# Assessment of Vaccine Preventable Disease Surveillance Systems in Georgia

*July 2002*

A joint initiative of:

Ministry of Labor, Health and Social Affairs of Georgia,
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National Center for Disease Control,
Center for Medical Statistics and Information

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Ministry of Labor, Health and Social Affairs
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Curatio International Foundation

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***Mission***

*Partners for Health Reformplus is USAID's flagship project for health policy and health system strengthening in developing and transitional countries. The five-year project (2000-2005) builds on the predecessor Partnerships for Health Reform Project, continuing PHR's focus on health policy, financing, and organization, with new emphasis on community participation, infectious disease surveillance, and information systems that support the management and delivery of appropriate health services. PHRplus will focus on the following results:*

- *Implementation of appropriate health system reform.*
- *Generation of new financing for health care, as well as more effective use of existing funds.*
- *Design and implementation of health information systems for disease surveillance.*
- *Delivery of quality services by health workers.*
- *Availability and appropriate use of health commodities.*

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# Abstract

Surveillance of vaccine preventable diseases (VPDs) is an important part of estimating burden of diseases, identifying pockets of susceptibility, deciding on appropriate measures to prevent and control outbreaks, and formulating policy recommendations to reduce disease burden. A comprehensive understanding of the current Georgian VPD surveillance system is needed in order to provide specific recommendations for system strengthening, on which a plan outlining specific activities for future cooperation can be built.

This comprehensive assessment of the Georgian VPD surveillance system identifies major problems in the Georgian health system that limit the ability of current surveillance efforts to provide quality information to guide public health actions. Key findings include: the structural and organizational linkages and relationships between institutions responsible for VPD surveillance are not well established; a significant number of VPD cases are not recorded by the current system and are treated outside the formal system; VPD surveillance suffers from a lack of clear and recognized standards for case detection, investigation, and control; lack of proper specimen handling and transportation capacity compromises the laboratory confirmation; the system lacks sufficient resources to fully implement VPD surveillance. Strategic directions for VPD surveillance strengthening to counter these problems are also presented.

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# Acronyms

| | |
|---|---|
| **AD** | Auto-Disable |
| **AFP** | Acute Flaccid Paralysis |
| **ARI** | Acute Respiratory Infection |
| **CIF** | Curatio International Foundation |
| **CMSI** | Center for Medical Statistics and Information |
| **CPH** | Center of Public Health |
| **CSR** | Communicable Disease Surveillance Program |
| **DD** | Diarrheal Disease |
| **DPH** | Department of Public Health |
| **DPT** | Diphtheria, Pertussis and Tetanus vaccine |
| **EPI** | Expanded Program for Immunization |
| **FAP** | Feldsher's Point |
| **GDP** | Gross Domestic Product |
| **HBV** | Hepatitis B Virus |
| **HIS** | Health Information System |
| **ICC** | Interagency Coordinating Committee |
| **ICD** | International Classification of Diseases |
| **IDS** | Infectious Disease Surveillance |
| **IDSR** | Infectious Disease Surveillance and Response |
| **MECACAR** | Mediterranean, Caucasus, and Central Asian Republics |
| **MIS** | Management Information System |
| **MoLHSA** | Ministry of Labor, Health and Social Affairs |
| **NCDC** | National Center for Disease Control |
| **PAU** | Polyclinic-Ambulatory Unit |
| **PHR*plus*** | Partners for Health Reform*plus* project (USA) |
| **RHD** | Regional Health Departments |
| **SCD** | Standard Case Definition |
| **SMIC** | State Medical Insurance Company |
| **STD** | Sexually Transmitted Diseases |
| **TB** | Tuberculosis |
| **UNICEF** | United Nations Children's Fund |
| **USAID** | United States Agency for International Development |
| **VE** | Vaccine Efficacy |
| **VPD** | Vaccine Preventable Disease |
| **WHO** | World Health Organization |

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# Executive Summary

With the support of USAID/Caucasus Mission, the Partners for Health Reform*plus* (PHR*plus*) project and the government of Georgia have begun a three-year collaboration that focuses on strengthening two major components of the Health Information System (HIS): the immunization management information system (MIS) and surveillance of vaccine preventable diseases (VPDs). It is expected that these changes and improvements to the immunization MIS and VPD surveillance system will have a generalizable, positive effect on management of all services and surveillance efforts.

In 2002, the work began on implementation of a model for an improved immunization MIS in the Kacheti region, where the model is to be tested and refined before being implemented nationally. A multilevel, multidisciplinary working group representing all major stakeholders was assembled to work on the detailed, technical aspects of the MIS improvement model. The objectives of the working group were to review the existing immunization MIS, determine needs and priorities, and recommend necessary changes and improvements. As a result, the working group and Curatio International Foundation, in cooperation with PHR*plus* advisors, developed all of the necessary materials, methods, and working and support instruments, and assisted with training health workers in the application of the new tools and procedures for information-based management. In May–June 2002, the reforms were officially introduced to the entire Kacheti region.

In preparation for the addition of the second program component, improved VPD surveillance (scheduled for 2003), the partners decided to carry out a comprehensive assessment of the VPD surveillance system to provide specific recommendations to strengthen the system and build an action plan outlining specific activities for future cooperation.

A multi-agency team consisting of local and international specialists conducted the assessment from June 24 through July 11, 2002, with the purpose of identifying ways to improve the VPD surveillance system in Georgia.

While many of the issues assessed were pertinent to the entire infectious disease surveillance and response (IDSR) system in Georgia, the team agreed that the specific focus of this assessment would be on the following eight VPDs, many of which are targeted for elimination:

- Diphtheria
- Mumps
- Tetanus
- Poliomyelitis
- Rubella
- Hepatitis B
- Measles
- Pertussis

Other priority infectious diseases in Georgia include waterborne infections, which reflect the challenge to ensure regular water supply in all parts of the country. However, their assessment was beyond the scope of this mission.

The main activities of the assessment were the following:

- Describe and document the existing VPD surveillance system
- Collect and analyze available epidemiologic data related to VPDs
- Map the current system in order to identify desired performance criteria for all functions of a surveillance system
- Identify the strengths and weaknesses of the existing system
- Identify and analyze the enabling and constraining factors for effective VPD surveillance and response
- Develop recommendations for areas for improvement of VPD surveillance system performance
- Identify specific activities the project will address that may be capable of improving VPD surveillance system performance

The assessment recognizes that Georgia already has an effective surveillance system in place for acute flaccid paralysis and diphtheria. With additional resources and technical collaboration, it is clear that this effective model can be expanded to include other VPDs. Findings from this assessment will, therefore, play a key role in identifying the nature of those resources.

## Key Findings

The assessment resulted in the following key findings:

- The structural and organizational linkages and relationships between institutions responsible for VPD surveillance are not well established and may impede efficient and effective system operation. Functions and responsibilities in some facilities are not clearly defined.
- The current system does not record or reflect a significant number of VPD cases. Reasons for this are that some cases are not treated at all, some are treated outside the formal system, and some health facilities are inconsistent or incomplete in the reporting of cases.
- Many health facilities do not have complete or accurate information regarding their responsibilities and required actions for VPD surveillance.
- The system lacks sufficient resources to fully implement VPD surveillance (especially for supervision, outbreak investigation, and epidemic preparedness).
- Private facilities, private laboratories, and some facility-based laboratories do not report to the surveillance system.

- VPD surveillance suffers from a lack of clear and recognized standard case definitions for many of the diseases.
- Laboratory capacity at the peripheral level is not adequate for case and outbreak confirmation and investigation, at times resulting in the lack of proper specimen handling and transportation capacity, which compromises the accuracy of laboratory results.
- Many health facilities lack the proper record books and forms required by the VPD surveillance system. This leads to underreporting of cases and/or collection and reporting of incomplete data and information, making analysis difficult.
- The analytic capabilities of system participants at all levels would benefit from upgrading through training and supportive supervision.
- The current system uses forms that do not record the data necessary for complete epidemiologic analysis.
- Community health education activities regarding VPDs appear to be minimal.
- Remote health facilities lack adequate means of communication to facilitate IDSR.
- Supportive supervision methodologies and protocols and program evaluation methods are not well defined.

## Strategic Directions for VPD Surveillance Strengthening

The assessment found that VPD surveillance could be strengthened in the following ways:

1. The structural and organizational linkages and relationships between institutions responsible for VPD surveillance must be defined and the necessary administrative/legal basis established.
2. All health providers must be made aware of existing case registration and reporting requirements; all relevant Ministry of Labor, Health and Social Affairs orders should be made available at each facility.
3. VPD surveillance guidelines should be developed and, at a minimum, should include instructions (for every level of the public health system) for the following:
    - Case identification and standard definitions based on ICD-X revision
    - Type of case base data that should be collected and reported
    - Scope of data analysis
    - Data utilization for management of epidemiologic situation and disease control
    - Case/outbreak investigation and response that includes algorithm for decision making for all participating bodies, with brief description of their competences
    - Suggested feedback mechanisms
    - Supervision of surveillance activities

4. Health workers should be provided with the adequate training in epidemiology and the application and implementation of all VPD surveillance guidelines, procedures, and actions.

5. Data collection and reporting and analysis instruments should be modified or developed in accordance with the surveillance guidelines and analytic needs, and provided in sufficient quantities to all facilities involved. Personnel must be instructed and supervised in their proper and timely use.

6. Regulations requiring private health facilities and laboratories to inform centers of public health (CPHs) about each case of infectious disease should be enforced. Personnel at these facilities must be informed of the existence of such regulations.

Assessment findings suggested the following would help increase the case detection rate:

- State programs should support provision of free diagnosis and treatment for all priority infectious diseases including VPDs.

- Health education efforts (particularly in rural areas) should be intensified with the goal of increasing the population's utilization of the formal health system for treatment of infectious diseases.

- The State Epidemiologic Surveillance program should establish incentives for all health care providers (public and private) to report each case of infectious disease. Further incentives should be established to encourage the timely and complete investigation of cases by relevant institutions as outlined in VPD surveillance guidelines and protocols.

The following activities would improve laboratory case and outbreak confirmation and investigation:

- Improve and redefine the institutional and organizational framework governing the services, roles, responsibilities, and relationships between laboratories and other health institutions participating in VPD surveillance

- Develop Georgian-specific guidelines, protocols, and procedures (including sampling procedures, bio-safety procedures, and transportation of samples and analysis) for use in laboratories as part of VPD surveillance and train relevant personnel in their application

- Strengthen the capacity of the National Reference Laboratory to provide technical support, training, guidance, and quality assurance to all laboratories within the country

The working group created a detailed plan of action during meetings held in the summer and fall of 2002, and project partners are currently implementing these steps.

# 1. Introduction

With the support of the USAID/Caucasus Mission, the Partners for Health Reform*plus* (PHR*plus*) project and the government of Georgia have begun a three-year collaboration that focuses on strengthening two major components of the Health Information System (HIS): the immunization management information system (MIS) and surveillance of vaccine preventable diseases (VPD). It is expected that these changes and improvements to the immunization MIS and VPD surveillance system will have a generalizable, positive effect on the management of all services and surveillance efforts.

This collaboration aims at enabling the Ministry of Labor, Health and Social Affairs (MoLHSA) and public health workers to build an information system that will allow a more efficient use of the limited resources available to the national disease prevention and control program. This will be accomplished through the following:

- Quickly and efficiently detect, confirm, and respond to cases and outbreaks of VPD
- Significantly increase the number of fully and correctly immunized children
- Rationalize the use of program resources to reduce operational costs

Strategic planning for this HIS improvement initiative will be coordinated with principal stakeholders from the country's Interagency Coordinating Committee (ICC) for Expanded Program for Immunization (EPI). Participating ICC members are from the MoLHSA, the Department of Public Health (DPH), the National Center for Disease Control (NCDC), the National Center for Medical Statistics and Information (CMSI), and several key international donors: United States Agency for International Development (USAID), United Nations Children's Fund (UNICEF), and the World Health Organization (WHO). A Georgian nongovernmental organization, Curatio International Foundation (CIF), will implement the initiative under the terms of a subcontract to PHR*plus*.

In 2002, the work began on implementation of a model for an improved immunization MIS in the Kacheti region, where the model is to be tested and refined before being implemented nationally. In January 2002, a multilevel, multidisciplinary working group representing all major stakeholders was assembled to work on the detailed, technical aspects of the MIS improvement model and was assigned the following objectives:

- Review the existing immunization management information system
- Determine needs and priorities
- Recommend necessary changes and improvements

The working group and CIF, in cooperation with PHR*plus* advisors, developed all of the necessary materials, methods, and working and support instruments, and they assisted with the training of health workers in the application of the new tools and procedures for information-based

management. In May–June 2002, the reforms were officially introduced to the entire Kacheti region. The NCDC has already begun to use the new reporting forms on a national basis.

In preparation for the addition of the second program component, improved VPD surveillance (scheduled for 2003), the partners decided to carry out a comprehensive assessment of the VPD surveillance system in June–July 2002, to provide specific recommendations to strengthen the VPD surveillance system and build an action plan outlining specific activities for future cooperation.

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# 2. Assessment Objectives and Methodology

A multi-agency team consisting of local and international specialists conducted the assessment from June 24 through July 11, 2002, with the purpose of identifying ways to improve the VPD surveillance system in Georgia. Several weeks prior to the field assessment and data collection phase, Dr. Zheteyeva of PHR*plus*, together with experts from CIF, NCDC, and CMSI, collected preliminary background data. The PHR*plus* team drafted the assessment instruments, which were later reviewed and finalized with input from CIF and local team members.

The workplans were built on the basis of the agreement reached with the Georgian stakeholders on the objectives, scale, and outcome of the assessment. While many of the issues assessed were pertinent to the entire infectious disease surveillance and response (IDSR) system in Georgia, the team agreed that the specific focus of this assessment would be on the following eight VPDs, many of which are targeted for elimination:

- Diphtheria
- Poliomyelitis
- Measles
- Mumps
- Rubella
- Pertussis
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- Hepatitis B

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The main activities of the assessment were the following:

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- Map the current system in order to identify desired performance criteria for all functions of a surveillance system
- Identify the strengths and weaknesses of the existing system
- Identify and analyze the enabling and constraining factors for effective VPD surveillance and response
- Develop recommendations for areas for improvement of VPD surveillance system performance
- Identify specific activities capable of improving VPD surveillance system performance that the project will address

The team selected sites/regions to be visited (Tbilisi, Imereti, Adjara, Kvemo Kartli) in consultation with NCDC and CIF. Sites chosen reflected the time and number of team members available and were believed to be indicative of the entire system, including those areas where disease surveillance was strongest, weakest, and most challenging, such as areas that have a high proportion of internally displaced persons or are mountainous.

At each site/region visited, the team examined all three levels of the system (central, intermediate, and local) by dividing into three subteams and visiting a central surveillance body or institution, health administration, major hospitals, diagnostic laboratories, and health centers/polyclinic ambulatory units (including private facilities). A list of the sites and facilities visited during the assessment can be found in Annex A.

At each site, the assessment methodology called for interviews and focus group discussions with health professionals as guided by the data collection instruments (samples of assessment instruments can be found in Annex B). In addition, short workshops were held to map the current IDSR and, specifically, VPD surveillance process at each level. The projected outcome of the workshops was that the team would better understand the responsibilities of health professionals, reach consensus on the "ideal" system performance criteria, determine what works and what does not, and identify enabling and constraining factors to IDSR at a given level.

Because of time constraints, the team could not conduct in-depth research of community behaviors and attitudes nor investigate factors that currently discourage a high percentage of infectious disease patients from self-reporting to health facilities (and therefore not be "captured" by the existing surveillance system). In 2000, CIF carried out a population-based survey in three regions of west Georgia. The findings revealed that only 30.8 percent of the population sought treatment during illness. Economic reasons and the community's lack of knowledge concerning health issues are the main reasons health services are underutilized. Only 24 percent of children with signs of Acute Respiratory Infection (ARI) were referred for treatment. Parents mainly chose private practitioners (48 percent) for their children's treatment; in 26 percent of cases, they used ambulatories and polyclinics; and in 18 percent of cases, hospital services. The same tendency is seen in terms of diarrheal disease (DD). It should be noted that the population's knowledge concerning VPDs is unsatisfactory: only 20.7 percent knew that diphtheria was a VPD; 18.4 percent knew that measles was a VPD; 18.2 percent, tuberculosis; and 10.6 percent, tetanus.

The population's underutilization of health services greatly affects the sensitivity of the current surveillance system. To provide a more detailed analysis of this situation, project partners plan to conduct focus group discussions on this topic with community members in the pilot region of Imereti. Such discussions will be a preliminary step in the introduction of VPD surveillance improvements.

# 3. Country Profile

Georgia is one of the former republics of the Soviet Union situated in the southern Caucasus and bordered by Armenia and Turkey to the south, Azerbaijan to the east, Russia to the north, and the Black Sea to the west (see Figure 1).

**Figure 1. Map of Georgia**


In 1991, the USSR broke apart and Georgia declared its independence. Two regions, Abkhazia and South Ossetia, in disagreement with legislative and political reforms in the newly independent Georgia, declared their sovereignty. This situation escalated quickly into war and over 250,000 people fled the affected areas and reside currently in other parts of Georgia.

The last decade has been a difficult transitional period for the country, as it has been subjected to political, economic, and social transformations. Despite a visible political stabilization following parliamentary and presidential elections in 1995, and governmental commitment towards restoring the macroeconomic infrastructure, the overall situation remains volatile.

Georgia is divided into 12 administrative territories, including the capital, Tbilisi, and two autonomous republics, Abkhazia and Adjaria. Each region has its own government and is administratively independent. Approximately 56 percent of the population lives in urban areas. Tbilisi is the largest city of Georgia with an estimated population of 1.2 million.

The total population of Georgia is estimated to be 4.4[1] million people; it has shrunk considerably as a result of emigration due to armed conflicts and economic hardship, increased overall mortality, and a marked decrease in fertility rates. Based on the 1989 census, ethnic Georgians comprise 70 percent of the population; Armenians, 8.1 percent; Russians, 6.3 percent; Azeris, 5.7 percent; Ossetians, 3 percent; and Abkhzians, 1.8 percent (State Department for Statistics).[2]

The predominant religion in Georgia is orthodox Christianity, although some people adhere to Islam. Georgia's economy has traditionally revolved around tourism in the Black Sea area; cultivation of citrus fruits, tea, and grapes; mining; and output from a small industrial sector that produces wine, metals, machinery, chemicals, and textiles. In 1999, the labor force consisted of approximately 3.1 million workers with 40 percent involved in agriculture and forestry, 20 percent in industry and construction, and 40 percent in service-oriented professions.

Since the country gained independence in 1991, the living standards of the average Georgian have declined significantly. The collapse of the economy (and its slow recovery) has thrown the population into a struggle for basic subsistence needs, including food, electricity, and water. In 2000, per capita gross domestic product (GDP) ($650) remained at approximately one-third of its 1990 Soviet level. Public expenditures for health are very low (0.6 percent of GDP, 2000). According to the State Department for Statistics, the average monthly household income, including nonmonetary resources, now stands at about $80 (2000). Income distribution is very uneven: 60 percent of the population is estimated to be below the poverty line, and 6.5 percent of the population is highly marginalized with almost no income.

[1] According to the State Department for Statistics, the country's population in 2001 was 4.7 million people, and by January 1, 2002, it was 4.4 million people. Experts estimate that in 2000 the population of Georgia was 4.05 million people.

[2] According to the State Department for Statistics, in 1997, ethnic Georgians comprised 78 percent of the population of Georgia; Armenians, 5.2 percent; Azeris, 3.1 percent; and other nationalities, less than 1 percent.

# 4. Overview of Health Care System

Before the breakup of the Soviet Union, health care in Georgia was part of a highly centralized system, with Moscow regulating all financial, staffing, methodological/ technical, and other issues. This inefficient administrative system collapsed during the transition period in the early 1990s. With the restoration of political stability in 1995, the government initiated a program of extensive health system reform. The core of the reform program was decentralization and a transfer of responsibility to regional health administrations. Major changes in the public health system, health services provision, medical education and research, and the legal environment and financing of the health care system are still in various stages of definition and implementation. The health reform program also is designed to promote the transition from a system heavily invested in tertiary medicine to a system based on primary health care.

Under the new structure, the health system at the national level is directed by the MoLHSA – the result of a merger of the Ministries of Health and Social Welfare. In line with the "Strategic Plan for the Next Decade" adopted in 1999, the MoLHSA's role is shifting from one of managing health service provision to supporting preventive activities, regulating and accrediting health service providers, and planning/coordinating training and research. The reform plans and new legislation are currently developed with assistance from the MoLHSA's National Health Management Center. Central MoLHSA functions are financed by allocations from the central state budget. These allocations are very low. Issues related to the financing of specified services are delegated to the State Medical Insurance Company (SMIC), which runs the state health insurance program and is responsible for collecting mandatory premiums from the population and employers and financing a basic benefits package through contracts with health care providers.

Disease prevention and health promotion programs are among the few primary care programs that the central state budget currently finances. These programs are managed by the MoLHSA's DPH, which is responsible for analyzing and managing the epidemiological situation in the country; organizing, coordinating, and implementing public health disease prevention measures; and developing appropriate HIS. In 1995, 12 regional health departments (RHDs), one of which is the Tbilisi city health department, were established as part of the decentralization process. The RHDs report to the MoLHSA through the DPH as well as to their regional governments and administrations. They manage health programs at the local level, identifying local health needs and developing appropriate strategies to address them. Municipal health authorities oversee and direct provision of services by local hospitals, polyclinics, and primary health care facilities. Municipalities finance from their own budgets additional services not covered by the SMIC's basic package.

The decentralization process has affected health care providers and facilities that have become financially and managerially autonomous. Most providers and facilities have been transformed into limited liability companies or joint stock companies working with the MoLHSA, SMIC, and municipalities. They are responsible for implementing the state health curative and preventive programs, and curative services covered by contracts with CMSI and municipal programs. Health facilities that used to serve the Ministry of Defense, the Department of Railways, the Ministry of Internal Affairs, and Department of Board Defense were officially integrated with the national health system; however, administratively, they still function within these ministries.

Currently most health services are no longer free to the public. The central government and municipalities support provision of a limited number of services free of charge through the basic insurance packages and targeted programs. Treatment of infectious diseases falls under the state health programs covered by the SMIC. The SMIC is funded by means of obligatory insurance fees paid by employers (3 percent of wages) and employees (1 percent of wages). In addition to infectious diseases, the SMIC finances other programs such as psychiatric services, obstetric services, treatment of children under three years of age, prevention and treatment of cancer, hemodialysis, and pediatric heart surgery, among others. The ability of the SMIC to adequately fund even these programs and services is severely limited. This is due in part to the general population's low wage levels, a large percentage of the population being employed or active outside the formal sector, and a limited ability to collect the prescribed premiums.

The 1999 state health budget totaled US $27 million (slightly higher than US $5 per capita). That same year, SMIC expenditures totaled $14 million, of which the budget for treatment of infectious diseases as defined by the state program was $550,000. Clearly this results in the average citizen having a slim chance of receiving adequate services from the SMIC medical program even if he/she belongs to the very limited group that the state medical insurance covers. For example, the budget for diagnosis and treatment of infectious diseases covered by the program translates into a mere US 0.12 per capita, which clearly allows the SMIC to cover only a small part of the medical expenses. The remainder must therefore be covered by patients' formal or informal out-of-pocket payments, which helps to explain why most of the population still considers hospital treatment unaffordable. Those who cannot afford to pay do not tend to seek health care, as long as their condition is not life threatening.

Despite its clear and aggressive efforts to reform the health sector, the government has lacked sufficient resources to restore adequate delivery of health care; therefore, the health of the population has continued to deteriorate. Maternal mortality (70.0 per 100,000 live births in 1997, 68.6 in 1998, and 51.3 in 1999) and infant mortality (23.9 per 1000 live births, 21.3 in 1998, and 23.4 in 1999, according to CMSI) rates have increased dramatically since the dissolution of the Soviet Union. According to the Georgia Reproductive Health Survey, infant mortality in Georgia is 41.6 per 1000 live births. The deterioration of sanitary conditions, widespread poverty, and inefficient implementation of preventive measures have resulted in the increased incidence of infectious diseases. A diphtheria epidemic erupted in the mid-1990s and, more recently, there have been alarming increases in sexually transmitted diseases (STD) and tuberculosis (TB) (incidence >100 per 100,000 population, 1999).

**Strategic Plan for Health Sector and its Relation to VPD Surveillance**

The "Georgian National Health Policy" adopted in 1999 declares the improvement of maternal and child health and the reduction of communicable and socially dangerous diseases among the main priorities for maintaining and improving the health of the population of Georgia over the next decade. The policy views improved immunization coverage of target populations and increased effectiveness of epidemiological surveillance as important strategies to achieve these objectives. The policy links these strategies with the need to improve the Georgian HIS so that managers, stakeholders, and the public will have access to appropriate information that will allow them to make correct strategic, tactical, and operational decisions.

As shown in Table 1, the national health policy outlines strategies and targets for the reduction of VPDs through 2009.

**Table 1. National Strategies and Targets for the Reduction of VPDs, 1999-2009**

| Disease | Target | Strategies |
|---|---|---|
| Poliomyelitis | Elimination of the disease should be certified by 2003 | - 98% coverage of the eligible population with planned immunization<br>- Increase of the effectiveness of epidemiological surveillance<br>- Strengthening of laboratory services |
| Measles | Elimination by 2007 and certification of liquidation by 2010 | |
| Tetanus | Elimination of neonatal tetanus by 2005 | - Provision of relevant conditions for delivery<br>- Immunization of pregnant women if necessary |
| Diphtheria | Incidence < 0.1 per 100,000 population and no mortality by 2006 | - 95% coverage of child population by planned immunization<br>- 85% coverage of adult population by revaccination<br>- Improvement of epidemiological surveillance |
| Hepatitis B | Reduction of the number of new cases by 80% | - 95% coverage of infants by immunization<br>- Provision of safe blood and blood products<br>- Provision of safety of medical manipulations<br>- Public education about individual protection |
| Mumps, Pertussis | Incidence < 0.1 per 100,000 by 2006 | - 95% coverage of the eligible population with planned immunization<br>- Increase of the effectiveness of epidemiological surveillance<br>- Strengthening of laboratory services |
| Congenital Rubella | Incidence <0.01 per 1000 live births | - Increase the efficiency of epidemiological surveillance<br>- Begin planned immunization in 2000 |

The plan envisions that the MoLHSA will be responsible for strategic planning and program development, while the DPH and RHD will be responsible for planning and program management. NCDC, infectious disease hospitals and departments, polyclinics, research institutes, public health centers, and personnel employed at these institutions will be responsible for program implementation. The plan also outlines that the Parliament should approve financing of programs against infectious and socially dangerous diseases when adopting the budget; the Ministry of Finance should fully and timely finance these programs through budget transfers in case of incomplete funding by the SMIC; and the fiscal bodies should provide timely payment of health insurance fees.

# 5. Functioning of the Existing VPD Surveillance System

Surveillance is a critical component of national disease reduction and elimination efforts. Various sources defined it as the systematic and regular collection of information on the occurrence, distribution and trends of an event on an ongoing basis with sufficient accuracy and completeness to provide the basis for action. A well-functioning disease surveillance system provides information for planning, implementation, monitoring, and evaluation of public health programs. It includes case detection and registration, case confirmation, data reporting, data analysis, outbreak investigation, response and preparedness activities, feedback, and communication. Health authorities must also provide appropriate supervision, training, and resources for the system to operate properly.

## 5.1 Infectious Disease Surveillance System Structure in Georgia

In 1995, under the health reforms, the old Soviet style sanitation-epidemiological system was divided into two separate entities: sanitation control and epidemiological services. Epidemiologic services became the responsibility of the newly formed DPH, which was made responsible for organizing and supervising the surveillance system as well as other programs. As a part of the decentralization process, city and rayon governments established centers of public health (CPHs) to maintain control over surveillance and immunization in regions. There are 13 regional and 66 rayon CPHs. Rayon CPHs have at least one epidemiologist on staff, and regional CPHs usually have several epidemiologists.

In 1996 the government introduced a number of new health programs and established new institutions responsible for their implementation. Among those was the NCDC, organized in 1996 as a limited liability company, but a fully publicly owned institution. The NCDC was entrusted to implement the Epidemiologic Surveillance, Specially Dangerous Diseases Control, and Infectious Diseases Prevention programs. Between 1996 and 2001 the NCDC implemented this program under the programmatic guidance of the MoLHSA (reflected in its decrees) and under the financial management of the DPH. Late in 2001, as a result of a DPH tender, the NCDC was defined as a partner working on a contractual basis, and in 2002 it was delegated technical and financial manager of these specified programs. Rayon-level CPHs began signing contracts with NCDC to finance their implementation of the programs at that time. The innovative nature of this approach to funding priority public health activities through the use of contracts should be noted.

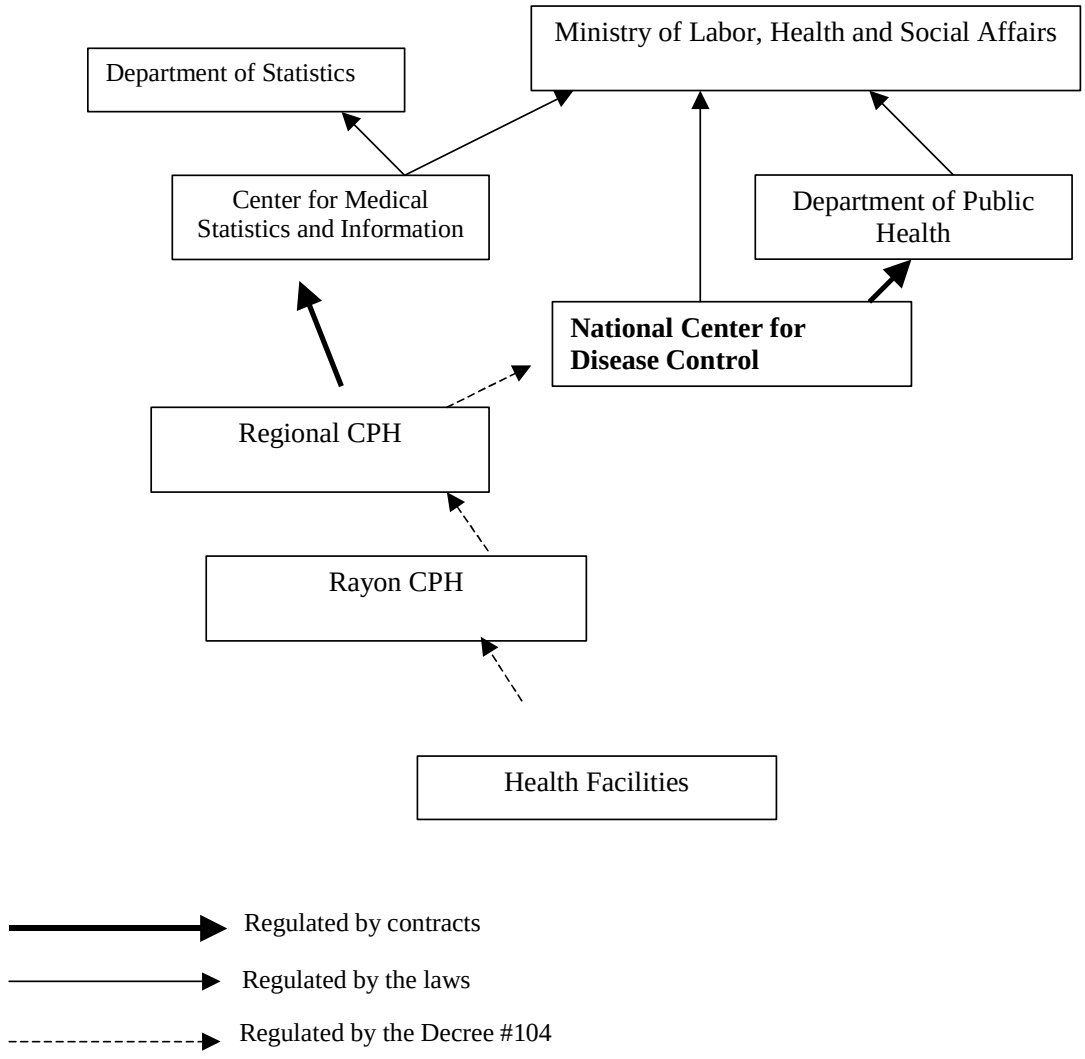
The NCDC has a number of departments, including the Department for Surveillance and Vaccine Preventable Diseases. It is responsible for the control of diphtheria, measles, mumps, pertussis, chicken pox, Meningococcal infections, hepatitis B, rubella, tetanus, poliomyelitis, and rabies. There are several epidemiologists in the department who share duties, and each epidemiologist is responsible for a certain disease or group of diseases.

CMSI, reorganized into a publicly owned limited liability company in 1996, implements the state program on statistics and collects routine information from health facilities on a monthly and

annual basis. In accordance with the law on health care and the law on statistics, the CMSI reports to both the MoLHSA and the State Department of Statistics. It employs regional CPH statisticians to submit required reports in compliance with the above-mentioned laws. The CMSI has several departments that perform data collection and processing and issue annual country health reports.

Health facilities (polyclinics, ambulatories, and hospitals) are the primary source of epidemiological data and information. Physicians who diagnose cases of infectious diseases are required to inform individuals in higher level structures. The law on health care and law on statistics regulate the reporting of statistical information. The Decree #104/n of the MoLHSA describes routine reporting and urgent notification schemes, rules, and terms of their submission (see Figure 2).

**Figure 2. Routine Reporting Channels in Epidemiological Surveillance System in Georgia**



Personnel with a wide variety of levels and skills staff the CPHs. It does not appear that there is a consistent staffing pattern for CPH facilities that has been applied nationwide. Staffing by region is shown in Table 2.

**Table 2. Staffing of CPH Epidemiological Services by Region, Georgia, 2001**

| Position | Tbilisi* | Kacheti | Imereti | Samegrelo | Shida Kartli | Kvemo Kartli | Guria | Samtskhe-Javakheti | Mtskheta-Mtianeti | Kvemo Svaneti | Poti | Tskhi-nvali | Zemo Svaneti | Railway Department | Georgia** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Director (MD) | 3 | 7 | 13 | 4 | 3 | 4 | 2 | 4 | 4 | 3 | 1 | | 1 | 1 | **50** |
| Deputy Director (MD) | 5 | 9 | 7 | 5 | 5 | 5 | 1 | | 1 | 3 | 1 | | | | **42** |
| Epidemiologist (MD) | 32 | 13 | 26 | 7 | 8 | 10 | 4 | 7 | 4 | | 5 | 1 | 1 | 4 | **122** |
| Health education expert (MD) | | 2 | 7 | 1 | 1 | 2 | 1 | 1 | | | 1 | | | 1 | **17** |
| Laboratory physician (MD) | 9 | 3 | | 1 | | | | | | | | | | | **13** |
| Bacteriologist (MD) | 19 | 3 | | | 1 | 1 | 1 | 1 | 1 | | | | | 2 | **29** |
| Virologist (MD) | 5 | | | | | | | | | | | | | | **5** |
| Parasitologist (MD) | 3 | 6 | 5 | 4 | 3 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | | 1 | **32** |
| Statistician (MD) | 1 | 2 | 7 | 1 | 1 | 1 | | | 1 | 1 | | | | | **15** |
| | | | | | | | | | | | | | | | |
| Biologist | 1 | | | | | | | | | | | | | | **1** |
| Entomologist | 3 | 5 | 8 | 4 | 3 | 3 | 2 | 1 | 2 | | 1 | | | 1 | **33** |
| Others | 14 | 12 | 19 | 3 | 11 | 4 | 9 | 2 | 1 | 2 | 1 | | | 1 | **79** |
| | | | | | | | | | | | | | | | |
| Assistant epidemiologist | 1 | 10 | 36 | 10 | 18 | 13 | 9 | 13 | 6 | 3 | 6 | 1 | 2 | | **128** |
| Assistant parasitologist | 2 | 7 | 10 | 2 | 2 | 4 | 3 | 4 | 4 | 1 | 1 | | | | **40** |
| Assistant entomologist's | | 3 | 7 | 2 | 3 | 4 | 2 | 4 | 2 | 1 | 1 | | | | **29** |
| Laboratory assistant | 29 | 10 | 20 | 6 | 5 | 5 | 4 | 5 | 3 | 1 | 2 | | | 2 | **92** |
| Instructor-disinfectionist | 3 | 6 | 10 | 2 | 5 | 3 | 2 | 4 | 3 | 1 | | 1 | | 3 | **43** |
| Disinfectionist | 12 | 13 | 18 | 4 | 10 | 6 | 4 | 5 | 1 | 2 | | | 1 | 15 | **91** |
| Health education instructor | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | | | | | | **11** |
| Statistician | 1 | 4 | 4 | 3 | 4 | 2 | 3 | 3 | 3 | | | | 1 | | **28** |
| Others | 2 | 3 | 6 | 3 | 1 | 1 | 2 | 2 | | 1 | | | 2 | | **23** |
| **TOTAL** | **145** | **119** | **205** | **63** | **85** | **73** | **52** | **58** | **39** | **20** | **21** | **4** | **8** | **31** | **923** |

Source: CMSI

* Tbilisi data represent NCDC staffing; data do not include staffing of Tbilisi CPH.

** The table does not include data from Adjara Autonomous republic.

### 5.1.1 Funding sources and mechanisms

There are two sources of funding for the infectious disease surveillance (IDS) system:

- The state programs for Epidemiologic Surveillance, Specially Dangerous Diseases Control, and Infectious Diseases Prevention, implemented by NCDC
- Local municipal funds

**Table 3. Breakdown of the Georgian State Surveillance Program Budget, 2001**

| Activity | Lari | USD |
|---|---|---|
| Research and analysis of epidemiological situation, methodological support, epidemic response | 64,972 | 29,533 |
| Monitoring of existing sources for infections and epizootic diseases | 88,488 | 40,222 |
| Production of epidemiological bulletin and staff training | 15,294 | 6,952 |
| Support for reference labs, national culture library, monitoring of antibacterial resistance | 147,930 | 67,241 |
| Support for the development of monitoring system for antibiotic resistant strains in the regions | 4,000 | 1,818 |
| Monitoring of infections in large hospital facilities | 3,967 | 1,803 |
| Monitoring system on regional and rayon levels | 24,677 | 11,217 |
| Informational and technical support for the program | 2,000 | 909 |
| Diagnostic tests | 43,113 | 19,597 |
| Contact tracing | 28,000 | 12,727 |
| Special actions in outbreak locations | 51,469 | 23,395 |
| Outstanding debts from previous year | 26,090 | 11,859 |
| **Total** | **500,000** | **227,273** |

Source: NCDC
US dollars 1=2.19 GEL

The budget presented in Table 3, which translates into US $0.05 per capita, is used to cover program expenses at the central level, support rayon CPH (a flat amount of 25 GEL per month in most rayons; Adjara and Kutaisi CPH receive 51 GEL, and Tbilisi receives 93 GEL), and provide reimbursement of outbreak-related expenses incurred by the CPH.

Municipal and rayon health funds (defined as 10 percent of the local administrative budget, but no less than 2.5 GEL per capita) are allocated as follows:

- Seventy percent is transferred directly to the SMIC to support a number of municipally funded curative programs (described above)[3].
- The remaining 30 percent is used to support local municipal health programs, including public health, which includes routine surveillance activities.

[3] These changes were introduced in 2002, before 2002 municipalities managed all municipal funds themselves.

This municipal surveillance budget (approximately US 0.05-0.15[4] per capita annually) is intended therefore to cover CPH staff salaries, laboratory services, and routine investigation and disease control activities.

IDS activities are also supported by international and bilateral agencies, of which USAID, UNICEF, and WHO are the most significant contributors of technical assistance and/or financial and in-kind resources.

[4] Big cities allocate a higher amount per capita.

# 6. Epidemiology of Vaccine Preventable Diseases in Georgia

The current situation makes it difficult to develop a consistent or complete picture of VPD epidemiology in Georgia. Data do not appear to be collected or analyzed uniformly and regularly for all VPDs. There appears to be a need for improved reporting and analysis of VPD surveillance results. The analyses presented in the tables below are based upon the data currently available.

**Diphtheria**

A major epidemic of diphtheria occurred in the countries of the former Soviet Union beginning in 1990. An increase in the number of cases was reported in Georgia at the end of 1993 and the epidemic rapidly progressed during the following two years, reaching its peak in 1995, as shown in Table 4.

**Table 4. Reported Diphtheria Cases (C) and Deaths (D) by Age Group, Georgia, 1992-2001**

| | 1992 | | 1993 | | 1994 | | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | | 2000 | | 2001 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age Group | C | D | C | D | C | D | C | D | C | D | C | D | C | D | C | D | C | D | C | D |
| 0-4 | 1 | | 9 | 2 | 50 | 9 | 55 | 12 | 50 | 4 | 45 | 3 | 20 | 2 | 10 | 2 | 4 | | | |
| 5-9 | 1 | | 9 | | 68 | 10 | 65 | 14 | 52 | 2 | 39 | 5 | 12 | 2 | 14 | 3 | | | 7 | |
| 10-14 | 1 | | 4 | | 49 | 7 | 87 | 10 | 48 | 1 | 28 | 3 | 10 | 1 | 10 | | 4 | | | |
| 15-19 | | | 1 | | 30 | 3 | 42 | 5 | 54 | 5 | 43 | 1 | 11 | | 3 | | | | | |
| 20-29 | | | 5 | 1 | 38 | 4 | 83 | 3 | 63 | | 58 | 1 | 31 | | 9 | | | | | |
| 30-39 | | | | | 39 | 1 | 56 | 1 | 35 | 3 | 35 | 1 | 13 | | 7 | | | | | |
| 40-49 | | | | | 22 | 2 | 30 | 5 | 26 | 3 | 25 | 1 | 13 | 1 | 4 | | 20 | | 15 | |
| 50-59 | | | | | 14 | 3 | 8 | | 16 | 3 | 15 | 1 | 4 | 3 | 2 | 1 | | | | |
| 60+ | | | | | 2 | | 3 | 1 | 4 | 2 | 2 | 1 | | | 1 | | | | | |
| Total | 3 | | 28 | 3 | 312 | 39 | 429 | 51 | 348 | 23 | 288 | 17 | 114 | 9 | 60 | 6 | 28 | 5 | 22 | 1 |

Source: CMSI

The high number of fatalities in certain age groups indicates that patients did not receive antitoxin in time and/or a large percentage of cases did not seek care and were not properly reported by the system. Researchers believe the main cause of the epidemic was a lack of routine immunization of adults and low coverage in children. For two years in the early 1990s no vaccines were supplied to Georgia due to the discontinuation of vaccine supplies from Russia and an absence of alternative sources. Activities critical to bringing this epidemic under control were the improved coverage in routine childhood vaccinations and the implementation of mass adult vaccination campaigns (with USAID funding). Currently, the diphtheria situation in the country appears to be under control; however, diphtheria, pertussis, and tetanus vaccine (DPT-3) coverage of children under

one year (62 percent, according to the 1999 survey) needs to be increased for the epidemiological situation to be sustainable.

The epicenter of the 1990s epidemic was in Adjara and Guria regions bordering the sea, which is reflected in high incidence rates in these areas, as shown in Table 5.

At the request of the MoLHSA, the Centers for Disease Control (United States), in cooperation with Tbilisi, Batumi, and Kobuleti Infectious Disease Hospitals, conducted a study to identify characteristics of the diphtheria epidemic and risk factors of fatal cases.

**Table 5. Reported Diphtheria Incidence (per 100,000 population) by Region, Georgia, 1990-2001**

| | 1990-2001 | | 2000 | | 2001 | |
|---|---|---|---|---|---|---|
| **Region** | **Cases** | **Cumulative Incidence** | **Cases** | **Incidence** | **Cases** | **Incidence** |
| Adjara | 685 | 191.7 | 10 | 2.8 | 8 | 2.2 |
| Tbilisi | 453 | 39.3 | 5 | 0.4 | 4 | 0.3 |
| Kacheti | 67 | 17.3 | 1 | 0.3 | 1 | 0.3 |
| Imereti | 76 | 10.7 | 4 | 0.6 | 5 | 0.7 |
| Samegrelo | 72 | 17.5 | 1 | 0.2 | 0 | 0 |
| Shida Kartli | 40 | 12.3 | 3 | 0.9 | 0 | 0 |
| Kvemo Kartli | 82 | 15.4 | 1 | 0.2 | 0 | 0 |
| Guria | 105 | 75.5 | 3 | 2.2 | 4 | 2.9 |
| Samtskhe-Javakheti | 30 | 14.4 | 0 | 0 | 0 | 0 |
| Mtskheta-Mtianeti | 28 | 22.9 | 0 | 0 | 0 | 0 |
| Racha | 1 | 2.0 | 0 | 0 | 0 | 0 |
| Poti | 4 | 8.0 | 0 | 0 | 0 | 0 |
| Total | 1650 | 37.1 | 28 | 0.6 | 22 | 0.5 |

Source: CMSI

The absence of a current vaccination significantly increased the risk of contracting diphtheria, which led to a higher risk of fatalities during the outbreak. Between 1993 and 1997, vaccination status was recorded for 812 diphtheria cases, including 64 fatal cases. Overall, 372 of the reported cases (46 percent), including 41 of those who had died (64 percent), had not been vaccinated; 224 cases (28 percent), including 11 fatalities (17 percent), had received one or two doses of Td; and 216 (26 percent) cases had received three or more doses. It was revealed that the median time between disease onset and hospitalization for survivors was less (three days) than that of fatal cases (four days).

Cultures for Corynebacterium diphtheriae can be performed at major laboratories in Tbilisi and some regional centers. Bacteriological testing and laboratory confirmation rates are low, which reflects the overall weakness of the laboratory component of the surveillance system. Table 6 reflects the number of confirmed diphtheria cases from 1997-2001.

**Table 6. Rate of Laboratory Conformation of Reported Cases of Diphtheria, Georgia, 1997-2001**

| Year | Cases Reported | Bacteriological Testing Performed | C. Diphtheria Isolated |
|---|---|---|---|
| 1997 | 288 | 158 (55% of cases) | 116 (73% of tests) |
| 1998 | 114 | 34 (30% of cases) | 23 (68% of tests) |
| 1999 | 60 | Data not available | |
| 2000 | 28 | | |
| 2001 | 22 | 18 (82% of cases) | 3 (17% of tests) |

Source: NCDC

### Acute Flaccid Paralysis/Polio

In June 2002, WHO certified Georgia, which has a WHO-accredited national polio laboratory, as polio free. Experts noted that Georgia had established a good system of acute flaccid paralysis (AFP) surveillance and that no indigenous wild polioviruses had been isolated in the country since 1991. Routine oral poliomyelitis vaccine coverage rates are high (>80 percent). This high coverage rate was achieved in part due to the success of operations such as MECACAR (cross border immunization activities in Mediterranean, Caucasus, and Central Asian Republics) (1995-1997), MECACAR Plus (1998), and national and subnational National Immunization Days (1999, 2002). Starting in 2000, mobile vaccination teams began implementing regular mop up campaigns in border zones and hard-to-reach Georgia territories. Effective implementation of enhanced surveillance and control measures was carried out in response to wild poliovirus importation[5] in 2001.

While AFP surveillance has significantly improved over the past few years (see Table 7), the following major challenges remain:

- Ensure timely and complete reporting from all health facilities and establish reliable reporting channels from those facilities in Abkhazia and South Ossetia
- Maintain the high percentage of specimens arriving at the laboratory in good condition

**Table 7. Selected AFP Surveillance Indicators, Georgia 1997-2001**

| Indicator | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|
| Total AFP cases (<15 yr.) | 7 | 16 | 10 | 19 | 16 |
| Non-polio AFP rate | 0,58 | 1,32 | 0,96 | 1,92 | 1.58 |
| % of total AFP with 2 fecal specimens within 14d, >1 day apart | 71 | 81 | 70 | 89.5 | 81.2 |
| % of total AFP with 2 fecal specimens at any time | 86 | 88 | 80 | 100 | 94 |
| AFP surveillance index | 0,41 | 0,81 | 0,67 | 0,89 | 0.81 |
| % of provisional AFP reported <7 days of onset | 29 | 44 | 50 | 53 | 63 |
| % of provisional investigated <48h after report | 100 | 100 | 100 | 100 | 100 |

[5]A non-paralytic case of confirmed imported wild poliovirus infection caused by poliovirus type 1, originating from the Indian subcontinent, occurred in Kvemo Kartli Region. The case was clinically manifested as meningoencephalitis and classified as non-paralytic polio.

| Indicator | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|
| % of provisional AFP with follow-up 60-90 days after onset | 100 | 94 | 90 | 100 | 100 |
| % of provisional AFP classified (onset >120 days prior) | 100 | 100 | 100 | 100 | 100 |
| Vaccine associated paralytic poliomyelitis | 1 | 0 | 0 | 0 | 0 |

Source: NCDC

### Measles

Measles is targeted for elimination in Georgia by 2007. No major outbreaks and no deaths attributed to measles have been registered in the past few years[6]; however, NCDC and CMSI believe that this disease is significantly underreported. Table 8 illustrates the number of reported cases from 1991 through 2001.

**Table 8. Reported Measles Cases by Year, Age Group, and Immunization Status, Georgia 1991-2001**

| Age Group/Year | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-1 | Data not available | | | | | | 50 | 33 | 11 | 14 | 7 |
| 1-4 | | | | | | | 87 | 85 | 24 | 17 | 15 |
| 5-14 | | | | | | | 158 | 85 | 52 | 18 | 10 |
| 15+ | | | | | | | 33 | 11 | 57 | 1 | 3 |
| Total | 352 | 115 | 408 | 723 | 181 | 304 | 328 | 214 | 144 | 50 | 35 |
| Number (%) vaccinated | | 16 (14%) | 63 (15%) | 65 (9%) | 63 (35%) | 81 (27%) | 95 (29%) | 90 (42%) | 95 (66%) | 22 (44%) | 14 (40%) |

Source: CMSI

Immunization coverage (at 15 months) is very low (53 percent) and most cases occur among the nonvaccinated cohort of the population. It is important to note, however, that a significant number of cases do occur in vaccinated children. This situation calls for further investigation because it might represent a failure of reporting or weakness of the cold chain. It is also important to note that laboratory case confirmation is not routinely performed.

### Rubella

Rubella (as with other VPDs) is believed to be significantly underreported. Although congenital rubella syndrome is envisioned in the reporting system, it is reported separately from rubella. However, CMSI and NCDC receive zero reports every month. Laboratory case confirmation of rubella is not routinely performed, and children do not receive routine immunizations because of the lack of funds available to procure the vaccines. Table 9 presents cases of rubella in Georgia reported from 1997 through 2001.

[6] Tbilisi city experienced an outbreak of measles among 15- to 18-year-old students in July 2002.

**Table 9. Reported Rubella Cases by Age Group and Year, Georgia, 1997-2001**

| Age Group/Year | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|
| 0 – 1 | 119 | 154 | 74 | 62 | 36 |
| 1 – 4 | 648 | 544 | 205 | 162 | 92 |
| 5 – 14 | 2029 | 1186 | 471 | 183 | 163 |
| 15+ | 87 | 137 | 49 | 1 | 2 |
| Total | 2883 | 2021 | 799 | 428 | 293 |

Source: CMSI

### Mumps

The annual number of registered cases of mumps varied from 963 (17.8 per 100,000 population) in 1990 to 3067 (69.7 per 100,000 population) in 2001. Although mumps vaccination occurred in the prescribed calendar for this time period, routine immunization activities only began in 2001. Reported immunization coverage in children 12-months old was 13 percent in 2001. Table 10 shows the reported number of mumps cases by age group.

**Table 10. Reported Mumps Cases by Year and Age Group, Georgia 1997-2001**

| Age Group/Year | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|
| 0-1 | 34 | 12 | 15 | 30 | 48 |
| 1-4 | 446 | 175 | 173 | 636 | 457 |
| 5-14 | 1790 | 440 | 680 | 1831 | 2261 |
| 15+ | 412 | 41 | 49 | 146 | 302 |
| Total | 2682 | 668 | 917 | 2643 | 3068 |

Source: CMSI

Laboratory confirmation of mumps cases is not performed. Mumps also may be underreported, although this disease is usually better identified than other VPDs due to its clinical manifestation(s).

### Pertussis

The large number of pertussis cases reported is primarily a reflection of a low DPT coverage (DPT-3 coverage in children under one year is estimated to be 62 percent). In 2001, immunization status was recorded for two-thirds of the reported cases: 76 percent of cases had not been immunized (13, immunized, 42, not immunized), thus vaccine efficacy (VE) was 81 percent, which does not indicate major problems with the Expanded Program for Immunization (EPI) cold chain. No pertussis-related deaths have been recorded in recent years. Experts believe that pertussis (as with other cases of VPDs) is underreported (see Table 11).

**Table 11. Reported Pertussis Cases by Age Group and Year, Georgia, 1997-2001**

| Age Group/Year | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|
| 0 – 1 | 37 | 132 | 49 | 34 | 32 |
| 1 – 4 | 27 | 94 | 47 | 22 | 18 |
| 5 – 14 | 40 | 104 | 75 | 24 | 28 |
| 15+ | 17 | 4 | 62 | 4 | 4 |
| Total | 121 | 334 | 233 | 84 | 82 |

Source: CMSI

### Tetanus

Despite the steadily growing proportion of at-home births in Georgia, no cases of neonatal tetanus have been officially reported. Most tetanus cases occur in nonimmunized adults. However, the three cases that occurred in the age group 5 to 14 years during the past two years reflect inadequate routine immunization coverage of children.

As shown in Table 12, the observed/calculated fatality rates in tetanus cases have been high, which may be due to late diagnosis, untimely administration of treatment, or underreporting of routine (nonfatal) cases. No data were available to confirm or reject these hypotheses. Another contributing factor may be the unavailability of effective medicines to treat tetanus. Reports indicate that many health facilities do not carry such medicines (e.g., antitoxin) because they are expensive and it is unlikely they will ever be used before the expiration date. Most regions do not have an emergency reserve of such medications to assist these facilities should the need arise.

**Table 12. Reported Tetanus Cases and Deaths by Year and Vaccination Status, Georgia, 1996-2001**

| Year | Cases | | | | | Deaths | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total Cases | Vaccinated | Violated vaccination | Not vaccinated | Unknown | Total Deaths | Vaccinated | Not vaccinated | Unknown |
| 1996 | **4** | 1 | 0 | 3 | 0 | **2** | | 2 | |
| 1997 | **5** | 1 | 1 | 3 | 0 | **3** | 1 | 2 | |
| 1998 | **5** | 0 | 0 | 4 | 1 | **4** | | 3 | 1 |
| 1999 | **3** | 0 | 0 | 1 | 2 | **2** | | 1 | 1 |
| 2000 | **6** | 0 | 0 | 5 | 1 | **5** | | 5 | |
| 2001 | **6** | 1 | 1 | 3 | 1 | **2** | | 2 | |

Source: CMSI

### Hepatitis B

Differentiation between presumed cases of acute hepatitis A, B, and C is made at the clinic or hospital level based on clinical, laboratory, and epidemiologic data. For example, acute viral hepatitis in an injection drug user is considered a probable case of acute hepatitis B or C. Where possible, serum specimens from cases of suspected acute hepatitis B and C are tested for serologic markers to confirm the diagnosis. Testing is done in hospital laboratories or regional Safe Blood Centers.

Serologic tests for hepatitis B and C include HbsAg, Anti-HBc (total), Anti-HBc (IgM), and Anti-HCV.

Only the larger hospitals perform any kind of routine testing to confirm the diagnosis of acute hepatitis A. Cases are reported as acute hepatitis A, B, C, or unknown. In Tbilisi, testing for delta hepatitis and hepatitis E is often available at the infectious diseases hospital.

The reported decline in incidence of acute hepatitis B, as shown in Table 13, is believed to be partly due to improved injection safety (use of disposable and auto-destructive syringes), increased safety of dental services and blood transfusions, and improved diagnosis of other etiologies of acute viral hepatitis. However, the sharp reductions in the population's hospital utilization in the past few years could indicate that underreporting also affects these rates.

**Table 13. Reported Cases of Acute Hepatitis by Year, Georgia 1990-2001**

| | Hepatitis B* cases | Hepatitis B incidence (per 100,000) | Hepatitis C* incidence (per 100,000) | Hepatitis A incidence (per 100,000) | Hepatitis D & E* incidence (per 100,000) |
|---|---|---|---|---|---|
| 1990 | **2,482** | **45.9** | No data | | No data |
| 1991 | **1,995** | **37.1** | | | |
| 1992 | **1,715** | **31.6** | | 117.0 | |
| 1993 | **1,448** | **26.7** | | 103.5 | |
| 1994 | **1,013** | **18.6** | | 109.5 | |
| 1995 | **746** | **13.8** | | 108.3 | |
| 1996 | **548** | **10.6** | 0.7 | 68.4 | |
| 1997 | **456** | **8.8** | 0.7 | 46.3 | 1.6 |
| 1998 | **457** | **8.8** | 3.9 | 30.8 | 1.6 |
| 1999 | **530** | **11.5** | 4.6 | 45.3 | 5.4 |
| 2000 | **451** | **10.2** | 5.9 | 56.7 | 6.7 |
| 2001 | **500** | **11.2** | 10.1 | 66.3 | 6.2 |

Source: NCDC

*All cases of hepatitis B, C, D, E and typically the first few hepatitis A cases (in case of an outbreak) are serologically confirmed.

Since 1996, testing for hepatitis C has been included in the diagnostic algorithm, and cases that were previously thought to be acute hepatitis B are now being correctly diagnosed as acute hepatitis C. Although risk factor data is not routinely collected, most new cases of acute hepatitis B are thought to be due to injection drug use.

The case breakdown by age groups, as shown in Table 14, does not allow the calculation of age-specific incidence rates, which might present a better understanding of risk factors.

**Table 14. Reported Acute Hepatitis B by Age Groups, 2000-2001, Georgia**

| | 2000 | | 2001 | |
|---|---|---|---|---|
| **Age Groups** | **Cases** | **Percent** | **Cases** | **Percent** |
| 0-1 | 5 | 1,1 | 1 | 0,2 |
| 1-4 y | 10 | 2,2 | 5 | 1 |
| 5-14 y | 58 | 12,9 | 27 | 5,4 |
| Over 15y | 378 | 83,8 | 467 | 93,4 |
| Total | 451 | | 500 | |

Source: CMSI

### Prevalence of HBV Infection

Georgia is considered a country of intermediate Hepatitis B Virus (HBV) endemicity based on the seroprevalence of HBsAg in the population. A study conducted in the late 1980s found the prevalence of HBsAg to be 2.5 percent among 2,356 pregnant women. Twenty percent of the HbsAg-positive women were HBeAg, indicating that perinatal (vertical) transmission of HBV is an important mode of transmission in Georgia. Seroprevalence data among groups at increased risk for infection are presented in Table 15.

**Table 15. Prevalence of Markers of HBV Infection among Persons in High-Risk Groups, Georgia, 1997-1999**

| Group | Number | HBsAg | Any Marker |
|---|---|---|---|
| Blood donors[1] | 1528 | 2.7-2.9% | 7.2-8.6% |
| Commercial sex workers | 169 | 4.2-5.3% | 14.1-15.8% |
| Injection drug users | 2281 | 7.1-8.7% | 52.2-56.1% |
| STD patients | 1444 | 5.0-5.2% | 11.3-12.1% |
| TB patients | 810 | 4.4-4.6% | 12.0-13.1% |

Source: NCDC

[1] Includes paid donors

Among 163 health care workers studied, the prevalence of HBV infection increased proportionally to the number of years worked: 55 percent of health workers practicing for 16 years or more were found to have markers of HBV infection, compared with 32 percent and 26 percent of those practicing for 6 to 15 and 0 to 5 years, respectively (NCDC). These data suggest occupational exposure to HBV is a potential risk factor for infection. However, a direct comparison to the prevalence of infection in the general population has not been made. No HBV seroprevalence data among children are available.

Few data are available on HBV-related morbidity and mortality. In 2000, there were 147 deaths from liver cancer, accounting for 0.36 percent of all 41,320 deaths and 4 percent of the 3,611 deaths from malignancies. Data for cirrhosis-related mortality are available for Tbilisi only.

# 7. Desired Performance of the VPD Surveillance System in Georgia

Sustainable IDS system reforms can be implemented successfully only if all stakeholders (implementers as well as users) understand and agree on how the "optimal or preferred system" should look and function as well as its desired products and outputs. The information presented in Table 16 reflects an agreed-upon vision of optimal/preferred IDS system performance as well as responsibilities for each of the levels. This consensus was reached among health professionals in Georgia during a mapping exercise of the IDSR process conducted at a number of workshops and group discussions as part of the VPD system assessment. Enabling and constraining factors for each of the surveillance functions are discussed in the respective sections of this report. The guiding principles of IDS surveillance, which are defined in this table, may then be applied specifically to VPD surveillance as well.

**Table 16. Desired Performance of VPD Surveillance System by Level and Surveillance Function in Georgia**

| CENTRAL LEVEL | | | | | | |
|---|---|---|---|---|---|---|
| **Identify** | **Report** | **Analyze and Interpret** | **Investigate** | **Respond** | **Provide Feedback** | **Evaluate and Improve the System** |
| **Overriding assumptions for ideal system performance**<br>▪ Adequate resources are secured to compensate work of health staff at all levels and provide required equipment, supplies, and tools<br>▪ Regular training is carried out for lower level staff on all aspects of surveillance, including case detection, specimen handling, data analysis, response, etc.<br>▪ Surveillance and response activities are supervised and necessary technical and logistical support is provided to assure high quality of services<br>▪ Surveillance system is properly regulated: there is clear division of functions and responsibilities as well as accountability of health workers | | | | | | |
| ▪ Policies are set and functioning of public health facilities is organized to promote their utilization by population<br>▪ Appropriate case definitions are developed and communicated to guide health workers in the disease identification process<br>▪ Recommendations on what case-based info to collect for each group of diseases are developed.<br>▪ National laboratory is used for maintaining quality control and standards | ▪ Policies and procedures for reporting priority diseases at each level are set<br>▪ Regulations are in force to include private sector facilities and laboratories in the reporting network | ▪ Policies and procedures for analyzing and interpreting data are set<br>▪ Clear alerts and action thresholds are defined<br>▪ Appropriate data analyses are performed at central level, e.g.,<br>o by person, place, time, immuniza-tion status;<br>o monitoring of disease trends;<br>o identification of risk factors | ▪ Guidelines for preparedness and outbreak investigations are developed and distributed<br>▪ Central level experts lead investigations as required<br>▪ Specimens from investiga-tion are processed and results are promptly communicated | ▪ Policies and procedures for responding to cases and outbreaks of priority diseases are developed and communicated<br>▪ Epidemic preparedness plan and emergency supplies are available<br>▪ Additional resources are quickly mobilized as required | ▪ Good communication channels and mechanisms are established<br>▪ Reports and analyses are disseminated to national authorities, regions, and WHO<br>▪ Timely feedback given to regions on the quality of their reporting<br>▪ Periodic feedback given to regions about routine control and prevention activities | ▪ Policies and practices for supervising surveillance response activities are established<br>▪ Surveillance and outbreak response activities are monitored and evaluated<br>▪ Routine prevention activities are monitored and modified as needed<br>▪ Program targets and indicators are established, monitored and evaluated<br>▪ Timeliness and completeness of reporting is monitored and evaluated<br>▪ Action is taken to improve performance |

| REGIONAL/RAYON LEVEL | | | | | | |
|---|---|---|---|---|---|---|
| **Identify** | **Report** | **Analyze and Interpret** | **Investigate** | **Respond** | **Provide Feedback** | **Evaluate and Improve the System** |
| ▪ Appropriate and complete disease specific surveillance info including necessary case-base data is collected<br>▪ Case notifications and routine surveillance data are received timely.<br>▪ Laboratory capacity is used to diagnose suspected cases | ▪ Staff knows standards for reporting<br>▪ Forms are uniform and available<br>▪ Capacity to transmit info exists<br>▪ Health workers understand importance of timely, accurate, complete reporting (including zero reporting)<br>▪ Immediately notifiable diseases are promptly reported to the next level<br>▪ Data correctly summarized and reported to the next level on time<br>▪ A mechanism exists in the reporting system for reporting "presumptive" cases, and for update reporting of changes in case status | ▪ Complete and accurate data (including data from labs and about outcomes) are available to analyze<br>▪ Health workers feel that analyzing data is important for them in their work<br>▪ Good quality denominator data are available<br>▪ Appropriate analyses techniques and measures are used e.g.,<br>o by person, place, time, immunization status;<br>o monitoring of disease trends;<br>o identification of risk factors<br>▪ Alerts and action thresholds are clear and available | ▪ CPH workers have appropriate knowledge and skills to perform investigation of cases/outbreaks<br>▪ CPH workers arrange and lead investigation of reported cases or outbreaks<br>▪ CPH assist facilities in proper collection, storage, and transportation of specimens for lab testing<br>▪ Laboratory performs tests, interprets results, records and communicates results in an appropriate and timely manner<br>▪ Investigation and lab results are used to confirm the outbreak | ▪ Vaccines and supplies are available<br>▪ Knowledge of pathogen (lab confirmation)<br>▪ All those who are involved in response are promptly informed and their work is duly coordinated<br>▪ Appropriate infection control and prevention measures are planned and timely implemented<br>▪ Additional funding is accessed as needed<br>▪ Community is aware and mobilized; community education activities are implemented<br>▪ Necessary training for emergency activities is conducted<br>▪ Target/risk groups are known and measures are taken to prevent future outbreaks | ▪ Adequate communication infrastructure is in place<br>▪ Timely info given back to health facilities about disease patterns within rayon context and additional interpretation of their data<br>▪ Timely feedback given to health facilities on the quality of their reporting<br>▪ Timely information given to neighboring districts about outbreaks, unusual events, and measures taken | ▪ Routine prevention activities are monitored and modified as needed<br>▪ Program targets and are monitored and evaluated<br>▪ Timeliness and completeness of reporting is monitored and evaluated<br>▪ Action is taken to improve performance |

| FACILITY LEVEL | | | | | | |
|---|---|---|---|---|---|---|
| **Identify** | **Report** | **Analyze and Interpret** | **Investigate** | **Respond** | **Provide Feedback** | **Evaluate and Improve the System** |
| ▪ High utilization of public health facilities by community<br>▪ Case definitions are available and used in the disease identification process<br>▪ Information about suspected cases is recorded in a facility register<br>▪ Local laboratory capacity is used to diagnose suspected cases<br>▪ If necessary, specimens are collected and transported to a higher level laboratory<br>▪ | ▪ Staff knows standards for reporting<br>▪ Forms are uniform and available<br>▪ Capacity to transmit info available<br>▪ Health workers understand importance of timely, accurate, complete reporting (including zero reporting)<br>▪ A mechanism exists in the reporting system for reporting "presumptive" cases, and for update reporting of changes in case status<br>▪ Case-based information is reported for immediately notifiable diseases<br>▪ Summary data is reported to the next level on time<br>▪ Data from the private sector also is reported | ▪ Complete and accurate data are available to analyze<br>▪ Appropriate analysis techniques and measures are used<br>▪ Alerts and action thresholds are clear and available<br>▪ Good quality denominator data are available | ▪ Workers take part in investigation of reported outbreaks<br>▪ Specimens are properly collected, stored, and transported for lab testing<br>▪ Laboratory performs tests, interprets results, records and communicates results in an appropriate and timely manner<br>▪ Investigation and lab results are used to confirm the outbreak | ▪ Drugs, vaccines and supplies are available<br>▪ Knowledge of pathogen (lab confirmation)<br>▪ Cases and contacts are treated according to standard case management guidelines<br>▪ Cases willing to be treated<br>▪ Preparedness plan is available<br>▪ Appropriate infection control measures are used<br>▪ Target/risk groups are known and measures are taken to prevent future outbreaks<br>▪ Community is aware and mobilized and empowered to act | ▪ Timely information provided to community members about actions taken to control diseases (and/or outbreaks of diseases) and about the status of outbreak | ▪ Workers take action to improve reporting practices<br>▪ They evaluate preparedness for and timeliness of response activities<br>▪ They evaluate appropriateness of case management<br>▪ They take action to improve readiness for timely response to outbreaks<br>▪ They maintain contact with community to maintain preparedness and prevention activities |

# 8. Current Procedures and Practices

VPD surveillance is mandatory in Georgia. The surveillance system is mostly passive, since it relies on health facilities to identify, record, and report cases. Active surveillance is currently conducted only for AFP. Active case searches are also periodically carried out as part of the investigation of outbreaks. The current VPD surveillance system is best described in terms of the seven functions of any surveillance system: case detection, registration, and confirmation; notification and reporting; data analysis and interpretation; case and outbreak investigation; preparedness and response; feedback and communication; and system improvement and evaluation. This section reviews these seven functions as a result of this assessment.

## 8.1 Case Detection, Registration, and Confirmation

### 8.1.1 Case detection

Local experts estimate that the sensitivity of the system (the ability to correctly identify *all cases* of a particular disease) is very low: as much as 50 to 70 percent of cases of VPDs are missed and never reported. A significant reason for this is the underutilization of health facilities throughout Georgia. The main factors impacting low utilization of services appear to be financial limitations. For example, the budget designated to provide free care for state and municipal programs is not sufficient to cover all services or costs, therefore, patients have many out-of-pocket costs, and this can create significant financial barriers to service utilization. Anecdotally, experts assume that the level of utilization directly correlates to the proportion of free diagnostic and curative services the programs offer and perhaps to the perceived quality of facilities and services offered.

It also appears that a significant (although this has not been estimated) percentage of those cases that do arrive for treatment at health facilities may not be reported ("captured") as required by VPD surveillance protocols. This is due to a variety of reasons, including lack of the appropriate notification forms, lack of resources to send the notification forms, inadequate knowledge of the required actions and protocols, and failure to implement required protocols.

The VPD surveillance system specificity is also compromised by the absence of standard case definitions (SCDs). Recognized SCDs have been developed only for diphtheria and polio, as shown in Table 17. Proper training in the application of even these SCDs has not been carried out uniformly and they are not widely used.

**Table 17: Availability of Standard Case Definitions for VPDs in Selected Health Institutions, Georgia, July 2002**

| Level | # Visited | Diphtheria SCD Available | SCD for Polio Available | SCD for Other VPDs Available |
|---|---|---|---|---|
| Regional/Rayon CPH | 10 | 3 (30%) | 3 (30%) | 0 |
| Health facilities | 26 | 1 (4%) | 1 (4%) | 0 |

A reported lack of resources and technical expertise are the main reasons why SCDs have never been developed for other VPDs nor communicated to health workers. Overall, health care providers appear to have good and consistent knowledge of VPD clinical symptoms and their diagnoses. It should be noted, however, that several of the physicians practicing in rural areas had difficulty properly identifying major clinical symptoms of some of the diseases.

There are anecdotal reports that some health facility physicians intentionally "misreport" the diagnosis of certain infectious diseases in order to receive the state or municipal funding that is allotted to the management and treatment of other illnesses. This practice, while reducing the cost of treatment to the patient, has an obvious negative effect on the sensitivity of the surveillance system and its ability to accurately reflect the epidemiologic situation in the country.

### 8.1.2 Case registration

Procedures regarding the registration and reporting of VPD cases are defined by MoLHSA Decree #104/N, issued in 2001, which stipulates that *"if a health facility…(including laboratories and private practices)…or a health worker diagnoses or suspects a case of communicable disease…it is obligatory to record the information in an Infectious Disease Registration Journal #60…complete an urgent notification card and submit it to a local center of public health…by any existing means of communication…within 12 hours after detecting a case."* Upon receiving such an urgent notification card, the local CPH is required to record the information in a corresponding record book as well.

A standard "*Infectious Disease Registration Journal*" (Form #60) should be in use and available at every medical facility as well as at rayon and regional CPHs. This standard journal is designed for facilities to consistently and routinely record information such as a patient's name, age, address, diagnosis, the date the illness was established and confirmed, hospitalization date, the date the notification was sent to the permanent address, and the case investigation date. The standard log does not require the routine recording of the patient's immunization status or the date of disease onset.

Standard record books are not available in many facilities, and when they are available, are not completed. Where Form #60 is not available, many facilities use their own self-made record books. These self-made record books do not necessarily record the same information as contained in Form #60. This procedure of registering important VPD case data with incomplete information and nonstandard materials clearly undermines the validity of subsequent analysis of the data as well as the appropriateness of indicated public health response(s). Table 18 shows the observed use of these standard registration journals and record books.

**Table 18. Observed Use of Standard Case Registration Procedures in Selected Health Institutions, Georgia, July 2002**

| Level | # visited | Case registration journal maintained | Number use standard record book (form 60) |
|---|---|---|---|
| Regional/Rayon CPH | 10 | 9 (90%) | 5 (50%) |
| Health facilities | 26 | 22 (84%) | 5 (19%) |

Health care providers who see and treat infectious disease cases privately (up to 50 percent of cases seek health care through nonofficial routes) do not routinely register or even report such cases, therefore, these are "lost" to the current VPD surveillance system. Private facilities tend to underreport or incorrectly register cases in general (including cases of infectious diseases) in order to reduce the rate of taxation on their practice. This procedure also clearly compromises the validity of data the system collects and the accuracy of any analysis that may be performed.

Stakeholders identified the following factors as being major constraints to accurate and complete case detection and registration:

- Diagnostic services and treatment remain unaffordable for a significant, large percentage of the population.
- Many health facilities are poorly equipped and lack essential medicines and other tools or procedures, which limits their diagnostic capabilities as well as utilization.
- Particularly in rural areas, the population's education and knowledge regarding health is substandard, which results in their underutilization of available health services.
- IDSR program resources and technical expertise are limited.
- Modern, relevant technical literature in locally spoken languages is not available, and this undermines the national experts ability to develop case detection guidelines and instruments, provide them to health workers, and carry out respective training.
- Health personnel's motivation to record and report cases (particularly the ones they see privately) is low.
- The awareness of some health providers (particularly in rural areas or adult facilities) of case registration requirements is low.

### 8.1.3 Case confirmation

In a properly functioning surveillance system, supervisory personnel are notified and routinely review patient diagnoses to validate cases of reportable diseases. The supervisor should examine the patient's clinical records to confirm the patient exhibited all of the signs and symptoms listed in the SCD. Once the case is confirmed, it may be investigated further and other actions initiated. Without SCDs, reported cases cannot be confirmed and there is no assurance that cases reported by all facilities are comparable.

In many instances, suspected cases must also be confirmed by laboratory analyses. In Georgia, cases of poliomyelitis, measles, rubella, and pertussis can only be confirmed at the central laboratory operated by NCDC (due to a shortage of equipment and reagents, serological tests are not performed by regional or other laboratories with the exception of the Tbilisi city infectious and children republican hospitals). The central laboratory and a limited number of regional laboratories currently can confirm cases of diphtheria. Major hospital laboratories and blood transfusion centers in all of the regions can confirm (theoretically) cases of viral hepatitis A, B, and C; however, reagents are often lacking to identify all of the markers.

In reality, the current laboratory confirmation of VPDs is adequate only for suspected polio cases and for some diphtheria cases.

Many health facilities (except for hospitals and major polyclinics) do not even have the capacity to properly collect, store, and transport specimens for suspected cases of VPDs. There are no current, standard guidelines available regarding the collection, storage, or transport of laboratory specimens for VPDs. In reality most health facilities simply refer the sick patient (rather than collect specimens) to the nearest laboratory or hospital. Those facilities that do collect samples often violate basic storage or transportation procedures. As a result, the quality of 10 to 20 percent of specimens arriving at laboratories is unacceptable. In addition, the common practice of self-treatment with antibiotics prior to seeking care at official health facilities compromises the ability of laboratories to correctly identify pathogens.

Most of the laboratories appear to be staffed with well-educated personnel. However, these facilities are inadequately equipped to maintain a high quality of services. Media and reagents are lacking for adequate functioning during outbreaks. There is an imbalance between clinical function and public health function of laboratories; the public health function is poorly financed and not supplemented by patients' payments.

Private laboratories are not included in the surveillance system. Regional health authorities could not even list all of the laboratories that function in their regions. More detailed information on laboratory capabilities and their role in the surveillance of VPDs is presented in the consultancy mission report[7], which served as an integral part of the overall assessment report.

Stakeholders identified the following factors as major constraints to accurate case confirmation of reported VPDs:

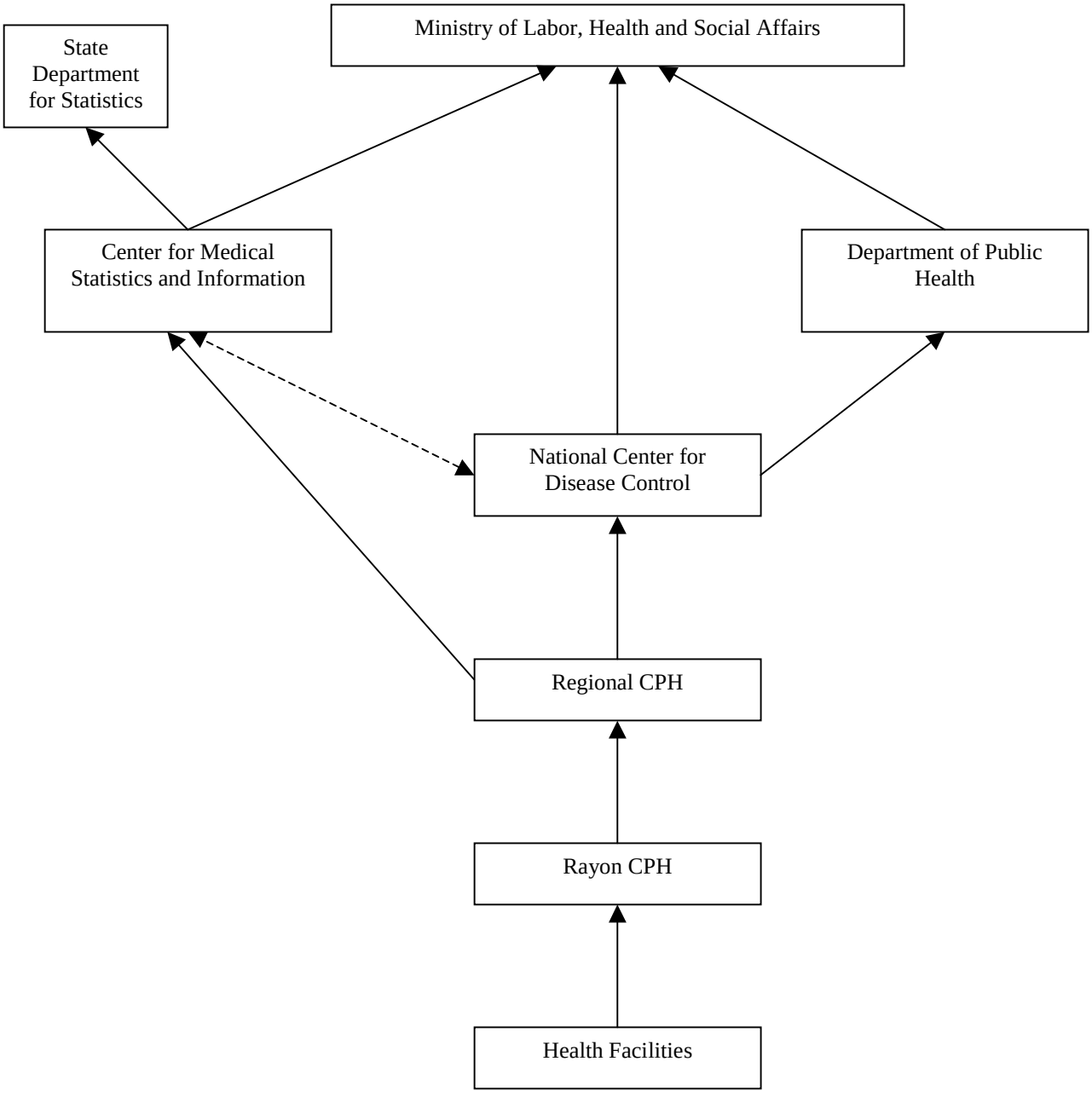
- Case definitions for most of the diseases are not developed and not used.
- ISDR program resources are too scarce to maintain adequate laboratory service in the country.
- Specimen collection and handling capacity and knowledge are substandard in many health facilities due to lack of equipment, training, and guidelines.
- Regulations about functioning of private and public laboratories with respect to surveillance are not properly enforced.

[7] Pierson, A: July 2002. *Assessment of Public Health Laboratory Capabilities and Role in Surveillance of Vaccine Preventable Disease and Diarrheal Disease in the Republic of Georgia.* Working Paper No. 007. Bethesda, MD: The Partners for Health Reform*plus* Project, Abt Associates Inc.

## 8.2 Notification and Reporting

There are two major streams for reporting all (including VPDs) surveillance data in Georgia: the NCDC/DPH and the CMSI/State Department for Statistics (see Figure 3). Different formats are used for the urgent notification and routine reporting of diseases. The different formats are discussed in this section, and samples of the various forms that are used to report diseases are shown in Annex C.

**Figure 3. Reporting of Cases of Infectious Diseases in Georgia**



### 8.2.1 Urgent notification

In accordance with MoLHSA Decree #104/N, if a health facility (including laboratories and private practices) or a health worker diagnosed or suspects a case of a communicable disease, he/she must complete a standard urgent notification card and submit it to a local CPH by any existing means of communication within 12 hours after detection. This urgent notification procedure is to be followed for single cases of diphtheria, AFP, tetanus, measles, and other infections classified as "socially dangerous." These cases, except for measles, are notifiable on the first priority basis, which means that the local CPH must immediately inform NCDC and a territorial body of MoLHSA about these cases by any existing means of communication. Additionally, a formal letter describing the case(s), its immunization status, results of preliminary investigation, actions taken, and additional resources needed should be sent to the same organizations. Priority notification for other VPDs and infectious diseases is to take place after the identification of three or more cases during the same period (consistent with the incubation period of the suspected disease) in a given geographic area.

Data on each case from the urgent notification card are to be recorded in the infectious diseases registration journal kept by the corresponding medical facility and CPH. NCDC registers all notifications in its urgent messages registration journal.

In the case where the initial diagnosis is changed or cancelled by the health facility, another urgent notification card with the final diagnosis is completed and submitted to the appropriate CPH in order to provide an update on the changes in the case status and accurate final registration at that level. This information is also passed to NCDC.

The standard urgent notification form contains the following information: name, age, address of the patient, preliminary diagnosis, laboratory conformation status, date of hospitalization, and actions/activities performed by the health facility.

### 8.2.2 Routine reporting to CMSI

A number of reports are filled out by health facilities and submitted to the rayon CPH. Reports received at the rayon level are collected (but not analyzed) and sent to the regional CPH, which then submits them to the CMSI. No data compilations, aggregations, or analyses are made by either the rayon or regional CPHs. This reporting process is defined by the Law on Health Care, the Law on Statistics, and Decree #104/N.

The Statistical Report IV-03 on Infectious and Parasitic Diseases Morbidity that health facilities complete contains information on the number of cases of priority infectious diseases by age group. The list of diseases is updated each year on the basis of NCDC recommendations, which reflect changes in the epidemiological situation.

### 8.2.3 Routine reporting to NCDC

The content and periodicity of reporting between the rayon CPH and the NCDC is dictated by the contracts they share under the Epidemiologic Surveillance, Specially Dangerous Diseases Control, and Infectious Diseases Prevention programs. Health facilities send reports to the corresponding rayon CPH within the framework of these national programs and as required by their contracts. The notification process is defined by Decree #104/N. Reporting forms in use were developed by NCDC and approved by the MoLHSA.

Forms CD-1, CD-2, and CD-3 on Infectious Diseases Morbidity and Mortality are monthly reports that contain information about incidence and mortality from priority infectious diseases by age group, immunization status, and laboratory confirmation. Every medical facility is required to complete these forms and send them to the rayon CPH by the seventh day of the following month. Rayon CPHs collect information from their corresponding medical facilities on a monthly basis and send a compiled form to the regional CPH, which forwards all rayon CPH forms to NCDC (without compiling them). NCDC summarizes the information every month.

The Infectious Diseases Morbidity Table is prepared annually by rayon CPHs on the basis of the information from Form IV-03. They then submit these to the regional CPHs, which send a summary of their reports on to the NCDC. Rayon and regional CPHs compile "Monthly Reports on Acute Flaccid Paralysis" based on the CPH epidemiologist's weekly inspections of every large hospital.

Despite the absence of written instructions (copies of MoLHSA Decree #104/N were available in three of the CPHs visited and in none of the health facilities), health workers' knowledge of reporting procedures was quite good in most cases with the exception of a few rural ambulatories, adult facilities in Tbilisi, and private clinics.

The required standard monthly reporting forms were available at most of the sites visited. However, urgent notification forms were lacking in many Feldsher's Points (FAPs), ambulatories, and some polyclinics. When these forms were not available, staff reported noting that information (certainly not standard) on a piece of paper and sending it to the CPH, as required by Decree #104/N. Table 19 reflects reporting practices for selected health facilities in a three-month period.

**Table 19. VPD Surveillance Reporting in Selected Health Institutions, Georgia, July 2002**

| Level | # visited | Reports for the past 3 months submitted | Copies of reports for the past 3 months available |
|---|---|---|---|
| Regional/Rayon CPH | 10 | 10 (100%) | 9 (90%) |
| Health facilities | 26 | 18 (69%) | 7 (24%) |

The assessment discovered a number of additional reasons why VPD surveillance reporting was inconsistent:

- Urgent notifications are often made by telephone (where available), followed by submission of a completed form (often self-made), and by courier, where/when weather conditions and distance make it feasible. Unjustified delays are not uncommon.
- As discussed earlier, many cases of infectious diseases (especially those seen privately or "unofficially") are not recorded and, therefore, not reported. Where communication means are not adequate, recorded cases may not be reported within the defined timeframe or, in many cases, not at all.
- Verbal notifications as well as those done using self-made forms were sometimes incomplete, and the submitted case-based data were frequently recognized as inaccurate.
- Most hospitals and polyclinics diligently submit monthly reports, however, the majority of ambulatories and FAPs often do not comply with the reporting requirements. Copies of the submitted reports were rarely available, and the timeliness of reporting was not verifiable.

- According to current regulations, health facilities are not legally responsible to the CPH. This lack of technical accountability creates difficulties in cases where the CPH must enforce regulations regarding proper notification and reporting of VPDs.
- Private facilities and laboratories, which serve about 5 percent of all infectious diseases cases, are not familiar with current regulations and typically do not report to the surveillance system.
- Public laboratories that perform tests for patients privately sometimes may not report such cases.
- It appears that some of the information contained in reports submitted to CMSI and NCDC is duplicated.

Stakeholders identified the following factors as major constraints to accurate notification and reporting of VPDs:

- Health personnel motivation to report all cases of infectious diseases is low.
- Program resources are inadequate to ensure proper communication with remote facilities and the steady supply of reporting forms.
- Private facilities and laboratories are not included in the surveillance system.
- The IDSR system regulation makes it difficult for CPHs to enforce timely reporting of cases by health facilities.
- Knowledge of reporting procedures is weak in rural areas and in some urban health facilities.
- Reporting standards envision unnecessary duplication of the data in the current system.

## 8.3 Data Analysis and Interpretation

MoLHSA Decree #104/N provides guidelines for CPH workers with respect to the format for annual reports. This includes the aggregation and presentation of VPD case data by age, months, and immunization status.

The analytic capability of personnel at the central level and at many of the regional CPHs appears to be quite high. To keep the population informed of the status of infectious diseases, the NCDC periodically issues an epidemiological bulletin (approximately three times a year, but not according to any real schedule) that contains an analysis of priority infectious disease data and recommendations for their control. At the regional level, in some cases surveillance data were aggregated by age, place, time, and immunization status during outbreaks. These analyses had been used to further establish accurate diagnosis, identify sources of infection and reasons for the spread of the disease, as well as to target infection control interventions. These facilities also analyzed summary data on an annual basis in a similar fashion; they performed trend analysis and tried to determine and analyze risk factors.

The analytical capability of personnel at the rayon level varies. Some hospitals and large polyclinics perform trend analyses from their own data, which they use for planning and resource

allocation. Overall, the ability to apply results of analyses to basic management of health problems and resources appears to be limited.

Smaller facilities, as a rule, do not analyze surveillance data. Table 20 reflects data analysis practices of selected health institutions.

**Table 20. Evidence of Surveillance Data Analysis in Selected Health Institutions, Georgia, July 2002**

| Level | # visited | Evidence of trend analysis | Evidence of data aggregation by place, age, time, immunization status |
|---|---|---|---|
| Regional/Rayon CPH | 10 | 10 (100%) | 7 (70%) |
| Health facilities | 26 | 6 (23%) | 1 (4%) |

Clearly, the accuracy of any analyses performed using VPD surveillance data produced by the current system is severely compromised by questionable data quality and completeness. The source of denominator data[8] (when applied) is not consistent. While state statistics are used in the preparation of official summaries and reports, much more accurate health facility data from door-to-door visits or a census is often used for routine, daily work. Incidence rates are rarely derived.

Most of the rayon CPHs and small health facilities do not have computers (or even electricity). Where these are available, very few health workers are capable of operating them for data processing or analysis. Rural facilities often lack even calculators and basic stationery.

Stakeholders identified the following factors as major constraints to accurate VPD data analyses:

- Low quality and incomplete data compromise the accuracy of analysis at all levels.
- Adequate data analysis skills are limited to a small number of national and regional experts.
- Lack of computers and ability to use them for data analysis affects the speed and overall analytical productivity of health personnel.
- Staff has limited data utilization skills for management of health problems.

## 8.4 Case and Outbreak Investigation

All of the regions had experienced outbreaks of various infectious diseases (e.g., diphtheria, mumps, hepatitis A, and DD) during the past three to five years. However, a number of the individual rayons and facilities that were visited during the assessment had not reported any outbreaks recently. The MoLHSA requires investigation of outbreaks of all reportable diseases. In addition, the surveillance program requires that detailed information on diphtheria, AFP, tetanus, and measles be sent to NCDC.

A general shortage of funds often prevents CPHs from investigating every reported case as required; therefore, it is likely that some outbreaks may be overlooked. Health workers did report that

[8] When trying to determine incidence rates, denominator data, such as population, is of questionable accuracy.

although single cases of diseases could be easily missed, it was unlikely that the system would not eventually capture larger groupings or outbreaks of infections.

The NCDC has developed good case outbreak investigation guidelines for AFP and diphtheria (see example of a diphtheria epidemiological card in Annex C, however, guidelines for other VPDs and priority diseases have not yet been developed.

Outbreaks are typically recognized either on the basis of a large number of notifications received within a short period of time, or more likely when additional numbers of diagnosed cases are identified during contact investigation. Investigations are performed by rayon and regional CPH staff, primarily epidemiologists with methodological assistance or guidance from NCDC (usually by telephone) and technical assistance from personnel of the affected health facilities. NCDC experts usually lead field investigations of large or unusual outbreaks, particularly where there are lethal cases.

During case or outbreak investigations CPH workers collect and analyze detailed case-based data, identify contacts, send information regarding contacts to polyclinics for subsequent examination and monitoring, collect specimens for laboratory confirmation, and plan response activities. There appears to be good cooperation between school and kindergarten nurses and health facility staff, which facilitates investigations; however, the relationship(s) between the CPH and health facility staff is not adequately defined and often hinders effective investigation and response activities.

Laboratory participation in outbreak confirmation and investigation is limited by the capacity of the network. Few cases or outbreaks are confirmed by laboratory analysis. Among VPDs, only AFP and diphtheria appear to be routinely confirmed by a laboratory. More detailed information on laboratory capabilities and their role in the surveillance of VPDs is presented in the consultancy mission report, which is produced in conjunction with this document as an integral part of the overall assessment report.

Stakeholders identified the following factors as major constraints to timely case and outbreak investigation:

- IDSR program resources and health personnel motivation are inadequate to carry out proper investigation of reported cases as required.
- Available technical expertise limits further development and implementation of policies and detailed guidelines for investigation of all VPDs.
- The relationship between various elements of the IDSR system is not properly regulated. The link between CPH and sanitation inspection does not function properly.
- Laboratory capacity is inadequate for outbreak confirmation and contact investigations for many priority diseases.

## 8.5 Preparedness and Response

Detailed policies and procedures for response to cases and outbreaks of VPDs have been established only for AFP and diphtheria. Even these guidelines were not available in many of the facilities visited. Response guidelines for other VPDs must be developed to prepare health workers to

respond to cases in a timely and efficient manner. Such guidelines could be an important tool for advocacy with respect to resource mobilization at the local level.

As described earlier, the national disease surveillance and response budget is small. It does, however, contain a separate line for reimbursement of outbreak response activities the CPH can conduct. Many municipal budgets also have allocated funds for this purpose. Neither central nor local funds are necessarily readily available when needed, however, due to recognized difficulties within the fiscal system.

Neither central level nor regional CPHs routinely keep emergency stocks of medicines, antitoxins, vaccines, or immunoglobulins. Antitoxins[9], medicines, rubella, and pertussis vaccines have not been available in a timely manner to respond to recent cases or outbreaks.

When single cases of a disease are reported, usually a CPH team comprised of epidemiologists and disinfectionists leads the response. Outbreak response units established by local health administrations respond to larger outbreaks. Such units coordinate the work of health facilities and schools; the involvement of sanitation and other services, the press, TV; the mobilization of supplies and resources from all levels; the education of the community; and other necessary responses. NCDC provides technical guidance. The shortage of funds consistently limits the scope of the response measures.

The response to cases and outbreaks of infectious diseases is not formally defined or established. There are no legal administrative links, for example, between CPH and other health and sanitation institutions that clearly must work together in such instances. The effectiveness of the relationship and the communication is usually determined by personal relationships between the chiefs of respective offices. There are no legal mechanisms to coordinate or facilitate the involvement of other key agencies and institutions (for example, laboratories, which formally belong to the sanitation service).

Stakeholders identified the following factors as major constraints to appropriate preparedness and response:

- Available technical expertise limits further development and implementation of detailed guidelines for a managed response to outbreaks and cases of priority infectious diseases.
- The relationship between various elements of the IDSR system is not properly regulated.
- IDSR program resources and health personnel motivation are inadequate to carry out proper outbreak preparedness and response measures.

## 8.6 Feedback and Communication

In a properly functioning IDS system the national offices and regional and rayon level CPHs provide timely information to the lower level CPHs and health facilities about the epidemiologic situation and their activities. This feedback should address issues such as disease patterns within the

[9] Many hospitals do not use their limited funds to procure relatively expensive products such as diphtheria and tetanus antitoxins that are not likely to be used before they expire. Only 21 cases of diphtheria and six cases of tetanus were reported in 2001.

context of a given territory or area, additional interpretation of the data including recommendations for action, reports concerning measures taken at other levels of the system, and feedback about the quality of the reporting.

The NCDC periodically (approximately three times a year) issues countrywide epidemiological bulletins, which address priority disease prevention and control issues. However, these bulletins are distributed mostly to CPH workers and do not ultimately reach most ordinary practitioners.

The CMSI also issues annual countrywide health reports. Individual health facilities must order these reports, but, in practice, this seldom happens. These CMSI annual reports are said to become available as late as in the middle of the following year, which reduces their usefulness in terms of their relevance to managing the health situation.

The DPH and lower level CPHs conduct monthly meetings with dependent facilities, during which priority disease prevention and control activities are discussed. This appears to be the primary (and only) form of feedback that most facility staff receive regarding their work and VPD surveillance and response. Regional and rayon CPHs inform local administrations on a monthly basis about activities performed, and this information is used as a mechanism for accessing local funds. During large outbreaks, the local press and TV, combined with health education initiatives conducted by facility staff, are used to increase community awareness.

Stakeholders identified one major constraining factor to effective feedback and communication: Feedback methodologies and mechanisms are not fully developed and communicated; as a result, other mechanisms for giving back IDS information are not fully and systematically used.

## 8.7 System Improvement and Evaluation

The health care system in Georgia continues to undergo a period of major transition during which many of the administrative and organizational structures necessary for IDS to function adequately have not been clearly defined or put into place. The regulatory and legal framework defining these relationships, roles, and organizational responsibilities of institutions with regard to IDS have not been fully or clearly defined, with the exception of CPH statutes and contracts of health workers, many of which provide a general job description.

The strategies of the IDS program to target the reduction and/or elimination of VPDs are outlined in the existing national health policy for the next decade. This document does not address policies for supervising surveillance and outbreak response activities, nor does it provide indicators for measuring the quality of the system. Officials do not see any clear benefits from developing necessary quality assurance policies and procedures in the absence of signs that there will be resources to implement them.

IDS supervisory visits at all levels are irregular due to an acknowledged lack of program resources. Many of the facilities visited during the VPD assessment exercise had not been supervised during the past six months. CPH workers had not been trained in management and supervisory skills for years. As mentioned earlier, health facilities are not legally linked to their CPH, and the latter find it difficult to enforce changes in their practices with respect to IDSR.

Training of health personnel in disease surveillance or epidemic/outbreak management has not been provided systematically. Occasionally, NCDC, WHO, and UNICEF have conducted training seminars (most of them for a few CPH staff) that focused primarily on immunization, AFP

surveillance, and diphtheria control. Staff in some of the regions received training in general epidemiology and waterborne infections control. Training of health workers at lower levels of the system does not appear to be adequate.

Stakeholders identified the following factors as major constraints to system improvement and evaluation:

- The functioning of IDSR system is not properly regulated by existing legislation.
- There are technical expertise and resource limitations that
  - delay the development of policies for supervising surveillance and outbreak response activities and effective quality indicators monitoring system;
  - do not allow the implementation of regular supervision and program monitoring; and
  - limit provision of training to health personnel in disease surveillance and/or epidemic/outbreak management.

# 9. Key Findings and Strategic Directions

The following summarizes the assessment's key findings related to current VPD surveillance procedures and practices in Georgia:

- The structural and organizational linkages and relationships between institutions responsible for VPD surveillance are not well established and may impede efficient and effective system operation. Functions and responsibilities in some facilities are not clearly defined.
- A significant number of VPD cases are not recorded or reflected by the current system. This occurs because some cases are not treated at all, some are treated outside the formal system, and some health facilities report cases inconsistently or without complete information.
- Many health facilities do not have complete or accurate information regarding their responsibilities and required actions for VPD surveillance.
- The system lacks sufficient resources to fully implement VPD surveillance (especially for supervision, outbreak investigation, and epidemic preparedness).
- Private facilities, private laboratories, and some facility-based laboratories do not report to the surveillance system.
- VPD surveillance suffers from a lack of clear and recognized SCDs for many of the diseases.
- Laboratory capacity at the peripheral level is not adequate for case and outbreak confirmation and investigation. There is a lack of proper specimen handling, and transportation capacity compromises the accuracy of laboratory results.
- Many health facilities lack the proper record books and forms required by the VPD surveillance system. This leads to underreporting of cases and the collection and reporting of incomplete data and information, making analysis difficult.
- The analytic capabilities of system participants at all levels would benefit from upgrading through training and supportive supervision.
- Forms the system uses do not record data necessary for complete epidemiologic analysis.
- Community health education activities regarding VPD appear to be minimal.
- Remote health facilities lack adequate means of communication to facilitate IDSR.
- Supportive supervision methodologies and protocols and program evaluation methods are not well defined.

In order to strengthen current VPD surveillance practices, this assessment recommends the following general strategic steps be taken:

1. The structural and organizational linkages and relationships between institutions responsible for VPD surveillance must be defined and the necessary administrative and legal basis established.

2. All health providers must be made aware of existing case registration and reporting requirements; all relevant MoLHSA orders should be made available at each facility.

3. VPD surveillance guidelines should be developed. Among other things, they should include instructions for every level of the public health system regarding

    - case identification and standard definitions based on ICD-10 revision;
    - the various case base data to collect and report;
    - the scope of data analysis;
    - data utilization for management of epidemiologic situation and disease control;
    - case and outbreak investigation and response, which includes algorithm for decision making for all participating bodies, with a brief description of their competences;
    - suggested feedback mechanisms; and
    - supervision of surveillance activities.

4. Health workers should be provided with the adequate training in epidemiology and the application/implementation of all VPD surveillance guidelines, procedures, and actions.

5. Data collection, reporting, and analysis instruments should be modified or developed in accordance with the surveillance guidelines and analytic needs and provided in sufficient quantities to all facilities involved. Personnel must be instructed and supervised in their proper and timely use.

6. Regulations requiring private health facilities and laboratories to inform CPHs about each case of infectious disease should be enforced. Personnel at these facilities must be informed of the existence of such regulations.

The following steps are to be taken specifically to increase the case detection rate:

1. State programs should support the provision of free diagnosis and treatment for all priority infectious diseases including VPDs.

2. Health education of the population (particularly in rural areas) should be intensified with the aim of increasing utilization of the formal health system for treatment of infectious diseases.

3. The State Epidemiologic Surveillance program should establish incentives for all health care providers (public and private) to report each case of infectious disease. Further incentives should be established to encourage the timely and complete investigation of cases by relevant institutions as outlined in VPD surveillance guidelines and protocols.

The following steps are to be taken specifically to improve laboratory case and outbreak confirmation and investigation:

1. Improve and redefine the institutional and organizational framework governing the services, roles, responsibilities, and relationships between laboratories and other health institutions participating in VPD surveillance.

2. Develop Georgian-specific guidelines, protocols, and procedures (including sampling procedures, biosafety procedures, transportation of samples, and analysis) for use in laboratories as part of VPD surveillance, and train relevant personnel in their application.

3. Strengthen the capacity of the national reference laboratory to provide technical support, training, guidance, and quality assurance to all laboratories within the country.

A detailed plan of action to address these needs was developed during working group meetings held in the summer and fall of 2002.

# Annex A: List of Sites and Facilities

The following is a list of sites and facilities visited during VPD surveillance assessment in Georgia, June 24 to July 11, 2002.

## Tbilisi

- Ministry of Labor, Health and Social Affairs
- MoLHSA's Department of Public Health
- National Center for Disease Control (NCDC) and its laboratory
- Center for Medical Statistics and Information
- Tbilisi City Public Health Center
- Vake-Saburatalo District Center of Public Health
- Tbilisi City Infectious Disease Hospital and its microbiology and virology laboratories
- Children's Polyclinic # 9
- Adult Polyclinic # 28
- Republican Pediatric Hospital
- Medical University Central Clinical Hospital
- Private Laboratory "Cito"

## Imereti region

**Kutaisi**

- Regional Center of Public Health
- City Infectious Diseases Hospital
- City Children's Polyclinic
- Laboratory of the Regional Sanitation Service

**Sachkere rayon**

- Rayon Center of Public Health
- Rayon Hospital
- Rayon Polyclinic
- Gorisa Village ambulatory
- Argveta Village ambulatory

**Chiatura rayon**

- Rayon Center of Public Health
- Rayon Hospital
- Rayon Polyclinic

**Samtredia rayon**

- Rayon Center of Public Health
- Rayon Hospital
- Rayon Polyclinic
- Sajavakho Village Ambulatory
- Nabakevi Village ambulatory

## Adjara region

**Batumi**

- Regional Center of Public Health
- Private Clinic "Paracels" and its laboratory
- City Infectious Diseases Hospital and its laboratory
- City Maternal and Child Health Center
- City Polyclinic
- Central Laboratory of the Sanitation Service

**Keda rayon**

- Rayon Center of Public Health
- Machuntseti Village ambulatory

**Kholu**

- Rayon Center of Public Health
- Rayon Hospital
- Maternal and Child Health Center
- Feldsher's Point (village Zemo Vashlovani)
- Feldsher's Point (village Kedlebi)

## Kvemo Kartli region

**Rustavi**

- Rayon Center of Public Health
- Regional Sanitation Service Laboratory
- Rayon Infectious Diseases Hospital and its laboratory
- Children's Polyclinic

# Annex B: Assessment Instruments

## CENTRAL LEVEL INTERVIEW GUIDE

**Date: _____Interviewer: _____**
**Respondent:_____ Position: _____**

**GENERAL**

Is there mandatory surveillance for VPD? Yes No
_____

✓ Is there a budget line for surveillance in the MoLHSA budget? ____How is it broken down?
_____
What levels of the system are funded?_____

✓ Is there a national manual for VPD surveillance? Yes No
If yes, describe (e.g., diseases included, contents, last update, integrated or different for each disease, etc.)

| |
|---|
| |

**CASE DETECTION/REGISTRATION**

✓ Do you have standard case definitions for VPD? Yes No

Observed SCD for _____

**REPORTING**

✓ Do you have established policies and procedures for reporting diseases? Yes No
Which ones (VPD) are reported monthly _____more frequently_____?
What requires immediate notification of the central level? _____

✓ Are private sector facilities included in the reporting network? Yes No

✓ Is the central level responsible for providing surveillance forms to health facilities? Yes No
If, yes, have there been shortages in the past 6 months? Yes No

✓ Do the following regions submit their reports? _____
Abkhazia? Yes No Sometimes South Ossetia? Yes No Sometimes

Adjara? Yes No Sometimes

| Reporting regions | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| available for 2/02? | | | | | | | | | | | | |
| available for 3/02? | | | | | | | | | | | | |
| available for 4/02? | | | | | | | | | | | | |
| on time? for 2/02? | | | | | | | | | | | | |
| on time for 3/02? | | | | | | | | | | | | |
| on time for 4/02? | | | | | | | | | | | | |

**ANALYSIS**

✓ Do you have established policies and procedures for analyzing and interpreting the data? For each of the levels? Yes No If yes, obtain a copy.

✓ How do you analyze VPD surveillance data?

Probe - by:
Person (age, sex)? Evidence of this ? Yes No
Place (regions)? Evidence of this ? Yes No
By time? Evidence of this ? Yes No
Immunization status? Evidence of this ? Yes No

Comments (with regard to specific diseases)
_____
_____
_____

✓ Do you perform trend analysis? Evidence? Yes No

✓ For which VPD have you established action threshold? _____

What is it (___cases, ___% increase, ____rate)? List for each of the diseases separately
_____

✓ What is the source of your denominator? _____

✓ Have you produced any formal reports based on your analysis in the past 12 months? Yes No

✓ Have you (your department) provided any training to subordinate health workers on the VPD data analysis and interpretation in the past 6 months?
Yes No When ? _____ To whom?_____
Do you have a system of regular training courses for updating skills of health workers in epidemiology/surveillance? Yes No Please describe:
_____

**INVESTIGATION**

✓ What outbreaks/conditions are investigated by or with central level experts?
_____
_____
List the diseases here_____

✓ Were you able to use laboratory for case confirmation? _____in what % of suspected outbreaks? _____if not, why? _____

✓ Were you able to look for risk factors during investigation of outbreaks? _____
If not, why_____

**RESPONSE including PREPAREDNESS TO EPIDEMIC PRONE DISEASES:**

✓ Do you have a national plan for epidemic preparedness and response?
Yes No

✓ Do you have established policies and procedures for responding to cases and outbreaks of VPD?
Yes No

✓ Has the country had emergency stocks of vaccines, drugs and supplies at all times in the past year?
Yes No
What (specify) _____in what quantities? _____

✓ Has the country experienced shortage of drugs, vaccines or supplies during the most recent epidemic (outbreak)? Yes No

✓ Is there a separate budget line for epidemic response? Yes No
✓ Does the country have a rapid response team for epidemic? Yes No

✓ How does the central level support epidemic response activities?
_____
_____
_____

**FEEDBACK**

✓ Do you have a mechanism for giving regions regular, periodic feedback about routine control and prevention activities? Yes No

✓ Do you produce reports to disseminate surveillance data? Yes No

**EVALUATE AND IMPROVE SYSTEM**
✓ Do you have established policies for supervising surveillance and outbreak response activities?

Yes No

✓ How many supervisory visits have you made in the past 6 months? _____

✓ Do you have program targets? Yes No
What are they?
_____
_____

indicators for measuring quality of the surveillance system?
Yes No

_____

✓ What do you do to monitor and evaluate effectiveness of district level outbreak response activities?
_____
_____

✓ Have you (you staff) provided training to subordinate health personnel in disease surveillance or epidemic/outbreak management? Yes No
To whom _____ When_____?
How long_____?

✓ Do you monitor quality assurance for laboratories at lower levels? Yes No
What is being done for this purpose?_____
_____

✓ Can you give examples how surveillance data are used at the central level for policy and strategy development?
_____
_____

# IN-DEPTH INTERVIEW WITH KEY MEMBERS

# OF THE REGIONAL/DISTRICT PUBLIC HEALTH CENTER (CPH)

Respondents: CPH director, deputy chief (responsible for epidemiological control), epidemiologist

Date: _____Interviewer: _____
Respondent _____ _____Position: _____
Name/type and location of CPH_____

Introductions and warm-up: The Ministry of Labor, Health and Social Affairs in collaboration with the United States Agency for International Development (USAID) is supporting a health project to strengthen and improve infectious disease surveillance. The implementation for the project is carried out by Curatio International Foundation with NCDC and CMSI and the Partners for Health Reform*plus* (PHR*plus*) in collaboration with health authorities of the country.

We are working for _____and we would like to ask you some questions to understand your job with respect to these diseases. Your views will be combined with those of other health workers and your personal views will be anonymous. Your responses and viewpoints will be very helpful as we try to better control diseases in Georgia. No one is being evaluated. Please feel free to speak openly about what you do. This is not a supervision visit. There are no right or wrong answers.

1. Please list the duties that you carry out on a daily basis. Could you provide your written job description?
_____
_____
_____

2. What are the main five infectious disease problems which are mostly reported to this CPH? (mention in descending order)
_____
_____
of them VPDs
_____

3. Have you ever had a chance to see a case of the following diseases personally?

| Diphtheria | Measles | Hepatitis B | Rubella | Mumps | Tetanus | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

3.A. Please list the duties that your CPH has to carry out with regards to VPDs. Could you also show me the document that defines such functions for the organization and for their staff? [Interviewer, please request the documents and try to confirm that such functions are reflected either in the statute or bylaws or any other document for the organization and for the staff]
_____
_____
_____

4. Please describe disease surveillance system? What does it involve? What do you think is your role in disease surveillance

_____
_____

5. Have you received any training on disease surveillance and response? _____
When last time _____? By whom_____? What topics did it cover?_____

6. Are there any documents available at the facility (ex. certificate of attendance, handouts, guidelines) proving that the respondent undertook a training course? _____ (yes/no)

7. Do you have a decree/national manual/guidelines for surveillance of VPD at your facility? _____
Do you have any comments about these guidelines and if yes could you share the comments with us?
_____
_____

**I. CASE IDENTIFICATION / DETECTION**

1. Could you show us a register (where you record cases of infectious diseases based on emergency notifications from health providers)?

*for interviewer*: What information is recorded about cases of all infectious diseases in the form ?
_____

observe if the form is
standard _____ nonstandard _____

Check if the following is routinely recorded?
Name _____
Age and sex _____
Organized / no organized _____
Place of residence/address _____
Immunization status _____
Date symptoms started _____
Date of diagnosing _____
Date treatment started
Final diagnosis _____
Outcome of illness _____
Lab result_____

_____

2. What difficulties do you face in obtaining good information about cases (e.g., during outbreaks)? What factors facilitate your ability to obtain information about cases?
_____
_____

3. Do you have a written standard case definition at this facility for: (observe and fill out the table)

| Diphtheria | Measles | Hepatitis | Rubella | Mumps | Tetanus | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

Are you able to use them_____? If not, why? _____

4. Are you getting information about VPD cases from non-governmental providers (doctors, laboratories)? _____Any examples? _____

## II. CASE CONFIRMATION

(for specimens of VPD that cannot be analyzed at your laboratory)

1. Do you have written guidelines for specimen collection, handling and transportation to the next level? _____And, if yes, can we take a look at the document. [Interviewer please make sure the document presented relates to the issue in questions]

Do you have any comments about these guidelines?
_____

| 2-6 | Diphtheria | Measles | Hep B | Rubella | Mumps | AFP | Pertussis |
|---|---|---|---|---|---|---|---|
| Do you send specimens to an outside laboratory for | | | | | | | |
| What type of specimen? | | | | | | | |
| Where and by whom is it collected? | | | | | | | |
| How do you store it until shipment? | | | | | | | |
| Do you have the capacity to transport specimens to a higher level lab? | | | | | | | |

7. What difficulties have you encountered with regards to transportation/case confirmation?
_____
If you have found any ways of overcoming them, what are they?
_____

8. How long has it generally taken to get the laboratory results? (Probe for whether received any feedback about specimens being inadequate or not favorable for analysis)
_____

## III. NOTIFICATION/REPORTING

1. Do you have standard forms for notification /reporting cases of infectious diseases?

2. Have you lacked them at any time during the past 6 months?

3. What requires immediate notification of the higher level? _____

3a. Whom are you notifying? _____

3b. What is the time-frame for this notification? _____

4. How do you usually make notification: By fax: ____; By telephone ____;
By e-mail____; In person____

5. Which VPDs are reported monthly _____more frequently_____?

6. Do you have written instructions as to how and when to submit reports about cases of infectious diseases? (observe) Yes □ No □

7. Do you have designated person for data reporting?

8. Have you submitted any reports about cases of infectious diseases in the past 3 months? _____?
May we see copies of these reports?

How many of them were submitted on time? _____

9. What factors facilitate/impede your ability to report in a timely manner?
_____
_____

10. Check whether the information from the reports submitted by subordinated facilities is transferred into the summary report (that goes to the next level) correctly _____

11. Are there any reasons why you would not like to report to the next level? And if there is could you elaborate why? _____

12. How can reporting be improved?
_____
_____

## IV. DATA ANALYSIS

1. Are you doing data analysis regarding VPDs at the facility? [Probe on any calculations, plotting of data, monthly reviews of figures, or use of data for annual planning and budgeting]
_____

2. Is there anyone responsible in this facility for data analysis? _____
_____

2a. What difficulties do you face to analyze your data here at the facility?
_____
2b. What factors facilitate your ability to analyze these data?
_____

3. Can you describe what analysis you do (or would do) during an outbreak? Do you aggregate VPD surveillance data by:
Age, sex? _____ Evidence of this? _____
Place? _____ Evidence of this? _____
Time? _____ Evidence of this? _____
Immunization status? _____ Evidence of this ? _____

How do you use this analysis?
_____
_____

4. Can you describe what analysis you do routinely (on a monthly, quarterly or annual basis)? Can you show us an example of such analyzed data?
_____
_____

5. Do you perform trend analysis? _____ Evidence of this ? _____

6. How many cases would you need to see to consider taking an action? What is the threshold? (___cases, ___% increase, ____rate)? List for each of the VPDs separately?

| Diphtheria | Measles | Hepatitis B | Rubella | Mumps | Tetanus | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

7. Do you have population demographic data? *[Observe presence of demographic data at site (e.g., population <5y, population by rayon/village, total population) ]*
_____

8. What is the source of your denominator? _____ (observe rates derived)

**V. INVESTIGATION**

1. How would you determine whether your suspected case (of …) indicates a possible disease outbreak? (Probe if there are threshold levels for different diseases).

| Diphtheria | Measles | Hepatitis B | Rubella | Mumps | Tetanus | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

2. Have you experienced any outbreak of VPD lately? _____of what disease?
_____

2A. Do you have dedicated person at your facility to investigate outbreak?

3. How did you discover that there was an outbreak?

_____

4. Have you ever been involved in an outbreak investigation? _____

5. Were you involved with the investigation of the last outbreak? What kind of activities where you involved in?

_____
_____

What difficulties did you face in trying to take these actions?

_____

What factors facilitated your ability to take these actions in a timely manner?

_____
_____

6. Who else was involved and what they did?

_____
_____

7. Is there a gap between the number of suspected outbreaks and actual number investigated? Do you keep track of such data?

_____

VI. **RESPONSE** (including epidemic preparedness)

1. Do you have written instructions or a plan for responding to cases and outbreaks of VPD? _____*[ obtain the document, observe]*

2. Do you have an emergency stocks of vaccines, drugs and supplies [for outbreak preparedness] at all times in the past year?

What (specify) _____in what quantities (observe)? _____

_____

3. Have you experienced shortage of drugs, vaccines or supplies during the most recent epidemic (outbreak)?

4. Is there a separate budget line for epidemic response or access to funds for epidemic response?

5. Does the region/rayon have a rapid response team for epidemic? _____

6. For the most recent outbreak of a VPD, what kinds of response actions did you take?

_____
_____

7. Did you respond within 3 days after notification? (observe the report)

_____

8. Were you able to carry out the actions you felt were necessary to control the outbreak? What difficulties did you face?

_____
_____

9. For which activities or measures were you not satisfied with implementation of response?

_____
_____

10. Have you participated in mass vaccination campaigns in your district, region? When?_____
Because of what _____? Did you calculate coverage? _____

11. Can you give me examples of the evidence that your data are used for taking action? (Probe for planning, resource mobilization or allocation, epidemic preparedness, early response, optimization of existing practices, etc.)
Immediate? _____
Medium term? _____
Long term? _____

## VII. FEEDBACK

1. After submitting a report to a higher level, do you get feedback?_____ When was this last time? _____ If yes, how?

_____
_____

2. What would you most like to know about the information you send in? (Probe for how their CPH might compare with others, receipt of forms, quality of reporting, getting a copy of an annual or compiled report, etc.)

_____
_____

3. How would you use that information? What would you suggest as a mechanism for this feedback?

_____

4. After doing analysis, what, if any, information do you feed back to the subordinated facilities (Probe – incomplete data, analyzed data, comparative between facilities, reports?)

_____

5. Are there any regular mechanisms in place to provide feedback?

6. What information do you routinely share with the health administration?

_____
_____ How often? _____

7. Have you been supervised on surveillance activities in the past 6 months? _____

8. How many supportive IDS-related monitoring visits have you conducted in the past 6 months? _____ any reports? _____ How long do you take for a facility visit?

_____What aspects of IDS would you normally cover during a supervision visit? [probe if supervision include data analysis or evidence based problem solving].

9. What difficulties do you face in conducting adequate effective supervision of your facilities? What factors facilitate your ability to conduct good supervision?

_____

_____What do you think are the possible solutions? _____

RESOURCES at the facility:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Electricity | □ | _____ | | Generator | □ | | |
| Vehicles | □ | Fuel | □ | Bicycle | □ | | |
| Computer | □ | Stat. software | □ | Printer | □ | Calculator | □ |
| Telephone | □ | Fax | □ | Modem | □ | Stationery | □ |

THINGS TO VERIFY:

- ✓ Surveillance decrees / guidelines / Case definitions
- ✓ Clinical register
- ✓ Reporting forms received from subordinate facilities and summary reports for the past few months
- ✓ Laboratory records
- ✓ Demographic data
- ✓ Data analysis worksheets, reports
- ✓ Outbreak investigation reports
- ✓ Organizational bylaw/ operational manual
- ✓ Job descriptions

Closing question: Are there any questions that you have for me or any other points that you think I should be aware of, regarding disease surveillance or how it fits into your job responsibilities?

_____

Thank you very much for sharing your time and views with us today.

## GUIDING QUESTIONS FOR

## THE LOCAL HEALTH ADMINISTRATION OFFICIALS

1. What are the impacts of the disease burden in this region/rayon? What are the leading infectious diseases in this district? [*Probe further if they have not mentioned the diseases below*] Do you think that any of the following are key problems in your region/rayon?

| Diphtheria | Measles | Hep B | Rubella | Mumps | Tetanus | AFP | Pertussis |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

2. What actions have been taken to diminish these diseases in this district*?*

_____

3. What is the process that is used to determine how much of the local budget will be allocated for the health sector? What criteria are used in making such allocation decisions?

_____

4. How is the relationship and communication between the health administration and CPH concerning disease surveillance?

_____

_____

4a. Could you show us types of reports/analyses you receive from CPH? (make notes)

_____

4b. Have you issued any directives/instructions with regard to prevention or control of infectious diseases recently?

_____

5. What kind of information would be useful to you in deciding on allocation of local resources to disease surveillance and control activities?

_____

6. How does the administration scrutinize the budget to ensure that key disease control activities are included?

7. What community groups should be included in infectious disease surveillance? Do you feel that training community officials to assist in detecting possible outbreaks would be an effective approach to improving timeliness of response? (Probe for reasons why)

_____

_____

8. Are there any mechanisms for accessing resources beyond the regional/rayon level in case of disease outbreaks? _____

9. Do you have any additional suggestions about how the administration could contribute to improving disease surveillance and control?

## HEALTH WORKER'S INTERVIEW TOOL (facility level)

Respondents:
Ambulatory: Chief of the ambulatory, pediatrician
PAU: Chief of the polyclinic, person responsible for the surveillance (deputy chief), pediatricians, chief of the laboratory
Hospital: Chief of the hospital, person responsible for the surveillance, epidemiologist, pediatricians, chief of the laboratory, infectious control group

Date: _____ Interviewer: _____
Respondent: _____ Position: _____
Name/type and location of a health facility:_____

Introductions and warm-up: The Ministry of Labor, Health and Social Affairs in collaboration with the United States Agency for International Development (USAID) is supporting a health project to strengthen and improve infectious disease surveillance. The implementation for the project is carried out by Curatio International Foundation and the Partners for Health Reform*plus* (PHR*plus*) in collaboration with health authorities of the country.

We are working for _____and we would like to ask you some questions to understand how you do your job with respect to these diseases. Your views will be combined with those of other health workers and your personal views will be anonymous. Your responses and viewpoints will be very helpful as we try to better control diseases in Georgia. No one is being evaluated. Please feel free to speak openly about what you do. This is not a supervision visit. There are no right or wrong answers.

1. Please list the duties that you carry out on a daily basis with regard to infectious diseases.
_____
_____

2. What are the five disease problems that are most often reported at this facility? (List in descending order.)
_____
_____
main infectious diseases? _____

3. Have you ever seen a case of the following diseases at your facility?

| Diphtheria | Measles | Hepatitis B | Rubella | Mumps | Tetanus | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

4. Please describe the disease surveillance system at your facility? What does it involve? Probe for why might it be important to do disease surveillance.
_____
_____

5. What do you think is your role in disease surveillance?
_____

6. Have you received any training on disease surveillance and response? _____
When was the last time _____? By whom_____? What topics did it cover?
_____

7. Are there any documents available at the facility (ex. certificate of attendance, handouts, guidelines) proving that the respondent undertook a training course? _____ (yes/no)

8. Do you have a decree/national manual/guidelines for surveillance of VPD at your facility?
_____
Do you have any comments about these guidelines?
_____

## I. CASE DETECTION AND REGISTRATION

1. When a patient comes in with an illness, what would make you suspect he or she has:

| | |
|---|---|
| Diphtheria | |
| Measles | |
| Hepatitis B | |
| Rubella | |
| Mumps | |
| Tetanus | |
| Poliomyelitis | |
| Pertussis | |

2. Could you show us a clinical register (where you record cases of infectious diseases)_____

3. For interviewer: What information is recorded about cases of all infectious diseases in the form?
_____

Does the following get routinely recorded? (observe whether the form is
standard _____ nonstandard _____)
Name _____
Age and sex _____
Organized / no organized _____
Place of residence/address _____
Immunization status _____
Date symptoms started _____
Date of diagnosing _____
Final diagnosis _____
Outcome of illness _____
Lab result_____

4. What difficulties do you face when recording these cases? _____

5. When was the last time you run out of forms #60? _____
Can you describe what you do if you ever run out of the forms?)
_____

6. Do you have a written standard case definition at this facility for: (observe and fill out the table)

| Diphtheria | Measles | Hepatitis | Rubella | Mumps | Tetanus | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

6a. Do you use them? (select one of the diseases from the register)
_____

7. If you do not have or do not use SCD, what guides you towards identification of suspected cases of these diseases? Probe for any written instructions, textbook, reference or guide. If mention guidelines, reference, instructions, probe for how easy they are to use or whether are reasons why they would not use them. Indicate bibliography that is used.

_____
_____

8. Do you think there are some individuals who are ill who do not come to a health facility? For example, someone with measles? Hepatitis B? _____

If so, where do these people go for care? _____

9. Can you describe any instances in which such facilities (providers) have let you know of VPD cases?
_____

## II. CASE CONFIRMATION

1. For which of the following diseases can you conduct laboratory tests at this facility? [If cannot confirm any of the VPD diseases, skip to questions #_____]

| Diphtheria | Measles | Hepatitis B | Rubella | Mumps | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|
| | | | | | | |

2. Can you describe what laboratory tests are done here for the above diseases? Who does these tests?

| Diphtheria | Measles | Hepatitis B | Rubella | Mumps | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|
| | | | | | | |

3. [Now I'd like to ask about what's easy or hard about doing lab tests]. What difficulties do you generally face in trying to carry out these tests? (Probe: lack of equipment, supplies/reagents, proper preparation of specimens, training, personnel).

_____

_____

4. Have you found any ways to overcome the problems?

_____

_____

Are there any other factors that help you or make it easier to do the laboratory confirmation?

_____

_____

5. In addition to treating the patients, are there any other uses made of the results of the laboratory tests? (Probe: quality control, reporting for vertical programs, reviewed periodically on-site for percentage of cases confirmed; reviewed by a higher level)

_____

_____

Case confirmation that requires an outside laboratory

| 6-13 | Diphtheria | Measles | Hep B | Rubella | Mumps | AFP | Pertussis |
|---|---|---|---|---|---|---|---|
| Do you send specimens to an outside laboratory for | | | | | | | |
| What type of specimen? | | | | | | | |
| How do you collect it at this facility? | | | | | | | |
| How do you store it until shipment? | | | | | | | |
| How do you transport it? Do you have transport media? | | | | | | | |
| What patient info do you include? | | | | | | | |
| Is cold chain for specimens transportation functioning at this facility (observe)? | | | | | | | |
| Is info about specimens you send recorded somewhere at the facility (observe)? | | | | | | | |
| Are there any guidelines available at the facility regulating collection, storage, and transportation of specimens? | | | | | | | |

14. What difficulties have you encountered? (probe for availability of specimen collection kits at the facility or transport media, transportation).

_____

If you have found any ways of overcoming them, what are they?

_____

15. How long has it generally taken to get the laboratory results? (Probe for whether received any feedback about specimens being inadequate or not favorable for analysis)

## III. NOTIFICATION / REPORTING

1. Do you have standard forms for notification/reporting cases of infectious diseases? (check availability of forms) _____

2. Have you lacked them at any time during the past 6 months?

3. Do you have written instructions as to how and when to notify/submit reports about cases of VPDs? (observe) _____

4. What requires immediate notification of the higher level? _____

4a. To whom are you sending this notification? _____

4b. In what timeframe are you sending the notification? _____

4c. What information is included in this notification? _____

5. How do you usually make notification?: By fax: ____; By telephone ____; By e-mail____; In person____

5a. Do you send notification card for every VPD case? _____

6. Which VPDs are reported monthly _____more frequently_____?

7. Have you submitted any reports about cases of infectious diseases in the past 3 months? _____? May we see copies of these reports? How many of them were submitted on time? _____

8. What factors facilitate/impede your ability to report in a timely manner?
_____
_____

9. Check whether the information from the registry is transferred into the summary report (that goes to the next level) correctly? _____

10. Are there any reasons why you would not like to report to the next level?
_____

11. How can reporting be improved?
_____

## IV. DATA ANALYSIS

1. Are you doing data analysis related to VPDs at the facility? [(Probe on any calculations, plotting of data, monthly reviews of figures, or use of data for annual planning and budgeting)
_____

2. Is there anyone responsible in this facility for data analysis? _____

What difficulties do you face trying to analyze your data here at the facility?
_____
What factors facilitate your ability to analyze these data?
_____

3. How are the laboratory results incorporated into the routine information (medical record, form #3, notification form CD-3)? (probe for whether suspected cases are corrected when laboratory results are available)
_____

4. For VP diseases with the annual number of cases >5. Do you aggregate data by:
Age, sex? _____ Evidence of this? _____
Place? _____ Evidence of this? _____
Time? _____ Evidence of this? _____
Immunization status? _____ Evidence of this ? _____

What do you do with this analysis? _____

5. Do you perform trend analysis? _____ Evidence of this ? _____

6. For which VPD do you have an action threshold

What is it (___cases, ___% increase, ____rate)? List for each of the diseases separately?

| Diphtheria | Measles | Hepatitis B | Rubella | Mumps | Acute Flaccid Paralysis | Pertussis |
|---|---|---|---|---|---|---|
| | | | | | | |

7. Observe presence of demographic data at site (e.g., population <5y, population by village, total population) _____

8. What is the source of your denominator? _____ (observe rates derived)

## V. INVESTIGATION

1. Have you experienced any outbreak (suspected) of VPD since 1995? _____Of what diseases?
_____

2. How did you discover that there was an outbreak?
_____

3. Were you involved with the investigation of the outbreak? What kind of activities where you involved in? (Probe for investigation of the source of the outbreak, assisting in initial specimen collection, continuing specimen collection).
_____
_____

VI. **RESPONSE** (including epidemic preparedness)

1. Do you have written instructions for responding to cases and outbreaks of VPD?
_____

2.What actions did you take / would you take, upon discovery of the suspected outbreak in your community? (Probe for informing regional/rayon CPH, informing community leaders, initiating case containment, health education and prevention activities, etc.)
_____
_____

3. Did you modify your community educational activities based on the findings of an outbreak investigation? Yes No

4. What difficulties did you face while carrying out these activities?
_____
What factors facilitated your ability to take these actions in a timely manner? _____
_____

5. Did you initiate these actions on your own or were you asked to take these actions? _____ By whom? _____

**VII. FEEDBACK**

1. After submitting a report to a higher level, do you get a feedback? If yes, how? (Probe for receiving compiled data from the higher level, information about the quality of reporting, etc) (Probe for feedback given during meetings, letters, visits to facilities, etc.)
_____

2. When was the last time that you received feedback from the rayon or region about the forms or reports that you sent in? _____
Can you describe the feedback you received?
_____
_____

(Probe: feedback on timeliness/completeness, content, usefulness)

3. What would you most like to know about the information you send in? (Probe for comparing their facility with others, receipt of forms, quality of reporting, getting a copy of an annual or compiled report, etc.) _____

4. How would you use that information? What would you suggest as a mechanism for this feedback?
_____

5. Have you been supervised on surveillance activities in the past 3 months? _____

6. Suppose an outbreak occurs, who do you think you will work with at the community level besides health staff? _____

7. [If interviewee has experience with outbreaks].
a) When you have carried out response measure to outbreaks, who have you worked with, besides health staff? _____
b) Who has been the most helpful in informing the community?
c) What would you say has been the most successful experience in working with the community to control an outbreak?
_____

**VIII. ORGANIZATIONAL STRUCTURE AND ADMINISTRATION**

1. Is there organizational bylaw or operational manual available in a facility, which clearly defines roles and responsibilities in implementation of IDS requirements and procedures? _____ (yes/no)

2. Are specific tasks clearly assigned to specific staff members according to their expertise and qualification? _____ (yes/no)

3. Do the staff members have job descriptions, which include separate paragraph/lines on their responsibilities in regard with IDS? _____ (yes/no)

RESOURCES at the facility:

| | | | |
|---|---|---|---|
| Electricity | _____ | Generator | |
| Vehicles | Fuel | Bicycle | |
| Computer | Stat. software | Printer | Calculator |
| Telephone | Fax | Modem | Stationery |

THINGS TO VERIFY:

- ✓ Surveillance decrees / guidelines / Case definitions
- ✓ Clinical register
- ✓ Reporting forms received from subordinate facilities and summary reports for the past few months
- ✓ Laboratory records
- ✓ Demographic data
- ✓ Data analysis worksheets, reports
- ✓ Outbreak investigation reports
- ✓ Organizational bylaw/ operational manual
- ✓ Job descriptions

Closing question: Are there any questions that you have for me or any other points that you think I should be aware of, regarding disease surveillance or how it fits into your job responsibilities?
_____

Thank you very much for sharing your time and views with us today.

# INTERVIEW WITH ALTERNATIVE CARE PROVIDERS

Programmatic decisions to be informed by data

1. In what ways can alternative care providers help to improve reporting of diseases?
2. In what ways can alternative providers of care help in providing a response to outbreaks?

Proposed Methods

Individual interviews (or possibly group interviews) with different types of providers of care beyond the governmental health system.

Participants

Categories of participants will be identified through discussions with rayon CPH, health administrations, health workers. Participants are likely to include private practitioners (MDs: Pediatricians, Dentists), traditional healers (non MDs), pharmacists?

Question Guide

1. What infectious diseases do you see or treat most often? Can you give any numbers? Probe for measles, hepatitis, diphtheria, and other VPDs.

_____

_____

2. What are you diagnostic criteria for

| | |
|---|---|
| Diphtheria | |
| Measles | |
| Hepatitis B | |
| Rubella | |
| Mumps | |
| Tetanus | |
| Poliomyelitis | |
| Pertussis | |

3. Do you keep any kind of written records of the infectious diseases that you see or the treatment that you provide? If so, please describe the types of records that you keep.

_____

_____

3a. Which VPDs require urgent notification, to whom and in what time-frame?

_____

3a. Do you send notification card for VPDs? for which VPDs and to whom?

_____

4. Are there any times when you refer your infectious diseases patients to an ambulatory, polyclinic, or hospital? Why would you do this? Why would you not do this?

_____
_____

5. Are there any times when you let other people know if you are seeing a lot of cases of an infectious disease? Why would you do this? Are there any reasons why you would not do this?

_____
_____

6. Who else do you inform? Probe: local health workers, hospital officials, village executives or other officials?

_____
_____

7. How do you communicate this information _____any standard procedures?

_____

8. Have you ever been asked by the local government to help when there has been an outbreak of disease? If so, what steps have you taken? Probe: inform patients of the outbreak, instruct them on preventive measures.

_____

9. Can you describe any other ways in which you have worked together with local government or health officials? What are incentives and obstacles for working with local health officials?

_____
_____

## Laboratory Assessment Tool

## Republic of Georgia

Date: _____ Interviewer: _____

Respondent _____ Position: _____

Affiliation/type and location of a laboratory _____

NOTE: first make a short visit to the lab, observing how it is equipped and maintained to get a general overview.

1. Building facilities and utility services

1.1 Briefly describe the state of the building, the number of working rooms & the presence of air conditioning

_____
_____
_____
_____
_____

1.2 Is this laboratory connected to hospital services? _____ If yes, type of service _____

1.3 What % of the working day (<50%, 50-95%, >95%) do you have the following services available?
Electricity_____ Running water_____ Gas_____

1.4 Is there an emergency generator or other back up power source? _____ If so, which of the following systems are protected:
Refrigerators/freezers Y/N Ventilation/AC Y/N Computers Y/N Incubators Y/N
Other _____

1.5 What types of communication systems are available?
Telephone Fax E-mail Regular mail Other_____

1.6 Do you perform clinical analysis? _____ If yes, for: (write yes/no)

| | | | |
|---|---|---|---|
| - Bacteriology<br>- Serology<br>- Virology (culture)<br>- Parasitology | | - Mycology<br>- Biochemistry<br>- Hematology<br>- Hormonology | |

2. Tests performed at the laboratory for selected targeted diseases

| | Confirmation possible here? | What test(s) do you use to confirm the diagnostic? | No of tests performed in 2001 | Lacked diagnostic ability or shortage of reagents/materials at any time in the past 6 months? |
|---|---|---|---|---|
| Diphtheria | | | | |
| Measles | | | | |
| Hepatitis B | | | | |
| Rubella | | | | |
| Mumps | | | | |
| Dysentery | | | | |
| Watery diarrhea | | | | |
| Meningitis | | | | |
| | Confirmation possible here? | What test(s) do you use to confirm the diagnostic? | No of tests performed in 2001 | Lacked diagnostic ability or shortage of reagents/materials at any time in the past 6 months? |

3. Antibiotic susceptibility testing

3.1 Do you perform antibiotic susceptibility testing (AST)?
_____

3.2 If yes, which technique/media/ system do you use?
_____

3.3 How many AST's do you perform monthly?
_____

3.4 How many ATB's are you able to test?
_____

3.5 How do you keep records of the susceptibility?
_____

3.6 What do you do then with the strain?
_____

4. Reagents & supply

4.1 Do you often face shortage of reagents? Y/N _____

→ If yes, which reagents are mainly concerned?
_____
_____
_____

4.2 Do you prepare home-made reagents? If yes, which ones & how?
_____
_____
_____

4.3 Do you have a system of stock management showing the availability of reagents, consumables & small material? If yes, which one (paper sheets, computer …), are you able to show us your actual stock?
_____
_____
_____

4.4 When you manage your stock, do you check expiration dates?
_____
_____

4.5 Do you use expired products? if yes which one & in which cases ?
_____
_____

4.6 How do you order the reagents & consumables needed for your laboratory? where? and where is the money from? (state, laboratory fee, …)
_____
_____
_____

4.7 Provide name & addresses of your main suppliers
_____
_____
_____

4.8 How do you obtain distilled water?
_____
_

5. Laboratory staff

5.1 What is the highest level of microbiology training achieved by technical staff performing diagnostics tests? Provide some details

Degree level
_____
Diploma course of specific training course
_____
In-laboratory training
only_____

Other (describe)
_____

5.2 Has training been conducted for your laboratory staff in the past 3 years? Y/N _____ Give subject of the training:
- Formal training on site Y/N
_____
- Formal training at the national lab Y/N
_____
- International training Y/N
_____
- Informal training of the staff
_____

5.3 About the prescription of the analysis
Who usually decides which tests to perform when the samples arrive at the laboratory?
- The prescriber Y/N
- The responsible of the laboratory or one of his assistant Y/N
- A lab technician or a lab nurse Y/N

Who makes decisions about further testing if indicated?
_____
Who reviews the results before the request is sent to the requesting clinician?
_____

5.4 Number of full-time equivalent staff:
- PhD / doctorates / high level biologist: _____
- Lab technician or lab nurse: _____
- Lab assistant (sterilization, sampling, media preparation): _____
- Secretary: _____
- Cleaning person: _____

6. Specimen collection and handling

6.1 What % of samples is collected on site? _____ How many samples do you treat every day?
_____

6.2 Quality of the sampling
- Do you have problems with quality of specimens you are receiving from outside?
_____
- Give details about this
_____
- Approximately what proportion of specimens is received in unsatisfactory condition?
_____

6.3 Does the laboratory provide standardized request forms to order laboratory tests?
_____

6.4 What patient info is contained on the request forms?
- Name Y/N _____
- Age Y/N _____
- Sex Y/N _____

- Address Y/N _____
- type of specimen Y/N _____
- temperature of the patient Y/N _____
- clinical details Y/N _____
- name of prescriber Y/N _____
- other

_____

What do you do if the information is not complete?

_____

6.5 How do you identify each specimen?

_____

6.6 Do you have standard procedure for sampling? Y/N _____
→ If yes, in which language are written these procedures?
_____
→ If yes, does the staff have an easy access to theses procedures?
_____
→ If yes, do you send these procedures to the main clinicians and prescribers?
_____

6.7 Is all patient info recorded in the lab? Y/N ___ What info is recorded? (write "R" after each item in question 6.4)

6.8 What do you do with the specimens after testing?

_____

7. <u>Working hours of the laboratory</u>

7.1 What are the working *days* of the laboratory?

_____

7.2 What are the working *hours* of the laboratory?

_____

7.3 Does the laboratory accept specimens during evening / night / WE shifts?
_____
→ If yes, what is the mechanism?
- Night shift Y/N
- Call at home Y/N
- Other

_____
→ If yes, how are the following samples handled?

| | | | | | |
|---|---|---|---|---|---|
| CSF | Plated immediately ___ or stored: | at 4C | Ambient temp | 35C | |
| Blood culture | Plated immediately ___ or stored: | at 4C | Ambient temp | 35C | |
| Urine | Plated immediately ___ or stored: | at 4C | Ambient temp | 35C | |
| Stool | Plated immediately ___ or stored: | at 4C | Ambient temp | 35C | |

→ If not, what is happening?

_____

8. Communication with other laboratories

8.1 Does your laboratory refer bacteriology isolates or serum samples to NCDC or a reference laboratory? Y/N ____
→ If yes, to which laboratory?
_____
→ If yes, for what reason:
- confirmation Y/N
- identification of unknown organism Y/N
- test not performed on site Y/N
- participation to the strain library at NCDC, Y/N

→ If yes, by what method? _____
→ If yes, for what type of analysis? _____
→ If yes, number of samples sent per month _____
→ If yes, how do you send the samples ?
_____
→ If yes, do you use transport media ? Y/N ____ Which one ?
_____
→ If yes, does the laboratory to whom you have sent the sample give you the result back? Y/N _____
→ If yes, do you have a detailed procedure that describes how to do it? Y/N
_____
→ If not, why not?
_____

8.2 Does your laboratory receive samples from other laboratories ? If yes, from where and for what purpose ?
_____
_____
_____

8.3 Are you able to exchange certain reagents with other laboratories in case of shortage of one of you ? Y/N _____

8.4 Are you able to get some advice or documentation from another laboratory in case of problem? Y/N _____
→ If yes, to which laboratory?
_____

9. Maintenance & repair of the equipment

9.1 Do you perform preventive maintenance for your equipment? Y/N _____
→ If yes, which actions?
_____

9.2 Do you have temperature charts for fridges Y/N ___ freezers Y/N ___ incubators Y/N ___ autoclaves Y/N ___ ?

9.3 Do you have a person specially in charge of the repairing of the equipment? Y/N _____
→ If yes, is it a member of the staff? Y/N _____ What is his background?
_____

→ If yes, is it a contract with a private society? Y/N _____, Which society?
_____
→ If no, how do you perform the repairing?
_____

9.4 Do you keep a track of each repair made on each piece of equipment ("life log book") ? Y/N
_____

10. Reporting & recording procedures

10.1 Do you report the infectious diseases you diagnosed?
→ If yes, to whom? CPH? Y/N ____Central laboratory? Y/N ____ Other?
_____
→ If yes, is there a document that regulates reporting procedures?
_____
→ If yes, by what means do you send these notifications?
_____
→ If yes, does the laboratory use standardized forms to report lab results? Y/N _____Can we see them? Y/N _____
→ If yes, do you keep a record of these notifications? Y/N
_____
→ If not, why not?
_____
_____
_____

10.2 Do you record the activity of your laboratory? Y/N _____
→ If yes, do you prepare summary reports? Y/N _____How often?
_____
→ If yes, what do you include in your summary?
_____
_____
_
→ If yes, do you record these summaries on a computer? Y/N ____ Are data back-uped ? Y/N
_____
→ If yes, describe briefly the logbooks you are using to record your data
_____
_____
_____
_____
_____
→ If not, why?
_____

10.3 Are you able to **easily** find a previous result performed by your laboratory?
- Using the name of patient? Y/N_____
- Using the type of analysis? Y/N_____
- Using the date of analysis? Y/N _____
- Using the number of the analysis? Y/N _____

11. Quality control, procedures and organization

11.1 How do you perform internal quality control?_____
_____
_

11.2 Do you have any special strain you can use for quality control? Y/N _____
→ If yes, which one? NCDC Y/N _____ ATCC Y/N _____
→ If not, why?
_____
→ If not, how do you control the quality of your AST?
_____
_____

11.2 How do you test the sterility of the homemade culture media?
_____

11.3 Does the laboratory participate in any external quality control program? Y/N
_____
If yes, which ones? _____
When was the last time? _____
→ If yes, what were the results?
_____
→ If not, why?
_____
→ If not, would you be interested to perform such external quality control? Y/N
_____

11.4 Do you have any standard protocols or guidelines regarding operating procedures at your laboratory? Y/N ____
→ If yes, give some details (analysis concerned, details provided, language used, …)
_____
_____
→ If no, why?
_____
_____
_____

12. Biosafety, hygiene & security

12.1 How often do you use the following items: (N)ever, (S)ometimes, (U)sualy or (A)lways:
- Labcoat __
- Gloves __
- Protection glasses __

12.2 Who washes labcoats and napkins used in the lab?
_____

12.3 Do you have procedures for: Y/N

- Hand washing __
- Disinfections __
- Sterilization __
- Material washing __
- Waste disposal __
- Laboratory cleaning__

12.4 Which disinfectant(s) do you use regularly?

_____
_____
_____

12.5 What materials are the benches of your laboratory made of?

_____

13. Annexes

13.1 Annex 1: List of material & equipment

13.2 Annex 2: List of analysis performed by the laboratory

Thank you for the time you gave us.

## List of the Materials

To be included: fridges, freezers, autoclaves, incubators (precise temp.), centrifuges, microscope (precise no of oculars, origin of light, different lenses), spectrophotometers, ELISA systems (precise incubator, washer, reader), agitator, water bath, coagulometer, …

Don't forget any equipment, even if it has not been in order for a long time.

| Type of Material | Trade mark & reference | Year of acquisition | Works Y/N | Details & comments |
|---|---|---|---|---|
| Fridge | | | | |
| Fridge | | | | |
| Freezer | | | | |
| Centrifuge | | | | |
| Microscope | | | | |
| Microscope | | | | |
| Autoclave | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## List & Price of Analysis

| Name | No/ month | price | Name | No/ month | price | Name | No/ month | price |
|---|---|---|---|---|---|---|---|---|
| **BACTERIOLOGY** | | | **HEMATOLOGY** | | | **BIOCHEMISTRY** | | |
| Stool culture | | | WBC | | | Glucose | | |
| CSF culture | | | RBC | | | Creatinin | | |
| Blood culture | | | WBC diff. | | | Bilirubin | | |
| Urine culture | | | Hemoglobin | | | Urea | | |
| Vaginal culture | | | Hematocrit | | | Uric acid | | |
| Urethral culture | | | ESM | | | Cholesterol | | |
| Other swab specimen culture | | | | | | Triglycerid | | |
| Antibiotic susceptibility testing | | | | | | Bicarbonat | | |
| Salmonella Typing | | | | | | | | |
| Shigella Typing | | | | | | Sodium | | |
| Tuberculosis diagnosis | | | **IMMUNO-HEMATOLOGY** | | | Potassium | | |
| | | | Blood grouping | | | Calcium | | |
| | | | Rhesus | | | Magnesium | | |
| **SEROLOGY** | | | Irregular antibodies | | | Iron | | |
| Hepatitis B | | | | | | Chloride | | |
| Hepatitis C | | | | | | | | |
| AIDS | | | | | | ASAT | | |
| Brucella | | | | | | ALAT | | |
| Typhoid fever (Widal) | | | **PARASITOLOGY / MYCOLOGY** | | | GGT | | |
| Syphilis | | | Stool Parasitology | | | PAL | | |
| Measles | | | Leishmania | | | LDH | | |
| Rubella | | | Malaria | | | CK | | |
| Herpes | | | | | | | | |
| Toxoplasmosis | | | Candida albicans, direct ID | | | | | |
| | | | Candida albicans, culture | | | | | |
| | | | Other yeast diagnosis | | | Protein electrophoresis | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OTHER** | | | Aspergillus diagnosis | | | | | |
| | | | Dermatophytes diagnosis | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

# Annex C: Notification and Reporting Forms

Registration Number

**Infectious Disease Monitoring form**
**#1 Monthly CD-1**

Region_____ Rayon _____
Month_____ Facility_____
Bank account Number _____

| Disease | Number of cases (I) among them deaths (II) | | | | | | Comment |
|---|---|---|---|---|---|---|---|
| | Total | | under 1 year | | 1-15 years | | |
| | I | II | I | II | I | II | |
| Diphtheria | | | | | | | |
| Diphtheria tox+ carrier | | | | | | | |
| Pertussis | | | | | | | |
| Tetanus | | | | | | | |
| Neonatal tetanus | | | | | | | |
| Polio | | | | | | | |
| Acute flaccid paralysis | | | | | | | |
| Measles | | | | | | | |
| Mumps | | | | | | | |
| Rubella | | | | | | | |
| Congenital rubella | | | | | | | |
| Hepatitis A | | | | | | | |
| Hepatitis B | | | | | | | |
| Hepatitis C | | | | | | | |
| Hepatitis of unconfirmed types | | | | | | | |
| Botulism | | | | | | | |
| Meningococcal infection | | | | | | | |
| Vaccinated against rabies | | | | | | | |
| Total diarrheal diseases (2) | | | | | | | |
| Among them dysentery, Salmonellosis and others | | | | | | | |

This form doesn't replace the official statistical reporting form

Responsible person _____ Signature_____

Tel: _____ Address, Fax, Mail_____

**Form #1**

Vaccination status of patient with infectious diseases

**Monthly CD-2**

| Disease | No. of cases | | Among them not vaccinated or violated schedule (II) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | under 15 y | Total | | 0-1 years | | 1-2 years | | 3-4 years | | 5-9 years | | 10-15 years | |
| | | | I | II | I | II | I | II | I | II | I | II | I | II |
| Diphtheria | | | | | | | | | | | | | | |
| Pertussis | | | | | | | | | | | | | | |
| Tetanus | | | | | | | | | | | | | | |
| Measles | | | | | | | | | | | | | | |
| Mumps | | | | | | | | | | | | | | |
| TB (new) | | | | | | | | | | | | | | |
| Among them TB meningitis | | | | | | | | | | | | | | |

Patient violated the schedule if the interval between DPT-1 and DPT-2 is more than 3 month;
If the interval between DPT-2 and DPT-3 is less than 1 month or more than 6 months,
if the interval between DPT-3 and DPT-4 is less than 1 year or more than 2 years;

If the interval between first and second boosters is more than 4 years
If the interval between second and third boosters is more than 10 years or not fully vaccinated.

| **Form #1 Monthly CD-3** | | | |
|---|---|---|---|
| Disease | No. of cases | Of which confirmed by Laboratory | |
| | | Bacteriological | Serological |
| Diphtheria | | | |
| Pertussis | | | |
| Meningococcal infections | | | |
| TB meningitis | | | |
| Typhoid | | | |
| Paratyphoid A, B, C | | | |
| Salmonellosis | | | |
| Dysenteria | | | |
| Coli-infection | | | |
| Anthrax | | | |
| Malaria | | | |
| Brucellosis | | | |
| Rabies in animals | | | |

Should be submitted to the National Center for Disease Control before the seventh day of the next month

Tbilisi, 380077, st. M. Asatiani #9, Tel. 37-16-77.39-64-38

# Urgent Notification Card

| | | | |
|---|---|---|---|
| 1. Diagnosis | | | |
| Confirmed by laboratory yes -- no--- | | | |
| 2. Name | | | |
| 3. Sex: Male --- Female | | 4. Age (for children under 15 please indicate the date of birth) | |
| 5. Address | | | |
| Location | | Rayon | Street, house, apt, |
| Resides in: | Individual house | Apartment building | Dormitory |
| 6. Name and address of the work place or children facility | | | |
| 7. Dates | | Disease started: | First visit to health facility |
| | | Diagnosis established | Last attended (the work place, school, kindergarten) |
| 8. Place of hospitalization | | | |
| 9. In case of an intoxication, please indicate the reason; in case of adverse reaction following vaccination, please indicate the type of reaction and the serial number of the vaccine. | | | |
| 10. Initial activities undertaken to prevent an epidemic and other additional data | | | |
| 11. The notification sent by Telephone----, Fax-------, E-mail------, courier -----, pager-------- | | Date | Time |
| Who dispatched and where to | | | |
| Who received and where from | | | |
| 12. Sent by_____ | Date | Time | |
| Registration number (in the form #60) | | Sent _____(Signature) | |
| 13. Notification received by: | Date: | Time: | |
| Registration number (in the form #60) | | Received _____Signature | |

## Statistical Report

Form IV-03

Name of the facility chief

Monthly

Name and address of the medical facility

**Monthly Report on infectious and parasitic diseases**

**Month _____ 19 _____**

| Name | ICD IX codes | N | Registered cases by age groups of the patients | | | |
|---|---|---|---|---|---|---|
| | | | Total | Including | | |
| | | | | 0-1 year | 1-4 year | 5-14 year |
| a | B | g | 1 | 2 | 3 | 4 |
| Typhus | 0.02.0<br>002.1-3.9 | 1 | | | | |
| Other Salmonella infections | OO3 | 2 | | | | |
| Shigellosis | OO4 | 3 | | | | |
| Including cases caused by Shigella Flexneri and Shigella Newcastle | OO4.1 | 4 | | | | |
| Shigella Sonnei | OO4.3 | 5 | | | | |
| Yersiniosis | O27.2 | 6 | | | | |
| Including cases of intestinal yersiniosis | | 7 | | | | |
| Pseudotuberculosis | | 8 | | | | |
| Enteritis, colitis, gastroenteritis | O05.0.2,4,8,9<br>OO8 | 9 | | | | |
| including cases of food intoxications | OO5 | 10 | | | | |
| including cases of botulism | OO5.1 | 11 | | | | |
| Esherichiosis | OO8.0 | 12 | | | | |
| Viral enteritis | OO8.6 | 13 | | | | |
| Diarrheal diseases with unknown ethnology | OO9 | 14 | | | | |
| Tularemia | O21 | 15 | | | | |
| Anthrax | O22 | 16 | | | | |
| Brucellosis | O23 | 17 | | | | |
| Diphtheria | O32 | 18 | | | | |
| Diphtheria carriers | 102.4 | 19 | | | | |
| Pertussis | O33 | 20 | | | | |
| Chicken pox | O52 | 22 | | | | |
| Meningococcal infections | O36 | 23 | | | | |
| Tetanus | O37 | 24 | | | | |
| including cases of neonatal tetanus | | 25 | | | | |
| AIDS | 042-044 | 26 | | | | |
| HIV | 795.8 | 27 | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Polio and other viral infections of the central neural system | 045-049 | 28 | | | | |
| including cases of acute poliomyelitis | O45 | 29 | | | | |
| Measles | O55 | 30 | | | | |
| Rubella | O56 | 31 | | | | |
| including case of congenital rubella | 771.0 | 32 | | | | |
| Viral hepatitis, total | O70 | 33 | | | | |
| A | 070.0,1 | 34 | | | | |
| B | 070.2,3 | 35 | | | | |
| C | | 36 | | | | |
| D | | 37 | | | | |
| E | | 38 | | | | |
| hepatitis of unknown etiology | | 39 | | | | |
| Rabies | O71 | 40 | | | | |
| Vaccinated against rabies | | 41 | | | | |
| Chlamidiosis | O73 | 42 | | | | |
| Mononucleosis | O75 | 43 | | | | |
| Mumps | O72 | 44 | | | | |
| Ricketsial infections | 080-083 | 45 | | | | |
| including typhus | O80 | 46 | | | | |
| Q-fewer | O83.0 | 48 | | | | |
| Malaria | O84 | 49 | | | | |
| Malaria carriers | O2.9 | 50 | | | | |
| Leptospirosis | 100 | 51 | | | | |
| ARI | 465 | 52 | | | | |
| Influenza | 487 | 53 | | | | |
| Legionellosis | 482.9 | 54 | | | | |
| hemorrhagic fever | 062-066 | 55 | | | | |
| Cholera | O01 | 56 | | | | |
| Plaque | O20 | 57 | | | | |
| Shistosomosis | 120 | 58 | | | | |
| other trematodies | 121 | 59 | | | | |
| Achinococcosis | 122 | 60 | | | | |
| Trichinelosis | 124 | 61 | | | | |
| Ascaridosis | 127.0 | 63 | | | | |
| Trichocephalosis | 127.3 | 65 | | | | |
| Enterobiosis | 124.4 | 66 | | | | |
| other intestinal helminthiasis | 127.7 | 67 | | | | |
| other helminthiasis | 128 | 68 | | | | |

_____ " _____19 _____ year

Registration #

Rayon _____

Month _____ Facility _____

Monitoring Form N2 CD3
monthly

Bank, account number # ----------

| # | Data | Patient #1 | Patient #2 | Patient #3 |
|---|---|---|---|---|
| | Name | | | |
| 1 | Age | | | |
| 2 | City, Rayon, Address | | | |
| 3 | Organized | Yes No | Yes No | Yes No |
| 4 | If yes, where (indicate name) | Kindergarten, School, High school, Office | Kindergarten, School, High school, Office | Kindergarten, School, High school, Office |
| 5 | Contact with sick person or carrier. If yes, when and with whom? | / / / /<br>Date month year | / / / /<br>Date month year | / / / /<br>Date month year |
| 6 | When became ill? | / / / /<br>Date month year | / / / /<br>Date month year | / / / /<br>Date month year |
| 7 | When visited doctor for the first time and where? | / / / /<br>Date month year<br>(facility) | / / / /<br>Date month year<br>(facility) | / / / /<br>Date month year<br>(facility) |
| 8 | Hospitalized: when?, where? | / / / /<br>Date month year<br>(hospital) | / / / /<br>Date month year<br>(hospital) | / / / /<br>Date month year<br>(hospital) |
| 9 | Diagnosis at admission | | | |
| 10 | Final diagnosis | Local, Generalized, Toxic | Local, Generalized, Toxic | Local, Generalized, Toxic |
| 11 | Antitoxin given? If yes, when and what amount | / / / /<br>Date month year<br>_____ unit | / / / /<br>Date month year<br>_____ unit | / / / /<br>Date month year<br>_____ unit |
| 12 | Outcome/result | Died, discharged<br>/ / / /<br>Date month year | Died, discharged<br>/ / / /<br>Date month year | Died, discharged<br>/ / / /<br>Date month year |
| 13 | If died, indicate reason | | | |
| 14 | Result of bacteriological analysis (If not done, please, indicate NOT DONE) | 1.<br>2.<br>3.<br>4.<br>5. | 1.<br>2.<br>3.<br>4.<br>5. | 1.<br>2.<br>3.<br>4.<br>5. |
| 15 | Toxoid (DT or Td) given or not before discharging? | Yes No | Yes No | Yes No |

| | | | | |
|---|---|---|---|---|
| 16 | When you record data on diphtheria vaccination with a toxoid, please indicate date (month, year), name of vaccine, serial number, exp. date | vaccinated / not vaccinated<br>1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7. | vaccinated / not vaccinated<br>1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7. | vaccinated / not vaccinated<br>1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7. |
| a | Vaccinated where? (facility) | | | |
| b | Adverse reactions? If yes, what kind? | Yes No | Yes No | Yes No |
| c | Storage of vaccine | | | |
| d | If not vaccinated, please indicate reasons. | | | |
| 17 | How many people were in close contact? | | | |
| 18 | How many of them are tested bacteriologically? | | | |
| 19 | From how many people tested tox+ bacteria was isolated? | | | |
| 20 | How many people received prophylaxis with antibiotics? | | | |
| 21 | How many were vaccinated? | | | |

Responsible Person_____ Signature_____

Name

Tel: _____ Address, fax, E-mail_____

To be submitted to the NCDC before 7-th day of the next month

Tbilisi, 380077, st. M. Asatiani #9, Tel. 37-16-77.39-64-38

# of facility and date  Registration # in NCDC  autonomous rep; region  rayon  monthly CD-4M

# Measles Investigation Card

| # | Data | Patient #1 | Patient #2 | Patient #3 | Patient #4 | Patient #5 |
|---|---|---|---|---|---|---|
| 1 | Name | | | | | |
| 2 | Age | | | | | |
| 3 | Address | | | | | |
| 4 | Group case | Yes No | Yes No | Yes No | Yes No | Yes No |
| 5 | Source of information. If known indicate name | unknown; known: | unknown; known: | unknown; known: | unknown; known: | unknown; known: |
| 6 | Onset of disease? | / / / / Date month year | / / / / Date month year | / / / / Date month year | / / / / Date month year | / / / / Date month year |
| 7 | Laboratory confirmed | Yes No | Yes No | Yes No | Yes No | Yes No |
| 8 | Hospitalization | Yes No | Yes No | Yes No | Yes No | Yes No |
| 9 | If hospitalized where? | | | | | |
| 10 | Complications | Yes No | Yes No | Yes No | Yes No | Yes No |
| 11 | If yes specify | | | | | |
| 12 | Death | Yes No | Yes No | Yes No | Yes No | Yes No |
| 13 | If died, where? | hospital home | hospital home | hospital home | hospital home | hospital home |
| 14 | Reason of death | | | | | |
| 15 | Vaccination status If vaccinated, when? | Vaccinated/ not vaccinated | Vaccinated/ not vaccinated | Vaccinated/ not vaccinated | Vaccinated/ Not vaccinated | Vaccinated/ Not vaccinated |
| 16 | Booster given. If yes, when? | Yes No / / / / Date month year | Yes No / / / / Date month year | Yes No / / / / Date month year | Yes No / / / / Date month year | Yes No / / / / Date month year |
| 17 | If not vaccinated indicate reasons. | | | | | |

Responsible Person_____ Signature_____

(Name, position)

In measles case is detected the report should be submitted to the NCDC before 7-th day of the next month

Tbilisi, 380077, st. M. Asatiani #9, Tel. 37-16-77.39-64-38