

Chapter 27

Disease Surveillance in Georgia: Benefits of International Cooperation

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27.1 Introduction

Effective communicable disease control relies on high-quality disease surveillance, which is 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. Such a system therefore 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 surveillance system to operate properly.

The Georgian National Health Policy, adopted in 1999, declares the reduction of communicable and socially dangerous diseases to be a major priority for maintaining and improving the health of the Georgian population over the next decade.

27.2 Surveillance System in Georgia

Ideally, a surveillance system is sensitive enough to correctly identify all cases of a particular disease occurring in the community, especially in the case of dangerous pathogens, when even a single case must be detected. All clinically diagnosed or laboratory confirmed cases of communicable diseases that come to health facilities for treatment or consultation, regardless of whether they are reported urgently or once a month, must be registered.

The usefulness of public health surveillance data depends on its uniformity, simplicity, and timeliness. State and local public

health officials use the information about occurrence of diseases to accurately monitor trends, plan and make decisions, and evaluate the effectiveness of interventions. Established surveillance systems should be regularly reviewed based on the explicit criteria of usefulness, cost, and quality, and existing systems should be modified as a result of such reviews. Attributes of quality include: (1) sensitivity; (2) specificity; (3) representativeness; (4) timeliness; (5) simplicity; (6) flexibility; and (7) acceptability. The *sensitivity* of a surveillance system is its ability to detect health events (completeness of reporting). Its *specificity* is inversely proportional to the number of false-positive reports. *Representativeness* can be measured by comparing surveillance data covering part of the population to either nationwide data, where available, or to random sample-survey data. *Simplicity* in a system means it is easy to understand and implement, and is usually expected to be relatively cheap and flexible. A *flexible* system can easily be adapted by adding new disease entities, conditions, and/or by extending surveillance to additional population groups. *Acceptability* depends on the perceived public health importance of the event under surveillance, recognition of individual contributions, and the time required for reports.

Internationally regulated dangerous infections, such as plague, cholera, yellow fever, poliomyelitis, viral hemorrhagic fevers, tularemia, anthrax, rabies, SARS, smallpox, tick-borne encephalitis (TBE), and influenza caused by a new virus subtype, must be reported to officials immediately. Urgent notification must also be done for *groups* of cases of any infectious disease, excluding acute respiratory infections and influenza.

27.3 The National Center for Disease Control and Medical Statistics (NCDC) of Georgia

The NCDC was founded in 1996 to succeed the Georgian Station for Plague Control. An integral part of the Georgian Public Health system, the NCDC reports to the Ministry

of Labor, Health and Social Affairs of Georgia. The main responsibilities of NCDC include conducting surveillance on communicable and non-communicable diseases; controlling important diseases; carrying out preventive measurements; promoting healthy lifestyles; and gathering and processing medical statistical data. In addition, NCDC houses the Georgian National collection of especially dangerous pathogens. The NCDC network comprises 11 regional public health centers (CPH) and 66 district (rayon) CPH. Medical facilities and physicians are also part of the network.

Surveillance on communicable and non-communicable diseases, including especially dangerous pathogens, continues to be one of the main responsibilities of the NCDC. All institutions and providers delivering healthcare services to the population regardless of their ownership, including laboratories and private care providers, must notify the local public health service whenever they diagnose, suspect, or even receive positive laboratory results that might indicate a disease of interest. The NCDC determines and annually updates the list of notifiable and reportable diseases based on the current epidemiological situation.

Following the collapse of Soviet Union, the Republic of Georgia found itself in a very difficult economic situation. The healthcare system seemed nearly non-existent, and only international healthcare agencies were operating with the support of international organizations by conducting surveillance on communicable and non-communicable diseases. With the help of these agencies, NCDC succeeded in control and prevention of diseases important to the public health through health promotion programs, gathering and processing medical statistical data, running immunization programs, and so forth. During the 1990s, there were numerous achievements, like situation analysis and public health strategy design and piloting. Communicable disease surveillance guidelines for CPHs and healthcare providers, job aids for district-level CPHs and facility workers, etc., were established; human resource capacity was strengthened; district-level training and continuous supervision and support were carried out; and nationwide policy (endorsed by MoLHSA Decrees) was developed and implemented. Standard case definitions were determined for AFP/polio, measles, diphtheria, mumps, rubella/CRS, pertussis, tetanus, acute viral hepatitis, rabies, shigellosis, salmonellosis, cholera, bacterial meningitis, and influenza H5N1. Case definitions for anthrax, plague, tularemia, brucellosis, TBE, hemorrhagic fevers (HFRS, CCHF), and other diseases are forthcoming.

The NCDC has research potential as well. About 60% of the staff members are specialists with university educations, and 32% of them are doctors of science or are candidates for scientific doctorates. The list of implemented and ongoing projects jointly funded by the United States and other international agencies demonstrates the diversity of their expertise:

- Establishing Epidemiological Network on the Territory of Georgia (1997), with the “Open Society Georgia” Foundation
 - Improvement of Epidemiological Network in Georgia (1998), with the “Open Society Georgia” Foundation
 - Reproductive Health Survey (1999–2000), with United Nations Population Fund (UNFPA), United Nations Children’s Fund (UNICEF), United States Agency for International Development (USAID), UN High Commissioner for Refugees (UNHCR), American International Health Alliance (AIHA), and the Centers for Disease Control and Prevention (CDC)
 - Nutritional Status of Children Under Five Years of Age in Six Regions of Georgia (2000–2001), with the USAID/Save the Children-US, Georgia Field Office
 - Provision of Epidemiological Survey Services on Baku–Tbilisi–Ceyhan Pipeline Route (2003), with and the British Petroleum Company, International Training and Research in Emerging Infectious Diseases (ITREID), the Fogarty International Center and NCDC
 - Reproductive Health Survey 1999–2000, conducted jointly by the NCDC (Tbilisi, Georgia) and CDC (Atlanta, GA), funding provided by UNFPA, UNICEF, USAID, UNHCR, and AIHA; Nutritional Status of Children Under Five Years of Age in Six Regions of Georgia: 2000–2001; conducted jointly by the NCDC (Tbilisi, Georgia), with technical assistance provided by Irwin Shorr (private consultant) and the CDC (Atlanta, GA), and managed by the Georgia Field Office of “Save the Children”-USA; funding provided by USAID
 - Enhanced Epidemiologic and Laboratory Diagnostic Capacity for the Control of Botulinum Intoxication in Georgia. Partner: U.S. Department of Health and Human Services (DHHS)/Biotechnology Engagement Program (BTEP); Collaborators: CDC (Atlanta, GA)
 - Prevention of Amebiasis and Creation of Diagnostic Test-Systems for *E. histolytica* Strains Isolated in Georgia. Partner: U.S. DHHS/BTEP; Collaborators: University of Virginia Health System, Charlottesville, VA; Molecular Epidemiology and Antibiotic-Resistance of Bacterial Infections in Georgia. Partner: U.S. DHHS/BTEP. Collaborators: University of Maryland School of Medicine, Department of Epidemiology and Preventive Medicine, Baltimore, MD
 - Clinical and Molecular Epidemiology of Drug-Resistant Tuberculosis in the Republic of Georgia and the Caucasus. Partner: U.S. DHHS/BTEP; Collaborators: Emory University, Atlanta, GA
 - Epidemiology, Molecular Characteristics and Clinical Course of HCV Infection in Georgia. Partner: U.S. DHHS/BTEP; Collaborators: Johns Hopkins University, Baltimore, MD
 - Ecology, Genetic Clustering, and Virulence of *Yersinia pestis* Strains Isolated from Natural Foci of Plague in Georgia. Funding Agency: DTRA, etc.
- The U.S. Defense Threat Reduction Agency (DTRA) has begun implementation of a project aiming to improve the
- International Training and Research in Emerging Infectious Diseases (1997–2002), with Fogarty International Center, National Institutes of Health

surveillance system through standardized and repeatable disease monitoring systems, mobile epidemiological response teams, and secure transportation of infectious agents; systems of communications and information technology, including electronic communicable disease reporting system; biosafety and physical security of central reference laboratories, safe transportation of pathogens, and to provide help in promulgating new national rules and regulations, and their relations to BWPPP. All these elements are supplied with verifiable training in their field. A central Epidemiological Monitoring Station (EMS) was arranged at NCDC. It is equipped with modern sophisticated equipment, like light cyclers, RT-PCR, and so forth. EMS carries out surveillance on especially dangerous infections. Here, the first avian flu case in Georgia was identified.

The Republic of Georgia is benefiting greatly from these projects. Biosecurity and biosafety at biological facilities will increase, and the disease surveillance infrastructure and

capabilities with state-of-the-art technology will be improved, leading to detection and response to outbreaks or epidemics in a timely manner and improvement of early warning systems and data collection necessary for action linked to control measures. This sustainable disease surveillance system will continue to benefit the Republic of Georgia through reduced risk of disease proliferation risk. The laboratory capacity of NCDC reference laboratories has been improved, promoting opportunities to carry out various collaborative research endeavors.

References

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