Government of Georgia

Comprehensive Multi-Year Plan

of the National Immunization Program of Georgia

2012-2016

May 2011

Abbreviations

AEFI	Adverse Effect Following Immunization
CDC	Center for Disease Control
GAVI	Global Alliance for Vaccines and Immunization
GDP	gross domestic product
GHSPIC	Georgia Health and Social Program Implementation Center
MoLHSA	Ministry of Labor, Health and Social Affairs
NCDC	National Center for Disease Control and Public Health
PHC	primary health care
SSA	Social Service Agency
VRF	Vishnevskaya-Rostropovich Foundation
WHO	World Health Organization
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development

Contents

EXECUTIVE SUMMARY

Background

Georgia became independent in 1991 after the breakdown of Soviet Union. The country faced civil conflicts and economic and social downturn since then. More than half of population lived below official subsistence minimum by the end of 2004.

Fact Sheet	
Area (`000 km^2)	69.7
Population 2009 (million)	4.43
Urban population (%)	53
Population <15 years (%)	17
Life expectancy (years)	73.6
Infant mortality (2009)	14,9
GDP per capita (2009 nominal, in US$)	2,45
HDI (2009) rank	89

Socio-economic situation improved due to substantial economic and social reforms since 2004, budget revenues doubled due to GDP growth and significant improvement of tax collection, the country moved from to a category of Low Middle Income Countries. Economic grows was affected by August 2008 conflict but rebounded in 2010. Targeted social assistance schemes introduced recently allow the allocation of social benefits to most needed in more efficient and effective ways.

The health care system undergoes profound reforms – the government intends to privatize most of health care providers. State funds are allocated primarily on public health and coverage of the poor with essential health care services (including primary and secondary care) through purchasing private insurance coverage for poor population and public sector employees.

National immunization program

An overall performance of the national immunization program (NIP) was highly appraised through the latest Immunization Programme Management Review conducted by the WHO, UNICEF, CDC, and the World Bank together with national partners in 2006. According to the review report strategies and most policies are in place for routine immunization activities, and are in progress for disease elimination and control objectives-measles/rubella and diphtheria, with polio free status maintained since 2002.

Recent years have seen improvement of overall national immunization coverage, including the relatively newly introduced vaccines (Hepatitis B and MMR). Immunization MIS shows generally complete and regular reporting of data. Disease surveillance is improving, with clear and up-to-date national guidelines, case- based reporting for priority diseases and computerized surveillance data management system. The supply management system is well functional and progress has been notices at the national vaccine store since it was assessed in 2005.

While overall immunization coverage is improving, there are still 11 out of 65 districts reporting less than 80% coverage with DPT3 (2010), many of which have high drop-out rates. Still there is significant proportion of false contraindications to immunization, especially in large cities. Organizational arrangements of PHC services has affected delivery of primary care services including immunization. There are shortcomings with identifying target population mainly in the capital city due to migration issues and poor performance of door-to-door census by primary care providers. Surveillance system performance indicators are not monitored enough, AEFI guidelines are not yet fully implemented at many health facilities. There are also significant communications challenges facing the immunization programme such as inconsistent and unqualified media commentary affecting credibility of health facility staff and the immunization programme in general; similarly, questions rise about the quality of vaccines made in certain countries, sometimes by those with vested interests.

Immunization program objectives and strategies

New health strategy document identifies reduction of mortality and morbidity rates among children as one of the main priorities. Diarrheal and respiratory illnesses among children are largest contributors of the burden of disease and place significant demand on health services. Morbidity reduction should be achieved through the introduction of new vaccines in the national immunization program.

Following objectives has been set for the NIP to be achieved in 2012-2016:

1 To reach 95% of coverage by OPV_3 at 2012 and maintain by 2016
2 To improve AFP surveillance and AFP rage:
   - To reach AFP rate 1/100,000 under 15 years by year 2012
   - To achieve and maintain high quality AFP surveillance to meet performance indicators by the end of 2012, with strong laboratory support
3 Decrease morbidity and prevent measles-related deaths:
   - To decrease transmission of endemic measles virus by 2012
   - To prevent sustained transmission of imported measles viruses in Georgia beyond 2016, and
4 Increase DTP_3 coverage:
   - 90% DTP_3 in every district by 2012
   - 95% DTP_3 in every district by 2016;
5 Increase $HepB_3$ coverage:
   - 90% $HepB_3$ in every district by 2012
   - 95% $HepB_3$ in every district by 2016
6 Increase DT coverage:
   - 90% DT in every district by 2012
   - 95% DT in every district by 2016
7 Increase Td coverage:
   - 80% Td in every district by 2012
   - 90% Td in every district by 2016
8 Decrease BCG-DTP3 drop-out rates: 5% BCG - DTP_3 drop-out rate by 2015 at national level
9 Introduce new vaccines
   - Rotavirus vaccination from 2012
   - Pneumococcal vaccination from 2013

Immunization Programme Management and Financing

The MoLHSA is responsible for policy development, regulation, developing and overseeing implementation of public health programs including National Immunization Program. Public funds to purchase vaccines and injection supplies are secured through the special state health program. The National Center for Disease Control and Public Health (NCDC) is in charge of national leadership through developing of national standards and guidelines, monitoring and evaluating immunization program activities, providing expert advice, training health care providers, maintaining national level vaccine stock. Municipal public health centers subordinated to the local governments are responsible for monitoring of public health activities at local level, vaccines logistics and functionality of immunization MIS at local level. Social Service Agency (SSA) as a primary purchaser of health care services is in charge of contracting health care providers. The immunization program in Georgia is financed by the central government, local government and donors. Purchase of vaccines and injection supplies is provided through a state tender procurement by the Georgia Health and Social Program Implementation Center (HSPIC).

Financial sustainability of the cMYP

The estimated total resource requirement for 2012-2016 is $ 25,43 million. “Vaccine supply and logistics” is the most important cost of the program (45.4%), the second largest component is “Shared Health Systems costs” (40.8%) and together both components constitute 86% of the total resource requirement.

The government is supposed to provide about 81 % of secure financing. The donor secure and probable financing is estimated to be $1.6 million in total for entire projection period.

The costing exercise shows that immunization is an inexpensive program that only costs around 70 cents in per capita terms (including vaccines, injections, and operational costs).

If the government fully finances the immunization program (assuming no donor support) the total cost of the program will only represent approximately 0.5-0.9% of the government health budget and 0.1-0.2% of total health expenditures.

1. BACKGROUND

1.1. General Information

Georgia is located in the Caucasus bordering Russia in the north, Turkey and Armenia in the south, Azerbaijan in the east and the Black Sea in the west. The country occupies an area of 69,700 km^2. The majority of population (53%) of approximately 4.43 million (as of January 1st 2010) lives in urban areas. Life expectancy at birth is estimated 73.6 years (69.2 years for male and 77.7 years for female). Age groups 0-14 years and elderly (60 and above) constitute 17% and 19%of the population respectively. Infant mortality rate was 14.9 in 2009.

1.2. Political and Socio-Economic Trends

1.2.1. Situation overview

Georgia obtained its independence from Soviet Union in 1991. The break-up was followed by intense civil conflicts and separatist pressures in autonomous regions (Ossetia and Abkhazia) and displacement of some 270 000 people in 1993. There was also a profound economic collapse, in part due to the civil disturbances and in part due to the unraveling of what had been a centrally planned economy directed from Moscow. The Soviet system did not encourage diversification within republican economies, leaving them vulnerable after independence. There was a large decline in output, a collapse of the system of payments, and thus trade between republics, and consequently a series of dramatic economic declines after 1992, which resulted in a sharp fall in the standard of living.[1]

A new constitution was enacted in 1995 that declared president as a senior executive power, and separated legislative, executive and judicial functions. The new constitution has divided Georgia into 66 administrative-territorial units including: capital city of Tbilisi, sixty districts (rayons) and an autonomous republic of Adjara (in its turn comprised of 5 districts). These 65 districts are grouped into 11 historical-cultural regions, not defined by constitution and not having budgetary-fiscal system.[2]

Since the collapse of the Soviet Union, Georgia has experienced dramatic economic downturn. Georgia ranked the lowest by GDP growth from 1990 level amongst the former Soviet Union countries.

The change of leadership through the 2003 "Rose Revolution" enabled the establishment of a new framework for the consolidation of national identity. However the new authorities have received a government structure characterized by crippling corruption levels. Mismanagement by the previous government resulted in a low tax collection rates which contributed to growing pension and salary arrears. The new government also inherited widespread poverty, as well as the unresolved conflicts with Abkhazia and South Ossetia. In 2008 a war erupted between Georgia and Russia over the break-away region of South Ossetia resulting in around 22,000 displaced persons.

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1 A.Gamkrelidze, R.Atun, G.Gotsadze and L.MacLehose, 2002. Health Care Systems in Transition: Georgia. European Observatory on Health Care Systems, WHO Regional Office for Europe.

2 The document hereinafter, when describing budgeting/financing and decentralization issues will always relate to two levels: central/national and district (rayon).

Transition subjected Georgia to fundamental political, economic and social transformation. The main thrust of the reform was seen in the transformation of monetary policy and drastic fiscal adjustment, supplementary privatization, reforms of health care, education and social protection systems, liberalization of economic activity and trade, as well as price liberalization.

The Human Development Report of 2009 ranks Georgia at the 89th place out of 177 countries included in the Human Development Index (HDI).

Poverty has been acknowledged to be one of the pressing problems in Georgia. In 2003, according to the State Department of Statistics (SDS), the proportion of people living below the poverty line was 55%. The proportion of the population in extreme poverty was 17%[3]. Following the poverty indicators calculation methodology changes the indicators were recalculated and readjusted[4]. The poverty indicators are shown in Table 1 (below).

Table 1 Poverty indicators (per cent) by years

	2004	2005	2006	2007	2008	2009
Poverty level	35.5	34.2	32.7	30.6	31.6	29.8
Poverty depth	11.6	10.7	10.0	9.6	9.7	9.2
Poverty severity	5.7	5.1	4.6	4.5	4.4	4.3

Source: National Statistics office of Georgia, 2011

Most commonly, poverty is manifested by low and unequal distribution of income, unemployment, and insufficient housing and labor migration. GINI coefficient (the measure of income inequality) ranges from 36.9 in 2004 to 40.8 in 2009.[5]

Georgia experienced growth of economic activity and GDP and reached the pre-independence level of development in 2006. In FY2007 by the Classification of economies Georgia was moved to Low Middle Income Countries (LMC)[6].

Prior to the conflict of August 2008, the Georgian economy was on a strong growth track, with GDP rising by 10½ per cent annually. However, the conflict dealt a shock to the key pillars of economic growth[7]. GDP growth slowed in 2008 following the August,08 conflict and turned negative in 2009 as foreign direct investment and workers' remittances declined in the wake of the global financial crisis, but rebounded in 2010[8].

Main socio-economic parameters are presented in Table 2:

Table 2 Macro-economic indicators and forecasts

	2005 Actual	2006 Actual	2007 Actual	2008 Actual	2009 Actual	2010 Preliminary	2011 proj.*	2012 proj.*
Real GDP (rate of growth) (%) **	9.6	9.4	12.3	2.3	-3.8	6.4	4.5	5.5
Nominal GDP (million GeL)**	11,620.9	13,789.9	16,993.8	19,074.9	17,986.0	20,791.3	23,088.2	2,5819.6
GDP per capita (current USD)*	1,483.5	1,763.5	2,314.6	2,921.1	2,455.2	2,629.0	2,924.9	3,270.9

[3] Millennium Development Goals in Georgia, 2004
[4] IMF Country Report No. 06/360, Georgia: Poverty Reduction Strategy Paper Progress Report, 2006
[5] Human Development Reports 2002, 2003, 2004, 2008, 2009
[6] The World Bank, World Development Report 2007
[7] The World Bank, Georgia Joint Needs Assessment, a second progress report, June 2010
[8] CIA The World Factbook, Georgia https://www.cia.gov/library/publications/the-world-factbook/geos/gg.html

	2005 Actual	2006 Actual	2007 Actual	2008 Actual	2009 Actual	2010 Preliminary	2011 proj.*	2012 proj.*
Consolidated budget revenues (current million GeL) ***	2,828.9	3,850.2	4,972.7	5,854.2	5,264.5	5,421.5	6,304.6	
Average annual exchange rate (GEL/USD)**	1.81	1.77	1.67	1.49	1.69	1.77	1.7	1.7

Source: *The Government of Georgia, "Basic Data and Directions for 2008-2011", "Basic Data and Directions for 2009-2012", "Basic Data and Directions for 2011-2014"*
***National Statistics office of Georgia, 2011*
**** Ministry of Finance of Georgia, 2011*

1.2.2. Country development objectives

The Economic Development and Poverty Reduction Program (EDPRP) developed in June 2003, represents a comprehensive and a long-term strategy paper to guide the government action over the next decade. One of the strategic directions of the EDPRP was poverty reduction.

A new government that came to power after the Rose revolution brought a new reform vision and new strategies that prompted the need for reconsideration of the three-year action plan envisaged by the EDPRP. The first government plan was developed for 2004-2009 that demonstrated the readiness of the government to overcome poverty and achieving sustainable and rapid economic growth. The government committed itself to restore territorial integrity and to launch reforms within the priority areas of economy, business, social security, governance and environmental protection. Ensuring universal access to basic healthcare has been one of the nine strategic targets within the reform processes.

Improved fiscal revenues allowed the Government to increase social spending and introduce Targeted Social Assistance Program (TSA) for extreme poor since end-2006 that implied direct cash transfers to the poor households.

The Government program for 2008-2012 "Georgia without poverty" targets at "improving wellbeing of the population through fast and widely effective economic growth and implementation of large-scale social programs".

The program sets two main strategic objectives:

- Wellbeing of the population - Georgia without poverty
- Ensuring national security and complete territorial and civil reintegration

The program strategic priorities encompass the National security, Economic, fiscal and monetary policies, Wellbeing of the population, Logistics, transport and the infrastructure, Agriculture and natural resources, Education culture and sports, Public sector and Defense and law enforcement systems the Program.

Wellbeing of the population will be achieved through: directing 1/3 of the budget on social programs, increasing of employment, substantially reducing poverty (in 5 years number of beneficiaries decreased to 25%), increasing pension package by 100 USD, developing healthcare infrastructure, ensuring accessibility of medical care in rural areas, increasing coverage of public/ compulsory insurance police (insurance will be compulsory to all public servants, covering 1200000 people).

1.3. Health care system

1.3.1. Government's priorities in health

The Georgia Health Care Reform aiming to ensure universal access to basic health services for the country population was launched in 1995. The reorientation process struggling with the heritage of inefficient and collapsing centralized fiscal and management system, insufficiency of both institutional (e.g. outdated facilities and under-equipped services) and human resources (e.g. under-trained professionals and overstaffing of the system) envisaged optimization of the health infrastructure (decentralization & privatization), introduction of new health care financing systems and reorganization of the network of health care providers. In brief, the reforms to the health care system focus on reducing overcapacity, allowing the private sector to occupy a greater role in the provision of medical services, establishing a system of medical insurance, strengthening the provision of primary and preventive health care services, and reforming Sanitary-Epidemiology System. A major outcome of the reform was introduction of the state medical insurance system ensuring access of the general population to basic health services within the Basic Benefit Package. However due to significant economic decline after break-up of Soviet Union and weak financial management systems affected reform implementation. Chronic under-funding and instability of financial resources persisting throughout the reform process has affected functioning of all levels of health care system and reasoned substantial shift of expenditures to the out-of-pocket payment systems (out-of-pocket payments ranging from 66 to 87% of total health expenditures)[9].

Governments' actions during 2003-2006 were directed towards offering increased financial protection to poor, promoting privates insurance to reduce incidence and volume of out-of-pocket payments and increasing investments in infrastructure.

The latest health policy changes took place during 2006-2007 when the Government initiated health care financing reforms by purchased private insurance coverage for poor population and for some public sector employees. Medical insurance program for poor (MIP) currently covers 21% of the population. The MIP benefit package includes PHC services without drug benefits, limited diagnostics and lab tests, emergency outpatient and inpatient services, planned hospitalization within the limit[10], physiologic deliveries, chemotherapy or radiology for oncology patient within the limit[11]. The MIP seems to have had positive impact on financial protection of poor, however some studies identified that those suffering from chronic conditions and facing significant recurrent expenditures for outpatient drugs did not feel the benefits of MIP and are subject to a significant financial burden[12]. Public sector employees (teachers, police force and military) are also covered from government subsidized insurance program. The government promotes private insurance coverage, various state agencies along with private companies are purchasing corporate medical insurance for their staff. Small portion of the population purchases individual insurance. As a result of these developments approximately 1/3 of the population is covered by medical insurance.

Improved fiscal revenues allow the Government to increase state allocations to health sector, however as a share of public financing health sector allocations remain low (see Table 3 below).

Table 3 Expenditures on health (in million GeL)

	2006	2007	2008	2009
Public expenditure on health (current million Gel)*	255	256	343	419
Public expenditure on health as Per Cent of General Government Expenditure	6.6%	5.1%	5.9%	8.0%
Total Health Expenditure (current million Gel)*	1,160	1,387	1,661	1,819

[9] The World Bank, 2003. Report No 22913-GE. Georgia. Public Expenditure Review". Washington DC.
[10] Up to 15,000 GeL
[11] Up to 12,000 GeL
[12] Bauhoff S, Hotchkiss DR, Smith O. The impact of medical insurance for the poor in Georgia: a regression discontinuity approach. Health Economics, 2010, DOI: 10.1002/hec.1673

Source: * Ministry of Labour, Health & Social Affairs – National Health Accounts

Primary Health Care (PHC) has been under reforms since 2000, when the Government adopted a concept of PHC model that effectively and reliably provides entire population with high quality medical services and is physically available and affordable. With support of different donors (WB, DFID, EU) investments were directed to remodel and equip the PHC facilities, re-train staff info family doctors and nurses. Clinical guidelines were developed and approved by the Ministry of Labor, Health and Social Affairs (MoLHSA) and providers trained in these guidelines. The latest organizational changes took place during 2008-2009, when all rural PHC providers were removed from district ambulatory-policlinic unites and were directly subcontracted by the MoLHSA / SSA.

In 1999 the Government of Georgia endorsed the long-term strategic framework of the national health system development, outlined within the National Health Policy (1999-2010) and National Health Strategy. Currently a new health strategy document is under development which will guide the MoLHSA activities in the next five years (2011-2015).

Stemming from the basic concepts of the fundamental human rights and social development targets, as well as the evidence-based approach, the health strategy identifies objectives with the outcome targets set by 2015. Reduction of child morbidity and mortality remains among the key health outcomes which should be achieved by introduction on new vaccines in the national Immunization Program. Specifically the national health outcomes will focus on:

- Reducing mortality rates **primarily among children** and working age population
- Reducing overall morbidity:
  - **By reducing the incidence of diarrhoeal and respiratory illnesses among children through the introduction of new vaccines in the national EPI program and improved management of delivery services and childhood illnesses;**
  - Through adequate screening and provision of quality curative services for cardio-vascular diseases and neoplasms;
  - Through prevention, timely detection and treatment of TB and HIV/AIDS;
  - Through the implementation of preventive programs aimed at reducing trauma and promoting a healthy lifestyle to reduce tobacco and alcohol consumption and improve diet.

1.3.2. Immunization services within the health care system

Following reform processes policy-making, purchasing, service delivery and regulation functions were separated in the current health system arrangements in Georgia. The MoLHSA is responsible for policy development, regulation, developing and overseeing implementation of public health programs including National Immunization Program. Some functions have been decentralized to the local level.

The leading agency in the public health system is a National Center for Disease Control and Public Health (NCDC) initially established in 1995 after reform of the Sanitary Epidemiological System with further major reorganizations in 2007 and 2010. The NCDC is a legal body of Public Law accountable to the MoLHSA with a dedicated line in the state budget. The NCDC provides national leadership in preventing and controlling of communicable and non-communicable diseases, through developing of national standards and guidelines, health promotion, disease surveillance, immunization, laboratory work, research, providing expert advice and responding to public health emergencies. NCDC provides health statistics to monitor population health and guide policy actions.

At the local level public health responsibilities are implemented by municipal public health centers (PHC) established by the local governments and financed from three different sources: local municipalities, central budget transfers and contracts from the NCDC. PHC are responsible for disease surveillance, investigation of outbreaks and planning of control measures, vaccine logistics and immunization monitoring, collection and transfer of health statistical reports including immunization reports.

The public funds for immunization implementation in the country are secured through a special state health program on immunization. The program is revised annually, approved by the MoLHSA decree and by the Parliament through a regular budgetary process along with other public health programs.

Immunization program is implemented through decentralized arrangements by primary health care providers, maternity facilities, municipal public health centers, NCDC, Georgia Health and Social Program Implementation Center (GHSPIC) and Social Service Agency (SSA) under the stewardship of the MoLHSA.

From 2011 purchase of vaccines and injection supplies is provided through a state tender procurement by the HSPIC. The SSA is responsible for contracting health care providers and purchasing immunization services along with other primary care services. The NCDC is responsible for overseeing of immunization program implementation, program performance monitoring and evaluation, routine data analyses, monitoring of adverse effects following immunization, central level logistics (functionality of the central vaccine warehouse and distribution of vaccines to the regional level). Municipal public health centers ensure vaccine storage at sub-national level, surveillance and monitoring performance of immunization activities, sub-national level immunization information system management. Health care providers at primary level and maternity facilities provide immunization services, indentify target population and provide routinely primary data on immunization activities.

Starting from 1994 various donors (UNICEF, WHO, GAVI, VRF, USAID) provided significant contribution to the National Immunization Program through introduction of the new vaccines, provision of vaccines and injection supplies and system strengthening activities. Over the years the government gradually increased its share in financing of immunization activities and by 2009 covered majority of costs from public funds. In 2010 under the GAVI support Georgia introduced Hib-containing pentavelent vaccine in the national immunization schedule.

A decision to introduce a new vaccine or apply for donors assistance with a vaccine introduction is made by the Minister of Health based on the resolution of the inter-agency coordinating mechanism (ICC/HSCC). The ICC is led by the deputy Minister of Health and is composed of top-level representatives of other state or donor agencies involved in immunization activities as well as technical experts. The ICC/HSCC is responsible for coordinating and guiding the use of the GAVI ISS and NVS support.

The National Plan of Action for Immunization covers the period 2012-2016. This plan includes the following objectives and priorities:

a. Improving the timely immunization coverage against all 8 antigens up to 95% at the national levels and at least to 80% at all district levels throughout the country;
b. Sustaining Polio free status and continuing supplementary disease control activities for Measles/CRS and Diphtheria;
c. Decreasing vaccine wastage rates;
d. Introduction of new vaccines based on epidemiological and cost-benefit analysis;
e. Improving immunization coverage and program management capacities in conflict affected zones;

2. DISEASE TREND AND SURVEILLNACE

2.1. Morbidity and mortality trends for vaccine preventable diseases

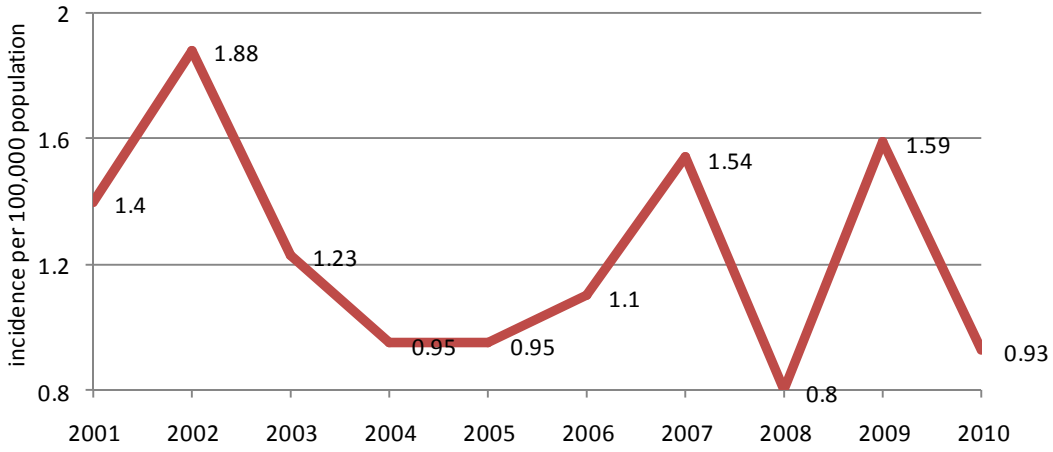
2.1.1. Polio

Sustaining polio-free: In 2010, the WHO European Region experienced the first importation of wild poliovirus since it was certified polio free in 2002. In 2010, Tajikistan reported 458 laboratory confirmed cases of wild poliovirus type 1, including 29 deaths. In the Russian Federation (Republic of Dagestan) detection of an additional case of polio in September, 2010 confirms ongoing poliovirus transmission in the North Caucasus Federal Region.

In Georgia last poliomyelitis case was reported in 2001, which was imported and since then no further cases were identified. However Georgia should still be considered a "hot spot" for possible importation of poliovirus. Firstly in some districts OPV3 coverage remains below 80%, e.g. in 2010 from total 65 districts 9 districts showed OPV3 coverage lower than 80% by one year of age and in one of the districts coverage was lower than 60%. Secondly, despite of improved AFP surveillance non-polio AFP rate ranges within borderline level of 1/100,000 children under 15 years. Lastly, the Caucasus region remains a geographical high risk area, being a population transit zone with links to poliomyelitis endemic countries.

Strengthening of surveillance activities and maintenance of high coverage rates is required. Recognizing the risk of a poliovirus importation and outbreak country made a decision to carry out supplementary OPV immunization activities in 2011 to close the gaps in population immunity.

Figure 1 AFP incidence rates per 100,000 population



2.1.2. Diphtheria, Pertussis, Hepatitis B, Tetanus

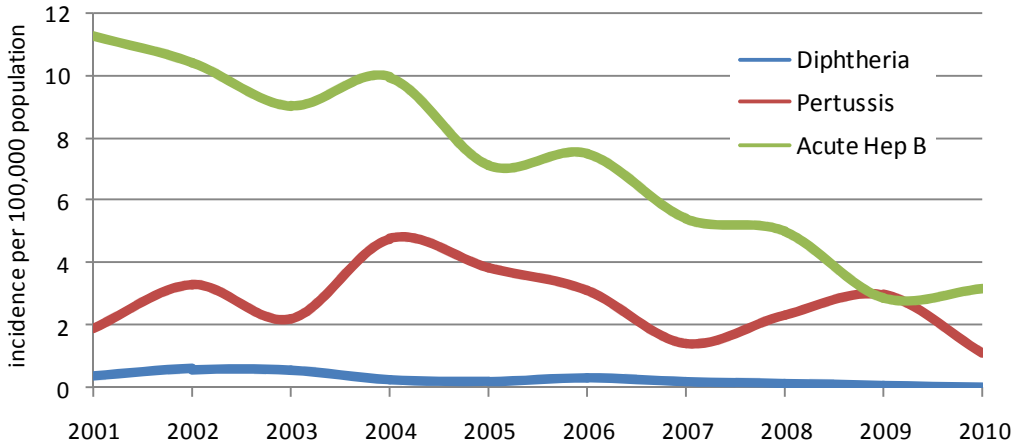
Following the major outbreak in the Region and in Georgia in 1995, the situation stabilized and the control of diphtheria progressively stepped up. Diphtheria cases continued to occur, although at low level. Last 3 death cases were registered in 2007 (case fatality rate 33.3%) all three cases were unvaccinated. After reaching peak level in 2007 lethal cases were not registered since then (see Table 4 below).

Incidence of pertussis remains 3-4 years recurrence. In 2004 there was a sharp increase in the number of pertussis cases in general population (see Figure 2 below). It was mainly due to the high morbidity among children, the incidence increased up to 21 cases per 100,000 population under the age of 15. There was negligible increase in 2008-2009. During the last ten years two lethal cases were registered both in under 1 year age group.

Over the last decade 3.5 fold decrease of acute Hepatitis B incidence has been documented.

Tetanus lethal cases occur among adults. Highest rates were registered during 2007-2009. Deaths are caused by inadequate posttraumatic treatment and low referral to medical care.

Figure 2 Diphtheria, Pertussis, Acute Hep B, incidence rates per 100,000 population



2.1.3. Measles, Mumps, Rubella

The regional office for Europe established a target for measles and rubella elimination in the region by 2010. However these diseases continue to spread across the Region. In September 2010, Member States adopted a resolution to renew their commitment and accelerate action to eliminate measles and rubella and prevent congenital rubella syndrome in the European Region by 2015.

Georgia experienced a large-scale concurrent outbreak of measles and rubella during 2004-2005 which affected wide age range, primarily adolescents and young adults. The primary cause of the outbreak was accumulation of susceptible cohorts as a result of historic weaknesses of its immunization program throughout the late 1980's and 1990's.

Introduction of MMR vaccination since 2004 and maintenance of high coverage rates since 2007 positively influenced on morbidity reduction. However population immunity gap remained and to address this gap a nationwide supplementary immunization activity (SIA) was conducted in the fall of 2008. Totally approximately 493,000 persons were vaccinated against measles and rubella. Despite immunizing almost half a million people in this campaign, substantial numbers of susceptible likely remain, a significant setback for measles and rubella elimination efforts in Georgia. The capital city of Tbilisi requires particular attention due to extremely low SIA coverage and large population.

Measles incidence remains at 0.5 per 100,000 population level during last two years.

The WHO expects that outbreaks can be expected where coverage is below 95% for two doses of measles-containing vaccine, therefore increasing coverage rates at sub-national level is of great importance.

The last measles lethal case was registered during measles outbreak in 2004. There was no rubella and mumps fatal case registered during 2000-2010 (see Table 4 below).

Figure 3 Measles, Rubella, Mumps incidence rates per 100,000 population

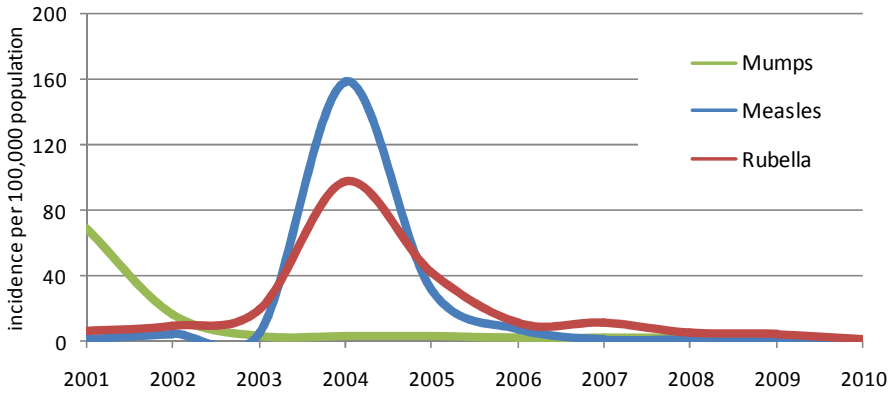


Table 4 VPD case fatality rates (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Diphtheria	17.8	4.5	3.6	7.7	8.3	10	14.3	33.3			
Pertussis						0.01	0.01				
Tetanus	83.3	33.3	23.1	37.5	71.4	0.6	0.7	71.4	50	66.7	0.16
Acute Hep B							1.2		1.8	2.3	
Measles					0.13						

2.2. Rotaviral and pneumococcal disease morbidity and mortality

Diarrheal disease and respiratory infections are largest contributors (i.e. 56%) to the burden of disease among 0-15 year old children in Georgia.

Diarrheal diseases cause 15-17% of hospitalizations observed among 0-3 year old children and contribute to up to 20% of emergency cases that place significant demand on the health services. Hospital based sentinel surveillance of rotavirus gastroenteritis, which is carried out by the WHO support in Georgia has demonstrated that rotavirus infection is responsible for 40% of all gastroenteritis hospitalizations among children under 5 years.[13] The findings are compatible to what has shown other countries sentinel surveillance studies. Taking into consideration that the state health programs cover 0-3 year children health care costs, rotaviral gastroenteritis is associated with significant public expenditures. In addition, the peak incidence of rotavirus infection falls for January-April, which coincides with influenza and other respiratory infection admissions and overburdens health services. Other costs are associated with private expenditures related to co-financing or full financing of the hospitalization and outpatient services, indirect costs incurred by parents that must stay at home to take care of

[13] National Center for Disease Control and Public Health. Unpublished data

sick children, and nosocomial rotavirus infection, which according to various studies accounts for 40% of health care-associated cases of diarrheal disease and results in increased hospital stay.

According to the official statistics child death from diarrheal diseases is not high in Georgia, however it is assumed that some death cases due to diarrheal disease could be misclassified and around 15 young children die because of severe gastroenteritis which accounts to 12% of post-neonatal deaths annually.

Invasive pneumococcal diseases also place significant demand on the health system. The overall burden of invasive pneumococcal disease is difficult to measure directly, but methods are available to estimate it with reasonable accuracy. According to such estimates annually approximately 1,300 children under 5 years age get ill and 75 (range 56-88) children of this age group die from a preventable invasive pneumococcal disease. Death toll contributes to 12% among all death cases in children age 1 month to 5 years.

2.3. Communicable disease surveillance system

2.3.1. System overview

Communicable Disease Surveillance guidelines for public health services, clinicians and laboratory services that conform to WHO-recommended case definitions, classifications, and procedures, were developed and implemented in 2004-2005. In addition electronic information system "Geoepid" was developed and implemented at all levels.

The list of reportable VPDs includes diphtheria, pertussis, neonatal tetanus, tetanus, polio/AFP, measles, rubella, mumps, CRS, acute hepatitis B. Zero reporting is required and implemented. Hot cases concept is used for AFP surveillance purposes.

The flow of surveillance information is following:

- Health care providers are required to report cases of infectious diseases within 24 hours of identification to municipal Public Health Centre.
- Municipal Public Health center reports monthly to regional Public Health center by providing the aggregate report plus the individual forms for the diseases under case-based surveillance Regional Public Health Center reports the data, including case-based information for certain priority diseases (e.g. AFP, measles, rubella, diphtheria) to NCDC monthly.
- NCDC compiles and analyzes the reports of communicable diseases.
- NCDC provides this information to the MoLHSA, as well as to external partners (WHO, UNICEF, RVF).
- NCDC provides feedback in the form of the following publications:
    a. Annual health statistics report.
    b. Annual analysis of trends by disease.
    c. Reports in the monthly Epidemiology Bulletin.

Outbreak investigations are carried out by local public health centers, with the involvement of national level experts, if necessary. The new modern laboratories supported by US Defense Threat Reduction Agency (DTRA) and operated by the NCDC are available on national and regional levels. There are essential laboratory confirmation capacities mainly for all VPDs.

The WHO supports rotaviral gastroenteritis and bacterial meningitis hospital based sentinel surveillance studies at two sentinel sites in capital city of Georgia.

The Immunization Program Management review revealed the following strength and weakness of VPD surveillance system:

2.3.2. Achievements, weaknesses and recommendations

2.3.2.1. Achievements

- Clearly defined up-to-date national guidelines including standardized case-definitions, reporting forms and procedures provided in the MOH Decree;
- Case-based reporting for priority diseases.
- Electronic data management system ("Geoepid") implemented nationwide.
- Laboratory confirmation for measles and rubella at the national level.
- Trainings on surveillance conducted for the regional and some district level staff (NIP managers).
- Flexibility of the system allowing incorporation of additional diseases to the reporting system if needed
- The rotavirus surveillance study was initiated by NCDC in the 2009 to estimate the contribution of rotaviruses to the burden of diarrheal illnesses among children in Georgia, which provided information for programmatic purposes and decision making in support of rotavirus vaccination introduction;
- Increasing trend in AFP surveillance rate;

2.3.2.2. Weaknesses:

- Limited use of surveillance data for program management and impact evaluation.
- Limited awareness of recent guidelines at the facility level.
- Limited and irregular feedback from upper levels throughout the system.
- Limited data analysis below national level.
- Insufficient utilization of laboratory component.
- In some instances, incomplete investigation and response to reported cases/outbreaks.

Based on the analyses presented above the following conclusions were drawn:

- Overall, the VPD surveillance system is running well. Substantial improvement from the situation in the 1990s has been observed during the past years.
- The recent upgrades to the system represent important milestones toward strengthening communicable, including vaccine-preventable disease surveillance system in Georgia and are to be highly commended.
- Use of surveillance data for programmatic purposes is suboptimal.
- Utilization of laboratory component of surveillance for measles/rubella is suboptimal
- Further strengthening of surveillance management and infrastructure overall and for individual diseases (measles, rubella, CSR, AFP, etc.) would generate better data for programmatic purposes and allow better monitoring of disease trends and progress toward achieving national targets.

2.3.2.3. Recommendations

- Ensure systematic feedback throughout the system.
- Ensure national targets for surveillance system performance are well known and consecutively ensure the monitoring of surveillance indicators, as defined by MoLHSA Minister's orders #55/o and #101/n.
- Identify resources and clearly define responsibilities for the case-based surveillance data entry at the national level.
- Strengthen laboratory capacity.
- Increase awareness of the need and availability for lab confirmation at the district and facility levels.
- Provide additional training for staff on surveillance issues.
- Provide training on surveillance and case definitions to district and local level staff.
- Provide refresher training on AFP surveillance to district and local level staff.
- Further strengthen surveillance for individual diseases (measles, rubella, CSR, AFP, diphtheria, etc.).
- Further improve the quality of case investigation and response to reported outbreaks.

- Encourage improved case identification and reporting.
- Strengthen surveillance for measles, rubella, CRS, diphtheria and AFP through further implementation of case-based surveillance system.
- Increase laboratory confirmation rates for measles and rubella/CSR cases.

3. NATIONAL IMMUNIZATION PROGRAM

3.1. Service delivery

3.1.1. Routine immunization

Immunization services are provided through primary health care providers at their private offices, polyclinics in urban areas, ambulatories in rural areas, and maternity hospitals for BCG and Hepatitis B first dose.

Immunization services are delivered primarily at fixed sites. Mobile teams (several days travelling to cover remote villages) operating in 2005-2007 stopped due to changes in the immunization programme financing.

Depending on the target population and geographical area, immunization sessions are organized according the WHO recommendations on a daily basis (large polyclinics, maternity houses), on a weekly basis (ambulatories), or on a monthly basis for remote areas. Seasonality plays also a role, with mountainous area health facilities not always providing immunization during the winter.

Apart from the absence of physicians, another determinant influencing the mode and frequency of immunization delivery is vaccine utilization/wastage. Due to low populations in some areas immunization delivery schedule is often adjusted (reduced) to optimize vaccine utilization and minimize wastage.

3.1.2. Vaccination Schedule

Current list of targeted diseases:

1. Tuberculosis
2. Hepatitis B
3. Diphtheria
4. Tetanus
5. Haemophylus Influenza type B
6. Pertussis
7. Poliomyelitis
8. Measles
9. Rubella
10. Mumps

Future list of targeted diseases:

1. Rotavirus infections
2. Pneumococcal infections
3. Papilomavirus infections
4. Chicken Pox

National vaccination calendar was last updated from 2010 following inclusion of *Heamophilus Influenzae B* vaccination (Table 5).

Table 5 Vaccination schedule from 2010

	Age Vaccine	12 h	0-5 d	2 mo	3 mo	4 mo	12 mo	18 mo	5 y	13 y	14 y

	Age Vaccine	12 h	0-5 d	2 mo	3 mo	4 mo	12 mo	18 mo	5 y	13 y	14 y
1	BCG		X								
2	Hep B	X									
3	DTP-HepB-Hib			X	X	X					
4	DTP							X			
5	OPV/IPV			X	X	X		X	X		
6	MMR						X		X		
7	DT								X		
8	Td										X

Georgia is planning to introduce new vaccines: rotavirus vaccination from 2012 and pneumococcal vaccination from 2013. Therefore in case of new vaccines introduction vaccination schedule will be revised as shown in the Table 6. The MoLHSA encourages private sector to market new & underused vaccines to increase their acceptability by the community.

Table 6 Vaccination schedule in case of implementation of all scenarios

	Age Vaccine	12 h	0-5 d	2 mo	3 mo	4 mo	12 mo	18 mo	5 y	14 y
1	BCG		X							
2	Hep B	X								
3	DTP-HepB-Hib			X	X	X				
4	DTP							X		
5	OPV/IPV			X	X	X		X	X	
6	MMR						X		X	
7	DT								X	
8	Td									X
9	Rotaviral			X	X					
10	Pneumoccocal			X	X	X				
11	Papilomaviral (HPV)	Starting year and ages cohorts will be defined by the MoLHSA decree								

3.1.3. Summary of immunization program performance

Key parameters of the national immunization system describing achievements and challenges are summarized in Table 7 below

Table 7 Situational analysis by accelerated disease control initiatives

Component	Suggested indicators	National Status						
		2004	2005	2006	2007	2008	2009	2010
Polio	OPV3 coverage	66%	84%	88%	98%	93%	93.4%	82,0%
	OPV3 vaccinated late (12 month -15 year)	33%	67,5%	17,5%	15,7%	12,20 %	9,20%	61,7%
	OPV drop-out rate	14%	9,7%	12,2%	5,3%	1,2%	7,5%	7,3%
	Percentage of districts with drop out rate OPV1-OPV3>10	65%	54,5%	41%	42%	21,5%	42%	30,8%
	% of districts with >80 percent coverage	17%	67%	76%	70%	80%	88%	86,2%
	Non polio AFP rate per 100,000 children under 15 years of age	0.95	0.95	1,1	1,4	0,8	1,59	0,93

Adequate stool specimen collection rate (at least should be 80%)	100%	100%	100%	100%	100%	100%	100%
The rate of AFP cases investigated within 48 hours of being reported	100%	100%	100%	100%	100%	100%	100%
Follow -up AFP cases 60-90 days	100%	100%	100%	100%	100%	100%	100%
The proportion of provinces zero reporting weekly	89%*	95%*	96%	85%	92%	96%	95%
The proportion of provinces doing active surveillance	89%*	95%*	96%	85%	92%	96%	95%
Completeness of hospital visits for active surveillance	100%*	100%*	100%	100%	100%	100%	100%
The rate of 2 adequate stool samples collected within 14 days of onset of paralysis (at least should be 80%)	87,5%	87,5%	100%	83%	100%	100%	100%
The rate of stool specimen arrive at the laboratory in `good` condition (at least should be 80%)	100%	100%	100%	100%	100%	100%	100%
The rate of stool specimen arrives at the NPL within 3 days of collection (at least should be 80%)	87,5%	87,5%	100%	100%	100%	100%	100%
The rate of laboratory results are sent back within 28 days of receipt (at least should be 80%)	100%	100%	100%	100%	100%	100%	100%
Is there any National Plan of Action for the importation of wild polio virus (Y/N)	Y	Y	Y	Y	Y	Y	Y
Supplementary Immunization Activities (NID/SNID/Mopping-up)					Y		Y
No. of rounds					1		a) SNID: in Marneuli district - 1 round; in Abxazia -2 rounds; b) Mopping -up: in other district of Georgia - 1 round

	Coverage range					83,6		a)Marneuli district - 99,7%; b) Abxazia-first round– 98,3%; second round– 98,2%; c) Other district of Georgia –52,7%;
	Hot case follow-up	2	3	2	2	2	2	0
Measles-Rubella	MMR vaccination coverage routine first dose /second dose	86%; 75%	92%; 87%	95,11%;88,2%	97%; 92,1%	96,3%; 86,9%	82,7%; 71,4%	88%; 84%
	Drop-out Rate (BCG - Measles)	2%	4%	11%	8%	1,7%	13%	9,2%
	Number of outbreaks reported	115	1358 (7)	334 (6)	44 (0)	56 (0)	23 (0)	0
	Number of laboratory confirmation	2,40%	1,30%	2,40%	4,50%	5,00%	8,70%	33,3%
	Number of outbreaks investigated	115	1093(7)	151 (6)	0	0	0	0
	Is there any National Plan of Action for the Measles and CRI Elimination? (Y/N)	Y	Y	Y	Y	Y	Y	Y
	Incidence of Measles	162.5	31,3	7,6	1	1,3	0,5	0,5
	Measles cases	7033	1358	334	44	56	23	22
	< I year	397	78	21	7	10	3	5
	1-4 year	826	157	73	13	20	8	7
	5-14 year	2956	363	139	13	17	6	2
	15 + Year	2854	760	101	11	9	6	8
	National case-based surveillance (Y/N)	Y	Y	Y	Y	Y	Y	Y
	Is there any CRS burden study?(Y/N)	Y	Y	N	N	N	N	Y
	Reported total number of CRS cases per year	1	1	0	0	0	0	0
	Is there any case-based CRS surveillance in infants 0-11 months of age with laboratory confirmation	1	1	0	0	0	0	0
	Incidence of Rubella	97,4	42,5	10,9	5,1	4,3	1,5	1,3
	Number of suspected rubella cases	4215	1842	482	225	225	67	59
	< I year	198	107	82	46	33	22	18
	1-4 year	792	340	164	92	75	33	26
	5-14 year	2648	1149	215	78	63	8	12
	15 + Year	577	246	21	9	54	4	3

	SIA (Catch-up, Follow-up, Mopping-up); Age group, coverage	Follow up; 13-14 Years: 86%	Follow up; 13 Years: 86%	Follow up; 13 Years: 88,1%	N	N	N	N
DPT	DTP3 coverage	78%	84%	88%	98%	92%	88%	86,7%
	% of districts with > 80% coverage	42.4%	75.8%	80%	91%	88%	88%	83,1%
	National DTP1- DTP3 drop out rate	11.5%	10.7%	12,8%	5,9%	8,1%	10,4%	9,5%
	Percentage of districts with drop out rate DTP1 - DTP3>10	57.6%	47,0%	45,5%	27,3%	27,7%	43,1%	31,8%
	Long term contraindications for DTP	6.2%	6%	2.7%	1,8%	2,0%	1,5%	0,3%
	Establishment of central supervision and training team	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Curriculum and training material development for each level staff	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HEP-B	HepB3 coverage	65%	71%	89%	94%	89,4%	55%	89%
	% of districts with > 80% coverage	21%	42%	59%	73%	80%	18%	87,6%
	National DTP3-Hep B3 drop out rate	18%	13%	4%	4%	2,90%	39%	–
Surveillance	% of regions submitting surveillance monthly reports completed accurately		87%	100%	100%	100%	100%	98,5% (Georgia gov. does not have control on one of the 65 district)(Akhalgori)
	Provide feedback to reporting site (Frequency?)	monthly	monthly	monthly	monthly	monthly	monthly	monthly
	Is there any guidelines including surveillance activities	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cold chain/Logistics	Percentage of districts have been supplied with adequate (equal or more) number of AD syringes for all routine immunizations	100%	100%	100%	100%	100%	100%	100%
	Is there any assessment of the quality of injection?	No	No	No	No	No	No	Yes
	Is there any training for health personnel for increased awareness/knowledge	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Developing policies/Plan of Action	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Is there any guide for health staff?	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Was there a stock-out at national level during last year?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	If yes, specify duration in months	1 m	1m	6m	2m	3m	1m	2m
						2m	2m	
		2 m			2m	1m	2m	2m
				4m		2m	5m	
		2 m			6m	1m	3m	2m
					3m	2m	1m	
Cold chain/Logistics	If yes, specify which antigen(s).	BCG	Polio	DT	Hep B	DT	DT	Hep B
						Hep B	Hep B	
		Hep B			MMR	MMR	MMR	DPT
				Td		BCG	DPT	
		Polio			DT	DPT	OPV	OPV
					OPV	OPV		
	Correct requirement forecasting (for each level)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Is the procurement procedures allowing the provision of quality-assured vaccines	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	To plan to provide for vaccine supply in emergencies (such as outbreaks or disruptions of production)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Availability of a waste management plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Is the Country Developed effective policies/Plan of Action(Y/N)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Is there any evaluation for waste management systems in place including health care waste	Yes	No	No	No	No	No	Yes
	Percentage of districts with adequate number of functional cold chain equipment				100%	100%	100%	100%
	Supplies distribution system	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Stock management & Wastage	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Revision/development of guidelines and Training manuals	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Develop replacement plans							
	Perform National Inventory	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Is there any guide for health staff? And last training for health staff	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AEFI	Number of AEFI reports received annually	3	2	2	3	2	0	0
	Number of AEFIs by antigen			2 (DPT)	3 (DPT)	2 (DPT)	0	0
	Classification of an event by course	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Unusually severe AEFIs			0	0	0	0	1
Social mobilization/Communication	Availability of a plan (Advocacy, social mobilization and program communication)	No	No	No	No	No	No	No
	Communication plan	No	No	No	No	No	No	No
	communication manual for health staff	No	No	No	No	No	No	No
	Are a series of district indicators collected regularly at national level?(Y/N)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Financial sustainability	What percentage of total routine vaccine spending was financed using Government funds? (including loans and excluding external public financing		53%	64%	67%	68.4%	97%	77%
ICC	Number of meetings held last year	9	4	6	4	4	4	4
Vaccine wastage	Number of vaccine related studies conducted/being conducted	No	No	No	No	No	No	No
	Vaccine wastage monitoring at national level for all vaccines	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	DTP vaccine wastage rate	1.31	1.28	1,18	1,2	1,24	1,18	1,33
	OPV vaccine wastage rate	1.32	1.24	1,28	1,22	1,25	1,17	1,18
	Hep B vaccine wastage rate	1.22	1.21	1,17	1,16	1,15	1,1	1,03

3.2. National Immunization Coverage

Examining the last five years in some more detail, the national reported coverage by one year of age shows an upward trend for all antigens since 2005,: BCG coverage level maintains over 90% ; HepB3 from 63.7% in 2004 increased to 89.0% in 2010; DTP3 from 78.8% in 2004 increased to 98.4% in 2008, however reduction to 86.0% in 2010 was noticed. In 2010 drop of OPV3 was demonstrated as well (Table 8).

Table 8 Vaccination coverage (%) by antigens and years (2004-2010)

Vaccine	Age	2004	2005	2006	2007	2008	2009	2010
BCG	<12 mo	90.8	99.6	92.5	93.2	90.0	95.0	95.7
DPT 1	<12 mo	88	91	100.8	104.3	100	98.6	4.8
DPT 3	<12 mo	78.8	84	88.0	98.4	92.1	88.4	23.8
DPT-Hib-Hep B 1	<12 mo							90.2
DPT-Hib-Hep B 3	<12 mo							62.2
OPV1	<12 mo	77	90	101.4	93.6	91.0	100.9	89.3
OPV3	<12 mo	66	83.7	89.2	88.3	89.9	93.4	82
Hep B 1	<12 mo	72.8	97	88.5	93.7	94.5	54.8	94.5
Hep B 3	<12 mo	63.7	73.2	84.7	94.4	90.5	53.6	89
DPT4	<24 mo	81	89.6	76.3	82.1	84.6	81.5	78.4

Vaccine	Age	2004	2005	2006	2007	2008	2009	2010
OPV4	<24 mo	67.1	94.8	78.3	76.3	78.2	85.4	76.8
MMR 1	12 mo	86	92	96.7	98.3	96.3	82.7	88
DT	5 y	87.1	91.2	80.2	86.4	83.8	82.2	81.6
OPV5	5 y	67.2	90.9	82.4	82.1	74.3	79.7	79.3
MMR2	5 y	75	87	89.5	92.6	86.3	71.4	83.8
MMR3	13-14 y	96.8	93.7	89.2				
Td	14 y	64.3	74.8	75.3	84.5	65.9	66.6	66.0

The overall reported national improvement. however. conceals varying performance at region and district levels: In 2010. 11 out of the 65 districts reported less than 80% DPT3 coverage among children under one year of age.

Table 9 Projected and achieved % of districts with >80% DPT3 coverage rates (%). 2005-2011

	2005	2006	2007	2008	2009	2010	2011
Projected	60% (39)	65% (42)	70% (46)	75% (49)	85% (55)	85% (55)	87% (56)
Achieved	75.8% (50)	80% (53)	91% (60)	88% (57)	88% (57)	83.1% (54)	

This 11 district are from 7 regions. lowest coverage rates (30% and 60%) were reported by two districts. In addition. 7 districts also reported more than 10% DPT 1-3 dropout. one district more than 20% and two districts more than 30% (Table 10).

Table 10 Districts with reported <80% DPT3 coverage by 1 year and DPT 1-3 dropout (%). 2010

No.	District Name	Region Name	DPT3 Coverage (%)	Dropout (%) DPT1-3
1	Keda	Adjara	76.8%	17.8%
2	Khulo	Adjara	69.7%	17.1%
3	Samtredia	Imereti	77.3%	23.0%
4	Khoni	Imereti	79.1%	19.2%
5	Dedoplistskaro	Kakheti	78.9%	6.6%
6	Bolnisi	Kvemo Kartli	71.3%	30.8%
7	Marneuli	Kvemo Kartli	60.0%	33.5%
8	Tsalka	Kvemo Kartli	77.0%	8.2%
9	Akhalgori	Mtskheta-Mtianeti	30.5%	0
10	Oni	Racha-Lechkhumi	73.8%	13.9%
11	Mestia	Samegrelo	77.4%	6.4%

Source: 2007-2010 GeoVac. NCDC (data excludes Abkhazia)

The overall picture regarding drop-out between the first and third doses of DPT has deteriorated in 2009-2010.

National targets were set for the period up to 2010 in the Financial Sustainability Plan (FSP). Primary objective was improvement of timely immunization coverage.

Table 11 Reported immunization coverage under 1 year (%). 2007-2010

Vaccine	Achieved	Projected

	2007	2008	2009	2010	2007	2008	2009	2010
BCG	93.2	90	95.0	95.7	95	95	95	95
DPT1	104.3	100	98.6	4.8	95	95	95	95
DPT3	98.4	92.1	88.4	86.0	92	95	95	95
Hib3				62.2				98
OPV3	88.3	89.9	93.4	82	92	95	95	95
HepB3	94.4	89.4	53.6	89	85	90	95	95
MMR1 *	98.3	96.3	82.7	94.3	90	95	95	95
MMR2 **	92.6	86.3	71.4	83.8	90	95	95	95
Dropout DPT1-3 (%)	5.90%	8.10%	10.20%	9.5%	<10%	<10%	<10%	<10%

Source: 2007-2010 GeoVac. NCDC (data excludes Abkhazia)

*12- 24 months

**5-6 years

3.2.1. Contraindications and missed opportunities

Current list of contraindications in use in Georgia is in line with WHO recommendations. It should be noted that the proportion of false (log term) contraindications for the 3 doses of DPT have been reduced from 6.2% in 2004 to 0.3% in 2010 at national level and was arranged in recommended scope. However at some regional levels it is still high. It was mentioned that neurologists represent an important group preferring to advise not to vaccinate in certain conditions, conditions which were proved not to be in accordance with the nationally adopted contraindications list.

3.2.2. Introduction of new vaccines

Over the last decade Georgia's NIP has incorporated a range of new antigens in the immunization schedule. Universal infant immunization of newborns against Viral Hepatitis B started in 2001.

Rapid achievement and maintenance of high immunization coverage in the subsequent birth cohorts resulted in a reduction of acute VHB cases in children under 5 years of age almost by 80%. Two cases of VHB among infants during 2004-2010 were registered. In 2004 combined measles-mumps-rubella vaccine has replaced the monovalent measles at 12 months and the second dose was established at 5 years of age. The vaccine was introduced through Rostropovich-Vishnevskaya Foundation (RVF) support for 2004-2008 periods. 13 and 14 years old children were additionally vaccinated in 2004-2005-2006.

In 2001-2002 a vaccination campaign against hepatitis B covered all school children 13 years of age and allowed extending protection of the population of risk to hepatitis B virus infection. All above mentioned contributed to strengthening the capacity of health system of Georgia to implement new antigens.

The new Hib-containing pentavalent vaccine was introduced by GAVI support in national immunization schedule in the beginning of 2010.

3.2.3. Immunization MIS

Up to 2000, immunizations were reported regardless of age given. “Timely” immunization–by one year of age (12–24 months of age for MCV/MMR)–was recorded and reported separately for the first time in Georgia in 2001.

Immunization Management Information system underwent significant reform under the USAID funded "Health Information and Communicable Disease Surveillance System Reform Program" (2002-2006). Reformed immunization MIS has improved accuracy and reliability of information at sub-national and national levels. For monitoring of immunization data the software tool "Geovac" was developed which ensures tracking of various indicators on routine bases.

Below is given description of deficiencies that exist in the immunization MIS.

National demographic data is provided by the National Statistics Office of Georgia (GeoStat). Child birth and death cases are collected through the civil registration system and adjusted with the medical statistics data submitted from health facilities. GeoStat provides final annual data by June (for 2010 data will be available in June 2011).

Immunization MIS (e.g. planning of target age groups. monitoring of indicators. etc) at national and sub-national level uses denominators (children target age groups) provided directly by primarry care providers. Target groups are determined by house-to-house census carried out by primary care staff on annual bases within their respective areas. When the GeoStat data become available national indicators are adjusted based on the official data. For 2010 the following target groups were defined:

1. Number of newborns reported by health facilities – 62.198 children.
2. Children under one year (surviving infants at the age of 12 months) based on the door-to-door census – 57.423 children

NCDC medical statistics department collects routine health reports from service providers. Child death data are based on the reports from health care facilities (matertnity facilities, hospitals, primary care facilities). Preliminary figures as of May 2011 for the year 2010 is 741 children under 1 year of age, that result in around 61.450 surviving infants.

As we can see problem exists with the surviving infants. Immunization Information system reports around 4,000 less children compared to medical statistics. The 6% difference cannot be fully explained by infant mortality rates, rather than indicates about deficiencies in the information system. It is assumed that problems mainly exist in the capital city, where newborns are not timely registered by primary care facilities and door-to-door census is not adequatly carried out. One of the contributing factors is migration from rural areas to the capital city.

3.2.4. Recommendations on service delivery:

- Give priority focus on regions with districts reporting less than 80% DPT3:
  - Priority review by ICC and meetings with identified regions/districts.
  - Develop district specific plans of action with regular monitoring arrangements.
- Improve timeliness of immunization:
  - Better tracking of newborn from birth at maternity house to first contact at local health facility.
  - Local baseline and follow-up surveys to permit evaluation of change in "timely" immunization coverage, particularly in context of COMBI initiative.
  - Review and improve methods used to orient medical professionals on contraindications policy and other key policies, including working through national and international professional associations.
  - Ensuring uninterrupted supply of vaccines and immunization materials
- Improve immunization MIS, specifically defining target group for under one children in large cities.
- Conduct / continues disease burden studies.

3.3. Advocacy and Communication

3.3.1. Advocacy and communication strategy

A multi-year strategy for advocacy and communication was included within the overall framework of the 2005-2010 FSP. However a separate strategy with a comprehensive evidence-based behavior-focused approach was developed only in 2006 with external technical assistance from UNICEF Georgia. The 2006-2007 Communication for Behavior Impact (COMBI) Plan for immunization was launched in October 2006. It is described below.

Currently advocacy and communication for immunization mostly relies on the mass media–TV, radio and press. The education sector (secondary school management) has been involved countrywide, though mostly limited to SIAs communication.

Should be underlined involvement of Georgia into European Immunization Week initiative launched by WHO EURO. It is celebrated annually in Georgia and supported by the First Lady to ensure high advocacy level for immunization.

3.3.2. Budget, Leadership and Training

The National Immunization Programme has no separate budget line for communication activities. Communication activities have been mostly supported by donor and development agencies–UNICEF, USAID, RVF, and GAVI/VF. The 2005-2010 Financial Sustainability Plan specifies the communication budget as 1% out of total routine and supplemental immunization costs.

Senior officials of the national health authorities (Minister, Deputy Ministers), national agencies leading the state programme implementation (National Centre for Disease Control and Public Health) are the key national leaders promoting NIP in the country. Leading pediatricians from the public and private sectors as well as medical academia have been involved in advocacy and communication upon request by Ministry and the ICC committee. The First Lady of Georgia has been supportive to the senior advocacy efforts, especially in response to European Immunization Week initiative, carrying out annually in Georgia since 2007.

3.3.3. The COMBI Plan

The 2006-07 Communication for Behaviour Impact (COMBI) Plan, commissioned by UNICEF in March 2006, involved a comprehensive multi-sectoral approach to immunization including branding, administrative mobilization, media promotion, and interpersonal communication and leveraging of business partnership. It was developed by a national consensus workshop with participation of all key country-level stakeholders for NIP and primary health care (NCDC, central and regional PHDs, MLHSA, UNICEF, Curatio IF, RVF, OPM, Co-reform project), ensuring contribution and agreement on key behavior messages and the plan outline.

The COMBI plan focused on improvement of the age-appropriate immunization coverage as the key target behavior. “On-Time-Immunization” at 2 months (DPT1, OPV1, HepB2), 3 months (DPT2 and OPV2) and 4 months (DPT3, OPV3, HepB3) is the key behavior change message. It targeted increasing coverage to over 90% for all routine antigens under the age of 12 months, from the current range of 73% to 95% per specific antigen.

The Plan envisaged countrywide mobilization of the secondary and higher education system, the media and private sector partnership. It involved feedback and publicity about improved performance as well as incentives for health care providers through administrative mobilization and business partnership.

Recommendations on Advocacy and Communication

- In-service training, particularly at service delivery level.
- Pre-service university curricula.

- Prioritize improving staff motivation in relation to communication efforts and in the context of discussions on performance-based incentives
- Strengthen cooperation with TV.

3.4. Vaccine supply, quality and logistics (immunization quality and safety)

The Drug Agency at the MoLHSA has functions of a National Regulatory Authority (NRA). As there is no vaccine produced in Georgia, NRA function related to vaccines is limiter to assesses vaccine documentation and clear for import. According to the new regulations in Georgia no specific registration procedures are required for the vaccines already registered in EU countries and USA, as well as for those pre-qualified by the WHO.

Till 2010 Vaccines procurement was done through the UNICEF Supply Division (donated and including those paid by Government). In 2010 vaccines were purchased directly by the Government according to the procurement regulations. All vaccines arrive at Tbilisi airport, where they are placed in the cold room (not specifically for vaccines or pharmaceuticals but can contain any perishable goods). The Drug Agency assesses vaccine documentation and clears for import. This takes 3-4 days if the agency received the documentation in advance (usually one month before vaccine arrival).

The national vaccine cold store was established and equipped in 1976. National Immunization Programme in Georgia follows the WHO recommendations in storage temperatures. All vaccines except OPV are kept in +2°C to +8°C cold rooms and refrigerators. OPV is kept in 4 units of SB300 (2 units) and TCW1151 (2 units).

Currently total net storage capacity at +2°C to +8°C is 35,937 liters and total net storage capacity at -20°C is 1463 liters. The volume calculations in order to check availability of sufficient storage capacity is done with the assumption of total amount of vaccines annual need in 2016 in case of 3rd scenario (when maximum amount of vaccines will be stored) arriving once a year and on the same day. Even with this assumption, only 70% of the available storage capacity in +2°C to +8°C will be occupied.

In addition to the national cold store, there is 13,200 net cold store capacity at NCDC regional branch in Kutaisi and 26,297 net cold store capacity at district level.

There is a sufficient cold store capacity in the country, even if the new vaccines planned for 2012-2013 are introduced in the NIP and total need of vaccines is stored in 2016.

Refrigerators are now available down to the village level (about 2/3 are “ice-lined”). Cold boxes, vaccine carriers, thermometers, icepacks and freeze-watch indicators were supplied to each health facility providing immunization services.

At the regional/district level, where vaccines are supplied on a quarterly base, the minimal available capacity is 3 m^3.

At the primary health care level all health facilities (100%) providing vaccinations are equipped with refrigerators with minimal volume of 20 litters that is far beyond the needs for storage of the monthly quantity of vaccine. All primary health care facilities are equipped with vaccine carriers and ice packs to ensure transportation of the vaccine and temporary storage during outreach activities.

Care is also taken to maintain the cold chain. Special guidelines on maintaining the cold chain were issued in Georgia language and distributed to the vaccine stores and all immunization providing sites. A special emphasis is placed on temperature regime (VVMs, freeze indicators etc). A reporting system for each safe temperature range violation case documented by freeze indicators were established in 1996.

Spare parts enough for the country’s several years needs have been ensured.

The NCDC national vaccine store supplies regional cold stores at the Centers of Public Health on a quarterly basis. Tbilisi facilities are directly supplied from NCDC cold store.. An Effective Vaccine Store Management

(EVSM) assessment of the national vaccine store at NCDC was conducted by a WHO consultant in September 2005. Various recommendations were made, a number of which have been implemented. The computerized vaccine stock records system has been upgraded to include further information such as lot numbers. The Vaccine Arrival Report (VAR) (used since 2002 by UNICEF SD), was introduced for NCDC use in 2006 following the EVSM assessment. The vaccine despatch form (to regions), which recipients sign for, was redesigned to include VVM status. A cold chain emergency plan and procedures has been prepared and there are weekly meetings of the cold chain/logistics staff. **Following Effective Vaccine Management study is planned in September 2011.**

There is a national policy on injection safety including waste management, incorporated in various Orders including #122/n and #300. Guidelines also exist for surveillance of adverse events following immunization (AEFI). There are sufficient quantities of all safe injection supplies for distribution to regions. Procurement of auto-disable syringes and safety boxes is bundled with injectable vaccines, except reconstitution syringes which are standard disposable. Corresponding areas for collection of safety boxes with auto-disable syringes are available at all levels countrywide. In the regions of Georgia, full safety boxes are incinerated in pits in open areas. In Tbilisi and other big cities, medical waste is collected and disposed by private companies through incineration in accordance with contracts already in place.

Provision and use of auto-disable syringes and safety boxes are monitored at all levels: from health care and prevention institutions to the national level. Relevant reports are submitted on monthly basis.

The activities related to recording, reporting and investigation of AEFIs are established and implemented in accordance with WHO policy and guidelines. Each case of serious AEFI is subject of urgent notification. Medical personnel directly involved in vaccination process as well as medical personnel in polyclinics, hospitals and other health care facilities, in cases when the population applies to them are responsible for identification of AEFIs. The National Experts Committee launches investigation in case of acute or group AEFIs. Each suspicious AEFI recorded is investigated by the groups of experts operating in each region in accordance with the approved instructions (recommendations). Upon the completion of the investigation, the experts fill out an investigation card for each suspicious AEFI. The investigation results are immediately submitted to the National Expert Commission for final conclusion on each case. The national advisory committee attached to the MoLHSA carries out detailed examination of each investigation and makes the final decision. Additional investigation is launched if necessary.

Recommendations on Immunization Quality and Safety

1. Reinforce and monitor Safe Immunization Practices and AEFI.
   - Improve AEFI surveillance guidelines and training for health staff, especially at district and health facility level.
   - Define, monitor and analyze AEFI system quality indicators.
   - Ensure follow-up and decisions re: EVSM (2005, WHO EURO).
2. Strengthen vaccine management.
   - For Government vaccine procurement through UNICEF Supply Division for coming year, start contract process in good time in current year.
   - Make action plan for central cold store to adopt Model Quality Plan and SOP.
3. Ensuring uninterrupted supply of vaccines and immunization materials

3.5. Program management

The National Immunization Program has organizational arrangement at district, regional and national level (see Immunization services within the health care system & Service delivery sections).

Immunization services are delivered by heath care providers (around 2400) with large number immunization points (total around 1400). The latest organizational reform at PHC level occurred in 2008-09 and implied primary care providers' legal status change. Local authorities have no obligation and role in decision making at PHC level, therefore above mentioned changes required primary care providers direct contracting from the central level by the MoLHSA/SSA. Due to excessive number of contracts to be managed the process becomes burdensome and consumes significant time and effort. Such remote management of the PHC also negatively affects service delivery immunization among other areas as well. Specifically it was noticed that following these changes vaccine wastage has increased. In addition municipal public health centers that are responsible for immunization primary data collection and aggregation and supervision of immunization activities are getting increased number of reports that lead to increased workload.

As mentioned above supervision of the health care providers activities is ensured by municipal Public Health Centers (65) among which 11 function as Regional level Public Health Centers. At the national level under the overall responsibility of the MoLHSA, Health and Social Programs Implementation Center from 2010 is responsible for vaccine procurement, Social Service Agency for contracting and reimbursing health care providers, and the NCDC for issues concerning immunization activities monitoring and evaluation, overall guidance, national level vaccine logistics, and VPD surveillance.

Up to 2006 vaccines and injection safety supplies were provided through Government, UNICEF (USAID funded), Rostropovich-Vishnevskaya Foundation (RVF) and the GAVI financial support. Logistics of the vaccines and injection safety equipment is managed by NCDC at National level, and regional level public health centers at the sub-national level countrywide. The legislation allows vaccine purchase through UNICEF Supply Division, a channel which was successfully tested for the first time in 2006 with a cost-saving of USD 400,000 for the state budget. In 2010 state procurement of vaccines was provided by the MoLHSA subordinated agencies Health and Social Program Agency and after its abolishment by the GHSIP.

In 2009- 2010 due to shortcomings in vaccine procurement processes, vaccine stock out at national level took place that resulted in immunization coverage reduction (see Table 7).

3.5.1.1. Planning service delivery strategies

This multi-year plan, based on global and regional goals and national objectives and priorities, will provide implementation strategies and key activities for the immunization programme for the next 5 years.

Coordination and partnership

The main support to the programme includes the following partners:

- UNICEF, since 1994 serving as the major partner for supply and logistics assistance, strategic planning and capacity building, advocacy and communication and monitoring/evaluation. Starting from 100% provision of vaccines and injection safety supplies to the routine immunization programme and SIAs, UNICEF has succeeded in advocacy and political mobilization efforts within the Vaccine Independent Initiative leading to gradual replacement of donor funds by GoG resources from 0% in 2001 to 100% by 2008.
- WHO, providing technical support in the fields of routine immunization strengthening including introduction of new antigens and disease burden studies; disease control and elimination (diphtheria, polio, measles/rubella); coverage monitoring and disease surveillance; laboratory component; and finally immunization quality and safety, including vaccine procurement, vaccine management, injection safety and AEFI surveillance.
- Vishnevska-Rostropovitch Foundation (RVF), providing MMR vaccines (2004-2008) and supporting outreach services for 2005-2007;

In order to optimize the support and coordination of the work of all agencies involved in the National Immunization Program, an **Interagency Coordinating Committee** (ICC) was created in September 2000. The renewed composition of the ICC was formed by the MoLHSA decree of 2010. ICC is composed of all major

country-level partners, including the NCDC, WHO, UNICEF, USAID and it is currently chaired by the Deputy Minister Dr Mikheil Dolidze. ICC meetings are invented regularly, at minimum 4 times a year, with a good participation from the different members in ongoing review, strategic planning, coordination, resource leveraging and oversight of the programme implementation.

3.5.1.2. Human resources and training

Looking at recent concept paper on health sector reform, there is enough staff allocated to the immunization programme. However, there is a lack of physicians in some remote or mountainous areas, and in low economic status districts.

Concerning capacity building and staff development, several training courses were implemented in the recent years, supported by Curatio, RVF, UNICEF and WHO, in the fields of surveillance and monitoring, introduction of new vaccine, vaccine management and AEFI. These courses mainly have targeted regional, district and primary health care staff.

Additional efforts directed to staff development should be taken to the newly introduced of family group practitioners or family doctors which will require additional training for the different components of immunization.

3.5.1.3. Recommendations on Programme Management

1. The Interagency Coordination Committee (ICC) should be maintained pro-active and lead the implementation of the review recommendations.
2. Proper additional staff allocation, especially in low performing districts, should be advocated and supported through a national equity mechanism and with partners support.
3. Training of primary health care staff, especially nurses and physicians, particularly family doctors, as system is still under development, on immunization practices should be strengthened through local courses and supportive supervision.
4. Maintain the same level of commitment and partnership in advocating legislative and budgetary changes for the NIP.
5. Forecast national immunization budget increases in the FSP, and reflect in relevant budget planning tools– MTEF, annual state programme budgets- as vaccine prices are expected to grow and new vaccines to be introduced.
6. Improve organizational arrangements of PHC services (contracting of staff, performance evaluation, etc) through decentralizing of managerial responsibilities to sub-national level.
7. Ensure uninterrupted supply of vaccines through well planned and implemented procurement process.

4. IMMUNIZATION PROGRAM STRATEGIES AND KEY ACTIVITIES

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
1. To reach 95% of coverage by OPV3	1.1. Strengthening and improving the quality of routine immunization services and increasing OPV3 coverage	1.1.1. District health managers conducting routine and supplementary immunization activities will be trained every year In turn, they will conduct training of immunization teams in their districts	2012, 2013, 2014, 2015, 2016
		1.1.2. Reproduce updated/upgraded guidelines for planning, implementation, monitoring, evaluation and supervision of immunization activities in first level health institutions.	2012, 2013, 2014, 2015, 2016
		1.1.3. Prepare and implement macro and micro plans for routine and supplementary immunization activities at each level	2012
		1.1.4. Supervisory visits will be conducted by the central or/and district Epidemiologist to high-risk areas and throughout the routine and supplementary immunization activities.	2012, 2013, 2014, 2015, 2016
		1.1.5. Training modules for all level EPI managers to conduct standardized district trainings will be provided to each district	2011
		1.1.6. Results of routine and supplementary immunization activities will be analyzed to identify high risk and low performing areas at each level (regional and district). Analysis will cover financial components together with resources utilized.	2011, 2013
		1.1.7. Feedback to districts and related sectors will be provided by the end of each activity	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
	1.2. Conducting high quality supplementary immunization activities in the high risk areas for sustaining of polio free status	1.2.1. Conducting high quality supplementary immunization activities in the high risk areas for sustaining of polio free status	2011
		1.2.2. Conducting training, printing and distributing training materials and forms prior to the activity	2012, 2013, 2014, 2015, 2016
	1.3. Mobilizing community and other sectors for their involvement and contribution to polio eradication program activities	1.3.1.To conduct a large meeting to obtain support of the Ministries of Education and Finance, the Military, universities, private sector, NGOs, UN organizations and other international organizations and to continue strengthening social mobilization through collaboration with them	2012, 2013, 2014, 2015, 2016
	1.4.Creating public awareness to increase demand to routine and supplementary immunization activities	1.4.1.Special materials will be developed for parents, teachers and community leaders	2012
		1.4.2.To prepare and distribute posters, brochures and TV spots	2012, 2013, 2014, 2015, 2016
	1.5. Strengthening AFP disease surveillance (epidemiological and laboratory) to timely detect and investigate wild poliovirus associated cases	1.5.1.High risk areas will be identified according to the risk of wild poliovirus circulation and/or AFP surveillance performance	2012, 2013, 2014, 2015, 2016
		1.5.2.Annual refreshment trainings will be conducted by central training team for regional and/or districts AFP surveillance officers	2012, 2013, 2014, 2015, 2016
		1.5.3. Criteria for identification of high risk AFP cases (Hot cases) will be highlighted and distributed and AFP cases will be analyzed according to those criteria to take timely action	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
		1.5.4. National Polio Laboratory will be strengthened through training of personnel and procurement of equipment and supply	2012
	1.6. Obtaining political support and commitment towards polio eradication goals	1.6.1. Steering committee (ICC) will assess the program outcomes and submit annual progress reports and plans to the Minister to obtain his support and endorsement	2012
		1.6.2. Coordination meeting for the regional and district directors (governors and mayors) will be conducted for routine and supplementary immunization activities	2012, 2013, 2014, 2015, 2016
2. Maintenance of polio free status (To improve AFP surveillance and AFP rate)	2.1. Arising awareness of health Personnel and clinicians	2.1.1. See key activites # 1.5.4	
		2.1.2. Clinicians' knowledge will be updated on the improvements of the program through newsletters to be issued twice a year	2011, 2013
		2.2.3. Posters and stickers for identification of AFP/polio cases will be developed, printed and distributed in all hospitals and policlinics	2012, 2013
	2.2.Arising awareness related NGO's, medical associations	2.2.1. Meetings will be held to inform clinicians (pediatricians, neurologists, infectious disease specialists and epidemiologists) and representatives from hospitals, NGO's and Medical associations on AFP surveillance in each region or districts	2012
	2.3. Strengthening AFP disease surveillance (epidemiological and laboratory) to timely detect and investigate wild poliovirus associated	2.3.1. See key activites # 1.5.1.	
		2.3.2. See key activites # 1.5.3.	

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
	cases	2.3.3. See key activities # 1.5.4.	
	2.4. Improving Active Surveillance	2.4.1. Supervising surveillance activities on district level by central level	2012, 2013, 2014, 2015, 2016
3. Decrease morbidity and prevent measles-related deaths	3.1. Achieve and sustain very high coverage with two doses MMR vaccine through high quality routine immunization services	3.1.1. Macro and micro plans for routine immunization activities at each level will be prepared and implemented	2012
		3.1.2. Measles and Rubella Elimination and Congenital Rubella Infection Prevention Field Guide will be prepared, printed and distributed to all health care providers.	2012
		3.1.3.. To conduct periodic suplementary immunization in the identified high risk and low performing areas among children born after the catch-up campaign	In need (2012, 2013, 2014, 2015, 2016)
	3.2. Increase laboratory confirmation ratio of measles and rubella	3.2.1.Expansion of Laboratory system	2012-2013
	3.3. Improving the availability of high-quality, valued information for health professionals and the public on the benefits and risks associated with immunization against measles and rubella	3.3.1. Produce quality and timely information on the benefits immunization and associated risks, and develop key messages to promote immunization according to national needs and priorities	
		3.3.2. Develop new ways of using media, including the internet, to build public awareness of the benefits of immunization	2012-2013
		3.3.3. To prepare and publicize commercial programs to advocate for MMR vaccination	2012

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
	3.4. Obtaining public support to the measles-rubella elimination plan	3.4.1. To prepare educational material for teachers and parents	2012, 2013, 2014, 2015, 2016
	3.5. Strengthening surveillance systems by vigorous case investigation and laboratory confirmation	3.5.1. To provide training to health care personnel to improve quantity and quality of measles-rubella surveillance data gathered from hospitals	2012, 2013, 2014, 2015, 2016
		3.5.2. To gather information on a regular basis at the central level	2012, 2013, 2014, 2015, 2016
		3.5.3. To monitor active surveillance performance	2012, 2013, 2014, 2015, 2016
	3.6. Detecting measles and rubella outbreaks early, to investigate and confirm outbreaks, and use data to control and prevent outbreaks	3.6.1. To investigate outbreaks and use data to control and prevent outbreaks	In need (2012, 2013, 2014, 2015, 2016)
	3.7. Monitoring vaccination coverage rates and accumulation of susceptible individuals closely, and if needed, conducting periodic supplemental vaccination among children born after the catch-up vaccination (follow-up campaign)	3.7.1.To continue evaluating routine vaccination coverage rates.	2012, 2013, 2014, 2015, 2016
	3.8. Complying with adequate cold-chain and injection safety procedures	3.8.1. To assess problems in vaccine logistics and injection safety	2012, 2013, 2014, 2015, 2016
	3.9. Reducing missed opportunities and inappropriate contraindication	3.9.1. Training material for health care staff will be produced	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
		3.9.2. Reduce the drop-outs rate through improved management, and social mobilization and communication during immunization contacts, and avoid missed opportunities to vaccinate	2012, 2013, 2014, 2015, 2016
4. Increase DTP3 coverage: 5. Increase HepB3 coverage: 6. Increase DT coverage 7. Increase Td coverage: 8. Decrease BCG-DPT3 drop-out rates: 5% BCG-DPT3 drop-out rate by 2015 at national level	8.1. Increasing public awareness and demand for immunization services	8.1.1. Mass media will be involved to educate the population	2012, 2013, 2014, 2015, 2016
		8.1.2. Material development and production for social mobilization: Videotapes 3 spots (3-5 minutes); Posters 5000; Brochures 50000; will be produced, printed and distributed for the public	2012, 2013, 2014, 2015, 2016
	8.2.Providing continuous in-service training for health personnel on immunization services	8.2.1. Training of health personnel from each primary health care unit (approximately 1 day training) by training teams (based on WHO guidelines "Immunization in practice").	2012, 2013, 2014, 2015, 2016
	8.3. Strengthening vaccine preventable disease surveillance and developing disease control programs, with special focus on polio eradication, measles-rubella elimination, diphtheria control and hepatitis B control	8.3.1Monitor the quality and performance of coverage and surveillance systems through surveys, monitoring of performance indicators, data quality assessments, and supportive supervision	2012, 2013, 2014, 2015, 2016
		8.3.2.Routine feedback mechanism will be improved: A newsletter/epidemiological bulletin will be published by the MOH/NCDC and sent to the district level every three months, including latest data and technical information on EPI disease and vaccine	2012, 2013, 2014, 2015, 2016
		8.3.3.Collaborate with civil authorities in advocating for increased registration of births and deaths	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
	8.4. Improving vaccine, immunization and injection safety	8.4.1.see objective # 10	
	8.5.Ensuring an effective cold chain and logistic system	8.5.1. see objective # 10	
	8.6.Obtaining political support and commitment for sustainability of the national immunization program towards timely and fully implementation of the "National Comprehensive Multi-Year Plan"	8.6.1.Steering committee (ICC) will assess the program outcomes and submit annual progress reports and plans to the President and Prime Minister to obtain their support and endorsement .	2012
		8.6.2.National cMYP will be printed and widely disseminated to the parliamentarians, governors, other related government members and organizations, health managers, international and non-governmental organizations (NGOs)	2011
		8.6.3.A workshop will be held to introduce the cMYP to all level health managers and EPI managers. In turn, they are expected to prepare their level plans of actions	2011-2012
		8.6.4.Workshop with regional governors will be held every year: There will be one day workshop with governors to improve the political support and intersectoral coordination at the regional level on EPI	2012, 2013, 2014, 2015, 2016
	8.7. Strengthening interpersonal skills of trainers and supervisors in order to improve their training and supportive supervision skills at all levels	8.7.1.A training team will be established in each district and central level. Each training team will be composed of approximately 2 persons (to be defined according to the number of health personnel in the districts).	2012

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
		8.7.2. Training team will be responsible for the development of yearly plans, implementation, monitoring, evaluation and supervision of EPI activities including public relations, training, intersectoral coordination etc.	2012, 2013, 2014, 2015, 2016
		8.7.8. A manual and checklist will be developed for training teams for supervision and standardization of training	
		8.7.9.Strengthen the managerial skills of national and district immunization providers and managers and develop and update supervisory mechanisms and tools.	
	8.8.Strengthening the management, analysis, interpretation, use and exchange of data at all levels	8.8.1.Improve coverage monitoring of vaccines and other linked health interventions and the use of information at district and local levels through strengthening human resource capacity, monitoring the quality of data, improved tools for data compilation, feedback and supervision.	2012, 2013, 2014, 2015, 2016
		8.8.2.Regularly review indicators of performance in district level, including risk status for vaccine-preventable diseases and use surveillance and monitoring data to advocate for improved access to, and quality of immunization.	2012, 2013, 2014, 2015, 2016
		8.8.3.Training for to encourage the analysis and use of data collected by health workers at delivery level	2012, 2013, 2014, 2015, 2016
	8.9.Strengthening intra-and inter-sectoral coordination for health promotion	8.9.1.Steering committee (ICC) will meet quarterly every year and meetings will be held every six months for the rest of the planned period	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
		8.9.2.The program review will include participation of MoH, WHO, UNICEF and will address all aspects of EPI, including service delivery, surveillance, cold chain and logistics, AEFI system and injection safety	
	8.10.Strengthening immunization programs within the context of health systems development	8.10.1.Duties, powers and responsibilities at each level EPI team will be redefined in accordance with Health Sector Reforms	
		8.10.2.Participate actively in collective efforts to shape sector wide policies and programs, while preserving the central role of immunization in the context of sector wide policies and programs	
		8.10.3.Through regular analysis of district-wide data, document key factors for the success and failure of immunization activities and share these findings with others involved in health systems development	2012, 2013, 2014, 2015, 2016
	8.11.Ensuring adequate and sustainable financing of national immunization system	8.11.1.Provide timely funding, logistic support and supplies for program implementation in every district	2012, 2013, 2014, 2015, 2016
	8.12.Reducing missed opportunities and false contraindications and drop-out rates	8.12.1Reduce the number of immunization drop-outs (incomplete vaccination) through improved management, defaulter tracing, and social mobilization and communication during immunization contacts, and avoid missed opportunities to vaccinate.	2012, 2013, 2014, 2015, 2016
		8.12.2.Existing guidelines for micro planning, reaching the unreached and reducing drop-outs (improving utilization) at health facility and district level will be revised by central team	2012

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
		8.12.3.Relevant training materials for clinicians and health staff will be developed to reducing risks of non-vaccination due to false contraindications and missed opportunities	2012
9. To strengthen an action oriented surveillance system for EPI diseases and achieve disease reduction targets for Vaccine Preventable Diseases and the strengthening of disease response strategies at every level by 2015	9.1.Evaluate the impact of immunizations on the diseases they are meant to prevent	9.1.Disease trends in certain areas, and groups will be analyzed every month by each level that are at high risk of illness or death	2012, 2013, 2014, 2015, 2016
		9.2.Demonstrate the impact of immunization services on the clinic, district, regional and national level	
	9.2. Monitor and investigate adverse events	9.2.1.AEFI surveillance and management mechanisms will be strengthened, including training workshops and the development of training materials supported for all areas of immunization safety	2012, 2013, 2014, 2015, 2016
		9.2.2.Revise and update the AEFI guidelines	2011
	9.3.Achieving Political commitment for secure procedures to vaccines procurement	9.3.1.To hold working meeting with the policy makers and technical decision makers	2012, 2013, 2014, 2015, 2016
		9.3.2.Amount of vaccine, injectables, safety boxes and equipment required will be calculated annually and all expendables will be procured and distributed based on plan developed	2012, 2013, 2014, 2015, 2016
10. Immunization program will ensure the safety of	10.1.Uninterrupted provision of vaccines which meet international	10.1.1.Procure vaccines from WHO pre-qualified manufacturers	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
vaccination through the setting up of quality control systems at each step from procurement to the point of use	standards for efficacy and safety according to WHO	10.1.2.Follow policy developed by WHO to ensure quality of vaccines procured - Procedures for assessing the acceptability, in principle, of vaccines for purchase by United Nations agencies	
	10.2.Regular supply of vaccines, cold chain equipment	10.2.1.Ensure that vaccine forecasting system accounts for usual inventory, usage patterns, and anticipated needs at central, district and health center levels	
		10.2.2.Provide training on vaccine forecasting, storage, and handling at district and health center levels	2012, 2013, 2014, 2015, 2016
		10.2.3.Provide training on reducing vaccine wastage at health center level consistent with WHO open vial policy	2012, 2013, 2014, 2015, 2016
		10.2.4. Conduct post training evaluation of level of understanding of open vial policy and wastage reduction practices	2012, 2013, 2014, 2015, 2016
		10.2.5.Provide additional training as needed and at least annually	2012, 2013, 2014, 2015, 2016
	10.3.Ensure properly functioning cold chain	10.3.1.Undertake a review and provide necessary equipment at national, regional, district, and health center level to maintain cold chain: refrigerators, freezers, generators and spare parts	2011
		10.3.2.Obtain donor support to purchase equipment and supplies to maintain cold chain for republic, central, districts, and health centers	2012-2013

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
		10.3.3.Conduct training at district and clinic level on appropriate procedures for storing vaccines and monitoring cold chain	2012, 2013, 2014, 2015, 2016
		10.3.4.Conduct post-training evaluation of level of understanding of vaccine storage and cold chain policies	
	10.4.Establishing and maintaining an effective cold chain and good vaccine handling procedures	10.4.1.Supervision by cold chain managers at each level periodically	2012, 2013, 2014, 2015, 2016
		10.4.2.Sub-national level cold stores will be monitored and required equipment will be provided to regions lacking identified standards	2011-2013
		10.4.3.Replacement of old and broken cold chain equipment at regional and health center level will take place in stages during a period of four years.	2012-2016
		10.4.4.Refreshment training for cold chain managers will be conducted once a year	2012, 2013, 2014, 2015, 2016
		10.4.5.Cold chain stickers, booklets, posters for administration of vaccine and cold chain and a poster showing various stages of VVMs will be developed, printed and distributed to each health center	2012
	10.5.Ensuring safety of injections	10.5.1.To conduct a survey to assess of the quality of injection for evidence of risks to patient, provider & community	
		10.5.2.Advocacy and communication activities for the sustained use of Disposable and AD syringes and safety boxes	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
		10.5.3.Develop training materials/guidelines and train health personnel for increased awareness/knowledge about injection safety	2012
		10.5.4.Monitor injection safety through AEFI surveillance	
		10.5.5.Safety boxes will be used for collection and destruction of used injectables will be monitored	2012, 2013, 2014, 2015, 2016
	10.6.Strengthen management and revise procedures that will ensure the performance of the quality functions	10.6.1.Training of cold chain managers on vaccine logistics, safe immunization and cold chain	2012, 2013, 2014, 2015, 2016
		10.6.2.Revision/development of guidelines and training manuals	
	10.7.Stronger management capacity among immunization, cold chain, and supply manages	10.7.1.To prepare technical documents and training materials (Preparation, adaptation, translation, printing and distribution of technical documents and training materials, based on related WHO documents)	2012, 2013, 2014, 2015, 2016
		10.7.2.To train managers (conduct EPI Mid-Level Management (MLM) training course for district immunization managers)	2012, 2013, 2014, 2015, 2016
		10.7.3.To conduct vaccine store management and immunization safety training in poor performing districts	2012, 2013, 2014, 2015, 2016
	10.8.Long term forecasting for vaccines, cold chain and logistics equipment	10.8.1.To calculate the future resource requirements for vaccines and injection supplies	2012, 2013, 2014, 2015, 2016

Objectives (linked to Problems)	Strategies	KEY activities	TIMELINE (for EACH activity)
11. Introduction of new vaccine: Rotaviral – at 2012 Pneumococcal – at 2013 Human Papilomaviral – at 2015 Varicella – at 2015 IPV – at 2012	11.1. Ensuring of proper management and propure of vaccines	11.1.1. Estimation of target groups and ages;	2011, 2012, 2013, 2014, 2015
		11.1.2. Preparing of Regulations	2011, 2012, 2013, 2014, 2015
		11.1.3. Renewal of immunization information software (GeoVac) (recording, reporting and etc. forms)	2011, 2012
		11.1.4. .EPI field guide will be up-graded, printed and will be provided for each health center	2011, 2012, 2013, 2014, 2015
		11.1.5. Trainings of personnel	2011, 2012, 2013, 2014, 2015
		11.1.6. Supply of vaccines	And of 2012, end of 2013, end of 2014, end of 2015
		11.1.7. Supply of Safe Immunization equipment	And of 2012, end of 2013, end of 2014, end of 2015
		11.1.8. Revising of potential of Cold Chain volume and completion in case of necessity	2011
		11.1.9. Effective Vaccine Management study	2011
		11.1.10. Communications campaign	2012, 2013, 2014, 2015

5. IMMUNIZATION PROGRAM COSTS AND FINANCING (CURRENT AND FUTURE

5.1. Overview

Immunization services in Georgia are provided through decentralized arrangements composed of primary health care providers, maternity facilities, district and regional level public health centers, the National Center for Disease Control and Public Health (NCDC) under the stewardship of the Ministry of Labor, Health and Social Affairs.

Public funds to purchase vaccines and injection supplies are secured through the special state health program that is revised annually and approved by the government and later by the parliament through a regular budgetary process. The NCDC is in charge of implementation of the state health program on immunization, NCDC has two regional level branches; district public health centers are subordinated to the local governments . The immunization program in Georgia is financed by the central government, local government and donors.

5.2. Detailed information on program cost by categories

5.2.1. Macroeconomic indicators

The major macroeconomic indicators such as GDP, Total Health Budget and Government Health Expenditures as percentage of Total Health Expenditures for 2010 are derived from the National Health Accounts. Indicators are presented in local currency (GEL).

5.2.2. Demographic information

Source for demographic indicators is the State Statistical Department and for health related indicators and other specific target groups– the National Centre for Disease Control and Public Health (NCDC). Considering that for 2010 data on the population growth rate, Birth (% total population), infant mortality rate, and pregnant women as a factor of birth are not available at the moment of costing exercise, data for 2009 have been entered.

5.2.3. Vaccines & Injection Supplies

Table 1.3 Immunization schedule, Target population, Vaccine prices and other vaccine reference information

Information on the immunization schedule, target population, vial sizes have been provided by the immunization program manager.

In 2007 the Government of Georgia introduced passive immunization of infants born to HBsAg positive mothers. Immunoglobulin is given together with Hep B vaccine at the maternity hospitals. In 2010 all required doses of Hep B immunoglobulin were procured by the VRF, but since 2011 the Government of Georgia is responsible on purchasing of all required doses of immunoglobulin.

Table 1.1 Baseline expenditure on vaccines and injection supplies

Expenditures on vaccines and injection supplies as well as other supplies in 2010 were got from the National Center for disease Control and Public Health.

All expenditures on other supplies were covered by the government. Calculations regarding the expenditure on cotton and alcohol were made as following: the total weight of the used cotton was

multiplied by the total number of vaccinated children and by the unit cost of cotton. The same methodology was used to calculate expenditures on alcohol.

Table 0.1 Past and future DTP coverage and 1.4 Coverage and wastage

The data for this section was provided by the NCDC.

5.2.4. Personnel Cost

Data on staff categories, gross monthly salary of the personnel involved in the immunization program at the National Level, regional and district levels was given by the NCDC economist.

The number of doctors and nurses at the primary health care level was calculated as following: Number of immunization points was calculated and it was assumed that one doctor and one nurse work at one immunization point.

The percentage of the time spent on immunization activities for the personnel is diverse and depends on the position they occupy.

The routine immunization delivery in Georgia currently is based on fixed site strategy, no outreach activities are provided by the personnel.

Supervision activities are conducted by the personnel at the national, regional and district levels; per-diem per supervision visit is 15 GEL that is regulated by the Georgian regulation.

5.2.5. Vehicles and transport cost

Table 3.1 Average prices and utilization of vehicles.

The information regarding to the vehicles was provided by the NCDC.

Information of the types (categories) of vehicles used by the immunization program, average unit price including all taxes for new vehicles in 2010, average number of kilometers traveled per year, average fuel consumption per 100 km for vehicles were entered in the table. Prices of the vehicles entered into the tool are assumed as of new vehicles, although majority of them were purchased during previous years.

Table 3.3 Other transport needs not elsewhere covered

The total amount of other transport costs including the transportation of vaccines and safe injection supply from the Central level to the regional level and from the regional to the rayon level and transport maintenance cost are covered from the Government budget.

5.2.6. Cold chain equipment

Information on the types of the cold chain equipment, average unit prices for each type of cold chain equipment listed in the table was given by the NCDC.

The average useful life year of cold chain equipment was defined as 10 years (to avoid automatic generation of resource requirements by the tool that does not correspond to the needs of the country).

5.2.7. Program Activities, Other Recurrent Costs and Surveillance

Table 6.0 Total Spending and Future Needs for Program Activities

These elements of the program are financed mainly by external donors (UNICEF, WHO) while Government's contribution is minimal. All donors and government expenditures were summarized and the total amount of expenditures was entered in the respective cells.

Budget for future training needs was provided by the NCDC. Four different kinds of trainings are planned for the projection period: refreshing trainings about immunization activities in risk-areas, trainings in AEFI management, and trainings in AFP surveillance and surveillance of Measles and Rubella. Costs related to the trainings on surveillance were included in the "surveillance".

5.2.8. Other Equipment Needs and Capital costs

Table 7.1 Average Prices of Other Equipment Needs

Information on the total number, types and average prices including all taxes of other equipment needs was taken from the NCDC.

5.2.9. Building and Building Overhead

Information on the total number and type of building by administrative levels was provided by the NCDC. For estimating the value of buildings cost of the construction of a similar new building was used. Prices of buildings entered into the tool are assumed as new building price. Allocation of space devoted to immunization activities served as a base for the calculation of the buildings' capital costs. For all levels cost of entire building was calculated and the percentage of the space used for immunization was estimated and entered.

5.2.10. Past Costs by categories

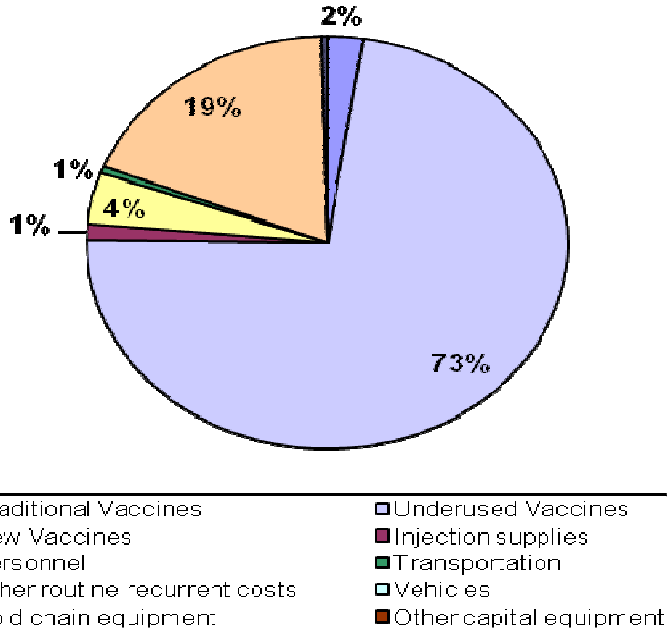
The total cost of the National Immunization Program in 2010 was $5,410 million including shared costs that comprising 32% (Figure 4 below) of total immunization cost and consisting of shared personnel, transportation and building maintenance and overhead costs. Cost of polio campaign conducted in 2010 is equal to $41,8 thousand.

Figure 4: Baseline indicators (including shared costs)

Baseline Indicators	2010
Total Immunization Expenditures	$3 673 548
Campaigns	$41 838
Routine Immunization only	$3 631 710
per capita	$0,8
per DTP3 child	$66,1
% Vaccines and supplies	76,5%
% Government funding	74,2%
% Total health expenditures	0,3%
% Gov. health expenditures	1,4%
% GDP	0,03%
Total Shared Costs	$1 736 332
% Shared health systems cost	32%
TOTAL	$5 409 880

The breakdown of the total immunization expenditures, which equals to $3,673,548 excluding shared costs, is shown in Figure 5 below.

Figure 5: Structure of the NIP costs – only routine immunization (2010)



Vaccines' share in the structure of the immunization specific costs were 75%; "other recurrent costs"were the second largest (19%) followed by "personnel" - 4%, and "transportation" and injection supplies 1%-1% accordingly.

5.3. Detailed information on program financing

5.3.1. Financing sheet

Distribution of the national and sub-national governments' funds on a) personnel, (salaries of shared personnel) b) cold chain maintenance and overhead, c) building overheads is base on the following: proportion of national and sub-national costs from the total on above mentioned items was calculated (calculation sheet was used); the same ratio was used for estimating national and sub-national government financing.

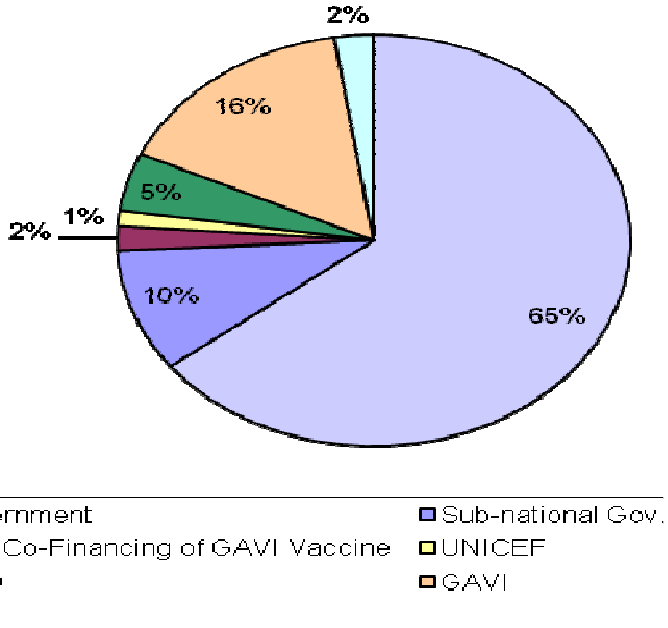
For 2010 data for UNICEF funds distribution was submitted by UNICEF.

Data about the WHO secure and probable financing was provided by the national technical officer VPI/MAL WHO CO GEO.

5.3.2. Past Financing

The main player in the immunization program financing was the Government; The National Government rendered 67% of overall financing and share of the sub-National Government was 10%; the rest came from: GAVI (16 %), WHO (5%), VRF(2%) and UNICEF 1% as shown in Figure 6below

Figure 6: Structure of financing in 2010 (baseline financing profile – routine only)



In 2010 the National Immunization program in Georgia was financed mainly by the Government.

GAVI supported procurement of Pentavalent vaccine

The Vishnevskaya-Rostropovich Foundation (VRF) supported procurement of Immunoglobulin.

The UNICEF provided financial support for the Community mobilization activities and vaccines for polio campaign.

The WHO provided technical assistance and financial support for diseases surveillance, program management, short-term trainings and covered operational cost for polio campaign.

5.4. Future Resource requirements, financing and funding gap

In the baseline scenario the program only sustains current activities and does not imply any changes in the immunization calendar.

5.4.1. Future resource requirements

Estimated total resource requirement for 2012-2016 is $ 25,43 million as shown in Figure 7 below.

Figure 7: Future resource requirements by program components (US$)

Program components	2012	2013	2014	2015	2016	Total	%
Vaccine Supply and Logistics	$2 321 839	$2 408 115	$2 258 553	$2 248 436	$2 299 902	$11 536 845	**45,4**
Service Delivery	$175 654	$186 193	$197 365	$209 207	$221 759	$990 177	**3,9**
Advocacy and Communication	$10 200	$10 404	$10 612	$10 824	$11 041	$53 081	**0,2**
Monitoring and Disease Surveillance	$102 000	$104 040	$106 121	$108 243	$110 408	$530 812	**2,1**
Program Management	$373 579	$381 050	$388 671	$396 445	$404 374	$1 944 119	**7,6**
Supplemental Immunization Activities	0	0	0	0	0	0	
Shared Health Systems Costs	$1 840 512	$1 950 943	$2 067 999	$2 192 079	$2 323 604	$10 375 137	**40,8**
Total	**$4 823 784**	**$5 040 745**	**$5 029 322**	**$5 165 234**	**$5 371 087**	**$25 430 171**	

"Vaccine supply and logistics" is the most important cost of the program (45.4%), the second largest component is "Shared Health Systems costs" (40.8%) and together both components constitute 86% of the total resource requirement, "program management" (7.6%), "Service delivery" (3.9%) and monitoring and disease surveillance (2.1%)

Figure 8: Projection of Future Resource Requirements (baseline scenario)

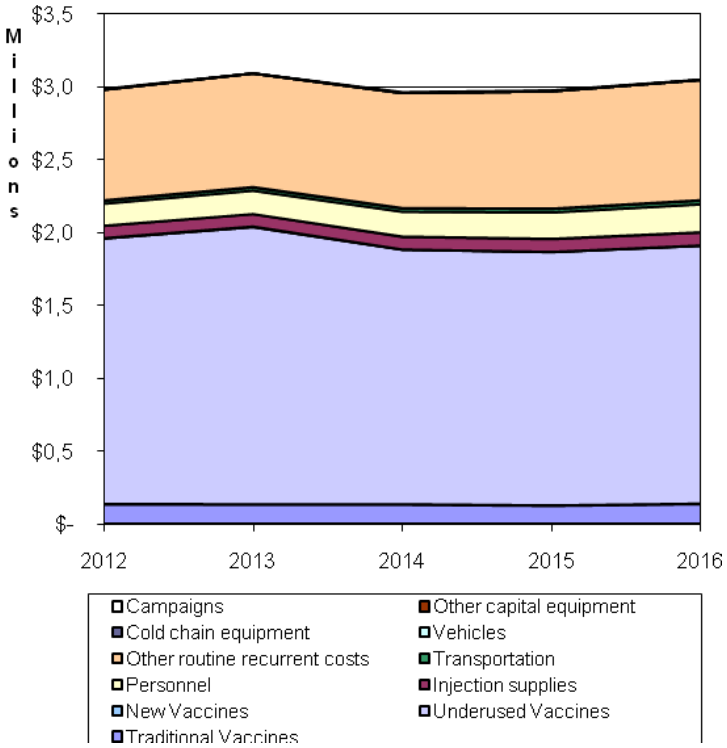


Figure 9 presents donors' commitments on secure and probable financing in 2012-2016.

It is important to mention that among donors secure funds are committed only by the GAVI vaccine funds for procurement DTP-Hib-Hep B vaccine for 2012-2015 years, no secure funds are committed by other donors for the entire projection period.

Figure 9: Future secure and Probable Financing (US$)

	2012	2013	2014	2015	2016	Total
Secure						
UNICEF						
WHO						
CAVI Fund	$454 455	$344 521	$203 099	$83 342		$1 085 416
Probable						
UNICEF						
WHO	$105,000	$105,000	$105,000	$105,000	$105,000	$525,000
GAVI Fund						

The government is supposed to provide about 81 % of secure financing. The donor secure and probable financing is estimated to be $1.610 million in total for entire projection period.

When shared costs and financing are not considered, the financing gap as percent of total recourse requirement is 11 % with secure financing; no gaps exist with secure and probable financing as shown in Figure 10below.

Figure 10: Funding gaps by type and source of financing and years (without shared cost and financing), US$ thousands

	2012	2013	2014	2015	2016	Total
Total resource requirement	2, 983, 272	3, 089, 802	2, 961, 322	2, 973, 155	3, 047, 483	15, 055, 035
Total Secured Financing	2, 655, 403	2, 755, 376	2, 620, 208	2, 625, 218	2, 692, 588	13, 348, 793
Government	2, 200, 948	2, 410, 855	2, 417, 109	2, 541, 876	2, 692, 588	12, 263, 376
Others	454, 455	344, 521	203, 099	83, 342	-	1, 085, 416
Funding gap	327, 869	334, 426	341, 115	347, 937	354, 896	1, 706, 242
	10,99%	10,82%	11,52%	11,70%	11,6%	11,33%
Total Secured + Probable Financing	2, 983, 272	3, 089, 802	2, 961, 322	2, 973, 155	3, 047, 483	15, 055, 035
Government	2, 423, 817	2, 640, 282	2, 653, 223	2, 784, 813	2, 942, 483	13, 444, 619
Others	559, 455	449, 521	308, 099	188, 342	105, 000	1, 610, 416
Funding gap	-	-	-	-	-	-
	0%	0%	0%	0%	0%	0%

Figure 11: Future Secure Financing and Gaps

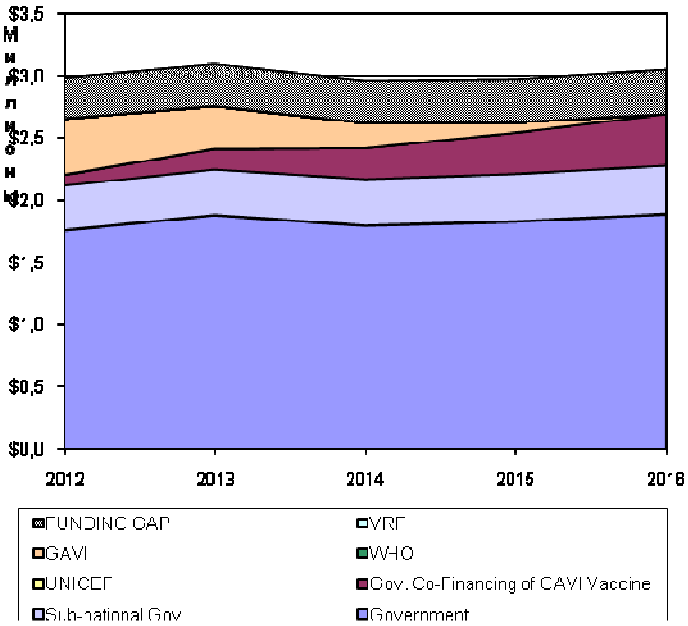
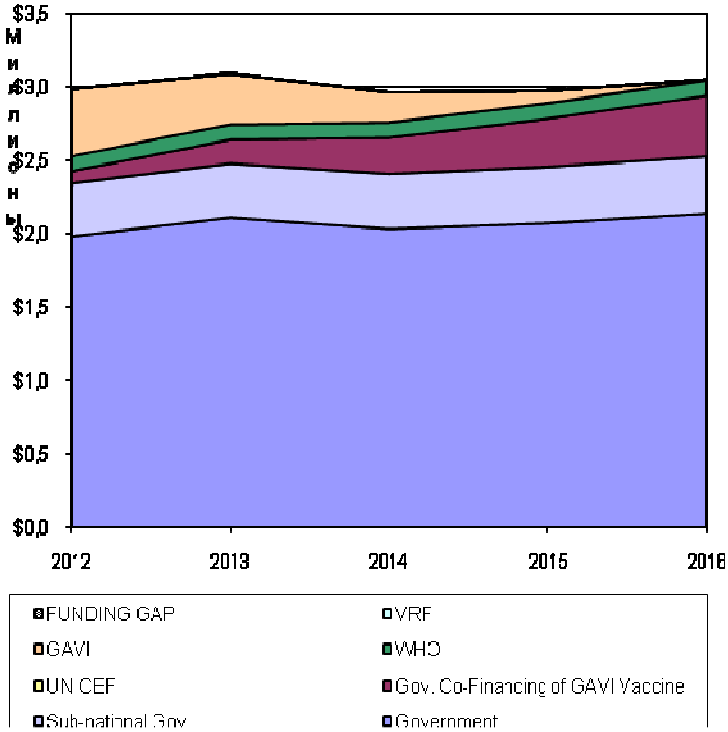


Figure 12: Future Secure + Probable Financing and Gaps



When shared costs and financing is considered the funding gap as a percent of total resource requirement decreases to 6.7 % with secure financing. (Figure 13 below).

Figure 13: Funding gaps by type and source of financing and years (*including* shared cost and financing) in thousands US$

	2012	2013	2014	2015	2016	Total
Total resource requirement	4, 823, 784	5, 040, 745	5, 029, 322	5, 165, 234	5, 371, 087	25, 430, 171
Total Secured Financing	4, 495, 915	4, 706, 319	4, 688, 207	4, 817, 297	5, 016, 191	23, 723, 929
Government	4, 041, 460	4, 361, 798	4, 485, 108	4, 733, 955	5, 016, 191	22, 638, 513
Others	454, 455	344, 521	203, 099	83, 342	-	1, 085, 416
Funding gap	**327, 869**	**334, 426**	**341, 115**	**347, 937**	**354, 896**	**1, 706, 242**
	6,80%	**6,63%**	**6,78%**	**6,74%**	**6,6%**	**6,71%**
Total Secured and Probable Financing	4, 823, 784	5, 040, 745	5, 029, 322	5, 165, 234	5, 371, 087	25, 430, 171
Government	4, 264, 329	4, 591, 224	4, 721, 223	4, 976, 892	5, 266, 087	23, 819, 755
Others	559, 455	449, 521	308, 099	188, 342	105, 000	1, 610, 416
Funding gap	-	-	-	-	-	-
	0%	**0%**	**0%**	**0%**	**0%**	**0%**

Figure 14 below describes the financing gaps (with secure financing) in terms of immunization program components for each year.

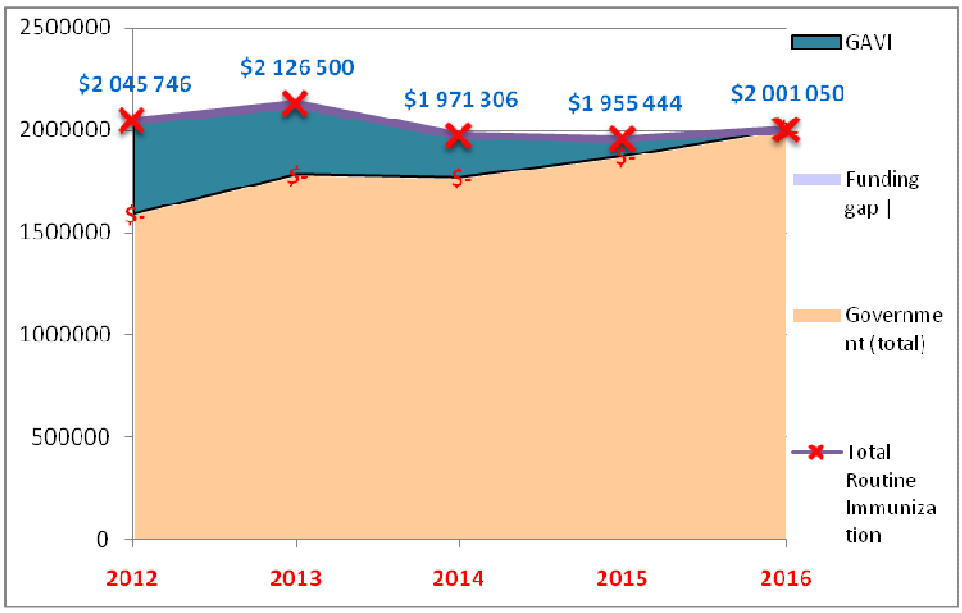
The analyses of the financing gap structure for the entire projection period with secure financing shows that existing gap (in total $ 1,706 million) is constituted by" activities and other recurrent cost" that includes costs related to the planned trainings for future 5 year. If the government does not allocate funds for these activities country will not be able to carry out trainings for medical personnel.

Figure 14: Composition of funding gaps (with secure financing)

Composition of the funding gap	2012	2013	2014	2015	2016	Total
Vaccines and injection equipment		$0				$0
Personnel						
Transport						
Activities and other recurrent costs	$327 869	$334 426	$341 115	$347 937	$354 896	**$1 706 242**
Logistics (Vehicles, cold chain and other equipment)						
Campaigns						
Total Funding Gap	**$327 869**	**$334 426**	**$341 115**	**$347 937**	**$354 896**	**$1 706 242**

The main finding of the costing exercise is that the funding gap does not exist for vaccines and injection supplies and the overall sustainability of the program is not under the risk. (Figure 15 below)

Figure 15: Funding gap for the vaccines and injection supplies (baseline scenario)



5.5. Implication of program strategies on future resource requirements

The NIP program strategies imply possibility of introduction of 2 different calendars that produces 3 scenarios in total (including the basic scenario) assuming that alternative calendars are introduced in 2012 (if introduced at all).

Each scenarios is described in detail in relevant sub-sections below, however below illustrates main characteristics (differences) between them. Year next to the vaccine indicates timing of its introduction.

Figure 16: Comparison of scenarios by calendar (vaccines and numbeer of doses)

Vaccines	Scenarios /Calendars		
	Basic	**A**	**B**
BCG	1	1	1
Hep B	1	1	1
DPT-HepB-Hib	3	3	3
OPV	5	5	5
DT	1	1	1
Td	1	1	1

MMR	2	2	2
Immunoglobulin	1	1	1
Rota (2012)		2	2
PCV (2013)			3

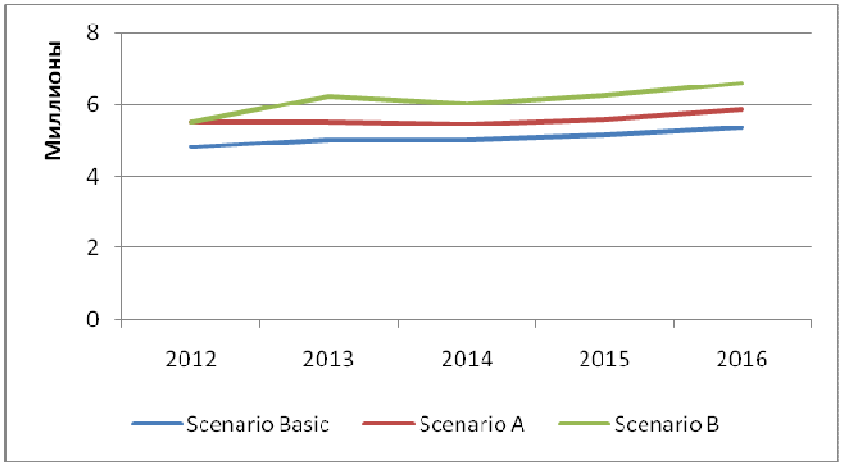
Implications of the program strategies on future resource requirements are summarized in Figure 17 and Figure 18 below.

Figure 17: Future resource requirements of the National Immunization Program by scenarios and years (in US$)

	2012	2013	2014	2015	2016	Total
Scenario Basic	4,823,784	5,040,745	5,029,322	5,165,234	5,371,087	**25,430,171**
Scenario A	5,525,341	5,525,937	5,472,700	5,584,030	5,846,282	28,747,878
Scenario B	5,525,341	6,232,653	6,034,744	6,279,553	6,613,380	**30,685,671**

Future resource requirements vary across alternative scenarios from $28.7 million (scenario A) to as $30.68 million (scenario B).

Figure 18: Comparison of total resource requirements across scenarios by years (in US$)

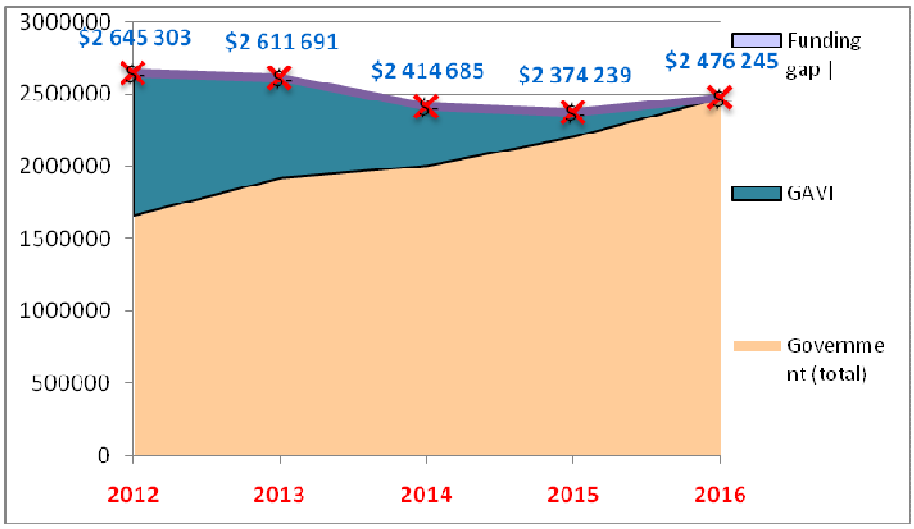


It is noteworthy that total resource requirements for entire projection period increases by 3 millions in case of Scenario A and by 5 millions for Scenario B compared to the Basic Scenario

5.5.1. Alternative Scenario A

The alternative scenario A assumes that the country will introduce Rota vaccine in 2012. In such case the total resource requirements (for vaccines and injection supplies) for entire projection period increases by $2.4 million, but the government with its committed budget and GAVI co-financing level will be able to cover additional required resources (Figure 19 below).

Figure 19: Funding gap for the vaccines and injection supplies (Alternative scenario A)

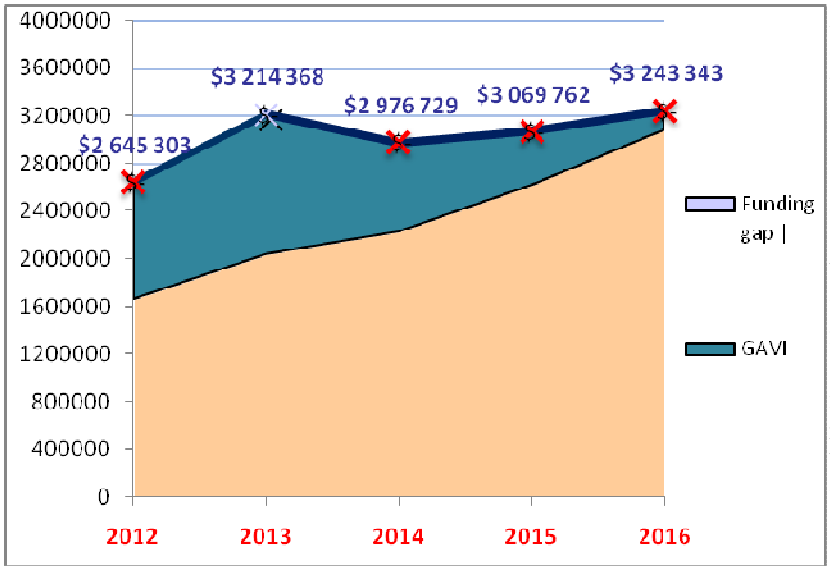


It should be highlighted that according to the assessment/calculation of current cold chain capacity, **the existing capacity of the cold chain equipment is sufficient and introduction of new vaccines does not require additional number of cold chains**, therefore cost related to the introduction of new vaccines constituted by the vaccines and injection supplies costs and costs related to the social mobilization and trainings of health care providers.

5.5.2. Alternative Scenario B

The alternative scenario B assumes that in addition to scenario A a new PCV vaccine will be introduced in the country in 2013.

Figure 20: Projection of Future Resource Requirements (Alternative scenario B)



Analysis shows that despite that introduction of the PCV increases the expenditure burden on NIP (vaccines and injection supplies) by $2.6 million compare with the alternative scenario A and by $5 million compare with baseline scenario, the funding gap for vaccines and injection supplies does not exist and all required resources will be covered by the government together with the GAVI financial support (Figure 20 above).

If only vaccine and injection equipment resource requirements are taken into account, the comparison of resource requirements and funding gaps of these three scenarios can be summarized as follows

Figure 21: Summary of the comparison of all scenarios (in thousands US$)

Scenarios	Resource requirements	Government budget	GAVI	Funding gap	
Basic Scenario	10,100,045	9,014,629	1,085,416	0	0%

Scenarios	Resource requirements	Government budget	GAVI	Funding gap	
Scenario A	12,522,164	10,275,968	2,246,196	0	0%
Scenario B	15,149, 505	11,652,313	3,497,192	0	0%

6. FINANCIAL SUSTAINABILITY

6.1. Review of major findings

6.1.1. Basic scenario

The costing exercise shows that immunization is an inexpensive program that only costs around 70 cents in per capita terms (including vaccines, injections, and operational costs).

If the government fully finances the immunization program (assuming no donor support) the total cost of the program will only represent approximately 0.5-0.9% of the government health budget and 0.1-0.2% of total health expenditures as shown in Figure 22 below.

Figure 22: Sustainability Analysis (basic scenario)

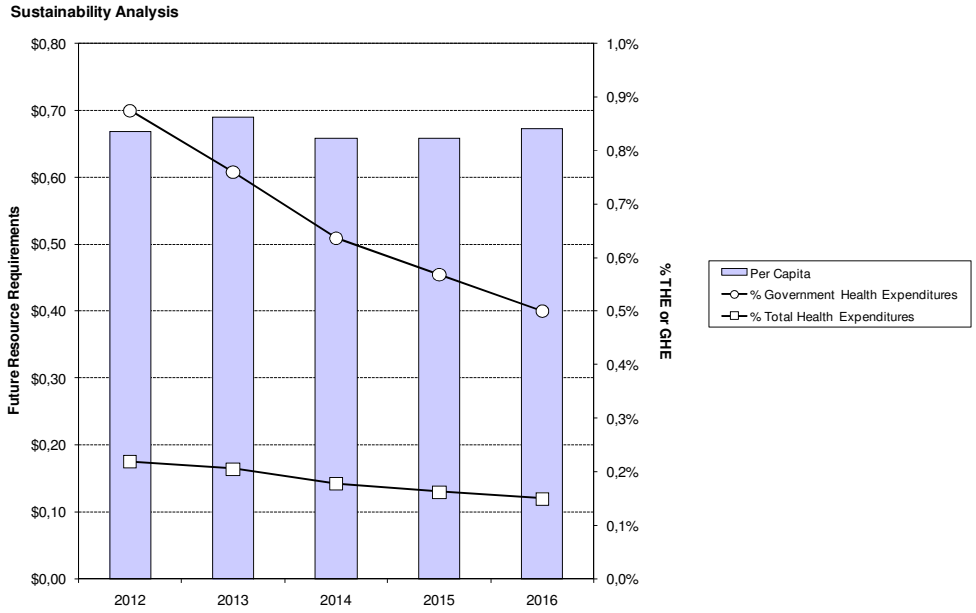


Figure 23below presents some macroeconomic and sustainability indicators regarding the financial requirements of the immunization program.

Figure 23: Macroeconomic and Sustainability indicators without shared costs (Basic Scenario)

Macroeconomic and Sustainability Indicators	2012	2013	2014	2015	2016
% Total Health Expenditures					
Resource Requirements for Immunization					
Routine and Campaigns	0,2%	0,2%	0,2%	0,2%	0,2%
Routine Only	0,2%	0,2%	0,2%	0,2%	0,2%
Funding Gap					
With Secure Funds Only	0%	0%	0%	0%	0%
With Secure and Probable Funds	0%		0%		
% Government Health Expenditures					
Resource Requirements for Immunization					
Routine and Campaigns	0,9%	0,8%	0,6%	0,6%	0,5%

Macroeconomic and Sustainability Indicators	2012	2013	2014	2015	2016
Routine Only	0,9%	0,8%	0,6%	0,6%	0,5%
Funding Gap					
With Secure Funds Only	0,1%	0,1%	0,1%	0,1%	0,1%
With Secure and Probable Funds	0%		0%		
% GDP					
Resource Requirements for Immunization					
Routine and Campaigns	0,02%	0,02%	0,01%	0,01%	0,01%
Routine Only	0,02%	0,02%	0,01%	0,01%	0,01%
Per Capita					
Resource Requirements for Immunization					
Routine and Campaigns	$0,67	$0,69	$0,66	$0,66	$0,67
Routine Only	$0,67	$0,69	$0,66	$0,66	$0,67

It is obvious that if the above-mentioned macroeconomic situation does not deteriorate there is no threat to the financial sustainability of the NIP.

6.1.2. Financial sustainability strategy

All scenarios are financially sustainable if country receives financial support for the introduction of new vaccines (Rota and PCV).

Despite the total resource requirements for entire projection period increases by 3 millions in case of Scenario A and by 5 millions for Scenario B compared to the Basic Scenario, the government with its committed budget and GAVI co-financing level will be able to cover additional required resources.