_t_z.pdf
5. UN DATA, Tajikistan, available at: http://data.un.org/
6. Philip Musgrove, Riadh Zeramdini, & Guy Carrin- Special Theme -Basic patterns in national health expenditure– Bulletin of the World Health Organization 2002, 80
7. tajikistan index in Un index avalable at :http://www.who.int/countries
8. world bank report 2006,2007,available at: http://devdata.worldbank.org
9. BUCEN-IBD.(Bureau of the Census Inter-American-Development Bank),Tajikistan profile
10. Tajikistan population distribution by age and sex-2008,Ministry of health ,
11. Tajikistan health system, Data as of March 1996,
12. Tajikistan ministry of health, TB global fund proposal, round 6,available at global found website
13. European Observatory on Health Care Systems. Tajikistan – Health care systems in transition. European Observatory on Health Care Systems, London: 69 pages. 2002
14. Dr. Godfrey Walker, UNFPA Consultant, A Review of the Population and Reproductive Health Situation in the Republic of Tajikistan, 2008
15. Cashin S. Tajikistan health sector note: health financing report. Boston University School of Public Health, Department of International Health; 2004.
16. World Bank. Health Sector note, Tajikistan. Washington: June 2004,
17. World Bank. Tajikistan Living Standards Survey, 2003. Dushanbe: 2004.
18. http://www.eolc observatory.net/global_analysis/tajikistan_health_care.htm
19. MDG-overview-report. MDG Need Assessment, UNDP, Tajikistan, INVESTING IN SUSTAINABLE DEVELOPMENT:MILLENNIUM DEVELOPMENT GOALS NEEDS ASSESSMENT Overview TAJIKISTAN Dushanbe May 2005
20. European Observatory on Health Care Systems 2000,TajikistanHealth Care Systems in Transition 2000
21. . Raffael Aye, Shukufa Ibodova, Robin Thompson, and Kaspar Wyss. Access to medicines and out of pocket payments for primary care: Evidence from family medicine users in rural Tajikistan Fabrizio Tediosi,1,3. BMC Health Serv Res. 2008; 8: 109
22. Zulfiqar A. Bhutta & Yasir P. Khan; Bishkek, 2009. Maternal and newborn health in Kyrgyzstan and chui oblast
23. MoH of Tajikistan (gathering data from personnel of MoH during our visit)
24. MDG goals indicators available at http://mdgs.un.org/unsd/mdg/Data.aspx
25. report of MICS 2000 in Tajikistan , unicef ,2001
26. report of MICS 2005 in Tajikistan , state committee on statistics of the republic of Tajikistan 2007 and un agencies
27. UNICEF, Country data ,available at UNICEF site: http://www.unicef.org/infobycountry/Tajikistan_statistics.html
28. Tajikistan ministry of healeth, Progress toward the millennium goals Tajikistan 2003 report.
29. Adilet sultan meimanalive & remhgjus prochorskas , availability of data in CIS countries on the health related indicators of the MDG, who regional officer for European ,2006
30. UN site, http://www.who.int/healthmetrics/en/

31. Dr. Godfrey Walker, UNFPA Consultant, A Review of the Population and Reproductive Health Situation in the Republic of Tajikistan, 2008
32. Tajikistan UNGASS report 2007,from UNAIDS of tajikistan
33. TB country profile, Estimated TB prevalence from WHO website. available at: http://www.indexmundi.com/tajikistan/tuberculosis-morbidity.html
34. UNAIDS ,Tajikistan HIV/AIDS situation report, available2007,2008
35. Tajikistan indicators in child info from UNICEF available at: http://www.childinfo.org/
36. UNICEF, WHO, The World Bank and UN Population Division, 'Levels and Trends of Child Mortality in 2006: Estimates developed by the Inter-agency Group for Child Mortality Estimation', New York, 2007.
37. World Bank, Millennium Development Goals for Health in Europe and Central Asia Relevance and Policy Implications,2004
38. MDG Need Assessment, UNDP, Tajikistan, INVESTING IN SUSTAINABLE DEVELOPMENT: MILLENNIUM DEVELOPMENT GOALS NEEDS ASSESSMENT Overview TAJIKISTAN Dushanbe May 2005
39. Arlington, VA: John Snow, Tajikistan: Reproductive health Situation Analysis 2007 ,Europe and Eurasia Regional Reproductive health Activity for the U.S. Agency for International Development cp, . August 2007
40. UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance, Epidemiological Fact Sheet on HIV and AIDS Core data on epidemiology and response 2008,Tajikistan
41. Tajikistan UNICEF website
42. USAID Country Health Statistical Report Tajikistan May 2007.USAID
43. Two Decades of HIV/AIDS in Tajikistan: Reversing the Tide or the Coming of Age Paradigm? Alisher Latypov, China and Eurasia Forum Quarterly, Volume 6, No. 3 (2008) p. 101-128
44. Lee-Nah Hsu et all, OUTCOME EVALUATION OF HIV PROGRAMME OF UNDP TAJIKISTAN, 14th January 2007
45. www.rpi.edu/~hugheg/ssme/Health_financing_data.xls

Chapter 9. Republic of Turkey

Turkey demographic and socioeconomic status

The Turkish Republic was founded in 1923 by Mustafa Kemal Ataturk who instituted an ambitious programme of reforms designed to orient the political, social and economic structure of the country towards Western countries and neighbouring Europe in particular. Turkey has been a member of the organization for economic cooperation and development (OECD) since its foundation in 1961 and signed and association agreement with the European economic community in 1963. A customs union with the EU took effect in 1996 and ongoing EU accession negotiations were opened in October 2005 (18).

Turkey is a large, middle-income country with relatively few natural resources .The area is780, 580 square kilometres. The Turkish state has been officially secular since 1924. Approximately 99% of the population is Muslim.

Turkey is a Eurasian country that stretches across the Anatolian peninsula in southwest Asia and the Balkan region of southeastern Europe. Turkey is located between Europe-Asia and Africa continents. Turkey has the longest land border with Syria (877km.). Turkey also has land border with Georgia, Armenia, Iran, Iraq, Bulgaria, and Greece. The coastline of Turkey's four seas is 8333 km.

The constitutions declare that Turkey is a republic with a parliamentary system and the will of people be vested in the Grand National Assembly of Turkey. The number of provinces increased to 81 in the year 2000. Turkey divided into seven geographical regions: Marmara, Aegean, Black sea, Central Anatolia Mediterranean, Eastern Anatolia, and Southeastern Anatolia. Five regions (West, South, Central, North, and East) are distinguished, reflecting, to some extent, differences in socioeconomic development levels and demographic conditions among sections of the country. This regional breakdown is frequently used for sampling and analysis in social surveys (Health at a glance Turkey 2007, The ministry of Health of Turkey- Refik saydam Hygiene Center, School of Public Health) (1). Besides, the Eurostat's NUTS (Nomenclature of Territorial Units for Statistics) regions are also used.

Figure 9.1- Geographic location

Population: 71,517,100 (2007); Source: TURSTAT (www.tuik.gov.tr) (1)

According to the 1975 census, 58% of the population re-sided in rural and 41.8% in urban areas, while in the 2000 census it was registered that these ratios had altered due to migrations and that 23.7 million people, i.e. 35% percent of the population reside in rural and 44 million people, i.e. 64% in urban areas . According to the 2009 World Health Statistics, 68% of the population are living in urban area (3).

Population growth rate: 1.18% (2007).
According to the TURKSAT, the age structure for 2008 is: under 15years: 26.3% sand over 60 years: 9.9% (www.tuik.gov.tr). Annual growth rate for 1997-2007 is 1.4% (3).some demographic and socioeconomic indicators are shown in the table.

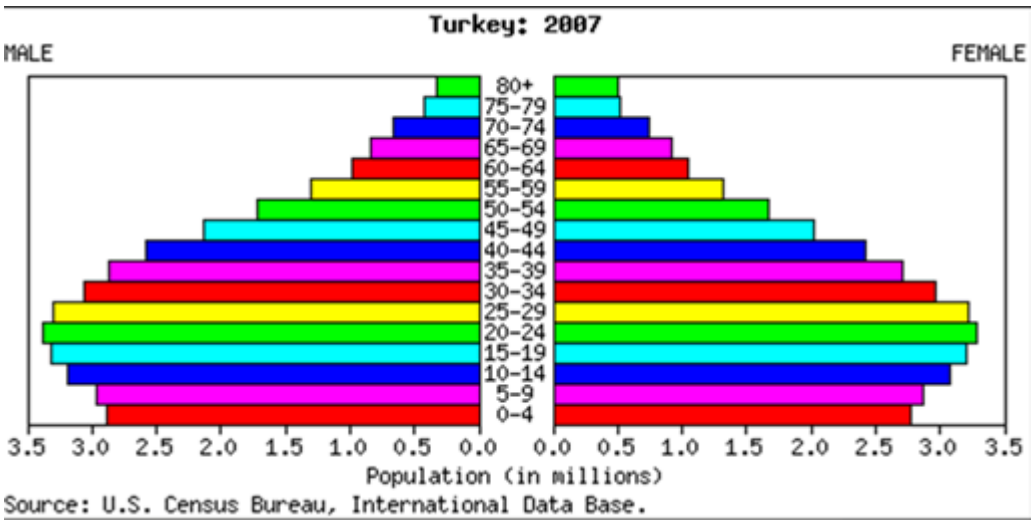


Figure 9.2- Turkish Population Pyramid

Table 9.1- Socioeconomic status and indicators of Turkey

Indicators	Values	Years	References
Crude Birth Rate	18.1	2007	25
Total Fertility Rate	2.1	2007	25
Crude Death Rate	6.4	2007	25
Life Expectancy at Birth	Total= 73.6 Male= 71.4 Female= 75.8	2008/2009	25
Adult Literacy Rate	88.7	2000/2007	25
Per capita total expenditure on health (PPP int. $)	618	2006	10
GDP Per Capita Income (PPP US$)	13604	2007	10
Human Development Index	0.806	2007	6
Total expenditure on health as percentage of Gross Domestic Product	4.8	2006	10
Share of Households' Out-of-Pocket Expenditure in Total Health Expenditure	19.9%	2005	10
General government expenditure on health as percentage of total expenditure on health	71.4%	2005	10

A brief summary of the country's health system

"The health system is fragmented. Health care is provided by public, semi-public, private and philanthropic organizations, including the Ministry of Health (MOH), universities, municipalities, the private sector and foundations among others.

The key health service provider is the MOH which is also the main provider of primary and secondary health care. It has an extensive network of health facilities specializing in in-and outpatient care and it is essentially the only provider of preventive health services.

Provincial health directorates, in 81 provinces, are responsible for the managing of and the daily planning of primary health care institutions' activities at the provincial level and are required to seek approval from both Ministerial as well as the provincial governor concerning health care services.

In 2003, a new era was launched with the Health Transformation Program, which envisaged human being oriented planning of health service delivery and implementation of family medicine system in primary health care level. The Law on Family Medicine Pilot Implementation, which identified the principles of the transition period, came in to effect after it was issued in the Official Gazette Dated 09.12.2004 and Numbered 25665, So, the legal framework was drawn for family medicine.(AHPUHK- Law on Family Medicine Pilot Implementation(2004), Official Gazette Dated 0.12.2004 and Numbered 25665, Ankara)

Regulation on Family Medicine Pilot Implementation, which identified the implementation principles in line with the article 8 of the sold Law, came in to effect after it was issued in the Official Gazette Dated 06.07.2005 and Numbered 25867. The Regulation has the following goals: empowering primary health care services, improving quality of health care serviced and identifying the following: word principles of family physicians and personnel; rank of priority by work place and status; scoring system for family medicine system and personnel approximant; physical and technical requirements for places to be used as family health centers; professional principles, job descriptions, performance and quality standards, patient referral papers, forms and contents of prescriptions, reports and other documents; registrations and other procedures(AHPUHY- Regulation on Family Medicine Pilot Implementation(2005), Official Gazette Dated 06.07.2005 and Numbered 25867 Ankara).

On 15.09.2005, family medicine was first piloted in Duce province. As of October 2009, 2034 family health centers and 430 population health; centers were effective in 35 provinces Now, there are 22.198 million citizens are covered in the system. In addition to the family medicine system, 45401 health centers, 225 ACSAP (Mother- Child Health and Family Planning) Centers, 243 Tuberculosis Dispensaries, 84 KETEM (Cancer Screening, Early Diagnosis and Training) Centers were operational in 2008.

In addition, Since the infrastructure and human resources of health centers were empowered, referral to hospitals has been reduced by 90% while the referral ratio was 20% in 2002, it was noted only 2.4% in 2007

Health status of Turkish people has been outstandingly improved as a result of the improvements in the scale and functioning of health care services in the last 15-202 years service delivery reforms and broadening the coverage of health insurance, which aimed to improve faimess in access to health care services, enhanced financial protection for people In fact, both the social security Institution and the Ministry of Health took significant steps to provide Turkish people with major needs in health with reasonable access to health care services, Subsequent developments in effective health insurance and enactment of the legislation on the UHI in 2008 have both improved faimess in access to health care services and promoted financial protection for the poor in Turkey(Source: OECD Reviews Health system, Turkey http://www.oecdilibrary.org/occd/content/book/9789264051096-en)

All citizens were are covered by the universal health insurance, which came in to effect in October 2008 after it had been adopted on 31 May 2006 and issued in the official Gazette Dated 16 June 2006

Treatment in the MOH institutions is free to all regardless of whether the citizen is part of an insurance system or not. Yet, patients are required to pay an amount, covered by the institution, for medicines- active workers 20% and retired 10%.

Hospital services and hospital autonomy

In 2006, the number of persons per inpatient bed was 381.(2) Until 2005, the Ministry of Health owned and operated 56.12% of hospitals and 55.1% of beds; the Social Insurance Association (SSK), a health insurance fund for registered workers, was responsible for 11.99% of hospitals and 18.8% of the beds. In that year, however, reforms led to a transfer of SSK facilities to the Ministry of Health.

As of 2008, the distribution of hospitals by ownership and branches is: Ministry of health- 847(787 are general, 60 for training), Universities- 57, Private sector- 400 and Other(Other refers to the hospital owned by other public establishments and local administrations)- 46

Public hospitals are funded by two sources; by the MOH for personnel and care expenses to a certain extent, and by the revolving fund for additional expenses and additional personnel expenses. The MOH budget directly funds the personnel and care expenses while the revolving fund obtains income from the Social Security Institution and private patients. Hospital autonomy is planned to increase" (8).

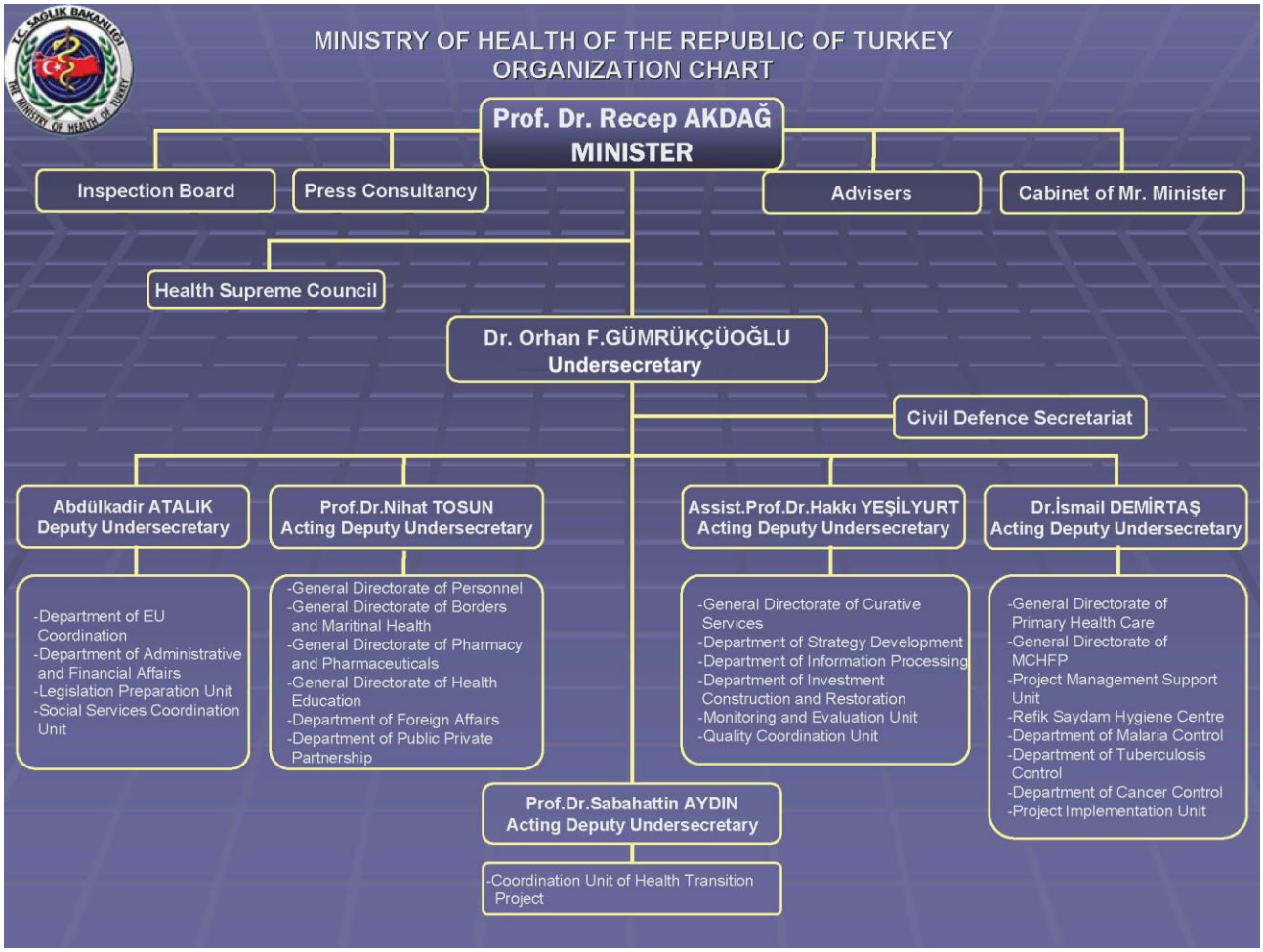


Figure 9.3- Preliminary Ministry of Health of the Republic of Turkey Organization Chart (2007) Source: (Homepage: The Ministry of Health of the Republic of Turkey).

Right after the elections on 3 November 2002, the basic objectives to be conducted under "Health for All" title were determined in the Urgent Action plan which was declared on 16 November 2002, As soon as the determination of the Urgent Action Plan, the Health Transformation program was prepared and announced to the public opinion by the Ministry of Health. The period between the years 2003- 2007 has witnessed significant changes. Program continues with the objectives.
The Health Trans formation Program aims transformation in the framework of 8 themes and one of them is widespread, easily accessible and friendly health service system is one of yield of themes. Regarding the patient satisfaction, Life Happiness surveys conducted by TURKSTAT, overall satisfaction of Turkish people with health care services, which was about 39,5 % in 2003 when the Health Transformation program was introduced, raised to 6615% in 2007(Kaynak OECD Reviews Health system, Turkey http://www.oecdilibrary.org/oecd/content/book/9789264051096-en):
Finally, thanks to the performance- based supplementary payments from revolving funds, hospitals better overcome the increasing workload of patients while 11% of physicians were practicing on full time basis at public hospitals in early 2003, the percentage was noted 73 later, so, efficiency of physicians, which are in short supply, has been improved.
These results are some of the outcomes of the Health Transformation Program and every other step will certainly contribute to better status in the future.

Methodology and visits:

1. Reviewing and examining documents available in journals, books, reports, and internet
2. Reviewing and examining documents available from MOH in the country (published and unpublished sources)
3. Reviewing and examining documents available from the UN Agencies in the country(published and unpublished sources)
4. Visiting the country from June 29 to July 01, 2009 and interviewing with related persons in MOH and UN agencies (Annex. 1)
5. Key informant interviews
6. discussion in expert groups about results and methods
7. Reviewing and examining WHO and UN MDG-related documents and international and national related sources and services
8. arrangement and template planning for gathered data and analysis and assessment of the collected data
9. putting data in its related category and table and designing the best presentation methods
10. inserting related data and findings under each indicator's category
11. making proper recommendations related to each indicator's category according to the findings

Goal 4: Reduce Child Mortality

4-1: Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.

Country definition: The same as MDG definition.

Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Table 9.2- Under-five mortality rates in Turkey for 1988-2007 (per thousand live birth)

Year	Preliminary TDHS (1)	TURKSTAT (1)	TDSH (2)	WHO (3)
1988	97.4			
1990				82 M=85 F=79
1993	60.9			
1998	52.1			
2000				44 M=45 F= 43
2003	37			
2004		27.42		
2005		26.25		
2006		25.14		
2007				23 M=24 F=22
2008	24		23.9	
Target 2015 (according to MDG report-2005)	20.7 **(Turkey has reached the goal. So they have chosen a new goal)**			

Table 9.3- Under-five mortality rates projections (per thousand live birth)

UFMR (1)	2009	2010	2011	2012	2013	2014	2015
Total	22.68	22.1	21.15	20.99	20.29	19.53	18.77

Table 9.4- Infant, and Under-five mortality rate in Turkey for the five year period preceding the TDHS-2008, TDHS-2003 and TDHS-1998 (per thousand live birth)

Year Prior to Survey	Approximate Reference Period	Infant Mortality Rate	Under Five Mortality Rate
TDHS-2008 **0-4** **5-9** **10-14**	 2003-2008 1998-2003 1993-1998	17.5 35.5 49.4	 23.9 42.3 58.1
TDHS-2003 **0-4** **5-9**	 1998-2003 1993-1998	28.7 46.5	 37.0 55.9
TDHS-1998 **0-4**	 1993-1998	42.7	 52.1

Source: Turkey Demographic and Health Survey (TDHS-2008) (2)

4-2. Indicator: Infant mortality rate

Definition: The infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1,000 live births in a given year.

Country definition: The same as MDG definition

Target: Reduction of infant mortality rate by two thirds, between 1990 and 2015

Table 9.5- Infant mortality rates in Turkey for 1988-2007 (per thousand live birth)

Year	Preliminary TDHS (1)	TURKSTAT (1)	TDSH (2)	WHO (3)
1988	77.72			
1990				67 M=70 F=64
1993	52.6			
1998	42.7			
2000				38 M=39 F=36
2003	29			
2004		24.6		
2005		23.6		
2006		22.6		
2007				21.7 M=22 F=21
2008			17	
Target 2015 (according to MDG report-2005)	**17.5 (Turkey has reached the goal. So they have chosen a new goal = 10)**			

Table 9.6- Infant mortality rate in Turkey estimate for 2010-2050 (per thousand live birth)

IMR (1)	2010	2015	2020	2025	2030	2035	2040	2045	2050
Total	20.0	17.2	14.7	12.2	9.7	8.2	7.8	7.3	6.5

4-3: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

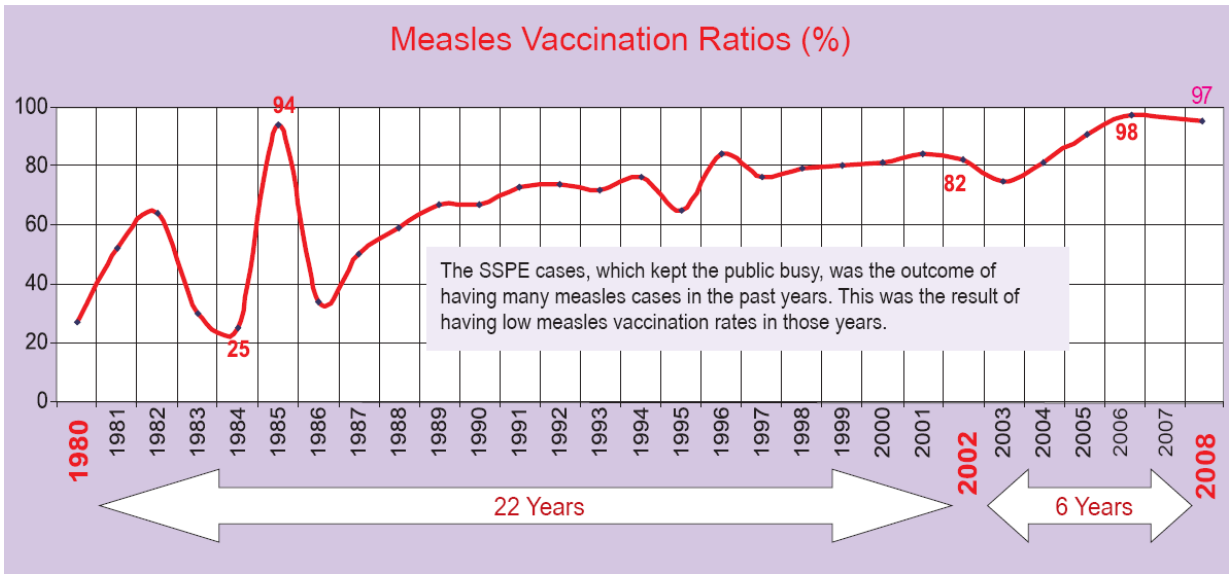


Figure 9.4- Measles Vaccination Ratios (1980-2008)

Source: Progress Report, Health Transformation Program in Turkey, January 2009(11)

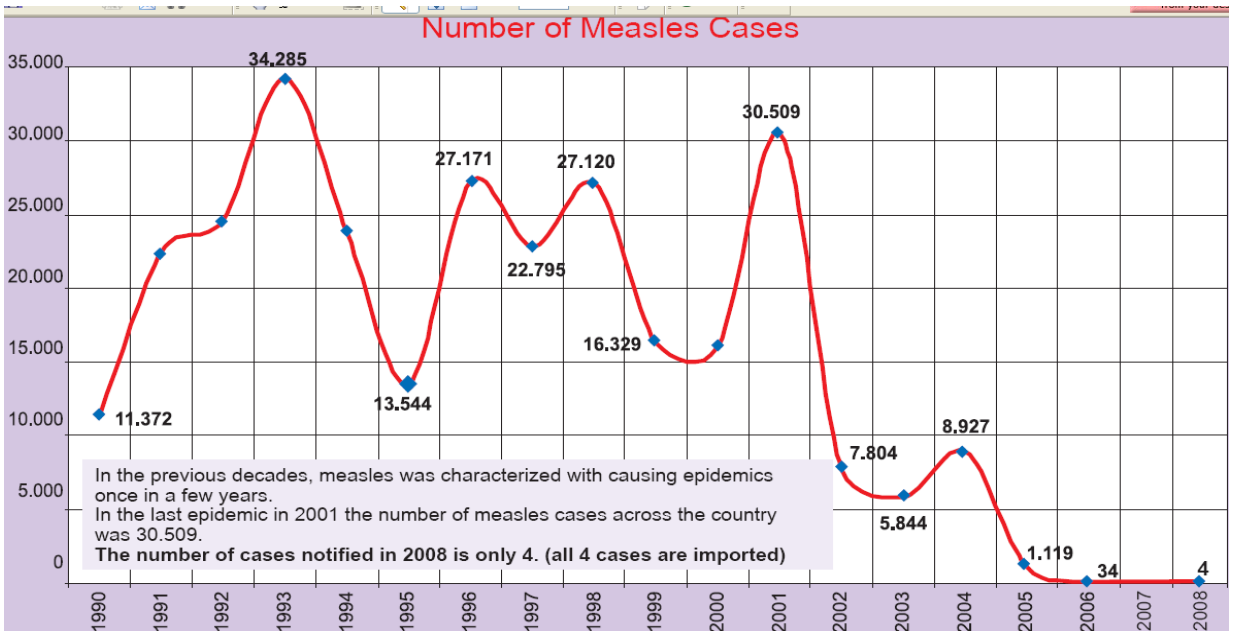


Figure 9.5- Number of Measles Cases (1990-2008)

Source: Progress Report, Health Transformation Program in Turkey, January 2009(11)

Table 9.7- Proportion of 1 year-old children immunized against measles in Turkey

Years	administrative data Republic General Directorate of Primary Healthcare Service (1)	Progress Report Health Transformation Program in Turkey (11)
1990		69(est.)
1993	77.9	
2000	81	
2001	84	
2002	82	
2003	75	
2004	81	
2005	91	
2006	98	
2007	96	
2008	97	
Target 2015 (MDG report-2005)	**95.0**	

Goal 4 Findings: Status and Trend

Under-5 mortality rate and Infant Mortality Rate are leading indicators of the level of child health and overall development in countries. The findings related to the past periods preceding the TDHS-2008 as well as the comparison of TDHS-2008 results to those of TDSH-2003 and TDHS-1998 show that the decrease in infant and child mortality rates in Turkey has been accelerated in recent years, especially in the last five years (Table 9.4).

"Infant mortality rate has declined to 18 per thousand live births with a 39 percent decline during the last five years (20)".

(2). According to the data has been presented in tables 9.2,9.3,9.4,9.5 and 9.6 Turkey is on its way to achieving the Goal 4 before 2015 (14). "Turkey is one of the six countries which have reduced their under-five mortality rates most rapidly in the past two decades (Launching UNICEF's State of the World's Children 2009 Report in Ankara) " .

58th and 59th Government examined and assessed health care systems of many developed countries by on- site investigations. Also, experience and accumulated knowledge such as the socialization project in Turkey were used when developing the Health Transformation Program. 60th Government, which came into effect after the election held on 22 July 2007, declared its commitment to continuing the Health Transformation Program, as well and in this context, has made a step towards success regarding maternal and child health.

Before the Health Transformation program anemia was very common in Turkey and, according to the researches, approximately 50% of the 0-5 age group children, 30% of the school age children and 30% of the nursing women had anemia. Children have iron deficiency anemia most frequently between the 6-24 months. In this period the growth of children is in its fastest process. Nutritional problems and iron deficiency occurring in this period have negative impacts on the mental, physical

and social development of children in the future. The easiest way to prevent these negative impacts from occurring is to protect children against iron deficiency anemia we started the "Iron- Link Turkey program" in order to provide consciousness among the society on anemia, ensure breastfeeding for the first six months, continuation of breastfeeding until the age 2 together with the convenient supplementary food, ensuring iron support between 4-12 months for all the babies and iron treatment for the 13-24 months babies with anemia, We have provided iron support for 5/080/000 babies from the beginning of the program until today. We have provided iron support for 5.080.000 babies from the beginning of the program until today. We enlarged coverage with the Iron support for the pregnant program. We distributed 5 211.000 boxes of iron preparate since the beginning of the program(Source: progress Report, Health Transformation program in Turkey, Janary 2009).

As for the Iodine Deficiency syndromes and Iodization of salt, the percentage of the use of iodized salt, which was 18,2 in 1995, was raised to 64% in 2002 and to 85,40% according to the TDHS 2008.

Newborn screening program has been expanded and accelerated countrywide to ensure a healthy beginning in life by the newborns. Phenylketonuna Screening which was launched previously, has been expanded, too Another vital programme congenital Hypothyroidism screening, has been launched in a rapid and widespread manner, In this way, our babies are widely protected from phenylketonuria and congenital Hypothyroidism, which can be prevented easily when detected, however cause irreparable damages such as mental and physical development retardations when missed During phenylketonuria and congenital Hypothyroidism screenings, 95% of the target population was covered'.

Vitamin D is being provided free of charge to support bone development of the babies. The number of infants provided with vitamin D between May 2005 and January 2009 is 4 million 820 thousand. In the first 2 months in 2009, 232.048 infants were provided with the Vitamin D. (Source: Progress Report, Health Transformation program in Turkey, January 2009)

Immunization is an essential component for reducing under-five mortality among vaccine-preventable diseases of childhood, measles is the leading cause of child mortality. Health and other programmes targeted at these specific causes are one practical means of reducing child mortality (12). According to the Turkey Demographic and health Survey 2008, there are significant improvements in the measles vaccination rates of Turkey between 2003 and 2008 (Figure 9.4 and Table 9.7) (2). In order to eradicate measles, a big vaccination camping was carried out covering the years 2003-2005 and 18.217.000 children were vaccinated. The vaccination ratio of the campaign was 97%. Those works gave results in a short period and the measles cases decreased to 4 in 2008 (Figure 9.5), and there has been no child case until January 2009 (11). It should be considered that based on the feedback from Turkey Ministry of Health, only 1 out of the 4 mentioned cases, was imported case of Measles

In 2002 the vaccination rate was 78% for targeted children group. This rate was even below 50% in some provinces in the south- eastern region. In 2008, vaccination rate reached to 96% countywide. We accomplished a rate over 80% even in regions with the lowest vaccination rates. The rubella mumps and meningitis vaccinations, which were not included in the standard vaccination program formerly, are included in the program fivefold combined vaccine (diphtheria acclllular perussis, tetanus, Hemophilus influenza type B and inactive polio virus) in introduced. The necessary activities for the implementation of conjugated pneumococus vaccine was completed in November 2008, (Source: Progress Report, Health Transformation Program in Turkey, January 2009)

Goals 4 comments:

It seems that the Goal 4 has almost been achieved 6 years before 2015 "in the light of the following strategies" in Turkey, to be sustainable the trends, Continuation and Strengthening of these strategies can be recommended. All of the mentioned strategies have been implemented in Turkey and the country should pay enough attention to monitor the programmes to achieve the goals.

1. Narrowing the economic gap between regions in order to achieve a sustainable national economy
2. Promoting the mother's education
3. Improving justice and protection for children
4. Making a holistic view to development and poverty rather than focusing on health only
5. Reaching the maternal and child care programs the poorest regions (better access) in the Turkey
6. Transformation of Turkey's system of health provision for children by raising public awareness of the need for immunization
7. The improve the coverage of routine immunization programme for all children in their first year
8. Child protection and education: the child–friendly space
9. Universal access to primary education, gender parity and women's empowerment accepted as critical milestones towards achieving the Millennium Development Goals
10. reduction the social disparities that typify child poverty
11. New data collection system, DevInfoTurk, based on 25 quality of life indicators (25 QLI), functioning in all 81 provinces by 2008. It is expected that the 25 QLI will improve monitoring of awareness and implementation of children's and women's rights, inform social policies for children and contribute to the development of a systematic structure that will protect children from the effects of poverty.
12. Focusing on child protection, education and early childhood development, the new Country Programme Action Plan

A comprehensive system to monitor children's health containing an inclusive, continuing assessment and monitoring of the range of influences on children's health, including children's biology and behavior, social environments (family, community, culture, and discrimination), physical environments, and services and policy contexts can also be recommended (15).

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

Target 5. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Table 9.8- Maternal mortality ratios by years in Turkey (1974-2009)

Years	Source of information	MMR (Per 100.000 live births)
1947-1975	Turkey Demographic Survey 1974-1975	208
1989	Turkey Demographic Survey 1989 (reflects maternal mortality ratio of 1981)	132
1995	The modeling study , WHO &UNICEF(13)	55
1998	Maternal Mortality and Causes Survey (only based on hospital records)	49.2
2005	National Maternal Mortality Survey	28.5
2005	World Health Statistics, 2009(3)	44
2007	National Data System	21.2
2008	National Data System	19.4

Source: The Ministry of Health of Turkey

Table 9.9- The Maternal mortality ratios by regions in Turkey (2005)

Place	Maternal mortality ratio
TURKEY	28.5
--Urban	20.7
--Rural	40.3
Regions:	
Istanbul	11.0
West Marmara	42.1
Aegean	31.5
East Marmara	21.7
West Anatolia	7.4
Mediterranean	25.1
Central Anatolia	11.9
West Black Sea	26.8
East Black Sea	68.3
Northeast Anatolia	68.3
Central East Anatolia	36.9
Southeast Anatolia	38.9

Source: Hacettepe University Institute of Population Studies: *2005 Turkey National Maternal Mortality Study*

5-2: proportion of births attended by skilled health personnel

Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.
(Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.)

Table 9.10- Proportion of births attended by skilled health personnel (%)

Years	1988-93	1993-1998	1998-2003
TURKEY	75.9	80.6	91.3

*:TDHS

Goal 5 Findings: Status and Trend

It is too difficult to assess globally the progressive trend toward MDG5 targets, due to the lack of reliable and consistent maternal mortality data.

The fifth MDG aims to improve maternal health and targets reducing MMR by 75% between 1990 and 2015- that is, it seeks to achieve an expected 5.5% annual decline in MMR from 1990 Maternal mortality (as measured by MMR) has decreased at the global level at an average of 8% annually between 1990 and 2005 because maternal mortality in Turkey, which was noted 100 in 1990, decreased to 28.5 in 2005 so, the annual decline was 8% which is above 5.5% (16).
Even if different methods are used to calculate maternal mortality ratio, it is obvious that an outstanding decline has been noted in maternal deaths, which refers to progress in maternal health. Although countries change their methods today, the results remain to be comparable since the calculation method for maternal mortality ratio is the same. Similarly, countries using different methods can be compared in the world Health Organization statistics.

Estimating the MMR for Turkey is especially difficult due to the inconsistency of methods used to assess MMRs over past three decades (Table 9.8). To see a more detailed picture and the full story, the national value of the MMR in 2005 has been broken down (disaggregate) by sub-populations (Table 9.9), the Maternal mortality shows wide regional variations and between urban and rural areas in Turkey. It can be assumed that there are also wide variations within regions. Turkey has allocated increased financial, human and physical resources for mother and child care, particularly in underdeveloped regions and rural areas, resulting not only in fewer deaths among mothers and infants, but also in a marked decline in regional disparities. Therefore, Turkey has the potential and the capacity to attain Goal 5, before 2015 due to decisive policies that she has been executing in the past years.
Even if there are Regional disparities in maternal health indicators, some programs are being implemented to diminish such disparities. To give an example, a comparison between the TDHS 2003 and 2008 reports medicates that the most rapid improvement among regions is observed in the eastern region.

According to the TDHS-*2003* results, 17% of live births in Turkey are still not attended by skilled health care professionals (13). The proportion of births no attended by skilled heath care

professionals is particularly high in eastern parts of the country, in rural areas, among the economically disadvantaged, among sections of the populace not covered by health insurance schemes and among mothers with a low level of education. The proportion of births not attended by skilled health care professionals is particularly high in eastern parts of the country, in rural areas, among the economically disadvantaged among mothers with a low level of education. According to the 2003 DHS, skilled staff attended 59.7% of the births in Eastern Turkey whereas in the West the figure was over 95% (Based on the results of TDHS-2008 this gap has become narrower). Among births involving mothers with a secondary or higher education, the proportion attended by skilled professionals rose to 98.5%.

According to the TDHS-2008 results, the proportion of women receiving antenatal care from health personnel has reflected significant improvement in Turkey. This proportion has reached 93 percent and the proportion of deliveries assisted by health personnel has reached to 90 percent (64 percent of births occurred in the five year period preceding the TDHS-2008 have assisted by a doctor. Besides, the proportion of birth occurred at a health facility, increased by 12 percent. In the TDHS-2008 for the first time the coverage of postnatal care was asked. The results show that 85 percent of mothers and 90 percent of infants have received postnatal care (2). When births are assisted by skilled health care professionals, the mortality risks of both mother and baby decline.
Besides, successfully has implemented pre- natal programs for pregnant women, while the percentage of pregnant women receiving prenatal care was 81% in 2003, it was noted 92% in 2008 (TDHS, 2008).
In the scope of the Emergency obste3trical and newborn care program, protocols were developed and disseminated in 81 provinces. Harmonization trainings (Facilitator Training for Managers in Emergency obstetrical care) were given to provincial managers by 12 NUTS regions and sustainability of these trainings was ensured.
In the context of postnatal care, protocols were developed to prevent preventable postpartum reasons- affiliated maternal and infant deaths and studies were conducted in 81 provinces. Only 15,5% of mothers and only 11,1% of infants did no receive postpartum care according to the TDHS 2008.
In the last 5 years, our capacity to transport emergency patients has been improved three times- 90% of the cases are reached in the first ten minutes now. The number of the fully equipped ambulances was 618 in 2003. This number is 2.029 today. The number of health stations has been increased to 1.306 today while it used to be 481 in 2003. The target is achieved on this matter(Source: Progress Report, Health Transformation Program in Turkey, January 2009)
For regions that are difficult to reach for climatic and geographical reasons, 34 snow ambulances and 6 ambulances with patient cabin were purchased in 2006. Marine ambulances were purchased in 2007 and they give service in coordination with the Emergency stations 112 in 2002, the figure was noted 1.400.000 citizens referring to 4 times increase. While only 20% of citizens in rural areas made use of the Emergency care services 112 in 2002, the percentage is 99% today.

It should be considered that most of the mentioned strategies has been implemented in Turkey.

Goal 5 comments:

1. As Turkish women are still likely to have more pregnancies than women in the developed countries, their lifetime risk of maternal death remains about twice as high. Therefore the birth control should be a primary focus.
2. The health professionals in the remote places and rural areas must be motivated and their experience to be promoted.
3. Those women who are at high risk of pregnancy-related mortality should be encouraged for sufficient use of modern contraceptive methods.

4. In rural areas, the emergencies intervention should be guaranteed by providing sufficient transportation (distance from larger settlements emerge as obstacles to achieving 100% professional attendance at births) .
5. Monitoring geographical imbalance and the rapid turnover of health personnel
6. As one of the effective implemented programme to improve the percentage of delivery under the supervision of a well-trained midwife, other countries support the traditional midwives to be trained to assist labour and be able to detect complications or to intervene or refer the case to the appropriate facilities when complications occur. Instead, Turkey has started a program to achieve the objective to have all births in Hospitals all around the country. As implementing such progrmme is time-consuming, maybe the first strategy could help Turkey to address these shortcoming earlier.
7. Promoting health insurance coverage and public awareness of it (all care should be genuinely free or covered by free insurance).
8. Continue the elimination maternal tetanus programme through awareness-raising activities and vaccinations
9. To raise awareness of risk factors among those communities where maternal mortality is highest
10. The government to be concerned with improving the efficiency of public health care provision, in rural and eastern areas.
11. Improvements in pre-service and in-service training of health professionals
12. Promoting the adequate post mortems investigation and documentation when maternal mortality occurs
13. To perform community (health) assessment in all local communities to gather data related to this issues, analyzing the data and making community-based conclusions about the capacity to provide necessary resources to address maternal mortality
14. The Sustainability of the Conditional Cash Transfers Aid Program for eligible women (17) to be guaranteed (Please note that the World Bank stopped funding the CCT program in Turkey in March 2008- fortunately, the program is now fully funded with national resources and still being implemented).

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 6: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

No data available

6-2:Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

6-6: Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In

practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

Table 9.11- New cases of HIV/AIDS in Turkey (1985-2008)

Years	New Cases of AIDS	New Cases of HIV	Total number of HIV/AIDS	Total number of people infected with HIV	People living with HIV, 15-49 years old, percentage -Estimated	AIDS death Estimated	Prevalence in 15-24 woman antenatal clinics
1985	1	1	2	*	*	*	*
1986	2	3	5				
1987	7	27	34				
1988	9	26	35				
1989	11	20	31				
1990	14	19	33				
1991	17	21	38				
1992	28	36	64				
1993	29	45	74				
1994	34	52	86				
1995	34	57	91				
1996	37	82	119				
1997	38	105	143				
1998	29	80	109				
1999	28	91	119				
2000	46	112	158				
2001	40	144	184				
2002	48	142	190				
2003	52	145	197				
2004	47	163	210				
2005	37	295	332				
2006	35	255	290				
2007	24	352	376				
2008	49	401	450				
Total	696	2674	3370				

Source: UNAIDS/ The Ministry of Health of the Republic of Turkey
*: No data available

Table 9.12- Age distribution of new cases of HIV/AIDS by age and sex in Turkey (1985-2008)

Age Groups	Male	Female	Total
0	14	6	20
1-4	9	13	22
5-9	5	10	15
10-12	3	2	5
13-14	2	1	4
15-19	25	39	64
20-24	184	202	386

Age Groups	Male	Female	Total
25-29	327	205	531
30-34	396	154	550
33-39	378	82	460
40-49	453	91	544
50-59	225	86	311
60+	122	34	156
Unknown	205	97	302
Total	2348	1022	3370

Source: UNAIDS/ The Ministry of Health of the Republic of Turkey

Table 9.13- The main transmission route of HIV/AIDS by sex in Turkey (1985-2008)

Transmission route	Male	Female	Total
Homo /bisexuals	292	0	292
Intravenous drug users (IV)	122	11	133
Homo /bisexuals+ IV	5	0	5
Hemophilia	10	0	10
Blood Transfusions	34	17	51
Heterosexuals	1209	790	1999
Mother-to child	28	27	55
Nosocomial	11	6	17
Unknown	637	171	808
TOTAL	2348	1022	3370

Source: UNAIDS/ The Ministry of Health of the Republic of Turkey

Table 9.14- Trend in use of contraceptive methods in Turkey 1988-2008 - Percent distribution of currently married women by contraceptive methods currently used

Contraceptive Method	TDHS-1988	TDHS-1993	TDHS-1998	TDHS-2003	TDHS-2008
Any method	63.4	62.6	63.9	71.0	73.1
Any modern method	**31.0**	**34.5**	**37.7**	**42.5**	**46.0**
Pill				4.7	5.3
IUD	6.2	4.9	4.4	20.2	16.9
Condom	14.0	18.8	19.8	10.8	14.3
Female sterilization	7.2	6.6	8.2	5.7	8.3
Other modern method	1.7	2.9	4.2	1.1	1.2
	2.0	1.3	1.1		
Any Traditional method	**32.3**	**28.1**	**26.1**	**28.5**	**27.1**
Periodic abstinence	3.5	1.0	1.1	1.1	0.6
Withdrawal	25.7	26.2	24.4	26.4	26.3
Other methods	3.1	0.9	0.6	1.0	0.2
Not currently using	**36.6**	**37.4**	**36.1**	**29.0**	**26.9**

Source: TDHS-2008 (2)

Table 9.15- Young people knowledge about HIV assessment (19)*

Question Number	Percentage of correct answer	Questions
1	76	Can the risk of HIV transmission be reduced by having sex only one uninfected partner who has no other partners?
2	72	Can a person reduce the risk of getting HIV by using a condom every time they have sex?
3	74	Can a healthy-looking person have HIV?
4	37	Can a person get HIV from mosquito bites
5	52	Can a person get HIV by sharing food with someone who is infected?
All	52	Number of respondents who gave correct answer to all 5 questions

* Prepared by Dr. Peman Atlan (UNGASS indicators country report), MOH, Turkey, January 2008

Table 9.16- The selected UNGASS indicators, Turkey, 2008 (19)*

Indicators	Percentage
Sex before the age of 15: **The percentage of young women aged 15-24 who have had a sexual intercourse before the age of 15****	37
Higher-risk sex: **The percentage of women aged 15-49 who have had a sexual intercourse with more than one partner in the last 12 months was 15%.**	15
Condom use during higher risk sex: **The percentage of women aged 15-49 who have had more than one partner in the last 12 months reporting the use of a condom during the last sexual intercourse*****	58
Condom use: Men Having Sex with Men (MSMs) **The percentage of men reporting the use of a condom the last time they had anal sex with a male sex partner*****	36.7
Condom use: IDUs **The percentage of IDUs reporting the use of a condom the last time they had sexual intercourse*****	10

* Reporting period: January 2006-December 2007
** These data are not representative for the whole population in Turkey.
*** In the operational research carried out among MARPs in 2006 and 2007

Goal 6 Findings:

The incidence of HIV/AIDS in Turkey is low and considered to be at a low level epidemic. Turkey is among low prevalence countries in Central Europe for HIV/AIDS (19). The age structure of the population, half of which is under 25, adds to Turkey's vulnerability. Millennium Development Goal 7 calls on countries to halt and begin to reverse the spread of HIV/AIDS by 2015. Between

1985 and 2008, Turkish authorities had reported a cumulative total of 2674 HIV cases. They also reported that 696 of the infected individuals had developed AIDS (Table9.11), of whom more than 140 had died.

The overall low HIV prevalence is thought to be the result of the traditional life style to which most Turkish citizens adhere and the nature of the sexual networks which are threatened by the mobility of the populations in and out of the countries. The low case number may be due to under notification, the long asymptomatic period as well as the willingness of HIV/AIDS clients to apply to private clinics (20). Turkey drew 18.5 million foreign visitors between January and September 2006(29) many of whom were traveling from neighboring countries such as Russia, Belarus and the Ukraine where rate of infection are highest The source of information should be give as Turkstat Monthly Tourism Statistics 2006. www.tuik.gov.tr/veriBilgi.do>, access March 2007
According to the Ministry of Health, the main transmission route over the years has been heterosexual sex (59%) followed by sex between men (8%) and injecting drug use (8.7%), but in as many as 24% of cases the means of transmission has not been reported (Table 9.13).

Men have accounted for 70% of the cases and adults for 96%. Since 1985 there have been 66 reported cases of HIV/AIDS among children aged 0-14 and 64 cases among 15-19 year-olds (9.12). However, information is based on passive data collection, and the true numbers may be much higher than reported.
The National AIDS commission (NAC), a multi-sectoral body was established in 1996; it is covered by the Prime Ministry and chaired by MOH. Country Coordination Mechanism of Turkey (CCM) another multi-sectoral body established in 2003 under NAC to oversee Turkey HIV/AIDS prevention and Support Programme (HPSP) funded by the Global Fund has become more functional while the implementation of the mentioned programme in 2005-2007 (19).
Turkey HIV/AIDS Prevention and Support Programme funded by GFTAM and also will be one of the vulnerable populations identified in 2007-2011 National HIV/AIDS Strategic National Programme of Turkey.
In Turkey studies have been carried out on the knowledge of young people about HIV prevention. " The data suggests supporting to increase the awareness on HIV/AIDS among secondary school students" (19). However, the study carried out among young people suggested that "although prevention has been known by the most of young people, some of had insufficient knowledge on HIV/AIDS as seen (Table 9.16) on the fourth and fifth questions at 37% and 52% respectively"
In Turkey, 91 percent of women have used a contraceptive method at some time in their lives (2). At the time of the TDHS-2008, 78 percent of the women who are married at the time of the survey have used modern contraceptive at least once and 64 percent of them have used traditional methods at once.
Table 9.14 Present the trends in the use of contraceptive methods In Turkey for 20 years. During the last 5 years, an important rise has been observed in the condom. No data are currently available, for "condom use rate of the contraceptive prevalence rate" but this might be calculated (about 20%) from table 9.14.
During the last five years, the most significant improvement concerning the sources of supply for contraceptive methods is that the share of markets/shops has doubled as providers of condom (TDHS-2008).
In Turkey, most preferred contraceptive methods among the modern methods are IUD (16.9 percent) and condom (14.3 percent) (Table 9.14). In the operational research carried out among Most -at - Risk Populations (MARPs) in 2006 and 2007, the percentage of female and male sex workers reporting the use of a condom with their most recent client was 35,8%.(19). The percentage of women aged 15-49 who have had more than one partner in the last 12 months reporting the use of a condom during the last sexual intercourse was 58% (Table 9.16).

Due to new arrangement on data evaluation system in the General Directorate of Social Services and Children Protection, the age distribution on the school attendance of orphans and non-orphans was not available in Turkey (19). According to "UNGASS indicators country report" number of orphaned or vulnerable children who live in a household that receive medical support, school related assistance and other social support was 14632 in 2007 (19).

It should be considered that most of the mentioned strategies has been implemented in Turkey and the country should monitor the programmes to archive the goals.

Goal 6 comments:

1. To strengthen a multisectoral collaboration country-wide to control HIV/AIDS
2. 2. To promote second generation surveillance for the most at risk populations in Turkey
3. To Intensify and scaling up the most effective interventions on prevention HIV/AIDS among young people
4. A clear understanding of the dynamics of the HIV/AIDS epidemic among vulnerable groups to allow for appropriate response to the epidemic
5. Preventive activities targeting vulnerable populations through the collaboration between public institutions and NGOs
6. A systematic and comprehensive evaluation of all interventions
7. Voluntary Counseling and Testing (VCT) services as well as the dissemination of condom usage should be strengthened and VCT centers need to be widely located.
8. There is a need to establish a strong national monitoring and evaluation mechanism to oversee the national response.
9. There is a need to a national AIDS account available to track the funds for HIV.
10. A functioning antiretroviral resistance monitoring and patient follow-up mechanism is needed.
11. To perform periodic monitoring and evaluation of the implementation of National Action Plan activities and establish whether the objectives have been achieved.
12. To increase the understanding of trends in HIV/AIDS prevalence and explain the changes in state and levels of HIV/AIDS prevalence over time to allow for appropriate response to the epidemic
13. Strengthen the capacity of National AIDS Commission sectors, NGOs and civil society organizations to collect and use of serologic and behavioural HIV/AIDS data
14. More preventive activities are needed for Most-at-Risk Populations (MARPs) especially for IDUs
15. To strengthen those strategies that promote information, education ,communication and health interventions for MARPs on HIV and AIDS to the general population which have been planned in the national AIDS Action Plan
16. To strengthen activities concerning fight against Human Trafficking in Turkey (22).
17. To provide medicine for those infected, in conformity with WHO standards, at the lowest price possible.
18. To maintained a counseling programme for schools, workplaces and society on HIV/AIDS.
19. To strengthen the support projects including training programmes for teachers, students, police officers, soldiers, prisoners and workers in large enterprises
20. To strengthen the capacity of National AIDS Commission

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

No data available

Table 9.17- Number of cases and incidence (per 100000) of malaria in Turkey (1995-2008)

Years	MALARIA CASES			Incidence (per 100000) Autochthonous Cases	Incidence (per 100000) Total Cases
1995	81767	859	82096	131.0	131.6
1996	60617	267	60884	95.0	95.4
1997	35362	94	35456	51.0	51.1
1998	36780	62	36842	51.1	51.2
1999	20904	59	20963	32.0	32.1
2000	11381	51	11432	15.9	16.9
2001	10758	54	10812	15.8	15.8
2002	10184	40	10224	14.7	14.7
2003	9182	40	9222	13.1	13.1
2004	5252	50	5302	7.5	7.5
2005	2036	48	2084	2.8	2.8
2006	751	45	796	1.0	1.2
2007	313	45	358	0.5	0.5
2008	166	49	215	0.2	0.3

Source: Turkish Ministry of Health, 2009 (25).

Findings: Malaria Status and Trend

A great achievement has been obtained in the field of malaria control (11).The number of malaria cases was 10.224 in 2002. With their effective fight against the disease, the number of malaria cases decreased to (166) by the end of 2008 (Table 9.17).

Table 9.17 presents the national incidence rates of Malaria in 1995-2008. National malaria incidence rate dropped from 131 per 100000 in 1995 to 32.0 in 1999, 2.8 in 2005, 0.2 in 2008.

The magnitude of malaria in Turkey is affected by a variety of factors:

1. increasing surveillance, diagnosis and treatment studies
2. standard case definition starting from 2005 (1)
3. Agricultural development projects (21)
4. Significant economical, cultural, social, and environmental variations

"In 2003 National Burden of Disease and Cost-effectiveness Study, malaria incidence was found to be 13.1 per 100000 in total and among both men and women. Prevalence was 0.62 per thousand in total and among both sexes "(1). Therefore, in 2009 the prevalence should be much lower than 2003 , also considering the incidence (0.2 per 100000) it means that in Turkey malaria control program has been achieved the goal. There is no death associated with malaria in Turkey. Malaria incidence decreased steeply in provinces at risk of malaria (Batman, Diyarbakir, Sanliurfa, Mardin and Siirt). In 2006, transmission was reported in 7 provinces, but 84% of cases came from

Diyarbakir and Sanliurfa. Cases reported elsewhere in Turkey originated from these 7 provinces. One hundred percent of cases in last year came only from South Eastern Antalya Region (I got this information on personal communication during the visit of Malaria Control Department, Ministry of Health, Ankara- June 29, 2009). Drug to treat malaria cases are widely available. Malaria control is funded exclusively by the government (23)." A national malaria elimination strategy and relevant plan of action with the goal of interrupting its transmission by 2012 and eliminating the disease by 2105 within the country was developed in 2008 and are to be launched" (25).

Comments: Malaria Status and Trend

1. Turkey has reached the MDG goal about this disease. In addition to economical factors, It seems that the strategies taken to control the environmental factors of malaria (Indoor Residual and Spraying) and case management policies were effective. It is recommended that more attention is being paid to their sustainability.

2. " Estimating malaria deaths and episodes has always been challenging because of inadequate health reporting systems, the co-incidence of malaria and other diseases, and the similarities of symptoms with those of other diseases (24)". Therefore, more attention should be paid to estimating malaria death and episode.

3. The rise and fall of reported cases in Iraq, the Syrian Arab Republic and Turkey run in parallel, and appear to be linked epidemiologically(23). Therefore, a regional collaboration will also benefit national malaria control programs to combat the disease.

4. It is recommended to do studies on misuse of antimalarial drugs leading to multidrug resistance.

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. mortality rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Target 6. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Table 9.18- Tuberculosis (TB) prevalence and incidence in Turkey (2000-2007).

Years	Incidence rates (Per 100000 population)	Prevalence rates (Per 100000 population)	Case detection rates (%)	Treatment outcomes, new smear-positive cases, (DOTS) cured (%)	Treatment outcomes, new smear-positive cases, (DOTS) success (%)
1990	49*	83*	43		
2000	31*	49*	40	-	73
2001	29	45	75	-	72
2002	28	44	-	-	-
2003	28	43	-	82	93
2004	28	44	88	81	91
2005	29	44	89	73	89
2006	29	32	85	58	91*
2007	30*	34*	80 (76*)	-	-

Source: Turkish Ministry of Health, 2009 *: World Health Statistics, 2009(3)

Findings: Tuberculosis Status and Trend

Turkey is one of the countries with a high priority of TB in the WHO's European region (26). TB incidences in Turkey were 49/100,000 in 1990, 31 /100,000 in 2000, 29/100,000 in 2005 and 30/100,000 in 2007. In Turkey the declining trend recent years has stopped (Table 9.18).
This is probably due to the scaling up of case finding activities, standardization of definitions and reorganization of surveillance in addition to the merging of SSK hospitals and dispensaries with that of Ministry of Health those which were governed by Ministry of Employment and Social Security and to which workers attended. After the merging process, notification of worker TB cases become more timely and accurate. 43% of the patients with tuberculosis were detected with bacteriological examination in 1990.
Sixty two percent of the patients with tuberculosis were reached with the smear (+) method in 2002 (11). This rate increased 80% in 2006.
Thus 70% rate, which is the target rate, set by WHO for countries has been achieved since 2005. The implementation of “Directly Observed Treatment and short course chemotherapy strategy (DOTS) started in 2003. Turkey provided nationwide expansion of DOTS implementation in 2006. “In 2007 90 5% of the patients were treated under DOTS (11)".

It should be considered that most of the listed strategies has been implemented in the country and the health system is serious follow and monitor the programmes to achieve the goals. Some of the recommendations which has been listed here, are acquired from WHO annual report are not the case for the whole country, but will works in some parts which TB has affected more people.

Comments: Tuberculosis Status and Trend

1. Current rates of progress are insufficient to allow the targets of halving TB mortality (no data available) and prevalence by 2015 to be achieved

2. Properly designed disease surveillance systems are critical and recommended for monitoring the TB trends and identifying the high-risk groups and target interventions to prevent, diagnose, and treat the disease (26).

3. Strengthening of the basic components of the DOTS strategy

4. Work on policies and strategies complementary to the DOTS strategy, to address the remaining major constraints to achievement of global TB control targets such as (27):
-expanding access to diagnosis and treatment through community TB care, and public–private mix (PPM) approaches aimed at engaging all care providers – state and non-state – in DOTS implementation
-Impact assessment is being pursued as a means of evaluating progress towards the MDGs-effectively addresses the remaining constraints and challenges, and underpins efforts to strengthen health systems, alleviate poverty and advance human rights.

5. To implement a strategy that enables existing achievements to be sustained.

6. To strengthen the six principal components of the "stop TB strategy" (28):
- Pursue high-quality DOTS expansion and enhancement
- Address TB/HIV and MDR-TB and other special challenges
- Contribute to health system strengthening
- Engage all care providers
-. Empower people with TB, and communities
- Enable and promote research

References

1. Health at a glance -Turkey 2007, The ministry of Health of Turkey- Refik saydam Hygiene Center, School of Public Health
2. Turkey Demographic and Health Survey 2008 (TDHS-2008), Preliminary Report.
3. WHO, World Health Statistics, 2009 (http://www.who.int/whosis/whostat/2009/en/index.html) UNDP,2008 /2009 Human Development report, Turkey
4. (http://hdrstats.undp.org/2008/countries/country_fact_sheets/cty_fs_TUR.html).
5. UNICEF - Turkey – Statistics (http://www.unicef.org/infobycountry/Turkey_statistics.html).
6. UNICEF 2009 - The state of the world's children
7. WHO statistics, Core Health Indicators
8. WHO 2009 , Health system-Turkey (http://euro.who.int/Turkey/20081030_7?PrinterFriendly=1&)
9. OECD Health Data 2009 (http://www.oecd.org/dataoecd/46/5/38980477.pdf)
10. OECD (2008) Reviews of Health Systems, Turkey/ The world bank
11. (www.oecd.org/publishing/corrigeda). Progress Report, Health Transformation Program in Turkey, January 2009
12. TheWorld Bank Group (2004), Millennium Development Goal (http://ddp-ext.worldbank.org/ext/GMIS/gdmis.do?siteId=2&contentId=Content_t15&menuId=LNAV01HOME1
13. Turkey's first MDG Report , released in June 2005
14. World Vision International (2008), last chance for the world to live up to its promises.
15. The national academic press, Children's Health, the Nation's Wealth: Assessing and Improving Child Health (2004)
16. Maternal mortality in 2005 : estimates developed by WHO, UNICEF, UNFPA, and the World Bank.Population Fund. ISBN 978 92 4 159621 3 (NLM classification: WQ 16), © World Health Organization 2007
17. Prime Ministry of Republic of Turkey, Conditional Cash Transfer (CCT) Aid Program, General Information and Periodical Statistics, August 2008
18. UNICEF in Turkey 2009 (http://www.unicef.org/turkey/ut/ut2_2010.html)
19. Peyman Altan , UNGASS indicators country report, Ministry of Health, Turkey 2008.
20. Altan P; Epidemiologic trends of HIV/AIDS in Turkey. International Conference on AIDS (15th : 2004 : Bangkok, Thailand). Int Conf AIDS. 2004 Jul 11-16; 15: abstract no. C12184. Ministry of Health, Ankara, Turkey
21. The GAP Project in Southeastern Turkey: The Potential for Emergence of Diseases (letters), EID, Volume 1, Number, 2 April-June 1995
22. 2007 report on combating human trafficking Turkey, General Director of Consular Affairs, Ministry of Foreign Affairs
23. World malaria report 2008.
24. Malaria Research & Development An Assessment of Global Investment, November 2005
25. The Ministry of Health of Turkey.
26. (http://www.saglik.gov.tr/EN/BelgeGoster.aspx?17A16AE30572D313AAF6AA849816B2EFB0B2BEF9CE0ECC93)
27. Levent Kart, Deniz Akduman, Remzi Altin, Meltem Tor, Murat Unalacak, Fusun Begendik, Funda Erdem, Umit Alparslan . Fourteen-Year Trend of Tuberculosis Dynamics in the Northwest of Turkey. Respiration, International Journal of Thoracic Medicine, Vol.70,No.5.2003.

28. Rios M, Monleon-Getino T. A graphical study of tuberculosis incidence and trend in the WHO's European region (1980-2006). Eur J Epidemiol. 2009;24(7):381-7. Epub 2009 May 19.
29. WHO 2006, the stop TB strategy.

Annex. 1

Methods

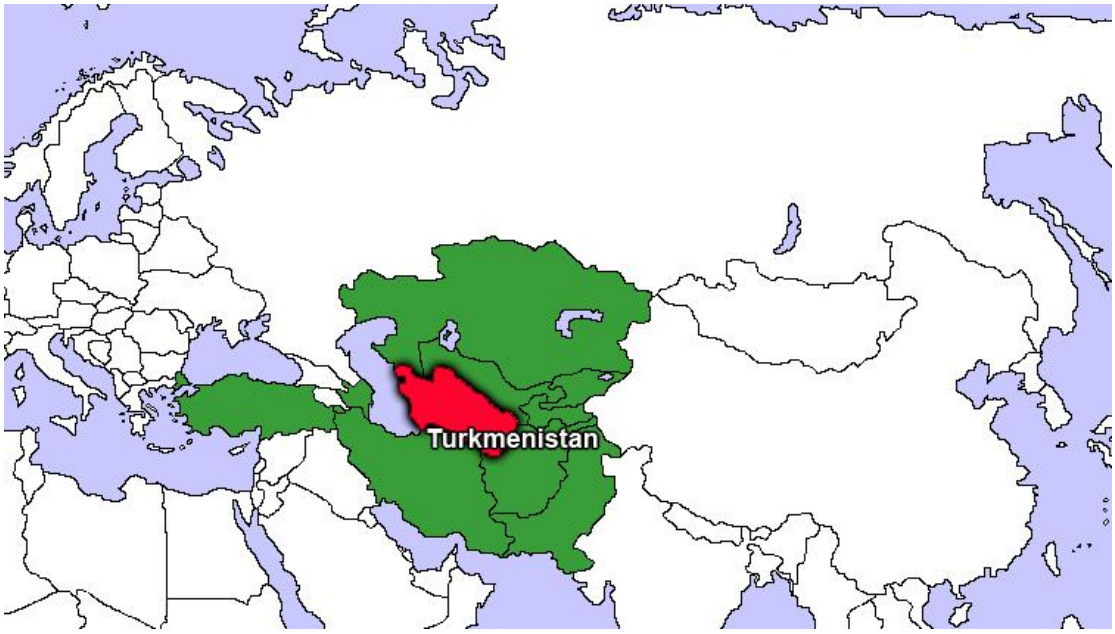
The country visits has been done from June 29 to July 01, 2009 . The list of the visited persons was listed in the following table: (Ankara - June 29 to July 01, 2009)

TURKISH MINISTRY OF HEALTH COUNTRY VISIT

Date	Meeting with	Address	Contact information
Monday 29 June 2009	Specialist Biologist Saffet ES, Head of Malaria Control Department, Ministry of Health,	Ilkiz sokak No:4 Kat:2 Yenisehir	Tel: + 90 312 584 94 01 Fax: + 90 312 230 89 54
	Ms. Ulrika Richardson-Golinski, UNDP Resident Representative a.i. Mr. Atila Uras, UN Joint Programme Manager Ms. Orria Goni Delzangles, New Initiatives Programme Manager, UNDP	Birlik Mah. UN House	Tel: + 90 312 454 11 61 E-mail:unlrika.richardson-golinski@undp.org Tel: + 90 312 454 11 92 E-mail:atila.uras@undp.org Tel: + 90 312 454 11 15 E-mail: orria.goni@undp.org
Tuesday 30 June 2009	- Prof. Ferit Saracoglu, Chairman, Department of Obstetrics & Gynecology, Ankara Numune Research and Training Hospital, Turkey.	YİSAV Atatürk Bulvarı Batı Han Kızılay	Tel: 425 15 99
	Mr. Yılmaz Tuna, Director General of the State Planning Organization (SPO) Mr. Mehmet Kontas, WHO	SPO Birlik Mah. UN House	Tel: +90 312 294 64 66 E-mail: nduman@dpt.gov.tr Tel: +90 312 454 10 82 E-mail: yak@euro.who.int
	S. Hossein Samiei Senior resident representative International Monetary Fund (IMF) Turkey	MNG Building	Tel: + 90 312 446 5007 Fax: +90 312 446 5266 E-mail: ssamiei@imf.org
Wednesday 01 July 2009	Dr. M.Rifat KÖSE Dr. Rukiye Gul, Head of Department, General Directorate of MCHFP (National Focal Point on Improvement of Maternal Mortality) Dr.Sema ÖZBAŞ, Head of Department, General Directorate of MCHFP	Ministry of Health Hıfzısıhha içi G Blok	e-mail: rukiye.gul@saglik.gov.tr T: +90 3124357663/147 F: +90 312 4314872 e-mail: sema.özbas@saglik.gov.tr T: +90 3124357663/120 F: +90 312 4314872
	Dr.Gökhan YILDIRIMKAYA, UNFPA	Birlik Mah. UN House	e-mail: gokhan.yildirimkaya@un.org.tr T: +90 312 454 10 69
	Dr. Lilia Jelamschi, Early Childhood Development Specialist, UNICEF Ms. Regina De Dominicis, Deputy Representative, UNICEF	Birlik Mah. UN House	Tel: + 90 312 454 10 04 E-mail:ljelamschi@unicef.org Tel: + 90 312 454 10 03 E-mail: rdedominicis@unicef.org

	Dr.İ.Ercan BAL, Head of Communicable Diseases and Outbreak Control Department, General Directorate of Primary Health Care (National Focal Point of HIV-AIDS)	Ministry of Health	e-mail: ercan.bal@saglik.gov.tr T: +90 312 585 12 84 F: +90 312 432 29 94

Chapter 10. Turkmenistan



Turkmenistan demographic and socioeconomic status

Turkmenistan is located at the east of the Caspian Sea. Its area is 491,200 square kilometers. Turkmenistan borders with Iran and Afghanistan (south), Uzbekistan (east and north), and Kazakhstan (north). It has a subtropical climate. Amu River is the main source of water for the country and accounts for about 90% of water used in this country. This river on its way to the Aral Sea in places is the border between Afghanistan and Turkmenistan and then between Uzbekistan and Turkmenistan. In the last few decades the volume of water has dropped 80% that has resulted in reduced vegetation and dried lands around the river. The major source of transferring water from the Amu River to the mainland of Turkmenistan is the Karakum Canal. Other rivers include Atrak (bordering Iran). Turkmenistan left the USSR in 1991. Official currency is Manat. The capital city is Ashgabat located in south of the country, with Mary the second largest city in the country. Turkmenistan is divided to five velayats (Akhal, Balkan, Dashovouz, Lebab and Mary) as well as the Capital city of Ashgabat. Turkmen and Russian are common languages. The largest religious group is Islam. More than 100 ethnic groups live in Turkmenistan (7). Major ethnic groups are Turkmen 77%, Uzbek 9.2%, Russian 6.7%, and Kazakh 2% (25). The country has enjoyed growing gas revenue in recent years. It is classified as a developing country by the World Bank.

Figure 10.1- Turkmenistan map and its geographic status (25)

Source: CBS Worldwide Inc. World Almanac, 1998. (*1*)

In 2008 Turkmenistan population was estimated at about five millions (8,9). The country has a young population structure. Twenty-five percent of the population are aged under 15 years and 7 percent are over 65 (10). Population growth has slowed downed in recent years. The crude birth rate was 34.3 per 1000 in 1990, 21.6 per 1000 in 1997, and to 19.7 in 2009, although there are estimates that are higher (Table 10.1). Life expectancy has increased from 61.5 years in 1997 to 67.9 in 2009.

A summary of the country socioeconomic indicators are presented in Table 10.1.

Table 10.1- Socioeconomic status and indicators of Turkmenistan (8,9,15)

Indicator	Value	Year
Crude birth rate per 1000	25.1 19.7	2008 2009
Total fertility rate	3.1	2008
Crude death rate per 1000	6.1 6.3	2008 2009
Life expectancy at birth	62.4 67.9[10]	2008 2009
Adult literacy rate	98.8	2004
Proportion living in urban areas	46	2004
Per capita income PPP $ **US $**	5860 1236	2003
Human Development Index	0.71	2005
Total health expenditure as percentage of Gross Domestic Product	3.9	2003
Percentage of out of pocket expenditure to total health expenditure	31	2007
Per capita total expenditure on health US$	245	2007
Percentage of governmental budget for health care to total government budget	15	2007

[10] The figures vary as they are from two different sources.

Methodology:

The evaluation team conducted the evaluation based on these ways:

1. Reviewing documents available in journals, books, reports, and the internet.
2. Reviewing documents available from governmental sources (published and unpublished sources)
3. Reviewing documents available from the UN Agencies in the country (published and available sources)
4. Discussion in expert groups about results and methods
5. Reviewing WHO and UN MDG-related documents and international and national related sources and services
6. Arrangement and template planning for gathered data and analysis and assessment of the collected data
7. Putting data in its related category and table and designing the best presentation methods
8. Making proper recommendations related to each indicator's category according to the findings
9. It did not become possible to visit Turkmenistan during the course of preparing this report. The ECO Secretariat contacted relevant offices in Turkmenistan for arranging this visit and received no response.

A brief summary of the country's health system

Health system summary is based on the European Observatory report which maybe in some aspects out of date (25), especially that the organization of the health system has changed a few times in recent years. We have tried to correct these based on available data and reports.

The health system is mainly based on former Soviet model. A major departure in recent years has been the introduction of voluntary in insurance and the introduction of user fees for certain services.

The health system in the city of Ashgabat is directly under the supervision of the Ministry. Health systems in the velayats are accountable to local administration and for technical issues to the Ministry of Health and Medical Industry. Each velayat is divided into districts (called *entrap*) which oversee healthcare facilities under their supervision. The system has followed a type of decentralization in recent years in which *entrap* has some autonomy in decision making. Also there have been important changes in the health system, including closure of beds and making some healthcare employees redundant.

Figure 10.2: Organizational structure of health care system in Turkmenistan (25)

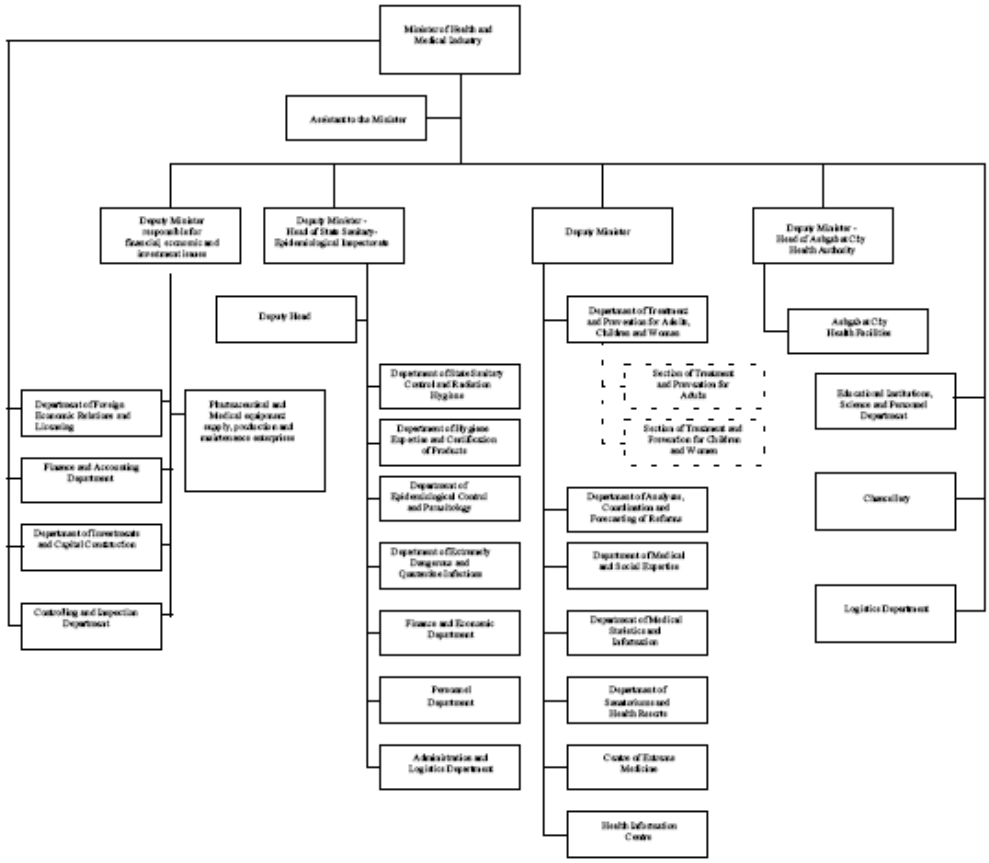


Figure 10.3- Organizational structure of the Ministry of Health and Medical Industry (25).

Goal 4: : Reduce Child Mortality

4-1: Indicator: Under-five mortality rate

MDG definition: The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.

Target: Reduction of under-five mortality rate by two thirds, between 1990 and 2015

Table 10.2- Under-five mortality rate in Turkmenistan

Years	UNICEF (6,8,9,11)	World Bank estimate (13)	DHS (1,8)	United States Statistical Bureau (8)
1990	99	98		88.6
1995		93		89.8
2000		88	94.3	92.3
2002		86		
2005	51			92.4
2006	51			91.6
2007	50			

4-2. Indicator: Infant mortality rate

Definition: The infant mortality rate is typically defined as the number of infants dying before reaching the age of one, per 1,000 live births in a given year.

Country definition: In recent years an important decision was made in Turkmenistan and that was the acceptance of the WHO definition of live birth for the calculation of health indicators. This may have resulted in some inflation of figures compared to previous year. Also it is not obvious that how this change in definition has been implemented in practice.

Turkmenistan Target: To reduce infant mortality during 2000-2015 by factor of 2.1 (16).

Table 10.3: Infant mortality rate in Turkmenistan from different sources

Years	WHO regional office (25)	DHS (1,8,12)	World Bank (1)	UNICEF (8,11,26)	United States Census Bureau (8)
1990	45.2		78	81	91.3
1991	46.9				
1992	43.2				
1993	61.4				
1994	61.5				
1995			75		78.1
2000		73.9	71		66.8
2001					
2002			70		
2004					
2005					57
2006				45	
2007				44.9	
2008					51.8
2009					45.4

4-3: Proportion of 1 year-old children immunized against measles

Definition: The proportion of 1-year-old children immunized against measles is the percentage of children under one year of age who have received at least one dose of measles vaccine.

Table 10.4- Proportion of 1 year-old children immunized against measles in Turkmenistan

Years	Administrative data (4)	DHS (1,4)	WHO, UNICEF estimates (25)
1990			80
1991			63
1992			76
1993			84
1994			90
1995			92

Years	Administrative data (4)	DHS (1,4)	WHO, UNICEF estimates (25)
2000	96	87.6	97
2002	88		88
2006	99		99
2007	99		99
2008	99		99

Important issues on Goal 4

Results of large surveys in Turkmenistan are not available for further analysis. A large MICS study was conducted in Turkmenistan in 2006, but unfortunately the results of the study are not published and are not available in public domain. A statement on the relevant website says "access to the results of the **Turkmenistan MICS** 2006 is restricted". It refers the interested parties to contact the State Statistics Committee of ***Turkmenistan*** for further information. Since the Turkmenistan visit for this report did not materialize (see 'methods').

Data on measles immunization coverage suggests around 99% coverage and international estimates are in line with this figure (see table). The DHS study conducted in 2000 provided a different (lower) estimate of around 88% which may reflect the period of time covered by the survey. Interestingly the administrative data immediately after the survey reduce to the value of 88% and then jump back to 99%.

The problem of accuracy of infant and under-5 mortality figures also remain. Because of the decision made in Turkmenistan to accept and implement the WHO definition if live birth, the figures reported from this country may reflect better the condition.

Under five mortality and especially infant mortality increased in Turkmenistan immediately after its independence from the USSR. Since mid nineties the figures have reduced constantly. According to the data, Turkmenistan will achieve the MDG locally adjusted targets for child mortality (reducing by 2.1 times[11]). However, if international targets of two-third reduction are used, then further concentrated efforts will be required to expect achieving child mortality MDG targets.

[11] The target of reducing mortality by 2.1 is interesting. We did not find any justification for why this figure has been selected as the target (e.g. why not 2 times or 2.5 times?)

Goal 5: Improve Maternal Health

5-1: Indicator: Maternal mortality ratio

Definition: The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births.

Target 6: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Turkmenistan target: To reduce by half the maternal mortality rate during 2000-2015 (16).

Table 10.5- Maternal mortality ratio in Turkmenistan

Years	UNICEF, UNFPA, WHO and World Bank (8,25)
1990	42.3
1991	46
1992	58
1993	42.7
1994	42.7
1995	
2000	
2004	31
2005	130

5-2: Proportion of births attended by skilled health personnel

Definition: The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labor and the post-partum period; to conduct deliveries on their own; and to care for newborns.
Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.

Table 10.6- Proportion of births attended by skilled health personnel1

Years	UN data (5)	DHS 2000 (1)
2000		98
2005		
2006		
2008	99.5	

1. At least one visit during the antenatal period.

Important issues on Goal 5

We found very limited data on MMR and maternal health. However, this limited data suggests that there is a long way to achieve the MDG targets. The figure we have for 2005 is 130. It is a few times more than the figure for previous year. Is it because of a departure in the way the figure has been calculated and provides a better estimate? Or is it a sign of worsening the situation? If the figure is true, then Turkmenistan will need to intensify its efforts for reducing MMR.

It is important that a specific program of notification for maternal death is established in the country, as such scheme currently is lacking (6). This will allow for quick and rapid assessment of each maternal death and may result in recognition of areas for quality improvement. Such systems also send a strong signal to providers and healthcare delivery officers that they should give more attention to the problem. Maternal death, however, is a multi-factorial problem and solving it requires extensive efforts on healthcare as well as social determinants of health.

Abortion is not a major problem in the country, as it is observed in some other countries in the region and the life time estimate stands at less than 1 in the country (2,3).

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Turkmenistan target: To prevent HIV/AIDS incidence in the country (16).

Indicator 6-1: HIV prevalence among pregnant women aged 15-24 years

Definition: HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.

Table 10.7- HIV/AIDS indicators related to indicator 6-1 in Turkmenistan

Years	Total number of people infected with HIV (8,26)	Prevalence of HIV among adults aged 15-49 years (8,26)
2007	500	<0.1

6-2:Condom use rate of the contraceptive prevalence rate

Definition: Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

Table 10.8- Condom use rate of the contraceptive prevalence rate in Turkmenistan

Year	Urban (%)	Rural (%)	Source of data
2000	3.4	0.8	3
2004	6.4	9.1	3

6-3: Condom use at last high-risk sex

Definition: Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

Condom use at last high-risk sex. According to the DHS in 2000 it was reported for 6.6% of such sex by female respondents in (1).

6-4: Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition: Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

In summary the general knowledge on HIV/AIDS is not promising (Table 10.9).

Table 10.9- Proportion (%) of people aged 15-24 with comprehensive knowledge of HIV/AIDS

Year		Source of data
2000	4.9	Turkmenistan DHS 2000 (1)
2006	Less than 10	MICS 2006 (5)
2002-2007	5	UNICEF (22)
2007	5 (among male only) 6 (among female only)	WHO (29)

6-5: Contraceptive prevalence rate

Definition: The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.

Table 10.10- Contraceptive prevalence rate in Turkmenistan

Year	Any method	Any modern method	Subgroup Inequity (modern methods only)	Data source
2000	40	35		Ref 2
2000			Urban: 63.3; Rural: 61.4	Married women in Mary and Lebap only (3)
2004			Urban: 57.2; Rural: 56.8	Reproductive age women in Mary and Lebap only (3)

6-6: Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition: Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

In DHS 2000 there were only small differences between orphans and non-orphans in school attendance (ratio above 0.96) (1). Like other countries in this region, this indicator is not a good and proper indicator for assessing HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population

Important issues on Goals 6 (HIV/AIDS):

The National Program for HIV/AIDS and STI Prevention in 2005-2010 focuses on certain groups: transmission through blood, sexual intercourse, or prenatal/antenatal exposure and reduce STIs (5).

Low level of public awareness on HIV/AIDS related issues is an important issue in Turkmenistan (5) and should be targeted directly.

The predominant method for contraception in Turkmenistan is IUD (18). Although this is an effective measure for tackling the issue of unwanted pregnancies, it does not contribute to the fight against HIV/AIDS problem. It may also reflect the cultural or logistics barriers that may exist against further use of condoms in the country.

A coherent and massive campaign for increasing general knowledge on HIV/AIDS, especially in vulnerable groups (such young people) seems necessary in Turkmenistan.

6-7: Prevalence and death rates associated with malaria

Definition: Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Table 10.11- Number of cases reported with malaria in Turkmenistan (1990-2008)

Years	Number (14)
1997	14
1998	137

6-8: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition: Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

No estimate on the number (proportion) of children under 5 sleeping under insecticide-treated bed nets and the number (proportion) of children under 5 with fever being treated with anti-malarial drugs were available. Due to the fact that there is limited risk of malaria transmission in Turkmenistan, this lack of data is not a major concern.

Important issues for Goals 6 (Malaria):

During the period 1965-1980 only 23 malaria cases were reported in Turkmenistan, but this number increased in late 1990s (14). Still there is a very limited risk of malaria transmission in Turkmenistan (6). As a result not much data on prevention activities (such as ITNs) is available.

Turkmenistan is planned to achieve malaria elimination by 2010 (5).

The country is expected to achieve MDG goals related to malaria, unless exceptional circumstances occur.

6-9: Prevalence and death rates associated with tuberculosis

Definition: Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Turkmenistan Target 8. To reduce by one-third tuberculosis incidence during 2000-2015 (16).

Table 10.12- TB prevalence, incidence and death rates in Turkmenistan

Years	Tuberculosis death rate per year per 100,000	TB estimated number of cases (WHO) (8)	TB case detection rate % (8)
1990			
1995			
2000			
2003	12		
2004	11		
2005			
2006		3175	81
2007	10		

6-10: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition: The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Table 10.13- Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Year	Tuberculosis treatment success rate under DOTS (8)	DOTS population coverage (8)
1995		
2000		
2005	81	
2006		80

Important issues relevant to Goals 6 (Tuberculosis)

Turkmenistan enjoys successful immunization program against TB (BCG vaccination) with administrative reports as well as estimates standing at around 99% (4).

Tuberculosis is still an important health issue in Turkmenistan. The country has a high level of multiple drug resistant (MDR).

It is important the efforts to incorporate TB management within the PHC system (10) are intensified and implemented.

A study in Turkmenistan and Uzbekistan estimated that around 3.5% of patients under DOTS treatment developed multidrug resistant strains while under the treatment (17). This is a worrying figure in fight against TB in the region. The authors of the study suggested that treatment approaches such as DOTS-Plus should be considered in such areas (17).

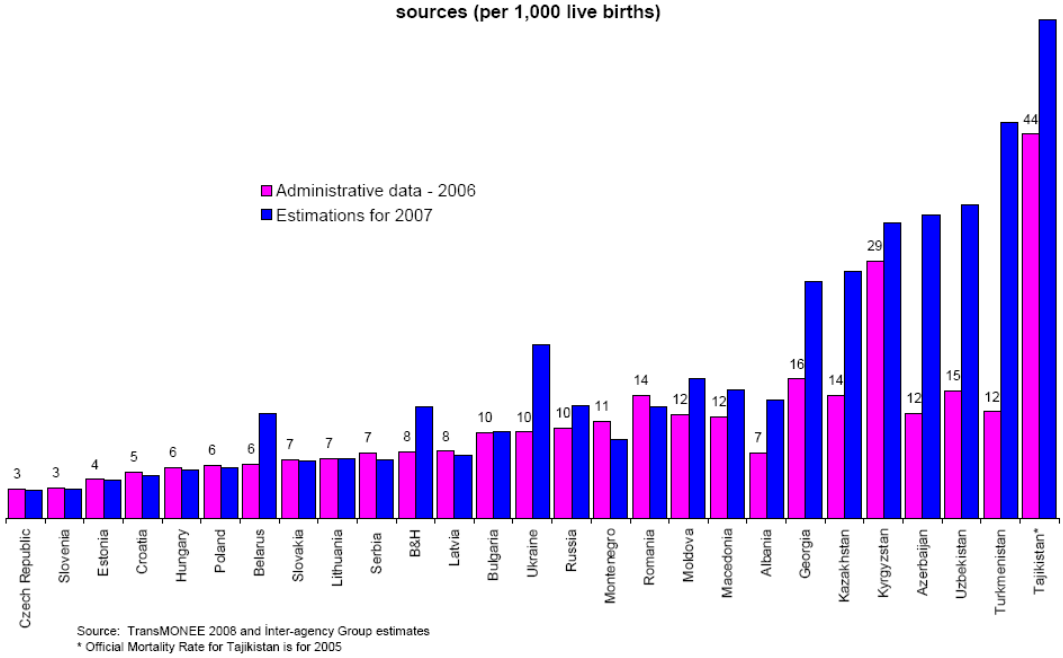
General comments and recommendations

There are extremely few published studies in the international journals that are relevant to healthcare issues in Turkmenistan. This makes it very difficult to provide comprehensive view of the health system performance without having a chance of visiting the country and talking to those with better access to data and with experience of the health system.

Lack of published studies (at least in journals indexed in scientific databases) suggests that there is a limited capacity within the healthcare sector and also within academia in Turkmenistan to work on important health system and public health issues. Increasing the scientific capacity of the country in health system research should be considered as a priority for Turkmenistan.

Disparity between official health outcome estimates and international estimates exists in the whole region including Turkmenistan (11). This makes the problem of low quality data more prominent and more difficult to ignore.

Chart 3.10 Infant Mortality Rate: Discrepancy between administrative data and alternative sources (per 1,000 live births)



Source: TransMONEE 2008 and Inter-agency Group estimates
* Official Mortality Rate for Tajikistan is for 2005

In formal documents, the politicians in Turkmenistan have provided high level of commitment towards healthcare improvement. The current President has considered that strengthening health system focused on family practice model is a priority for the country (5).

Recent decisions in the health system in Turkmenistan may result in long term improvement of the system. The adoption of international standards for live birth definition improves quality of available data and provides better evidence for decision making (5). Also the implementation of the National Safe Motherhood Program in the country is hoped to result in better maternal care (5).

In the past few years there have been several reports and papers that have seriously criticized the health system performance in Turkmenistan (19-22). The issues raised in these papers ranged from problems in infectious disease reporting, financial sustainability of the system, and drastic measures for human resource for health in the country. Conversely, some of the same issues are considered as positive steps towards reforming healthcare system in Turkmenistan. For example reducing the human resource for health has been reported in a very positive tone in a report produced by the Ministry of Health and Medical Industry (23) as it had resulted in reducing the healthcare cost in the country.

Most recently, and also in the past, there are reports that have a much positive tone of the health system (24, 27). This change of tone may signal that recent changes in the health system and important decisions made have improved the confidence of international observers in the country's healthcare system (24).

Formal reports state that Turkmenistan is likely to meet the MDG targets for malaria and perhaps for child mortality.

There are bigger issues on meeting maternal mortality targets. These issues are aggravated with lack of data that makes it more difficult to provide useful recommendations.

The country faces important challenges in meeting the targets for tuberculosis (especially because of multi-drug resistant phenomenon).

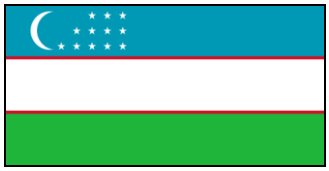
The same applies for HIV/AIDS targets mainly due to the lack of knowledge among the public about the disease as well as social deprivation and problems of addiction and prostitution. The current figures are low in the country, but underlying problems suggests that the problem may grow in near future instead of diminishing. Hence investments in educational campaign and targeting high risk groups are important and the latter issue is considered in current health programs of the country.

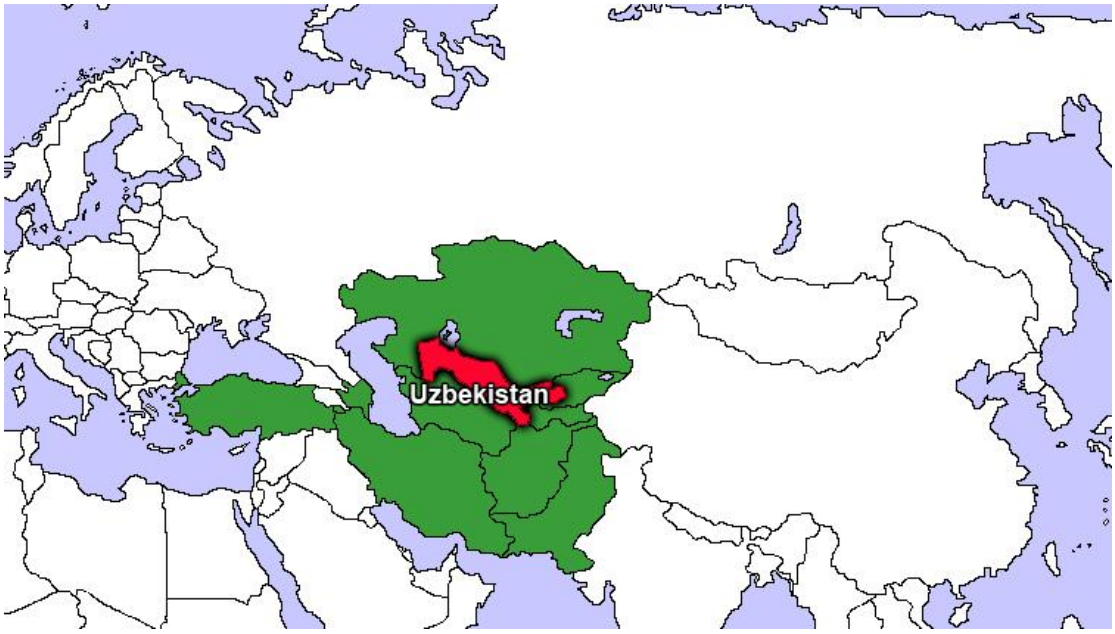
References

1. Turkmenistan DHS. Turkmenistan Demographic and Health Survey 2000
2. Westoff CF et al. Recent trends in abortion and contraception in 12 countries. USAID, Claverton, 2005.
3. Ministry of Health and Medical Industry of Turkmenistan. National report: mini-survey on family planning, case study of Lebap and Mary velayats. Ashgabat, 2005.
4. WHO/UNICEF review of national immunization coverage 1980-2008, Turkmenistan. 2009.
5. United Nations. Turkmenistan country analysis 2008. Ashgabat, 2008.
6. Countdown to 2015, Turkmenistan. 2008 report.
7. A world fit for children: Turkmenistan Report. 2008
8. USAID Country Health Statistical Report, Turkmenistan. 2008
9. USAID Country Health Statistical Report, Turkmenistan. 2009
10. Project HOPE central Asia. Central Asian Republics TB Control Partnership. Annual report 2008-09.
11. Azerbaijan Economists' Union and UNICEF. *Budget investments in health and education of Azerbaijani children*. 2008, Baku.
12. State Statistical Committee (SSC), Macro International Inc. and USAID. *Azerbaijan Demographic and Health Survey 2006*, 2008.
13. Human Development Sector Unit, Europe and Central Asia Region. *Azerbaijan Health Sector Review Note. Vol II*. Report No. 31468-AZ. 2005, World Bank.
14. Amangel'diev KA, Morozova KV, Medalieva DO. [The epidemic situation with malaria in Turkmenistan]. Med Parazitol (Mosk). 2000 Apr-Jun;(2):29-32.
15. MDG Monitor. http://www.mdgmonitor.org/. Accessed in 2009.
16. UNDP Turkmenistan. http://www.undptkm.org/. Accessed in 2009.
17. Cox HS, Niemann S, Ismailov G, Doshetov D, Orozco JD, Blok L, Rüsch-Gerdes S, Kebede Y. Risk of acquired drug resistance during short-course directly observed treatment of tuberculosis in an area with high levels of drug resistance. Clin Infect Dis. 2007;44(11):1421-7.
18. Sullivan TM, Bertrand JT, Rice J, Shelton JD. Skewed contraceptive method mix: why it happens, why it matters. J Biosoc Sci. 2006;38(4):501-21.
19. Salvage J. Caring in a forgotten land. Nurs Stand. 2006; 20(30):26-7.
20. The Lancet. Health and dictatorship: effects of repression in Turkmenistan. Lancet 2003;361:69-70.
21. Rechel B, McKee M. The effects of dictatorship on health: the case of Turkmenistan. BMC Medicine 2007; 5:21.
22. Rechel B, McKee M. Human rights and health in Turkmenistan. European Centre on Health of Societies in Transition, 2005, London.
23. Kuliev C. Implementing the state program on health in Turkmenistan. In Feachem Z, Hensher M, Rose L. Implementing health sector reform in Central Asia. Ashgabat: Economic Development Institute of the World Bank, 1996.
24. Rechel B, Sikorskaya I, McKee M. Hope for health in Turkmenistan? Lancet 2009; 373:2093-5.
25. European Observatory on Health Care Systems. Health Care Systems in Transition: Turkmenistan. 2000.
26. UNICEF. UNICEF website Turkmenistan indicators www.unicef.org . Accessed 2009.

27. Ensor T, Amannyazova B. Use of business planning methods to monitor global health budgets in Turkmenistan. Bulletin of the World Health Organization, 2000, 78 (8): 1045-1053.

Chapter 11. Republic of Uzbekistan





Uzbekistan demographic and socioeconomic status

Uzbekistan is located in central Asia as the council of Eastern Europe. It has a territory 448,900 square kilometer with more than 27 million inhabitants
It is bordered by Kazakhstan to the north, Kyrgyzstan and Tajikistan to the south and east, Afghanistan to the south, and Turkmenistan to the west. Uzbekistan consists of 12 administrative regions (oblasts), the Autonomous Republic of Karakalpakstan, and Tashkent City (Figure 11.1).

Figure 11.1- Uzbekistan ,Sub-deviations

Approximately 63 percent of the population resides in rural areas. The country is characterized by a high rate of population growth, mainly due to the high (although declining) birth rate (23 per 1,000 population in 2007) and relatively low death rate (7 per 1,000 population in 2007). As a result of high fertility and population growth rates, Uzbekistan has a young population: 32.9% of the population is under 15 years of age, while the population over 65 years of age is relatively small at about 4.8%. Life expectancy in Uzbekistan has declined steadily since the collapse of the Soviet Union, especially among men. Uzbekistan has a double burden of diseases, with the majority of all deaths being due to cardiovascular diseases, but with respiratory, digestive, and infectious diseases also being prevalent, viral hepatitis, tuberculosis, and sexually transmitted infections are of particular concern.

Table 11.1- population of Uzbekistan in 2008 by sex and age group

Age group	Male	Female		Total	Percent	Cumulative Percent
0-14	4,572,721	4,403,405		8,976,126	32.9	32.9
15-64	8,420,174	8,594,478		17,014,652	62.3	95.2
65 years and over	539,336	777,020		1,316,356	4.8	100
Total	**13,532,231**	**13,774,903**		**27,307,134**	**100**	

The most important development / Health indicators of Uzbekistan are presented in Table 11.2. Women had an expectancy of being alive at birth to 74.87 years which is about 6 years more than men. Surprisingly in 2006, more than 96% of the population was literate.
The country human development index is equal to 0.701 in 2008.

Table 11.2- the recent most important development indicators, Uzbekistan

Indicators	Value	Year	Ref.
■ **Crude Birth Rate**	23	2007	(1)
■ **Total Fertility Rate**	2.5	2007	(1)
■ **Crude Death Rate**	7	2007	(1)
■ **Life Expectancy at Birth** **Men** **Women**	68.69 74.87	2008	(1)
■ **Adult Literacy Rate** **Men** **Women**	96.9%	2006	(1)
■ **Per Capita Income (US $)**	----	----	(1)
■ **purchasing poverty power (PPP)**	2600$	2006	(1)
■ **Human Development Index**	0.701	2006	(1)
■ **Total health expenditure as percentage of Gross Domestic Product**	2.5	2005	(2)
■**Percentage of out of pocket expenditure to total health expenditure**	48%	2006	(3)
■Percentage of governmental budget for health care to total government budget	**7.4%**	**2005**	**(4)**

A brief summary of the country's health system

The health care system in Uzbekistan was developed as part of the Soviet system with the objective of providing adequate access to health services to all citizens. With these goals, a nationwide network of more than 6,000 primary, secondary, and tertiary health care facilities was created under the control of the Ministry of Health (MOH). The health care system in Uzbekistan is almost all state-owned. Throughout the country, health services are provided free of charge, including antenatal care, delivery assistance, neonatal and pediatric services, immunizations, family planning, and specialized health care. However, some health professionals offer private fee-for-service health care. Almost all hospitals have some beds operated on a self-financing basis through fee-for-service payments by patients.

Primary health care in Uzbekistan is provided by outpatient polyclinics, the recently introduced rural medical centers, primary health facilities at large enterprises, women's consulting centers (a primary source of Reproductive Health (including Family Planning) services in urban areas), and delivery hospitals. The main focus of these institutions is disease prevention, antenatal care services, delivery assistance, and Reproductive Health (including Family Planning) services.

On the secondary level, health services are provided by specialized dispensaries, departments of polyclinics, and hospitals in which screening programs are carried out to identify individuals with early manifestations of disease and to prevent disease progression.

Tertiary health services in Uzbekistan are provided within the departments of regional, municipal, and district general hospitals, specialized hospitals, dispensaries, and clinical research institutes. The clinical treatment offered at these facilities is aimed at minimizing the effect of disease and disability.

Methodology

The last MDG report of Uzbekistan (2006) was reviewed deeply. All the main relevant websites on MDGs monitoring have been searched with keywords such as child mortality, infant mortality, under five mortality, maternal mortality, maternal health, contraceptive, delivery assist, HIV, AIDS, Malaria, Tuberculosis combined with the combination of Uzbekistan term.
The addresses of the websites are listed in Table 11.3.

Table 11.3- List of the websites searched for any relevant data on MDGs status of Uzbekistan

Websites- Data sources
http://www.childsurvivalcountdown.com
http://unstats.un.org/unsd/mi/mi_goals.asp
http://www.unicef.org/publications/files
http://cs.server2.textor.com/programme.html
http://www.measuredhs.com/statcompiler
http://www.childinfo.org
http://www.ipachildhealth.org
http://www.who.org/publications
http://www.indexmundi.com/uzbekistan/life_expectancy_at_birth.html
http://hdrstats.undp.org/es/2008/countries/country_fact_sheets/cty_fs_UZB.html
http://devdata.worldbank.org/query/default.htm
http://www.unicef.org/infobycountry/uzbekistan_statistics.html
http://www.euro.who.int/FADB

Under Five Mortality Rate

MDG DEFINITION

The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates.

Target. Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

Trend Analysis

According to Uzbekistan profile in the UNICEF website, under five mortality rate (U5MR) in 1990 in has been reported as 74 (per 1,000 livebirths)(1). In this case, the goal of the country in 2015 is 24.7 (per 1,000 livebirths). Based on the routine reports from the ministry of health, the trend of UFMR is slightly downward from 43 (per 1,000 livebirths) in 1992-97 to 26.4 (per 1,000 livebirths) up to 2002. Such trend indicated that U5MR has been decreased about 2 cases per year(5).

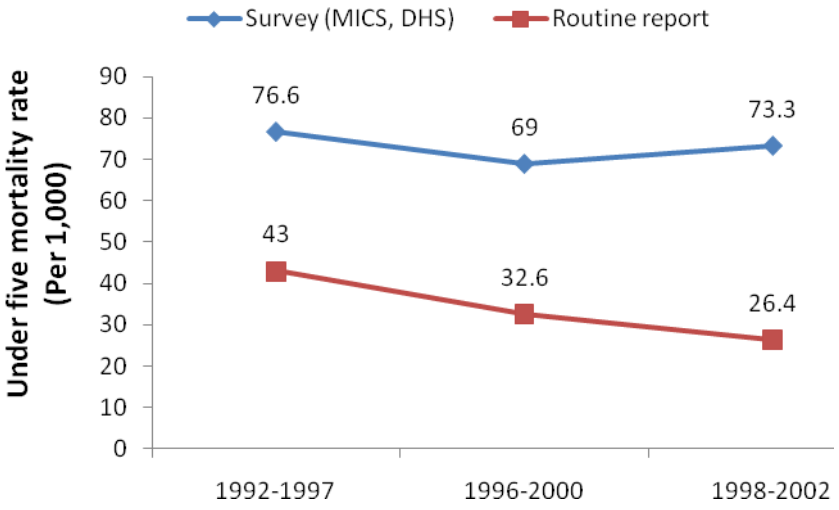


Figure 11.2- Under five morality rates by two different sources

The data which are reported in Figure 11.2, are acquired from the Uzbekistan 2006 MDG report (5). As you can see in Figure 11.3, there is a considerable gap between routine system reports and national surveys (Multiple Indicator Cluster Survey – MICS and Health Demographic Survey-DHS) estimates of U5MR(6-9).

The gap between routine report and national surveys estimates on U5MR has been increasing. It's mostly because the surveys did not show any changes in U5MR indicator.

There is clear evidence that government infant mortality rates are unreliable and that population-based surveys may be the best means of monitoring infant mortality over the next decade and perhaps longer.

The last national survey which has been done in the country was MICS 2006. The estimated U5MR in 2006 was 57 (per 1,000 livebirths). According to MICS2000, the indicator was improved about 8 degree.

DHS has been done in two rounds in Uzbekistan. The first one was launched in 1996(6) and the other was in 2002(7). Surprisingly, DHS2002 has indicated that U5MR was about 73.3 in 1998-2002 in Uzbekistan.

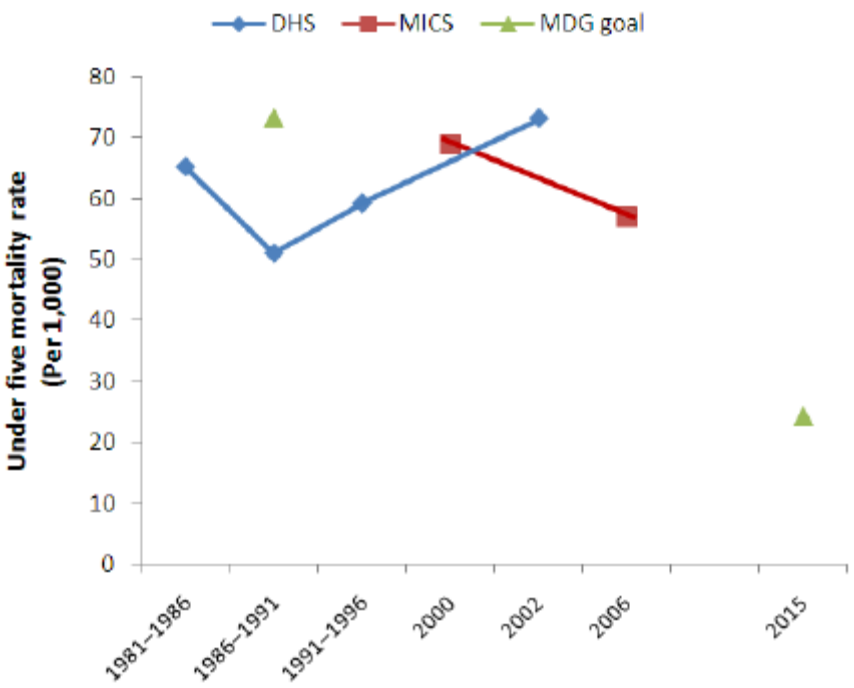


Figure11.3- Under five mortality rates in Uzbekistan by difference surveys (DHS and MICS) and the MDG goal

Table 11.4- Under five mortality rates in Uzbekistan by different sources

Year	DHS	MICS	MDG Goal
1981-1986	65.3		
1986-1991	51.1		73.3
1991-1996	59.3		
2000		69	
2002	73.3		
2006		57	
2015			24.4

In Figure 11.4, only the results of DHS2002 on U5MR were reported. In the three time-periods before the survey, U5MR has no evidence of any trend toward increasing the mortality of under five children in Uzbekistan.

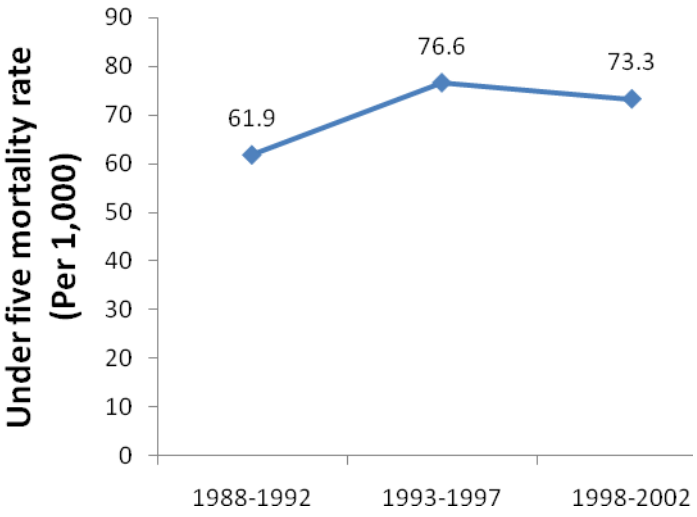


Figure 11.4- Under five mortality rate - Uzbikistan, DHS 2002

U5MR is reported by child sex and living area. Males had a higher rate of morality than females. The sex ratio varies from 1.1 to 1.45.

Table 11.2- Under five mortality rate by child sex and living areas reported in four recent surveys, Uzbekistan

	male	female	M/F ratio		Urban	Rural	U/R ratio
MICS2006					51	59	0.9
DHS2002	78.1	71.6	1.1		53.4	87.5	0.6
MICS2000	82	56	1.5		74	67	1.1
DHS1996	65	46	1.4		51.8	56.8	0.9

As it's obvious from the above, DHS/MICS and routine system have reported different estimates. Some of the huge difference between these two data sources could be explained by the different definitions of Livebirth (or Stillbirths) between MICS and Uzbekistan (Table 11.6). Uzbekistan definition excluded some part of the childhood death cases from both dominator and nominator of the formula for calculating U5M rate. Such modification decrease U5MR in compare to WHO definition(10) which has been used in MICS(5).
Moreover, only differences contributed by the early neonatal period (0-6 days after birth) can be attributed to definitional differences between the Uzbekistan and WHO categorization. Such effect is diluted for the rates which has been calculated for the next life periods, such as neonatal (7-28 days after birth), post-neonatal period (29- 365 days after birth) and of course child mortality.

Table 11.6- Livebirth definitions used in Uzbekistan compared to those recommended by WHO

A baby born after 28th weeks of pregnancy				
	No life signs	No breathing, but other life signs are present	Dies during the first seven days of life	Survives through the first seven days of life
Uzbekistan	Stillbirths		Livebirths	
WHO	Stillbirths	Livebirths		
A baby born before 28th weeks of pregnancy or with the body weight less than 1,000 gr and length less than 35 cm				
	No life signs	No breathing, but other life signs are present	Dies during the first seven days of life	Survives through the first seven days of life
Uzbekistan	Stillbirths	Miscarriages		Livebirths
WHO	Stillbirths	Livebirths		

In the MICS surveys, infant and under five mortality rates are calculated based on an indirect estimation technique known as the Brass method. The data used in the estimation are: the mean number of children ever born for five year age groups of women from age 15 to 49, and the proportion of these children who are dead, also for five-year age groups of women. The technique converts these data into probabilities of dying by taking into account both the mortality risks to which children are exposed and their length of exposure to the risk of dying, assuming a particular model age pattern of mortality. Based on previous information on mortality in Uzbekistan, the East model life table was selected as the most appropriate pattern and age groups 25–29 and 30–34 were used to produce the mortality estimates.

The other and the more important possible explanation for the differences between routine and MICS reported numbers for U5MR is the underreporting that naturally happened in passive routine system reports. This is the case that happen in mostly all the developing countries. The coverage of health system, sensitivity and specificity of detecting childhood dead, registration and reporting especially in the past decades, not only had huge effects on the trends but also affected the goal.

In 2000, based on the MICS report Boys has an U5MR of 82 (per 1,000 livebirths) in compare to girls with U5MR 56 (per 1,000 livebirths). This gender inequality has been reported from other countries and mostly explained by the lower immunity response in boys than the girls in the childhood.

When we looking at the rural and urban areas, we found that base on MICS2006, U5MR in rural areas was about 59 (per 1,000 livebirths), while at the same time U5MR in urban areas as not more than 56 (per 1,000 livebirths)(9). It means that rural children had a 1.1 time higher risk of mortality in the 5 years of their life in compare to urban children.

Infant Mortality Rate

MDG DEFINITION

The infant mortality rate is typically defined as the number of infants dying before reaching the age of one year per 1,000 live births in a given year(11).

Target. Reduce by two thirds, between 1990 and 2015, the infant mortality rate

The Republic of Uzbekistan has a long history of demographic and health data collection primarily through the use of registration systems which are national in coverage and which collect information on all events throughout the country. In the case of births and infant deaths, the Ministry of Health (MOH) is responsible for data collection which is performed when reports of local level health officials are forwarded up the reporting hierarchy to the oblast level and to the Ministry.

Trend Analysis

Infant mortality rate (IMR) is shown in Figure 11.5 by different data sources. As it's obvious, the reported IMR from MOH is substantially lower than estimates from the national surveys. In MICS 2000(8), IMR was reported as 52 cases (per 100,000 lifebirths) while MOH has reported only 19.1 cases (per 100,000 livefirths)(5). According to surveys' results, IMR did not decline during recent years in Uzbekistan.

In compare to two national surveys in 1996 (DHS)(6) and 2000 (MICS)(8), the routine system report has been missed many infant dead cases. Some of the differences between routine system report and other data sources are due to definitional differences which have been presented in previous section in Table 11.6.

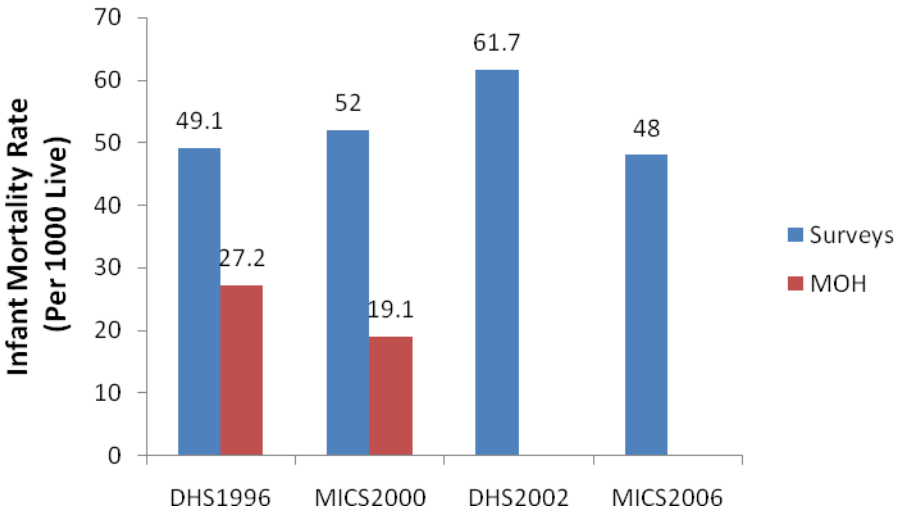


Figure 11.5- Infant mortality rate, Uzbekistan, 1996-2006

To address the MDG, the country should decline IMR from 61 cases (per 100,000 lifebirth) in 1990 to 20.3 (per 100,000 lifebirth) in 2015.

Although the routing reporting system has an increasing trend, but national surveys indicated that there is no improving in IMR. According to results from MICS, IMR decreased from 52 cases (per

100,000 lifebirth) in 2000 to 48 cases (per 100,000 lifebirth) in 2006(9), i.e. 4 cases per 6 years. With such trends, Uzbekistan probably reaches the goal on IMR in 2015.

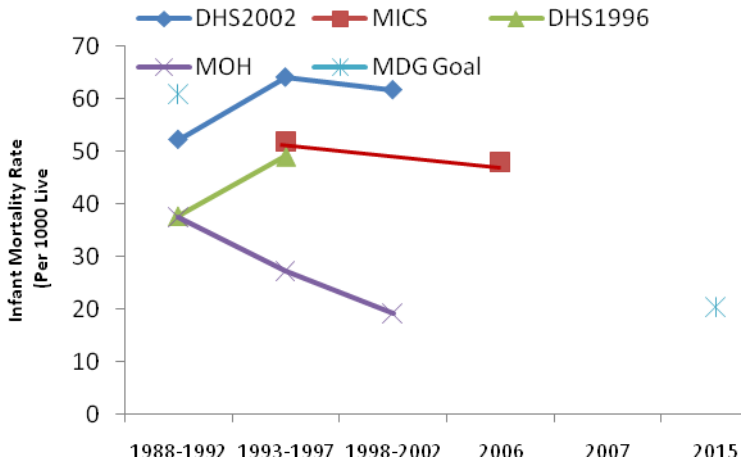


Figure 11.6- Infant mortality rate, Uzbekistan, 1988-2006

The differences between male and female on IMR is consistent with the reports from other countries and boys had a higher risk of mortality in infancy than girls. The Male to Female ratio has been varied from 1.1 to 1.5. The national survey (DHS) in 2002(7) reported a huge gap between urban and rural IMR. Families who have been living in urban areas had 0.6 times lower IMR than rural inhabitants.
This could be a clue that the quality of health care services in rural areas is not enough to provide the safety infancy for new born babies.

Table 11.7- Infant mortality rate by child sex and living areas reported in four recent surveys, Uzbekistan

	Male	female	M/F ratio		Urban	Rural	U/R ratio
MICS2006	56	40	1.4				
DHS2002	66.8	58.8	1.1		42.9	74.6	0.6
MICS2000	63	42	1.5		56	51	1.1
DHS1996					42.9	43.8	1

In compare to reports from national surveys, routine system reports from MOH in all indicators for infants and childhood mortality are used to have underestimations. In Figure 11.7, the differences of data sources in child health indicators are illustrated.

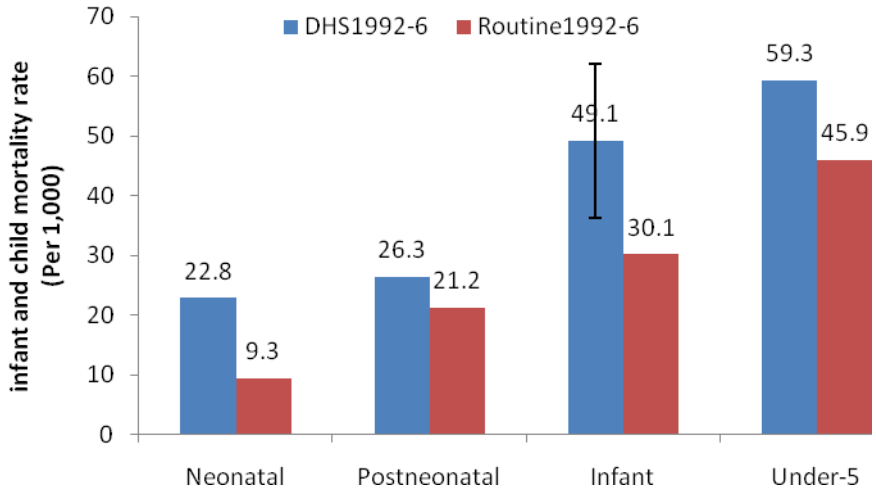


Figure11.7- Different child health indicators reported from surveys and routine system

Comments/General Imprecation

- The two national surveys, DHS 1996 and UDHS 2002, have applied similar data collection processes and direct estimation techniques to produce infant mortality estimates. However, MICS 2000, used a different methodology for both data collection and rate estimation. MICS estimates are based on a procedure known as the "Brass Estimation Technique". As it mentioned in the above table, despite the differences in methodology between these surveys, all IMR estimates are quite differ from recent IMRs reported by the MOH.
- There has been a difference between Uzbekistan's definition on stillbirth and live birth and the WHO recommended definition.
- Reasons that survey infant mortality rates are more reliable than the statistics from MOH:
    - Several studies of mortality in the Central Asian Republics during the Soviet era have concluded that the registration systems in those countries undercounted infant deaths and that infant mortality rates based on the register data are underestimates(12-16)
    - All three recent population-based surveys (Two MICS and two DHS)(6-9) report infant mortality rates substantially higher than those of the MOH
    - The reported child deaths in surveys are almost always an underestimation of the real number of deceased children. To have this fact in mind, the differences between routine reports and the real situation is higher than we have mentioned above.
    - The results of the 2002 UHES are similar to the rates estimated by survey methods for other countries in the region with similar health care systems, for example, Kazakhstan (61.9 per 1,000) and the Kyrgyz Republic (61.3 per 1,000) (Sullivan and Themme, 2003)

- The trend of under five mortality is downward, but not enough to reach the MDG.
- The health system lost children more from rural areas then the urban areas.
- As the other courtiers, under five boys had a constant higher risk of mortality than under five girls.
- The trend of the under five mortality rate was compatible with the infant mortality rate

Immunization against Measles

National program

The national strategy for vaccinate the children in Uzbekistan has been approved by the Decree of the Government. Measles' vaccine has been inoculated to children in 12-15 months after the birth.

Trend Analysis

According to the routine system report, more than 99% percent of the target population was vaccinated against measles in 2007(7). At the same time, the results of the MICS 2006, the percentage of vaccination was estimated as 96%. The difference is partly due sampling variability that accompany with MICS survey. The other possible explanation is over reporting that always accompany with routine reporting system. However, even in worse scenario, Uzbekestan has a good coverage of vaccination against measles during the recent years, and it is approved by having no outbreaks of disease in recent decade (Figure 11.8).

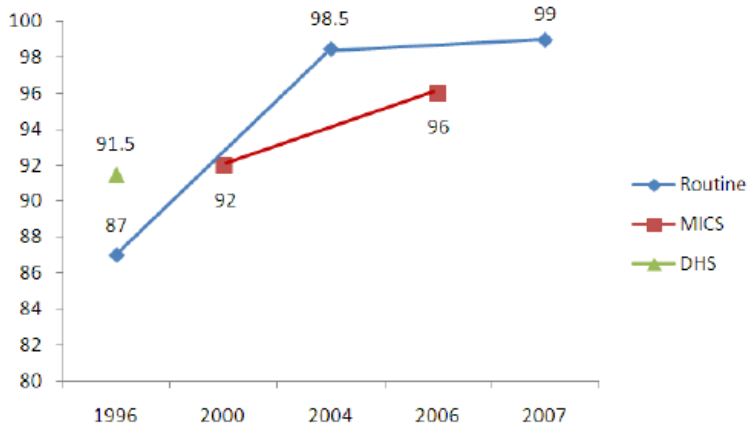


Figure 11.8- The percent of children who have been vaccinated against measles, Uzbekistan 1999-2007

Maternal Mortality Rate

DEFINITION

The maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births (11).

Target. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Trend Analysis

The reported maternal mortality rate (MMR) as the baseline in 1990 was 65.4 (per 100,000 lifebirths)(1). In order to reach the millennium development goal, the country has to decrease it to 16.3 (per 100,000 lifebirths) in 2015.

Generally, on average Kazakhstan was able to decrease MMR from 65.4 (per 100,000 lifebirths) in 1990 to 20.7 (per 100,000 lifebirths) in 1996. It means that, MMR has been decreased annually for about 9 cases. It's a big jump in improving maternal health in the country. Afterward, the observed trend become slow and even reversed. From 1996 to 2001, MMR increased slightly from 20.7 deaths (per 100,000 lifebirths) to 34.1 deaths (per 100,000 lifebirths). Moreover, there is a slight decrease since 2003.

According to MICS 2006(9), MMR was estimated at about 28 (per 100,000 lifebirths) which is almost closed to the reported MMR from routine system reports.

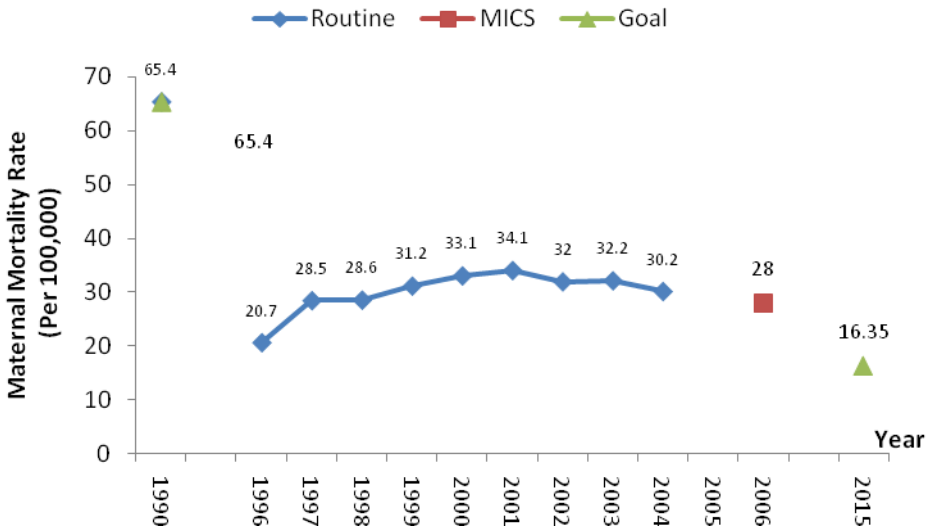


Figure 11.9- Maternal mortality rate in Uzbekistan per 100,000 livebirths, by different data sources

The most common fatal complication is post-partum hemorrhage. Sepsis, complications of unsafe abortion, prolonged or obstructed labour and the hypertensive disorders of pregnancy, especially eclampsia, claim further lives. These complications, which can occur at any time during pregnancy and childbirth without forewarning, require prompt access to quality obstetric services equipped to provide lifesaving drugs, antibiotics and transfusions and to perform the caesarean sections and other surgical interventions that prevent deaths(5). The leading cause of death was hypertensive related conditions with 37%. Thus, more than 70% of the reported maternal mortality could be prevented. Uzbekistan still continues to loss pregnant women due to preventable morality causes(5). Abortion is well-known in the country as one of the contraceptives. Therefore, high rate of abortion has been reported from Uzbekistan. As it is shown in the figure, although the abortion has been decreased from 120.9 (per 1,000) in 1996 to 99.4 (per 1,000) by 2003. In 2006, 12.9% of all pregnancies have been ended with induced abortion. The induced abortion included more than 27% of all pregnancies that were done in Tashkent City (5).

Antenatal care and assistant during delivery

Antenatal clinics registered more than 90% of the pregnant women up to 12 gestational weeks(5).
According to MICS 2006(9), the percentage Coverage of antenatal care (by a doctor, nurse, or midwife) is high in Uzbekistan with 99% of women receiving antenatal care at least once during the pregnancy.
The percent of women aged 15-49 with a birth in two years preceding the survey (MICS) by type of personnel assisting at delivery has been reported in Table 11.8. Generally, more than 99% of deliveries have been done under supervision of educated personnel.
For 95 percent of the cases, the person providing antenatal care was a medical doctor. Although there is some regional variation, the figures do not vary considerably by different background characteristics. In the Central-Eastern region, the percentage of medical doctors providing antenatal care declines to 91 while in Tashkent city it is above 99 percent.

Table 11.3- Assistant during delivery, Uzbekistan, 2006

Region	Medical doctor	Nurse / Midwife	Auxiliary Midwife	Traditional Birth attendants
Urban	97.4	1.7	0	0
Rural	96.0	26	0.4	0.1

Important notes / Comments

- Abortion as a method of Reproductive Health (including Family Planning) is one of the main cause of prevented maternal mortality especially in rural areas. The promotion of other save reproductive methods is highly recommended.
- The quality of health care during the antenatal period and maternity hospitals should be improved. The reported increase in MMR after 1996 indicated dissociation from high quality health services, especially for pregnant women in Uzbekistan.
- Improving the access of young women and adolescents to health care services, especially reproductive services.

Combat HIV/AIDS, Malaria and other diseases

HIV PREVALENCE AMONG PREGNANT WOMEN AGED 15-24 YEARS

DEFINITION

HIV prevalence among 15–24 year-old pregnant women is the percentage of pregnant women ages 15–24 whose blood samples test are positive for HIV.
The number of new reported HIV+ cased from 2000 (only 230 cases) to 2005 has been increasing exponentially. In 2005, 2198 new cases of HIV were officially reported. About 7810 HIV cases have been registered in Uzbekistan since the end of 2005.

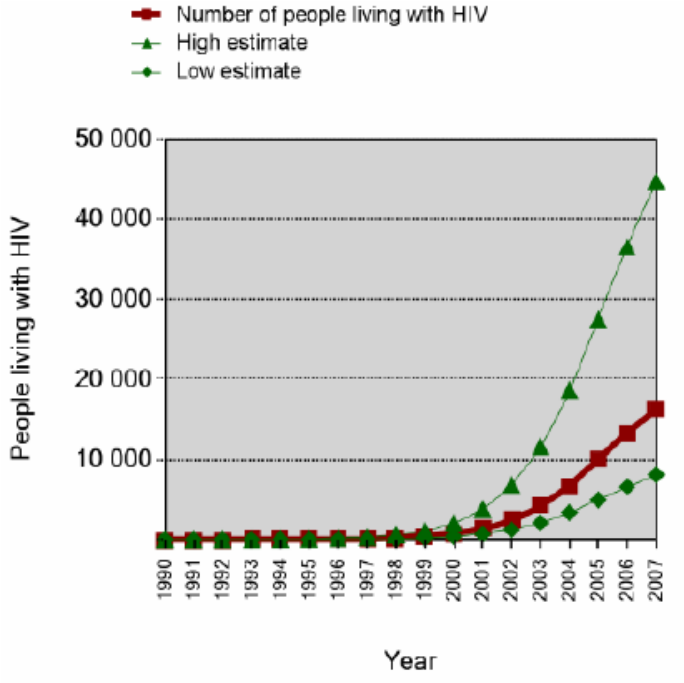


Figure 11.10- Number of people living with HIV

Based on the reports from the sentinel sites through the country, the most at risk group for HIV are

injecting drug users (IDUs), sex workers (SWs). Prisoners are also should be addressed as high risk group since in 2004, 34.4% of the new cases were prisoners.
Uzbekistan has concentrated HIV epidemic and mostly the new cases are reported from high risk groups such as IDUs and SWs.

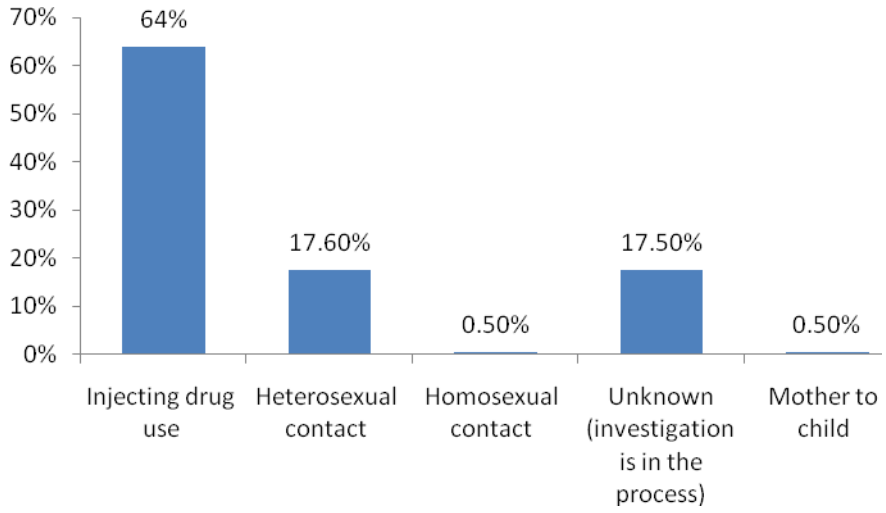


Figure 11.11- HIV mode of transmission, Uzbekistan, 2006

There is a lack of access to affordable, effective and appropriate services, accurate information, clean injecting equipment, condoms, voluntary, confidential counseling and testing, effective treatment of sexually transmitted infections and drug abuse related problems. Comprehensive services are not widely available and cover no more than 1% of the most vulnerable groups.
As there is a high level of stigmatization and discrimination regarding the HIV among the people, it's highly possible that there are a more positive cases whom living as hidden population in the country.

Condom use rate of the contraceptive prevalence rate

Definition

Condom use rate of the contraceptive prevalence rate is the number of women aged 15–49 years in marital or consensual unions who are practicing contraception by using condoms as a proportion of all women in the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception(11).
According to findings from MICS 2006(9), only 64.9% (62.9% urban vs. 65.8% rural) of women currently married or in union use any type of contraceptives routinely. Moreover, condom is only applied by 2.1% (3.3% urban vs. 1.5% rural) of women currently married or in union.

Condom use at last high-risk sex

Definition

Condom use at last high-risk sex is the percentage of young people ages 15–24 reporting the use of a condom during sexual intercourse with a non-regular sexual partner in the last 12 months.

There is no data available in the last MDG(5) and UNGASS(17) report of Uzbekistan

Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

Definition

Percentage of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS is the proportion of women and men aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.
The reported percentage of knowledgeable people aged 15-24 years on at least two majors ways of transmission and rejecting three most misconception of HIV and AIDS, indicates that only 1 out of 3 young women living currently in Uzbekistan has the comprehensive knowledge on this issue. Proportionally, the knowledge of rural inhabitants is almost equal to those living in cities (Table 11.9).

Table 11.4- Comprehensive knowledge of HIV/AIDS transmission-MICS2006

Sub-Groups	Know 2 ways to prevent HIV transmission	Correctly identify 3 misconceptions about HIV transmission	Have comprehensive knowledge (identify 2 prevention methods and 3 misconceptions)
Living Area			
Urban	60.1	49.4	36.6
Rural	59.2	47.7	34.8
Age Groups			
15–19	45.1	27.2	2929
20–24	59.7	49	35.3
15–24	52.7	47	31
25–29	61.2	50.8	38.7
30–34	64.5	49.4	38.8
35–39	65.7	46.7	36.5
40–44	66.2	49.8	39.5
45–49	63.4	47.8	37.4
Total	59.5	48.2	35.3

Contraceptive prevalence rate

Definition

The contraceptive prevalence rate is the percentage of women who are practicing, or whose sexual partners are practicing, any form of contraception. It is usually reported for women ages 15–49 in marital or consensual unions.
According to findings from MICS 2006, only 64.9% of women currently married or in union use any type of contraceptives routinely. The percentage of using contraceptive among rural women is lower than the urban inhabitants (Table 11.10).

Table 11.5- Use of contraceptive - MICS 2006

Living Area	Not using any method	Any Scientific Method	Traditional Method only	Any method
Urban	37.1	56.8	6.1	62.9
Rural	34.2	60.4	5.4	65.8
Total	35.1	59.3	5.6	64.9

The most popular contraceptive method is IUD with the percentage of 49.7% in all women. Condom is only applied by 2.1% of the enrolled eligible women in the survey (n=8929). The percentage of contraceptive usage regarding different methods is shown in Figure 11.11.

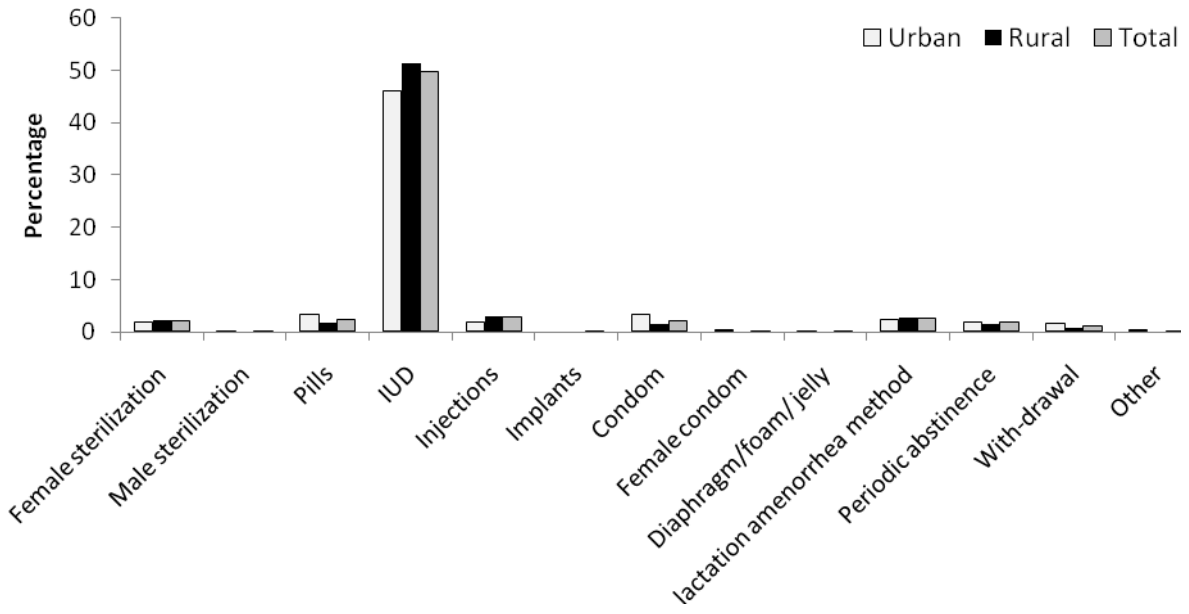


Figure 11.11- Percentage of differnt type of contraceptive methods, MICS 2006

Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

Definition

Strictly defined, the number of children orphaned by HIV/AIDS is the estimated number of children who have lost their mother, father or both parents to AIDS before age 15. In practice, the impact of the AIDS epidemic on orphans is measured through the ratio of orphans to non-orphans who are in school.

There is no data available in Uzbekistan about Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years. In fact, like other countries in this region, it is not a good and proper indicator for HIV/AIDS control program. It is a good indicator for those countries with generalized AIDS epidemic and with high prevalence rate in general population.

Important notes / Comments

- In some sections such as Condom use rate of the contraceptive prevalence rate / Condom use at last high-risk sex there is no updated reports available.
- The prevalence rate of condom use is too low among men and women in Uzbekistan.
- The comprehensive knowledge of the general population, in all age and social groups, on HIV transmission and prevention is low. Misconception on the route of transmission and relationship with infected people is popular.
- Stigmatization and discrimination is a usual all around the county and is one of the important confounder to effective planning and control strategies.

- All stakeholders, government, public agencies, NGOs, social societies and UN agencies should be involved much in the issue based on the national strategy to combat against HIV and AIDS.
- Harm Reduction converges for most at risk population should be increased in all the regions in the country.
- Needle exchange program in prisoners has been established as an effective strategy to control the transmission of HIV in prisoners.

Prevalence and death rates associated with malaria

Definition

Prevalence of malaria is the number of cases of malaria per 100,000 people. Death rates associated with malaria refers to the number of deaths caused by malaria per 100,000 people.

Malaria was eradicated in Uzbekistan in 1961. Since that time, the majority of cases are imported cases mostly from Tajikistan and Afghanistan. From the mid 1990's to date, the number of imported malaria cases has continued to increase (21 cases in 1994 and 80 cases in 2000). In 1999, due to a steady increase in imported malaria cases and the presence of conditions favorable for malaria transmission, the first local cases of malaria, seven in all, were registered. By 2000, the locally transmitted cases have been increased to 46. They occurred in the Surhandaryin, an area closed to Tajikistan border. In 2001, they ministry of health has been established a national programme on prevention and vector control (18).

Although the health system is ready to response to any epidemic, especially from the imported cases, in fact, it is not a public health problem in the country.

Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures

Definition

Malaria prevention is measured as the percentage of children ages 0–59 months sleeping under insecticide-treated bed nets. Malaria treatment among children is measured as the proportion of children ages 0–59 months who were ill with fever in the two weeks before the survey and who received appropriate antimalarial drugs.

There is no reported data on Malaria in Uzbekistan. In fact, it is not a public health problem in the country.

Prevalence and death rates associated with tuberculosis

Definition

Tuberculosis prevalence is the number of cases of tuberculosis per 100,000 people. Death rates associated with tuberculosis refers to the number of deaths caused by tuberculosis per 100,000 people. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

The reported incidence cases of TB in Uzbekistan has been increasing from 43 (per 100,000) cases in 1995 up to maximum 79 (per 100,000) cases in 2003. Such rising is mostly explained by under reporting of the routine system in 90s. After implementing DOTs in 1998 and improving its coverage, the incidence has been increasing (Figure 11.12).

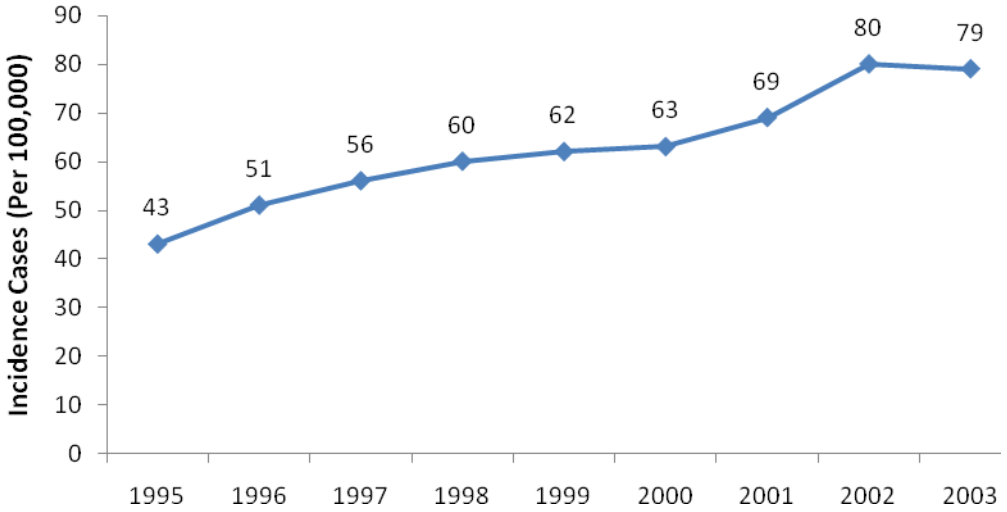


Figure 11.12- Incidence cases of Tuberculosis in Uzbekistan per 100,000

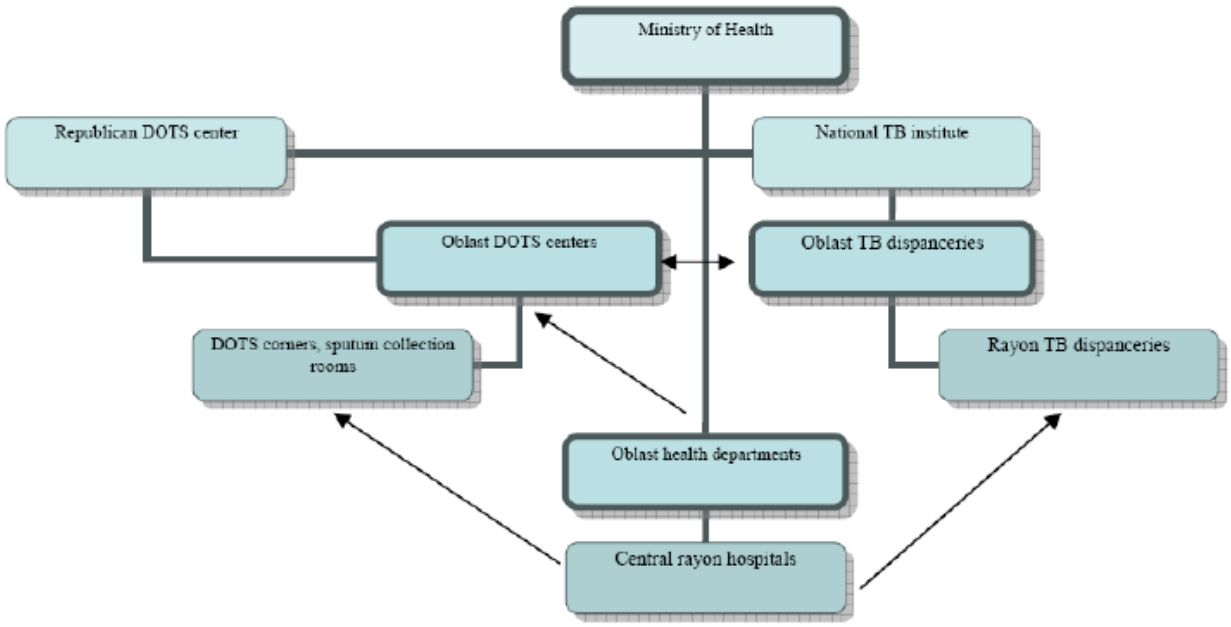
Moreover, there is evidence of a significant spread of the drug resistance tuberculosis variety, a factor that greatly increases the likelihood of fatalities. A survey in Karakalpakstan found that 27% of tested cases were multi-drug resistant tuberculosis, among the highest rates in the world.

Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Definition

The tuberculosis detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. DOTS combines five elements—political commitment, microscopy services, drug supplies, surveillance and monitoring systems and use of highly efficacious regimes - with direct observation of treatment. The cure rate is the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full course of DOTS was completed. A tuberculosis case is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

DOTs has been implemented in 1998 in Uzbekistan. By the end of 2005, the coverage of DOTs in the country has reported as 100%. The structure of national TB program in Uzbekistan is presented below.



Important notes / Comments

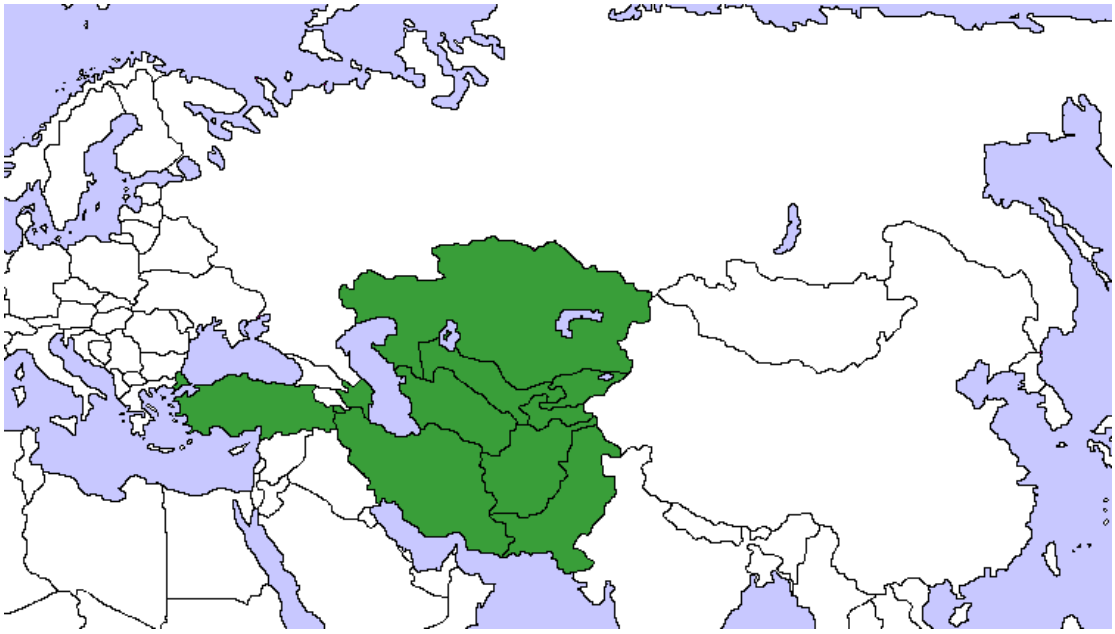
- TB is still a major health problem in Kazakhstan
- DOTS has been settled down in the country from 1999. However, the cases detected by DOTS has been decreasing during recent years.
- Such decreasing the in the DOTS detected rate Drug resistance is a threat to the public health and the reported number of multiple drug resistance is a
- From 2003 onward, the incidence rate will continue to decrease at 4% per year in Eastern Europe at the same rate as observed from 1980-1990 before the collapse of the Soviet Union.
- The difficulties of managing TB in Kazakhstan are closely linked to HIV/AIDS and drug resistance, and specific solutions will be needed for these problems in these regions.
- An enhanced DOTS strategy is necessary to control tuberculosis in Kazakhstan.

Refernces

1. UNICEF, http://www.unicef.org/uzbekistan/. 2007.
2. UNICEF, Draft - Budget investments in health and education of Azerbaijan children. July 2008.
3. WHO European HFA-DB.
4. World Health Statistics 2008, WHO. 2008.
5. Uzbekistan millenium development goals report. 2006.
6. Uzbekistan Demographic and Health Survey 1996 (DHS), Ministry of Health in Uzbekistan and Institute of Obstetrics and Gynecology and Macro International Inc., Calverton, Maryland, USA. 1997.
7. Uzbekistan Health Examination Survey (DHS) 2002, Ministry of Health in Uzbekistan and Institute of Obstetrics and Gynecology and Macro International Inc., Calverton, Maryland, USA. 2004.
8. Multiple Indicator Cluster Survey - 2000, UNICEF, Republic of Uzbekistan. Dec. 2000.
9. UNICEF, UNICEF and State Statistical Committee of the Republic of Uzbekistan. Uzbekistan Multiple Indicator Cluster Survey 2006, Final Report. Tashkent, Uzbekistan: UNICEF. 2007.
10. World Health Organization (WHO). International classification of diseases and related health problems. Tenth revision. Geneva, Switzerland: World Health Organization. 1993.
11. UNITED NATIONS. Indicators of Sustainable Development: Guidelines and Methodologies. Sales No. E.01.II.A.6. Available from http://www.un.org/esa/sustdev/natlinfo/indicators/isd.htm. 2001.
12. Anderson, B.A. and B.D. Silver, Estimating census undercount from school enrollment data: an application to the Soviet censuses of 1959 and 1970. Demography, 1985. 22(2): p. 289-308.
13. Andreev, E. and N. Ksenofontova, [Appraisal of the reliability of infant mortality data]. Vestn Statistiki, 1991(8): p. 21-8.
14. Velkoff, V.A. and J.E. Miller, Trends and differentials in infant mortality in the Soviet Union, 1970-90: How much is due to misreporting? Popul Stud (Camb), 1995. 49(2): p. 241-58.
15. Chenet, L. and M. Telishevska, Epidemiology, medical demography and data quality issues in the former Soviet Union. J Epidemiol Community Health, 2000. 54(10): p. 722-3.
16. Wuhib, T., B.J. McCarthy, T.L. Chorba, T.A. Sinitsina, I.V. Ivasiv, and S.J. McNabb, Underestimation of infant mortality rates in one republic of the former Soviet Union. Pediatrics, 2003. 111(5 Pt 1): p. e596-600.
17. Epidemiological Fact Sheet on HIV and AIDS; Core data on epidemiology and response , Uzbekistan. 2008 update.
18. Malaria Vectors and Approaches to their Control in malaria affected countries of the WHO European Region - The proceedings of a Regional Meeting on Vector Biology and Control - Almaty, Kazakhstan. 2001.

Chapter 12. Recommendation for the ECO secretariat

ECO



Based the findings which have been presented in the previous chapters, the following recommendations are provided for the ECO secretariat to help the members to improve the health system for achieving the MDGs 4,5 and 6 in 2015 :

1. One of the Challenges which all the ECO countries are involved in is incomplete and unreliable data for the indicators to monitor the progress toward the MDG goals. The indicators are reported based on the information comes from different data sources. Such data sources included:
    a. Routine data reporting system
    b. Worldwide well-known national surveys such as DHS and MICS
    c. Estimation methods based on the statistical models on the available data and some assumptions

The important point is that in most of the cases the reported indicators from the national surveys and the estimation models differ considerably from the routine reports. Generally, the estimates of the indicator from the routine system are ½ to 1/3 of those which has been reported from the surveys or statistical models.

Therefore, we concluded that the routine system indicators are underestimated and we have to determine the current situation and monitor the country profile based on the data from the surveys and adjusted the goals accordingly. The new indicators for the infant, under five and maternal mortality from 1990 to 2015 are shown in Table 12.1.

Table 12.1- The estimated infant and child (per 1000 live births) and maternal (per 100,000 live births) mortality rate in the ECO countries based on the available data from 1990 to 2015

ECO Countries	U5MR				IMR				MMR		
Afghanistan	260	257(2007)	87		168	165(2007)	56		1800	1800(2005)	450
Azerbaijan	98	39 (2007)	33		78	34 (2007)	26		118	82 (2005)	30
Iran	54	33 (2007)	18		42	29 (2007)	14		60	25 (2005)	15
Kazakhstan	87	36 (2006)	29		54	34 (2003)	18		120	70 (2006)	30
Kyrgyzstan	75	35 (2009)	25		63	28 (2009)	21		120	62 (2007)	30
Pakistan	132	90(2007)	44		102	73(2007)	34		550	320(2005)	138
Tajikistan	117	68 (2007)	39		91	57 (2007)	30		280	97 (2005)	70
Turkey	82	24 (2008)	27		67	17 (2005)	22		80	19.4 (2008)	20
Turkmenistan	93	50(2007)	31		81	45(2007)	27		60	28(2006)	15
Uzbekistan	73.5	57(2006)	24.5		60	48(2006)	30		66	28(2006)	15.5
IMR = Infant Mortality Rate; U5MR = Under Fiver Mortality Rate; MMR : Maternal Mortality Rate											

The percentage of achievement to the goals 4 and 5 according the last available data for each country has been reported in the following figures.

- **Red** = those countries who have reached the goals less than 50% of the target.
- **Yellow** = those countries who have reached the goals more than 50% of the target but less than 67%.
- **Green** = those countries who have reached the goals more than 67% of the target.

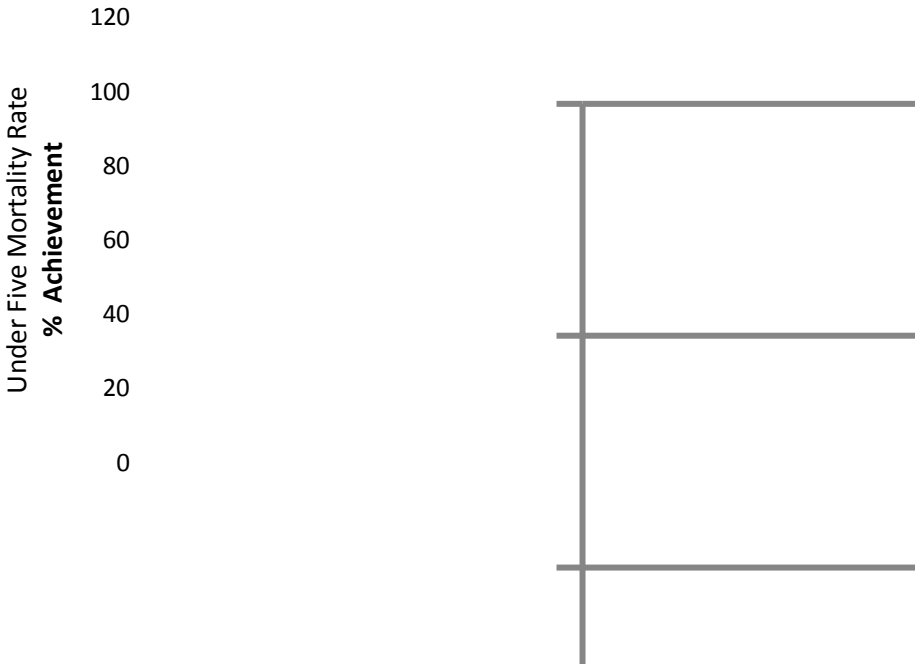


Figure 12.1 - Under Five Mortality Rate - MDG goal achievement (based on 2006 to 2009) in ECO countries

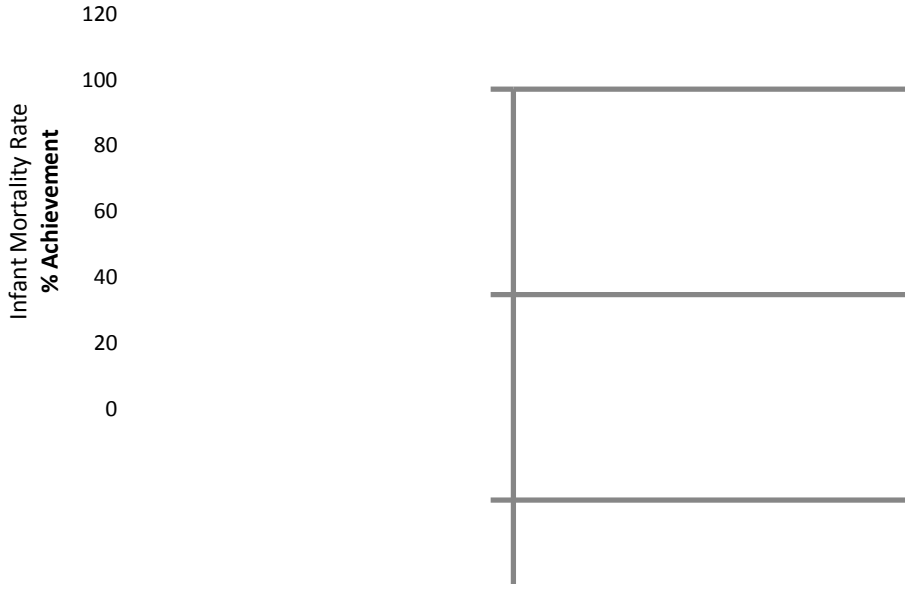


Figure 12.2 - Infant Mortality Rate - MDG goal achievement (based on 2006 to 2009) in ECO countries

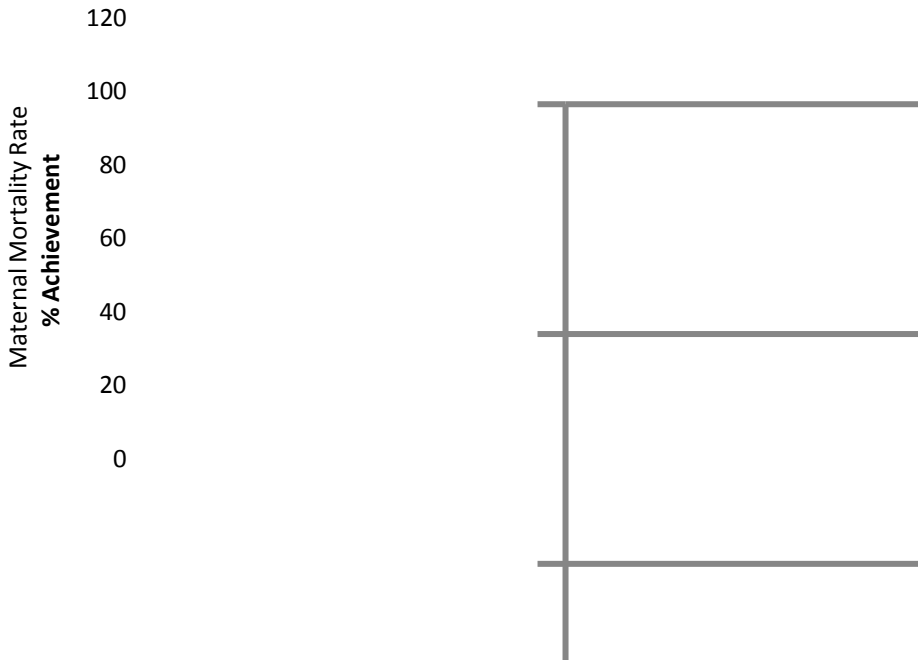


Figure 12.3 - Maternal Mortality Rate - MDG goal achievement (based on 2006 to 2009) in ECO countries

As general comment, ECO secretariat should work much more to mobilize resources to help the member countries in implementing effective interventions to bring into real the following recommendations to improve the health status of the country regarding MDGs.

The authors recommend the ECO secretariat encourage the member countries to carry out the following activities to improve the death registration system for the children and pregnant women:

1. Developing a protocol based on the available designs such as DHS and MICS for determining the level of indicators for the MDG 4, 5 and 6 in each country and implement it in three rounds in 2011, 2013 and 2015 in order to provide reliable indicators for the remaining years to 2015.
2. Support the country members to improve their routine data reporting systems up to in the remaining years to 2015, in a manner which running national surveys to estimate the indicators for MDGs 4, 5 and 6 become restricted to few indicators and the health routine system data reporting could provide reliable data on monitoring such indicators.
3. Another important issue related to countries from the Soviet Union is the definition of the live birth which is considerably differs from the international definition. Although most of the countries are going to shift from the old definition to the international definition, it is still necessary to clarify the definition to the all of the health providers. Such scientific clarification and consultancy is required for some miscellaneous points in the calculation and report of the other indicators. Training course and self-educating booklets provided and organized by the ECO secretary, could empower country technical officers to calculate and report more accurate estimates.
4. In the medical literature, there are strong evidences regarding the effectiveness of primary health care (PHC) to reduce the child and maternal mortality and control/prevent of several diseases such as tuberculosis, HIV infections and Malaria. It's highly recommended that the ECO secretariat help and support the member countries to re-establish and improved the PHC, to integrate the prenatal and neonate health programs as well as the surveillance of the tuberculosis, HIV/AIDS and Malaria in the health system. The ECO countries, from the

Soviet Unions, have a brilliant experience on the PHC development and by refining the system; even they could provide best-practice examples for the other countries in the world.

5. In most of the ECO countries, the prenatal, delivery and especially the neonatal cares are not qualified enough to prevent all the preventable deaths occurred in both mothers and the infants. The ECO secretariat could improve the quality of such cares by organizing and running specific short training courses for the health providers whom actually serves the pregnant women.
6. Unfortunately, in some visited countries abortion is generally behave as a Reproductive Health (including Family Planning) strategy; While according to the definition of UNFPA, abortion shall not be applied as an alternative method of family planning health in any cases, and it has serious complications, mortality and morbidity, for both mother and the child. Providing a better access to safe family planning health devices and strategies as well as training programs for the health providers could improve the situation and ECO secretariat could acts a lot on these activities.
7. In most of the countries, during the defining phase of the target population of the Reproductive Health (including Family Planning) services, adolescents and juveniles were the most ignored groups. When considering the fact that the most part of the inhabitants in the countries are very young people (based on the current population structure), and they mostly are not married and also sexually active, they are prone to all sexual transmitted infections (STIs), HIV and high-risk pregnancies. Designing and running applied research to find out the best way to address these issues by a well accepted PHC compatible to all believes, traditions and social cultures is highly recommended.
8. An effective collaboration between the ECO countries in order to develop and conduct joint strategies for better control and management of the most important disease such as HIV/AIDs, Malaria and Tuberculosis is recommended. For example, in some countries the Malaria is endemic while the others has eradicated the disease and only the annual reports indicated the cases are only the imported cases from the neighborhood countries. In this circumstance, only joint international activities could control the Malaria.
9. Always take into account the equity as a principal to improve the health system to reach the MDGs in 2015. The equity should be address in both, inter and intra country levels and the technical and financial supports should be provide by ECO secretariat for those areas which benefit more.
10. Support the member countries to develop and expand the coverage of the child and mother friendly hospitals in the ECO countries
11. ECO secretariat should provide scientific supports to carry out the Early Child Development (ECD) program jointly by all the ECO countries as a research base project
12. The ECO secretariat shall help countries to develop curriculum and running educational programs to train auxiliary midwifes for those countries who have no access to enough well-educated midwifes
13. Help countries to improve surveillance system for mother and child mortality and HIV/AIDS, Malaria and Tuberculosis.
14. Help countries to develop the programs and strategies to improve the advocacy and commitment of the main health policy makers in the country to reach the MDGs in 2015
15. Support the member countries to develop NGOs and encourage them to involved more in activities related to MDGs
16. Develop and running a joint project in the region to evaluate the reasons for the emigration of the outstanding experts in the health system to other countries as well as encourage the emigrant key informants and researchers of the ECO counties who are living in other countries to help their motherhood country in improving the health system and national health indicators.

17. Help the member countries to set up and run the screening of the blood supply with the best available cost-effective methods as a national HIV prevention program.
18. The HIV epidemic in the ECO countries is concentrated in some most at risk population. ECO secretaries should technically support countries to estimate the population size of the most at risk groups and designing appropriate behavioral surveillance system for better prevention and screening of such group.
19. Help the countries to design and run a comprehensive surveillance system to provide the necessary health care and educational services for the mobile population in the region including the immigrant workers and refugees.
20. Due to the enormous number of Afghan refugees who have been legally or illegally migrated annually to Pakistan and Iran, ECO secretariat should help the countries to provide the primary health care, especially the family program, to these high risk minority communities.
21. The most at risk group for HIV and AIDS in the region countries were Injecting Drug Users (IDUs). ECO secretariat should help the member countries to develop and improve the coverage of the harm reduction programs among these high-risk groups.
22. Due to the increasing number of TB resistant cases, the effectiveness of the Anti TB drug is questionable in some ECO member countries. Designing and conducting a multi-national joint project having the consultancy of a well-known international TB research center would help the countries to develop a better therapeutic strategy which works much better in the region.
23. The estimation methods for the TB incidence rate, which has been recommended and applied by WHO for many countries in the region, are not accepted from the experts' point of view. Some countries claim that the estimation is not real. The ECO secretariat should provide supports to make an international collaboration team to develop more accurate models according to the main key variables and the context of the countries. Due to technical errors in estimating the incidence rate of tuberculosis, it's recommended to the ECO member countries to run a bond project, with having the supports from the ECO secretariat, to find out practical scientific methods to estimate the Incidence rate of TB.
24. As some countries in the region has a well successful experience on Reproductive Health (including Family Planning) program, which has a direct prominent effect on improving the health status of mother and children, it's highly recommended to ECO secretariat provide the opportunity for the others countries to get familiar, adopt and apply such programs according to their context and settings.

Appendix 1. Health Related MDGs

The 4, 5 and 6 MDGs and the related indictors which have been reviewed in this report were:

Goal 4: **Reduce Child Mortality**

4-1. Under-five mortality rate

4-2. Infant mortality rate

4-3. Proportion of 1 year-old children immunized against measles

Goal 5: Improve Maternal Health

5-1. Maternal mortality ratio

5-2. Proportion of births attended by skilled health personnel

Goal 6: Combat HIV/AIDS, Malaria and other diseases

- **HIV/AIDS**: **Target:** Have halted by 2015 and begun to reverse the spread of HIV/AIDS

  6-1. HIV prevalence among pregnant women aged 15-24 years

  6-2. Condom use rate of the contraceptive prevalence rate

  6-3. Condom use at last high-risk sex

  6-4. Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

  6-5. Contraceptive prevalence rate

  6-6. Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years
- **Malaria: Target:** Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

  6-7. Prevalence and death rates associated with malaria

  6-8. Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures
- **Tuberculosis: target:** Have halted by 2015 and begun to reverse the incidence of tuberculosis

  6-9. Prevalence and death rates associated with tuberculosis

  6-10. Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Appendix 2. List of Tables and Figures