Stewardship

Fair Financial Contribution

Responsiveness

Creation of Resources
Service Delivery

Financing

Health Improvement

Access to Health Care Services

Quality and Safety

Financial Protection

ARMENIA HEALTH SYSTEM
PERFORMANCE ASSESSMENT

2012

The Armenia Health System Performance Assessment Report 2012 summarizes the main findings of an assessment of the performance of the Armenian health system, which was carried out by the Ministry of Health of Armenia. The assessments were conducted in 2010 and 2011 and contribute to the efforts pursued by the government of Armenia to strengthen the capacities of the Ministry of Health for effective stewardship of the health system.

The HSPA 2012 report presents an assessment of the performance of the health system against a number of key performance dimensions: health human resources availability, distribution, demand, education and training; equity in financing and financial protection; health system efficiency; access to health care services; quality and safety of health care services, biological and behavioral factors affecting human health; prevalence of environmental determinants and their negative impact; health system responsiveness; general health status of the population during 2010-2012 as well as changes in the said dimensions vis-a-vis 2007 and 2009.

ARMENIA

HEALTH SYSTEM PERFORMANCE ASSESSMENT

2012

ABSTRACT

This report summarizes the main findings of an assessment of the performance of the Armenian health system (HSPA) carried out by the HSPA working group of the National Institute of Health with the technical and financial support of the Ministry of Health of Armenia. This assessment was performed in 2012 and contributes to the efforts pursued by the Government of Armenia to strengthen the capacities of the health system.

The HSPA 2012 report presents an assessment of the performance of the health system during 2010-2012 against a number of key performance dimensions, including health workforce availability, distribution, demand, education and training, equity in financing and financial protection, access to health care services, quality and safety of health care services, biological and behavioral risk factors threatening population health, prevalence of environmental determinants and their harmful impact, health system responsiveness, and general health status of the population as well as the changes that these dimensions underwent since 2007 and 2009.

Each section of this report contains recommendations on improvement of the effectiveness of Armenia health system performance.

This report is designed for health system organizers, health experts, clinicians, as well as other specialists interested and involved in health system issues.

CONTENT

ABBREVIATIONS

ADHS	Armenia Demographic and Health Survey
AP	Arterial pressure
AH	Arterial hypertension
BMI	Body mass index
CEECCA	Central and Easter Europe, Caucasus and Central Asia countries
CHeSS	Country Health System Surveillance
Cholesterol	Cholesterol high pressure
GDP	Gross domestic product
HFA-DB	European Health for All Database
HPIU	Health Project Implementation Unit
HSPA	Health system performance assessment
HCL	High cholesterol level
HMN	Health Metrics Network
ICD-10	International statistical classification of diseases and related health problems, 10th revision
MDGs	Millennium Development Goals
MoH	Ministry of Health
MTEF	Medium-term expenditure framework
NSS	National Statistical Service
NHA	National Health Accounts
NHIAC	National Health Information Analytical Centre
NGO	Nongovernmental organization
PRSP	Poverty Reduction Strategy Paper
SAM	Service Availability Mapping
SHA	State Health Agency
SDP	Sustainable Development Program
USAID	United State Agency for International Development
WHR	World Health Report
WHO	World Health Organization
YSMU	Yerevan State Medical University

The Armenia Health System Performance Assessment Report 2012 was developed by Diana Andreasyan, head of the HSPA working group (head of Human Resource Recording, Development and Planning Center, National Institute of Health), Samvel Manukyan (consultant, Monitoring and Evaluation), Artak Kyurumyan (public finance expert), Parunak Zelveyan, (director of the National Institute of Health), Vladimir Davidyants (consultant), Sahak Khangeldyan (head of Computers and Information Technologies Department, NHIAC), Zaruhi Kalikyan (head of Foreign Citizens' Preparatory Training Unit of Yerevan State Medical University) and Zoya Hakobyan (head of Outpatient Service of Preventive Cardiology Center):

ACKNOWLEDGMENETS

FOREWORD

The Ministry of Health of the Republic of Armenia is committed to the 2008 Tallinn Charter: Health Systems, Health and Wealth endorsed by the 53 Member-States of the WHO European Region and continues improving its performance aimed at provision of quality and accessible healthcare services to the population of Armenia for the benefit of their health. Areas including mother and child health strengthening, reduction of the burden of noncommunicable diseases, promotion of healthy lifestyle, healthy family planning and strengthening were defined as priorities by the government of Armenia in the recent years.

The Ministry of Health strives for improvement of the system performance and effectiveness to meet the increasing demands of the population.

This is the second HSPA report, which covers key priorities of the health system, particularly the population health status, healthy lifestyle, availability and distribution of professional workforce, affordability and quality of health services, responsiveness of the system, as well as equity in financing, which are targeted at the achievement of Millennium Development Goals.

The HSPA process has become a tradition in the country. Armenia is one of the few countries in the European Region that has started this process presenting achievements and gaps of the health system.

HSPA is a helpful tool that can be used to collect necessary information to develop health policy and to implement progress monitoring. This is a critical process for which the country is responsible.

Attaching great importance to HSPA the Ministry of Health has institutionalized the process and provides full support to its implementation.

Our goal is to achieve health indicators that are no inferior to other countries, which translates to increase of life expectancy, reduction of disease prevalence, improvement of affordability of health services, control of illegal out-of-pocket payments, ensuring better access to health services and elimination of other barriers. This requires focusing on final outcomes and developing reliable tools for their ongoing evaluation. By concentrating on improvement of health indicators we will make the society expectations from health services a reality.

Derenik Dumanyan
Minister of Health of the Republic of Armenia

EXECUTIVE SUMMARY

Health system performance assessment (HSPA) is a tool, which enables observing and assessing effectiveness of health system performance, the reform progress and impact on population health. Adequate assessment of the system is prerequisite to reforms and a valid argument for future investments. Data used should correspond to government systems and should be linked to clear-cut governance levers. In June 2008, the 53 Member States of the WHO European Region endorsed the Tallinn Charter, which concerns national health systems' performance, defines their development principles and goals.

The prime goal of the Charter is to improve people's health by strengthening health systems, while acknowledging the social, cultural and economic diversity of the Region.

The health system performance assessment is an activity aimed at assessing the progress of Member States in meeting the Charter commitments.

The WHO has developed the Concept of HSPA as an effective tool for implementation of the health system management function. The Concept was institutionalized in Armenia in 2006. A unit for health system performance assessment was established at the National Institute of Health of the Ministry of Health with a key function to implement regular health system performance assessment.

In the context of the commitments expressed in the Tallinn Charter, and in order to assess the performance of the health system as it undergoes restructuring and reform, the Government of Armenia and its Ministry of Health undertook a formal HSPA project.

The first health system performance assessment was conducted in 2007 jointly with the Ministry of Health, the WHO Regional Office for Europe and the World Bank. Three national reports were prepared.

The first report was issued by the Ministry of Health in 2007, focusing on several specific areas of health system performance: primary care reforms, optimization of hospital care, maternal and child health and health information. The 2009 report takes a broader perspective and assesses the performance of the health system as a whole. The 2007 and 2009 reports were prepared jointly with the Ministry of Health, the WHO Regional Office for Europe and the World Bank. Issue of the 2012 national report was supported by the Ministry of Health.

The 2012 HSPA report reflects on human resources, equity in financing, prevalence and negative impact of biological, behavioral and domestic risk factors endangering population health, the system responsiveness and general health status of the population in 2012 and the changes undergone by all these dimensions compared with HSPAs conducted back in 2007 and 2009.

At the end of each section recommendations on improvement of the efficiency of Armenia health care system performance are offered.

Health system workforce

Though the Concept on Optimization of the Health System of Armenia foresees reduction of the number of health practitioners and health care facilities, the tendencies of the recent years show a contrary picture: growing number of both health facilities (private hospitals and PHC settings) and active practitioners (doctors) and graduates (doctors and nurses).

According to 2011 data the absolute number of workforce (doctors and nurses) in public and privatized health, academic and research, high and secondary medical educational institutions is 32,292, that of the doctors for all specialities (including stomatologists) is 13,490 (41/per 10,000 population), and the nurses is 18,484 (56.5/ per 10,000 population).

However the per capita concentration rate for doctors and nurses is rather low. The rate for general practitioners (district therapists, family doctors, pediatricians) is 7.9 (2,566 absolute value), for stomatologists - 5.5 (1,788), for pharmacists 0.6 (199), for nurses 35 (11,388), and for pharmacologists 0,4 (137).

The health system optimization concept requires increasing the doctor/nurse ratio which tends to decrease during the recent years.

During the last five years the number of doctors of main specialities (except for stomatologists and pharmacists) per population has almost not changed remaining in the same range. In 2011 the concentration of pediatricians decreased as opposed to 2007, whereas that of stomatologists and pharmacists increased twice.

Though total relative number of doctors in Armenia is close to that of other countries, in marzes it is rather small and in 2011 this number per 10,000 population varied from 14.1 in Armavir to 19.3 in Shirak, 20.3 in Vayots Dzor (excluding Yerevan).

Marz population supply with cardiologists, oncologists and endocrinologists, is rather low, unlike other specialities. The morbidity and mortality indicators for noncommunicable diseases pinpoint at the need to increase the ratio of these specialists.

In Armenia the number of vacant job places for doctors increases in parallel with the increase of the number of doctors.

Today the system lacks in well-developed and approved mechanisms for creation of incentives, social support and motivations for medical workforce, especially doctors working in border and remote marzes. Development of such incentive packages will greatly contribute to meeting the demand of medical personnel in marzes.

A tangible problem is the migration of workforce to the Russian Federation and countries of the European Region. In fact, Armenia is actually training human resources for other countries as well.

Organization of continuing education of medical workforce in Armenia is formal to a certain extent. The system does not have effective mechanisms for evaluation of curricula and encouraging specialization. Development of highly qualified and adequate human resources in healthcare system requires:

- Implementation of credit system for continuing professional development of health personnel, and
- Development of the nominal list of higher and secondary medical specialities.

Equity in financing and financial protection

During the past period the Government activities were mostly guided by the Sustainable Development Program, serving as the main strategy paper. This is the revised version of the Poverty Reduction Strategy paper. According to the Program utilization of health services varies significantly depending on the wellbeing of the population groups. The level of public allocations to the health sector is low. The document concludes that if the situation is not controlled in the future it may jeopardize efforts aimed at the improvement of population living standards, the country's human resources and socioeconomic development.

The recent years saw an increase in the absolute figures of public financing of the health system. However healthcare expenditures as per cent of GDP and part of public budget expenses, continue remaining modest. As the needs assessments (including the ones conducted by the RA Government) and the international comparisons suggest, public financing of the health sector should be increased.

Increase of public health care expenditures was mainly due to the increase of financing of inpatient and outpatient services, which from AMD 19.3 billion and AMD 18.6 billion in 2008 increased to AMD 26.9 billion and AMD 22.5 billion in 2011 correspondingly.

General data on public allocations to health sector are presented in details in the Armenia state budget performance annual reports. However data on financing of specific programs, activities and works implemented in the health sector are not presented in the official website of the agency responsible for financial management of the sector.

The level of out-of-pocket payments for received health services is high in Armenia. Payments by households continue dominating (59.4%) in the structure of total health costs. The increase of state financing of health in Armenia did not result in visible reduction of out-of-pocket spending by the citizens, which hints that the health sector faces essential structural, organizational and managerial problems.

The country needs to develop and implement documents (concepts, strategies and legislative papers) regulating the reduction of illegal and out-of-pocket payments for health services and their reimbursement, as well as envisaging clear-cut activities, target indicators and activities.

Financial fairness of the health sector implies that when consuming health care services the most vulnerable populations groups should not spend most of their incomes compared with better-off groups. Only 10.5% of households receiving family benefits is defined eligible and entitled to state order package (basic benefit package), including 11.4% of extremely poor. If in extremely poor quintile utilization of health services is 12

times lower compared with the average consumption indicator for those services, the consumption by the wealthiest quintile exceeds the average consumption 4,1 times.

Specific target indicators of equity in financing and financial protection of the most vulnerable population groups should be among goals for the coming years.

Given that a number of problems in health care sector are interrelated, it is necessary to develop documents (concept papers, strategies and legislative acts) aimed at addressing groups of problems and not viewing individual problems. The documents should consider the health system stewardship, health status of the society, citizens and separate groups, international experience accumulated in the field of health management reforms, particularly the experience of CEECCA countries in order to come up with target solutions.

State budgets and reports of their performance published on the website of the RA Ministry of Finance provide rather detailed information on allocations to health care, however these reports show the aggregated data. Information on allocations to specific programs, activities and works, their effective spending and cost-effectiveness are not available. This information should be made available on the website and in the reports of the agency responsible for financial management of the sector.

The responsibility for management of public funds allocated to health sector rests with the State Health Agency, but the latter's website does not provide any financial information that could be useful for analysts.

Access to health care services

The population of Armenia is getting better access to health care services. In 2011 the level of hospitalization per 100 population was 81.% and the outpatient visits accounted for only 46%. This means that people made less than needed outpatient visits, which results in complicated conditions and the necessity to seek hospital services.

Though one of the goals of hospital optimization was unloading Yerevan hospitals and ensuring a flow of marz population to marz hospitals based on referrals, nonetheless in 2011 the level of hospitalization in Yerevan increased by 27.4% and in marzes by 12.3%, as opposed to 2006.

The number of ambulatory visits during 2006-2011 has increased in all marzes. However their relative number in Yerevan is still significantly higher than in marzes, except for the Syunik marz, where the number of per capita ambulatory visits exceeds that in Yerevan. The best picture in terms of increasing number of visits to PHC settings was recorded in Vayots Dzor marz. Less impressive is the situation with PHC visits in Aragatsotn marz. In Yerevan significant number of outpatient visits to private medical centers was recorded. This means that in the future, for an adequate assessment of access to PHC settings it will be necessary to collect statistics from NHIAC on outpatient visits to private PHC settings.

Armenia has several multi-settlement communities where health post is available in only one settlement. This hampers access to health care services by residents of settlements with no health posts. Hence it is suggested considering the issue of opening a health post in such settlements.

A special attention should be paid to the problem of even distribution of health services. Compared with 2009 and 2007 the number of people not seeking medical aid when needed has increased in 2012. At that financial constraint was indicated as the most common reason for not seeking care.

Quality of health care services

When speaking of the quality of health care services the report views issues related to the most common killer diseases, particularly malignancies and circulatory diseases.

Findings of the 2012 HSPA survey suggest that half of hypertension cases ware not recorded by health workers. As a rule, patients with high blood pressure do not seem to follow physician's prescriptions and recommendation accurately. Hypertension was detected in 79.2% of respondents who reported taking drugs for regulation of high blood pressure during the last 24 hours.

In 2012 the number of people whose blood cholesterol and glucose levels were measured by a health worker has significantly increased. Particularly, in 2007 only 4.6% of respondents had their blood cholesterol level checked and in 2012 this figure reached 13.5%. Some 10.9% had their level of glucose measured in 2007 and 19.5% in 2012.

Total indicator of hospital fatality in 2007-2011 stayed unchanged, but fatality due to cerebrovascular diseases and acute myocardial infarction (as main reasons of fatality) during 2008-2011 is rather unstable and it is difficult to make conclusions on the actual tendency.

One of the main indicators to assess the quality of treatment of malignant neoplasms -the likelihood of five-year survival rate following diagnosis - has climbed up. However as data analysis shows the improvement of this indicator could be attributed to the quality of treatment. Indicators for early detection of all cancers are actually unchanged from 2007. Particularly, despite the significant increase in the number of women who had mammographic screenings, indicators for early detection of breast cancer have not improved.

The number of cases of postnatal anaemia during 2007-2012 showed a decline tendency, but the list of urinogenital diseases is unchanged.

Since 2009 the immunization rate of children exceeds the target of 95% set in the Strategy for Improvement of Maternal and Child Health Care for 2003–2015.

Health risk factors

Factors and determinants related to lifestyle, social state and environment condition more than 80% of human health. Hence, reducing risk factors is among the key and cost-effective strategic ways of population health strengthening and improvement.

Significant part of mechanisms and tools for management of health risk factors are out of the scope of authorities of health system managers. That's why reducing health risk factors is viewed within the framework of cooperation between health system and public and nongovernmental sectors.

During 2007-2012 the prevalence of behavioral and biological risks (daily use of tobacco by male, daily consumption of equivalent of 20g or more of pure alcohol, excess consumption of salt, physical inactivity, being overweight, having high blood pressure) among population of Armenia has increased in general, resulting in higher likelihood of the development of diseases among the population induced by these risk factors.

Although the overwhelming majority of the population is aware of the negative impacts of tobacco smoke and the secondary smoking, tobacco use is still prevalent in males. Moreover, smokers usually neglect the negative impact of their behavior on their surroundings. There is a need of strengthening tobacco use restrictions in public places, especially among public transport drivers. The rates for tobacco use in males has drastically climbed up in the 20-29 age group. Anti-tobacco activities should be targeted at young population groups and the number of young men and women involved in non-professional sports should be increased.

The rate for alcohol abuse is relatively high in males of 30-39 and 60-69 age groups. A deeper and more comprehensive study of these population groups is needed in order to reveal the reasons behind excess use of alcohol and to develop relevant strategy.

Despite the public awareness of the negative impacts of physical inactivity the latter shows radically increasing rates especially in the 15-19 age group. Tee situation requires initiation of activities promoting physical education, particularly facilitating access to existing stadiums and sports grounds, build new ones, regularly organizing mass sports events.

During 2007-2009 an increase in the rate of prevalence of being overweight was detected. Behavioral risk factors have resulted in sharp increase of the prevalence of high blood pressure.

Domestic determinants contributing in environmental pollution are rather common in Armenia. The most prevalent risk factors include air pollution with dust and vehicle emissions. Besides, uncollected domestic waste, along with the construction and industrial waste greatly attribute to environmental pollution. In rural areas majority of households use firewood or coal to heat their apartments, which contributes to illegal tree cutting, thus worsening the environmental situation. Sewerage is not available in most of rural settlements.

The following is needed:

- Step up education activities on healthy lifestyle in public schools and in primary and secondary vocational institutions.

- Strengthen cooperation between the Ministry of Health and public agencies responsible for environmental risk factor management, particularly in terms of information exchange.

- Step up tree planting and their further care activities in the country, especially in Yerevan and marz urban areas. Strengthen control and sanctions defined for illegal tree cutting and illegal licensing.

- In addition, there is a need to improve transparency of construction license issuance, with a special attention on careful issuance of construction licenses in timber-risk areas and those with natural monuments; envisage feasible sanctions for officers performing inadequate control and issuing

ungrounded permissions for tree cutting; strengthen cooperation of public administration and local government bodies with NGOs dealing with environment issues, particularly encourage public alternative expertise and their comparison with business and state expertise findings.

- Also, strengthen state control over air pollution by cargo and public transport; develop environment recovery funds based on fines and penalties collected for air pollution; map domestic waste collection sites, install relevant size litter bins, and include these spots in corresponding waste collection schemes; strengthen supervision of activities of agencies responsible for collection of domestic waste and imply sanctions for underperformance of their functions; strengthen cooperation of public administration and local government bodies with NGOs in locating construction and industrial waste sites.

- Draw the attention of relevant public administration bodies on the problem of housing heating in rural areas.

- Draw the attention of the Ministry of Territorial Administration on studying possibilities of sewerage construction in rural areas.

Health system responsiveness

Estimates for responsiveness domains are very high in health facilities of Armenia. However the scores for the domain of main conditions in hospital settings went down in 2012 compared with 2009. In 2012 the autonomy domain decreased when assessing responsiveness of PHC settings, as opposed to the level recorded in 2009. Reliability of this decline requires additional studies to reveal possible reasons behind.

Though in 2012 the level of public awareness on open enrollment has increased compared with 2009, nonetheless only 45% of the population reported to have signed a PHC contract with the health facility. Some 15% of the 18 and above age group respondents has received their copy of the contract and only 12% has read it. Population should be encouraged to collect their copy of the contract on provision of healthcare services by their ambulatory. In addition, community education activities are needed to boost people's responsibility for legal documents related to their health. Such activities can be implemented jointly with mass media and PHC staff.

Several forms of feedback with the Ministry of Health offered to the population, including letters, personal meetings and hotline, have proved to be the best and easily accessed information on the situation in the system. However the Ministry does not have a database with consolidated information based on modern information technologies. The Ministry of Health needs an electronic consolidated population feedback database, which will combine information received via telephone hotline service, citizens' correspondence and personal visits. The database will enable doing an in-depth analysis of the public opinion on the health system and to apply contemporary analytical methods.

Improvement in health status

The average life expectancy at birth did not change in Armenia over the past decade, staying at the level of 74 years. Female life expectancy has exceeded that for males by 6 years. Nevertheless, the rate for average life expectancy at birth is overestimated, which does not allow to reliably dwell on this important integral indicator and its change trends when conducting health status analysis.

When comparing with 2009 in 2012 self-assessment of health status has worsened and almost reached the level of 2007.

Self-assessment of health is closely connected with people's wellbeing. The rates are significantly lower in poor households.

The most common health conditions include headache (55.7% reported to have headache in the month preceding the survey), backache (49.2%), rheumatism (43.8%), insomnia (37.9%), neck and shoulder ache (32.8%). These conditions essentially worsen the overall health and the quality of life.

Males assessed their health more optimistically than females, though both morbidity and mortality rates in males are higher. Male health promotion campaigns and screenings need to be organized.

Maternal and child mortality indicators, which during the last 4 years reflect general development of the health system, show decline trends and are moving far from health sector and MDGs 2015 targets.

Prevalence and mortality of circulatory system diseases continue sharing high rates. There is a need of assessing the quality of follow-up care of patients with circulatory diseases and their continuing monitoring. Access to drugs needed for the treatment of these diseases should be studies and assessed, including according to wealth quintiles and the types of marz and settlement.

The number of deaths due to malignancies keeps growing and the morbidity rate does not seem to decline. The situation should be addressed by implementation of activities geared at early detection of malignancies including campaigns, improvement of public awareness, and timely screenings.

Deaths due to digestive system diseases showed continuing increase over the past decade.

Implementation of HSPA

The present assessment of the Armenian health system is a joint effort of the Ministry of Health and the National Institute of Health.

The HSPA was based on the package of HSPA indicators, the first version of which was developed in 2007. Afterwards the package was regularly revised to include the key performance indicators that can enable assessing health system performance according to functions and spheres.

Where data are available, results for Armenia have been compared to those for other countries and to population-weighted averages for three groups of European countries. The countries used for comparison include Georgia, Azerbaijan and Turkey, since they are Armenia's chief neighbors. The country groups used include the 12 countries in the Commonwealth of Independent States (CIS); the 26 European Region

countries with relatively high mortality rates (ER-26), including all 15 former Soviet republics and the other 27 European Region countries (ER-27), which are mostly developed western and central European countries with low mortality rates. International comparisons have usually employed the most recent results in the European Health for All Database (HFA-DB), which are now generally available for 2009 or 2010.

The results for performance indicators are also assessed against any targets established by the Armenian Government in its strategic plans or by the Millennium Development Goals (MDGs). Also, performance indicator results are presented by marzes, wherever the data are available, in order to understand the extent of regional variation in health system performance.

During September-October 2012 the working group has developed a special study funded by Armenia Health Strengthening Project, with a purpose to bridge the data gaps due to limitations in regularly collected data. This study was conducted by 3R Strategy LLC during November-December 2012. The national level sample size comprised of 1600 households. The study findings were provided to the HSPA working group on 20 January 2013.

INTRODUCTION

General concept of health system performance assessment

Population health promotion and strengthening are no longer a concern of an individual state. From 1980 different countries faced the need of standardizing the national health system situations and assessing the efficiency of health system performance, pursuing the goal of more effective and targeted implementation of national and international efforts in addressing health challenges.

For that purpose the World Health Organization (WHO) has continuously participated in global health system performance assessments, which resulted in a common conclusion (agreement) by experts of different countries that the health system, in addition to population health promotion and improvement, should strive to meet two intrinsic, socially desirable goals. The first is "responsiveness," or "goodness" (meaning that a health system should respond well to what people expect of it), and the second "fairness" (implying that the system response should be equal for all, without discrimination). There are thus three ultimate

Joint discussions of WHO experts resulted in creation of the HSPA functional model (Figure 1),which was outlined in the WHO *World health report 2000 (8)* and documented further by Murray & Frenk. According to the HSPA functional model there are thus three ultimate goals for any health system:

1. Improving health, a health system's defining goal, is concerned with both (a) raising the average level of population health and (b) reducing health distribution inequalities.

2. Enhancing responsiveness has two components of (a) showing people respect and (b) orienting clients.

3. Fairness in financial contribution, or equity in financing, is concerned with ensuring that households do not become impoverished in obtaining needed health care and that poor households pay less into the health system than rich households.

Supporting these three fundamental goals are the four functions that a health system performs.

1. Stewardship is concerned with what the Tallinn Charter describes as "set[ting] the vision for health system development and [with] the mandate and responsibility for legislation, regulation and enforcement of health policies, as well as for gathering intelligence on health and its social, economic and environmental determinants" (1). Stewardship also involves advocating and leading concerted inter-sectoral and multi-stakeholder efforts to maximize population health gains and ensure health system preparedness for manmade and natural disasters.

2. Health system financing is concerned with the sources of funds, and how they are raised and pooled to invest in and pay for health system resources and capacities.

3. Creation of resources is concerned with ensuring that system resources – human resources, facilities, etc. – are in place and are sufficient to deliver the health services needed.

4. Service delivery refers to how these health services are delivered – their quantity, quality, geographic location and accessibility

Figure 1. Framework of health system functions and goals (source AHO Global Health Report 2000)

Health System Functions
Health System Goals

F4. Stewardship

G.2 Responsiveness (to non medical expectations)

F2. Creation of resources

F1. Service Delivery

G.1 Health Improvement

F3. Financing

G.3 Fair Financial Contributions

F – Function

G – Goal
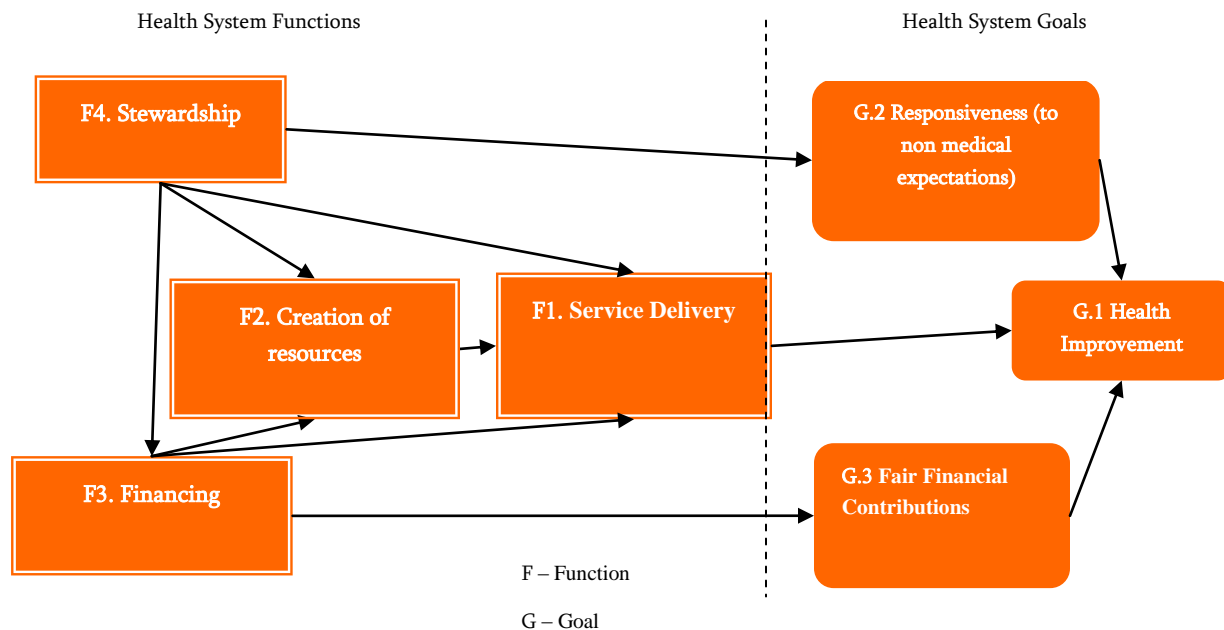
Assessing health system performance involves measuring and analyzing two things:

1. How well a health system is meeting its ultimate (or intrinsic) goals (better health status for the population, better health system responsiveness and better financial protection); and

2. How its performance in meeting intermediary objectives (or instrumental goals, such as improved access, coverage, quality and safety of health services) contributes to achieving its ultimate goals.

In June 2008, the 53 Member States from the WHO European Region met in Estonia and endorsed the Tallinn Charter: Health Systems, Health and Wealth.

The commitments of the Tallinn Charter

- To promote shared values of solidarity, equity and participation through health policies, resource allocation and other actions, ensuring due attention is paid to the needs of the poor and other vulnerable groups;
- To invest in health systems and foster investment across sectors that influence health, using evidence on the links between socioeconomic development and health;
- To promote transparency and be accountable for health system performance to achieve measurable results;
- To make health systems more responsive to people's needs, preferences and expectations, while recognizing their rights and responsibilities with regard to their own health;
- To engage stakeholders in policy development and implementation;
- To foster cross-country learning and cooperation on the design and implementation of health system reforms at national and subnational levels; and
- To ensure that health systems are prepared and able to respond to crises, and that we collaborate with each other and enforce the International Health Regulations.

The goal of the Tallinn Charter is to improve people's health by strengthening health systems while acknowledging the social, cultural and economic diversity of the region.

 In the Charter, the Member States committed themselves to transparency and accountability in

order to achieve measurable results in improving the performance of health systems. The first step suggested in the Tallinn Charter is the development by each Member State of regular processes to assess the performance of its health systems. These assessment efforts can help ensure that the health system has a strategic direction focusing on improving health outcomes for the population; that policy decisions are informed by appropriate intelligence about health problems and their determinants; that all government policies contribute to better health for the people of the country; that healthy public policies are promoted in every aspect of government; and finally, that the relationships among all health stakeholders are regulated in an environment of transparency and accountability.

A regular process of health system performance assessment underpin health system by ensuring that:

     a.   the health system has a strategic direction that focuses on improving health outcomes for the population.

     b.   policy decisions are informed by appropriate understanding and data concerning health problems and their determinants,

     c.   all government policies contribute to better health for the people of the country,

     d.   every aspect of government promotes healthy policies; and finally,

     e.   an environment of transparency and accountability helps regulate the relationships among all health stakeholders.

In the context of commitments of the Tallinn Charter and with a purpose to assess the health system performance, which was supported by structural changes and reforms, the Ministry of Health of Armenia, in cooperation with WHO and WB implemented a formal health system performance assessment program, which resulted in development of the 2007 and 2009 HSPA reports.

Armenia is one of the six countries of the European region to implement regular HSPA since 2007.

Armenia performed HSPA in 2007 and 2009. The 2012 HSPA report is the third in this line.

HSPA in Armenia

To implement the Armenia HSPA a health system strategy map was prepared, which clearly defines three key goals and four critical functions, as well as health strategy dimensions that reflect Armenia's health system goals and reform strategies.

The structure of performance goals and functions is presented in Figure 2 below.

Fi gure 2. Health system performance dimensions for Armenia
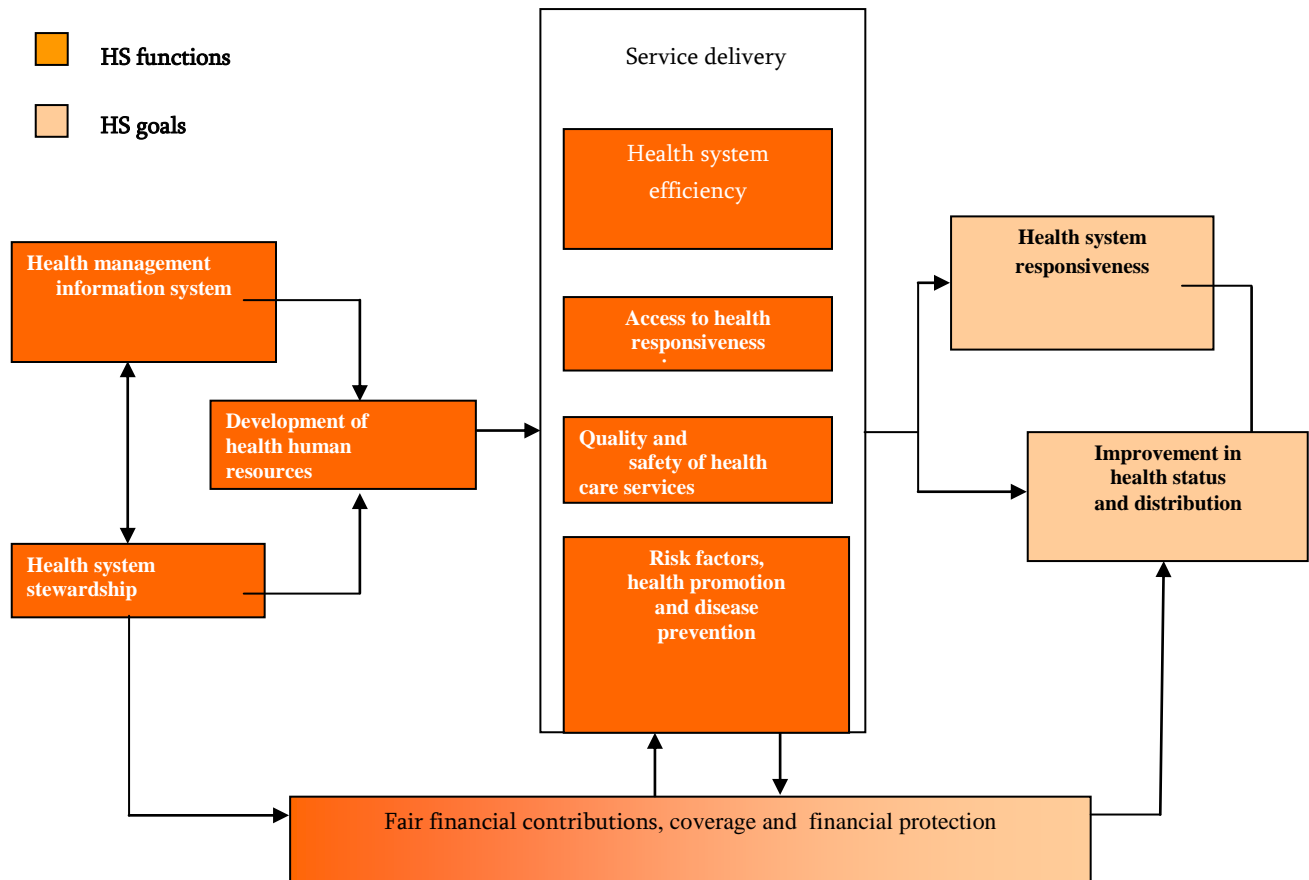
Armenia HSPA was implemented to support achievement of below goals:

- to assess the level of attainment for core health system goals and monitor the changes taking place in the system;
- to provide a summary assessment of health system performance;
- to situate the performance of the health system at the centre of national health policy;
- to enhance the effectiveness of health system stewardship;
- to enable evaluation of the efficiency of the health system;
- to facilitate communication and promote accountability;
- to indicate which areas of health system performance are priorities for improvement efforts; and
- to stimulate the search for better data and better analyses throughout the health system.

The HSPA strategic frame served a basis for selection of indicators. Preconditions for selection and development of the package of HSPA indicators included:

1. relation of indicators to health goals, reforms, and strategies and
2. availability and reliability of data.

To assess performance of the system the indicator results were considered according to years and the trends of the latter were studied.

The results for performance indicators are also assessed against any targets established by the Armenian Government in its strategic plans or by the Millennium Development Goals (MDGs).

The Armenia HSPA process implied the following:

- recent changes in Armenia's health system were considered, comparing the start of 1990 with 2000, when a period of rapid economic growth began in the country;

- an effort to highlight associations between health system performance and health system reforms, using outcome indicators relating the impact of specific reform programmes (such as primary health care reform and hospital optimization); and

- an analysis of health status and health care service utilization by population wealth quintile to determine the extent of health equity and access to health care by wealth group.

Goals of the Report

The goals of Armenia 2012 HSPA are as follows:

1. To analyze:
   1.1. General overview of population health in Armenia
   1.2. Active human resources of health system
   1.3. Equity in health financing and financial protection
   1.4. Accessibility of health system
   1.5. Quality and safety of health care services
   1.6. Behavioral, biological and domestic risk factors threatening Armenia population health
   1.7. Health system responsiveness dimensions and specifics
2. Assess changes in the aforementioned areas during 2007-2012
3. Reveal gaps and development obstacles in the observed areas
4. Develop recommendations on improvement of health system performance efficiency

Structure of the report

The Report comprises of 7 sections in line with the defined goals.

The section on **health system human resources** looks at the training of health workforce at relevant high and secondary vocational educational institutions, continuing education of the active health workforce, as well as manpower distribution according to the facility type. A special attention is paid to challenges related to human resources of primary healthcare facilities. Workforce drain and vacant health job places are covered as well.

Equity in health financing and financial protection reflects on principles of current health financing, funding directions and their change trends. The current situation and problems of health financing in Armenia were viewed in the international context. Population health expenses were analyzed along with their trends. Also the section reflected on the social package introduced for budget employees, which envisages health allocations as well.

Access to health care services discusses utilization of health services and their accessibility according to health facility type, residence and wealth quintiles. A special attention is paid to problems of accessibility of health services and poor access to care.

Quality of health care services presents the most common diseases that are the main killers, particularly malignant neoplasms and circulatory system diseases. Special focus is made on early detection of breast cancer, cervical cancer and the treatment of diabetes and hypertension.

Responsiveness of health care system assesses performance of the health system and the level of satisfaction of the population as relates to different components of health services.

The section of **health risk factors** dwells on prevalence of behavioral, biological and domestic risk factors among Armenia population, their change trends and most common risk factors in different sociodemographic groups. Recommendations are made on reduction of risk factors within the framework of interagency cooperation between the Ministry of Health and other relevant public stakeholders.

Improvement of health status presents dimensions characterizing population health status, particularly the average life expectancy, prevalence and mortality rates of most common diseases. Population health self-assessment findings are analyzed and cross-matched with data of 2007 and 2009.

1. HEALTH SYSTEM HUMAN RESOURCES

The 'Creation of Resource' function of the health care system deals with proper training of the system human resources, their continuing education, professional development, availability of specialists, as well as their adequate distribution and sufficient number to meet workforce needs of health care facilities.

The section reflects on key challenges of health system workforce (doctors and nurses), training of doctors and nurses, continuing professional education and upgrading, workforce availability, distribution and demand, the analysis of which will enable developing human resources management (planning and efficient use) policy and strategy.

*Error! Not a valid bookmark self-reference.*Preparation of health care system human resources

Professional education of health care human resources in Armenia is provided by Yerevan State Medical University (YSMU) and 6 private higher education medical institutions. Vocational education of secondary medical workforce is performed by 21 secondary medical vocational institutions (11 public and 10 private). The number of doctors and nurses trained at public higher and secondary vocational medical institutions is presented in Tables 1, 2, 3 and 4.

Table 1. The number of higher and secondary medical educational institutions in Armenia, 2010-2011

| | Public | | Private | |
	2010	2011	2010	2011
Number of higher educational institutions	1	1	6	6
Number of secondary educational institutions	12	11	10	10

Sources: NSS, 2012, (data for 2012 will be provided April 2013)

Table 2. Number of graduates of higher public medical educational institutions according to specialities, 2010-2011

| | Total | | Of which women | |
	2010	2011	2010	2011
General Medicine	284	344	153	197
Military Medicine (Medicine, Dentistry)	33	33	-	-
Stomatology (Dentistry)	132	-	55	-
Pharmacy	58	-	39	-

Sources: NSS, 2012

Table 3. Number of graduates of higher private medical educational institutions according to specialities, 2010-2011

| | Total | | Of which women | |
	2010	2011	2010	2011
General Medicine	120	231	53	142
Stomatology/ Dentistry	257	535	160	279
Pharmacy	36	63	34	34
Healthcare	90	-	73	-

Sources: NSS, 2012,

In mid-1990s the healthcare system possessed a rather significant manpower potential (39 doctors per 10,000 population), who until 2002 were mainly educated by the YSMU, which was the only higher educational institution performing accredited diploma medical education. In 1990-1999 the annual number of graduates of all specialities varied from 600 to 700 and that of the secondary medical personnel from 1200 to 2500.

Figure 3. Number of graduates of higher public and private medical educational institutions according to specialities (data of private institutions are presented for 2008-2011 only)
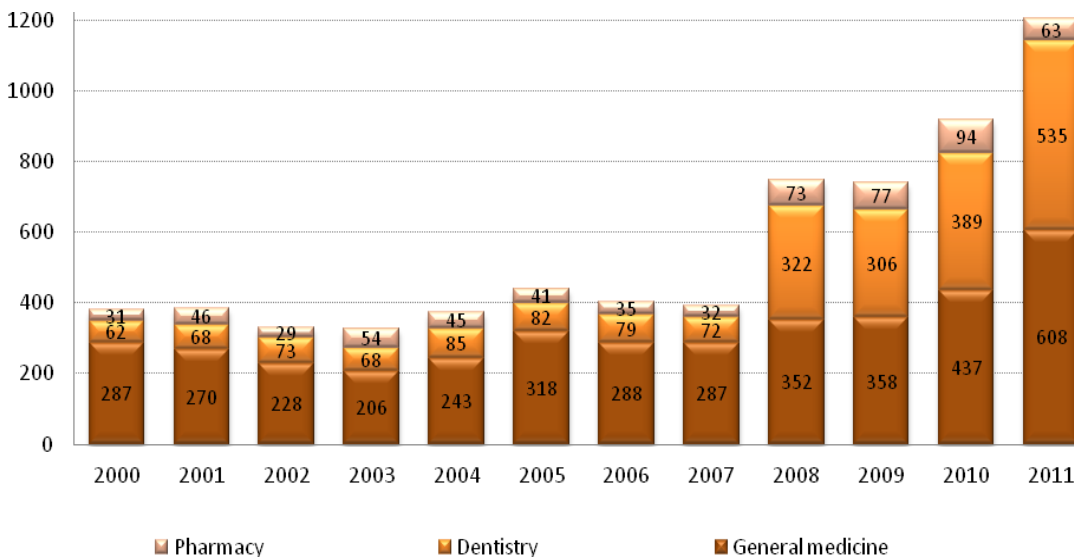
Source: NSS, 2012

Despite the surplus of health workforce in the country, from 2004 education of medical specialists was stepped up involving accredited private medical educational institutions. Particularly, during 2006-2011 YSMU produced 2535 graduates, including 377 in 2011. In 2011 a total of 1206 people graduated from both public and private medical higher educational institutions. Their number increased 1,6 times compared with 2008 equaling to 756 graduates (Figure 3, subsection on preparation of medical workforce includes trends of the late period of HSPA 2009 and beyond).

In 2011 private higher educational institutions accounted for 69% of graduates, of which 44.4% were stomatologists, and 48% general medicine specialists.

Education of nurses also continued apace. During 2006-2011 state secondary vocational institutions had 16391 nursing graduates. In 2010 the total number of nursing graduates from both public and private medical educational institutions was 3593 nurses and in 2011 - 3250 (see Tables 4 and 5). Per speciality breakdown of graduates in 2011 was as follows: 42% of graduates were from nursing, 24% from midwifery, 17% from pharmacy and 11.3% dental mechanics departments.

Table 4. Number of graduates of secondary public and private vocational institutions according to specialities, 2010-2011

	Total		Of which women	
	2010	2011	2010	2011
Nursing	1480	1282	1469	1211
Widwifery	831	698	819	696
Pharmacy	579	483	506	436
Dental prothesist	370	328	115	3
Therapeutic cosmetology	83	21	83	21
Organization of nursing	36	150	34	146
Therapeutic massage	34	14	14	8

Source: NSS, 2012

Table 5. Number of graduates of secondary public and private vocational institutions according to specialities, 2010-2011

	Total		Of which women	
	2010	2011	2010	2011
Nursing	59	86	58	86
Widwifery	74	70	74	64
Pharmacy	25	60	14	53
Dental prothesist	22	37	-	1
Therapeutic cosmetology	-	21	-	21
Organization of nursing	-	-	-	-
Therapeutic massage	-	-	-	-
General medicine	-	-	-	-

Source: NSS, 2012

Figure 4. Total number of graduates of secondary public and private vocational institutions according to specialities (data of private institutions are presented for 2008-2011)
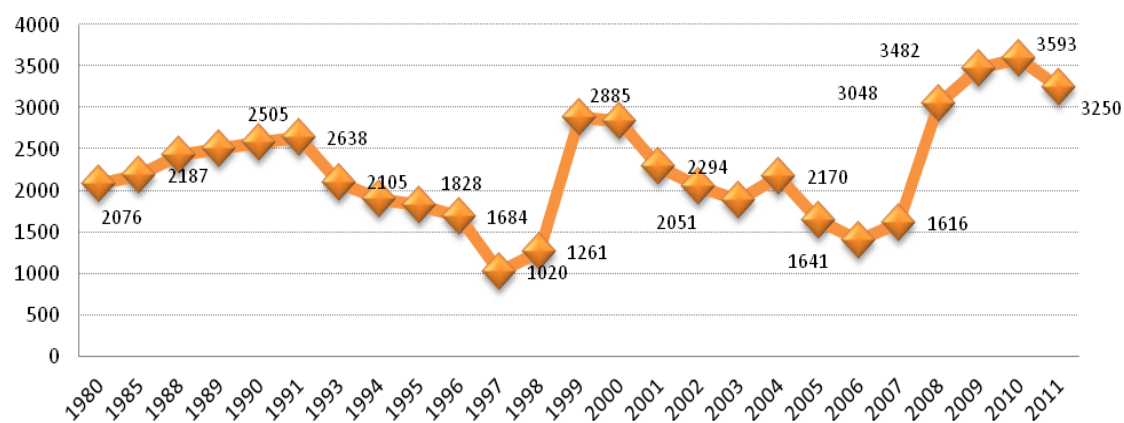
Figure 5. Number of graduates of secondary public and private vocational institutions according to specialities (data of private institutions are presented for 2008-2011)
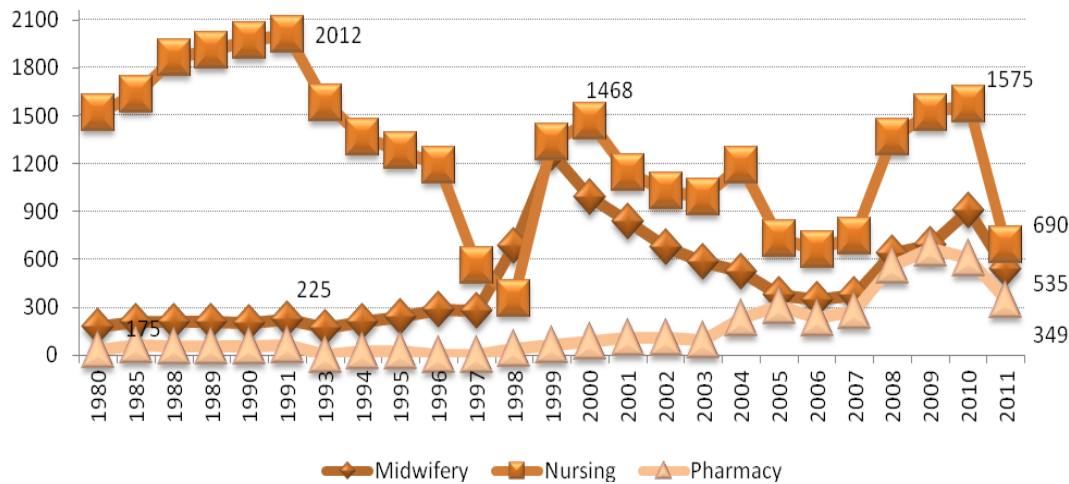
Although Armenia health system optimization concept envisages reduction of medical personnel and health care facilities, the recent years saw the opposite tendency - growing number of facilities (private hospitals and PHC settings), active workforce (doctors) and graduates (doctors and nurses).

According to the WHO experts' recommendations, workforce planning and development should be based on key demographic, socioeconomic and health indicators and the demand of specialists. Among preconditions of workforce planning is development of standards for active workforce according to facility type, which is not clearly developed nowadays.

The presented data witness about the absence of workforce development policy in both education and health care, including long-term planning and active workforce development standards.

Post-graduate education of Armenia healthcare workforce (doctors and nurses) is implemented in accordance with the List of Specialities of Higher Medical and Pharmacological and Secondary Medical and Pharmacological Specialities. This document was approved by the Ministry of Health on 11 March 1996. The list is three-fold and includes general specialities, main specialities and narrow specialities. The list of higher educational institutions covers 104 specialities and the secondary vocational medical and pharmacological list 32 specialities. The list of approved clinical and non-clinical medical specialities in the European Region countries varies from 31 to 43 names. Specialities of internal medicine and surgery have their sub- specialities, which are not considered as individual specialities but rather additional skills topped up to the main speciality.

There is a need of revising and editing the acting list of specialities and developing specialist qualification descriptions to reflect recent reforms in higher education and healthcare as well as international requirements.

Continuing professional development of workforce

Licensing of the RA healthcare system workforce was an active process during 1996-2001. According to the requirements of the Law on Licensing, licensing of practitioners was stopped in 2001. Today, licensing of healthcare facilities is based on the Law on Licensing and a number of by-laws. Education and professional qualification of healthcare workforce is regulated by the Law on Higher and Post-diploma Education (paragraphs 2 and 7 of Article 5; clause 3, paragraph 4 of Article 8; the Law on Primary Vocational (trade) and Secondary Vocational Education (Article 5, paragraph 2, clause 6, Article 7, paragraph 4, clause 3, Article 17, paragraph 1), on the Order of Post-diploma Professional Education of Doctors and Pharmacutists in the Republic of Armenia approved by the Government Decree 330 of 19 July 1994 (requirements of paragraphs 2, 3 and 14), as well as Regulation on Technical and Professional Qualification Requirements for Delivery of Healthcare Services in Policlinics (mix, adult and children), Specialized Institutions, Medical Ambulatories, Health Posts, Women's Counseling Centers, and Hospitals (specialized), approved by the Government Decree 1936-N of 5 December 2002. According to acting regulations, health facilities have to submit their technical and professional resource needs. At that doctors should have relevant post-graduate education and should have undergone professional upgrading during the past three to five years.

By the 2011 Government decree continuing postgraduate education, training and upgrading of doctors and nurses is implemented at training sites of YSMU.

According to YSMU data 10.2% of active doctors (from the total number of doctors) and 10% of active nurses were retrained during 2011.

The cumulative proportion (%) of doctors retrained during 2007-2011 shared 63% of all doctors and for the nurses - 52.3% (Figure 6).

Assessment of health practitioners who took 5-year continuing educational course during 2007-2011 suggest annual improvement of these indicators compared with those of the preceding years. However the retraining rate of doctors has exceeded that of the nurses by almost 10%.

Figure 6. Percentage of doctors and nurses who took continuing education courses in a given 5-year period
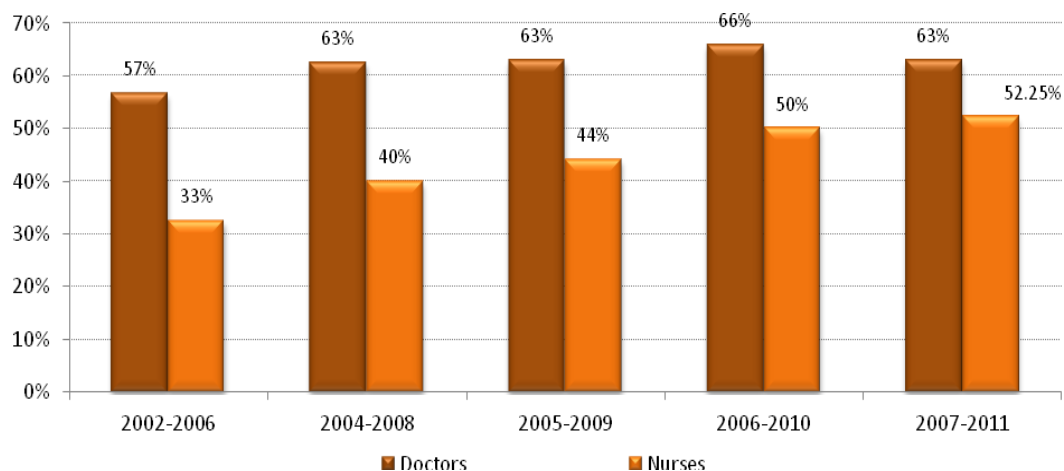
Source: YSMU, 2012

Reasons behind low indicators for professional development of both doctors and nurses are similar – long-term absence from work and home for practitioners from remote marzes as well as the unaffordable cost of training. Payment for the retraining course can be made from the state budget, the facility budget or from personal funds.

- **In most cases continuing education of health workforce in Armenia has formal nature.**

   Today the system lacks in:

- Mechanisms for assessment of effectiveness of curricula; motivation and financial incentives for professional development and improvement of qualification
- Development of job descriptions for medical and pharmacological specialties

High quality and adequately trained workforce requires:

- **Implementation of credit system for health workforce continuing education**
- **Development of the list of medical and pharmacological specialities**
- **Development of job descriptions for physicians and nurses**
- Implementation of health workforce licensing system.

Gender breakdown of health workforce

Health care system of Armenia like those of European Region countries (where women share 70-76% of health workforce) is genderized (Figure 7).

- **Women make up 66% of health workforce in Armenia.**

Figure 7. Gender breakdown of health workforce, 2011
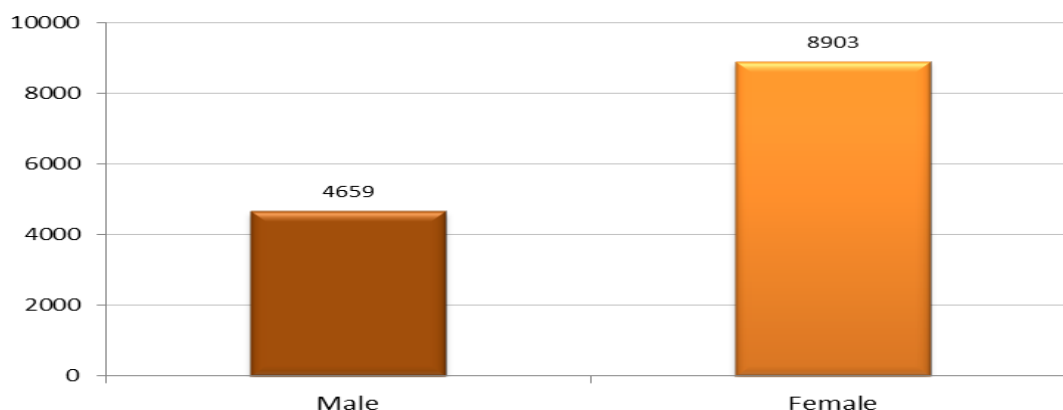
Source: NHIAC, 2012

Gender and profile breakdown of health workforce suggests that women make up the overwhelming majority of therapeutic (90-95%) and 24% of surgical profiles. In the surgical profile structure the proportion of female proctologists is 14% and of female surgeons 9.4%. In terms of gender distribution equal proportions are seen among stomatologists (general care and surgical profiles) and anesthesiologists, whereas paramedical staff shares 95-97% (Table 6).

Table 6. Gender and speciality breakdown of workforce, 2011

Speciality	Total	Women	% of women
General practitioners (FD, DT, pediatricians), of which	2566	2195	92
- family doctors	761	672	88.3
- district therapists	1026	941	91.7
- pediatricians	779	748	96
Obstetricians - gynecologists	967	763	79
Surgeons	599	56	9.4
Anesthesiologist – resuscitator	498	191	38.4
Proctologists	28	4	14.3
Stomatologists	1788	899	50.3
Pharmacists	137	129	94.2
Nurses			
Nurses of all specialities, of which	13883	13827	99.6
-midwives	1335	1335	100
-feldshers	128	72	56.3
-dental prothesist	221	10	45.3
-pharmacologists	176	144	81.8
- sanitary doctors and assistants to epidemiologists	502	479	95.4
- junior nurses (for patient care)	104	77	74

Source: NHIAC, 2012

Distribution of active health workforce

To ensure accurate analysis of the availability of health workforce, and their geographic and professional distribution, the patterns and trends of 2001-2011 HSPA surveys were perused.

As data for the year 2011 shows 32,292 health workers (doctors and nurses) were employed by state and private medical, academic and research, higher and secondary vocational medical institutions, of which 13,490 were doctors of all specialties, including stomatologists (41 per 10,000 population), and 18,484 nurses (56.5 per 10,000 population) (see Table 7).

Table 7. Active health workforce, absolute figures, 2000-2011 (including private dental clinics)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Doctors of all specialities (including stomatologists)	12270	11529	11508	11728	11396	12307	12388	12251	12964	13177	13591	13490
Nurses	22632	20431	19257	18379	17874	18364	18574	18595	18594	18516	18649	18484
Number of hospitals	146	142	135	137	140	145	140	135	130	127	130	130
Number of hospital beds (thousand)	20.8	16.2	14	14.2	14.3	14.4	14.3	13.1	12.4	12.1	12.1	12.2
PHC settings	503	459	446	452	448	458	460	467	474	487	504	506
Pharmacists	128	121	142	125	133	143	157	163	176	204	214	199
Pharmacologists	132	135	113	117	112	113	118	121	124	125	129	137

Source: NHIAC, 2012

The number of doctors of all specialities, including stomatologists, has increased 1.1 times between 2001 and 2011 (1580 doctors more) whereas the number of nurses has decreased 0.9 times (2112 nurses less) (see Figure 8).

Figure 8. Number of active doctors and nurses, doctor-nurse ratio, 2001-2011
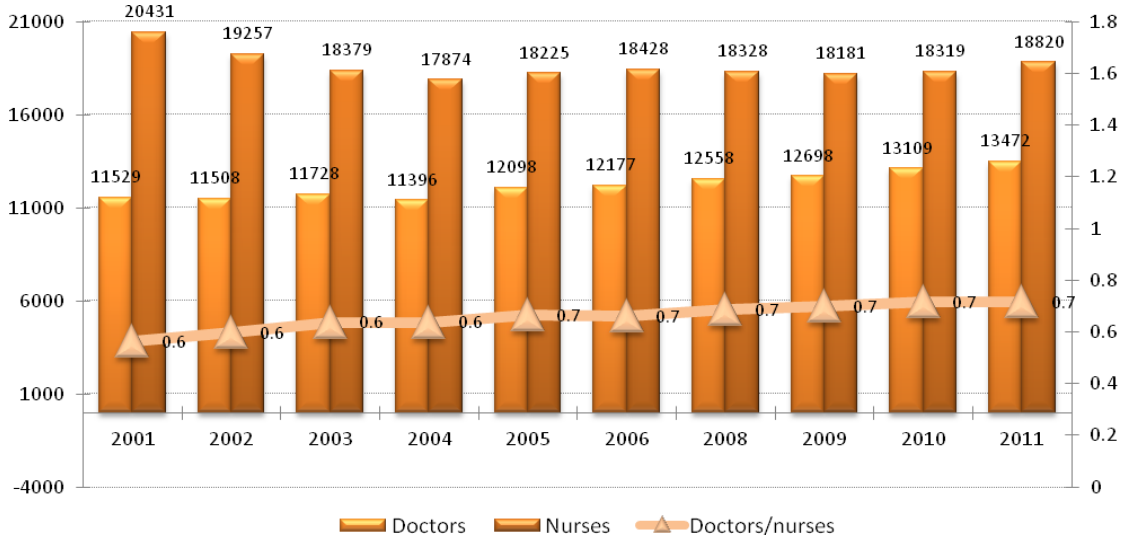
The doctor-nurse ratio shows annual decrease. The increase of the number of doctors was not supported by any change in the number of nurses. Whereas the Armenia health system optimization concept implied an increase of doctor-nurse ratio, which shows a decline tendency during the past years (see Figure 8).

According to the above-said concept distribution of workforce per inpatient and outpatients settings during 2000-2001 declined, including both health facilities and personnel.

During this period the number of active staff of hospitals and PHC shrank by 511 doctors and 685 nurses with 90% of doctors being from PHC system (from 5,074 in 2001 to ı 4,607 in 2002, i.e. by 467 doctors).

Since 2002 the PHC and hospital doctors' reduction tendency was replaced with that of an annual increase (Figure 9).

Figure 9. Absolute numbers of PHC and hospital doctors, 2000-2011
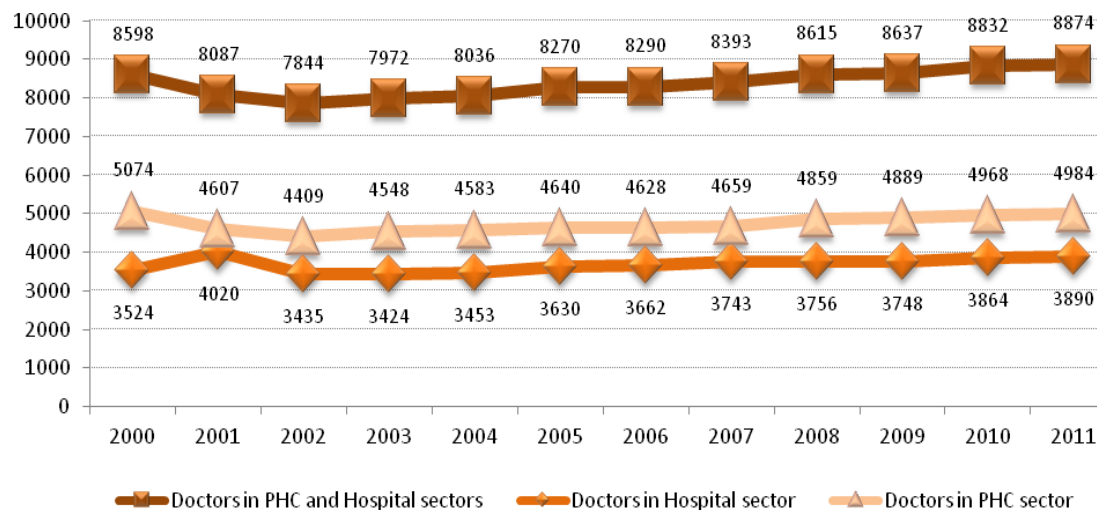
Source: NHIAC, 2012

Analysis of the concentration of health workforce per population requires considering also the number of active PHC and hospital staff directly involved in delivery of health care services, because this indicator describes the level of concentration of PHC and hospital specialists. Concentration of active health care workers directly involved in delivery of health care services per population of ten marzes of Armenia is uneven and ranges from 14.6 (the lowest) in Gegharkunik to 20.3 (the highest) in Vayots Dzor.

Figure 10. PHC and hospital doctors and nurses directly involved in delivery of healthcare services per 10,000 population
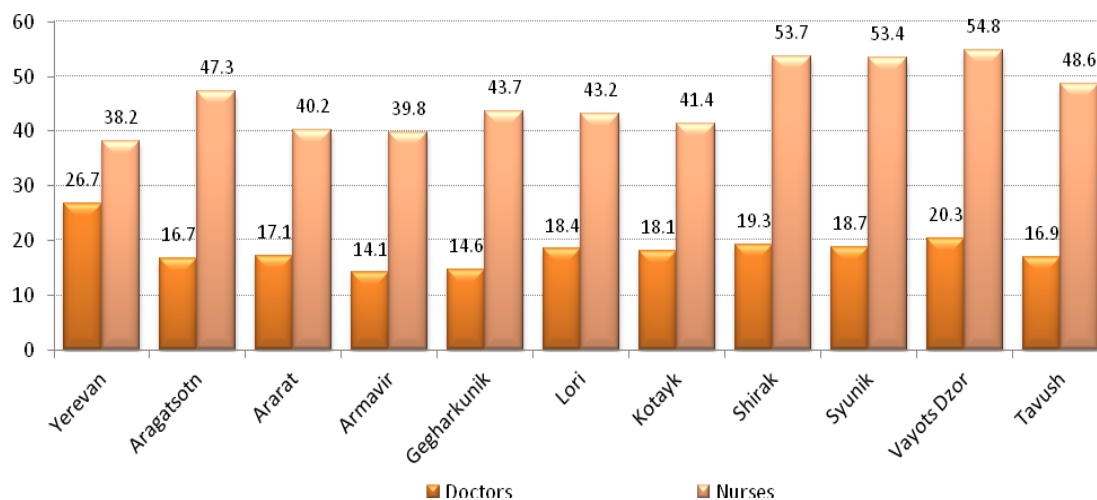
Source: NHIAC, 2012

Distribution of doctors per main specialities and profiles

Concentration of PHC and hospital healthcare workforce per population as well as main specialities and profiles during the last 5 years is presented in Table 8 and Figure 11 below.

The concentration of pediatricians and general practitioners increased between 2007 and 2011 as opposed to family doctors, stomatologists and pharmacists, whose concentration increased 1 – 2 times.

Table 8. Concentration of doctors and nurses of main specialities per population, 2007, 2011

Speciality/profile	2007		2011	
	Absolute figure	10 000 population	Absolute figure	10 000 population
General practitioners (FD, DT, pediatricians)	2683	8.3	2566	7.9
- family doctors	488	1.5	761	2.34
- district therapists	1216	0.5	1026	0.32
- pediatricians	979	1.22	779	2.4
Stomatologists	1163	3.6	1788	5.5
Pharmacists	163	0.5	199	0.6
Nurses				
-Nurses of all specialities	13592	42.1	11388	35
- midwives	1388	1.5	1335	
- feldshers	198	0.6	128	0.6
- pharmacologists	121	0.4	137	0.4

Source: NHIAC, 2012

Figure 11. Concentration per population according to main profiles, 2011 changes versus 2007
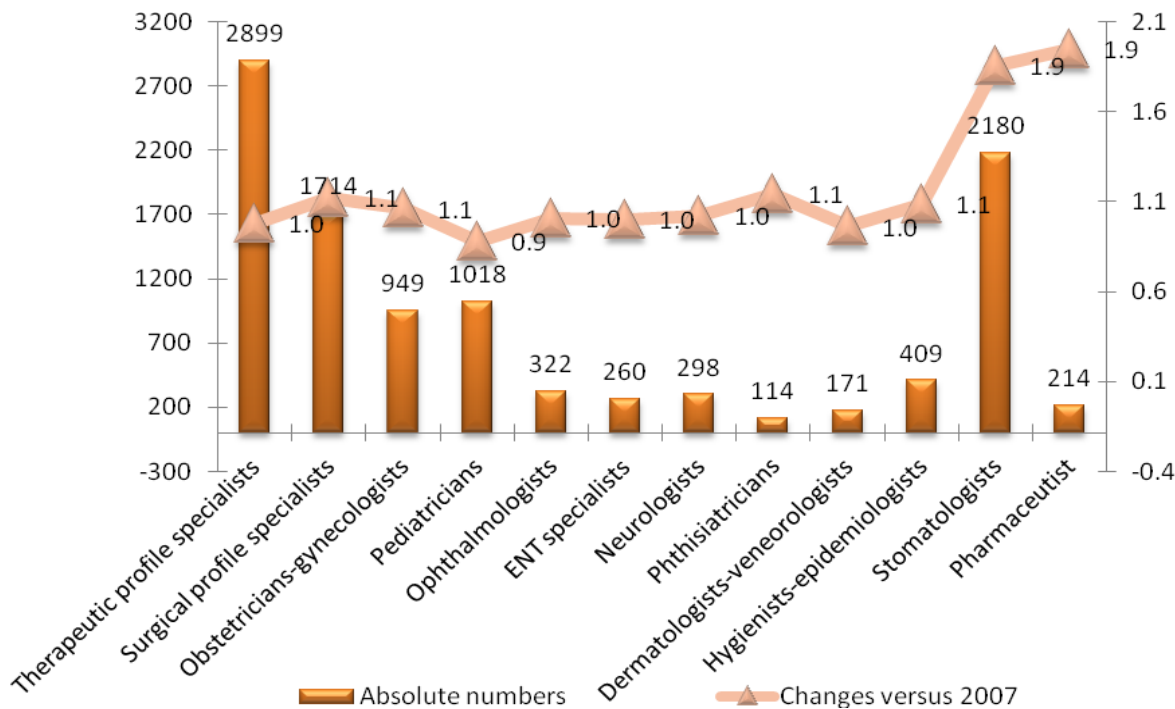
Source: NHIAC, 2012

The increased supply of stomatologists and pharmacists should be attributed to the annual increase of the number of graduates of these two specialities from public and private medical institutions (Table 9).

Table 9. Number of graduates of stomatology and pharmacy departments of public and private medical educational institutions, 2000-2011

Year	Stomatology department	Pharmacy department
2000	62	31
2001	68	46
2002	73	29
2003	68	54
2004	85	45
2005	82	41
2006	79	35
2007	72	32
2008[1]	322	73
2009	306	77
2010	389	94
2011	535	63

Source: NSS, 2012

Table 10. Number of stomatologists and pharmacists per profiles, 2000-2011

	Stomatologists Therapeutic and surgical profile Total	Stomatologists Therapeutic profile	Stomatologists Surgical profile Total
2000	834	659	175
2001	614	498	116
2002	594	474	120
2003	780	610	170
2004	884	682	202
2005	1171	969	202
2006	1254	1066	188
2007	1177	954	223
2008	1755	1508	247
2009	1987	1711	276
2010	2180	1843	337
2011	2097	1788	309

Source: NHIAC, 2012

[1] Data for 2000-2007 pertain to YSMU graduates of stomatology and pharmacy departments, whereas 2008 data include also six private higher medical educational instructions.

Table 11. Number of pharmacists in PHC and hospital settings of Armenia, 2000-2011

	PHC and hospital pharmacists Data on drugstore pharmacists are not available
2000	80
2001	121
2002	142
2003	125
2004	133
2005	143
2006	157
2007	163
2008	176
2009	204
2010	214
2011	199

Source: NHIAC, 2012

- The number of graduates of stomatology department has increased 8.7 times and of pharmacy department 2 times during the past years, which is mostly due to the annual increase of graduates of these two departments.
- During the same period the number of stomatologists employed in the healthcare system has increased 3.7 times (from 659 to 1788), and that of pharmacists 2.5 times (from 80 to 199).

This annual increase contributes to the development of private sector. Between 2004 and 2011 the number of independent dental policlinics has increase 3.3 times and the number of private dental cabinets 1.6 times (Figures 12 and 13).

Figure 12. Number of adult and pediatric independent dental policlinics
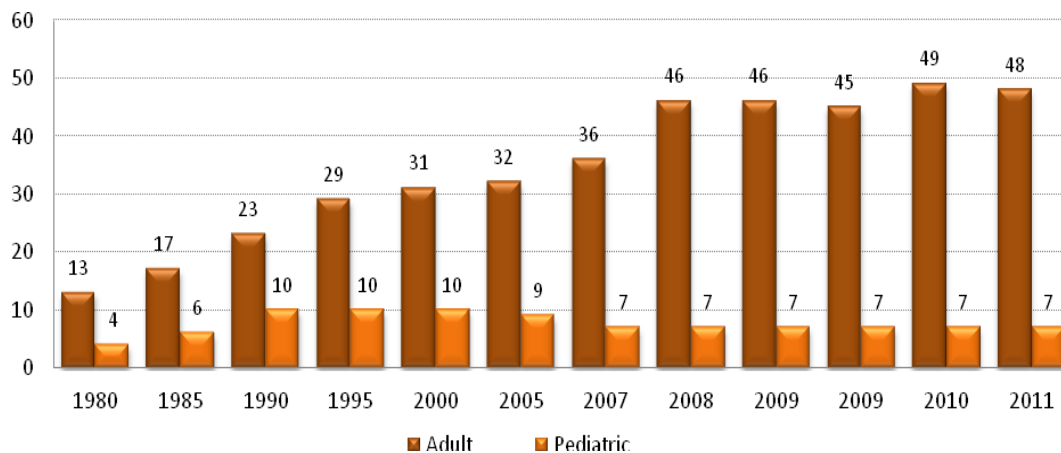
Source: NHIAC, 2012

Figure 13. Number of private dental cabinets and stomatologists
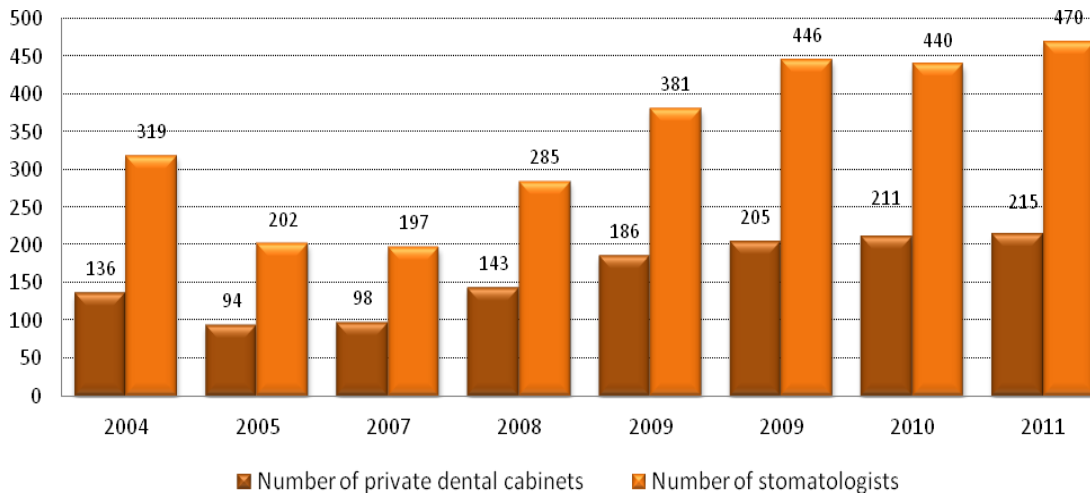
Source: NHIAC, 2012

Ratio of doctors and nurses

Analysis of marz distribution of doctors and nurses and the doctor-nurse ratio suggest the following:

- The relative number of physicians per population in marzes of Armenia ranges greatly (Figure 14 and Figure 15). Although the overall concentration of physicians for Armenia is in line with that of other countries it is quite low in many of the marzes (Figure 16), ranging in 2011 between 14.1 per 10,000 population in Armavir marz to 19.3 in Shirak and 20.3 in Vayots Dzor (excluding Yerevan). This range did not change significantly between 2005 and 2011.

- The ratio of nurses to 100 000 population in 2011 varied from a low of 39.8 in Armavir to a high of 54.8 in Vayots Dzor (Figure 15).

The most important factor explaining the uneven distribution of doctors across Yerevan and marzes is that a big number of national specialized hospitals providing services to the entire population of Armenia is located in the capital.

Among main reasons for uneven distribution of health workforce between Yerevan and marzes are the outnumbering unfavorable factors in regions as opposed to the capital such as small wages, poor work conditions, no availability of modern equipment in health facilities, no protected offered to the workforce, being overloaded, limited opportunities for continuing education, etc.

Figure 14. Distribution of doctors per marzes per 10 000 population, 2011
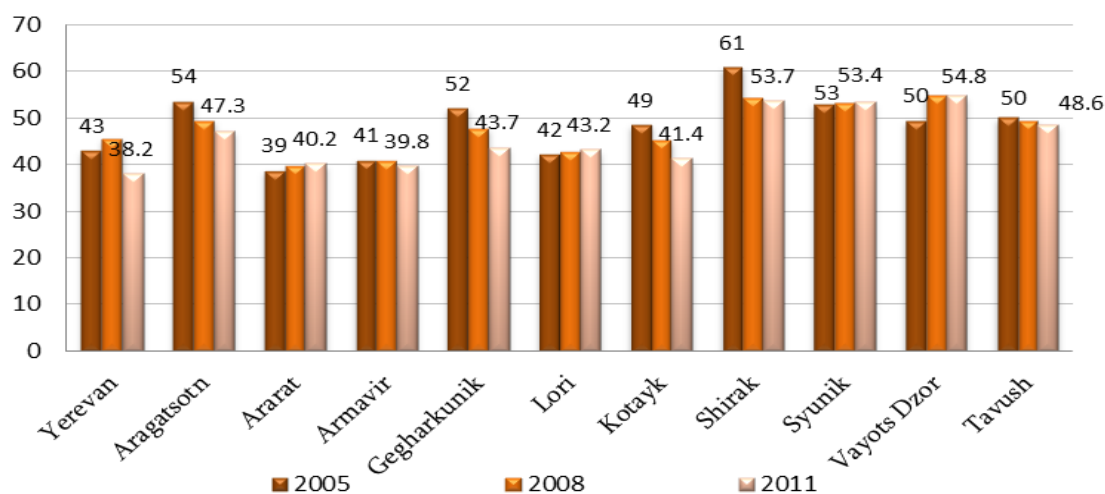
Source: NSS, 2012

Figure 15. Distribution of nurses per marzes per 10 000 population, 2011
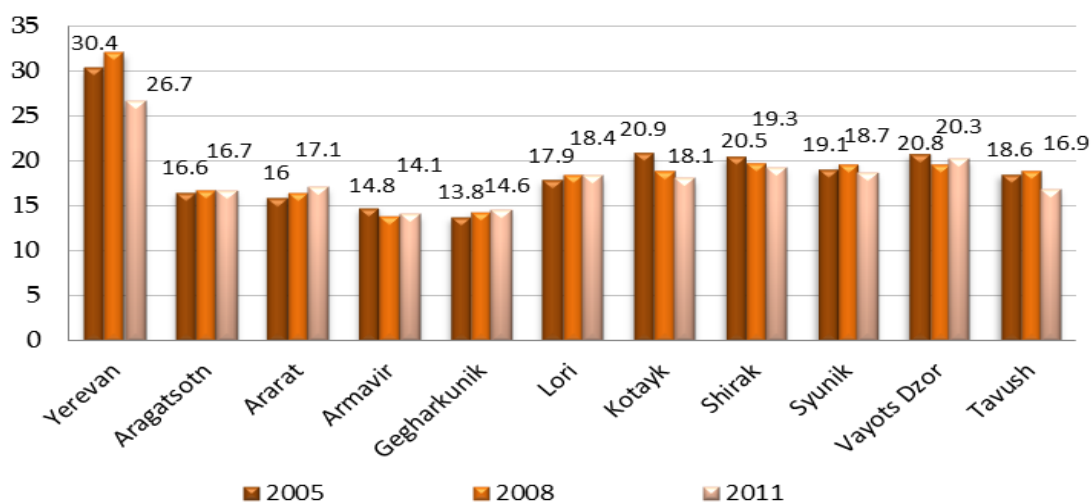
Source: NHIAC, 2012

Table 12. Number of doctors and nurses per 100 000 population, selected countries and country groups, 2009

2009	Doctors	Nurses	Doctor-nurse ration
Turkey	164	311	1.9
EU-26	319	753	1.9
EU-27	346	924	2.4
Armenia	346	406	2.7
CIS	378	703	1.2
Azerbaijan	367	798	1.9
Georgia	467	345	2.2

Source: WHO, 2011

Figure 16. Number of doctors per 100 000 population, selected countries and country groups, 2009
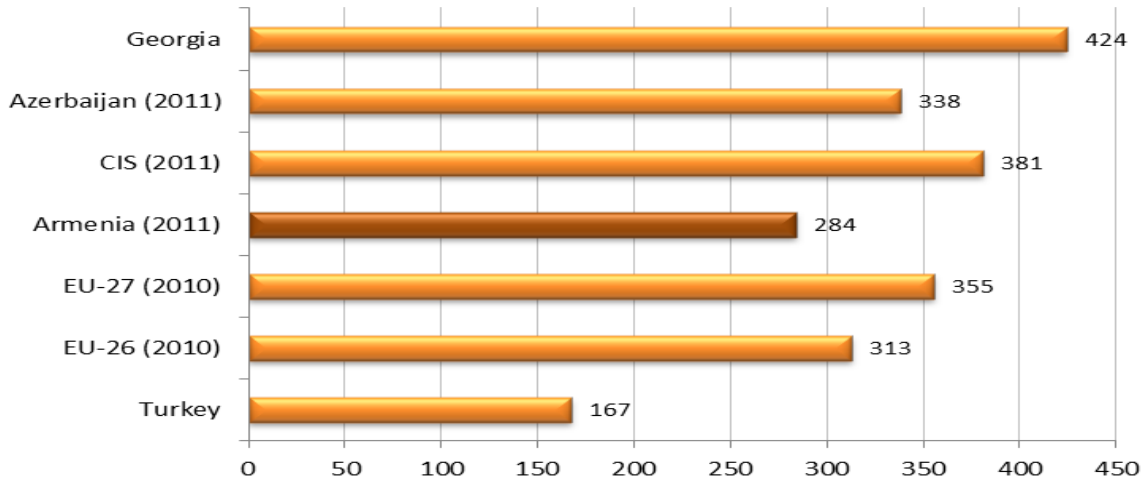
Figure 17. Number of nurses per 100 000 population, selected countries and country groups, 2009 p
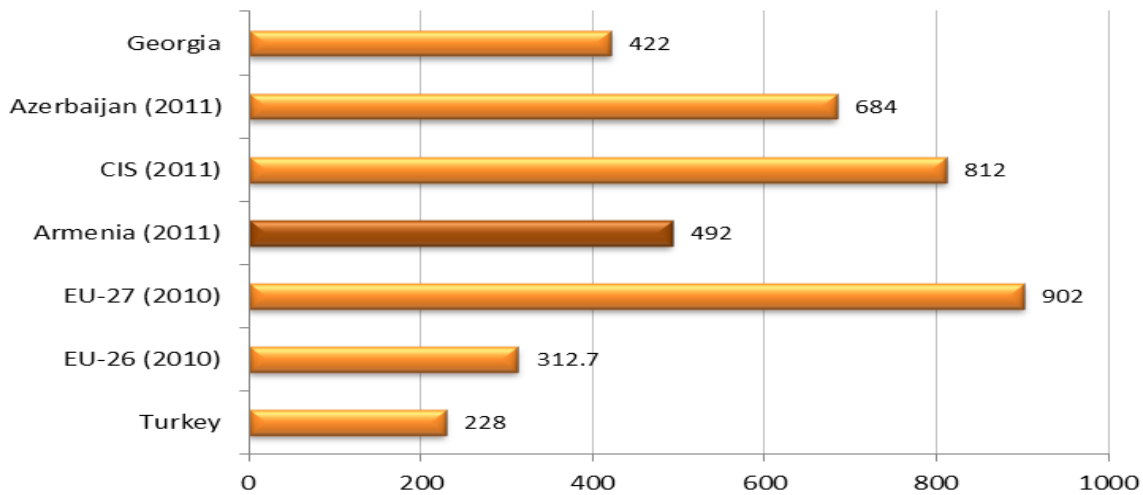
Figure 18. Doctor-nurse ration
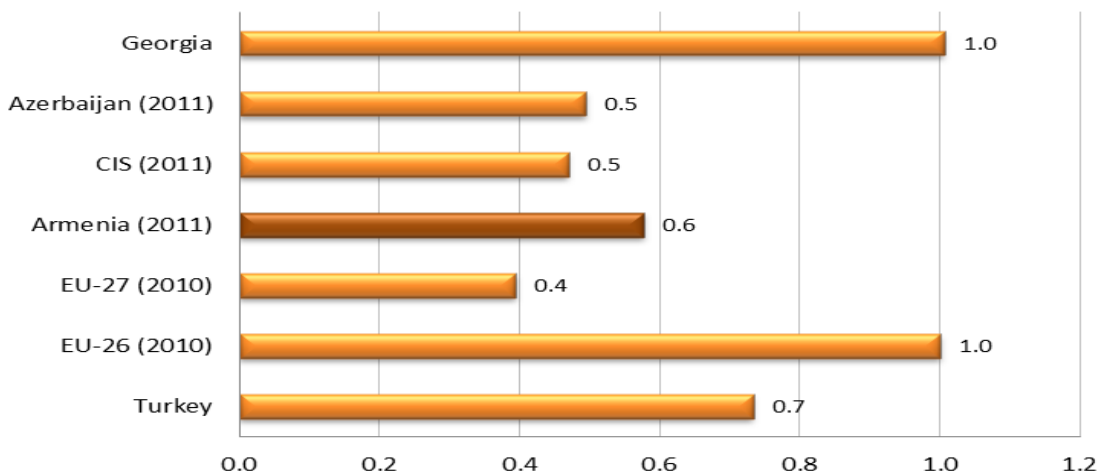
Source: HFA-DB, WHO,, 2012

Marz distribution of health workforce needs to be considered also according to specialities. The most demanded specialities were selected for the comparative analysis based on the indicators for most common diseases. According to 2011 data most common diseases among adult population of the country included circulatory system diseases (48%), malignancies (19.8%) and diabetes (4.9%) – noncommunicable diseases with 80% mortality rate. Data presented in Table 13 show that:

- Yerevan health facilities have surplus of specialists.

- The number of family physicians, district therapists and pediatricians in marzes per population ranges significantly from a low of 1.2 in Aragatsotn to a high of 3.0 in Lori.

One of the goals of the Primary Health Care Strategy for 2003–2008 is the reduction of the number of district therapists and the increase of the concentration of family doctors per population. The Strategy also indicates obstacles hampering adequate increase of the proportion of active family doctors.

Table 13. Concentration of doctors of various specialities per 10 000 marz population, 2011

Speciality	Yerevan	Aragatsot	Ararat	Armavir	Gegharkunik	Lori	Kotayk	Shirak	Syunik	Vayots Dzor	Tavoush
District therapist	6.1	1.2	1.5	1.6	1.3	3.0	0.9	1.7	1.4	1.8	1.3
Cardiologist	3.8	0.2	0.4	0.3	0.2	0.3	0.5	0.6	0.3	0.5	0.2
Endocrinologist	1.7	0.2	0.1	0.2	0.2	0.3	0.4	0.2	0.3	1.2	0.2
Surgeon	3.9	0.2	0.8	0.5	0.7	1.0	0.7	1.0	0.8	1.2	0.8
Oncologist	0.5	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2
Ob-gyn	6.2	1.5	0.9	1.1	1.0	1.4	1.6	1.6	1.4	1.8	1.1
Stomatologist	9.7	1.3	1.3	0.7	0.5	1.2	1.0	1.2	0.5	1.6	1.0
Ophthalmologist	2.3	0.3	0.3	0.4	0.3	0.4	0.3	0.5	0.5	0.4	0.4
Pediatrician	4.6	1.1	1.5	1.3	1.0	1.4	0.6	1.0	1.3	1.4	1.0
Anesthesiologist	3.6	0.5	0.7	0.3	0.4	0.4	0.6	0.7	0.3	0.2	0.3
Family physician	1.2	3.2	2.8	2.5	3.0	1.0	4.6	3.2	3.7	2.5	3.3

Source: NHIAC, 2012

Though the introduction of the family healthcare institute in the rural health sector may be considered as accomplished, in the urban polyclinics it is not yet completed, because retrained family physicians do not have an opportunity to carry out the full range of functions outlined in their job description.

The main reason is the existence of narrow specialized services in the urban polyclinics that definitely exceed (especially in Yerevan) the quotas established for relevant specialists per number of population. In terms of healthcare management policy, the directors in polyclinics are not motivated to encourage the establishment of independent practices. Under the existing system, the PHC medical personnel have no input in such issues as staff related decision-making, income and expenditure control, or setting of priorities for medical services.

- Concentration of cardiologists, oncologist and endocrinologists per marz population is rather low, unlike other specialities. Morbidity and mortality rates for noncommunicable diseases emphasize the need of increasing the proportion of these specialists.

According to the MOH Standards of 2012 the number of population utilizing services delivered by narrow specialists within the framework of basic benefit package varies greatly (for cooperation of PHC doctors and PHC/hospital narrow specialists see Annex 1). E.g. the minimum number of population serviced by cardiologists is 20,000, the optimal is 30,000 and the maximum number is 40,000, for oncologists the figures are 40,000, 55,000, 70,000, and for family doctors 1,000, 1,700, 2,300 correspondingly.

As submitted facility reports (MoH annual reports 1 and 17) show health facilities of Gegharkunik and Vayots Dzor marzes do not have oncologists recorded in their personnel rosters.

Table 14. Number of doctors in marzes per specialities, 2011

Speciality	Yerevan	Aragatsot	Ararat	Armavir	Gegharkunik	Lori	Kotayk	Shirak	Syunik	Vayots Dzor	Tavoush
Family practice (DT, FD)	1370	2273	2326	2439	2326	2500	1818	2041	1961	2326	2174
Cardiologist	2632	50000	25000	33333	50000	33333	20000	16667	33333	20000	50000
Speciality	5882	50000	100000	50000	50000	33333	25000	50000	33333	8333	50000
Speciality	2564	50000	12500	20000	14286	10000	14286	10000	12500	8333	12500
Speciality	20000	100000	100000	100000	-	100000	100000	100000	100000	-	50000
Ob-gyn	1613	6667	11111	9091	10000	7143	6250	6250	7143	5556	9091
Stomatologist	1031	7692	7692	14286	20000	8333	10000	8333	20000	6250	10000
Ophthalmologist	4348	33333	33333	25000	33333	25000	33333	20000	20000	25000	25000
Pediatrician	2174	9091	6667	7692	10000	7143	16667	10000	7692	7143	10000
Anesthesiologist	2778	20000	14286	33333	25000	25000	16667	14286	33333	50000	33333

Source: NHIAC, 2012

General practitioners of PHC

The ratio of active general practitioners to narrow specialists in primary health care settings decreased between 2002 and 2011 from 0.77 to 0.64 (Fig. 19), when one of the main goals of the Primary Health Care Strategy for 2008–2013 has been to increase this ratio.

The ratio of active nurses to all active physicians in primary care settings has decreased from 1.34 to 1.2 over the same time period (Fig. 20).

Figure 19. Ratio of general practitioners (district therapists, pediatricians and family physicians) to narrow specialists in primary care settings, 2002-2011
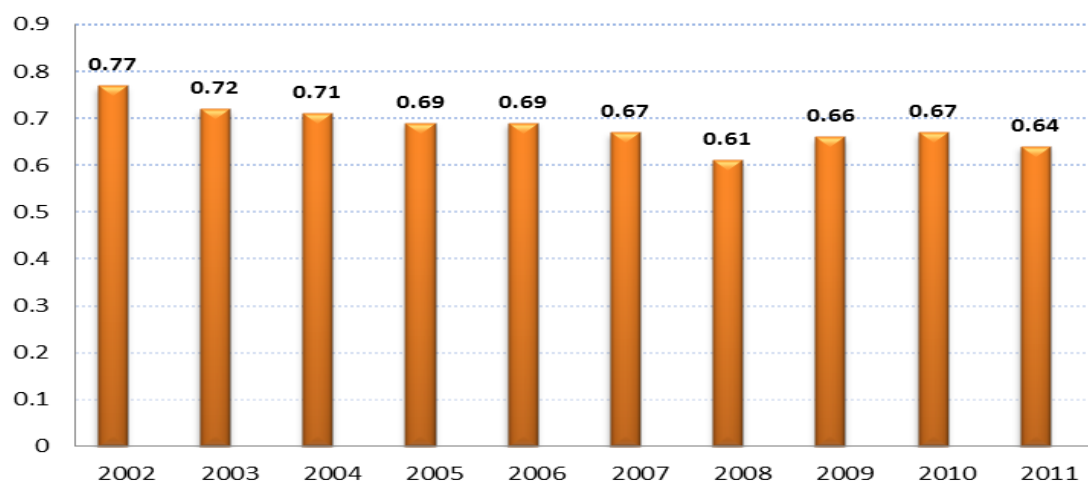
Figure 20. Ration of active nurses to active physicians in primary health care settings, 2002-2011
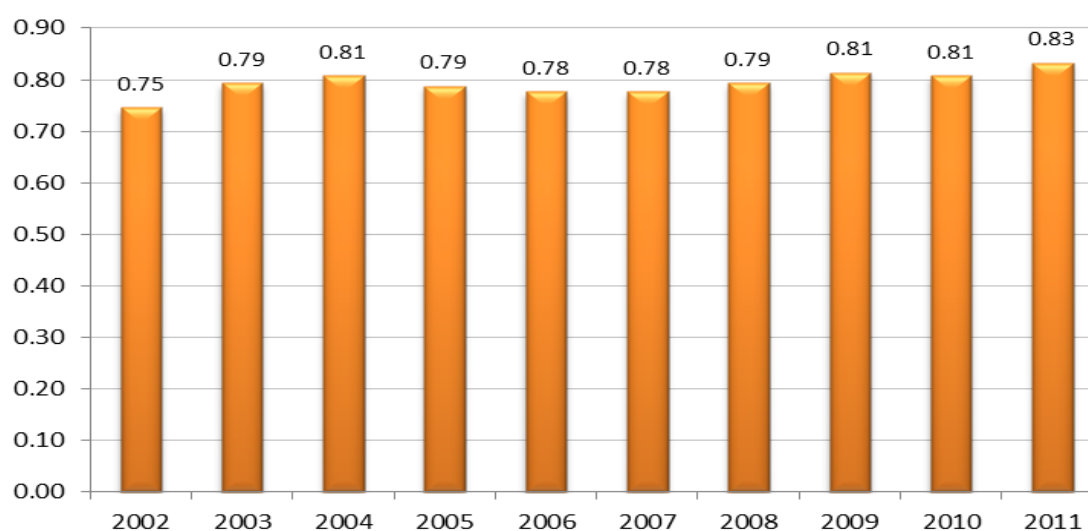
Source: NHIAC, 2012

Table 15. Number of PHC doctors per specialties and profiles, 2002-2011, changes of 2011 versus 2002

Specialities	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011/ 2002
Doctors	4 409	4 548	4 583	4 640	4 628	4 650	4 859	4889	4868	4984	1.1
Narrow specialists	2 486	2 649	2 679	2 746	2 744	2 777	3 023	2953	2916	3058	0.7
General practitioners: DT, FD	1 923	1 899	1 904	1 894	1 884	1 873	1 836	1936	1952	1926	0.4
District therapist	973	956	938	917	915	872	821	768	754	723	0.2
District pediatrician	872	850	824	813	780	700	651	589	550	518	0.1
Family doctor	50	69	115	127	165	282	354	573	648	685	0.2
Nurse	5 914	5 729	5 667	5 889	5 958	5 988	6 122	6 006	6 023	5 984	1.4
Obstetrician	595	566	531	535	544	547	552	543	536	525	0.1

Source: NHIAC, 2012

The number of doctors in PHC settings increased 1.1 times between 2002 and 2011. Most evident is the increase of the number of family physicians - 1.5 times and the decrease of district pediatricians which is conditioned by the training of family physicians.

Active family doctors and progress in retraining

The Primary Health Care Strategy for 2003–2008 states that the country requires between 1500 and 2000 family doctors, assuming that the standard for a family doctor's optimal workload is 1500–2000 patients. Although the number of family doctors has been increasing over the past five years and training has been proceeding apace (with a cumulative total of 1329 family doctors retrained in 2010/2011, the number that was actively practicing family medicine in 2011 was only 685, which is significantly below the target.

However, the percentage of family doctors among active general practitioners – an indicator showing progress towards the target mix of primary care practitioners – has been increasing steadily since 2003, particularly in 2007 and 2008, and it now stands at 36% (Fig. 21).

Figure 21. Family doctors as a percentage of all active general practitioners, 2002-2011
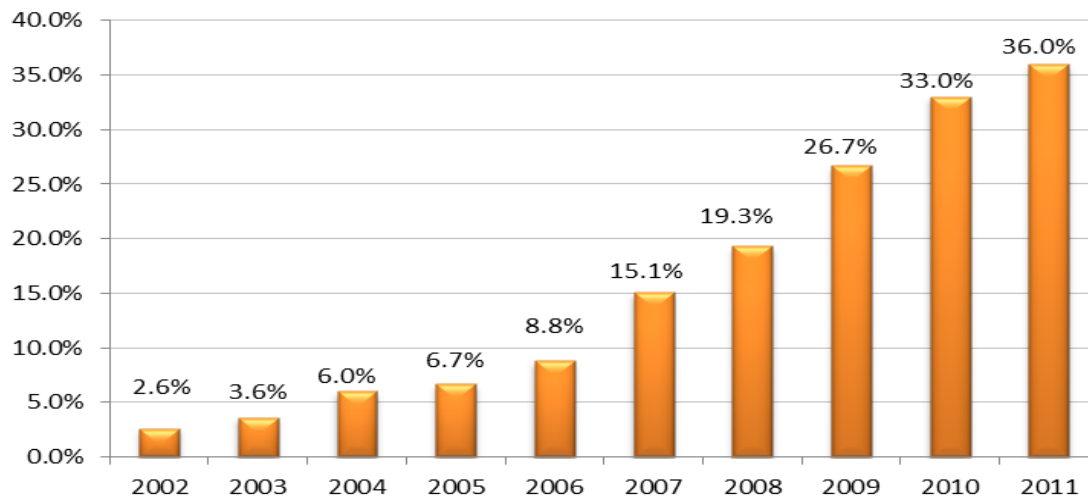
Source: NHIAC, 2012

Figure 22. Numbers of family doctors retrained, per period and cumulatively, 2006–2011 (observed and projected)
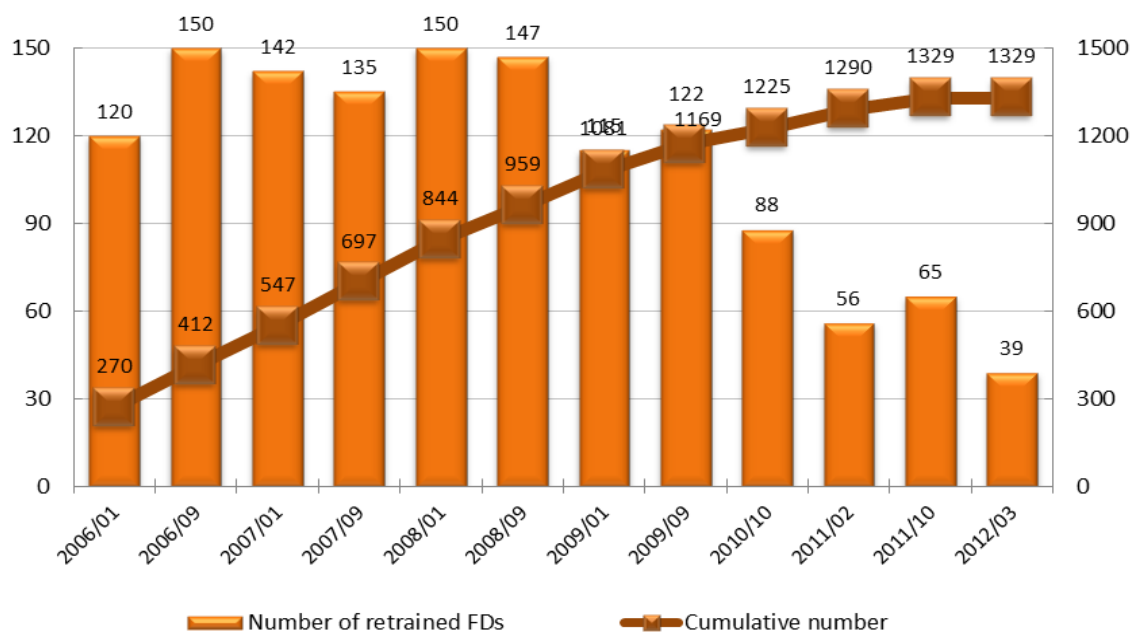
Figure 23. Numbers of family nurses retrained, per period and cumulatively, 2006–2011 (observed and projected)
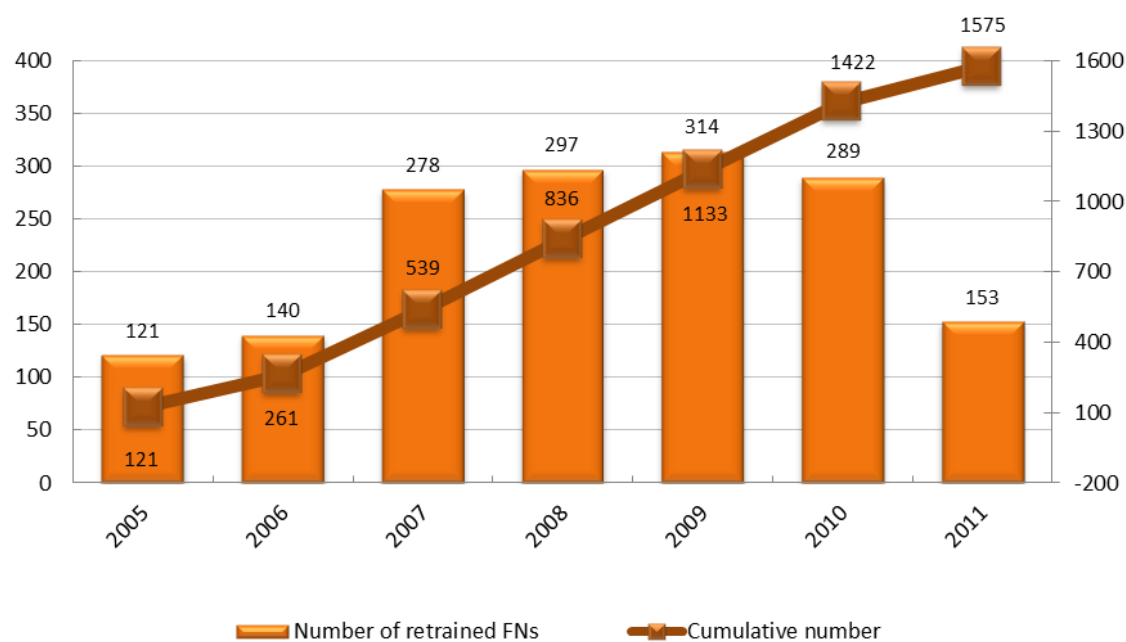
Source: HPIU, 2012

Holding more than one office (internal and external)

The issue of holding more than one office was reviewed considering both internal and external job combinations (multi office holding and manpower drain in Armenia were assessed within the framework of the 2012 study. Active health workers from public medical institutions of Yerevan and ten marzes have participated in the survey.)

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Holding more than one office at once was reported by 21.6% of physicians (Table 16).

- Of them 46.3% have mentioned about internal dual office holding (in the same health facility),
- More than half (53.7%) hold another office externally (in another health facility).

Internal combinations

- About half of marz doctors combine more than one office at a time - manager of the facility (director of ambulatory) and family doctor
- The lowest rate of internal combinations (% of the number of multi office holding) 35.2% was recorded in Shirak and the highest (80.7%) in Tavoush health settings.

External combinations

- The highest rate of external multi office holding was recorded in Shirak and the lowest in Tavoush.

Table 16. Holding more than one office at a time (external and internal)

	Yerevan	Aragatsot	Ararat	Armavir	Gegharkunik	Lori	Kotayk	Shirak	Syunik	Vayots Dzor	Tavoush	Total
Internal combination	233	46	53	25	16	47	64	58	23	13	35	613
External combination	370	11	13	24	19	68	50	107	24	9	5	700
Total	603	57	66	49	35	115	114	165	47	22	40	1313
% of internal combinations in the total combinations	38.6	80.7	80.3	51.0	45.7	40.9	56.1	35.2	48.9	59.1	87.5	46.3
% of external combinations in the total combinations	61.4	19.3	19.7	49.0	54.3	59.1	43.9	64.8	51.1	40.9	12.5	53.7
Total, % of doctors in the total number of doctors	20.3	27.0	16.2	13.4	12.0	27.1	30.1	33.1	19.3	24.2	21.4	21.6

General workforce drain trends

The study of the trends of workforce drain focused on the following aspects: 'the last but one workplace' and 'the reason for changing the workplace'.

When assessing the reasons for the workforce drain both distracting and attracting factors were weighted.

- Both above questions were answered by 53.8% of practitioners (3264) who participated in the study.

Table 17 shows the three key reasons for changing the workplace – family, facility optimization and professional promotion. Interestingly the financial reason was indicated by only 4% of respondents.

Professional promotion was mentioned as an attracting factor by 22.7% of Shirak marz doctors, which speaks about favorable conditions for career development in regional health facilities.

Table 17. Key reasons of workforce drain

Reason	Yerevan	Aragatsotnð	Ararat	Armavir	Gegharkunik	Lori	Kotayk	Shirak	Syunik	Vayots Dzor	Tavoush	Total
Family	40	43	44	9	61	55	52	25	11	13	453	806
%	47.1	19.7	32.6	15.5	23.5	24.9	19.0	18.7	23.9	8.1	27.1	24.7
Geographic	8	37	24	3	14	21	30	13	7	7	202	366
%	9.4	17.0	17.8	5.2	5.4	9.5	11.0	9.7	15.2	4.4	12.1	11.2
Financial	6	17	13		7	17	10	3	1		56	130
%	7.1	7.8	9.6	0.0	2.7	7.7	3.7	2.2	2.2	0.0	3.3	4.0
Prof. incompatibility	0	5	3	2	12	4	5	3	2		39	75
%	0.0	2.3	2.2	3.4	4.6	1.8	1.8	2.2	4.3	0.0	2.3	2.3
Prof. promotion	16	35	28	20	45	36	62	27	11	2	361	643
%	18.8	16.1	20.7	34.5	17.3	16.3	22.7	20.1	23.9	1.3	21.6	19.7
Unsatisfactory conditions of the facility	5	3	1	1	5	4	2			2	47	70
%	5.9	1.4	0.7	1.7	1.9	1.8	0.7	0.0	0.0	1.3	2.8	2.1
Optimization or reorganization of the facility	7	38	12	19	73	70	97	56	9	132	284	797
%	8.2	17.4	8.8	32.7	28.1	31.7	35.5	41.7	19.5	82.6	17	24.4
Conflict at workplace	0	1		1	4		2		1	1	4	14
%	0.0	0.5	0.0	1.7	1.5	0.0	0.7	0.0	2.2	0.6	0.2	0.4
Other	3	39	10	3	33	11	13	7	4	3	207	333
%	3.5	17.9	7.4	5.2	12.7	5.0	4.8	5.2	8.7	1.9	12.4	10.2
Total, absolute number	85	218	135	58	260	221	273	134	46	160	1674	3264
% total	40.3	53.6	37.0	19.9	61.2	58.3	54.8	55.1	50.5	85.6	56.4	54.0

Health care system job vacancies

Along with the surplus of doctors and their growing number Armenia faces job vacancies for health practitioners.

The dynamics of vacancies for doctors between 2003 and 2011 can be divided into two periods: increase of 2003-2006 and collapse of 2007-2011 (Figure 24).

The absolute number of vacancies for doctors of different specialties has increased by 40% between 2003 and 2006 (361 versus 511), and decreased by 20% between 2007 and 2011.

Figure 24. Vacancies for doctors, 2003-2012
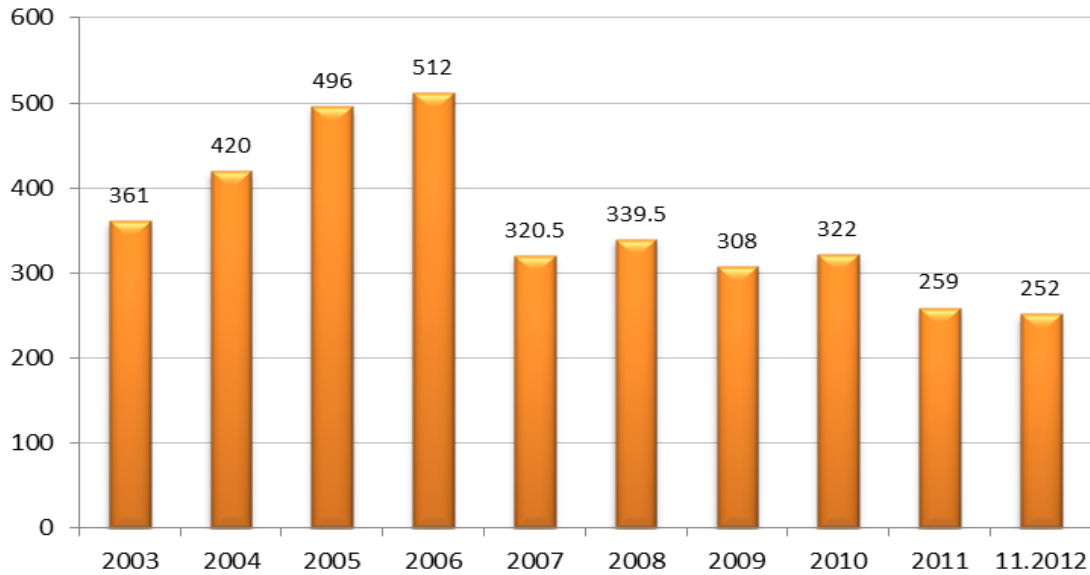
Figure 25. Vacancies for doctors per marzes, 2012
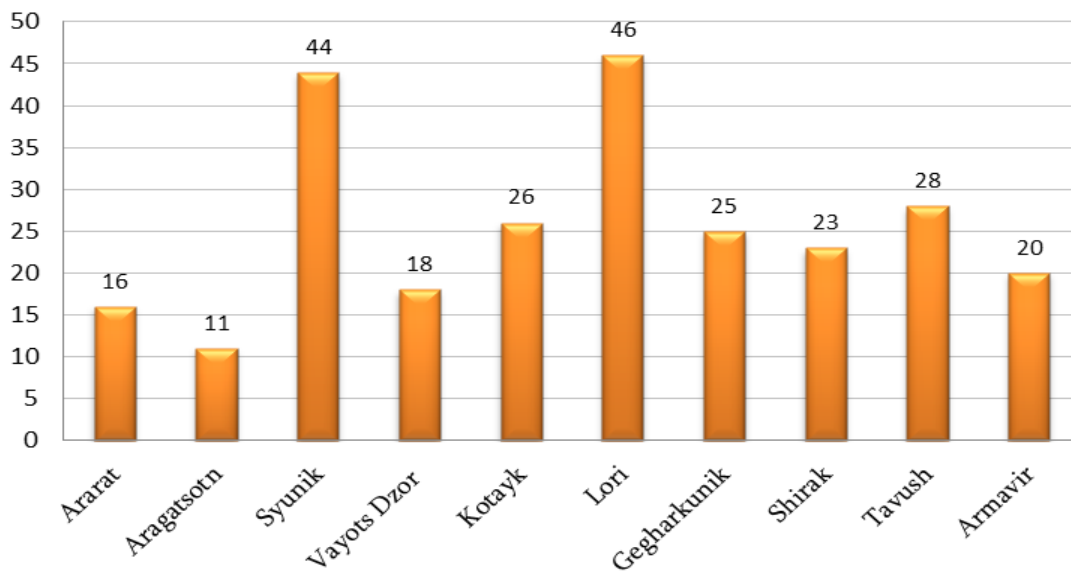
Especially big is the number of vacancies for doctors of different specialities in remote marzes: Lori (46), Syunik (44), Tavoush (28), Gegharkunik (25) (Figure 25). At that, the biggest demand is for surgical profiles, including anesthesiologists, obstetricians and gynecologists, emergency care physicians, pathologists (Figure 26).

Figure 26. Vacancies for doctors per specialities
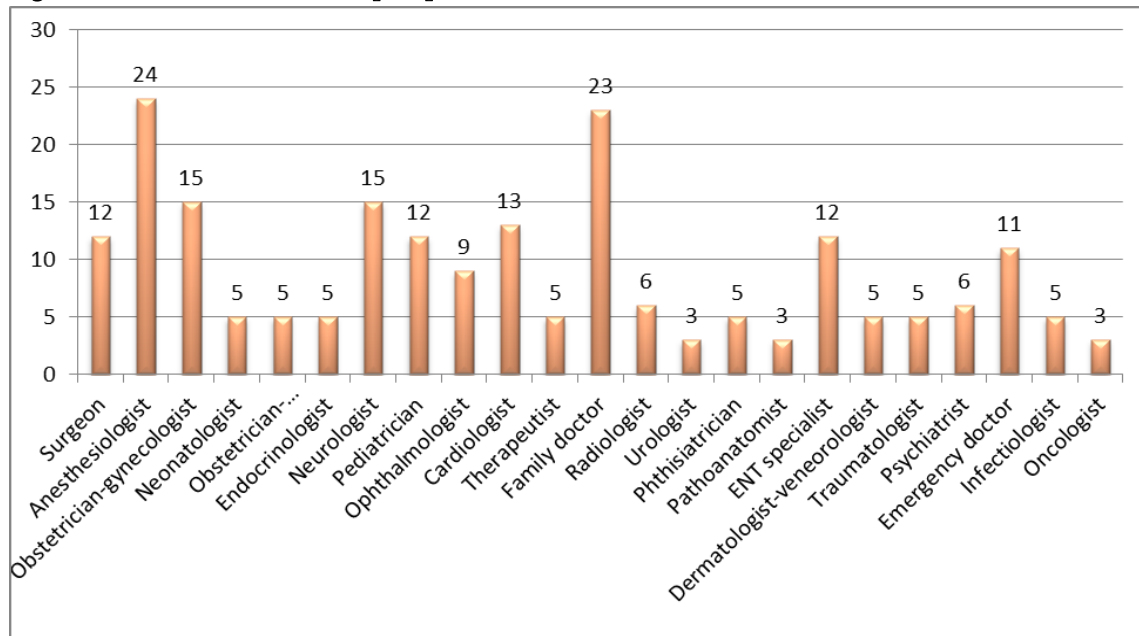
Source: MOH, 2012

- Today the country lacks in well-developed and approved incentive mechanisms for health practitioners especially those employed in border and remote marzes, and mechanisms to provide social support and guide their professional development. Development of a package of such incentives will greatly help to meet health workforce demands in marzes.
- The workforce drain to Russia and European region is significant. Armenia is a donor for other countries in terms of workforce development.

One of the mechanisms to meet workforce demand of marzes is mandatory secondment of graduates to regions. International experience shows that over 70 countries globally use the practice of mandatory job assignment.

Legislative regulation of mandatory assignment of resident doctors who were trained under the state order in marzes for a certain period can be discussed.

Health information limitations and gaps

Collection of reliable and accurate information on health workforce and the development of workforce policy require creation of the RA health system workforce, which will help expanding workforce planning perspectives and will support drafting of the health system workforce development strategy. Particularly,

- Availability, distribution and demand of workforce per marzes, urban and rural areas
- Workforce workload, staffing
- Workforce drain- internal and external
- Demand of vacancy jobs

Recommendations

Health care system workforce quantitative and structural planning should be based on the forecast of population medical, pharmaceutical and sanitary and hygiene demands, taking into consideration demographic indicators, population health status, workforce migration, education and health reforms. As recommended by international experts workforce planning dwells on development and approval of workforce number standards.

Currently the country lacks in approved and implemented standards that enable estimating current and future workforce demands for the country. Development of such standards should be the pillar for workforce planning and development strategy.

To ensure coordination and improvement of workforce policy development it is planned to create workforce database with the National Institute of Health and to conduct relevant research and analytical activities.

Findings and policy recommendations

Situation	Policy recommendations
Recent years saw an increase of workforce, i.e. the number of graduates of higher and secondary vocational medical educational institutions.	Training and effective utilization of workforce requires development of policy perspectives for workforce admission and education based on demographic and health indicators and demands of marz health facilities.
Training of graduates by private educational institutions is rather apace (69% of graduates in 2011 were from private higher educational institutions with the following speciality breakdown: stomatologists 44.4% and general care 48%.	Implement workforce education and training based on international educational and academic standards. Revise educational programs.
Rates of continuing education among doctors exceed that of the nurses by almost 10%.	Improvement of the system workforce qualification requires:
Post-graduate education of doctors and nurses is performed in line with the list of higher and secondary medical and pharmacological specialities. This document was approved by the Ministry of Health on 11 March 1996 and is not in line with educational reforms and international requirements.	Revise curricula for continuing education, organize on the spot retraining for remote marz practitioners
Licensing of individual health service providers was terminated in 2001.	Implement postgraduate medical credit system
Health workforce continuing education and development in Armenia implies monotonous annual increase and is mostly formal.	Define job descriptions for secondary medical specialists
Today the system lacks in mechanisms to assess effectiveness of curricula and incentivize specialization.	Implement individual health service providers' licensing system
Recent developments show annual decrease of doctor-nurse ratio. Along with the increase of the number of doctors the number of nurses has not changed, when the Armenia health system optimization program requires increase of this ratio, which shows decline tendency during the	Develop workforce strategy to enable development of a system for specialist planning and effective utilization.

last years.

Concentration of doctors per population varies significantly by marz.   Although the overall concentration of physicians for Armenia is in line with that of other countries it is quite low in many of the marzes.   Distribution of health workforce among Yerevan and marzes is unbalanced. Yerevan health facilities have surplus of specialists

Remote marzes have significant vacancies for doctors of all specialities. The system lacks in well-developed and approved mechanisms to incentivize doctors especially in remote and border areas, provide social support and improve work motivation. Workforce migration to Russia and EU is significant. Armenia, in fact, is a workforce development donor for other countries.	Mandatory assignment of resident doctors trained under state order to regions which will help meeting regional workforce demands.
The health workforce information system is imperfect and limits analytical and perspective possibilities. Generalized information on workforce is submitted by health facilities, educational and other institutions, thus restricting analytical capacities. Most of specialists hold more than one office at a time, which cannot be analyzed based on submitted annual reports. In many cases data are duplicated, thus artificially increasing the number of specialists.	Create workforce database with the national Institute of Health in order to collect reliable and accurate information of health workforce in the country and to ensure proper coordination of workforce policy development, which will expand the workforce analysis and planning possibilities and will support the preparation of health workforce development strategy.

2. EQUIPTY IN FINANCING AND FINANCIAL PROTECTION

The second chapter of this Report – financing of Armenia health care system – reflects on health financing developments of the late period covered by 2009 HSPA report and the period beyond it.

This chapter focuses on the volumes of financing between 2006 and 2011[2], compares them with health spendings earmarked in different Government-approved strategy documents, reveals differences between the projected and actual figures and the reasons behind, and presents recommendations to avoid repeating shortcomings of the past and to improve health financing situation.   In this part of the document an attempt is made to compare health financing indicators with those of the previous years as well as to cross-match Armenia indicators of health financing during the past decade with similar figures of a number of other countries. All these reflections are done in the context of equity in financing and financial protection.

Fiscal context and prioritization of health

In all strategic papers Government of Armenia highlights that health is a priority state policy direction. The main strategy document guiding activities of the Government during the recent years has been the Sustainable Development Program (SDP), which is the revised version of the Poverty Reduction Strategy (PRSP). The Government recognized the need of developing a new program, because it was expected that "the PRSP targets and main indicators will be significantly exceeded in the medium- and long-term perspectives, which will absolutely undermine the feasibility of the PRSP …»[3]:

The SDP states that "throughout the programming period, healthcare will remain among the priorities of the public spending policy"[4]. According to the document the findings of the household survey revealed significant differences in utilization of health services across population groups of different living standards. The paper concludes that the threats and risks posed by such low level of spending may potentially undermine the welfare of the population, deplete the human potential and opportunities for socioeconomic development.

However in the year when SDP was approved and during the following years the amount of health spendings as a percentage of GDP and as proportion of total expenditures has not changed essentially and in some years it has even declined. In 2009 the Armenian economy faced a 14.1% downturn. In the preceding year (2008) when the economy had 6.9 % growth, public health spendings to GDP ratio and total government spendings have decreased as opposed to 2007, from 1.49% and 7.38% to 1.40% and 6.17% correspondingly (Figure 27).

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[2] At the moment of preparing this Report the 2012 indicators were not ready, so in some cases projected indicators were analyzed.

[3] RA Government 2008, page 240, §611

[4] SDP, page 240, §611

The share of health spendings in the public budget kept declining during the crises of 2009 (6.%) and post-crises of 2010 (5.88%), and the first increase was recorded in 2011 (6.42%). As a percentage of GDP public health spendings climbed up in 2009 reaching 1.79 % of GDP, which however can be explained by radical decline of GDP that year. In 2010 health spendings as a percentage of GDP continued falling down (1.60%) and increased only in 2011 (1.68%). Taking into consideration the nominal GDP predictions for 2012 and 2013, as well as projected health and total expenditures it can be assumed that health spendings as a percentage of GDP and total budget spendings will decrease in the coming years.

It is noteworthy that although the Government keeps increasing allocations to health sector the medium-term expenditure frameworks (MTEF) of the last years witness that the Government consistently projects reducing the share of health spendings and the health spendings as a percentage of GDP. According to MTEF for 2013-2014 approved by Government Decree N740-N issued 14 June 2012, the Government envisages reducing both the proportion of health spendings from the public budgets (5.61% in 2014 and 5.33% in 2015), and health spendings as a percentage of GDP (1.52% in 2013, 1.38% in 2014 and 1.31% in 2015).

Table 18. Financial allocations to health sector projected by different strategic programs and actual absolute figures as well as ratios as GDP percentage and total public spendings

(AMD billion)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2018	2021
Sustainable Development Program		54.6	66.1	81.2	103.3	126.4			193.8	296.6	459.0
SDP, as % of GDP		1.5	1.6	1.7	2.0	2.2			2.5	2.9	3.5
MTEF 2011-2013					58.6	57.3	56.0				
MTEF 2011-2013 (% of GDP)					1.64	1.50	1.36				
MTEF 2011-2013 (% of expenditure)					5.81	5.47	4.96				
MTEF 2012-2014						68.7	59.5	60.5			
MTEF 2012-2014 ((% of GDP)						1.63	1.30	1.22			
MTEF 2012-2014 (% of expenditure)						6.70	5.47	5.06			
MTEF 2013-2015						68.9	67.2	68.6			
MTEF 2013-2015 ((% of GDP)						1.52	1.38	1.31			
MTEF 2013-2015 (% of expenditure)						6.14	5.61	5.33			
Total state budget and health expenditure (AMD billion)											
			Actual			Projected					
Total expenditure	634.7	810.6	929.1	954.3	986.6	1044.2	1151.3				
Health expenditure	46.9	50.0	56.2	56.2	63.3	65.1	71.9				
Including capital expenditure	4.9	4.4	5.1	4.3	3.4						
Health expenditure as percentage of GDP and state budget total expenditure											
% of GDP	1.49	1.40	1.79	1.62	1.68	1.61	1.59				
% of total expenditure	7.39	6.17	6.05	5.88	6.42	6.24	6.25				
GDP (AMD billion)	3 149.3	3 568.2	3 141.7	3 460.2	3 776.4	4 050.0	4 537.0				

Source: Sustainable Development Program, MTEFs of different years, Annual State Budget Performance Reports of different years, GDPforecasts of 2012 and 2013- from the interview with the Ministr of Finance of Armenia of 24 December 2012.

Figure 27. Health expenditures as % of consolidated state budget expenditure and % of GDP (2007-2013[5])
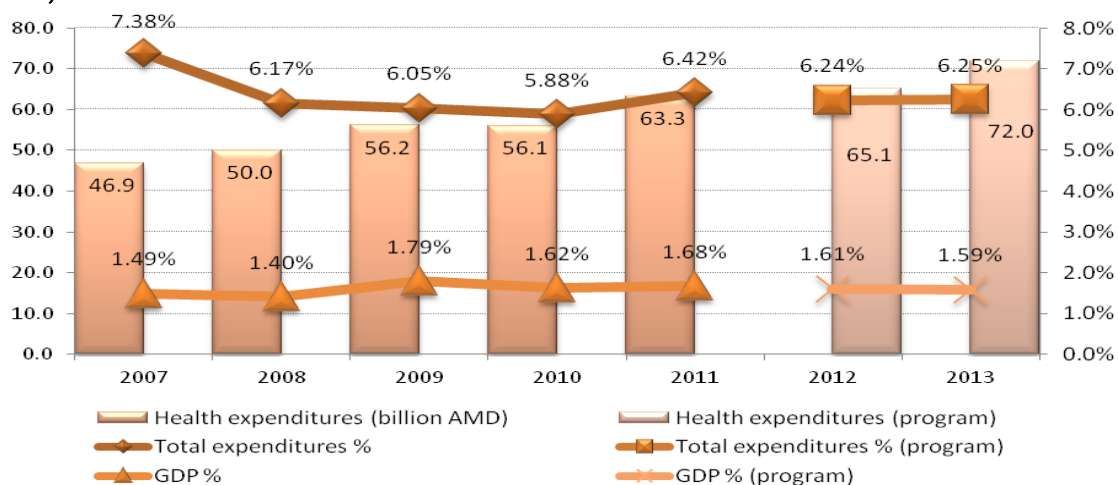
Source: Ministry of Finance

The range of government expenditure on health can be assessed by cross-matching with similar indicators of a group of countries. Given that WHO analysts and experts view Armenia's experience in the context of former soviet countries, we will follow their approach.

Armenia public health spendings as a percentage of GDP are 2.7 times less compared with the average figures of 28 Central and Eastern Europe, Caucasus and Central Asia (CEECCA[6]) countries (Figure 28), 4.3 times less compared with Slovenia and Bosnia and Herzegovina and 3.3 less compared with Moldova public health spendings.

Figure 28. Public health expenditures, % of GDP, 2010
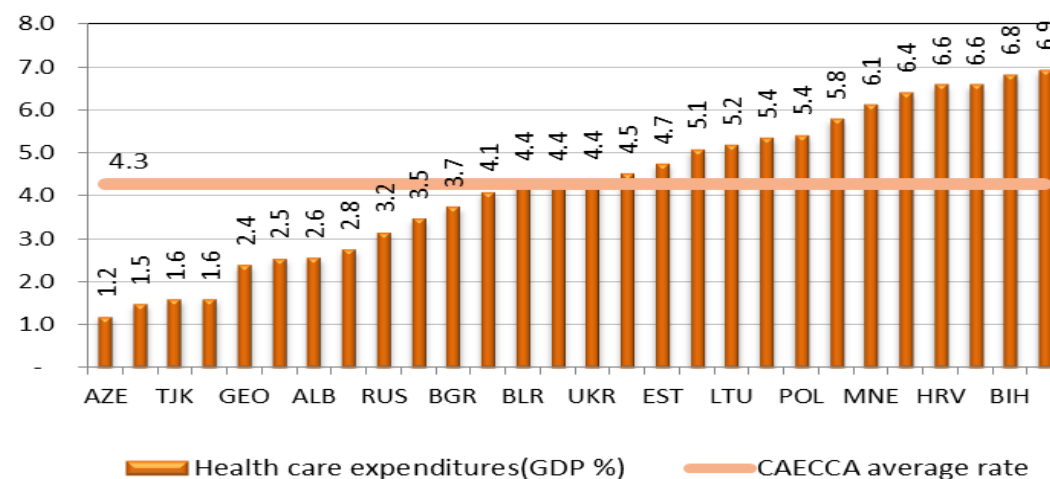
Source: World Bank an Ministry of Finance

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[5] When preparing this document (December 2012) the 2012 data were not available yet, so Figures indicated in the Law on Budget were taken as projected indicators.
[6] Central and Eastern Europe, Caucasus and Central Asia.

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The increase of public health spendings was mainly due to increased financing of hospital and outpatient services which from AMD 19.3 bln and AMD 18.6 bln in 2008 climbed up to AMD 26.9 bln and AMD 22.5 bln in 2011 correspondingly (Table 19).

Table 19. Public health spendings in 2008-2013 (AMD bln)

Expenditure type	2008	2009	2010	2011	2012	2013
Medical goods, equipment and instruments	4.7	3.6	3.9	4.1	3.7	3.7
Outpatient services	18.6	20.4	20.2	22.5	23.8	23.9
Inpatient services	19.3	21.6	21.4	26.9	27.1	27.3
Public health services	2.8	2.9	2.8	3.0	3.1	3.2
Healthcare (other)	4.4	7.7	7.9	6.8	7.5	14.0

Source: RA State Budget Reports, 2012 and 2013 budgets (during preparation of the report the 2012 state budget performance report was not available yet)

Allocations to hospital services have increased in the structure of public health spendings between 2008 and 2011 from 38.7% to 42.5 % (Figure 29).

Figure 27. Ratio of different spending groups in public health expenditures, 2008-2013
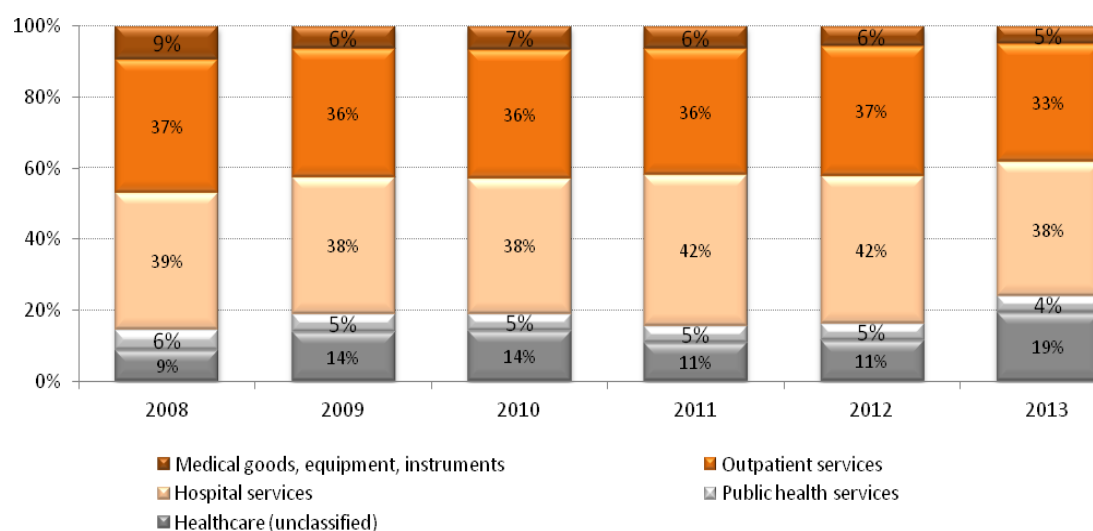
Source: RA State Budget Reports, 2012 and 2013 budgets (during preparation of the report the 2012 state budget performance report was not available yet)

The 2012 and 2013 public budgets envisage reduction of hospital spendings to 41.6% and then down to 37.9%. Financial allocations to outpatient services between 2008 and 2011 gradually decreased from 37.3% in 2008 to 35.6% in 2011. According to the 2013 public budget 33.2% of public health spendings will be directed to financing of outpatient services. The proportions of inpatient and outpatients spendings shrink in the structure of public health expenditure, although their absolute figures grow. In 2013 they will equal to AMD 27.3 bln and AMD 23.8 bln correspondingly (versus 26.9 bln and 22.5 bln in 2011 correspondingly). This will result from almost doubling of health spendings not specified under other categories. The latter showed unstable trends - increasing in 2008 from AMD 4.4 bln (or 8.9% of health spendings) to AMD 7.7

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bln in 2009 and to AMD 7.9 bln in 2010 (13.8% and 14.1%) correspondingly and in 2011 went down to AMD 6.8 bln (10.8%). In 2012 an amount of AMD 7,5 bln was designated to finance health spendings not classified under other categories and in 2013 this figure reached AMD 14.0 bln (including financing of health related services will be more than doubled) (mostly within the WB- implemented Non-communicable Disease Prevention and Control Project[7]) making up 12.9 bln drams as opposed to the 6,4 bln drams projected in 2012. As a result their proportion in the structure of public health spendings will increase from 8.9% projected in 2008 to 19.4% in 2013.

Between 2008 and 2011 financing of medical goods, equipment and instruments has dropped (9.5% in 2008 versus 6.4% in 2011) along with public health services (from 5.6% to 4.7%). According to 2012 and 2013 public budgets financing proportions of these groups will decline from 5.7% to 5.1% for medical goods, equipment and instruments and for public health services their proportion will drop to 4.4.% of total health spendings in 2013.

Health financial management reforms in CEECCA[8]

Based on the study of reforms implemented in transition economies during the last 20 years the WHO concluded that **consistent and successful implementation of reform strategy requires clearly defined policy goals.** The policy goals should be defined on the basis of in-depth study of health sector challenges and relevant policy implementation tools should be selected, which can help addressing the revealed problems. Despite the fact than transient economies have shared same goals, each of them had its unique reform patterns depending on their baseline situation. Reforms in CEECCA countries have ended in different situations as of 2012.

In case of structural problems in health care sector **inefficiency mostly hits the poor.** When it comes to ensuring access to health care services the goal should be ensuring that the services and resources are utilized by those who need them and not the rich.

Data on health financing in CEECCA countries have primarily changed in two directions. Health spendings and total health spendings have increased in the public expenditures structure (as a percentage of GDP). The direction and size of this growth vector (Figure 30) was mainly ensured due to Balkans, EU-member EE and Baltic countries.

From ex-Soviet countries, these two indicators have increased in Georgia (6.5% and 7% in 2000 versus 6.9% and 10.1 % in 2010), Ukraine (8.4% and 5.6% in 2000 versus 9.4% and 7.7% in 2010) and Moldova (9.5 % and 6.1% in 2000 versus 13.1% and 11.7% in 2010).

So it seems the indicators for 2000 and 2010 reflect a specific situation at a specific moment. But taking into consideration the fact that there was a whole decade between these two moments during which the studied

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[7] During 2013 budget preparation the project was in negotiations/preparatory phase. Financing of AMD 6758.7 mln is envisaged in 2013.

[8] This section and information of health financial management system reforms in CEECCA countries are largely based on the study by Kutzin, Cashin and Jakab. Data are derived from the WB database.

countries implemented health reforms, it should be concluded that the reform results should be reflected in financial indicators of the last phase of the decade.   As a percentage of GDP health spendings increased in Armenia, Kyrgyzstan and Hungary, whereas the vector of financial indicators in Russia, Uzbekistan, Turkmenistan and Belarus moved the opposite direction[9].

The study of 2000-2010 economic growth and public health spendings as a percentage of GDP suggest that in 28 CEECCA countries the high economic growth did not have essential impact on the amount of public health spendings. As Figure   31 shows in countries with high economic growth rates the amount of government allocations to health sector as a share of GDP has been small.

Despite the relatively slow rate of economic growth in the Eastern and Central Europe authorities of this group of countries (including Moldova and Ukraine) have made tangible public health spendings. Countries with high economic growth rates, such as Turkmenistan and Azerbaijan made very modest state budget allocations to health. In general, in terms of public health financing, the countries have clear geographic division: eastern CEECCA countries spend more money from state budget on health sector compared with their eastern counterparts.

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[9] Meaning the proportion of health spendings in the state budget was reduced along with total health spendings as % of GDP.

Figure 30 . Health financial indicators 2000 and 2010 in CEECCA countries
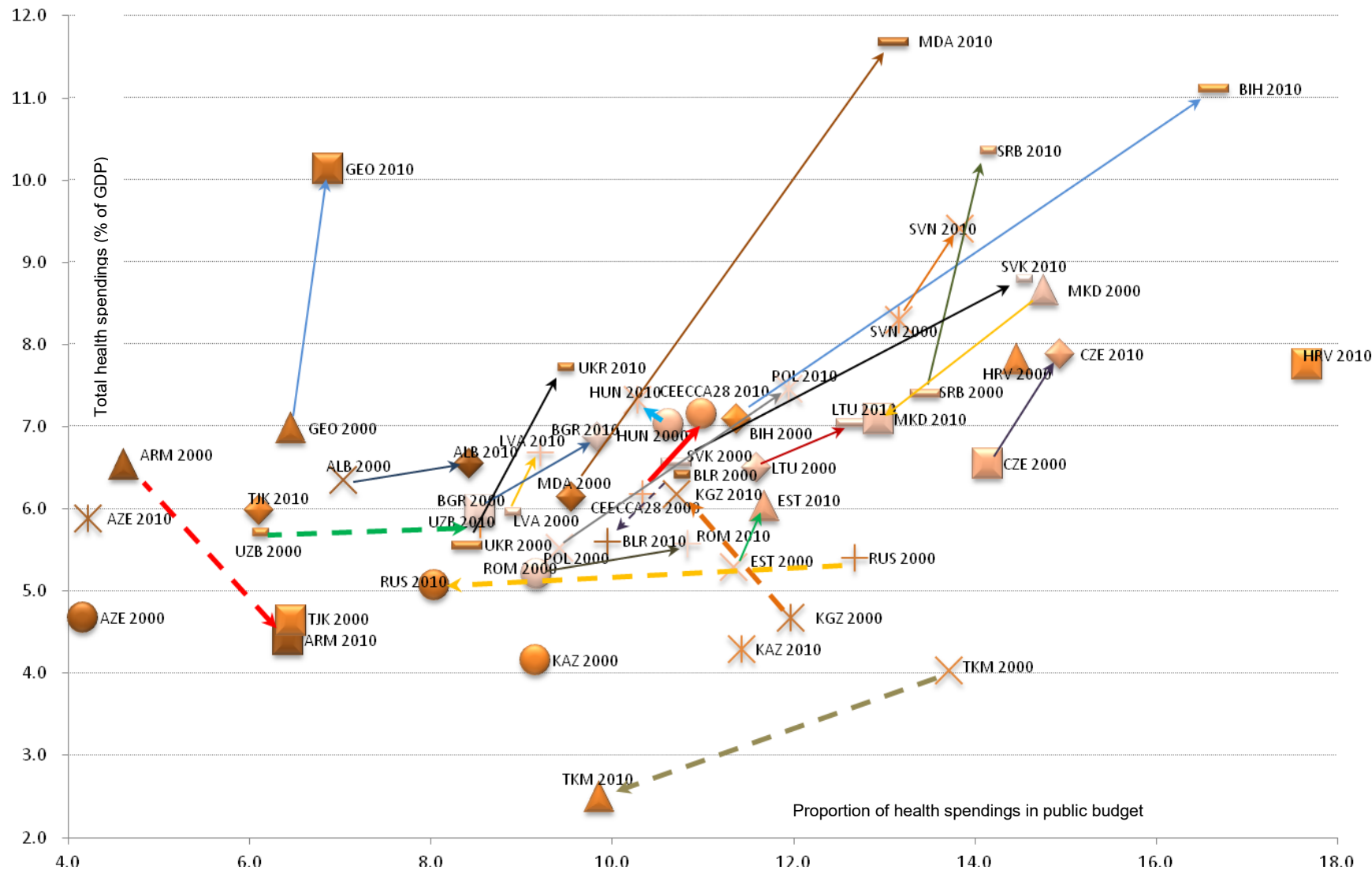
Source: WB

Figure 31. Average value of economic growth and public health spendings in CEECCA countries, 2000-2010
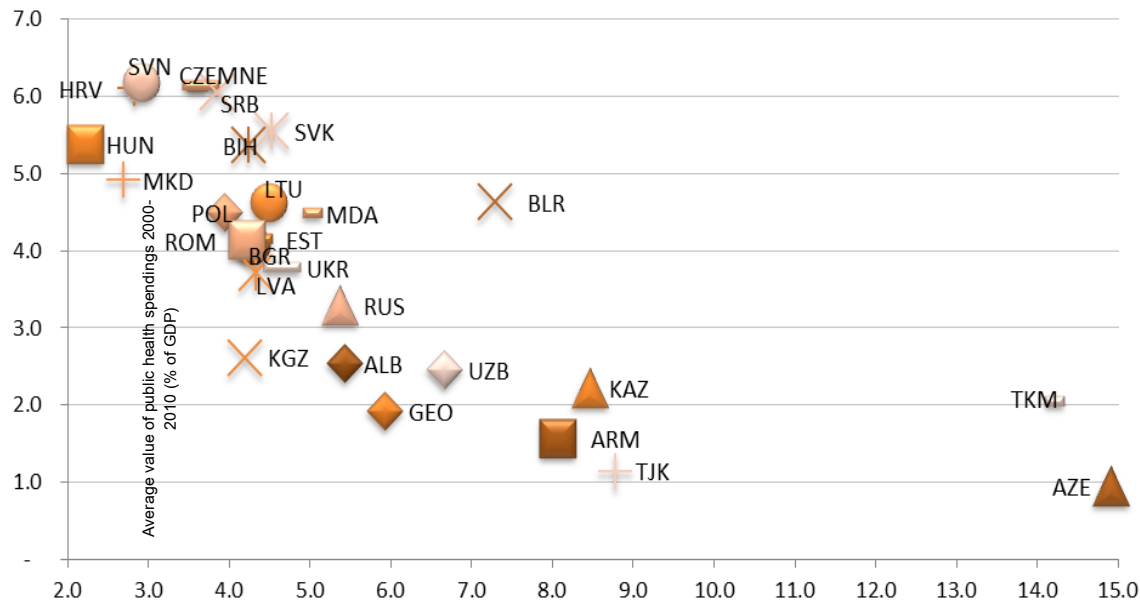
Source: WB

Average rate of GDP growth in 2000-2010

In the countries that had a clear set of policy objectives and a coherent approach to selecting policy instruments, such as in Kyrgyzstan and later in the Republic of Moldova, the economic crisis was turned into a health reform opportunity (Kutzin, Cashin և Jakab 2010, page 388). In other countries, however, such as Armenia and Georgia during the 1990s, the policy responses led to an exacerbation of the crisis in the health system, and there were severe negative consequences for the population, particularly in terms of equity and financial risk protection.

A big group of CEECCA countries created public health insurance structures (funds or agencies) to administer tax revenues collected for health financing within the revenue reform framework. Three countries including Armenia created a new structure responsible for the purchase of health services, but without dedicated tax flows to it. The third group of countries included those with no new agency created to purchase health services.

The rates for dedicated payroll taxes are relatively high in EU new member countries and those independent from former Yugoslavia – they vary from 6% (Bulgaria) to 17% (Bosnia and Herzegovina). In Albania and former USSR countries where despite of implementing dedicated taxes, public allocations continue being the only financial source of health programs, the dedicated tax rates range from 2% to 5%. Almost none of these countries did actual calculations. Instead the rate of dedicate tax was defined 'by eye' and with a consideration of not increasing drastically the tax burden of employees and employers. *The success of reforms rests not with implementation of dedicated taxes but the ability to ensure certain level of revenue flow to the health sector.*

If the funds are centralized but the purchase mechanism depends on the purchasing capacity, there will be no reallocation and no incentive for reduction of fixed spendings, and vice versa – positive results from any new purchase mode will be limited if there is no pooling of funds. Achieving the goals related to efficiency, fairness and financial protection requires *reduction of the fragmentation of financial resources via pooling* and *creation of necessary incentives through purchase mechanism reforms.* In

other words the newly created ***structure should be responsible for the health service purchase function*** and should have ***a good management and accountability system.***

Although, on the way to the market economy, the CEECCA countries started their health reforms from approximately similar baseline situation (there were differences, but not essential in terms of the general structure), the changes of the past 20 years brought them to different situations. Health financing reforms can help addressing structural challenges of the sector. The experience of the past 20 years offers a number of recommendations to the policy-makers.

1. Determination of policy goals first of all requires determination of the challenges faced by health system.
2. Identify the reasons behind fragmentation of the system and options for the reduction and elimination of their negative impact.
3. Elimination of the fragmentation and creation of incentives requires development of the sector reform strategy.
4. Implement the strategy always bearing in mind the scope of issues which can be compromised and the scope of issues where compromise is excluded. The latter include any issue related to the fragmentation of the system.
5. The implementation process should be supported by reporting (accountability) and analytical mechanisms, so that the society and decision-makers be confident that the resources are properly targeted and that they can react and make changes if deviations from policy goals are detected.

The reform experience of CEECCA countries pinpoints on a number of pitfalls, such as:

1. Treating the benefits package as the solution to an accounting problem rather than as a policy instrument.

2. "Solving" informal payments simply by legalizing them as copayments.

3. Undertaking incomplete or "half-hearted" reforms.

4. Having unrealistic expectations in terms of the effectiveness of health financing instruments in improving quality of care.

5. "Starting insurance" with the formal sector and hoping that economic growth will bring eventual progress towards universal coverage, as it did historically in many western European countries. This approach ignores the fact that the baseline situation of low and middle-income countries differs from situations faced by Germany or UK some 70-100 years ago.

6. Ignoring public health services and public health programmes.

Details of the analysis of health financing management system reforms in CEECCA countries are presented in the Annex.

The summary report of 2012 activities issued by the Ministry of Health[10] reads that following the RA President's assignment the Ministry of Health initiated efforts aimed at gradual introduction of a

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[10] The Ministry of Health summary of 2012 activities issued 26 December 2012 and available at http://moh.am/?section=news/open&id=143&nid=1898

mandatory health insurance system in the country from 2014. The Ministry should consider studies, analysis of the experience of the CEECCA countries, the lessons learned, achievements and failures.

Equity in health financing and financial protection

Equity in health financing means that the poor should not spend most of their incomes on health services than the rich. In other words, the financial fairness in health is closely linked with the social solidarity assuming that the rich make solidarity payments to reduce financial burden of the poor.

Financial protection in health means that people should not become poor or bankrupt as a result of using health care, nor should they be forced to choose between their physical (and mental) health and their economic well-being. The effectiveness of health financial management is defined based on the ability to protect people from the above-said risks and ensuring their access to health services. Wagstaff and van Doorslaer (2003) suggest measuring protection by estimating the percentage of households that experienced a "catastrophic" level of health expenditure; and impoverishing expenditure, measured as the impact of health spending on the "poverty headcount" (number or percentage of households that fell below the nationally defined poverty line as a consequence of their health spending) or "poverty gap" (extent to which households fell below the poverty line as a consequence of their health spending). Catastrophic expenditures are the level of health spendings that exceed a certain threshold percentage of total or non-subsistence household spending.

According to the survey on living standards of households conducted in 2011 the extremely poor did not apply to PHC settings for obstetrical and gynecological services (these services were sought by 2.5% of poor and 2.5% of non-poor), dental services (versus 1.3% of poor and 1.7% of non-poor), private clinics (0.0% of poor and 3.5% of non-poor) and diagnostic centers (1.7% of poor and 3.3% of non-poor). The rich spent 8.6 times more money on outpatient services than the poor. Those eligible to the Government-funded basic benefit package (BBP) included 7.2% of extremely poor, 6.8% of poor and 6.1% of rich. Only 10,5% of households eligible for family benefits were entitled to BBP including 11.4 % of extremely poor. The extremely poor quintile consumes 12 times less health services compared with the average rate of utilization, whereas utilization of health care services by the top wealth quintile exceeds the average consumption by 4 times.

Out-of-pocket spending

The analysis of data from nearly 80 countries reveals a strong correlation between the share of out-of-pocket payments in overall health spending and the percentage of families facing catastrophic health spending[11] (Xu et al. 2005). Kutzin, Cashin and Jakab (2010) suggest that the share of out-of-pocket payments in total health spendings can be considered a good indictor of financial protection. The World

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[11] This means that the bigger the OOPS are, the higher is the likelihood that the families where a member has health problems, may become poor.

Bank study of 1997 shows that the low-income countries[12] have low level of health spendings and the private, out of pocket, relatively more regressive expenditures share most part of health spendings (Table 20).

Table 20. Specifics of the proportion of private health spendings, government revenues and the country income level

Country income level	Government revenues (% of GDP)	Share of private spendings in health expenditure (%)
Low	20	53
Middle	31	43
High	42	33

Source: Schieber and Maeda (1997)

In Armenia the increase of public health spendings did not result in decline of out-of-pocket payments by citizens (Figure 32), which leads to the conclusion that the health sector faces serious structural, organizational and management challenges. Private expenses, as a percentage of total health spendings, started to increase during the global financial and economic downturn and afterwards (the share of OOPS in private health spendings did not change between 2006 and 2010).

Figure 32. Out-of-pocket health expenditures in Armenia
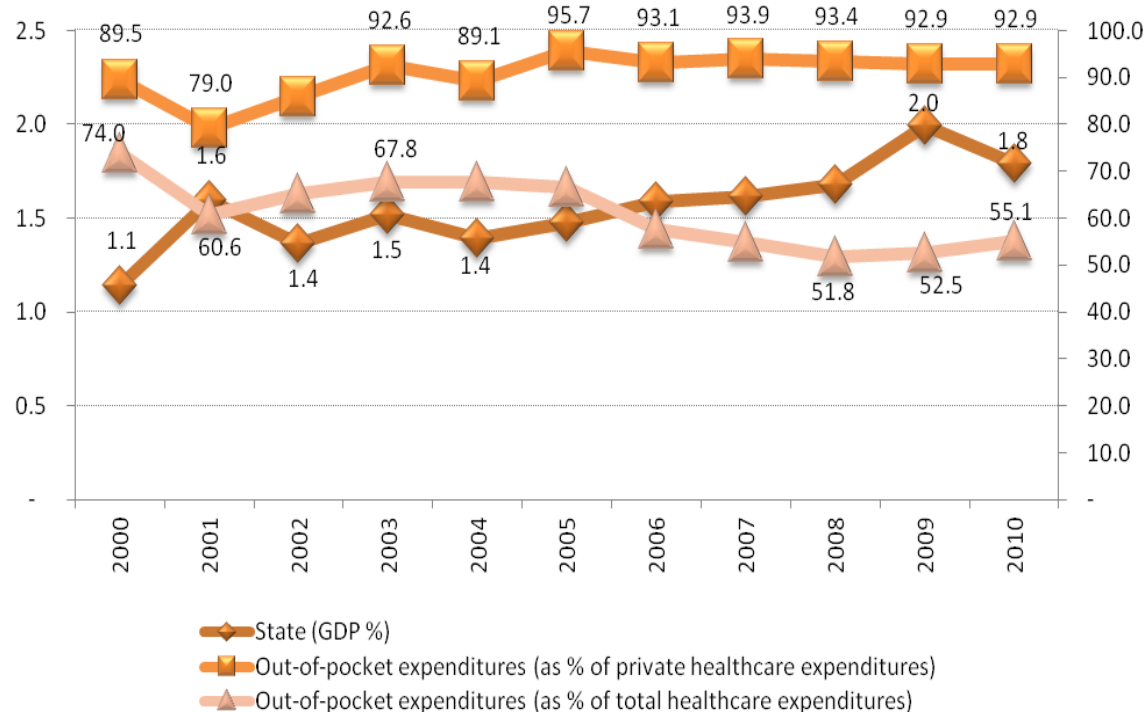
Source: WB

Figure 33. Correlation between out-of-pocket health expenditures and per capita GDP in Armenia
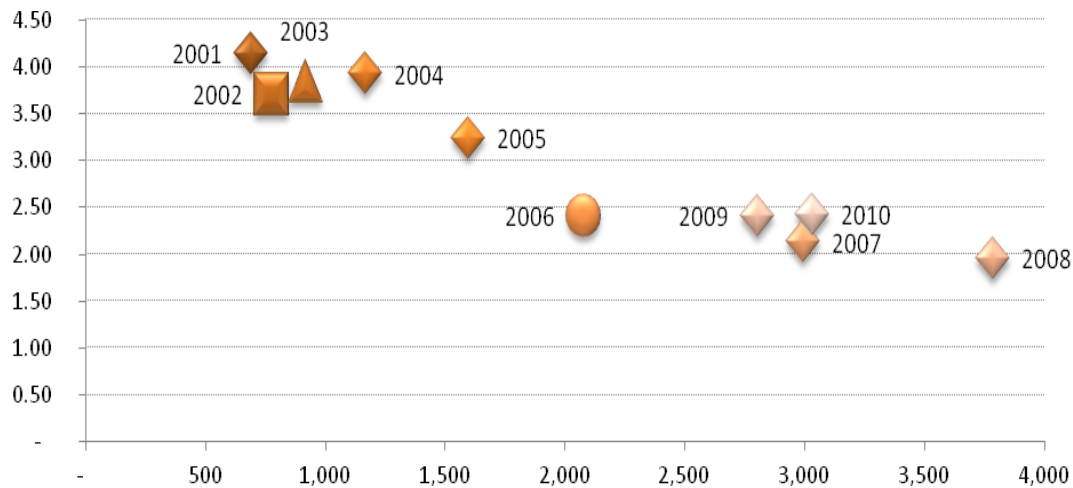
Source: WB

As Figure 33 shows the economic growth contributes to reduction of out-of-pocket spendings as a percentage of GDP. However this Figure may also contain an element of illusion. This result can be achieved if the GDP (hence per capital GDP) have grown rapidly, while the private health spendings by households did not show similar growth, hence the results of the economic growth are not evenly distributed across population groups.

The impact of the social package

In 2012 the Government introduced a social protection system for employees of public companies. The goal of this social package was to help (1) meeting social needs of employees, (2) boost their motivation and productivity, (3) increase attractiveness of public jobs, (4) reduce workforce leakage from public sector to private in public organizations and companies as well as educational, cultural and welfare spheres.

The "Program on provision of a social package for employees of public organizations and companies" envisaged by the Law on Public Budget 2012 is funded within the framework of the health insurance base package from the dedicated funds of the Central Treasury of the Ministry of Finance through allocations and transfers to insurance companies, based on health insurance coupons submitted by them to the Ministry of Finance[13]. The Government has defined standards of the companies providing health insurance services, the health insurance base package, and the template of the health insurance agreement[14].

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[13] Paragraph 1.2 of the RA Government Decree N1917-N "On approving the order of provision of the social package" issued 29 December 2011.

[14] Paragraph 3 of the RA Government Decree N1923-N "On approving the content, list of services and /or standards of the social package" issued 29 December 2011.

The aforementioned Decrees and following activities had their impact on the scope and structure of health financing. "Maximum growth in total revenues was recorded from insurance payment receipts which during January-November 2012 made up AMD 2.5 bln, increasing by AMD 1.8 bln or around 3,5 times versus same period of 2011. This drastic growth is attributed to the implementation of the mandatory health insurance for public servants within the framework of social package in 2012"[15]. According to the preliminary data, in 2012 some 10 billion drams was transferred to insurance companies within the scope of the social package. Apparently private insurance companies will assume the responsibility of insuring health of the insured if, according to their estimates, the amounts do not exceed the above-mentioned 10 billion drams[16] (private insurance companies work for profit and have to envisage also administrative and managerial costs). Wouldn't it be more reasonable to top up the said AMD 10 bln to the 65.1 bln to be allocated to health from the public budget in 2012, instead offering health services to public servants? In that case, if a health insurance agency or fund is created in Armenia responsible for public health insurance or SHA becomes responsible for the public health insurance function, the unused funds which in 2012 will equal approximately AMD 7 bln, will stay with the health sector.

It could be possible to adequately assess the impact of the social package on the health financial indicators only in 2-3 years because in the initial phase of 'mandatory' implementation of insurance systems the contributors and policyholders do not trust the systems, are not aware of the system principles, etc., which often results in refraining from utilization of insured services, thus ensuring small compensations in the beginning. This creates an impression that the insured make payments while not receiving relevant services instead[17]. In several years after introduction it would be possible to assess the weight and the role of insurance in total health spendings.

However there are questions to be addressed at the moment of introducing the system.

WHO specialists recommend strengthening financial protecting of the poor instead of expanding the scope of services delivered to the wealthy groups (civil servants and those employed in formal sector of economy) during financial reform of health sector.

The scope and structure of total health expenditures

Direct household expenditures continue dominating in the structure of total health expenditures.

The structure of public and private health expenditures in CEECCA countries is presented in Figure 34.

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[15]   The Ministry of Health summary of 2012 activities issued 26 December 2012 and available at http://moh.am/?section=news/open&id=143&nid=1898

[16]   This amount will increase in the coming years.

[17]   A similar situation was recorded in the beginning of the APPA system implementation, when the compensations were much smaller than the premiums received by the insurance companies.

Figure 34. Share of public and private expenditures in the structure of total health spendings, 2010
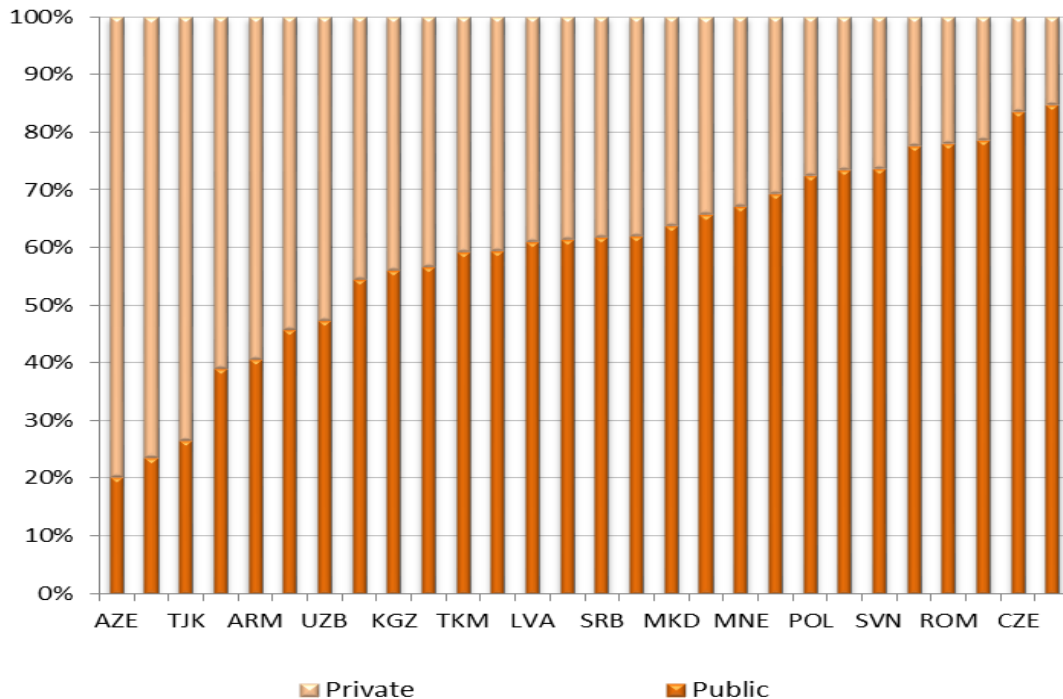
The average share of public health spendings in the total health expenditure in CEECCA in 2010 was 59.5% (40.6% in Armenia). The proportion of public health spendings was big in eastern countries affiliated with EU and the former Soviet Union countries and was relatively small in South Caucasus countries, Tajikistan and Albania. Although in Moldova public health expenditures cover only 45.8% of total health expenditures it should be noted that Moldova has the biggest share of total health spendings compared with all other surveyed countries, i.e. 11.7% of GDP (5.4% of GDP public and 6.3% private).

Health information limitations

When preparing this chapter the authors dwelled mainly on data presented in the reports on RA public budgets and their performance, the RA Government strategies and MTEF, as well as WHO and WB publications and information available in database. Public budgets and reports on their performance published in Ministry of Finance website contain rather detailed information on public budgets, including health allocations, but data are presented in aggregated form. Allocations earmarked for specific programs and activities as well as information on spending efficiency and cost-effectiveness should be available in the official website and reports of the structure responsible for health financial management.

Management of public health funds is the responsibility of the State Health Agency (SHA). The SHA Charter defines the following goals and objectives:

a) *Ensuring allocation of funds* to health providers in line with performed actual work, pursuant to the agreements signed within the framework of State-Guaranteed Free Medical Aid and Assistance.

b) *Ensuring effective and dedicated spending* of the public budget funds allocated for delivery of health aid and assistance under the state order (basic benefit package) as defined by the targeted public health programs.

However the SHA internet website does not contain any financial information that could be useful for analysts.

Reports on performance of public budget include summary data on budget execution. The study of some non-financial indicators provided in these reports reveals interesting facts (probably these data are not taken seriously). Table 21 presents data for PHC services and Table 22 those for the narrow specialized health services.

Table 21. Non-financial data reflected in public budgets for primary health care services provided to population

	2009			2010			2011		
	Projected	Actual	Deviation	Projected	Actual	Deviation	Projected	Actual	Deviation
Health services delivered to 18 and above age group by district therapists and family physicians									
Citizen	2,424,758	2,424,758	0	2,459,700	2,459,700	0	2,493,394	2,493,394	0
Health services delivered to under 18 age group by district pediatricians and family physicians (excluding pre-conscription and conscription age people)									
Citizen	707,850	707,850	0	687,846	687,846	0	673,785	673,785	0
Funds allocated to persons entitled to receiving drugs for free and/or on discount conditions									
Person	489,500	489,500	0	492,800	492,800	0	456,400	456,400	0

Source: Public budget performance reports

Table 22. Non-financial data reflected in public budgets for narrow specialized services provided to population

	2009			2010			2011		
	Projected	Actual	Deviation	Projected	Actual	Deviation	Projected	Actual	Deviation
Dispensary care									
Citizen	3,230,086	3,230,086	0	0	0	0	3,249,482	3,249,482	0
Narrow specialized care delivered to 18 and above age group									
Citizen	2,424,758	2,424,758	0	0	0	0	2,493,394	2,493,394	0
Narrow specialized care delivered to under18 age group									
Child	805,328	805,328	0	0	0	0	756,088	756,088	0

Source: Public budget performance reports

The RA Government 2013 budget message reads, "Given that outpatient health services are financed on per capita basis, 3274.3 thousand was taken as the number of population for estimation purposes, of which 2544.9 are adults, 656.4 are children, and 73.0 thousand are pre-conscription and conscription age young men". According to the 2011 census conducted in Armenia the number of permanent residents of the country is 2.8 million. The fact that officially published census data are not used (for estimation purposes) in socioeconomic policy programs casts doubt on the reliability of final and interim targets of that policy, along with the appropriateness of conducting a census, to say nothing of the creation of corruption opportunities.

Facts and policy recommendations

Situation	Policy recommendations
Public financing of the Armenian health system has increased in relative terms in recent years. However, government expenditures on health care as a percentage of GDP and share of public budget expenditures remain low. Needs assessments (including those by the Government) and international comparisons suggest that further increase of public financing should be made.	Continue increasing government spending on Health, defining clear-cut financial goals linked with health sector goals.
	Given limited resources proper targeting and efficient spending of funds is given a high priority. Data on targets and efficiency of funds should be published regularly, at least on quarterly basis.
General data on public health spendings are presented in details in annual RA public budget performance reports.	Annual RA public budget performance reports are not sufficient for NGOs and independent experts involved in the sphere to analyze health reforms, data on implemented programs, activities and investments and to assess their cost-effectiveness.
Data on financing of specific health projects, activities and works are not published on official website of the structure responsible for financial management of the health sector.	SHA, being responsible for public finance management, should make data on financial management of the health sector transparent and available for the public and analysts.
The level of out-of-pocket spendings on health services is high in Armenia.	Proceed in developing and implementing documents (concept papers, strategies and legislative acts) providing for clear-cut goals, indicators and activities, to address informal and other out-of-pocket payments for health care services. Given that a number of issues in health sector are interconnected, develop documents (concept papers, strategies and legislative acts) geared at addressing not individual problems but groups of problems faced by the system. These documents should consider the situation with health management and health status of the society, citizens and population groups; international experience of implementing health management reforms, particularly that of CEECCA countries and should ensure targeted solutions of these problems.
	Among goals for the coming years should be clearly defined target indicators of equity in financing and financial protection of vulnerable groups.

3. ACCESS TO HEALTH CARE SERVICES

An effective health system implies delivery of maximally effective and adequate health care services to the population against compatible level of resources.

According to the WHO definitions there are three types of access:

- Financial: when the ability to access care is limited due to financial restrictions of the household.
- Geographic: when the ability to access care is limited due to physical distance of the health settings or their absence.
- Information: when the ability to access care is limited due to lack of information and citizens' not being aware of their rights to health services.

According to NSS data published in 2011, some 35.5% of the population of Armenia were considered poor, which implies that financial barriers to access health care services is a key challenge for the country.

The problem of physical access to care and the current situation is conditioned with strongly uneven distribution of the population cross the country. The capital city of Yerevan hosts 34.4% of the country population, marzes 29.6% and villages 36%. The population of two marz cities – Gyumri and Vanadzor - significantly outnumbers those of other marz towns. That is why the dominating majority of health facilities and especially the specialized ones are located in Yerevan. In this regard both Gyumri and Vanadzor are in better shape. This uneven distribution of inpatient settings resulted in very high concentration of doctors (including the qualified ones) in Yerevan. A factor contributing to worsening of physical access to care is the mentality of the population: most of people tend to believe that the quality of care in marz hospitals is lower than in Yerevan, which makes part of marz residents seek inpatient care in health facilities of the capital. To improve access to marz hospital care the health system optimization strategy envisages establishment of a multi-profile hospital in each of the marzes and making tangible investments, providing modern instruments and equipment and creating all necessary conditions for delivery of care.

The informational barrier to health care deserves attention, because although there are different privileges and regulations facilitating utilization of healthcare services, many people are not aware of them and make voluntary or forced out-of-pocket spendings which could be avoided.

This section dwells on the following question - Are healthcare services accessible to everyone who needs them, especially the most vulnerable?

Utilization of medical services

The number of per capita per annum outpatient visits and the number of per capita per annum hospitalizations in Armenia has declined abruptly compared with 1999 (Figure 35 and Figure 36). The indicators started increasing from 2000 supported with the significant economic growth recorded in the country. Nonetheless the rate of hospital visits increased more than that of outpatient ones.

The presented indicators can be explained as figures reflecting similar approach to both inpatient and outpatient services by the population.

The hospitalization rate for Armenia is higher than the rates for Azerbaijan and Georgia, and below the rate of Turkey, CIS, EU-26 and EU-27 countries. A similar picture is seen in outpatient visits with a difference that Armenia rate is slightly lower than Azerbaijan (Figure 37 and Figure 38).

Figure 35. Annual hospitalization rate per 100 population, 1990, 1995 and 2000-2011
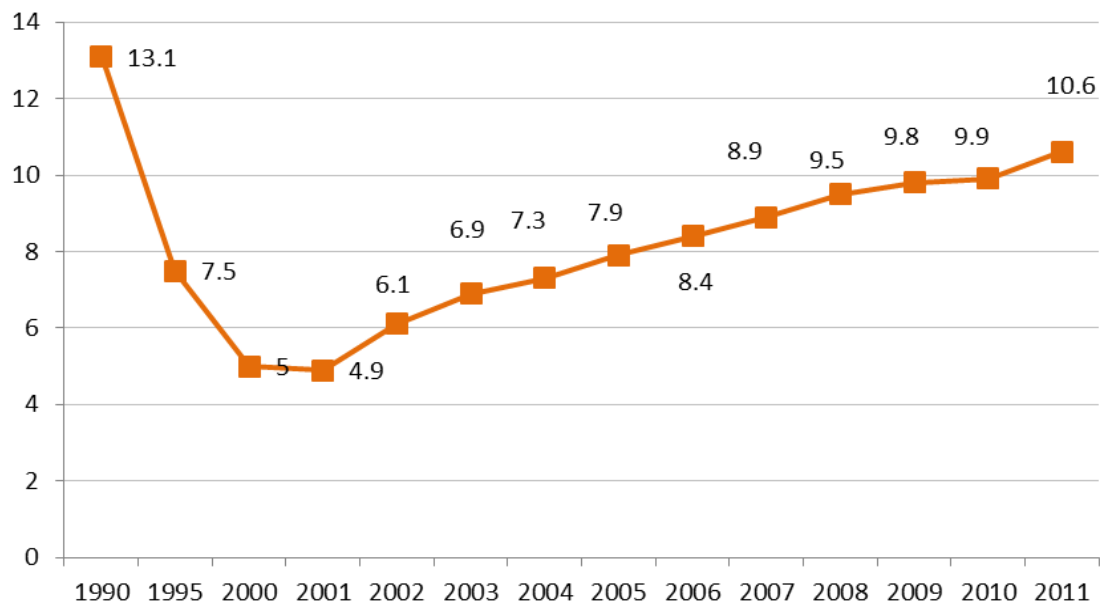
Source: NHIAC, 2012

Figure 36. PHC per capita visits, 1990, 1995 and 2000-2011

Source: NHIAC, 2012

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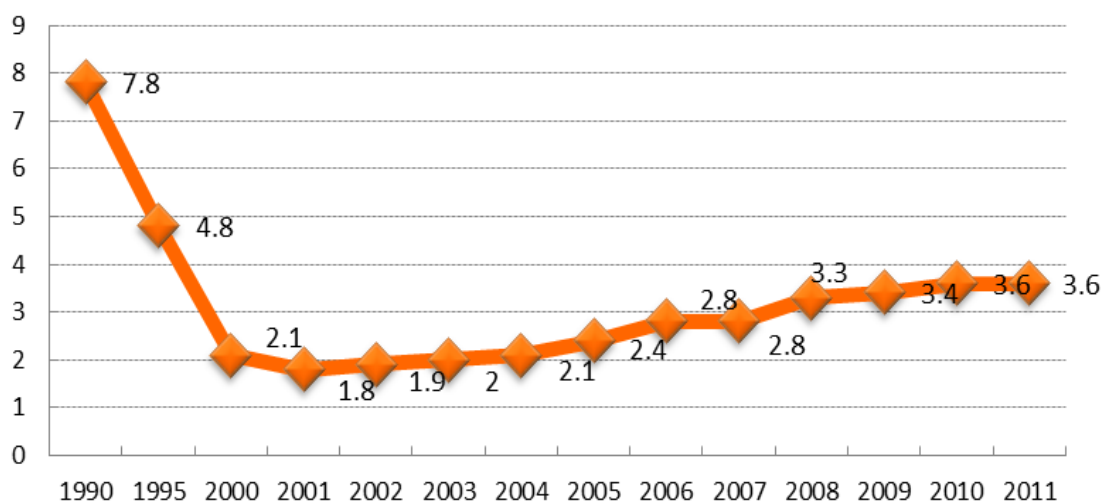
Figure 37. Hospitalization rate per 100 population, selected countries and country groups, 2007
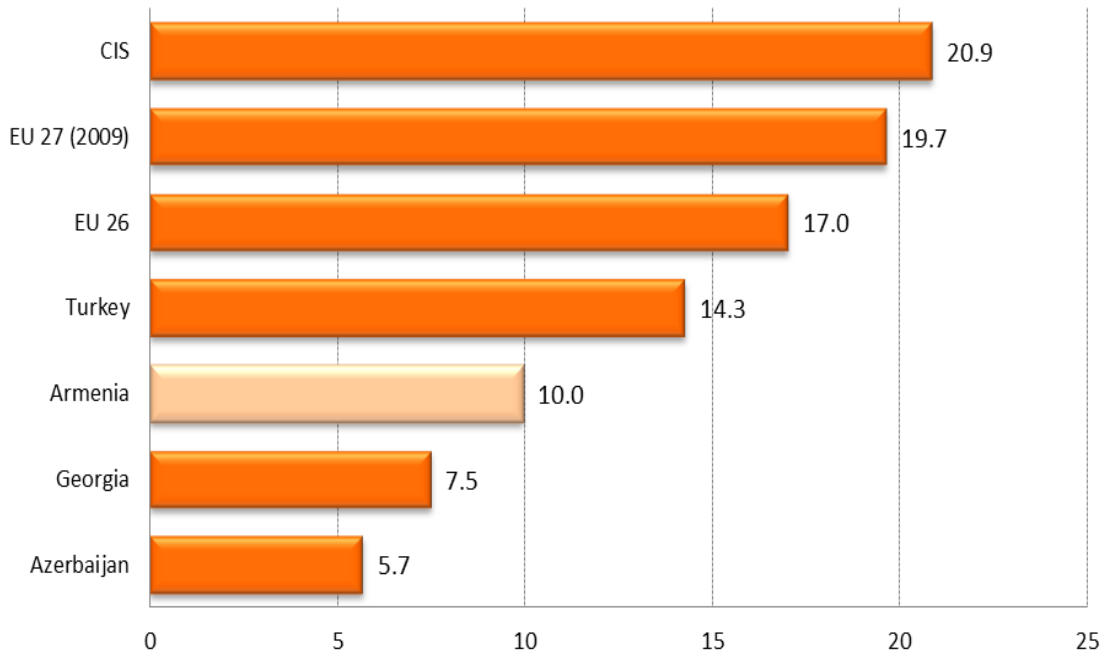
Figure 38. Ambulatory visits per capita, selected countries and country groups, 2010
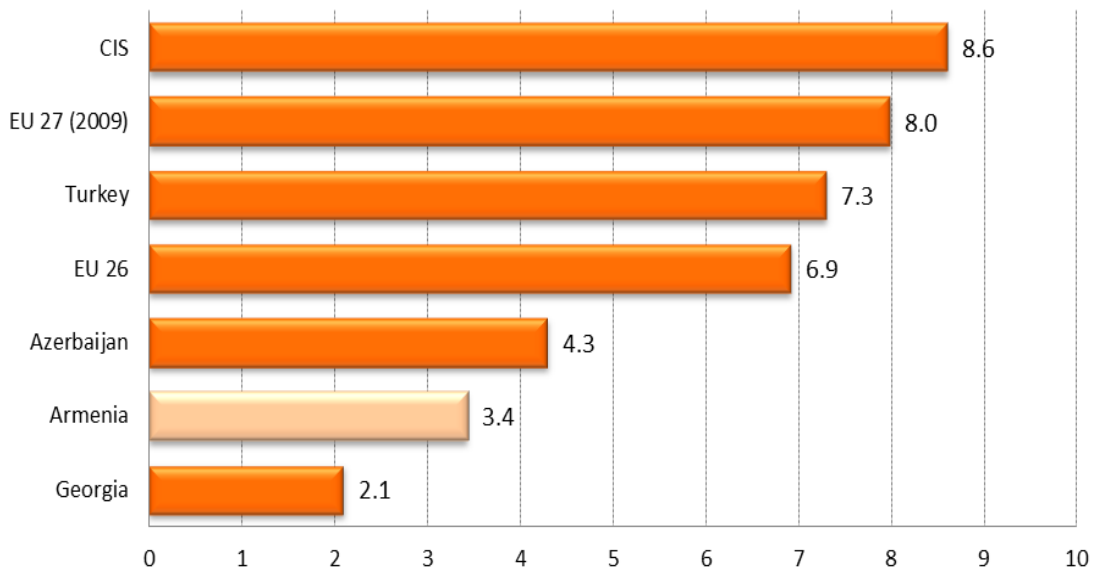
Source: HFA-DB, WHO, 2012

Figure 39 presents the number of hospitalizations per 10 population per marz between 2006 and 2011. As the figure shows

- **The hospitalization rate during individual years is higher in Yerevan, followed by Shirak and Lori marzes.**

This fact confirms the above statement that hospitals are located mostly in Yerevan and two major urban settlements - Gyumri and Vanadzor.

Relatively high are the hospitalization rates in Kotayk and Syunik marzes. Both should be attributed to high urbanization rates. Kotayk has 5 urban areas, of which Abovyan and Hrazdan are the next to Vanadzor in terms of population. Syunik has very high urban population rate. Given the big area of this

marz comments and explanations should be carefully made, since the situation in rural settlements that are far from Kapan and Sisian (military hospital available) may be very different.

Another important aspect of Figure 39 is that it shows a decline tendency of hospital admissions during the period of 2008-2009, which may be explained by the impact of global financial crises on Armenia, which contributed to the growing level of unemployment in the country. Nevertheless, a decrease of hospitalization rate was recorded in Yerevan in 2010, which along with other factors, may be conditioned with opening of marz hospitals. As the figure suggests a **constant** growth of hospitalization rate was recorded in several marzes, including Kotayk, Lori and Syunik.

At the same time a constant decline of hospitalization was seen in Vayots Dzor.

It is noteworthy that

- **The increase of hospitalization at private and MoH inpatient facilities between 2011 and 2006 has not changed much and has increased by 22.7% and 21.6% correspondingly** (Figure 40).
- **On the other hand, the number of hospitalization cases has increased between 2011 and 2006 by 27.4% in Yerevan and by 12.3% in marzes** (Figure 40).

Based on these data it can be concluded that despite of all above developments **the attempt to 'unload' Yerevan hospitals during the said 5 years period failed.**

Figure 39. Hospitalization rate per marzes per 100 population, 2006- 2011

	Yerevan	Aragatsotn	Ararat	Armavir	Gegharkunik	Lori	Kotayk	Shirak	Syunik	Vayots Dzor	Tavush
2006	6.4	3.6	4.2	3.6	4.0	4.9	4.4	6.5	5.0	4.1	4.5
2007	6.9	3.8	4.5	3.4	4.2	5.1	4.8	6.7	5.2	4.2	4.5
2008	7.5	4.2	4.7	3.4	4.6	5.4	5.0	7.0	5.4	4.4	4.4
2009	7.8	4.2	4.4	3.4	4.6	6.2	5.3	5.4	5.4	4.0	4.6
2010	6.2	3.9	4.2	3.5	4.3	6.0	5.1	5.3	5.3	3.4	4.4
2011	6.6	3.9	4.4	3.7	4.5	6.1	5.2	5.4	6.0	3.4	4.4
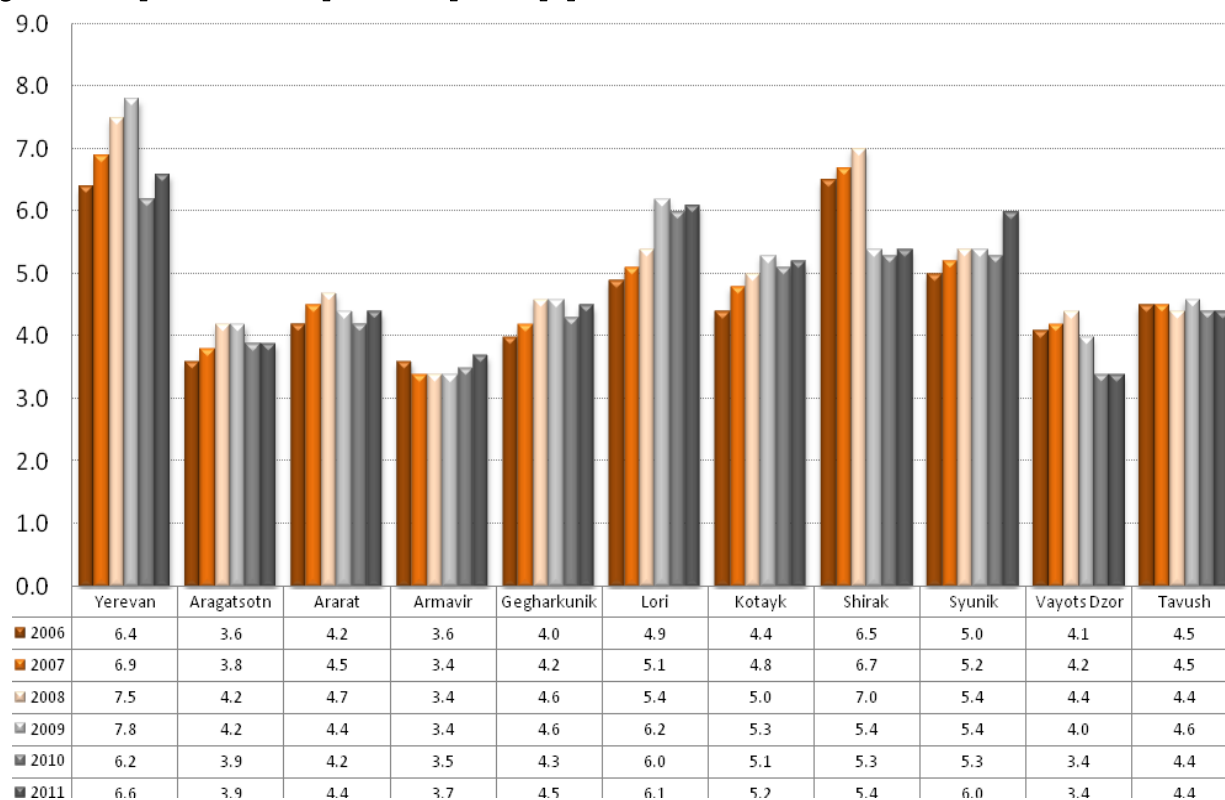
Note: The data for Yerevan include only the hospitals under the Municipal Health Department. The hospitalization rates for other Ministry of Health facilities were not included, as they serve the entire country, not just Yerevan.
Source: NHIAC, 2012

Figure 40. Number of patient admissions, Ministry of Health versus private hospitals, 2006-2011
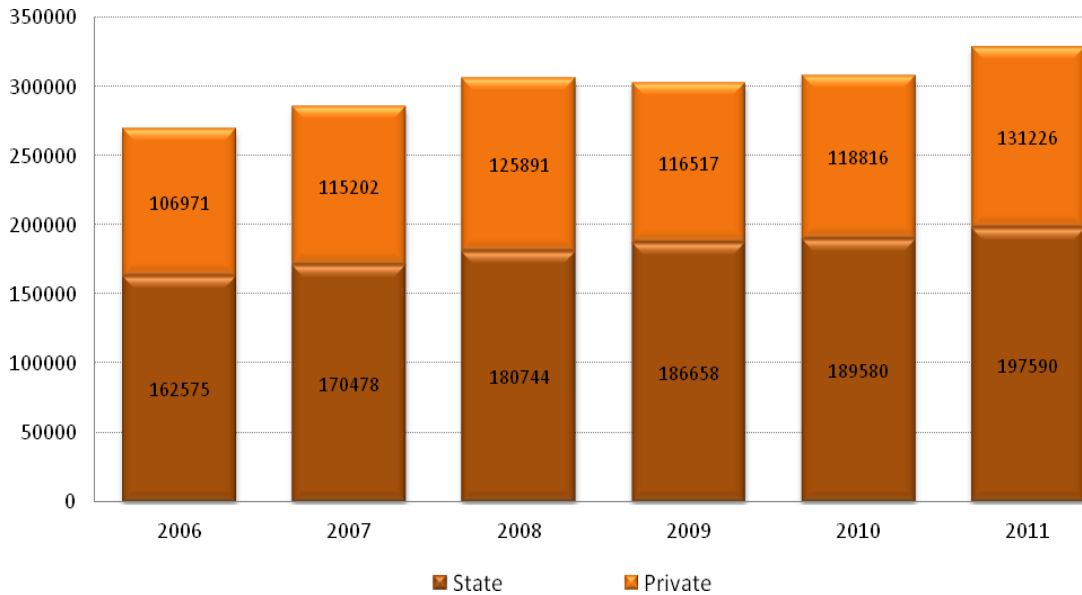
Source: NHIAC, 2012

Figure 41. Number of patient admissions, Yerevan versus marz hospitals, 2006-2011
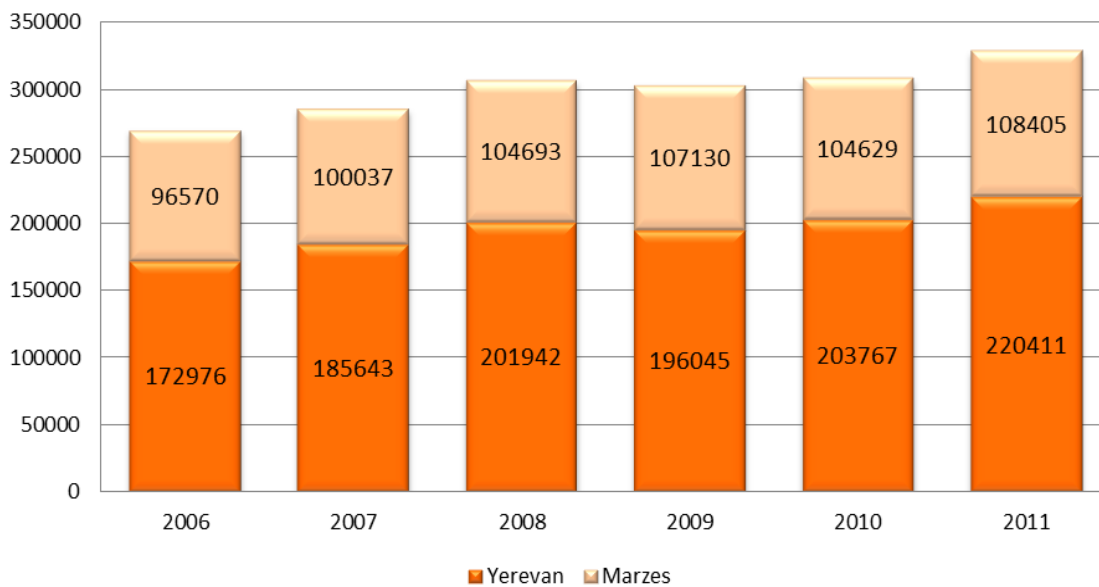
Source: NHIAC, 2012

The marz breakdown of ambulatory visits show different dynamics. An increase of per capita ambulatory visits is recorded in all marzes (excluding Yerevan between 2010 and 2011) which means that **population access to ambulatory care has improved between 2006 and 2011.**

Figure 42. Annual ambulatory visits per capita, by marz, 2006-2011

	Yerevan	Aragatsotn	Ararat	Armavir	Gegharkunik	Lori	Kotayk	Shirak	Syunik	Vayots Dzor	Tavush
2006	3.4	2.1	2.3	2.3	2.5	2.6	2.4	2.5	4.0	2.6	2.2
2007	3.6	2.0	2.5	2.5	2.5	2.6	2.7	2.6	3.9	2.8	2.1
2008	4.0	2.3	2.6	2.7	2.9	2.9	2.8	2.7	4.4	3.0	2.0
2009	4.4	2.4	2.9	2.9	2.9	3.0	3.0	2.8	4.6	3.2	2.6
2010	4.2	2.4	3.0	3.0	2.9	3.2	2.9	3.0	5.0	3.3	2.8
2011	4.2	2.4	3.0	3.0	3.1	3.2	3.0	2.8	5.3	3.5	2.7
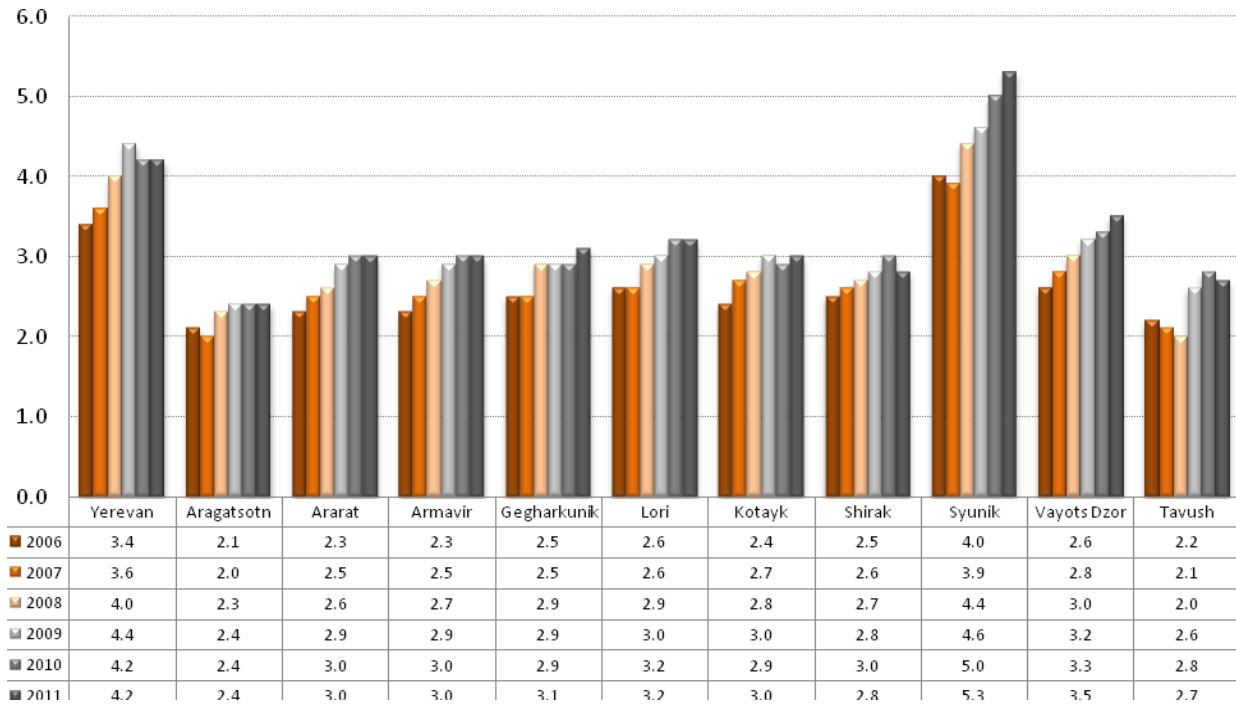
Source: NHIAC, 2012

The decrease of per capita ambulatory visits in Yerevan may be related to the increase of the number of people who seek ambulatory care in private clinics. This tendency is supported by data presented in Figures 43 and 44. Figure 43 presents the number of population visits to public and private PHC settings during the past 12 months with residence breakdown.

Figure 44 show the proportion of visits to private clinics during the past 12 months versus all ambulatory visits.

As data of Figure 43 evidence the number of visits to private clinics in Yerevan is almost two times higher, as opposed to marz towns, and almost three times higher compared with rural areas. These data can be viewed in comparison with the absolute numbers of PHC visits to public and private settings, since 34% of population resides in Yerevan, 30% in marz towns and 36% in villages, in other words the population breakdown is almost even.

Figure 44 shows that visits to private clinics account for 30% of all ambulatory visits. Given the fact that the number of visits to private clinics grows annually in Yerevan it can be stated that the latter has contributed to the decline of PHC visits to Yerevan public outpatient settings during 2010 and 2011.

Figure 43. Visits to PHC and private clinics during last 12 months per residence, 2012
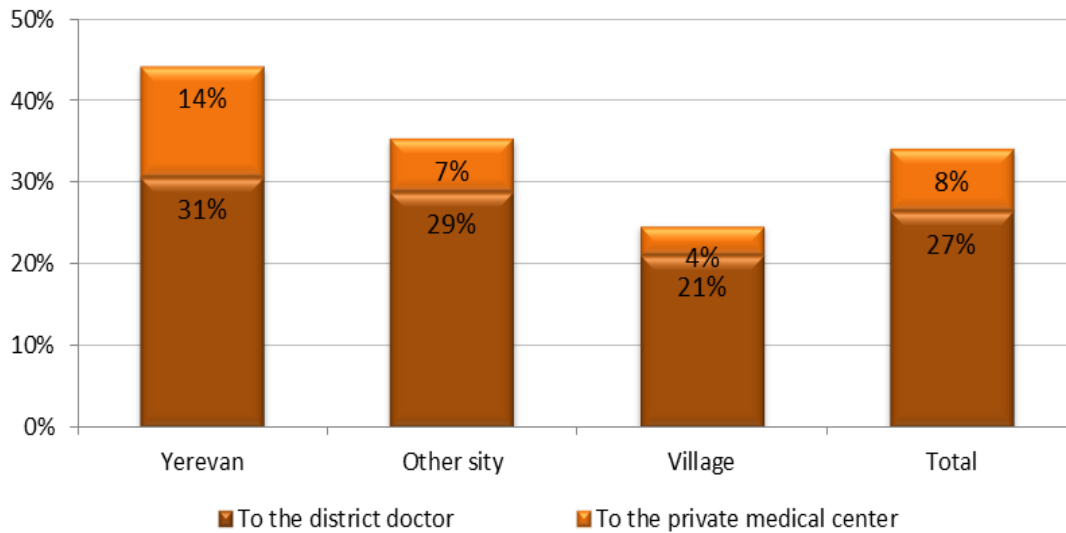
Source: HSPA, 2012

Figure 44. Proportion of visits to private clinics during the past 12 months, 2012
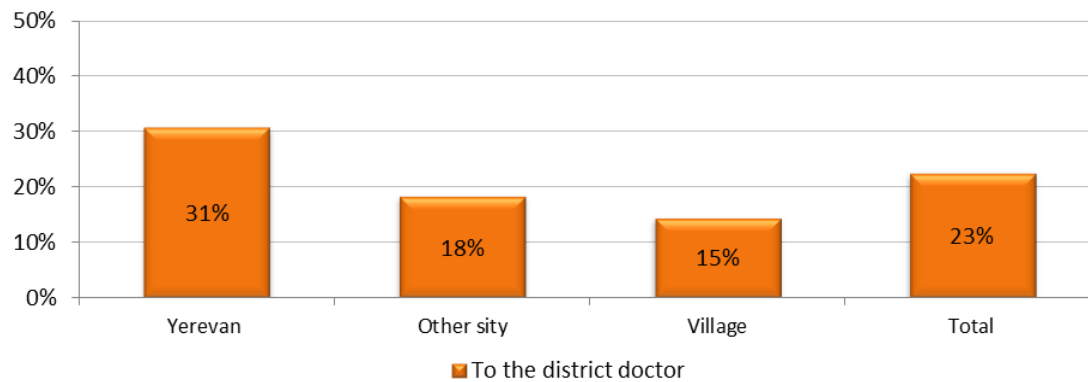
Source: HSPA, 2012

Availability of health facilities

Primary health care services in Armenia are delivered through a network of policlinics, medical centers, ambulatories and health posts. In rural areas with health posts, factors of physical access include technical capacity of the ambulatory enabling doctors to regularly visit health posts and ensuring visits in winter time.

There are multi-settlement communities in Armenia where only one settlement has a functioning health post, thus restricting geographic access to care for the others. With this view, while implementing the HSAP 2012 survey, the question on availability of a health setting was asked only in rural areas in order to assess the proportion of rural population facing problems with geographic access to health care services they need. Data are presented in Figure 45.

Figure 45. Health facilities available in rural areas, according to their types
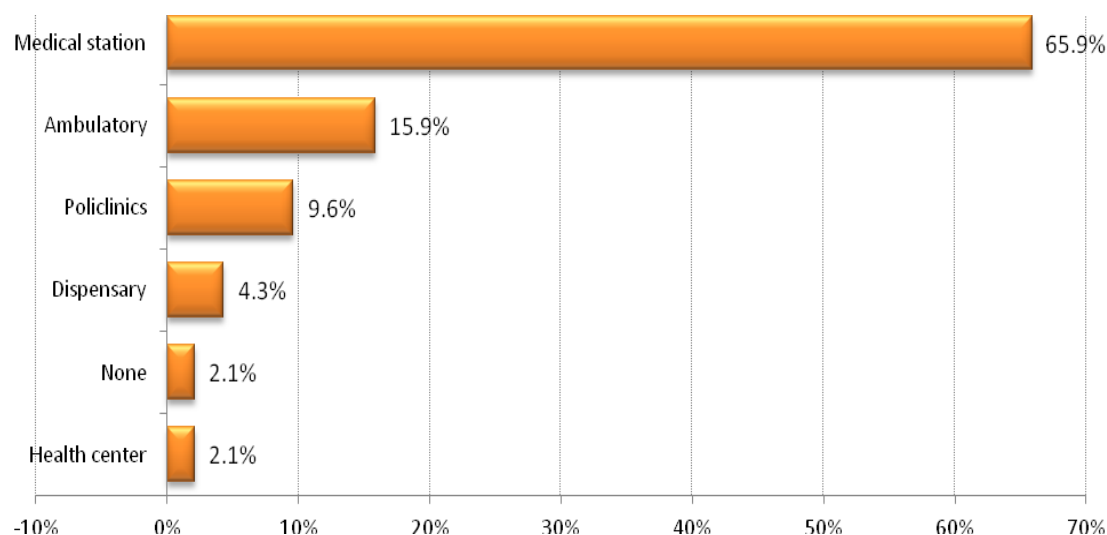
Source: HSPA, 2012

As the Figure suggests 2.1% of rural population has no health setting in their villages, including a health post. Hence there is a need of identifying multi-settlement communities and particularly the villages within them having no health post and considering opening one.

Inaccessibility of health care services

Integrated surveys help receiving direct assessments of health services by the population. Respondents of integrated HSPA 2007, 2009 and 2012 were asked the following question: "Were there any cases within the last 12 months when you thought that there is a need to visit a doctor, ambulatory/polyclinics, hospital but have not done so (excluding dental problems)?" Data are presented in Figure 46.

Figure 46. Percentage of population age 20 and older that did not seek medical care when they needed it, 2007, 2009 and 2012
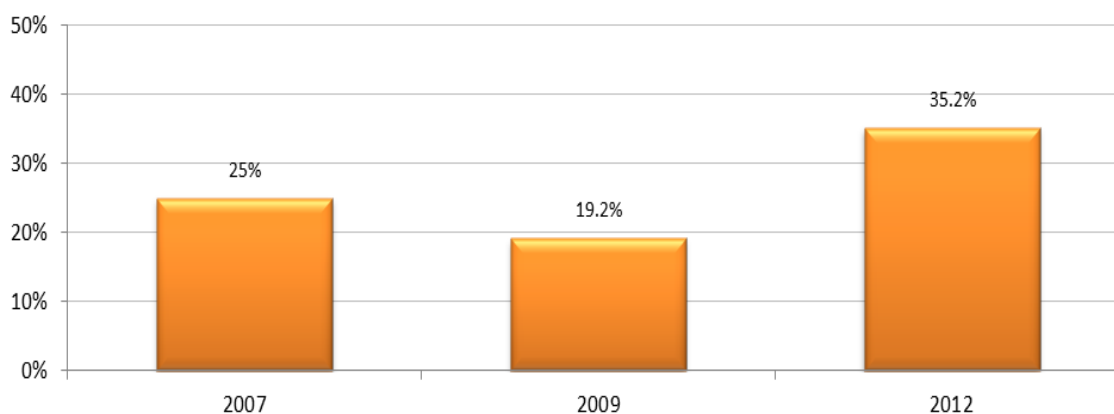
Source: HSPA, 2007, 2009, 2012

Although between 2007 and 2009 the percentage of individuals not seeking medical care when there was a perceived need dropped from 25% to 19%, **between 2009 and 2012 this figure increased from 19%**

to **35%,** meaning that the indicator characterizing inability to access health care services is higher than it was in 2007. The 2009 and 2012 results for this indicator were almost similar for Yerevan, villages and marz towns.

Table 23. Percentage of population not seeking medical care when needed, by wealth quintile and by residence, 2012

		Residence type		
		Yerevan (%)	Urban (%)	Rural (%)
Wealth quintile	I lowest	54.3	45.4	55.0
	II low	39.5	36.5	39.9
	III middle	39.4	35.3	33.3
	IV high	34.0	33.1	31.2
	V highest	20.7	33.5	22.0
	Total	35.5	37.2	33.5

Source: HSPA, 2012

The results vary significantly by wealth quintile. The percentage of people who did not seek medical care when they perceived a need was 50.7% in the lowest income quintile and 23.6% in the wealthiest quintile. Interestingly distribution of the indicator by wealth quintiles in different residence areas does not vary much as well. The results lead to the conclusion that:

- If the impact of the 2008-2009 global financial crises on Armenia was to some extent mitigated (nominal GDP started increasing), the social consequences particularly decline in access to health care is still a challenge.

Observation of the reasons behind not seeking care when needed (Figure 47) suggest that

- Financial reasons remain the main factor contributing to no access to health case services.

Figure 47. Reasons for not seeking health care, 2009 and 2012
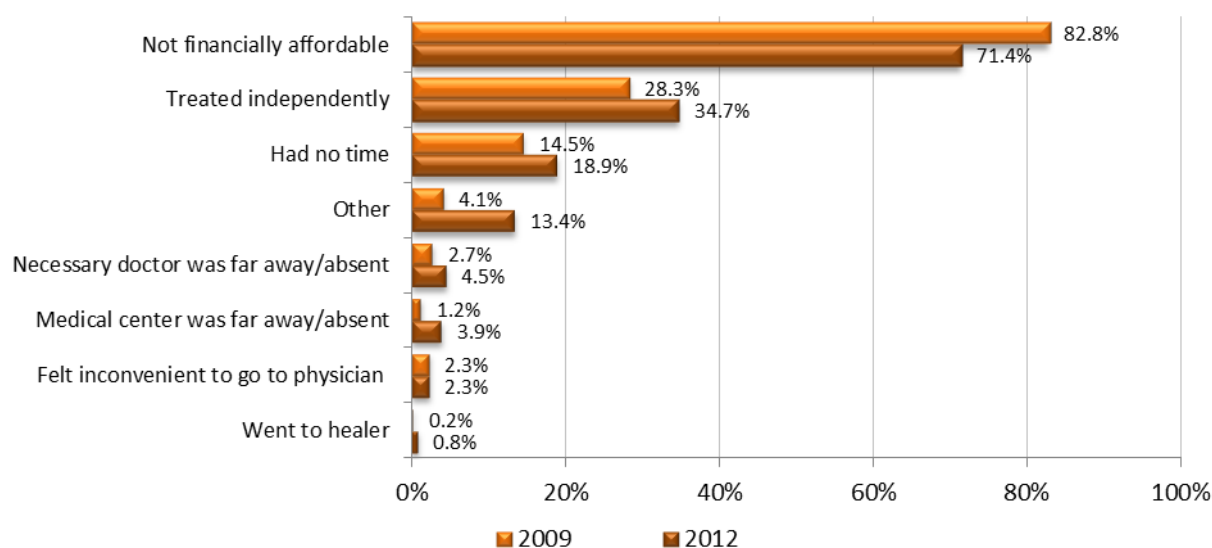
Source: HSPA, 2009, 2012

In 2012 the proportion of people who did not seek medical care when they needed so was 71.4% with financial constrain indicated as the main reason. As the Figure shows in 2009 financial reasons were reported by 82.8% of respondents. So can it be concluded that the factor of financial inaccessibility has diminished?

This statement is relatively true given that 19.2% of respondents reported not seeking medical aid when they perceived a need in 2009, their absolute number will be 19.2% * 0.828 = 15.9%, and for 2012 – 35.2% * 0.714 = 25.1 correspondingly.

 This means that

- **The number of people who did not seek medical care when they perceived a need due to financial reasons has increased by 9.2% between 2009 and 2012.**

Hence,

- **The social impact of financial crises on the population of Armenia is not got over in the health sector.**

Preventive visits

Preventive visits of population to health care facilities are critical for health promotion and strengthening. Preventive visits depend on two main factors: firstly- specifics of the population health behavior and secondly - the population solvency if visits are made to private (paid) clinics. Actually the population health behavior can be changed by dedicated activities of the PHC system promoting preventive visits by population groups. This requires stepping up preventive home visits by district therapists and family doctors or calls of catchment area populations made to health facility for preventive examination.

The HSPA 2012 survey speaks of an increase of the rate of population preventive visits from 4.1% to 11.7% between 2009 and 2012 (Figure 48).

Figure 40 shows the facilities visited by the population for preventive purposes. In Armenia preventive visits are mostly made to policlinics (by 33.2% of respondents who made preventive visits) and hospitals (28.3%). The third facility type to follow are diagnostic centers (12.3%).
Absolute majority (64.2%) of preventive visits were patient-initiated and 14.4% were provider-initiated. And only 8.6% of respondents have reported paying a preventive visit to the doctor following a friend's or relative's advice.

The extent to what the preventive visits have been effective can be judged from the fact that 23.0% of cases ended up in diagnosis of a disease or health condition.

Figure 48. Preventive visits
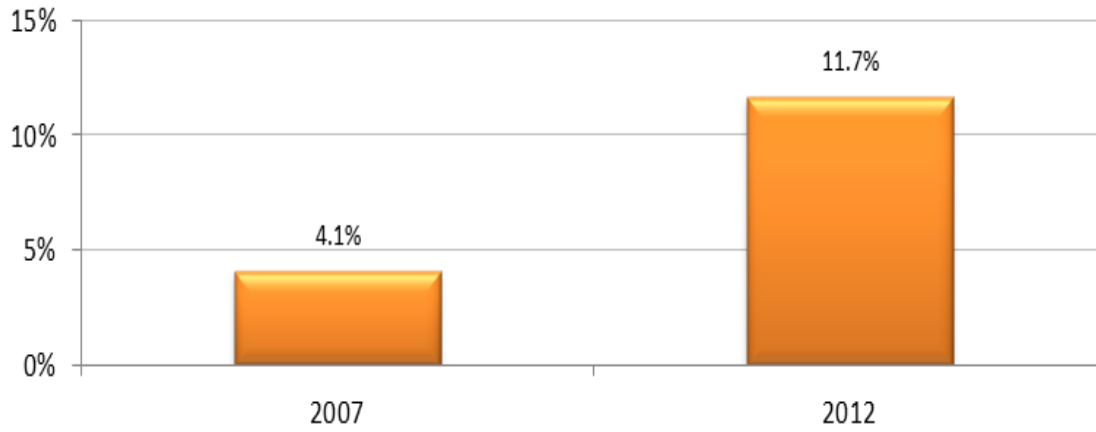
Source: HSPA, 2007, 2012

Figure 49. Preventive visits by facilities and specialists
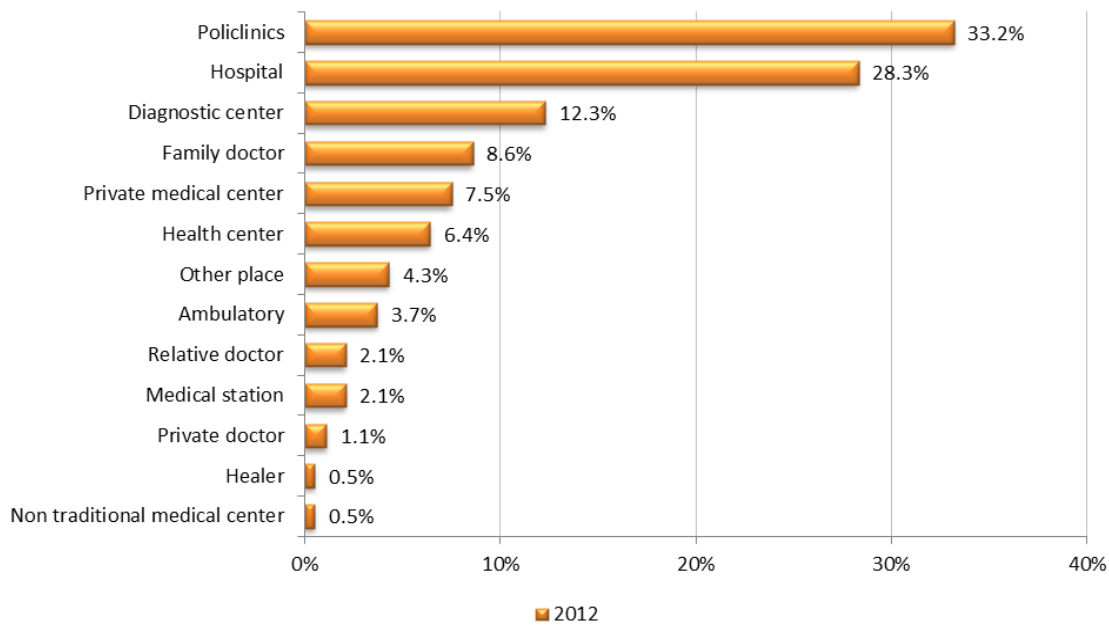
Source: HSPA, 2012

Figure 50. Preventive visits by advices, 2012
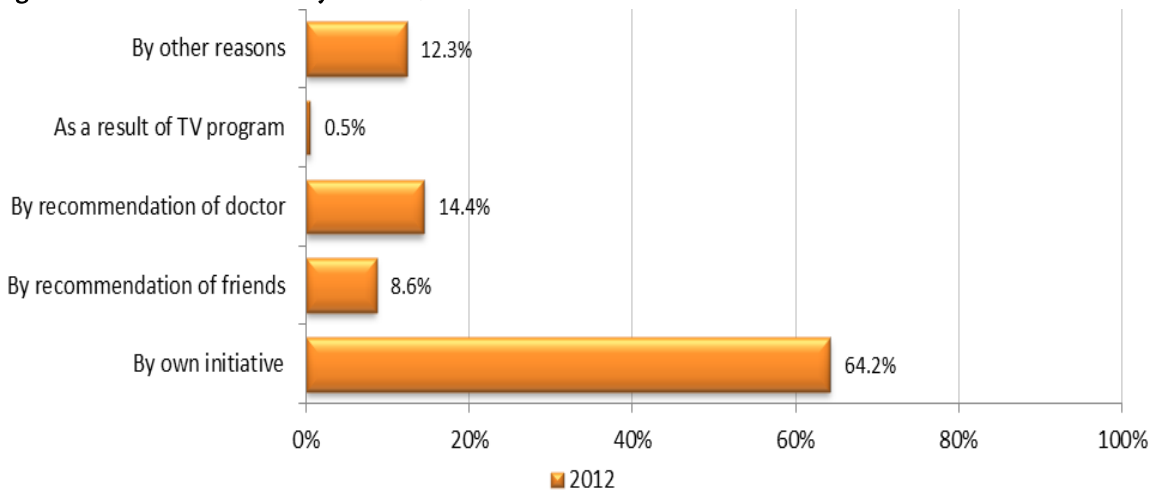
Home-based visits by a provider

During the 12 months of 2012 home-based visits were requested by 7.4% of respondents, of which 58.3% made one call, 19.1% two calls and 22.6% more than two calls.

Calls received by therapists account for 72.2% of all calls and that of narrow specialists 27.8%.

Of all calls 74.6% were made by phone and in 25.4% of cases a family member had to personally visit the facility to arrange the call.

Payment was made in 10.2% of call-based visits.

Payments for a call-based visit ranged from AMD 1000 to AMD 5000.

Information gaps

Population health behavior requires a deeper analysis in terms of both healthy lifestyle and early detection of diseases. Relevant sections/questions/ must be developed and incorporated into the questionnaire of the integrated HSPA.

Facts and policy recommendations

Situation	Policy recommendations
Regain of the utilization rates for PHC services, as compared with the rates of 1990, is slower that that for hospital services, which means that there is no population behavior change to make them seek PHC services in timely manner without endangering their health and having to apply for hospital intervention.	Implement various health screenings in PHC settings, and provide every visitor with information on healthy lifestyle and health promotion.
Hospitalization rates in marzes close to Yerevan such as Aragatsotn, Ararat and Armavir as well as that of the Vayots Dzor marz are not significantly different from rates recorded in Yerevan and other marzes.	Pay attention to the situation in marz general profile hospitals to ensure that they meet the standards for such hospitals. Also verify the adequacy of the criteria and/or develop activities on changing health behavior of the marz population.
There are multi-village communities in Armenia where only one village has a functioning health post, thus restricting	Identify multi-village communities and particularly the villages within them having no health post and consider feasibility of opening a health post in each village.
Access to health care has increased between 2012 and 2007/2009. In terms of absolute figures, the rate of not seeking care due to financial constrains has increased. Prevalence of not seeking care when needed in the wealthiest quintile is 2.6 times higher than in the poorest quintile.	Since PHC services are free, financial inaccessibility applies mostly to medicines. Review the mix and number of people eligible for free or discount drugs. Also study if medicine provided for free or on discount terms correspond to the medicine prescribed on the outpatient level. The purpose of such review is a) possibilities to expand the list of people entitled to free and/or discount drugs and b) assess adequacy of the list of drugs provided for free or on discount terms.

4. QUALITY OF HEALRH CARE SERVICES

Quality and safety of health care services

This chapter on the quality and safety of health care services looks at the following indicators:

- Detection rates and treatment effectiveness for malignant neoplasms including
  - Breast cancer and
  - Cervical cancer
- Hospital fatality rates

Detecting and treating malignant neoplasms

The National Oncology Centre (NOC) maintains statistics on malignant neoplasms. The integral indicator for the treatment of malignant neoplasms is the following:

- Probability of five-year survival after diagnosis of breast cancer. The indicator applies to female (Figure 51).

The figure shows a slow, but steady increase of the rate since 2002. The question whether or not this increase can be considered satisfactory is to be answered by relevant specialists.

Figure 51. Five-year survival rate following diagnosis of breast cancer, females, 2001-2008
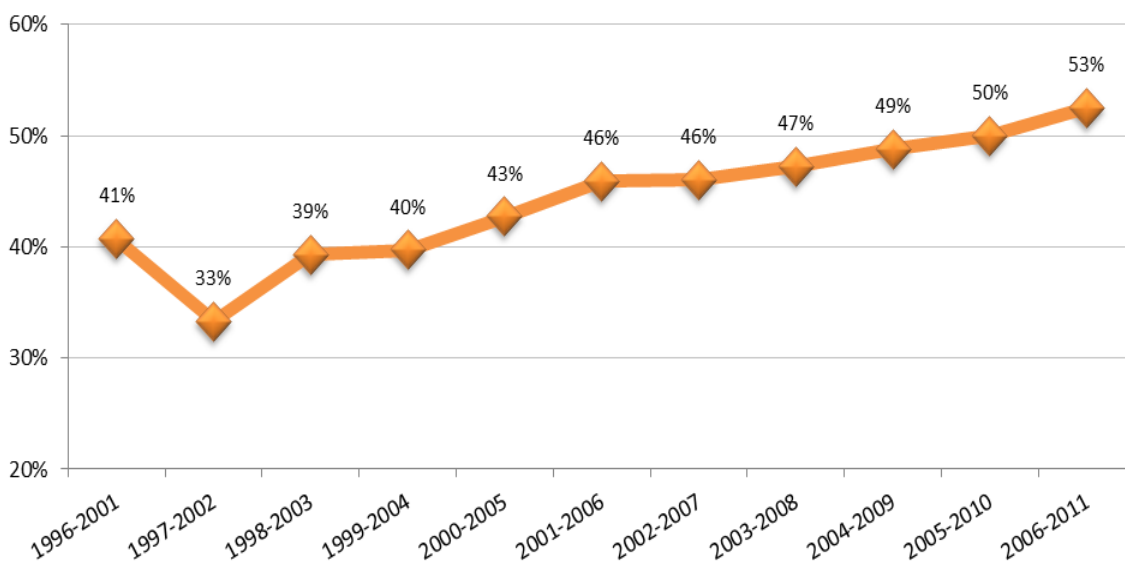
Source: National Oncology Center

A change in survival rates for cancer can result from transition in the stage at which the disease is detected as well as from changes in the quality of treatment. Figure 52 helps to attribute differences in survival rates specifically to one of these factors. The data above show detection rates for various stages of these cancers between 2003 and 2011.

Figure 52. Proportion of malignant neoplasms detected by stage of disease, 2003-2011
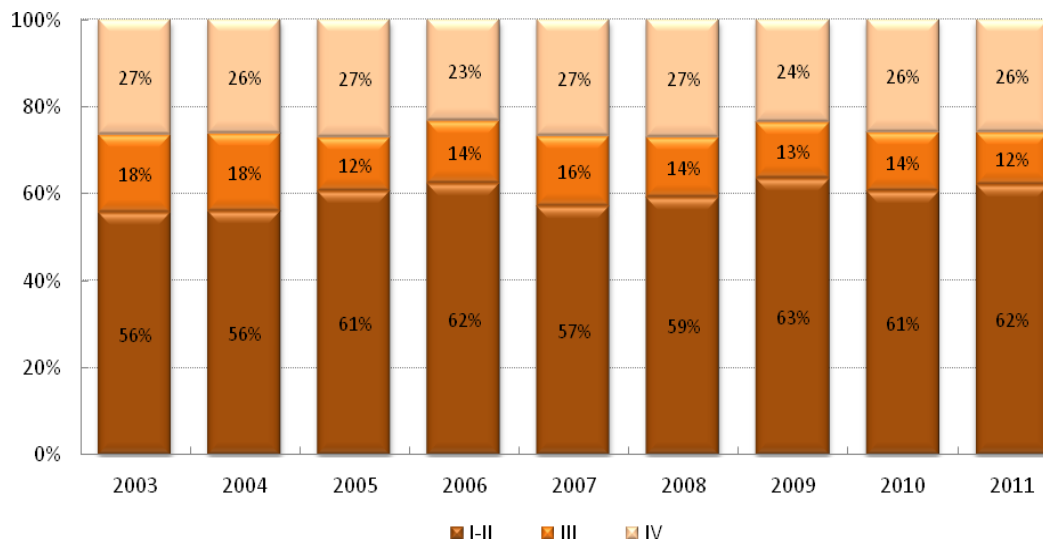
Source: National Oncology Center

As shown in Figure 52, the stage I and II detection rates for breast cancer have essentially stayed the same since 2003. Like in 2005, in 2011 also the stage I and II detection rates shared 62%, stage III 12%, and stage IV 26%.

Hence **in terms of early detection of breast cancer the situation in Armenia has not undergone any changes.**

The data witness that **increase of the survival rate in women with diagnosed breast cancer should be attributed merely to improvement of the treatment quality.**

Goes without saying, that any progress in combating cancer is highly appreciated. On the other hand, it should be assumed that Armenia has remarkable potential for the improved treatment of breast cancer in women as relates to the early detection of the disease. Any new technology is much more expensive when it is just introduced as opposed to the old technologies. Consequently it is believed that improvement in the quality of cancer treatment is coupled with the increase of the costs. Progress in early detection of neoplasms can essentially improve the treatment effectiveness and make it cheaper.

This means that **financial resources allocated to early detection of cancer can help reducing costs related to the treatment of one patient and spending the amount on treatment of a bigger number of patients. Finally this approach can end up in better results than implementation of new technologies.**

Mammography screenings

For early detection of breast cancer in women WHO recommends that women of 30-60 years of age have mammography screenings every three years.

- The proportion of Armenian women age 30–60 who have had mammography screening during the past three years has increased from 3.6% to 14.8% (Figure 53), though still well below the WHO recommended levels.

However the progress in the rates for mammography screenings did not lead to improvement of early detection of breast cancer.

Figure 53. Women of 30-60 years of age who had mammography screenings
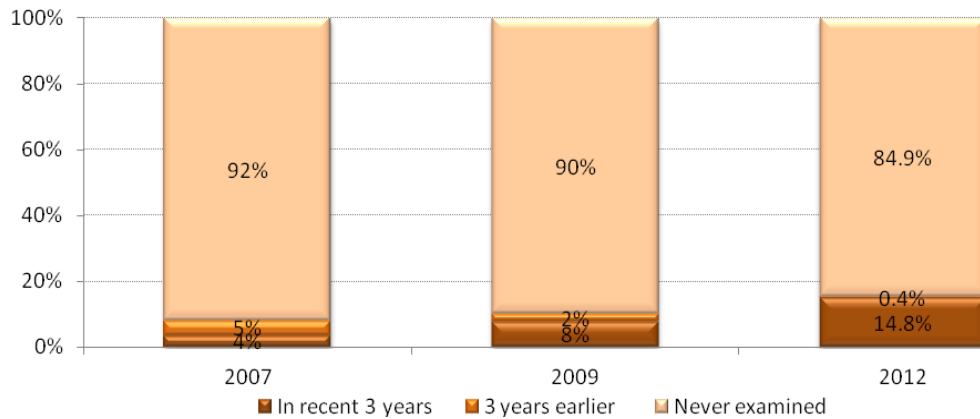
What keeps Armenia reaching the WHO required rates of mammography screenings? Among the reasons may be limited capacities to perform mammography screenings on the one hand and their high costs for Armenia on the other hand.

The HSPA 2012 revealed that 77.6% of women who have had mammography screening have paid for the examination, 17.8% did not pay, and 4.6% found it difficult to answer the question.

The breakdown of payments for mammography screenings is presented in Figure 54.

Since the survey-detected number of cases is limited, a reliable assessment of actual obstacles hampering increase of screening rates seems impossible.

- Technical limitations of mammography screenings (many patients vs. few providers),
- Financially not affordable,
- Physically inaccessible (far location),
- Poor access to information.

Figure 54. Payments for mammography screenings
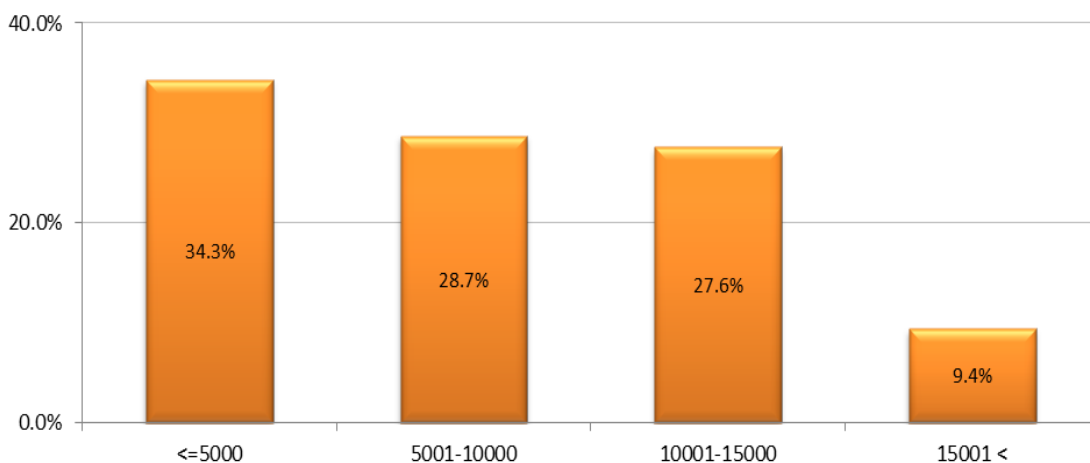
Source: HSPA 2012

Pap smears

The WHO recommendation for Pap smears is the same as for mammography screening: women age 30–60 should have at least one Pap smear every three years.

This rate has improved between 2007 and 2012 by climbing up from 5.6% to 10.2% (Figure 55), but is still below the required levels.

Figure 55. Percentage of women age 30–60 who reported having had mammography and Pap smears, 2007, 2009 and 2012
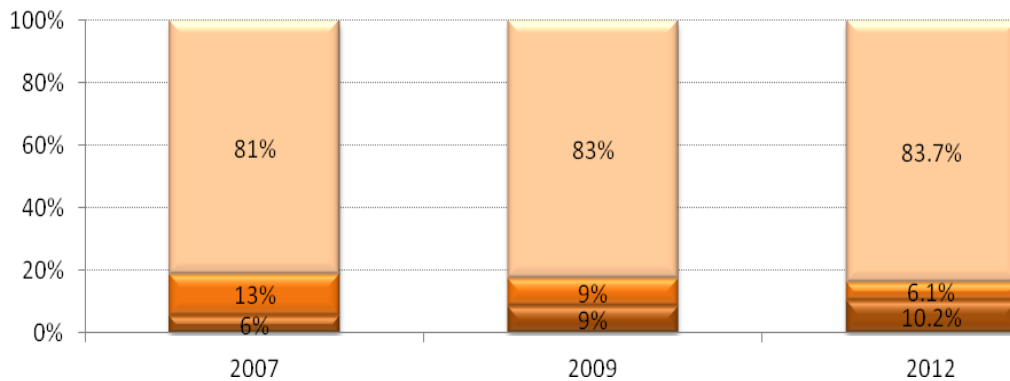
Source: HSPA 2012

Payment for Pap smear exam was made by 59.4% of surveyed women of 30-60 years of age, no payment was reported by 40.6% and 0.9% could not answer the question.

Selected international comparisons for mammography and Pap smear examination rates (although somewhat outdates) show that in 2012 the coverage results for Armenia are well below those for other countries and need to be improved (Figure 56).

Figure 56. Percentage of women who have had Pap smears and mammography, selected countries and country groups, 2000-2006

Source: WHO ,2008

85
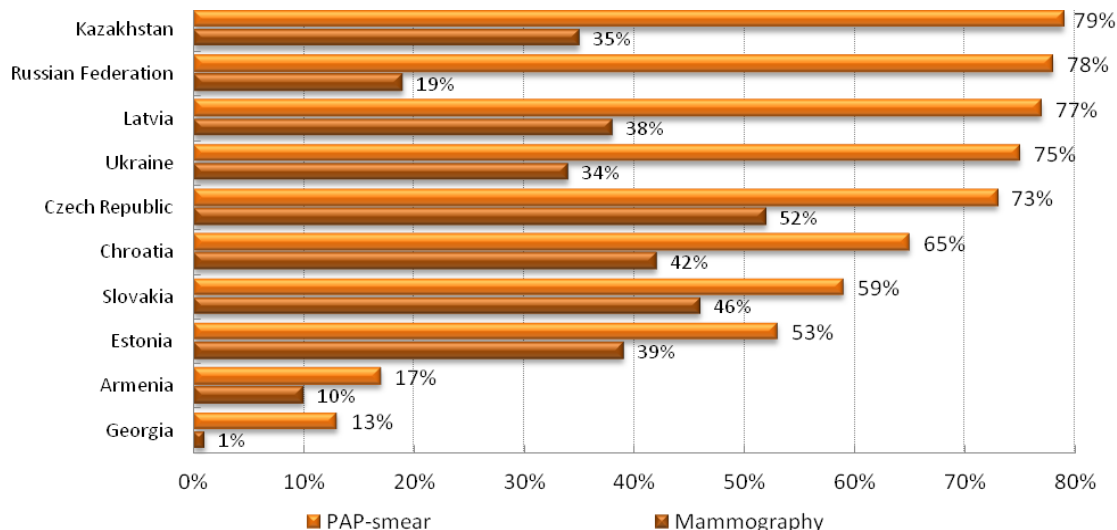
Early detection of all cancers

Rates for detection of all cancers (Figure 57) have worsened since 2003. Particularly in 2003 and 2011 the rates for stage I-II detection of cancers accounted for 44% and 42%, whereas in 2003 stage IV detection dropped to 31% and in 2011 to 40%. So it can be concluded that the rate for early detection of cancer does not seem to improve. Moreover, it has worsened for all cancer detections, thus becoming a system-related problem.

Figure 57. Detection of malignant neoplasms by disease stage, all cancers, 2003-2008
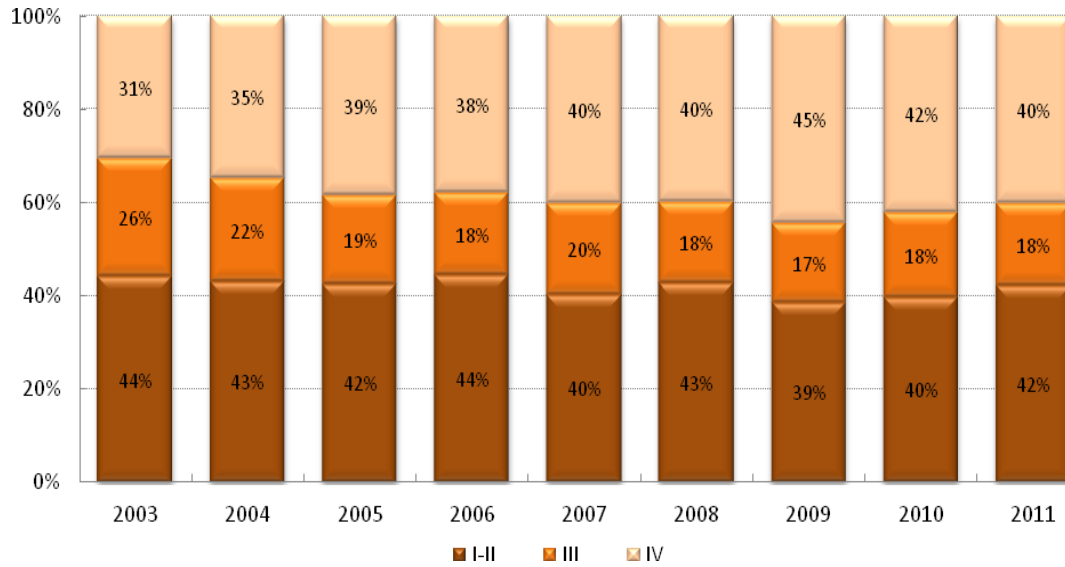
Source: National Oncology Center, 2012

Hospital fatality

Total rate of hospital fatality and rates for each disease describe the quality of hospital care organization and delivery.

Total rate of in-hospital fatality for the period covering 1990-2011 is presented in Figure 58. The data show a steady decline of hospital fatality between 2001 and 2011, which speaks of improving hospital care organization and quality. On the other hand, no improvement of rates was detected from 2007 throughout 2011.

Hospital fatality by diseases presented in Figure 59 shows that

- Hospital fatality related to cerebrovascular diseases and acute myocardial infarction is higher on the one hand and more unstable on the other hand. These rates kept ranging over the last four years (2008-2011).
- Hospital fatality from burns showed smooth decline tendency between 2004 and 2011.
- Slight decrease of hospital fatality rates for diabetes and TB is seen.

It can be concluded that addressing the problem of hospital fatality requires a special attention to be paid to improving inpatient care of cerebrovascular diseases and acute myocardial infarctions, being the two lead health conditions with the highest hospital fatality rate in Armenia.

Figure 58. Hospital fatality rate per 100 admissions, all cases, 1990, 1995 and 2000-2011
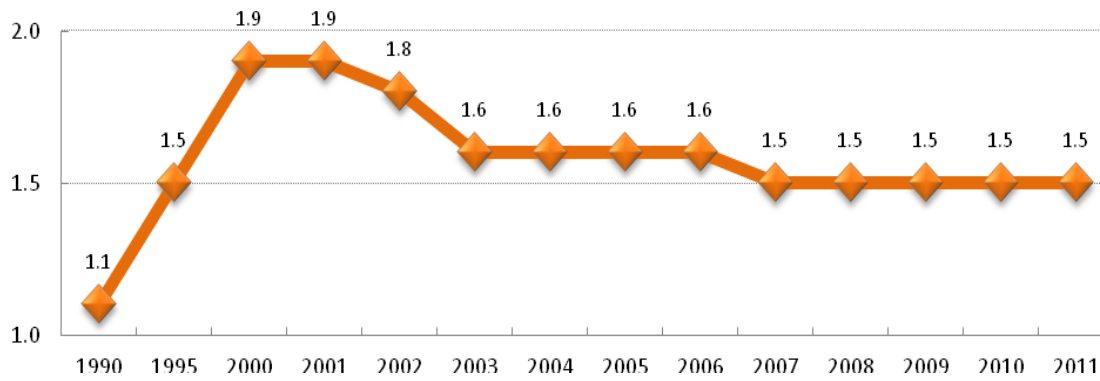
Source: NHIAC, 2012

Figure 59. Hospital fatality rate per 100 admissions, selected conditions, 1990, 1995 and 2000-2008
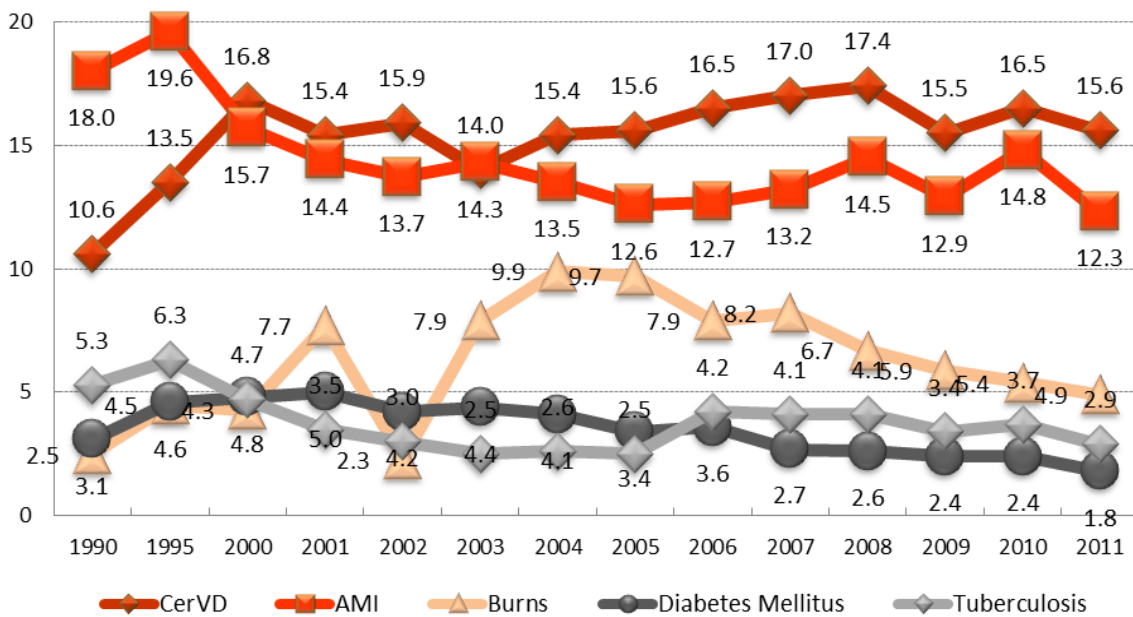
CerVD: cerebrovascular disease. AMI: acute myocardial infarction,
Source: NHIAC, 2012

Early detection and PHC treatment of circulatory system diseases

Given that the situation with blood circulatory system diseases is particularly challenging in Armenia, these diseases need a special and targeted approach.

The study attempted revealing the effectiveness of detection and monitoring of risk factors contributing to development of the said diseases on the PHC level, particularly of

- High arterial blood pressure,
- High cholesterol level in blood, and
- High glucose level in blood.

Monitoring of hypertension

The measurements performed during the survey revealed high arterial blood pressure in 33.8% of respondents, of which 16.4% did not even know about their condition (Table 24).

- Conclusion: Half of hypertension cases are latent.

Actually 73.0% of respondents believed that their blood pressure is not high and only 56.7% of them were right. If viewed proportion-wise

- 22.4 % of respondents who believed they do not have hypertension were mistaken.[18]

Table 24. Prevalence of hypertension

		Findings of arterial blood pressure measurements	
		No hypertension (%)	Hypertension (%)
Hypertension	I do not have high arterial blood pressure	56.7	16.4
	I don't know if I have high arterial blood pressure	1.3	0.9
	Self-diagnosed no hypertension	2.3	2.6
	Hypertension diagnosed by provider but cannot remember if prescriptions were made	0.1	0.1
	Hypertension diagnosed by provider but no prescriptions were made	1.3	2.0
	Hypertension diagnosed by provider and drugs were prescribed	4.5	11.8
	Total	66.2	33.8

Source: HSPA 2012

More than half (52.0%) of survey participants of 15 and above age reported to have their blood pressure measured by a health worker during the past 12 months and hypertension was detected in 19.1% of them (Table 25).

- The detection rate for hypertension by health care system during the past 12 months was approximately 56.5% of the actual figure[19]

Table 25. Hypertension detection rate

		Do you have hypertension?		
		No (%)	Yes (%)	Don't know (%)
Time of blood pressure measurement by a provider	During past 12 months	32.2	19.1	0.7
	1-3 years ago	8.4	1.7	0.1
	4-5 years ago	5.1	0.4	0.0
	More than 5 years ago	1.7	0.2	0.0
	Don't remember	0.5	0.0	0.0
	Don't remember if ever measured by a provider	0.9	0.1	0.4
	Never measured by a provider	24.0	3.2	1.2
Total		72.8	24.7	2.4

---

[18] (16.4/73.0)*100% = 22.4%

[19] *Hypertension was detected in 33.8% whereas the health system detection rate for the past 12 months was 19.1% (19.1/33.8)*100%. This is an approximate estimation, because there may be cases when hypertension occurred after provider had measured it during the past 12 months. On the other hand, there may be cases when the provider has detected hypertension during the past 12 months but during survey measurements the blood pressure was within norms. Assessment deviations are bilateral, which means that the assessment is adequate.*

Hypertension was detected by a provider in 19.7% of respondents, of which 16.4% (or 83.2%) received relevant counseling and in 14.9% (or 75.6%) cases drugs were prescribed.

Recommendations by a provider are presented in Table 26.

Table 26. Provider counseling on hypertension

Recommendations	Recommended by(%).	Currently complied with by (%)	Compliance rate (%)
Reduce or control body weight	55.6	39.3	70.6
Cut down on salt	67.6	50.7	74.9
Get physically more active	69.9	34.2	48.9
Cut down on alcohol	32.5	18.6	57.0
Quit smoking	28.0	14.6	52.3

- **A small number of respondents were following the advices given by the provider at the moment of the survey. Most of all patients neglected advices on being physically active and quitting substance abuse.**

Effectiveness of prescribed medicines is evident from Table 27, which shows if the use of prescribed drugs (during the 24hr preceding the survey) has regulated blood pressure.

- During measurings done during the survey hypertension was detected in 79.2% of respondents who had taken blood pressure regulating drugs during the past 24 hours, and
- Hypertension was detected in 60.7% respondents who did not take blood pressure regulating drugs during the past 24 hours.

Table 27. Hypertension pharmacotherapy

		Use of hypertension regulating drugs during the last 24 hrs		Total (%)
		No (%)	Yes(%)	
Measurements during the survey revealed that the respondent	... does not have hypertension	39.3	20.8	27.6
	... has hypertension	60.7	79.2	72.4

The results show that

- **The effectiveness of blood pressure regulating drugs is quite low**

As for the second result, it can be assumed that

- **Patients with hypertension, as a rule, take the prescribed drugs irregularly.**

Of concern is the fact that drugs are not taken when the person feels 'good'. However the 'feeling good' is just an assumption, because majority of non-drug-takers (60.7%) nevertheless had hypertension.

Treatment or regulation of high arterial blood pressure requires significant improvement. Particularly the below three components need to be focused on:

- **Early detection of hypertension**
- **Application of most effective treatment approaches**

- **Treatment monitoring**

In addition, the survey attempted answering the question whether improving patients' 'compliance' is the function of the health system.

It turned out that respondents with hypertension detected during the survey measurements were two times more prone to depression as opposed to those with no blood pressure deviations (Table 28). It is not excluded that depression is among reasons behind hypertension. It not only contributes to progressing disease but also creates careless attitude towards own health making the person an 'incompliant' patient. Monitoring of drug intake and prescriptions should be part of the PHC providers' functions.

Table 28. Interconnection of hypertension and depression

| | | Hypertension | | |
		No hypertension (%)	Hypertension detected (%)	Total (%)
Hypertension	No	82.8	71.7	79.0
	Yes	17.2	28.3	21.0

Source: HSPA 2012

Monitoring cholesterol level

High cholesterol level, accompanied with other health risks, particularly hypertension, tobacco use and/or high glucose level, multiplies the likelihood of developing noncommunicable diseases, particularly cardiovascular complications, circulatory diseases, diabetes and cancer, which are most prevalent in Armenia. That is why early detection of high cholesterol levels and its monitoring are key to disease prevention.

Rates of high cholesterol level detected in Armenia population of 20 and above years of age during the past 12 months have significantly increased (from 4.6% in 2007 to 13.5% in 2012) (Figure 60).[20]

Figure 60. Measurements of cholesterol level in Armenia population of 20 and above age, 2007 and 2012
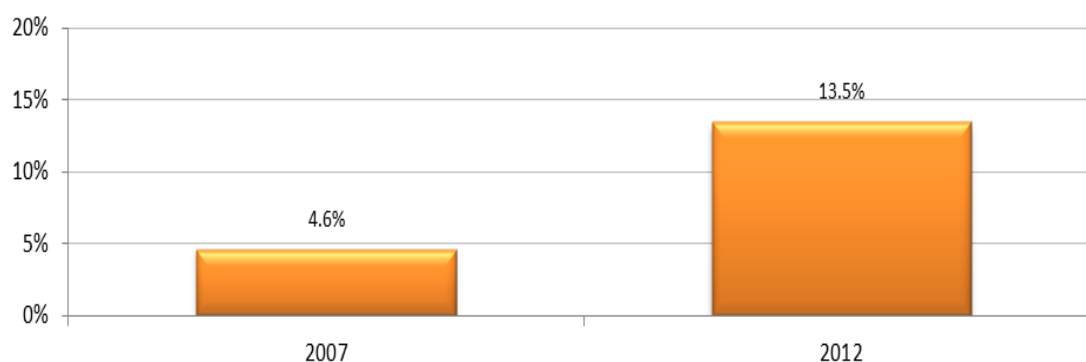
Source: HSPA 2012

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[20] *Questions on cholesterol level were not included in the HSPA 2009 survey questionnaire.*

Findings of measurements of blood cholesterol levels by sociodemographic population groups are presented in Table 29.

Table 29. Monitoring cholesterol level

		Cholesterol measurement					
		During past 1 year (%)	1-3 years ago (%)	4-5 years ago (%)	More than 5 years ago (%)	Never measured (%)	Don't know (%)
Gender	Female	13.1	4.7	1.4	1.0	79.6	0.3
	Male	12.7	3.8	1.0	0.0	81.9	0.7
Age group	15-19	7.6	0.0	0.0	0.0	92.4	0.0
	20-29	4.9	2.8	0.8	0.0	90.5	1.0
	30-39	5.0	2.6	0.5	0.8	91.1	0.0
	40-49	17.5	5.3	0.7	1.2	74.8	0.5
	50-59	21.2	7.3	1.0	0.4	69.8	0.3
	60-69	23.3	7.3	5.3	0.5	63.4	0.3
	70 +	20.3	5.7	3.0	1.0	69.4	0.5
Residence	Yerevan	20.2	7.0	1.7	0.3	70.7	0.0
	Urban	10.4	3.9	0.9	0.9	82.8	1.1
	Rural	8.7	2.2	1.0	0.4	87.4	0.3
Wealth quintiles	I lowest	16.7	3.6	0.9	0.6	77.8	0.3
	II low	12.2	4.3	1.0	0.5	82.0	0.0
	III middle	11.2	3.5	1.1	0.6	82.8	0.7
	IV high	11.1	3.9	1.0	0.9	82.2	0.8
	V highest	14.0	5.8	1.9	0.1	77.9	0.2
	Total	12.9	4.3	1.2	0.5	80.6	0.4

Source: HSPA 2012

The Table data show that more active monitoring of cholesterol levels is seen in respondents of 40 and above years of age, who present the risk group. Also

- Cholesterol level monitoring is high in the wealthiest quintile where during the past 1 year the cholesterol level was measured by 16.7% of respondents.
- Rates for cholesterol level monitoring vary according to the residence type: measuring their blood cholesterol level during the past 12 months was reported by 20.2% of respondents in Yerevan, 10.4% in marzes and only 8.7% in villages.

High levels of cholesterol were detected in 37.3% of respondents who had reported checking their cholesterol level during the past year (they share 12.9%) (Table 30) and in 21.6% of respondents who had cholesterol measurement more than 1 year ago (they share 6.0%).

Table 30. Measuring cholesterol level

Last measurement of cholesterol level	Informing on high cholesterol level by a provider		
	No (%)	Yes (%)	DK (%)
Within the past 12 months	61.8	37.3	.9
More than 1 year ago	76.3	21.6	2.1
Total	67.2	31.6	1.3

Source: HSPA 2012

The survey touched upon the treatment taken by respondents who had reported checking their blood cholesterol level during the past 12 months.[21] Counseling or prescriptions were provided in 79.1% of cases. Recommendations by providers are shown in Table 31.

Table 31. Advices given by a provider after detecting high cholesterol level during past 12 month, 2012

	Yes
Taking drugs	79.9%
Reducing or controlling body weight	71.5%
Cutting down on salt	78.7%
Increasing physical activity	71.9%
Reducing use of alcohol	39.4%
Quitting tobacco use	42.1%
Regulating diet	82.8%
Other advice or prescription	35.8%

Source: HSPA 2012

Pharmacotherapy was prescribed to 79.9% of respondents, of which only 44.5% were taking the prescribed drugs at the moment of the survey.

Statistical testing on regulation of cholesterol level helps understanding how effective were the prescribed drugs.

Twenty-six participants reported taking drugs to regulate their cholesterol level, of which 23 succeeded in regulating the level of cholesterol and 3 failed. Binomial test was used to assess how intake of drugs helped regulating the cholesterol level. It showed positive impact in 73%-97% of cases.[22]

Monitoring glucose level

Armenia saw significant increase of rates of glucose level measurements during the past 12 months in 20 and above age group between 2007 and 2012 (from 10.9% to 19.5% correspondingly) (Figure 61).[23]

Figure 61. Glucose level measurements in Armenia in 20 and above age group, 2007 and 2012
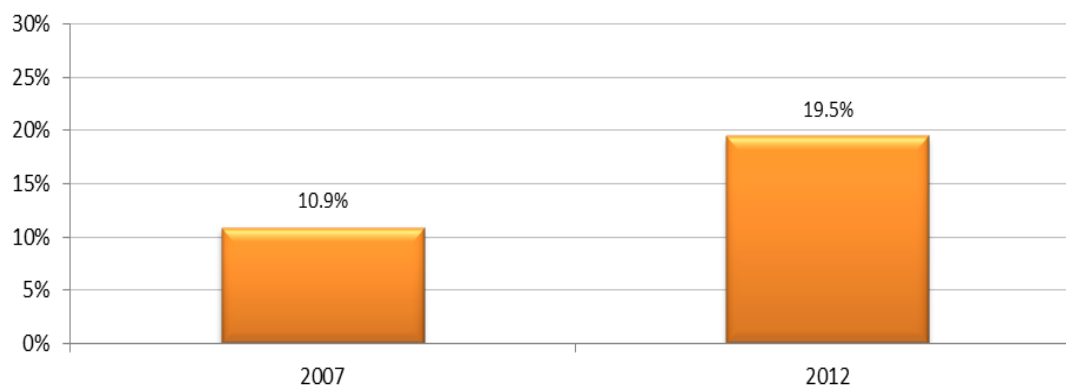
Source: HSPA 2012

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[21] *Due to their small number (only 77 people) statistical significance and reliability of the data are low. Data are good for orientation only.*

[22] *More accurate estimation is impossible due to limited number of test cases.*

[23] *The HSPA 2009 survey did not include questions on glucose level.*

Findings of measurements of blood glucose level by the health system per sociodemographic population groups are presented in Table 32.

The Table shows that the highest glucose level monitoring rates during the past 12 months are among

- **40 and above age respondents with more prevalent risk factor and among women.**
- **In terms of both glucose and cholesterol monitoring there is geographic difference in rates. In Yerevan the monitoring level reported was 29.6%, in marz cities 15.4% and villages 11.8%.**
- **The monitoring rate does not change according to wealth quintile.**

Unlike cholesterol level, which should be checked by the health facility laboratory, the level of glucose can be measures at home with a glucometer that can be bought at a pharmacy.

- **The overwhelming majority (92.0%) had their glucose level measured by a provider during the past 12 months.**

Table 32. Monitoring of glucose level by health system, 2012, 15 and above age

		Timeline of measuring glucose level						
		During past 1 year (%)	1-3 years ago (%)	4-5 years ago (%)	More than 5 years ago (%)	Never (%)	Don't remember if ever checked (%)	Don't remember when measured (%)
Gender	Female	20.4	7.0	3.1	1.7	64.7	2.4	0.7
	Male	16.5	6.0	2.5	1.0	71.5	1.7	0.7
Age group	15-19	10.5	3.5	0.0	0.0	86.0	0.0	0.0
	20-29	9.4	5.9	2.4	0.8	76.6	3.9	1.0
	30-39	10.9	6.4	3.5	2.7	74.5	1.1	0.9
	40-49	24.6	7.4	3.4	2.0	60.8	0.6	1.1
	50-59	26.5	7.0	2.1	0.4	62.2	1.7	0.2
	60-69	29.7	8.7	3.9	1.4	52.5	3.3	0.5
	70 +	28.9	7.4	4.8	2.3	51.7	4.2	0.8
Residence	Yerevan	29.6	10.8	3.2	1.2	54.5	0.3	0.4
	Urban	15.4	4.7	3.4	2.1	70.3	2.8	1.3
	Rural	11.8	4.4	2.0	0.9	77.3	3.0	0.5
Wealth quintiles	I lowest	20.4	5.7	3.1	1.6	65.3	3.4	0.6
	II low	18.7	6.3	2.1	1.4	68.2	2.6	0.7
	III middle	17.5	6.6	1.4	1.7	70.4	1.2	1.3
	IV high	16.9	6.9	3.6	1.1	68.6	1.9	1.0
	V highest	19.9	7.0	3.9	1.2	66.3	1.7	0.0
	Total	**18.6**	**6.6**	**2.8**	**1.4**	**67.8**	**2.1**	**0.7**

Source: HSPA 2012

Figure 62. Measuring glucose level by answers, during past 12 months, 2012, 15 and above age
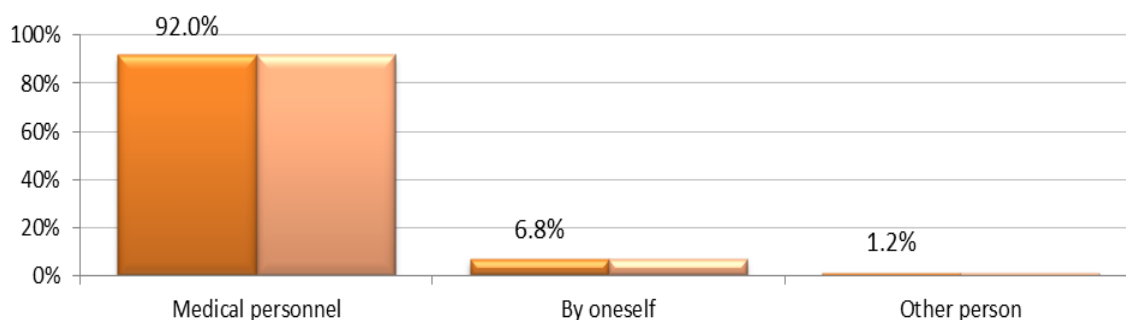
Table 33. Glucose level measuring

Last time glucose level was measured	Informing on high glucose level by provider 'Your blood glucose level is high'		
	No (%)	Yes (%)	DR (%)
Within 1 year	80.0	20.	0.0
More than 1 year ago	94.7	3.8	1.5
Total	85.7	13.8	0.5

Providers have recorded high glucose level in 20.0% of respondents who had reported to have measured their blood glucose level during the past year, and in 3.8% of those who did it more than a year ago.

Below section described the treatment taken by respondents who had their glucose level checked during the last year.

In the entire sample of 1600 people only 49 (a) had their glucose level measured during the past 12 months, (b) had it measured by a provider, and (c) a high level of glucose was detected.

Statistical reliability of data on glucose level regulation is very low, hence they give very general overview of the situation.

Prescriptions and recommendations by a provider in connection with detected high level of blood glucose were mentioned by 87.4% of respondents (or 43 cases). The statistics is presented in Table 34.

Table 34. Advices by a provider in connection with detected high glucose level during the past 12 months, 2012

	Yes (%)
Pharmacotherapy prescribed	93.7
Reduce or control body weight	67.4
Reduce consumption of salt	77.3
Increase physical activity	64.6
Reduce consumption of alcohol	27.4
Quit smoking	29.2
Regulate diet	79.6
Other advice or prescription	37.6

Pharmacotherapy was prescribed to 40 out of 43 respondents with detected high glucose level.

Statistical testing on regulation of glucose level helps understanding how effective were the prescribed drugs.

Twenty-seven participants reported taking drugs to regulate their glucose level, of which 23 succeeded in regulating the level and 4 failed. Binomial test used to assess how intake of drugs helped regulating glucose level showed positive impact in 71%-93% cases.

Quality of maternal and child health care

Two groups of indicators are monitored to assess health care outcomes and the quality of health care services for women and children.

1. Health outcome indicators related to rates of natal and postnatal complications, including rates of caesarean sections;
2. Health care process indicators relating to postnatal care, breastfeeding and immunization.

Natal and postnatal complications

The prevalence of genitourinary system-related natal and postnatal complications has generally decreased in Armenia since 2003, but the rate of anaemia changes very slowly (Figure 63).

Figure 63. Rates of selected natal and postnatal complications per 1000 deliveries, 1990, 1995 and 2000-2011
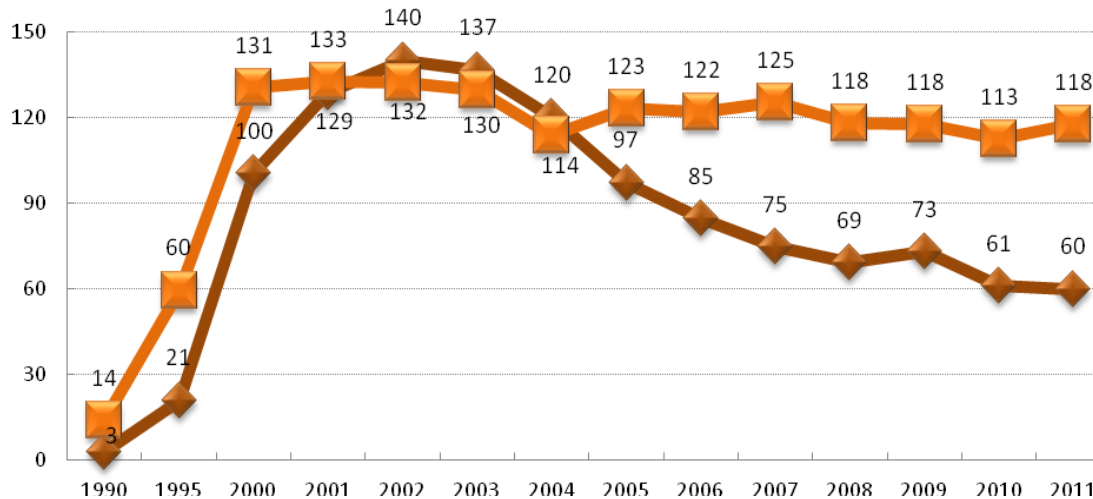
Source: NHIAC, 2012

The National Maternal and Child Health Care Strategy for 2003–2015 set a target of reducing complications from anaemia by 50% by 2015, but the target is not expressed explicitly and no baseline is designated.

According to WHO, a rate of caesarean sections that is less than 50 per 1000 live births may indicate problems with adequate access to medically necessary services. However, inappropriate caesarean

sections, those that are not medically indicated for the health of either the mother or the fetus, are costly to the health system and may put mother and child at risk for complications related to the surgery.

The MOH administrative statistical Form 2 designed for collection of data on caesarean sections does not envisage notes specifying if the caesarean section was performed as indicated by the provider or was it the choice of the women. Postnatal complications are more common in case of caesarean sections. In addition, women after caesarean section are advised by physicians to plan the next birth in 2 - 3 years. Caesarean section should be avoided especially in primaparous women, since over 70% of following deliveries should be via caesarean section upon provider's indication. These factors can reduce women's fertility rate, meaning the country's natural reproduction rates, which is of strategic importance for Armenia facing unfavorable demographic situation. The country should reduce the rates of not medically indicated caesarean sections by involving PHC level obstetricians and gynecologists in adequate education of women and improvement of their awareness on complications of caesarean sections and the rehabilitation periods. All these efforts will help reducing the rate of inappropriate caesarean sections. In addition, WHO recommends establishing maternity schools at PHC settings to educate and inform women on gestation and delivery issues. In Armenia the prime purpose of these activities should be directed at increasing the number of births, because if most of developing countries are overpopulated, Armenia, on the contrary, is being depopulated and the role of the health system in replacing negative patterns with the positive ones cannot be overestimated.

The number of caesarean sections is growing steadily in Armenia reaching 217 per 1000 births. In 2012 the total number of caesarean sections was 9385 (Figure 64). Armenia had higher rates in 2010 compared with the average figures of Azerbaijan and CIS countries, but stayed behind EU-26, EU-27 countries, Georgia and Turkey (Figure 65).

Figure 64. Caesarean sections, rate per 1000 live births and absolute number, 1990, 1995 and 2000-2011
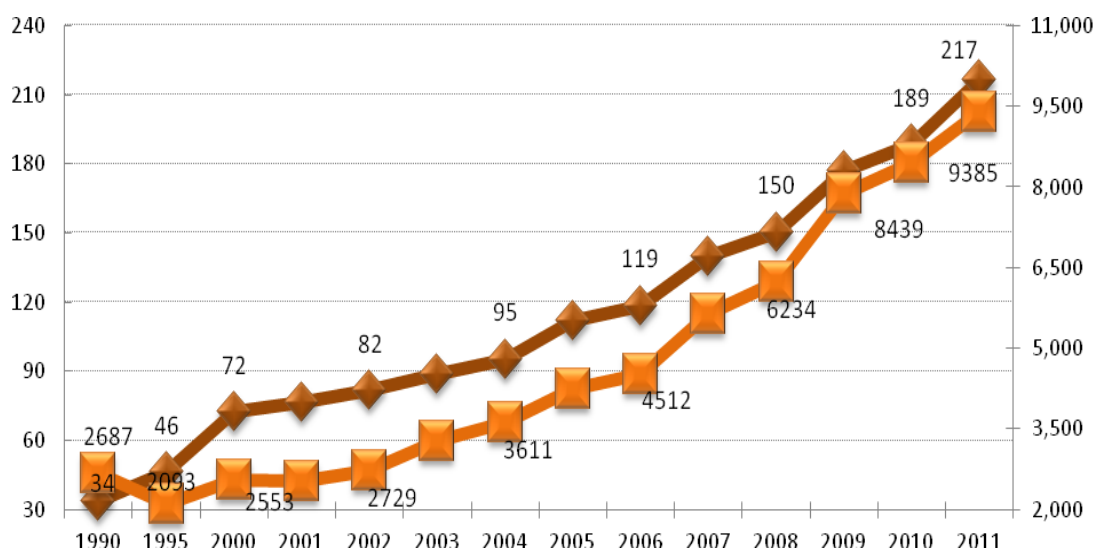
Source: NHIAC, 2012

Figure 65. Caesarean sections per 1000 live births, selected countries and country groups, 2010
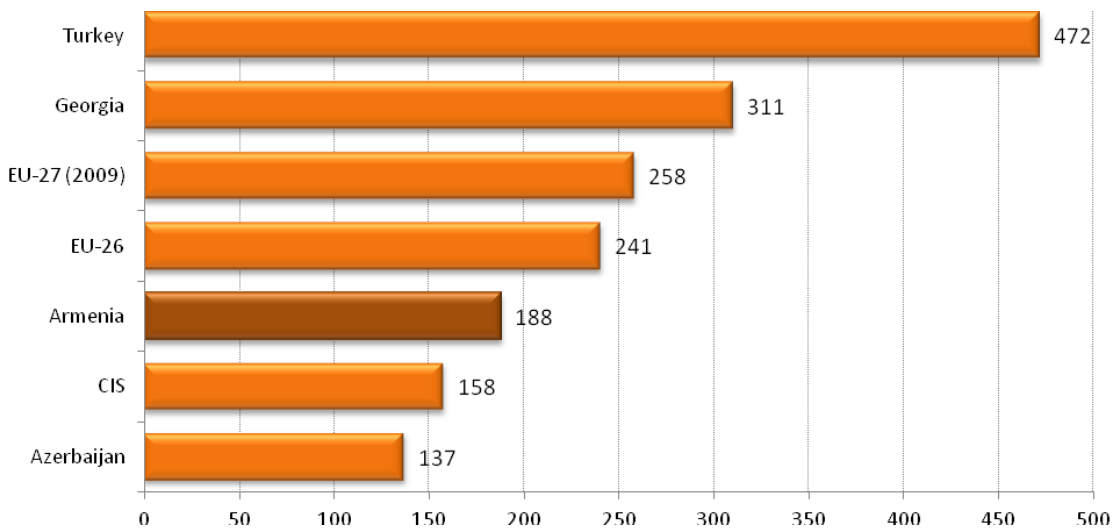
Source: HFA-DB, 2012

Maternal and child health care

The core indicators for the quality of maternal and child health care services address:

- Early coverage of prenatal care
- Breastfeeding rate
- Child immunization

Early coverage of prenatal care: This rate showed steady growth between 2005 and 2011, but is still below the target of 90% defined in the National of Maternal and Child Health Strategy for 2003–2015. The rate of early coverage of prenatal care is lower compared with that recorded back in 1980 - 74.6% (Figure 66).

Figure 66. Per cent of expectant mothers receiving early prenatal care (prior to 12 weeks), 1995 and 2000-2011
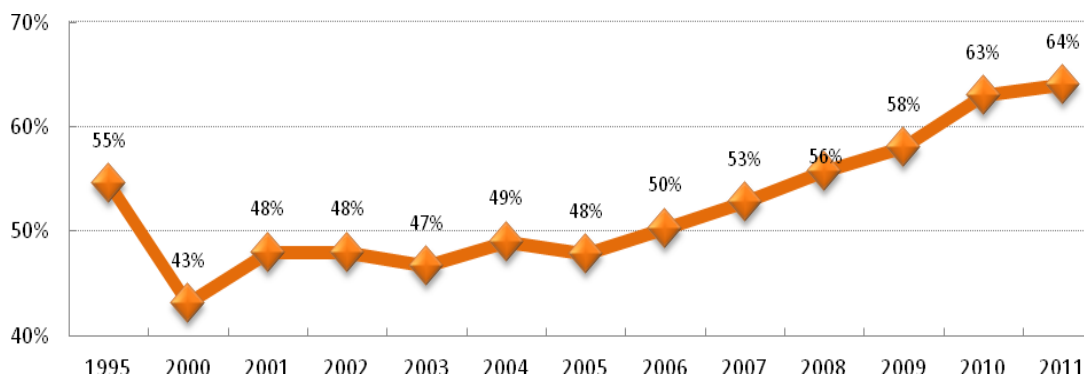
Source: NHIAC, 2012

Breastfeeding coverage: The National of Maternal and Child Health Strategy for 2003–2015 envisages "ensuring by 2009 that 65% of infants under 4 months and 40% of infants under 6 months are exclusively breastfed and maintain the continuity throughout the second year of the child's life." The year when the Strategy was adopted (2003), the percentage of infants under 4 months who were exclusively breastfed was 62.3%, very close to the target. However the rate dropped significantly in

2004 to 34.5% (Figure 67). Although it has increased since then to 58% in 2009 and to 59% in 2011 it remains below the target level.

Figure 67. Per cent of Armenian infants 0–6 months old who are breastfed, 2001-2011
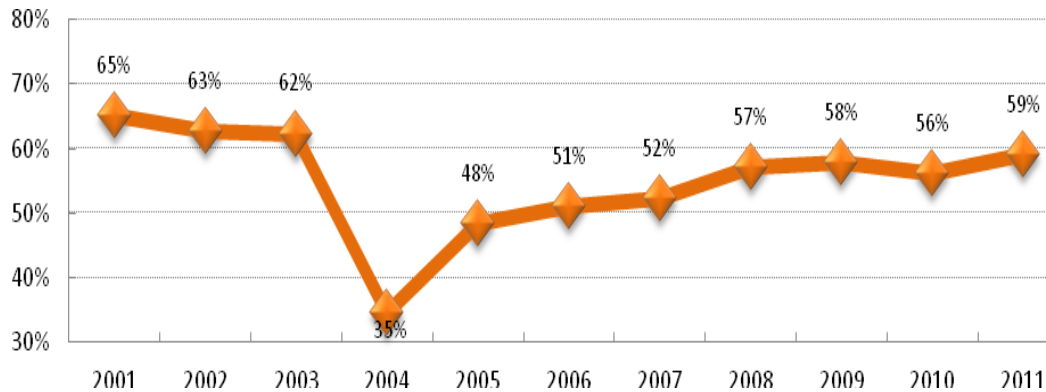
Source: NHIAC, 2012

Immunization: According to the MDGs for Armenia, the immunization rate of under-2 children should exceed 96% for each recommended vaccine by the year 2015. Similarly, the National Maternal and Child Health Strategy for 2003–2015 sets a target of at least 95.0%. The results over the period covering 2009 to 2011 have reached the target value (Figure 68).

Figure 68. Percentage of Armenian children who have been immunized by age 1 year and 2 years for the recommended immunizations, 2003–2008
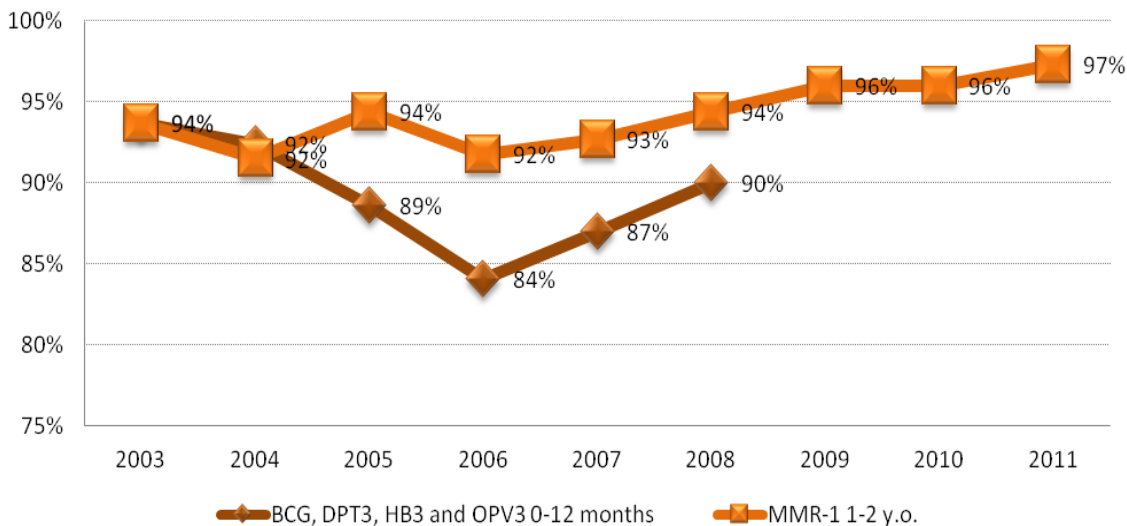
Source: NHIAC, 2012

Information needs

To assess treatment effectiveness (particularly diseases induced by high cholesterol and glucose levels) surveys with larger sample sizes are needed. This issue however can be addressed by implementing small-size specialized surveys on the quality of treatment, developing a sample from the lists of patients under follow-up care. Such surveys require modest budget and can be implemented with the NIH NHIAC resources.

Findings and policy recommendations

Situation	Policy recommendations
The rates of early detection of breast cancer have not improved between 2009 and 2011, despite of the growing number of women who have undergone mammographic screening.	Initiate professional discussions/ round-tables to develop solutions.
The rate of early detection of all cancers has not improved.	Initiate professional discussions/ round-tables to develop solutions.
The hospital fatality rate did not decline over 2007-2011. Main components include cerebrovascular diseases and acute myocardial infarction which continue staying rather high and show no decline tendency.	Initiate professional discussions / round-tables to develop solutions.
More than half of hypertension cases have latent nature (not detected by a provider). The effectiveness rate of hypertension drugs is not satisfactory. People with hypertension do not comply with doctor's prescriptions.	Strengthen activities of PHC providers aimed at early detection of hypertension. Particularly define 'annual (at least) measurement of catchment area population blood pressure' as performance indicator. Revise acting schemes and regulations for hypertension management. Strengthen public awareness and community education activities.
It is not clear if the increasing number of caesarean sections in Armenia is due to medical indications or cultural changes.	Statistics on caesarean sections should include a note specifying if the c-section was provider-indicated or the women's choice. Establish maternity schools at PHC settings to promote natural growth of Armenia population. These schools should educate and inform on pregnant women's behavior and hygiene.

5. HEALTH RISK FACTORS

"**Health** is a state of complete physical, mental and social well-being and **not merely** the absence of disease or infirmity." (WHO)[24]

Population morbidity and mortality rates reflect the population health status and are directly linked to various factors. Prime goals and objectives of public health promotion and strengthening dwell on a mix of factors (hereditary, gender, age – 30%; lifestyle, including risk behavior factors such as substance abuse, physical inactivity, hypertension – 40%, socioeconomic: wellbeing, education, stress – 15%, environment – 5% and health system performance – 10%) and their negative impact on human health.

- Healthy lifestyle counts for 50-55% of human health
- Environment for 20-25%
- Biological factors for 15-20% and
- Medical factors for 8-10%

Considering the importance of public awareness of the prevalence of health factors and determinants, as well as their negative spin-off on human health, education of healthy lifestyle can help preventing diseases and promoting and strengthening public health. Health promotion is cheaper for any person, household and the society than the treatment of the disease and recovery of the health.

The negative impact of risk factors on population health does not happen immediately but within relatively long time. Reduction of the prevalence of risk factors helps improving health indicators, particularly increasing life expectancy and reducing prevalence and mortality of noncommunicable diseases.

This chapter presents risk factors conditioning 70-80% of human health and public awareness of those factors.

The following issues are covered in this chapter.

1. What are the prevalence of behavioral, biological and domestic risks contributing to the population health and their change tendencies?

2. To what extent is the population aware of health risk factors and whether awareness helps reducing the prevalence of risk factors?

3. What is the environmental situation, particularly air, water, soil contamination and noise of various origins?

Prevalence of behavioral and biological risk factors

The HSPA surveys of 2007, 2009 and 2012 provided data on a number of behavioral and biological risk factors, particularly the below indicators:

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[24] V.V. Kolbanov, valeology: main concepts, terms and definitions, Kolbanov V.V. – СПб.: ДЕАН, 1998. – page 232

- **The percentage of males who are daily tobacco users. (**since tobacco users are predominantly males in Armenia, only the rate for males was addressed)

- **The percentage of males who consume the daily equivalent of 20 g or more of pure alcohol**

- **The habit of consuming salt:** excess use of salt

- **The percentage of adults who are physically inactive**, defined as those who engage in light physical activity less than 30 minutes per week.

- **The percentage of adults who are overweight**, defined as having a body mass index (BMI) higher than 25.0

- **The percentage of adults with high arterial blood pressure**, defined as being at least 140/90 mmHg

Data on prevalence of risk factors are collected for 2007, 2009 and 2012 within the framework of integrated survey of Armenia population. The findings are presented in Figure 69.

Since the HSPA 2007 focused on 20 and above age population the figure presents annual changes for that age group.

Prevalence of same risk factors in 15 and above age group is presented in relevant subsections along with risk factor prevalence by sociodemographic groups (gender, age breakdown, educational attainment, wealth quintiles and residence type: Yerevan, urban, rural).

Changes of the rates between 2007 and 2012 include:

- Number of male who consume tobacco every day did not change much (similar rates for 2012 and 2007, though in 2012 it decreased 2.6% as opposed to 2009 and equaled 55.4%).
- Number of males who consume the daily equivalent of 20 g or more of pure alcohol increased between 2007 and 2009, but increased 4.0% in 2012 as opposed to 2009 (from 17.0% to 13.0%).
- Number of people abusing salt in their daily diet increased 8% over 2007 – 2012 reaching 20%.[25]
- Number of inactive people increased 33.9% (from 18.0%- 49.9%).
- Number of overweight population climbed up to 56.5% in 2012.
- Number of population with hypertension drastically increased between 2009 and 2012 (from 15.4% to 36.8% or by 21.4%.[26]

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[25]   *The HSPA 2009 did not cover a question of use of salt. :*

[26] *This drastic increase could be explained by technical reasons. During: 2007 and 2009 surveys measurements were made by auscultations and in 2012 electronic tonometers were used and oscillometric method was used for measurements:*

Figure 69. Prevalence of health risk factors in Armenians age 20 and older, 2007, 2009 and 2012
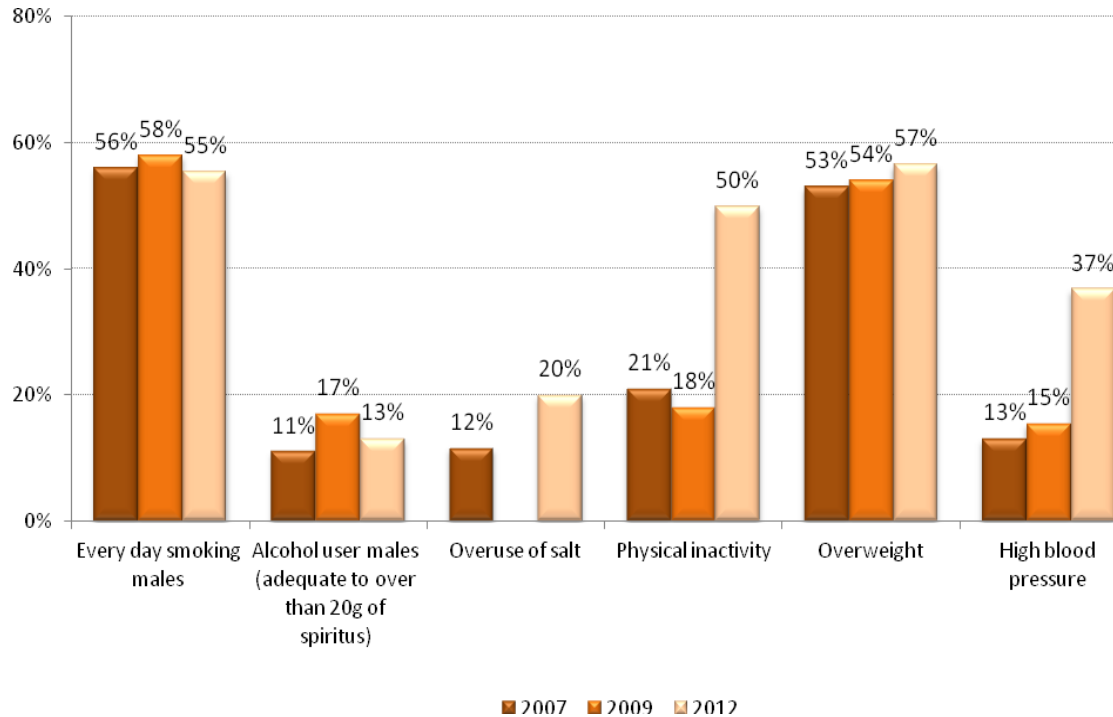
Prevalence of behavioral and biological risk factors among Armenia population has increased between 2007 and 2012 contributing to development of diseases induced by such risk factors.

Tobacco use

There was not any significant change in tobacco use among males age 20 and over between 2007 and 2012. The use of tobacco in sociodemographic groups in presented in Table 35. The data show that the rate of tobacco use among males drastically increases when transiting from the 15-19 age group to that of 20-29. It may be concluded that tobacco use rates increase with the age not only because the teenager boys step into adulthood and come out of strict control of parents, but also because the increase coincides with conscription period. However this behavior requires some additional study. Use of tobacco according to the age groups reaches its peak in the 30-39 age group and gradually decreases afterwards. The rate of daily tobacco use in the age group of 70 is only 26% and this is probably due to the fact that the elderly realize that smoking cuts the life years and non-smokers are more lively in that age group. Hence during the anti-tobacco campaign the statement "the likelihood of living after 70 is twice lower in daily smokers than in non-smokers" can be used.

Table 35. Prevalence of smoking in males of 15 and older age

Prevalence of tobacco use		No smoker (%)	Not daily smokers (%)	Daily smoker (%)
Age groups	15-19	88.1	4.5	7.4
	20-29	42.2	1.4	56.4
	30-39	24.1	0.0	75.9
	40-49	36.9	1.8	61.3
	50-59	45.1	2.9	52.0
	60-69	42.9	1.3	55.7
	70 +	69.8	4.2	26.0
Education	Low secondary	58.4	0.0	41.6
	Secondary	44.5	1.7	53.8
	Secondary vocational	46.0	5.5	48.5
	Incomplete higher	69.6	0.0	30.4
	Higher and above	53.5	1.0	45.6
Residence	Yerevan	49.6	1.7	48.7
	Urban	48.3	2.3	49.3
	Rural	49.1	2.7	48.1
Wealth quintiles	I lowest	46.8	1.4	51.8
	II low	42.0	4.9	53.1
	III middle	46.0	2.3	51.7
	IV high	53.7	1.9	44.4
	V highest	54.1	1.0	44.9
	Total	**49.1**	**2.3**	**48.7**

Source: HSPA 2012

The prevalence of tobacco use varies across wealth quintiles. The proportion of daily smoker males is higher in the poor quintiles I, II and III.

Education-wise the number of daily smokers is the lowest in males with incomplete higher educational attainment, who are predominantly students. Implementation of anti-tobacco activities in higher educational institutions have proven to be rather effective.

Smoking rates are evenly distributed across Yerevan, marz urban and rural settlements.

Prevalence of alcohol use

High rates of alcohol use are defined as the average daily consumption of 20 grams or more of pure alcohol. In Armenia, rates of high alcohol use are a problem essentially only among the male population. The prevalence among 15 and older males is 11.2% and among females only 0.5%. Use of alcohol per sociodemographic groups is presented in Table 36.

Table 36. Prevalence of alcohol use in males 15 and older per sociodemographic groups

| | | Daily consumption of 20 grams of pure alcohol | |
		Uses less than 20 gr/day (%)	Uses 20 gr/day and more (%)
Age groups	15-19	100.0	0.0
	20-29	92.9	7.1
	30-39	80.9	19.1
	40-49	87.6	12.4
	50-59	85.6	14.4
	60-69	81.5	18.5
	70 +	87.0	13.0
Education	Low secondary	86.4	13.6
	Secondary	84.3	15.7
	Secondary vocational	91.2	8.8
	Incomplete higher	97.8	2.2
	Higher and above	94.3	5.7
Residence	Yerevan	89.3	10.7
	Urban	85.9	14.1
	Rural	90.5	9.5
Wealth quintiles	I lowest	91.0	9.0
	II low	83.6	16.4
	III middle	89.5	10.5
	IV high	89.7	10.3
	V highest	90.2	9.8
	Total	**88.8**	**11.2**

Source: HSPA 2012

The habit of alcohol abuse in Armenian males starts at the age of 20 to 29. According to age groups the indicators have two maximal values: in 30-39 and 60-69 aged male groups.

Abuse of alcohol is relatively more prevalent in males with incomplete secondary and secondary educational attainment.

Alcohol consumption rates are lower in rural areas as opposed to Yerevan and marz cities.

Prevalence of being overweight

To assess the prevalence of being overweight or obese among adults, individual height and weight measurements were taken during the data collection for the surveys. These measurements were used to calculate body mass index (BMI).[27]

- Underweight = <18.5
- Normal weight = 18.5–24.9
- Overweight = 25–29.9
- Obesity = BMI of 30 or greater

Table 37 presents the breakdown of BMI categories per sociodemographic groups among 15 and older population conducted during the 2012 survey.

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[27] $BMI = W(kg)/H^2(m)^2$

As data show being overweight is a serious problem faced by Armenia population. Particularly:

- The problem is already evident in 15-19 age group, where every 10th teenager or youngster is overweight, followed by more than one quarter in the 20-29 age group, half in 30-39 age group, some 70% in 40-49 age group, and in the 50-59 age group the three quarter of respondents have extra weight.

- These indicators correlate with the high rate of sedentary lifestyle (see Figure 70).

- Obesity (being overweight or fat) is more prevalent in females. If rates of being overweight for male and female are very close, obesity is more common in females.

- The prevalence of being overweight seems to be equally distributed across Yerevan and marz urban and rural settlements.

Table 37. Breakdown of MBI categories by sociodemographic groups

| | | BMI | | | | |
		Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Overweight and obese (%)
Age group	15-19	6.0	83.0	5.2	5.8	11.0
	20-29	5.9	65.6	19.0	9.5	28.5
	30-39	2.0	46.3	32.3	19.4	51.7
	40-49	1.8	28.4	38.3	31.5	69.8
	50-59	1.7	24.2	39.5	34.7	74.1
	60-69	1.6	24.1	36.0	38.4	74.3
	70 +	3.1	34.1	38.7	24.1	62.8
Gender	Female	4.0	39.8	29.3	27.0	56.2
	Male	2.4	50.3	30.5	16.8	47.3
Education	Incomplete secondary	1.9	43.0	32.8	22.3	55.1
	Secondary	3.0	44.9	29.1	23.0	52.1
	Secondary vocational	4.8	39.3	31.1	24.8	55.9
	Incomplete higher	2.4	59.8	18.8	19.0	37.8
	Higher and beyond	2.9	47.1	30.6	19.4	50.0
Residence	Yerevan	4.5	43.9	29.8	21.8	51.6
	Urban	3.6	41.4	29.5	25.6	55.0
	Rural	1.9	47.7	30.1	20.3	50.4
Wealth quintile	I lowest	2.9	40.3	34.3	22.5	56.8
	II low	3.1	43.7	29.3	23.8	53.2
	III middle	2.9	50.7	26.7	19.8	46.5
	IV high	5.3	43.6	27.5	23.7	51.2
	V highest	2.1	43.8	32.1	22.0	54.1
	Total	**3.3**	**44.6**	**29.8**	**22.3**	**52.1**

Source: HSPA 2012

Prevalence of high blood pressure

Prevalence of high arterial blood pressure (hypertension) in 15 and older Armenians according to sociodemographic groups is presented in Table 38.

As data suggest

- Hypertension is most common in males,

- Hypertension, like obesity grows with the age

- In 40-49 age group hypertension is prevalent in one-third of respondents,

- In 50-59 age group in one-second

- In 60 and older age group three-quarter suffer from high blood pressure.

- Hypertension is most prevalent in population with incomplete educational attainment.

- Hypertension is clearly linked to one's wellbeing and is most prevalent in the lowest wealth quintile. The situation improves while moving up to the richest quintile.

Hypertension is slightly less prevalent in rural areas compared with urban settlements and Yerevan, probably because the rural population is physically more active.

Table 38. Prevalence of hypertension by sociodemographic groups

| | | Arterial blood pressure | |
		ABP≤ 140/90 (%)	ABP ≥140/90 (%)
Gender	Female	71.3	28.7
	Male	60.0	40.0
Age group	15-19	93.6	6.4
	20-29	88.9	11.1
	30-39	77.7	22.3
	40-49	67.0	33.0
	50-59	48.3	51.7
	60-69	28.7	71.3
	70 +	23.6	76.4
Education	Incomplete secondary	44.9	55.1
	Secondary	68.4	31.6
	Secondary vocational	67.5	32.5
	Incomplete higher	75.6	24.4
	Higher and beyond	65.8	34.2
Residence	Yerevan	65.0	35.0
	Urban	65.0	35.0
	Rural	68.2	31.8
Wealth quintile	I lowest	57.0	43.0
	II low	61.6	38.4
	III middle	67.9	32.1
	IV high	66.2	33.8
	V highest	74.8	25.2
	Total	**66.2**	**33.8**

Source: HSPA 2012

Prevalence of physical inactivity

The prevalence of physical activity and sedentary lifestyle for the population age 15 and older by sociodemographic groups is presented in Table 39. Physical inactivity is defined as less than 30 minutes per week of light exercise.

- Physical inactivity is more prevalent in females.
- As expected, physical inactivity rates are lower in rural areas.

The prevalence gradient with respect to the age is U-shaped.

- Physical inactivity rates are high in 15-19 age group. It starts declining and reaches the lowest level in the 30-39 age group, then climbs up to its peak in the 70 and older age group.
- Unlike other risk factors physical inactivity is less articulated according to educational levels and wealth quintiles. The prevalence of sedentary lifestyle is high in the groups with highest and lowest educational attainment and wellbeing, and is lower in the middle quintile groups.

Table 39. Prevalence of physical inactivity by sociodemographic groups

Physical activity		Physically inactive (%)	Physically active (%)
Gender	Female	53.1	46.9
	male	47.7	52.3
Age group	15-19	57.9	42.1
	20-29	48.2	51.8
	30-39	42.8	57.2
	40-49	45.3	54.7
	50-59	48.5	51.5
	60-69	52.4	47.6
	70 +	74.4	25.6
Education	Incomplete secondary	63.6	36.4
	Secondary	47.6	52.4
	Secondary vocational	47.0	53.0
	Incomplete higher	53.1	46.9
	Higher and beyond	56.1	43.9
Residence	Yerevan	52.0	48.0
	Urban	57.1	42.9
	Rural	44.4	55.6
Wealth quintile	I lowest	56.5	43.5
	II low	47.8	52.2
	III middle	49.4	50.6
	IV high	47.3	52.7
	V highest	53.1	46.9
	Total	**50.6**	**49.4**

Source: HSPA 2012

Figure 70. Prevalence of physical inactivity by age groups
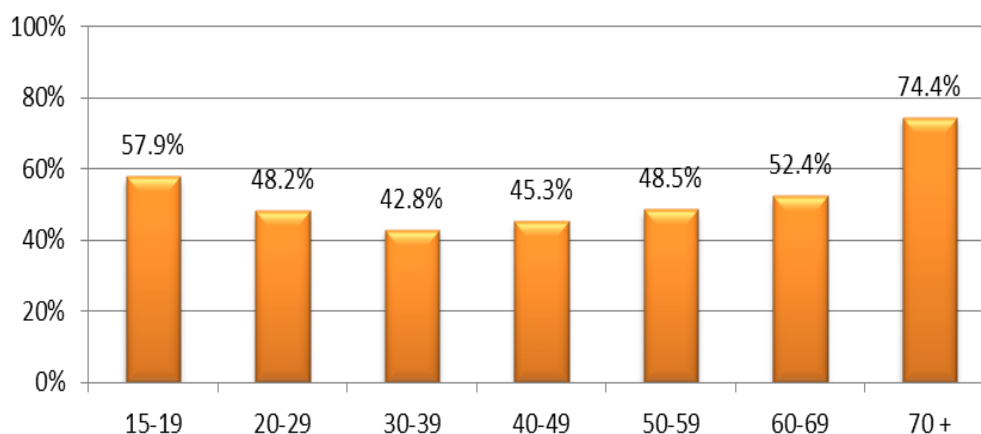
ource: HSPA 2012

Prevalence of salt use

Prevalence of sodium (salt) use among Armenia population groups is presented in Table 40.

Table 40. Prevalence of salt use by sociodemographic groups

		Intake of salt	
		Not overused (%)	Overused (%)
Gender	Female	87.5	12.5
	Male	73.4	26.6
Age group	15-19	71.0	29.0
	20-29	80.5	19.5
	30-39	80.1	19.9
	40-49	79.7	20.3
	50-59	81.4	18.6
	60-69	85.8	14.2
	70 +	92.2	7.8
Education	Incomplete secondary	80.6	19.4
	Secondary	80.9	19.1
	Secondary vocational	79.0	21.0
	Incomplete higher	82.2	17.8
	Higher and beyond	84.5	15.5
Residence	Yerevan	79.4	20.6
	Urban	85.4	14.6
	Rural	79.1	20.9
Wealth quintile	I lowest	87.1	12.9
	II low	83.2	16.8
	III middle	80.3	19.7
	IV high	79.7	20.3
	V highest	77.1	22.9
	Total	81.1	18.9

Source: HSPA 2012

Salt is used by 18.9% of population, of which 9.3% apparently overuses (adding salt to dishes without advance tasting).

- The habit of abusing sodium is more common in males, which is twice the rate in female.
- Inappropriate intake of salt is especially high in the 15-19 age group, and reduces in the 60-69 and older age groups. The other age groups show almost similar behavior patterns accounting for 20%.
- Iodized salt is consumed by 94.2% of the population, not iodized – by 6.3% and sea salt by as little as 0.2%, which means that t**he salt usage behaviors of the absolute majority of Armenia population help reducing the risk of diseases induced by iodine deficiency.**

Education on healthy lifestyle

The level of population awareness of healthy lifestyle develops their habits and lifestyle.

Public awareness of risk factors and healthy behaviors are preconditions for changing behavior and for prevention and early detection of disease. The HSPA surveys of 2007, 2009 and 2012 provide several relevant indicators:

- Level of awareness about behavioral and biological risk factors.

- Level of awareness of conditions (e.g. high blood pressure, high cholesterol levels and high glucose levels) that put individuals at risk for health problems such as diabetes or cardiovascular diseases.

Awareness of behavioral and biological risk factors

Analysis of the HSPA 2007, 2009 and 2012 survey data shows that roughly half of the 20 and older population is generally aware of the major risk factors that contribute to noncommunicable diseases, particularly smoking and physical inactivity (Figure 71).

Figure 71. Dynamics of the number of population age 20 and older who are aware of health risk factors, 2007 versus 2012
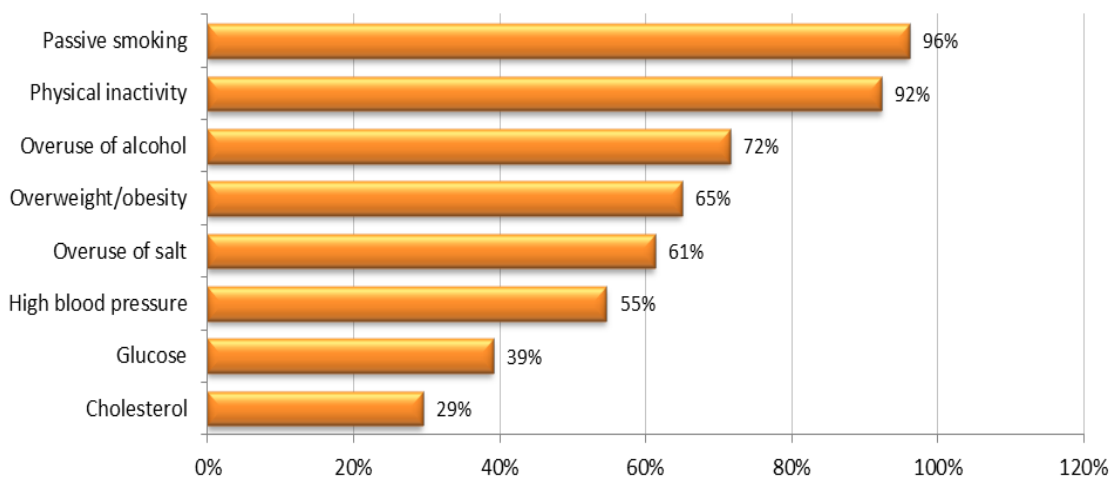
Source: HSPA 2012

The Figure suggests that

- **Among Armenia population the highest level of awareness of risk factors included smoking (94%, 2009) and the secondary smoke (96%, 2012).**

This means that

- **Anti-tobacco campaigns fully succeeded in raising public awareness.**
- **The anti-tobacco activities should be continued through strengthening of the legislative framework.**
  An evidence of the said is that despite the smoking ban in public transport, drivers continue smoking and breaking the law. Drivers smoke usually when reaching final points of the route, which are located in suburbs of Yerevan with fewer police services available. Drivers have managed to overcome the pressure by passengers and the latter got tired of rebuking.

Population of Armenia shows

- **Quite high level of awareness (92.6%) of risks associated with sedentary lifestyle.**

However as Table 39 hints rates of physical inactivity are equally high in all population groups.

- **Hence the reasons behind the high level of awareness on the one hand and the low physical activity and adherence to unhealthy lifestyle on the other hand should be studies and strategies on promotion of healthy lifestyle should be developed.**

Relatively low is the level of awareness of biological risk factors such as high levels of cholesterol (29%) and glucose (39%). The public awareness levels as detected during 2012 are presented in Figure 72.

Figure 72. Population awareness of risk factors
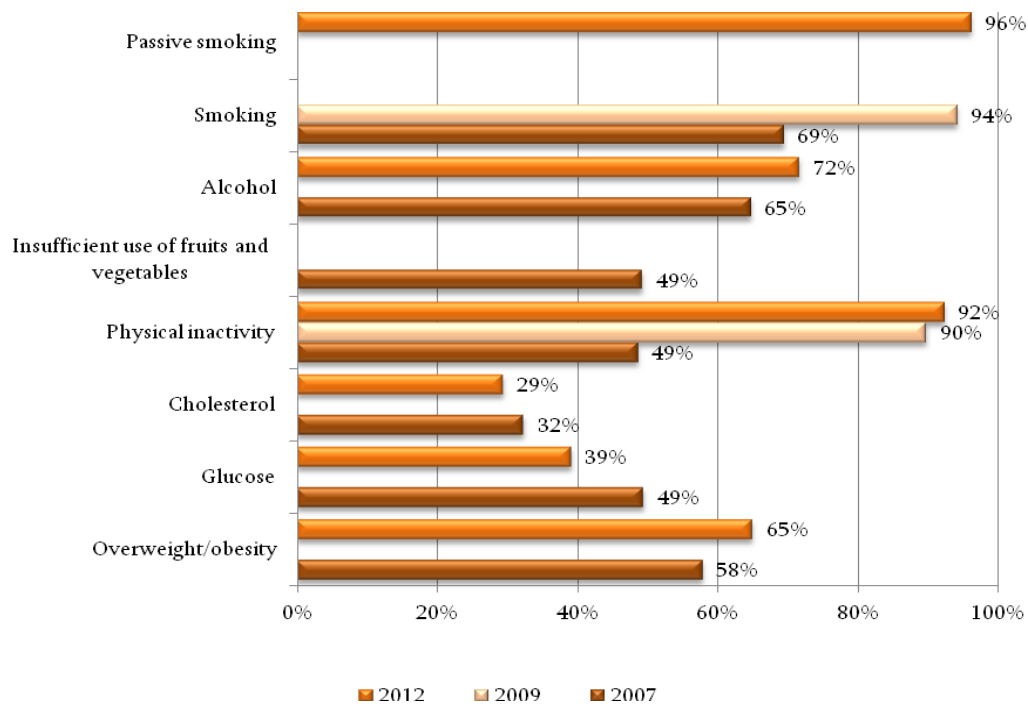
According to Figure 72

- **Awareness of negative impact of the abuse of alcohol, sodium and physical inactivity has increased somewhat between 2007 and 2012.**

  But at the same time

- **The levels of awareness of risks associated with hypertension, high levels of cholesterol and glucose have decreased.**

Below are the awareness patterns of 15 and older population groups as relates to health risk factors by sociodemographic groups.

Awareness of behavioral and biological risk factors

Analysis of the levels of awareness of behavioral and biological risk factors by sociodemographic groups (Table 41) suggests that
- **Males are less aware of risk factors than females.**
- **Level of awareness increases with age. The lowest level was detected in 15-19 age group.**

It is apparent that because of high prevalence of diseases and health conditions in the older ages, senior age people tend to seek medical care more often, thus receiving information on health risk factors that signify increased risks of their diseases, hence

- Step up activities on improving awareness of health risk factors in risk groups particularly focusing on the 15 – 30 age groups whose health is not worsened by their unhealthy behavior and lifestyle yet.
- As expected, the level of awareness of risk factors is lower in
    - ✓ People with lower educational attainment
    - ✓ Rural areas
    - ✓ Low wealth quintiles

Table 41. Awareness of behavioral health risk factors

		Overuse of salt (%)	Alcohol (%)	Secondary smoke (%)	Physical inactivity (%)
Gender	Female	63.9	74.9	97.1	92.5
	Male	55.3	69.5	95.1	89.4
Age group	15-19	48.3	72.1	96.6	79.4
	20-29	59.7	73.3	97.1	91.2
	30-39	57.6	73.9	96.4	89.9
	40-49	64.4	70.3	98.0	92.7
	50-59	65.5	72.4	97.0	92.2
	60-69	60.7	69.8	92.6	97.7
	70 +	58.8	63.1	91.6	94.1
Education	Incomplete secondary	48.7	57.8	93.6	81.6
	Secondary	57.2	69.1	96.1	91.9
	Secondary vocational	61.8	75.0	97.9	89.5
	Incomplete higher	63.3	70.4	92.5	94.2
	Higher and beyond	69.1	79.1	96.6	95.4
Residence	Yerevan	61.2	73.0	95.6	93.6
	Urban	62.0	78.5	96.1	90.7
	Rural	57.3	65.1	96.7	89.2
Wealth quintile	I lowest	54.3	66.1	93.7	90.6
	II low	54.3	63.1	97.2	89.8
	III middle	65.0	76.6	95.9	94.4
	IV high	59.5	73.3	97.3	87.8
	V highest	64.5	74.5	96.2	92.5
	Total	60.0	71.6	96.2	91.1

Source: HSPA 2012

Awareness of biological risk factors signifying increased risk for noncommunicable diseases

Figure 72 presents the levels of awareness of 20 and older population of Armenia of the negative impact of biological risk factors. According to the survey data the highest level of awareness was about risks of obesity (65%) and hypertension (61%) and significantly lower was awareness of how risky can be high levels of glucose (39%) and cholesterol (29%).

The following changes were recorded between 2012 and 2007.

- Public awareness of the risk of obesity increased by 7%
- The following rates decreased
    - ✓ Awareness of hypertension-related risk (11%),
    - ✓ Awareness of high glucose levels -related risk (10%)
    - ✓ Awareness of high cholesterol levels -related risk (3%)

Table 42. Awareness of conditions signifying increased risk for noncommunicable diseases

		Hypertension (%)	Cholesterol (%)	Glucose (%)	Obesity (%)
Gender	Female	57.6	31.9	42.1	64.5
	Male	44.8	24.0	32.8	65.2
Age group	15-19	24.6	17.4	26.0	66.2
	20-29	49.2	25.4	38.5	62.2
	30-39	53.6	29.9	42.1	69.1
	40-49	58.4	33.0	38.7	67.9
	50-59	58.8	34.3	43.4	63.8
	60-69	62.0	29.3	36.3	63.8
	70 +	49.6	23.5	30.7	59.5
Education	Incomplete secondary	34.8	12.8	23.4	59.2
	Secondary	44.2	21.7	34.1	62.7
	Secondary vocational	54.3	34.3	38.3	63.7
	Incomplete higher	69.7	39.1	51.2	68.4
	Higher and beyond	68.9	40.2	49.2	73.9
Residence	Yerevan	50.9	28.9	34.2	65.4
	Urban	56.9	33.4	43.9	67.1
	Rural	48.3	23.6	36.1	62.7
Wealth quintile	I lowest	45.3	23.4	29.8	59.2
	II low	50.6	23.9	32.4	62.3
	III middle	52.4	31.9	39.6	67.1
	IV high	51.3	27.8	37.6	63.0
	V highest	57.0	32.5	46.7	70.7
Total		**51.7**	**28.3**	**37.8**	**64.9**

Source: HSPA 2012

Data of Table 42 witness that

- Females are better informed on risks associated with hypertension and high levels of cholesterol and glucose than males, whereas both showed similar level of awareness of obesity-related risks.
- Awareness of risks of high cholesterol and glucose levels is comparatively high in middle-age groups and is lower in 70 and older age group.
- Awareness of all health risk factors increase with the age.
- Respondents of rural areas and poor quintiles demonstrate relatively lower level of awareness.

Prevalence of environmental and domestic risk factors

Domestic risk factors relate to environmental factors that have an impact on population health, such as access to clean water, sewage and waste disposal facilities, air and soil pollution as well as the noise. The 2009 and 2012 HSPA surveys included questions on the location of drinking water faucets, location of toilet facilities, waste disposal, presence of sewage system, apartment heating, waste collection and ambient air quality. Selected results for the prevalence of other domestic risk factors are also discussed.

The HSPA 2012 findings on environmental and domestic risk factors by prevalence and residence are presented in Tables 43 and 44.

Data of the table show that risks most prevalent in Armenia include

- Air pollution (ambient air was considered dust-polluted by 53.0% of survey participants),
- Noise (transport was indicated by 25.6%),
- Soil contamination (domestic waste was reported by 19.2%),

- Drinking water contamination was mentioned by 17.9%,
- Radiation was noted by 12.1%

Data suggest that **the most prevalent factors of environmental pollution result not from the ill behavior of the population, but the nature of economy and governance.**[28]

Air pollution

Based on survey responses, Armenians regard air pollution as a serious problem. The HSPA 2012 considered the prevalence of several sources of air pollution, including:

- Air pollution with dust,
- Motorvehicle emissions,
- Industrial waste,
- Cattle breeding farms located in the vicinity.

Survey participants consider dust the most prevalent source of air pollution. Next mentioned was - motorvehicle emissions. Both sources are most prevalent in Yerevan and urban areas.

Air pollution with industrial emissions was reported by survey participants from Yerevan and urban areas, but their prevalence is about three times less than that of dust and motorvehicle emissions.

Tree-cutting can significantly contribute to worsening of ambient air quality and its pollution, as it reduces concentration of oxygen in the air and pollutes air with dust. This problem was especially reported in Yerevan.

Table 43. Prevalence of domestic risk factors

	Residence			
Existence of domestic risk factors, 2012	Yerevan (%)	Urban (%)	Rural (%)	Total (%)
Air pollution with dust	56.1	56.8	47.5	53.0
Air pollution with motorvehicle emissions	56.4	47.0	31.6	44.2
Air pollution with industrial emissions	16.2	18.6	8.2	13.9
Air pollution because of cattle breeding farm activities	8.2	6.5	11.5	9.0
Tree-cutting	10.6	6.9	4.3	7.1
Drinking water contamination	16.1	16.4	20.7	17.9
Contaminated irrigation water	10.2	10.7	20.2	14.1
Transport noise: motorvehicle, trains, airplanes	38.8	26.3	13.7	25.6
Domestic noise: restaurants, bars, neighbors, street	10.2	10.1	1.3	6.8
Industrial noise	3.6	3.7	0.7	2.5
Accumulation of domestic waste	23.1	25.4	11.0	19.2
Construction debris	17.1	19.6	5.9	13.6
Accumulation of toxic industrial waste	6.6	14.6	5.7	8.6
Radiation	12.7	12.0	11.7	12.1

Source: HSPA 2012

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[28] *From the first sight it can be thought that accumulation of domestic solid waste results from people's behavior. But in reality if waste is collected in one place, it means that there are population groups/households/ that have no specified place for waste collection, so they spontaneously organize dumpsites in the most convenient for them place. Hence a last **managerial step** is left to be done – place waste receptacles and unload them regularly.*

Water contamination

The survey covers problems of drinking and irrigation water contamination, which is most prevalent in rural areas.

Noise

Prevalence of transport, domestic and industrial noises were studied.

- Most prevalent is the transport noise (motorvehicels, trains, airplanes).
- Transport noise was predominantly reported by Yerevan participants.

Prevalence of transport noise is three times lower in rural areas as opposed to Yerevan.

- Yerevan and urban respondents complained of domestic noise generated by nearby restaurants, bars, streets and neighbors.

Soil contamination

- Dumping of domestic waste and construction debris was reported as the most prevalent factor of soil contamination.
- These factors are predominant in Yerevan and marz cities.
- Dumping of toxic industrial waste was mentioned by respondents from marz cities mostly (close to mining sites).

Radiation

The traditional 'contamination' was almost evenly reported by Yerevan, urban and rural participants of the survey. This should be attributed to the location of all these settlements (they are close to the power plants).

High level of radiation may be recorded also in areas located far from power plants, particularly in areas containing radioactive minerals, e.g. in Syunik marz. Identification of such areas can be done by the Ministry of Health jointly with relevant public agencies.

Apartment heating

The most prevalent risk factor related to apartment heating is the use of firewood and /or coal, which is practiced by 38.1% of households in Armenia.

- Firewood or coal is used to heat apartment by 63.0% of rural respondents, 32.1% of urban respondents and 14.3% of survey participants from Yerevan.
- Other materials that are considered risk factors (manure, miscellaneous /anything that can be burned/, others) were mentioned by 5.4% of participants and no heating was reported by 0.5%.

Existence of a sewage system

Sewage system is available in apartments of 69.6% of respondents. 93.8% of Yerevan, 87.2% of urban and 36.0% of rural respondents reported having a toilet facility.

Toilet location

Toilet facility of 37.4% of households is located in the backyard. This answer was shared by most of rural families (67.4%) and 23.2% of urban respondents.

Table 44. Prevalence of sanitary risk factors

		Residence type			
		Yerevan (%)	Urban (%)	Rural (%)	Total (%)
Toilet location	Apartment/indoors	84.7	75.1	31.5	61.7
	In the building shared by more than one family	0.0	1.3	0.7	0.7
	Backyard	15.1	23.2	67.4	37.4
	In the backyard-shared by more than one family	0.1	0.2	0.4	0.2
	No toilet	0.1	0.2	0.0	0.1
Shared toilet facility	No	7.2	12.8	64.0	30.4
	Yes	92.8	87.2	36.0	69.6
Apartment heating	Central heating	0.2	1.4	0.1	0.5
	Individual heating system	29.9	12.0	5.4	15.2
	Gas furnace	38.5	35.4	16.3	29.2
	Electric heater	11.9	16.9	2.2	9.7
	Gas stove	3.1	1.2	0.1	1.4
	Firewood, coal	14.3	32.1	63.0	38.1
	Manure	0.1	0.2	12.2	4.7
	Whatever can be burned	0.0	0.0	0.4	0.2
	Not heated	1.0	0.4	0.0	0.5
	Other	1.0	0.3	0.3	0.5

Source: HSPA 2012

Information needs

The small sample size of the HSPA survey (1600 participants in 2009 and 2012) does not enable assessing subnational differences in risk factors and sociodemographic subgroups, e.g. behavior stereotypes and social conditions of age 15-19 males contributing to the habit of daily tobacco use or behavior stereotypes and social conditions of age 30-59 females from marzes leading to obesity or sedentary lifestyle. Such analysis can help developing risk factor reducing strategies tailored to specific sociodemographic groups.

Facts and policy recommendations

Situation	Policy recommendations
The small sample size does not allow the data to be disaggregated by marz and to study interrelations of sociodemographic data.	Expand the sample size to 6500 or more respondents. Implement target surveys in marzes and among special population groups.
Population awareness of tobacco and secondary smoke risks is rather high. Smoking rates are high in males, but smokers neglect negative impact of their behavior on the surroundings.	Expand/strengthen smoking bans in public places. Impose sanctions for smoking in public places, especially in public transport /special attention to drivers.
Tobacco smoking rates have drastically increased in 20-29 males.	Target anti-tobacco activities to young people, including expansion of the number of sports fans.
Alcohol abuse rates are relatively high in 30-39 and 60-69 age males.	A more accurate study of these population groups is needed in order to reveal the reasons and to develop targeted strategy.
Despite very high rates of population awareness of health risks associated with sedentary lifestyle, physical inactivity rates have increased remarkably, showing especially high proportions in those 15-19 years old.	Implement activities to promote physical education among population groups. Make stadiums and sports grounds available for the population. Build new stadiums and sports grounds. Organize mass events promoting physical education and sports.
Rates for prevalence of being overweight have increased between 2007 and 2009. The rate of inappropriate use of salt has increased drastically between 2007 and 2012.	Implement healthy diet educational activities especially in educational institutions and involving mass media (TV particularly).
Prevalence of behavioral risk factors has led to radical increase of hypertension rates. At the same time awareness on hypertension-related risks has declined.	Encourage PHC providers to implement blood pressure screenings at least on annual basis. Improve public awareness on hypertension related risks.
The lowest level of awareness of risk factors is detected in the 15-19 age group.	Improve education on healthy lifestyle at secondary schools and secondary vocational institutions.

Situation	Policy recommendations
Environmental and domestic risk factors are prevalent in Armenia. However management of these factors is outside the scope of the Ministry of Heath authorities.	Strengthen cooperation of the Ministry of Health with public agencies authorized to manage environmental and domestic risk factors, particularly improve information exchange
Most prevalent environmental risk factors include air pollution with dust and motorvehicle emissions.	Strengthen tree-planting and post-planting care activities especially in Yerevan and urban areas. Strengthen control and sanctions defined for illegal tree cutting and illegal licensing thereof. Improve transparency of construction license issuance, with a special attention on issuance of construction licenses in timber-risk areas. Provide for feasible sanctions for officers performing inadequate control and issuing ungrounded permissions for tree cutting. Strengthen cooperation of public administration and local government bodies with NGOs dealing with environment issues. Particularly encourage public alternative expertise and their comparison with results of business and state expertise activities. Strengthen state control over air pollution by cargo and public transport vehicles. Develop environment recovery funds based on fines and penalties collected for air pollution.
Prevalence of domestic waste shares big proportion in environmental pollution /contamination.	Map domestic waste collection sites, install relevant size waste receptacles, and include these spots in corresponding waste collection schemes. Strengthen supervision of activities of agencies responsible for collection of domestic waste and imply sanctions for underperformance of their functions.
Construction debris and industrial waste worsen environmental pollution.	Strengthen cooperation of public administration and local government bodies with NGOs in locating construction debris and industrial waste sites.

Situation	Policy recommendations
Majority of rural population uses firewood or coal for apartment heating. This situation contributes to illegal tree-cutting.	Draw the attention of relevant public administration bodies on the problem of housing heating in rural areas.
Most of rural areas do not have sewage system.	Draw the attention of the Ministry of Territorial Administration on studying possibilities of sewerage construction in rural areas.

6. HEALTH SYSTEM RESPONSIVENESS

Responsiveness is one of the three ultimate goals of any health system. Of two health systems better responsiveness is demonstrated by the one that

1. Provides more information to the patients;
2. Has medical staff providing explanations to the patients on their condition/disease in a clear and comprehensible manner;
3. Dedicates sufficient time to the patient encouraging to ask questions to the doctor;
4. Involves the patient in decisions on his/her treatment;
5. Has conversations with health care providers without other people overhearing;
6. Ensures privacy of the patient during medical examinations;
7. Ensures information about the patient is kept confidential;
8. Gives the patient a possibility to choose health care provider (place or person);
9. Has enough space and a clean facility;
10. Has short travel times and convenient access to health care facilities;
11. Has short waiting times for consultations and interventions;
12. Has respectful and polite staff.

Different societies practice different definitions for health system responsiveness, depending on cultural specifics.

Responsiveness of health care system is covered by 8 domains inquiring for the above-listed aspects of care. The domains include two groups: one containing domains showing **attitude towards an individual** and the other includes domains **orienting users of health system**.

The first group of domains includes

1. *Dignity:* showing respectful attitude to the patient. Did health care providers show respect for patients, and were physical examinations conducted in a private setting?
2. *Communication:* the nature of communication with the patient. Did health care providers explain to the patient his or her situation, diagnostic tests and treatments? Did the doctor give the patient an opportunity to ask questions and discuss matters of concern related to the disease?
3. *Autonomy:* Did health care providers adequately explain the treatment options? Were patient opinions considered in deciding-making on the course of treatment?
4. *Confidentiality:* Did the patient feel assured that his or her medical history was kept confidential?

The second group includes the following domains:

5. *Adequate quality of basic amenities:* Does the health facility have basic conditions and facilities?
6. *Prompt attention.* Does the facility react promptly to the patient's requests?
7. *Possibility of choice:* Is the person or patient given a possibility to choose the health facility and/or provider.
8. *Social support:* Can the patient receive social support during the treatment?

To assess the health system responsiveness domains WHO has developed questionnaires for each domain.

It should be noted that these measures of responsiveness pertain only to users of health care services, meaning those who access services. Therefore for the general assessment of the health system responsiveness the following indicators were used:

- Access to healthcare services,
- Confidence in health care system,
- General satisfaction with health care services.

Below domains were assessed during HSPA survey conducted in 2012.

1. Dignity/respect
2. Communication
3. Confidentiality

Picture 1. Health system responsiveness domains
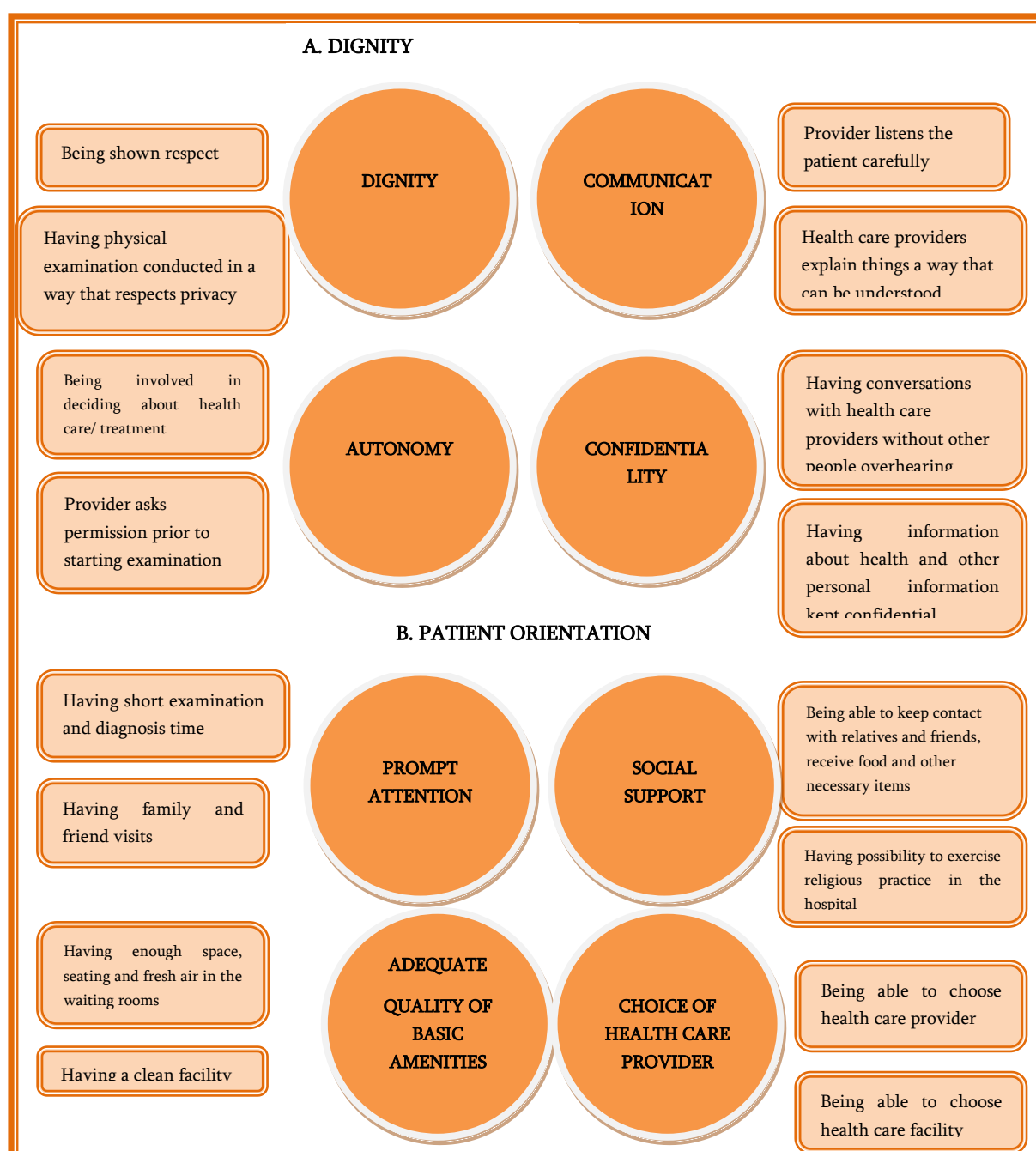
4. Autonomy
5. Adequate quality of basic amenities
6. Prompt attention

The open enrollment domain was assessed for the primary care level.

To improve responsiveness of Armenia health system a hotline service was introduced at the Ministry of Health, the effectiveness of which is discussed in this chapter.

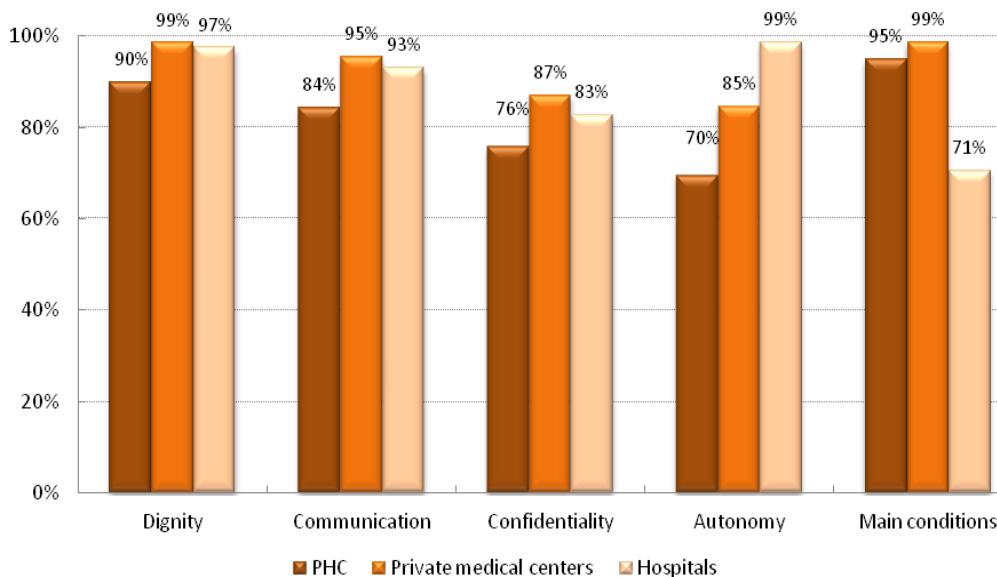## Health facility responsiveness domains

To assess responsiveness domains, scores for questions under each domain were combined to understand the assessment provided by each respondent for a given domain. Then they were adjusted within the 0-100% median, where 0% means the lowest assessment of the domain and 100% the highest.

To interpret domain assessments (to understand if scores are high or low) the following scale was used.

- 0-20% very bad
- 21-40% bad
- 41-60% moderate
- 61-80% good
- 81-100% very good

Figure 73 presents responsiveness rates for PHC (public) settings (health posts, ambulatories, policlinics), private medical centers and hospitals (regardless of their legal form) during 2012.

Figure 73. Health facility responsiveness domains

Source: HSPA, 2012

- As the figure shows the two domains of the health system - **dignity** and **communication** - as regards all types of health care facilities were rated as very good.

- Among highly assessed attributes of responsiveness the most important was **confidentiality** followed by **autonomy.**
- **Confidentiality** and **autonomy** in PHC settings are assessed as good.
- The domain characterizing **adequate quality basic amenities** in inpatient settings was assessed as good.

There are several domains in private clinics and hospitals with scores exceeding 95%, sometimes reaching 99%. Especially high are the scores for dignity domain.

The time a patient spends waiting in medical facilities before seeing a physician and/or knowing the diagnosis is shown in Figure 74, according to which

- **The average waiting time for a doctor** at both inpatient and outpatient settings was 10 minutes and in private ones 17 minutes.
- **The average waiting time for diagnosis** did not vary much in all three types of health facilities - 17-19 minutes.

Figure 74. Wait time at health facilities
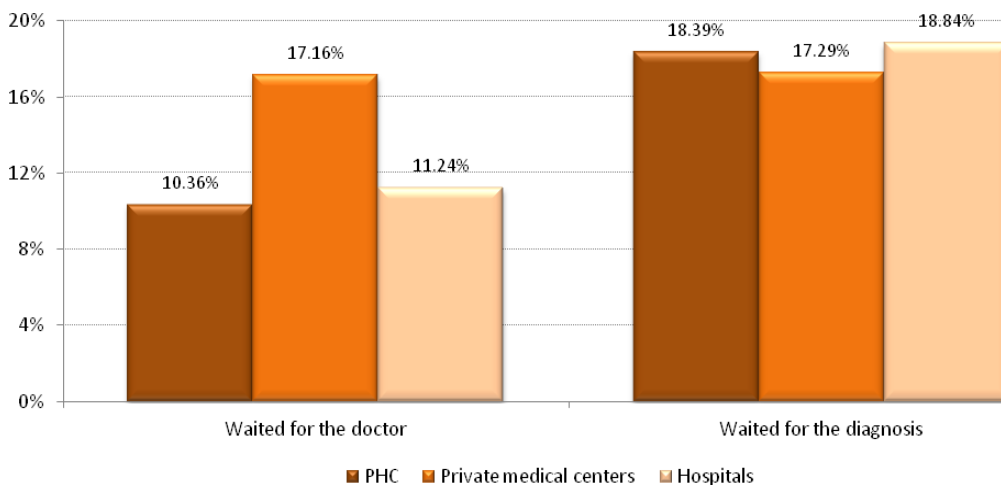
Source: HSPA, 2012

Following paragraphs explore changes in responsiveness of PHC, private clinics and hospitals (regardless of legal form) over time.
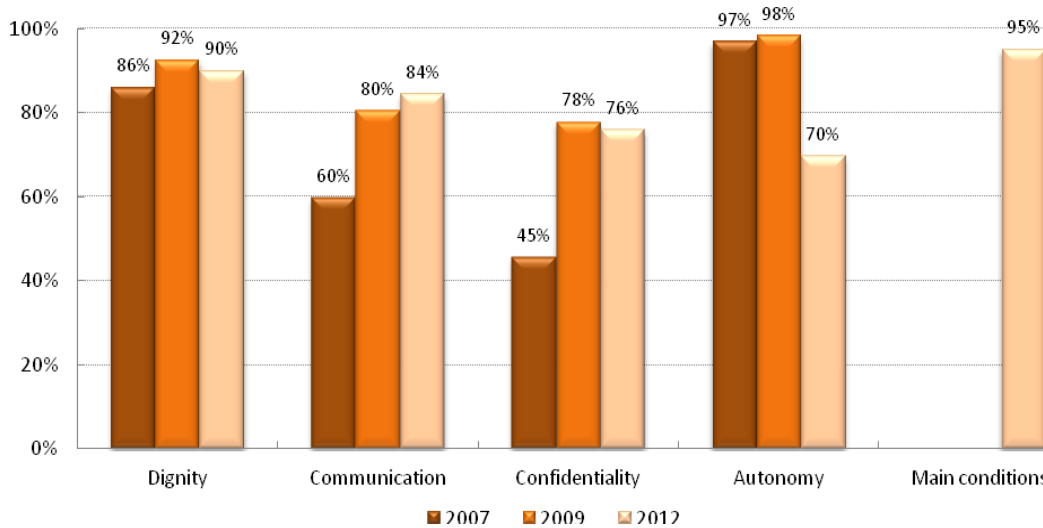
Responsiveness of primary health care level

Figure 75 looks at the evaluation of the PHC responsiveness by respondents in 2007, 2009 and 2012.

According to the survey data

- Very good ratings were observed for **dignity** domain when speaking of ambulatory health care settings in 2007, 2009 and 2012. In addition, in 2012 respondents were satisfied with **basic amenities** as well.
- Domains for **communication** and **confidentiality** have improved between 2009 and 2012 compared with the situation recorded in 2007. The rates have climbed up from 'good' to 'very good'.
- In 2012 rates for **autonomy** of PHC settings have dropped from 'very good' to 'good' as opposed to 2007 and 2009.

Figure 75. Responsiveness domains for ambulatory care facilities

Responsiveness of private health care facilities

Ratings for responsiveness of private clinics are presented in Figure 76. Responsiveness of private health care facilities was assessed during 2009 and 2012 surveys.

It was observed that

- All domains were highly rates for private clinics during 2009 and 2012 surveys.

The following dynamics was detected as regards private facilities.

- Ratings for **communication** significantly increased between 2009 and 2012.
- Whereas for **autonomy** they dropped essentially (though still remaining within the range of 'very good').

**Figure 76. Responsiveness of private health facilities**
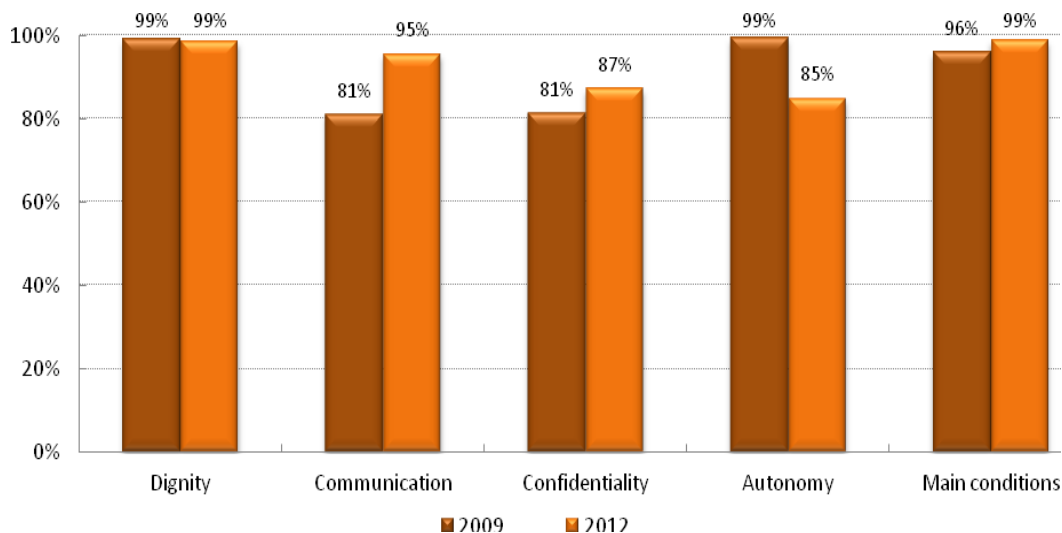
Responsiveness of inpatient health facilities

Domains for hospital responsiveness were rated separately during 2009 and 2012 surveys. The findings are presented in Figure 77.

- All domains of hospital responsiveness shared the highest rates in 2007 and 2009, except for **confidentially** in 2007 and **basic amenities** in 2012.
- Great satisfaction (95-97%) with the **dignity** and **autonomy** domains was observed in 2009 and 2012.
- Significant increase was recorded in **communication** and **confidentiality** domains between 2009 and 2012. Patient's ratings of **confidentiality** moved from 'good' to 'very good'.
- The period from 2009 through 2012 recorded a decline in patient's perception of basic amenities in hospitals, moving from 'very good' to 'good'.

Figure 77. Responsiveness domains for hospitals
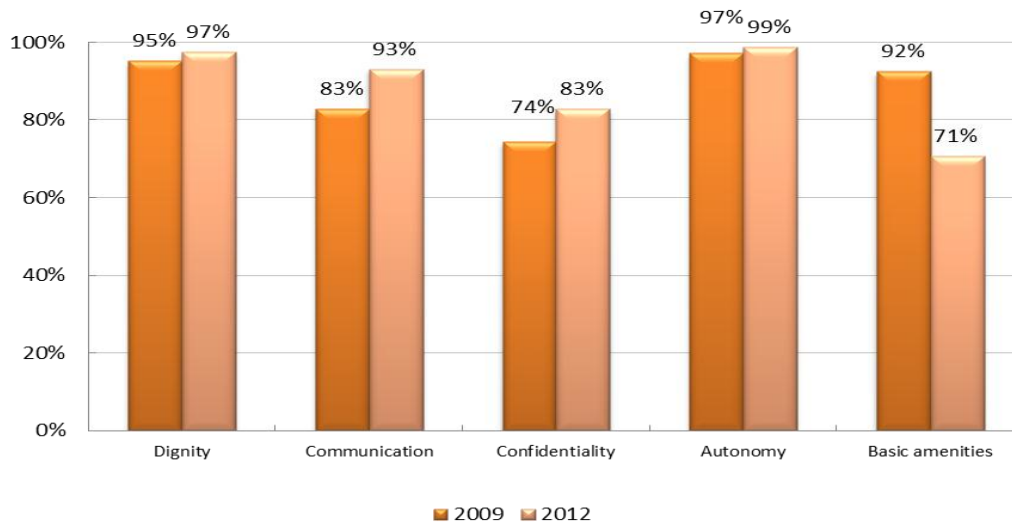
Source: HSPA, 2012

Open enrollment with a provider

The principle of open enrollment with health provider was introduced in Armenia in 2007, according to which the citizens are free to choose an ambulatory or a physician (family doctor or district therapist). The enrollment is endorsed with a special contract on delivery of PHC services signed between the citizen and the provider. Moreover citizens have the right to change both the facility and the doctor at any time.

Several aspects of implementation of open enrollment in Armenia were discussed during the 2012 survey.

Awareness of the right to open enrollment with a provider

Majority (81.5%) of age 18 and older participants of the 2012 survey reported to be aware of the open enrollment principle (versus 75.5% in 2009). Data are presented in Figure 78.

Figure 78. Awareness of open enrollment
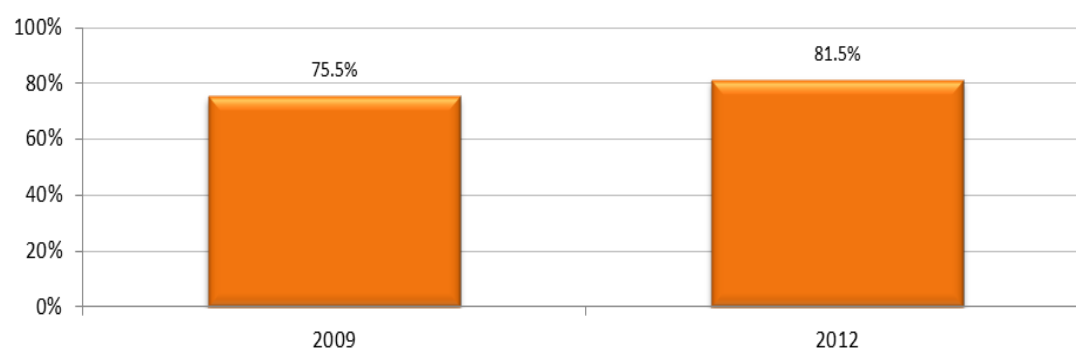
Source: HSPA, 2012

Table 45 looks at awareness of open enrollment by sociodemographic categories of respondents.

Table 45. Awareness of open enrollment by sociodemographic groups

Gender	Female	83.8%
	Male	78.4%
	Total	**81.5%**
Age group	15-19	80.1%
	20-29	83.4%
	30-39	80.3%
	40-49	83.1%
	50-59	82.5%
	60-69	81.7%
	70 +	74.6%
	Total	**81.5%**
Education	Lower secondary	64.8%
	Secondary	78.4%
	Secondary vocational	86.2%
	Incomplete higher	77.8%
	Higher and above	90.1%
	Total	**81.5%**
Residence	Yerevan	84.2%
	Urban	82.1%
	Rural	78.6%
	Total	**81.5%**
Wealth quintile	I lowest	73.6%
	II low	78.5%
	III middle	81.3%
	IV high	84.8%
	V highest	86.7%
	Total	**81.5%**

Source: HSPA 2012

As the Table witnesses the survey participants show relatively lower awareness of the right to freely choose a physician and/or outpatient health facility in

- Rural areas (78.6%),

- Low wealth quintiles (I quintile 73.6%, II quintile 78.5%),

- Groups with low educational attainment (secondary and incomplete secondary) 64.8%,
- 70 and older age group (74.6%),
- Males (78.4%)

Contract on PHC service delivery

Signing a contract with an outpatient facility on delivery of PHC services was reported by 37.7% of survey participants age 18 and older and some 6.9% did not know if they had signed a contract (Table 46).

Table 46. Signing a Contract on PHC service delivery by sociodemographic groups

| | | Contract on PHC service delivery | | |
		Not signed (%)	Signed (%)	Don't know (%)
Gender	Female	53.6	40.8	5.6
	Male	57.6	33.9	8.6
	Total	55.3	37.7	6.9
Age group	18-19	65.2	34.8	0.0
	20-29	50.4	39.5	10.1
	30-39	56.8	34.2	9.0
	40-49	57.8	38.2	4.0
	50-59	55.7	39.6	4.7
	60-69	52.6	43.1	4.3
	70 +	57.5	33.1	9.3
	Total	55.3	37.7	6.9
Education	Lower secondary	61.7	28.8	9.5
	Secondary	56.3	37.3	6.5
	Secondary vocational	55.7	37.1	7.2
	Incomplete higher	58.6	38.0	3.4
	Higher and above	50.3	43.5	6.1
	Total	55.5	37.9	6.7
Residence	Yerevan	60.7	37.0	2.3
	Urban	50.0	41.4	8.6
	Rural	55.1	35.3	9.6
	Total	55.3	37.7	6.9
Wealth quintile	I lowest	59.7	33.4	6.8
	II low	56.0	35.9	8.2
	III middle	57.2	38.0	4.8
	IV high	53.4	37.9	8.7
	V highest	51.7	42.1	6.2
	Total	55.3	37.7	6.9

Source: HSPA 2012

Relatively high proportion of positive answers was received from

- Richest (V quintile) 42.1%
- Those with higher and above educational attainment 43.5%
- 60-69 aged 43.1%

Relatively lower are the proportions of people who have signed a contract among the following sociodemographic categories:

- Poorest (I quintile) 33.4%
- Those with incomplete secondary education 28.8%
- 70 and older respondents 33.1%
- Males 33.9%

It is noteworthy that

- Some 15% of the 18 and above age group respondents has received their copy of the contract.
- Only 12% of 18 and older respondents had read it (the number of those who had read the contract includes respondents who did not receive their copy).

On the other hand

- 9.5% of survey participants who had signed a contract expressed a wish to receive treatment in a different health facility.
- 52.2% of respondents who would like to receive treatment at a different health facility reported being not satisfied with performance of their health facility and 8.5% complained of the far distance from their houses.

Hotline service of the Ministry of Health

To improve feedback on performance of the Ministry of Health the latter established a hotline service in 2006. The importance of this telephone service increases with time, which is supported by the Minister's decree 611-A of 2008 on defining working shifts to answer hotline calls and the decree 1160-A of 2009 on regulation of the hotline service activities.

The calls received by hotline server are transmitted to the relevant unit of the Ministry where the callers receive all necessary information, share their concerns and/or report their claims. In case of claims the Ministry officer advises the callers on their further steps or calls the relevant health facility to resolve the situation. The Ministry hotline service is available 24/7 including holidays and week-ends.

The 2012 survey assessed awareness of respondents of the hotline service. More than half (58%) reported to be aware of such telephone service.

Of those aware of the Ministry hotline service, a call was made by as little as 0.8% or 0.5% of age 15 and older population.

Half of the calls were grievances and the other half inquiries.

Population awareness of the Health Ministry hotline service by sociodemographic categories is provided in Table 47.

Those aware of the hotline service included women, 20-29 aged people, those with secondary vocational and higher educational attainment, and the well-off groups.

Table 47. Population awareness of the RA Ministry of Health hotline service by sociodemographic groups

Gender	Female	62.1%
	Male	53.2%
Age group	15-19	31.7%
	20-29	69.0%
	30-39	60.8%
	40-49	62.6%
	50-59	62.1%
	60-69	54.3%
	70 +	41.8%
Education	Lower secondary	37.7%
	Secondary	55.6%
	Secondary vocational	64.9%
	Incomplete higher	47.6%
	Higher and above	66.8%
Residence	Yerevan	55.8%
	Urban	59.2%
	Rural	58.9%
Wealth quintile	I lowest	48.5%
	II low	49.8%
	III middle	59.7%
	IV high	64.2%
	V highest	64.3%
	Total	58.0%

Source: HSPA 2012

Statistics of hotline callers during January-June, October-December 2010 and June-August 2012 is provided in Table 79.

Figure 79. Number of hotline calls
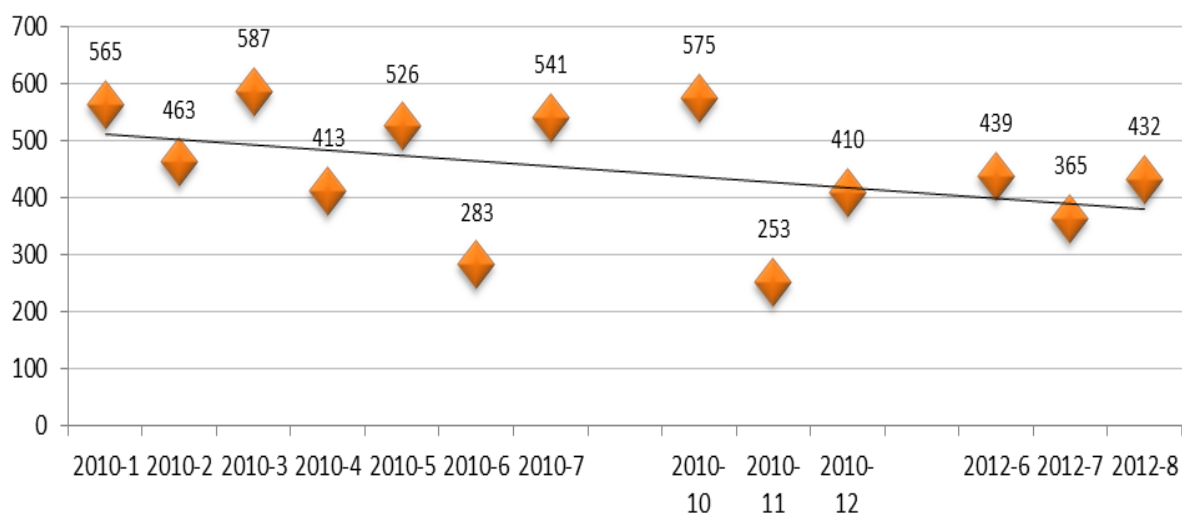
Information needs

Feedback between the Ministry of Health and the public is based not only on hotline service, but includes also citizens' written and verbal communications, discussion of requests and personal meetings. However, today the ministry does not have a consolidated electronic feedback database based on modern information technologies.

Facts and policy recommendations

Situation	Policy recommendations
Rates for responsiveness of Armenia health facilities are very favorable. However, estimates for basic amenities in inpatient settings have declined in 2012 as opposed to those reported in 2009. Similarly, rates for autonomy in PHC settings have decreased between 2009 and 2012.	Study reliability of the decline and reveal possible reasons thereof.
In 2012 public awareness of open enrollment has increased compared with 2009. At the same time less than half (45%) of survey participants had signed a contract on delivery of PHC services with the health facility. Only 15% of age 18 and older population reported to receive their copy of the contract. As little as 12% of age 18 and older population has read the contract.	Initiate efforts to ensure that people receive their copies of the contracts. Implement community education activities explaining the importance of showing better responsibility for their health-related legal arrangements. Such activities can be implemented jointly with mass media and PHC staff.
The ministry has several population feedback channels, including correspondence, personal meetings, hotline service, which are the best and most operative sources of information about the system performance. However the Ministry does not have a consolidated database based on modern information technologies.	Establish an electronic consolidated population feedback database, which will combine information received via telephone hotline service, citizens' correspondence and personal visits. The database will enable conducting in-depth analysis of the public opinion on the health system and applying contemporary analytical methods.

7. IMPROVEMENT IN HEALTH STATUS

This chapter looks at the main objective of a health system – public health promotion and strengthening. To assess general health status of the population indicators derived from NSS and population surveys, as well as the NIH NHIAC routine data collections were used.

Population health was assessed by using five indicators, namely

- **Life expectancy at birth**, which is the main integral indicator of population health and reflects the impact of all health factors.

- **Self-assessment of health**. Results for the self-assessment of health status were derived from mass surveys. There are a number of methodologies for self-assessment of health by population. During HSPA surveys of 2007, 2009 and 2012 the short form of self-assessment (SF-12) was applied which contains 12 questions on the person's health status.

- **Child, infant, neonatal and maternal mortality.** The indicator is closely linked to the country's general level of health system development, since analysis of those indicators collected for dozens of years from all over the world showed that under other equal conditions, the more developed the country is - the more developed is the health system and the lower are the child, infants and maternal mortality rates. The first three indicators significantly affect the value of life expectancy indicator.

- **Main causes of mortality**, as well as

- **Most prevalent diseases** - describes the most common diseases threatening the health of the population and undermining their quality of life. Treatment and prevention of these diseases require special attention.

Life expectancy

According to the data published by NSS the average life expectancy in Armenia is 74.1 years. At that women live 6.5 years longer than men (Figure 80). The average life expectancy at birth essentially did not change in Armenia between 2005- 2011. The indicator increased by 2.8 years compared with 1990, which is due to decreasing infant (under 1) mortality (18.5 per 1000 live births in 1990 while 11.6 in 2011).

Figure 80. Life expectancy at birth, 1990, 1995 and 2000-2011
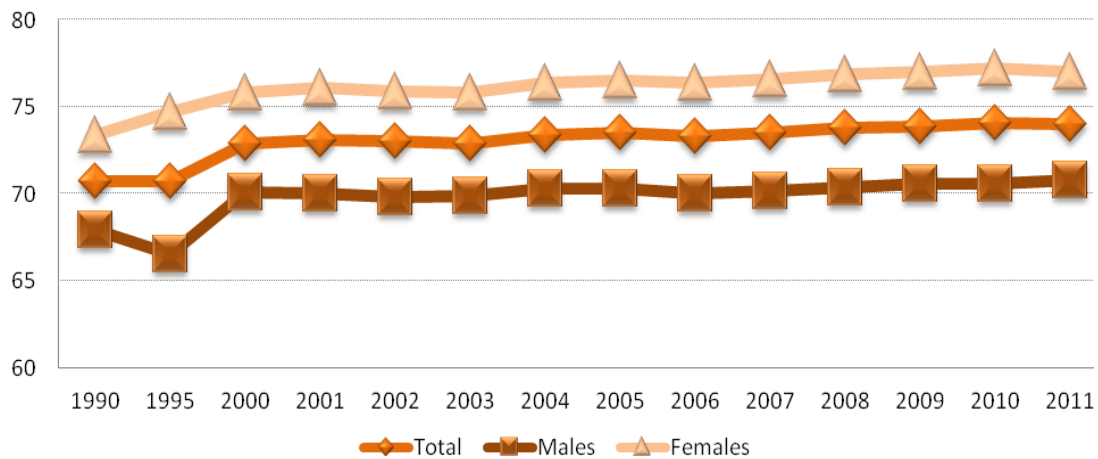
According to the European database Armenia has a higher rate of life expectancy at birth compared with 26 CIS and EU-26 countries. The rates do not vary much compared with Georgia and Azerbaijan, but are below the average level of developed European countries (EU-27) (Figure 81).

Figure 81. Life expectancy at birth, selected countries and country groups
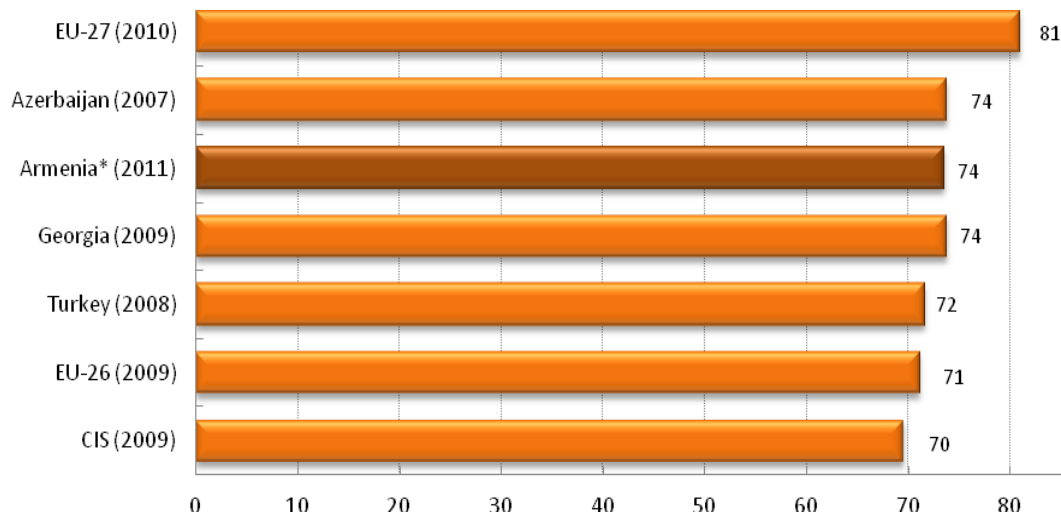
It should be noted that according to WHO estimates, life expectancy at birth is actually lower in Armenia than the officially reported results, likely by four years. This statement is explained by the fact that Armenia public agencies do not have the capacity to ensure accurate estimation of deaths of RA citizens residing outside the territory of the country.

Health status

Prior to observation of data on self-assessment of health, the section briefly introduces the SF-12 methodology. The SF-12 questionnaire assesses the health status in 8 domains, 4 of which describe physical health and the other 4 mental health aspects.

Domains of physical health status are:

1. **General health** (gh) is judged by asking "*In general how would you assess your health?*" The answer options include *excellent, very good, good, fair, and poor*.

2. **Physical Functioning** (pf) is rated based on the following two questions: "*Does your health now limit you in* **moderate activities,** *such as moving a table, cleaning the floor or walking?*" and "*Does your health now limit you in* **climbing several flights of stairs***?*" The answers include '*limited a lot*', '*limited a little*' and '*not limited at all*'.

3. **The Role Physical** (rp) is rated based on the two questions: "*During the past month, have you* **accomplished less than you would like** *with your work or other regular daily activities as a result of your physical health?* Answer options include '*all of the time*', '*most of the time*', '*some of the time*', '*a little of the time*' and '*none of the time*'. The second question is "*During the past month, have you been limited in the* **kind of work** *or other regular daily activities as a result of your physical health?* Answer options include '*all of the time*', '*most of the time*', '*some of the time*', '*a little of the time*' and '*none of the time*'.

4. **Bodily Pain** (bp) was assessed by asking "*During the past month, have you been limited in your regular daily activities as a result of* **various physical pains***?* Answer options include '*all of the time*', '*most of the time*', '*some of the time*', '*a little of the time*' and '*none of the time*'.

The mental health domains included the following aspects.

5. **Mental Health** (mh) describes physiological dispersion and anxiety. Two questions asked are "*During the past month how often have you felt* **calm and peaceful***?*" and "*During the past month how often have you felt* **depressed or anxious***?*" Answer options include '*all of the time*', '*most of the time*', '*some of the time*', '*a little of the time*' and '*none of the time*'.

6. **Role Emotional** (re) is rated by the following questions - "*During the past month, have you been limited in your work or other regular daily activities as a result of* **being downhearted and blue***?* Answer options include '*all of the time*', '*most of the time*', '*some of the time*', '*a little of the time*' and '*none of the time*'. "*During the past month, have you been* **less carefully than usual** *because of being downhearted and blue?* Answer options include '*all of the time*', '*most of the time*', '*some of the time*', '*a little of the time*' and '*none of the time*'.

7. **Social Functioning** (sf) component is rated by asking "*During the past month, how much of the time has your physical health or emotional problems interfered with your social activities like* **visiting friends, relatives, etc.?**"

8. **Vitality** (vt) is rated based on assessment of ""*During the past month, how much of the time did you* **have a lot of energy***?*"

The eight indexes are developed based on the provided answers, which are afterwards adjusted within the 0-100 median, where 0 is the lowest or unfavorable score and 100 is the highest or most favorable score.

Health status domains and their dynamics between 2007 and 2012

The 2012 rates of health assessment domains for age 20 and older population of Armenia are presented in Figure 82 and the changes in domains over 2007-2012 in Figure 83.

Figure 82. Population health domains, age 20 and older population
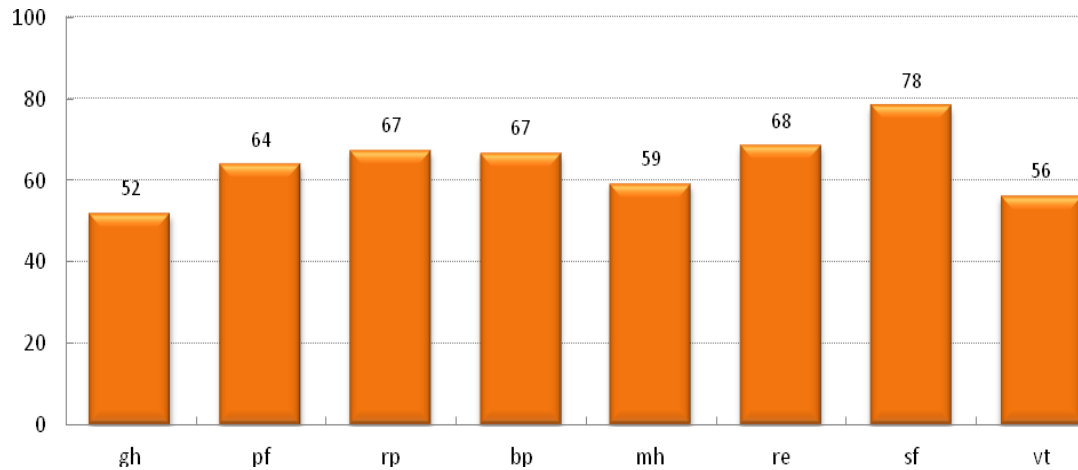
Source: HSPA, 2012

The lowest mean scores were observed in general health (52) and vitality (56) domains and the highest in social functioning. Probably the latter comes to compensate the relatively low general health rate.

As Figure 83 shows indicators of all health domains have dropped in 2012 though still remaining higher that in 2007.

Figure 83. Health population domains, age 20 and older population, 2007, 2009 and 2012
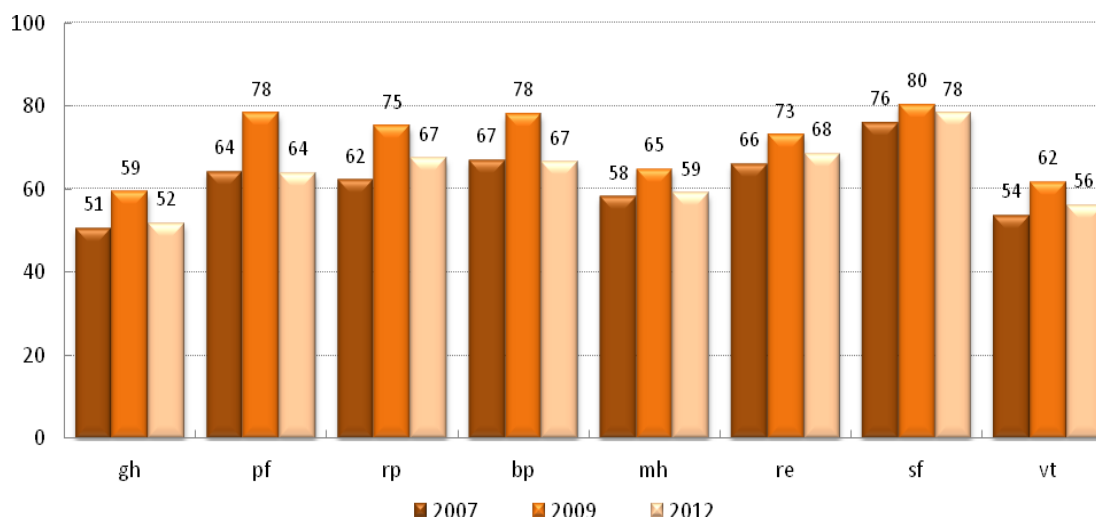
Source ` HSPA 2007, 2009, 2012

Dependence of health status on sociodemographic dimensions

The 2012 values of health status domains in age 15 and older population by sociodemographic categories is presented in Table 48.

According to the data males are more prone to assessing their health as 'good' than females.

Values of all domains decrease with age. The greatest decline is seen in physical functioning, and the smallest in social functioning domains, as well as the role emotional component.

Ignoring the fact that respondents with incomplete higher educational attainment are predominantly students it can be stated that health status domains are the highest in group with higher education and the lowest among survey participants with the lowest educational level.

Mean values of health domains across residence types do not vary much.

Differences in health assessment status are significant across wealth quintiles. They are the lowest in the poorest quintiles and the highest in the richest ones.

Table 48. Health status domains, age 15 and older population

		gh	pf	rp	bp	mh	re	sf	vt
Gender	Female	51.9	64.8	68.0	67.4	58.0	68.0	78.9	56.4
	Male	56.3	68.8	71.2	70.4	64.0	70.7	80.7	61.9
Age group	15-19	74.6	92.9	90.3	89.8	76.9	77.2	94.3	85.6
	20-29	66.3	86.1	86.8	84.3	71.4	80.1	88.8	71.7
	30-39	58.4	78.3	78.9	77.7	64.0	75.1	86.0	63.8
	40-49	51.7	65.8	67.5	66.2	57.5	67.4	79.7	54.8
	50-59	42.8	50.3	55.5	56.3	52.0	63.8	72.1	47.3
	60-69	38.6	39.2	49.3	52.0	50.8	57.2	67.7	44.1
	70 +	31.6	25.6	35.2	35.2	41.9	48.0	54.2	32.2
Education	Lower secondary	42.9	45.7	50.1	51.6	51.7	57.7	66.1	46.6
	Secondary	54.6	68.7	70.8	69.6	60.4	69.2	80.5	59.4
	Secondary vocational	50.4	61.2	65.9	65.9	58.7	67.2	77.2	54.6
	Incomplete higher	67.3	77.5	81.8	79.2	70.4	73.4	88.0	73.1
	Higher and above	58.2	75.2	76.7	75.4	65.6	76.2	84.6	64.6
Residence	Yerevan	53.7	66.2	68.8	66.9	62.3	68.6	78.5	62.0
	Urban	53.7	65.6	69.9	69.7	60.0	69.6	79.6	56.0
	Rural	54.2	67.8	69.7	69.6	59.9	69.6	80.8	58.5
Wealth quintile	I lowest	39.9	46.6	51.8	51.2	45.9	55.0	62.2	40.3
	II low	47.6	60.3	63.3	62.6	56.7	66.4	76.9	52.2
	III middle	56.2	69.4	72.3	71.1	64.2	68.6	80.7	62.3
	IV high	58.8	72.2	75.1	74.5	65.1	75.6	85.2	63.3
	V highest	62.3	78.1	79.2	78.8	67.0	76.4	88.0	70.0
	Total	53.9	66.6	69.5	68.8	60.7	69.3	79.7	58.9

Source: HSPA, 2012

Dependence of health status on risk factors

Table 49 looks at the correlation of risk factors and health status domains.

As table data witness, hypertension, physical inactivity and being overweight directly reflect their negative impact on health status domains. At that, being overweight is more negatively affecting health status domain than being underweight.

Tracking the connection between substance abuse and health status domains is more difficult. According to the data no essential differences are observed in the way both daily smokers and non-smokers assess their health. Actually, the smokers assess their health exactly the way the non-smokers do, when the harm of smoking is not evident yet. Along with negative side effects of smoking on the health status, people harming their health because of smoking gradually move to the non-smokers group, but this time with worse self-assessment of their health. Hence, revealing and studying the negative impact of smoking on human health requires in-depth studies with bigger samples, taking into consideration the number of years of smoking and the number of cigarettes/packs per day, as well as the correlation with health of different age groups.

Similar picture is seen when cross-matching health profiles of non-drinkers and those who consume daily equivalent of 20 gr of pure alcohol. No essential differences were observed in health domains of these two groups. Moreover, ratings for mental health domains are slightly higher. The situation is similar to the interconnection between tobacco consumption and assessment of health status. Consumption of alcohol has compensatory effect in regulating the person's psychological state, because of which rates for mental health provided by alcohol-consumers are somewhat higher. Hence an adequate study of the interconnection between alcohol consumption and health status should be similar to the one revealing the affects of tobacco use.

Table 49. Impact of risk factors on health status domains

		gh	pf	rp	bp	mh	re	sf	vt
Use of tobacco	Not smoking at all	53.7	65.5	69.1	68.2	60.5	69.3	79.7	58.8
	Not every day	53.4	78.5	69.1	70.2	65.9	75.9	94.4	65.1
	Every day	54.5	69.8	70.8	70.4	61.2	68.9	79.1	58.9
Use of alcohol	Less than 20 gr per day	53.8	66.7	69.4	68.8	60.4	69.0	79.6	58.7
	More than 20 gr per day	56.1	65.7	70.8	67.8	65.6	74.0	81.8	61.4
Physical inactivity	Physically inactive	51.9	60.3	64.9	66.0	58.6	65.1	76.0	55.6
	Physically active	56.0	73.1	74.1	71.5	62.8	73.5	83.5	62.2
Being overweight	Underweight	50.3	69.2	68.9	68.3	61.5	64.9	76.5	60.6
	Normal	60.2	76.3	77.8	76.6	65.6	74.1	83.6	64.6
	Overweight	50.3	62.6	65.5	65.6	58.0	67.9	78.4	56.0
	Obese	46.7	52.3	58.2	57.5	54.4	62.0	74.0	50.9
Hypertension	ABP ≥140/90	59.4	75.7	76.3	75.2	64.3	73.6	83.9	64.6
	ABP≤140/90	43.8	49.7	56.6	56.5	53.7	61.2	72.1	48.9
	Total	54.1	66.9	69.7	68.9	60.8	69.4	79.9	59.3

Source: HSPA, 2012

Health conditions

The survey collected data on health conditions most prevalent among Armenia population. Data on prevalence of health conditions in age 15 and older population are presented in Figure 84.

Figure 84. Prevalence of health conditions in age 15 and older population
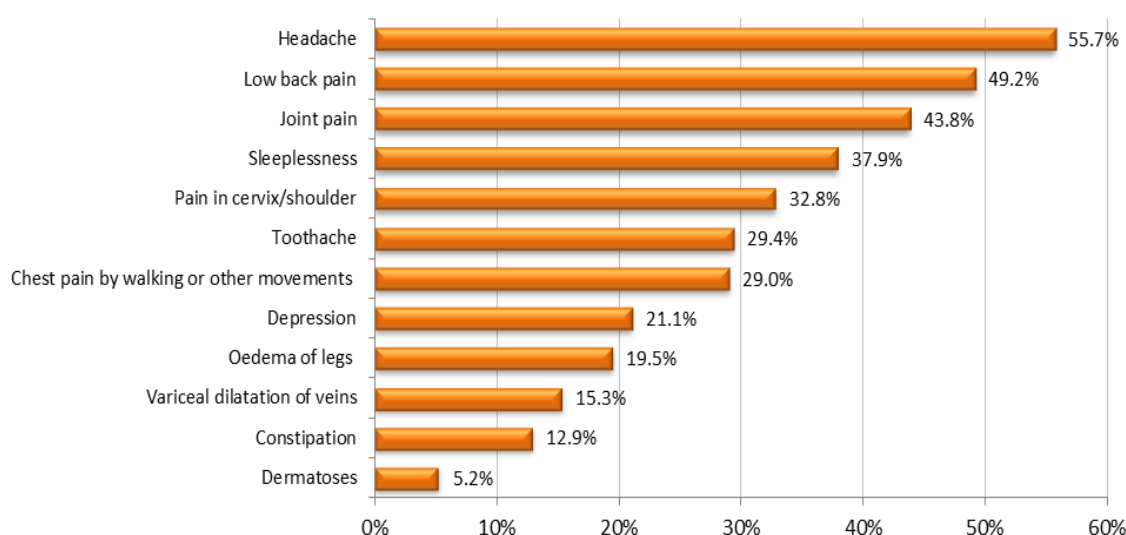
Dependence of health status on health conditions

Health conditions essentially affect health status domains. Table 50 presents data showing how the existence of a health condition reduces the scores for each health domain.

Table 50. Impact of health condition on health status domains of age 15 and older population

	gh	pf	rp	bp	mh	re	sf	vt
Pain in the chest when walking or doing other movements	22.1	40.4	32.1	32.6	22.3	24.0	22.8	23.6
Joint pain	23.8	40.1	33.5	35.6	22.6	22.4	21.6	25.0
Low back pain	19.3	33.4	27.5	31.6	20.5	21.3	19.0	19.7
Neck / shoulder ache	20.5	35.2	29.8	32.9	23.1	21.6	20.1	21.9
Oedema of legs	22.3	39.8	33.1	34.6	22.3	24.6	23.6	22.6
Variceal dilatation of veins	17.2	30.2	25.4	30.5	18.2	18.0	17.7	17.6
Dermatoses	10.8	15.2	16.7	16.9	14.2	17.3	22.3	12.3
Constipation	14.8	21.7	22.7	24.3	18.3	17.9	17.4	13.7
Headache	18.4	24.5	23.5	23.7	17.9	18.9	15.5	18.9
Sleeplessness	22.4	35.3	32.0	31.5	23.3	25.7	22.3	24.2
Depression	23.1	40.1	33.0	35.9	29.1	29.4	28.4	29.7
Toothache	6.4	9.3	7.6	9.5	7.2	6.2	3.2	2.7

As the data suggest pain in the chest, joint pain, low back pain, pain in cervix/shoulder and oedema of legs essentially affect health domains.

However the biggest impact is the one by depression, which is evident in all eight domains. The point is that physical pain is strongly correlated to (in this case generates) depression. The latter, itself can have purely psychic reasons.

The values of health domains (with and without health conditions) are described in Table 51.

Table 51. Values of health domains at the presence and absence of health conditions in age 15 and older population

Health condition	Presence	gh	pf	rp	bp	mh	re	sf	vt
Pain in the chest when walking or doing other movements	No	60.3	78.3	78.8	78.2	67.2	76.2	86.2	65.7
	Yes	38.2	38.0	46.7	45.6	44.9	52.2	63.4	42.1
Joint pain	No	64.3	84.2	84.1	84.4	70.6	79.1	89.1	69.8
	Yes	40.5	44.1	50.7	48.8	48.0	56.7	67.5	44.8
Low back pain	No	63.4	83.1	83.0	84.3	70.7	79.7	89.0	68.6
	Yes	44.1	49.6	55.5	52.7	50.3	58.5	70.0	48.9
Cervix/ shoulder pain	No	60.6	78.2	79.2	79.6	68.3	76.3	86.2	66.1
	Yes	40.1	43.0	49.4	46.7	45.2	54.8	66.1	44.2
Oedema of legs	No	58.2	74.4	75.9	75.5	65.1	74.1	84.2	63.3
	Yes	36.0	34.6	42.8	40.9	42.8	49.5	60.7	40.7
Variceal dilatation of veins	No	56.5	71.2	73.4	73.4	63.5	72.0	82.4	61.6
	Yes	39.3	41.1	47.9	42.9	45.3	54.1	64.7	44.0
Dermatoses	No	54.5	67.4	70.3	69.6	61.5	70.2	80.8	59.5
	Yes	43.6	52.2	53.6	52.8	47.2	52.9	58.5	47.3
Constipation	No	55.8	69.4	72.4	71.9	63.1	71.6	81.9	60.7
	Yes	41.0	47.8	49.7	47.6	44.8	53.7	64.5	46.9
Headache	No	64.1	80.3	82.6	82.0	70.7	79.8	88.3	69.5
	Yes	45.8	55.8	59.0	58.2	52.8	60.9	72.8	50.5
Sleeplessness	No	62.4	80.0	81.6	80.7	69.5	79.0	88.1	68.1
	Yes	40.0	44.7	49.6	49.2	46.3	53.3	65.7	43.9
Depression	No	58.8	75.0	76.4	76.3	66.9	75.5	85.7	65.1
	Yes	35.7	35.0	43.4	40.4	37.8	46.0	57.3	35.5
Toothache	No	55.8	69.4	71.7	71.6	62.8	71.1	80.6	59.7
	Yes	49.4	60.1	64.2	62.1	55.6	64.9	77.5	57.0

Source: HSPA 2012

Child, infant and neonatal, and maternal mortality

Child and maternal mortality rates are closely linked to a country's level of socioeconomic development. They are both included in the MDGs.

Targets for child and maternal mortalities are defined in MDGs.

- **Under-five child mortality:** the MDG target is to reduce it from its level in 1990 by two thirds by 2015. In Armenia, that translates into a reduction from 24 deaths per 1000 live births in 1990 to 8 per 1000 in 2015.
- **Maternal mortality:** by 2015to reduce the ratio from its level in 1990 by three quarters. For Armenia, that means reducing it from 38.5 maternal deaths per 100 000 live births (the triennial average for 1990–1992) to less than 9.6 by 2015.

Targets for these measures are also included in the Armenian strategy and program goals.

- **Infant mortality** (age 0-1) reduce by 2012 to at least 10 cases per 1,000 live births[29]
- **Neonatal mortality** (0-28 days) by 2012 reduce to 7 cases or less per 1,000 live births[30]
- **Perinatal mortality** by 2015 reduce to 10 cases or less per 1,000 live births[31]
- **Maternal mortality** by 2015 reduce to 20 cases per 100,000 live births[32]

In 2005, Armenia adopted the WHO standard definition of "live birth", which may partially account for the unusual increase in 2006. Hence, when making extrapolations data of 2006 are taken as baseline.

Figure 85 presents tendencies of child, infant and neonatal mortality rates since 2000.

Figure 85. Infant, child and neonatal mortality per 1000 live births, 1990 and 2000-2011
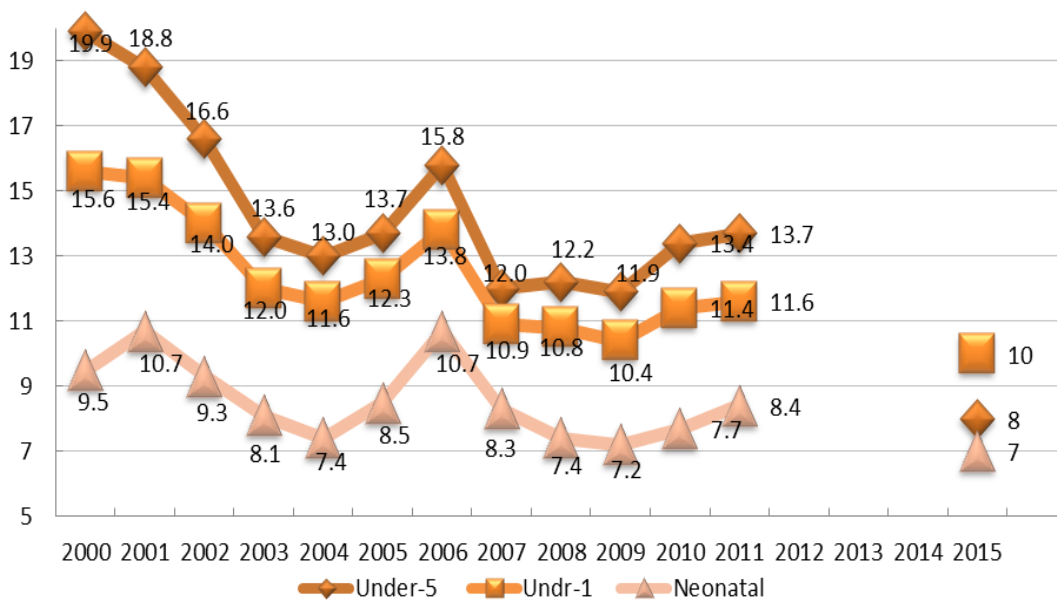
Source: NHIAC, 2012

As data suggest the rates declined during 2000-2004 and increased during 2004-2006. Given that the 2006 indicators reflect the new definition for stillbirth thus showing an increase, it should be noted that in 2007 the health system recorded quality improvement, which led to sharp reduction of the neonatal, infant and child mortality estimates. The nature of the quality improvement is still unclear.

However gradual increase of the indicator was recorded between 2009 and 2012.

According to WHO as is the case with life expectancy, official results for child, infant and neonatal (particularly early neonatal) mortality are underreported, which results in rates being consistently lower than WHO estimates.

Armenia generally has a lower infant mortality rate than in CIS, Eastern Europe (EU-26), Georgia and Turkey. It is lower than in ER-27 (Figure 86).

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[29] National Maternal and Child Health Strategy 2003-2015, this indicator and the child mortality target set in MDGs – 8 do not match since child mortality includes infant mortality and hence cannot be lower.
[30] National Reproductive Health Program 2007-2015
[31] National Reproductive Health Program 2007-2015
[32] National Maternal and Child Health Strategy 2003-2015

Figure 86. Infant mortality ratio per 1000 live births, selected countries and country groups, recent years available
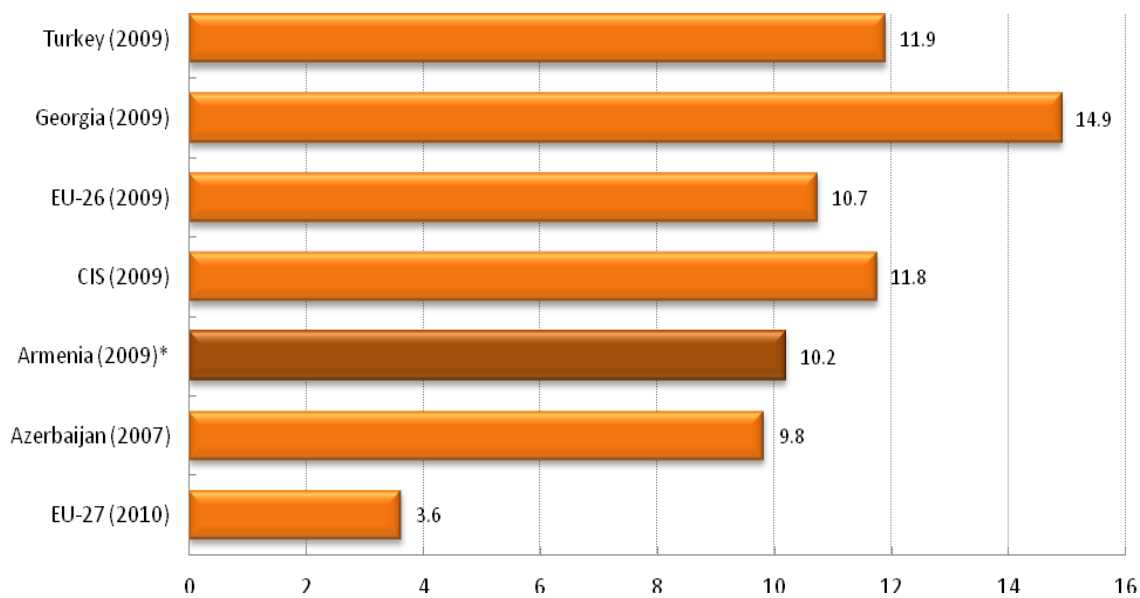

Source: HFA-DB, WHO, 2012

The number of maternal mortality cases is relatively small: a single event translates into approximately a 2.5% change in the ratio of all deaths. That is why maternal mortality ratio estimated per 100,000 live births is a rather unstable indicator. A triennial moving average of maternal mortality ratio is a more stable indicator. Both the annual and the triennial average ratios are presented in Figures 87 and 88.

Maternal mortality ratio in 2007, 2010 and 2011 has been below the target set in National maternal and Child Strategy 2013-2015.

Figure 87. Maternal mortality ratio per 100,000 live births, 1995 and 2000-2011
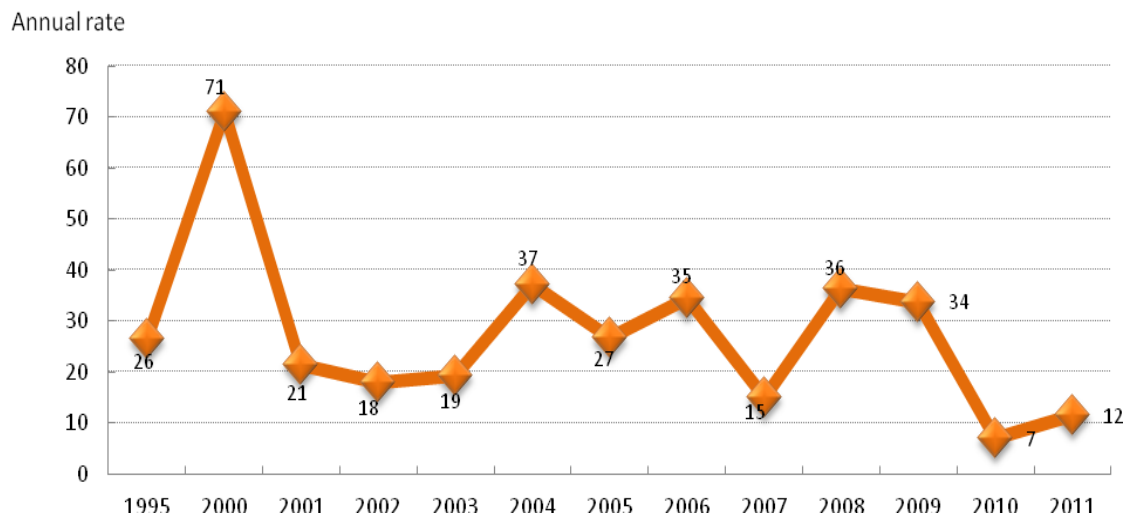
Source: NHIAC, 2012

Figure 88. Maternal mortality ratio per 100,000 live births, 1995 and 2000-2011
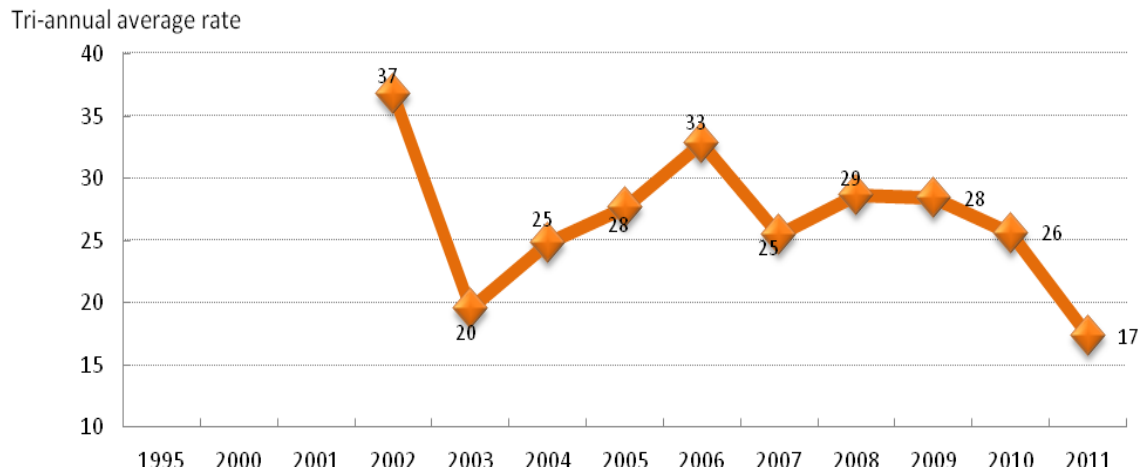
The triennial ratio of maternal mortality for the period of 2009-2011 showed a decline tendency, resting in 2011 below the strategy target set for 2015.

Given the instability in annual ratios, international comparisons should be made with caution. Armenia's maternal mortality ratio was much lower than the ratios in neighboring countries and the average ratios in the ER-26 and the CIS. It is almost close to the rates of developed European countries (Figure 89).

Figure 89. Maternal mortality ratio per 100,000 live births, selected countries and country groups, 2010
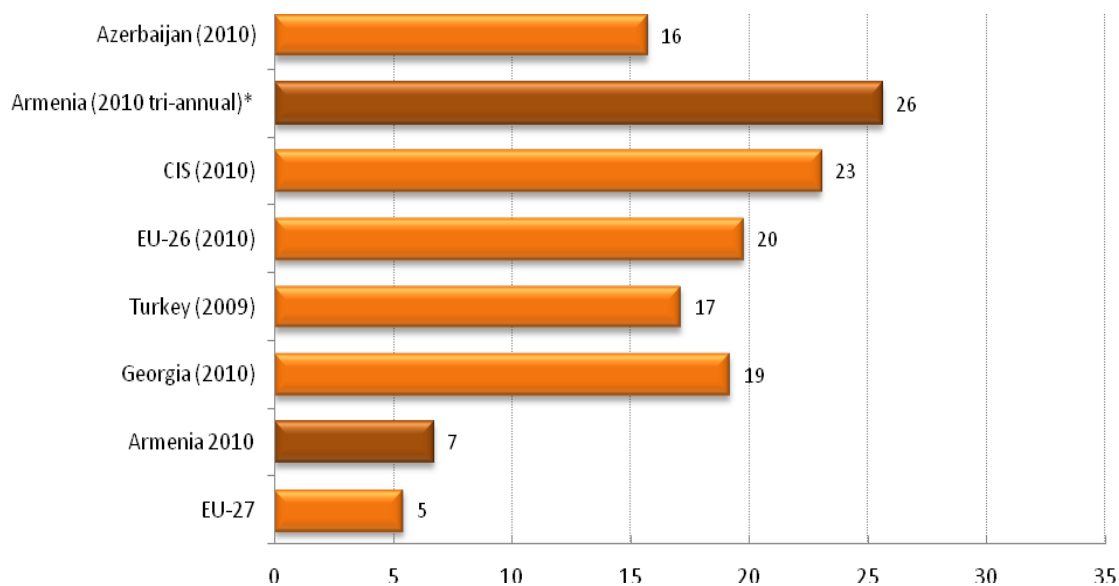
Patterns of disease prevalence and incidence

An assessment of the patterns of disease prevalence and incidence can point to the most significant health system challenges for improving population health. The indicators used to answer the policy question about disease prevalence and incidence include

- the main causes of mortality, and changes in mortality rates over time
- the most prevalent diseases their changes over time.

Most prevalent causes of mortality

Figure 90 shows the most prevalent causes of mortality in Armenia for the period covering 2002 to 2008. The first two among the mortality causes, blood circulatory system diseases (cardiovascular diseases) and malignant neoplasms, account for nearly 67.8% of all deaths in the country.

Figure 90. Most prevalent causes of death, 2002, 2008, 2010 and 2011
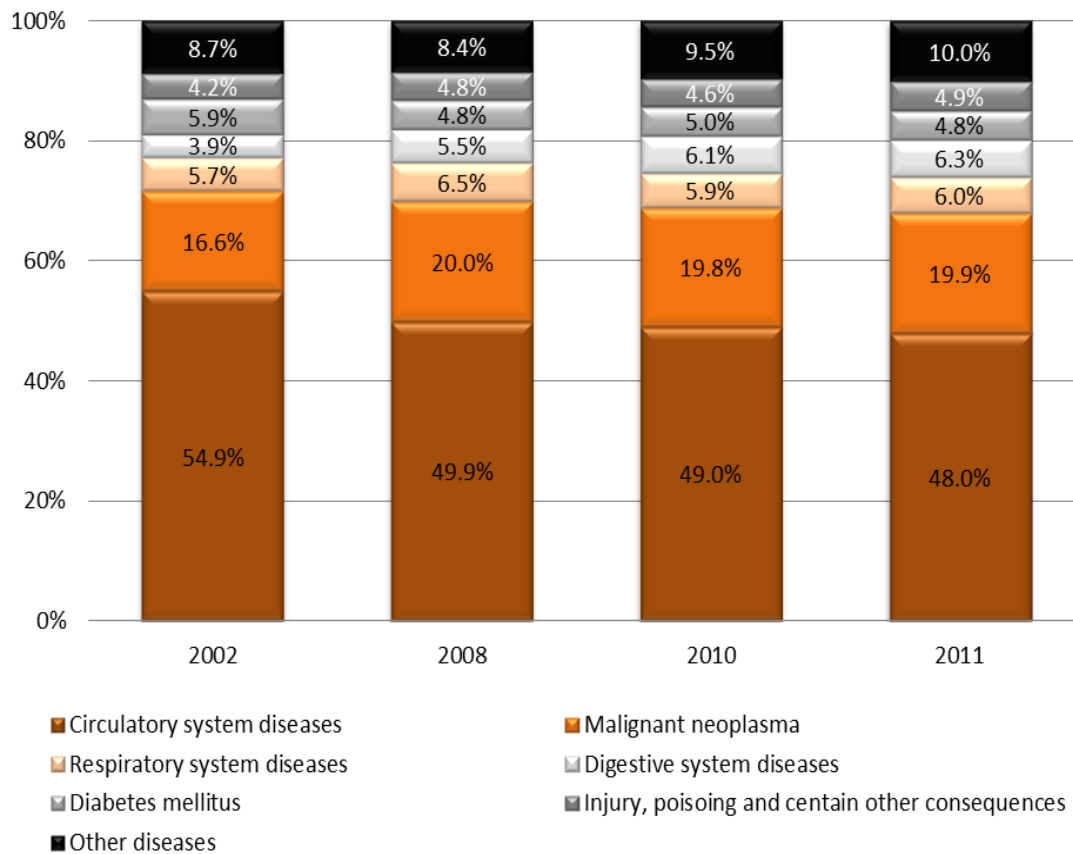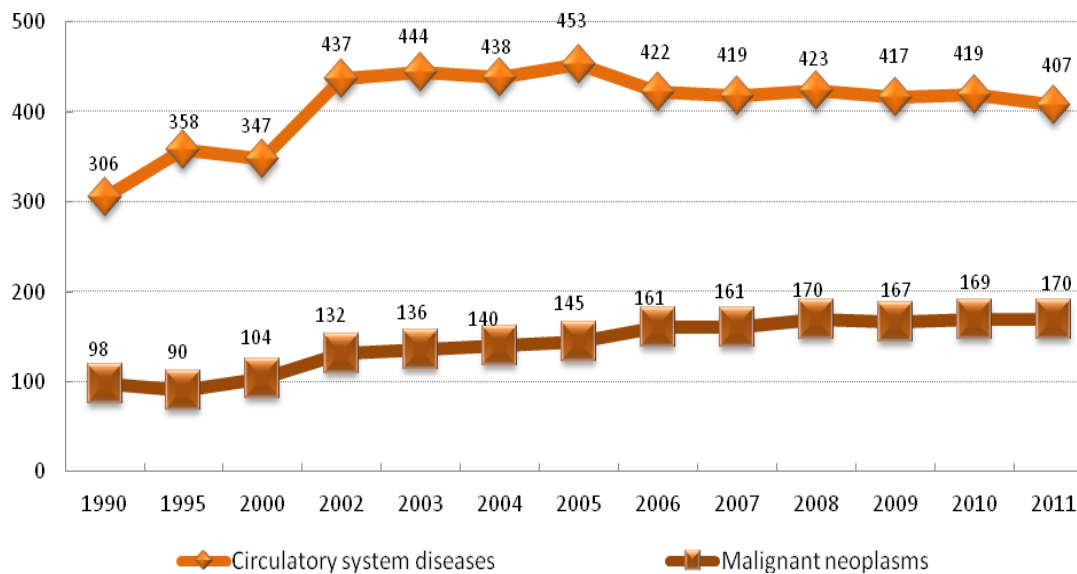

Source: NHIAC, 2012

There have been some shifts in the relative contributions of these diseases to overall mortality. The percentage of deaths due to cardiovascular diseases decreased from 54.9% in 2002 to 48% in 2011, while the percentage of malignant neoplasms increased from 16.6% to 19.9%.

There is an increase of the share of "Other diseases" in the structure of mortality reasons.

Trends in mortality rates per 100,000 population for most prevalent diseases are shown in Fig. 91 and 92.

The mortality rate due to cardiovascular diseases has decreased somewhat since 2005, though remaining significantly higher than the rates reported in 1990 and 1995. The modest declining trend of recent years may be due to increased access to primary care services, enabling earlier detection and treatment, as well as to improvement in the quality of treatment for these diseases

Figure 91. Mortality per 100 000 population due to cardiovascular diseases and malignant neoplasms, 1990, 1995 and 2000-2011
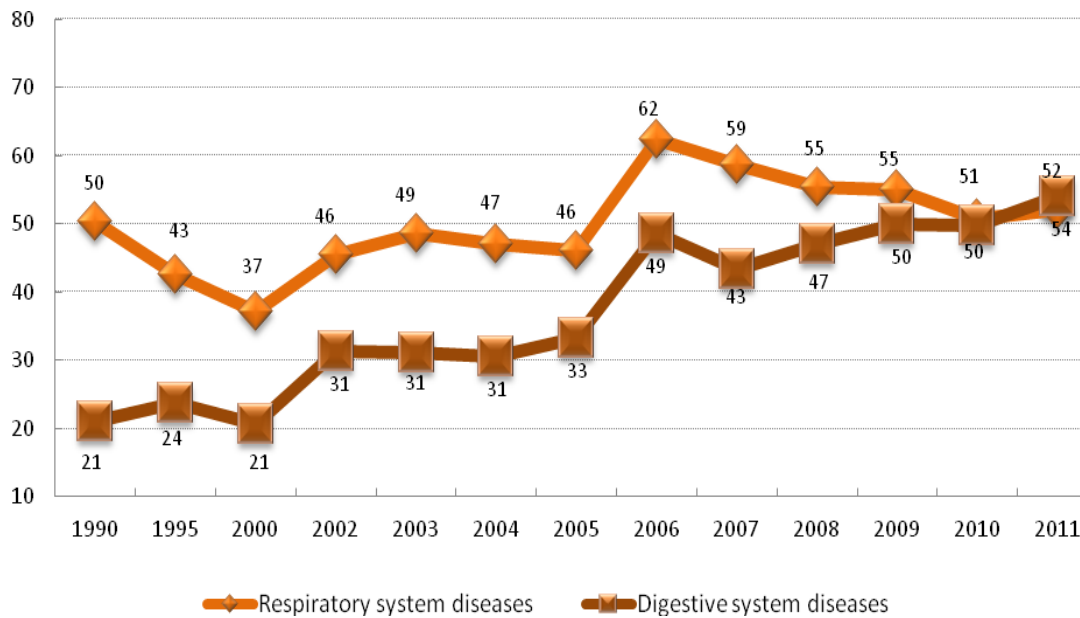

Source: NHIAC, 2012

Mortality rate due to respiratory system diseases declined between 2006 and 2011, but the rate for digestive system diseases increased during 2007-2011 (Figure 92).

The mortality rate for malignant neoplasms increased steadily between 2000 and 2008, but remained unchanged from 2008 through 2011.

The trends in mortality rates for diabetes increased between 1990 and 2003, but significantly dropped down between 2003 and 2006 and increased very slightly during the period 2006-2011.

Figure 92. Mortality per 100 000 population due to respiratory system diseases, digestive system diseases, 1990, 1995 and 2000-2011

Source: NHIAC, 2012

Figure 93. Mortality per 100 000 population due to diabetes mellitus and accidents and poisonings, 1990, 1995 and 2000-2011
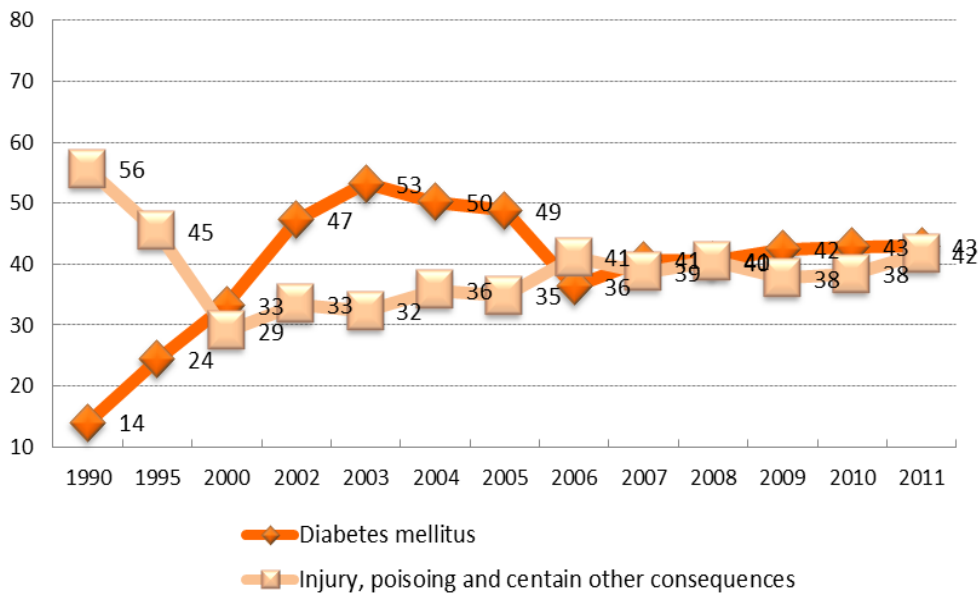

Source: NHIAC, 2012

The European Health for All Database does report age-standardized mortality rates due to different causes.

Figure 94 presents Armenia's mortality rates for circulatory system diseases and malignant neoplasms, compared with other countries. In Armenia the mortality rate due to circulatory system diseases is lower than in CIS and Eastern Europe countries, almost equal to Azerbaijan rate and higher than the Georgia

rate. However, speaking of mortality rates due to malignant neoplasms Armenia shares the highest positions among the aforementioned countries.

Figure 94. Standardized mortality rates per 100 000 population due to cardiovascular diseases and malignant neoplasms, selected countries and country groups, most recent year available
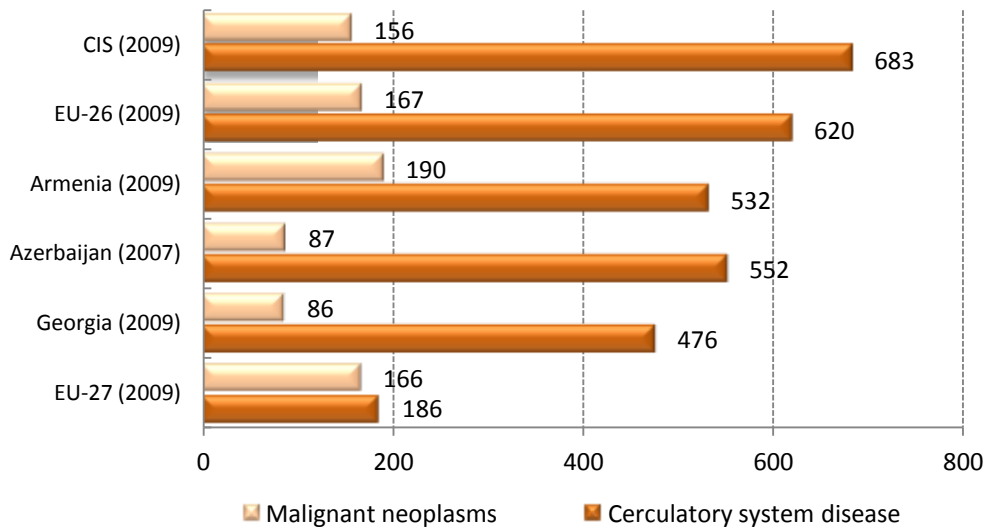
Source: HFA-DB, WHO, 2012

Most prevalent diseases

The seven most prevalent diseases in Armenia together account for 68.9% of the total morbidity rate. These diseases are:

1. Respiratory system diseases
2. Circulatory system diseases
3. Digestive system diseases
4. Genitourinary system diseases
5. Eye and related diseases
6. Endocrine system diseases
7. Neoplasms

The prevalence structure of these diseases in 2002, 2008, 2010 and 2011 is presented in Figure 95. Most prevalent are respiratory system diseases and circulatory system diseases. The latter show an increase tendency in the incidence structure.

During 2002-2011 the relative number of cases of endocrine system diseases has diminished in the prevalence structure from 10.5% reported in 2002 to 6.5% in 2011.

Figure 95. Most prevalent diseases, 2002, 2008, 2010, 2011
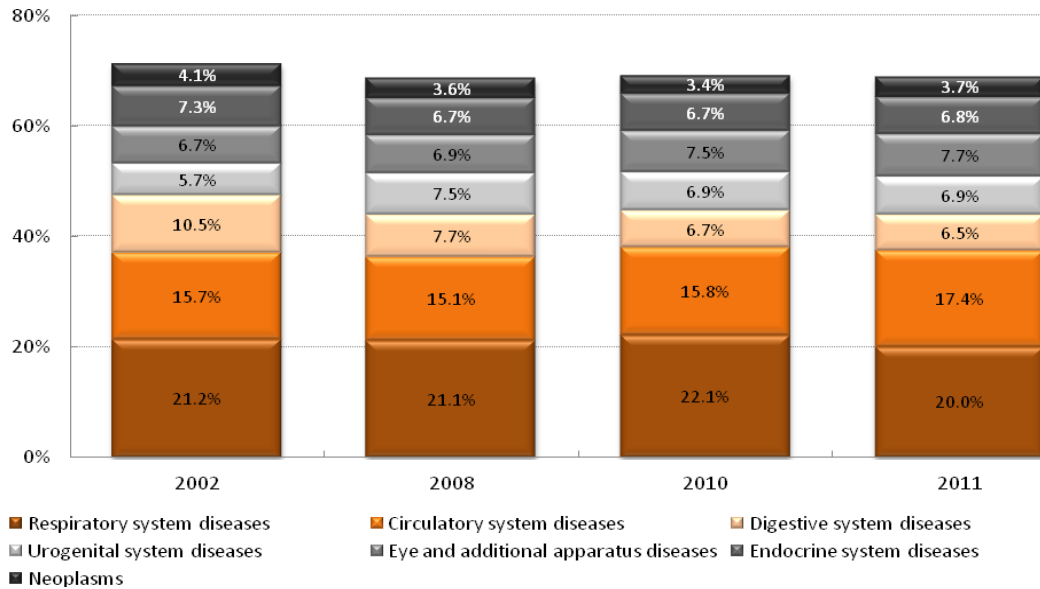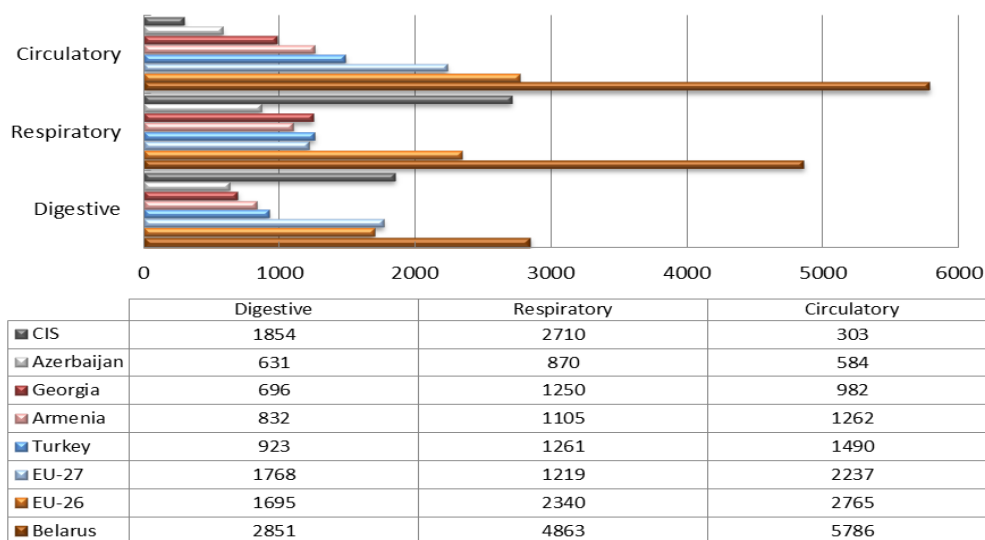

Source: NHIAC, 2012

Although there are no readily available data that would enable direct international comparison of the prevalence of these diseases, Figure 96 presents the results of hospital discharges for major disease categories.

As the Figure suggests the prevalence rates for Armenia are similar to those for its neighboring countries, and much lower than the average hospital discharge rates per 100 000 population (for major diseases) for selected countries and country groups.

In this comparison, prevalence rates for Armenia are similar to those for its neighboring countries and much lower than the average prevalence for CIS, EU-26 and EU-27.

In addition, hospitalization rates are influenced by **access to hospital care in each country**.

Figure 96. Hospital discharges per 100 000 population by selected diseases, selected international comparisons, 2010

	Digestive	Respiratory	Circulatory
CIS	1854	2710	303
Azerbaijan	631	870	584
Georgia	696	1250	982
Armenia	832	1105	1262
Turkey	923	1261	1490
EU-27	1768	1219	2237
EU-26	1695	2340	2765
Belarus	2851	4863	5786

Source: HFA-DB, WHO, 2012

Information needs

Main problems related to data quality include

- **Population data**: Health indicators where the denominator shows the population number appear lower than the factual figures, because they are based on de jure population which does not include long-term or permanent emigrants, whose names are still kept in the Population Register. This overestimation of the population number affects the morbidity and mortality indicators, which are underestimated. Consequently, the average life expectancy at birth is overestimated.

- **Cause of death**: Currently, only a short list of 229 causes are coded in death certifications (ICD-10-covers about 8000 causes of death, classified by 4-digit alphanumeric codes), which limits analytical capacities and hampers international comparability.

Facts and policy recommendations

Situation	Policy recommendations
The rate for average life expectancy at birth is overestimated, which does not allow to reliably dwell on this important integral indicator and its change trends when conducting health status analysis.	Implement an alternative assessment of the indicator for life expectancy at birth and a countdown, based on 2011 census findings, applying the de facto population number. Recommend NSS to estimate the average life expectancy at birth also by marzes.
Health status self-assessments do not provide an oversight on the situation in marzes.	Increase the HSPA survey sample size or implement separate surveys in most public health problematic marzes.
Neonatal, infant and child mortality during the past three years show decline trends and are moving far from health sector and MDGs 2015 targets.	Analyze the reasons behind and adjust the strategy if needed.
Male assess their health more optimistically than female, though their life expectancy at birth is essentially below that of females.	Organize male health promotion campaigns and health screenings

Situation	Policy recommendations
Prevalence and mortality of circulatory system diseases continue sharing the highest rates.	Assess the quality of follow-up care of patients with circulatory diseases and their continuing monitoring.
	Study and assess the access to drugs needed for the treatment of these diseases, including by wealth quintiles, marzes and the type of residence.
The number of deaths due to malignant neoplasms keeps growing and the morbidity rate does not seem to decline.	Implement activities geared at early detection of malignant neoplasms including campaigns, improvement of public awareness, and timely screenings to detect the disease on early stages.

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