

Second Meeting  
Geneva, 6-10 December 2004

Meeting of Experts  
Geneva, 19-30 July 2004  
Items 5 and 6 of the agenda

### **The Canadian Public Health Laboratory Network<sup>1</sup>**

Submitted by Canada

#### **Background**

1. The Canadian Public Health Laboratory Network (CPHLN) was organized in 2001 in an effort by provincial health laboratory directors who recognized a void in inter-provincial communication and in communication with their federal partner, Health Canada. This was coincidental to the terrorism of September 11, 2001 and to the subsequent anthrax attacks. In addition to addressing concerns regarding increased frequency and potential lethality of bioterrorism agents, the scope of the network was expanded to include other aspects of public health, such as coordinating pathogen detection and infectious disease prevention and to conduct laboratory based surveillance.

#### **The CPHLN**

2. The network is committed to a national agenda: to protect and improve the health of all Canadians. As such, the network has representation and input from each of its provincial public health labs, the Council of the Chief Medical Officers of Health, Defence Research and Development Canada, Canadian Blood Services and Health Canada.

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\* / Re-issued for technical reasons

<sup>1</sup> Prepared by Defence Research and Development Canada, Centre for Emergency Preparedness and Response, Population and Public Health Branch, Health Canada

3. The core functions of the CPHLN in support of the effort to protect the health of all Canadians is realized in a comprehensive strategic plan. This plan details the action-oriented network that provides value-added services in direct support of the broader public health system. The network is designed to reach the grass-roots level of laboratory public health care, which includes hospitals and public and private clinics and laboratories.
4. The strategy of the network encompasses five facets of priorities; human resources, sustaining the national laboratory network role of the CPHLN, development of an improved public health infrastructure, support and foster of high quality communicable disease reference services and facilitating and supporting leading edge science, research and training activities.
5. The CPHLN's mandate is to develop and implement strategies to coordinate pathogen detection, infectious disease prevention and control; conduct laboratory-based surveillance, including the development of early warning systems to monitor and detect emerging and re-emerging pathogens, antibiotic resistant organisms and outbreaks; ensure the monitoring of Canada's food and water safety; develop and maintain advanced levels of training for our public health laboratory workers and counter bioterrorism threats.
6. To support the key priorities and mandate, the CPHLN has established three subcommittees, Bioterrorism Response, Water and Food Safety, Laboratory Standardization. Each committee has a unique set of activities to help strengthen Canada's response to threats of terrorism and to emerging and re-emerging infectious disease. More subcommittees can be formed as required.
7. The Bioterrorism Response Subcommittee has been the most active subcommittee, given the heightened bioterrorist threat environment the country has been experiencing since the anthrax attacks on the United States in 2001. Since its formation in late 2001, the Bioterrorism Response Subcommittee has built lab response capabilities for bioterrorism events to facilitate the early detection, prevention and intervention concerning such threats. The subcommittee has developed roles and responsibilities and standard protocols for first line laboratories (called a Tier 1 lab), regional public health laboratories (Tier 2 labs) and the federal reference labs (Tier 3 labs). A national training program has also been initiated to standardize protocols used in responding labs, while also enhancing the capacity and capability of the public health lab system to respond to bioterrorist threats.
8. The Water and Food Safety Subcommittee has unique challenges, as drinking water safety is managed differently in each province/territory. As such, the role of the provincial public health labs varies from province to province. To address this problem, the National Enhanced Water Quality Assurance Program was developed to enhance partnerships between provincial public health labs in the area of drinking water, to solidify public health's role in leadership for drinking water quality issues, and to develop a visionary, public health oriented quality assurance program for microbiology laboratories.
9. The Laboratory Standardization Subcommittee has been active in developing standard methodologies and algorithms for laboratory analysis, interpretation and reporting of data and identification of Quality Assurance issues.

10. The CPHLN is currently enhancing its disease surveillance capacity to support public health surveillance of disease patterns and unusual or suspicious outbreaks. The CPHLN is working with the Canadian Network for Public Health Intelligence (CNPHI), a CBRN Research and Technology Initiative (CRTI) funded project, to enable strategic dissemination of timely laboratory and epidemiologic intelligence (including syndromic surveillance, food safety, international disease reports and other relevant national surveillance information). This is being achieved under the Canadian Integrated Outbreak Surveillance Centre (CIOSC) program. CIOSC was first launched in 2001 with an enteric component, followed by SARS alerts and record management in 2003 and respiratory alerts in December 2003. Next steps for CIOSC include the ability for on-line real-time data entry; options to initiate and manage a new event from any jurisdictional level; on-line data manipulation and management tools and seamless integration with existing local/provincial/territorial systems.

11. The Canadian Government is supportive of the CPHLN and has provided direct financial support to the network by funding the CPHLN secretariat at the Canadian Science Centre for Human and Animal Health in Winnipeg Manitoba. Federally issued funds have also been used to purchase key molecular biology equipment for each provincial public health laboratory across the country through the CRTI. This has allowed each province to be able to use the same equipment and protocols for key diagnostic techniques, building on the network's work on laboratory standardization and rapid diagnostic response.

### **Future Developments and Challenges**

12. The CPHLN is currently moving forward on its national outbreak surveillance capability. Through partnership with the CNPHI and collaboration with the Canadian Integrated Public Health Surveillance, there will be enhanced national capability regarding the detection of emerging pathogens, antibiotic resistant organisms and outbreaks and the prevention and control of infectious diseases.

13. A national standards culture collection is being developed to ensure that laboratories have access to a library of organisms to assist in the rapid detection and identification of emerging or re-emerging pathogens.

14. Diagnostic testing standards are key to the reproducibility and interpretation of laboratory results. The CPHLN has made headway with respect to bioterrorism agent diagnostics, but diagnostic testing standards for other emerging or re-emerging diseases are currently under review and/or development. Finalizing which diseases are the priority for the next diagnostic standards is a challenge and must be determined through thorough consultation with the CPHLN membership.

15. The national communication strategy for the CPHLN will include communication and business tools. CPHLN currently has a listserv for member activities, but expansion is being considered for automated emails, document and meeting management softwares, CPHLN activity databases and work pages. The strategy will provide direct support to CNPHI, the culture collection and laboratory standardization activities. To support this initiative, the communications strategy

must use the existing electronic infrastructure and/or build new. Inherent in this strategy is data security issues. The CPHLN is currently examining the options available to fulfill security criteria while maximizing the information exchange between the CPHLN membership.

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