

**2009 Meeting  
Geneva, 7-11 December 2009**

**Meeting of Experts  
Geneva, 24-28 August 2009**

Item 5 of the provisional agenda

**Consideration of, with a view to enhancing international  
cooperation, assistance and exchange in biological  
sciences and technology for peaceful purposes, promoting  
capacity building in the fields of disease surveillance,  
detection, diagnosis, and containment of infectious diseases**

## **GLOBAL AND REGIONAL DISEASE SURVEILLANCE NETWORKS' CONVERGENCE AT THE NATIONAL LEVEL**

Submitted by Georgia and the United States of America

### **I. Background**

1. A critical challenge in the Republic of Georgia is to ensure the quality and effectiveness of disease surveillance and associated public health response. Georgia recognizes that a qualitative surveillance system should be sensitive (detect intended health events), specific (low false positive/negative reporting), representative, timely, simple (easy to understand and implement), flexible (customizable), and acceptable<sup>1</sup>.
2. Internationally notifiable diseases, such as plague, cholera, yellow fever, poliomyelitis, viral hemorrhagic fevers, tularemia, anthrax, rabies, SARS, smallpox, tick-borne encephalitis, and influenza caused by a new virus subtype, must be reported via the public health communication channels immediately. Urgent notification must also be done for groups of cases of any infectious disease, excluding acute respiratory infections and influenza<sup>1</sup>.
3. Annual review and updating of the list of notifiable and reportable diseases (based on the current epidemiological situation) is done by The National Center for Disease

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<sup>1</sup> National Institute of Allergy and Infectious Diseases, NIH Volume 1, Frontiers in Research; Edited by: Vassil St. Georgiev, Karl A. Western, and John J. McGowan, Humana Press. Chapter 27 Disease Surveillance in Georgia: Benefits of International Cooperation  
Lela Bakanidze , Paata Imnadz , Shota Tsanova , and Nikoloz Tsertsvadze;; 2008, pp 253-256

Control and Public Health (NCDC) of Georgia. The main responsibilities of NCDC include conducting surveillance on communicable and non-communicable diseases; disease control and prevention; health promotion activities; collection and processing of medical statistical data; and biomedical research. In addition, NCDC houses the Georgian national collection of especially dangerous pathogens. The NCDC network comprises 11 regional and 66 district (rayon) Centers for Public Health (CPH).

4. The NCDC and CPHs are using the Georgia Epidemiological Surveillance (GEOEPID) software to process the disease surveillance-related data and identify short-term and long-term trends in communicable disease morbidity and mortality, characterize and compare the epidemiological situation per region and per country, analyze distribution of cases by age groups, assess lab results confirmation, and most importantly, assess the impact of preventive and response actions to improve the disease surveillance system as a whole<sup>2</sup>. The production of this software application was funded by USAID.

5. Georgia participates in European (24 EU Member States and Turkey) surveillance networks such as the Diphtheria Surveillance Network (DIPNET), the associated European Sero-Epidemiological Network (ESEN), and the European Influenza Surveillance Scheme (EISS).

6. In addition, a number of WHO accredited laboratories exist in Georgia and participate in global, WHO-coordinated infectious disease surveillance networks, such as:

- (i) FluNet and the Global Influenza Surveillance Network
- (ii) Global Polio Laboratory Network
- (iii) Global Salm-Surv surveillance network for foodborne diseases
- (iv) Global Rotavirus Laboratory Network

7. The laboratory network for infectious disease surveillance in Georgia is a critical component of the health care systems which have been undergoing a major reform since 2002. The World Health Organization's International Health Regulations (IHRs) also provided an additional impetus to strengthen and improve the Georgian national public health capacity for disease prevention, surveillance, risk assessment, control and response systems. The consistent policies, operating procedures and the operational and technical capacity required by the IHRs would help ensure early warning and efficient international management of a biological incident, whether naturally occurring or deliberate in nature.

8. In this context, the common understandings reached at the 2008 BWC Meeting of State Parties are highly relevant in that Georgia is an active party in developing and implementing national measures to improve biosafety and biosecurity, including lab safety and security of pathogens and toxins. The report of the 2008 BWC Meeting of State Parties states that: "recognizing that biosafety and biosecurity measures contribute to preventing the development, acquisition or use of BTW and are appropriate means of implementing the BWC, States Parties agreed on the value of...international cooperation on biosafety and biosecurity at the bilateral, regional and international levels" and also agreed that "pursuing biosafety and biosecurity

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<sup>2</sup> Curatio International Foundation website: <http://www.curatiofoundation.org/curatio/index.jsp?id=32&act=44>

measures could also contribute to the fulfillment of [State Parties] other respective international obligations and agreements, such as the revised IHRs of the WHO, and relevant codes of OIE...”UNSCR 1540 (2004) that places obligations on all states and is consistent with the provisions of the Convention”

## II. US Assistance

9. Inherent to the evaluation of a public health laboratory network is their assessment in terms of biosafety/biosecurity and personnel training. In that regard, the United States supports several programs and initiatives in Georgia which include:

- (i) “International Training and Research in Emerging Infectious Diseases (US Department of Health and Human Services/ National Institutes of Health, Fogarty Center)
- (ii) “Regional evaluation of mining-related metals contamination, risks, and innovative remediation technologies in Ukraine and Georgia”, EPA

10. Other US-supported programs or projects in Georgia are targeted at specific pathogens or diseases surveillance and detection, such as:

- (i) “Surveillance and Response on Avian and Pandemic Influenza Outside USA by National Health Care Institutions” [US Department of Health and Human Services/ Centers for Disease Control and Prevention (CDC)]
- (ii) “Epidemiologic, clinical and microbiologic studies of *Helicobacter pylori* infection and public health diagnosis and treatment to reduce burden of clinical illness”, [US Department of Health and Human Services, Biotechnology Engagement Program (BTEP<sup>3</sup>)]
- (iii) “Development of Surveillance System and Control Strategy for Leishmaniasis in Georgia by means of Epidemiological and Strengthening of Laboratory capacities”, (US Department of Health and Human Services, BTEP Program)
- (iv) “Clinical and Molecular Epidemiology of Meningitis Caused by Enteroviruses in the Republic of Georgia”, (US Department of Health and Human Services, BTEP Program)

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<sup>3</sup> The Biotechnology Engagement Program (BTEP) is a program managed by the US Department of Health and Human Services, Office of Global Health Affairs and funded by the US Department of State. BTEP has three main focus areas:

- Non-Proliferation: Keep former biological- and chemical-weapons scientists, engineers, and technicians employed in pursuit of peaceful studies to address applied, high-priority public-health problems and biomedical-research questions;
- Public-Health: Apply scientific expertise of former biological- and chemical-weapons scientists towards public-health needs in the region, & promote public-health policy via evidence-based science;
- Financial Self-Sustainability: Train and mentor scientists to compete successfully for other sources of funding, including host government sources, international sources, and commercial sources (through patenting and marketing their discoveries).

Current engagements in the Commonwealth of Independent States (CIS) include 1,519 scientists from Georgia, Armenia, Kazakhstan, Russia, Ukraine, Azerbaijan, Kyrgyzstan and Tajikistan.

- (v) “Establishment of national sentinel-side, laboratory-based Salmonella surveillance system and outbreak response capacity for enhanced of foodborne disease in the Republic of Georgia”, (US Department of Health and Human Services, BTEP Program)
- (vi) “Application of Molecular Fingerprinting to Geographical Characterization and Epidemiological Surveillance of Natural Foci *Yersinia pestis* and *Francisella tularensis* (US Department of Energy/US Department of Homeland Security)

11. In addition, The U.S. Department of Agriculture – Agricultural Research Service (USDA/ARS) is supporting the development of a joint research project on “Countermeasures for the Control of African Swine Fever in the Republic of Georgia” using funds from the Department of State Bio-Chem Redirect program. The proposed project would include scientists from the Laboratory of the Ministry of Agriculture in Tbilisi and the USDA/ARS Plum Island Animal Disease Center.

12. The US Department of Health and Human Services/Centers for Disease Control and Prevention/Division of Global Public Health Capacity Development (DGPHCD) collaborates at the international level with national and international organizations and foreign governments to build strong, transparent, sustained public health systems. Such notable initiatives include the Field Epidemiology Training Programs (FETPs) which are competency-based training and service programs in applied epidemiology and public health that build public health systems capacity in the countries in which they are implemented. These programs provide service and strengthen capacity in public health systems in many ways<sup>4</sup>, such as:

- (i) Strengthen response to outbreaks and/or natural and man-made disasters,
- (ii) Strengthen the scientific basis for prevention and control of diseases,
- (iii) Strengthen surveillance systems through evaluations, managing ongoing or new surveillance systems, and training of local health personnel,
- (iv) Strengthen the communication of epidemiologic information by contributing to the national epidemiology bulletin, publishing journal articles, and presenting surveillance data to decision makers.

13. In addition, countries that set up field-based training programs can collaborate with two field epidemiology non-profit network organizations to share resources and best practices among FETPs: the Training Programs in Epidemiology and Public Health Interventions Network Inc (TEPHINET)<sup>5</sup> and the African Field Epidemiology Network (AFENET)<sup>6</sup>. The Field Epidemiology and Laboratory Training Program (FELTP) offers an added laboratory component to the basic FETP aiming to build and strengthen the bridging between laboratory services and epidemiology and thus improve surveillance and outbreak response. Both FETP and FELTP are

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<sup>4</sup> Field Epidemiology Training development Handbook and other online training resources available at: <http://www.cdc.gov/cogh/DGPHCD/training/fetpimplementation.htm>

<sup>5</sup> TEPHINET website address: <http://www.tephinet.org>

<sup>6</sup> AFENET website address: <http://www.afenet.net>

offered by the US Department of Health and Human Services/Centers for Disease Control and Prevention in collaboration with our partners to help foreign countries develop, set up, and implement dynamic, public health strategies to improve and strengthen their public health system and infrastructure.

14. On 05 August 2008, the US Department of Health and Human Services/ Centers for Disease Control and Prevention and the Georgian Ministry of Labor, Health and Social Affairs/ National Center for Disease Control and Public Health (NCDC) signed an agreement establishing the Southern Caucasus Field Epidemiology and Laboratory Training Program (SCFELTP) (includes Georgia, Armenia, and Azerbaijan). SCFELTP involves a combination of classroom and on-the-job training (using Russian language) on epidemiologic investigations, field surveys, evaluation of surveillance systems, conducting disease control and prevention measures, reporting of findings to decision and policy-makers, and training of other public health workers<sup>7</sup>.

15. Georgia's national efforts to comply with international obligations and agreements including the common understandings from the BWC intersessional process, are also supported by the US Department of Defense Biological Threat Reduction Program of the Defense Threat Reduction Agency (DTRA) which aims to:

- (i) Prevent the sale, theft, diversion or accidental release of biological materials, technology, and expertise
- (ii) Consolidate especially dangerous pathogens (EDPs) into safe and secure central reference laboratories
- (iii) Improve Eurasian states' capabilities to detect and respond to EDP disease outbreaks
- (iv) Integrate Eurasian scientists into the international scientific community

16. The Biological Threat Reduction Program's surveillance and response capabilities rely on a network of sentinel medical facilities throughout the country, a Central Reference Laboratory and national response team(s) that will identify, investigate, and respond to natural or deliberate biological outbreaks or incidents<sup>8</sup>. The aims of the Biological Threat Reduction Program's components on Biosafety & Biosecurity; Cooperative Biological Research, and Threat Agent Detection and Response, in support of the program's main goals are listed below.

#### Biosecurity and Biosafety (BS&S)

17. Biosecurity and Biosafety (BS&S):

- (i) Implement technical enhancements in phases to meet and maintain BS&S standards

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<sup>7</sup> More information available on the Georgian NCDC website at: [http://www.ncdc.ge/W2/Page10\\_en.htm](http://www.ncdc.ge/W2/Page10_en.htm)

<sup>8</sup> *Challenges to Global Surveillance and Response to Infectious Disease Outbreaks of International Importance*, Hitchcock et al., 2007, Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science, vol. 5, no. 3, pp 206-226

- (ii) Create a personnel reliability program to reduce the threat of pathogens being stolen or released
- (iii) Assess risk from insider and outsider threats associated with transportation, storage, and handling of EDPs
- (iv) Create a safer work environment for personnel

#### Cooperative Biological Research (CBR)

##### 18. Cooperative Biological Research (CBR):

- (i) Promote integration of Georgian scientists into the international community
- (ii) Promote openness and ethical conduct
- (iii) Train scientists in modern molecular diagnostics, biosafety, biosecurity, and bioethics

#### Threat Agent Detection and Response (TADR)

##### 19. Threat Agent Detection and Response (TADR):

- (i) Provide enhanced reporting, detection, and response capability for human and veterinary EDPs
- (ii) Provide modern laboratory diagnostic capabilities
- (iii) Train and equip epidemiological teams to investigate human and veterinary EDP outbreaks
- (iv) Consolidate EDPs into a secure repository at the Central Reference Laboratory (CRL)
- (v) Provide dedicated transport
- (vi) Georgia will have one CRL, seven Epidemiological Monitoring Modules (EMM), and two Mobile Outbreak Response Units (MORU)

20. The emergence of new infectious diseases and the risk of bioterrorism constitute a challenge for the public health system. A rapid and effective response to potential outbreaks relies on a qualitative global surveillance system and international collaboration. By contrast, inadequate surveillance and response by one country poses a potential risk to the region and international community. Based on the principle that “a threat for one is a threat for all” when it comes to infectious diseases caused by EDPs, Georgia is a proponent of efficient integration and coordination of disease surveillance networks through international collaborations, as described in this paper.

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