Implementation Science

Ready to Go! Canada's new Rapid Response Team

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The Public Health Agency of Canada (the Agency) has an important role to play in collaboration with its provincial/territorial partners to advance preparedness for emerging and re-emerging high-consequence infectious diseases. During the 2014 Ebola outbreak, the Agency established Ebola Virus Disease (EVD) Rapid Response Teams that were available to any requesting provincial/territorial jurisdiction with a laboratory confirmed case of EVD. Working with provincial and territorial officials, a Rapid Response Team Concept of Operations was developed which outlined the process for Rapid Response Team engagement as well as the suite of technical expertise available.

The Concept of Operations was refined further following a series of face-to-face advance planning meetings with individual provincial and territorial jurisdictions. This led to a consensus agreement that the Agency's Rapid Response Team should be available to support management of both confirmed and suspected EVD cases. There was also unanimous support from provincial and territorial jurisdictions that the concept and operationalization of the Agency's Rapid Response Team should be broadened to provide surge-capacity support to the provinces and territories to include any event with significant public health consequences.

The Agency will continue to engage with domestic and international partners regarding best practices to maintain a highly skilled and nimble Rapid Response Team that is operationally ready to support both domestic and international public health emergencies.

Introduction

The Public Health Agency of Canada (the Agency) has an important role to play in collaboration with its provincial and territorial partners to advance preparedness that will mitigate the effects of emerging and re-emerging high-consequence infectious diseases.

The unprecedented extent, duration and impact of the Ebola Virus Disease (EVD) outbreak in West Africa which began in the spring of 2014, provided world-wide recognition of the importance of a multi-disciplinary, international and national capacity to initiate and sustain an effective public health response over an extended period of time.

In Canada, the provinces and territories have the primary responsibility to prepare for and respond to health threats within their borders. This covers the spectrum of clinical care and treatment of individual patients to the development and implementation of policies and programs that prevent and/or mitigate the consequences of infectious diseases. At the federal level, the Agency has an important role to facilitate domestic and international collaboration and to work with other federal departments, provincial and territorial jurisdictions, non-governmental organizations and international partners to review evidence, identify best practices, coordinate a multi-jurisdictional response and provide technical resources and surge-capacity support to provinces and territories as appropriate.

Although the likelihood of an EVD case in Canada remains low, the importance of being prepared continues to be high. Accordingly, the Agency established the EVD Rapid Response Teams and engaged with all provincial and territorial jurisdictions to develop a Concept of Operations that would align with and integrate provincial and territorial EVD response protocols.

Context

In addition to supporting provincial and territorial partners, the Agency is Canada's national *International Health Regulations* (IHR) (2005) (1) focal point. Two key responsibilities for the national focal point include: to report and act on potential public health emergencies of international concern in a timely fashion, and to support public health capacity-building of partners.

Regarding the first component, the Agency works closely with provincial and territorial jurisdictions to ensure that collectively, Canada maintains its ability to report on and respond to potential public health emergencies in a timely fashion. With respect to public health capacity building, the federal government has a long history of supporting domestic and international partners. For example, the Canadian Field Epidemiology Program (formerly the Field Epidemiology Training Program) was established by Health Canada in 1975 to support provinces and territories to undertake surveillance and outbreak response activities. Since that time, the Agency has invested in additional programs to support provincial and territorial needs, including the National Microbiology Laboratory's Laboratory Liaison Technical Officers, the Canadian Public Health Service and program-specific field surveillance officers (immunization, HIV, etc.), among others.

Lessons from the Ebola outbreak

On September 30, 2014, the US Centers for Disease Control and Prevention (CDC) reported the first case of EVD diagnosed in the US—a traveller from West Africa who was subsequently hospitalized in Dallas, Texas (2). This initial case led to the identification of multiple individuals as potentially exposed, including two nurses who provided care to the initial case and who also subsequently developed EVD. The potentially exposed contacts of all three cases of EVD in the US necessitated a multi-jurisdictional public health response involving local, state and federal officials.

In October, 2014, the CDC announced the creation of CDC Ebola Response Teams to support local and state officials to respond to EVD (3). The CDC Ebola Response Teams include trained CDC medical officers, epidemiologists, infection control specialists and analysts who could be rapidly deployed to any location in the US within hours of a laboratory confirmation of Ebola infection.

To date, Canada has not had a reported case of EVD. However, EVD testing is undertaken for individuals returning to Canada from Ebola-affected countries, who subsequently develop symptoms consistent with EVD within 21 days after their arrival. The Agency's National Microbiology Laboratory works closely with provincial laboratories that conduct EVD testing, and conducts all confirmatory testing at its Winnipeg location.

During the time that EVD preparedness planning between the Agency and provincial/territorial jurisdictions was taking place, the first case of EVD in the US and the subsequent onward transmission to two health care workers was a "game-changer". Like the US, the Agency established its EVD Rapid Response Teams in October 2014 to provide rapid surge-capacity support to any provincial or territorial jurisdiction if a case of EVD occurred in Canada. The first Rapid Response Team participated in an operational exercise shortly after it was established and team members from Ottawa and Winnipeg were deployed on short notice to Nova Scotia. This exercise included an opportunity to simulate an emergency meeting between federal and provincial emergency and public health officials as well as local clinical specialists.

The Concept of Operations

Bilateral discussions with each province and territory's Chief Medical Officer of Health were critical to ensure that the EVD Rapid Response Team would meet individual provincial and territorial needs and integrate well into its response plans. Following these discussions, a draft Rapid Response Team Concept of Operations was developed and subsequently tabled at a meeting of senior federal, provincial and territorial public health officials held in November 2014.

The two key underlying principles of the initial Concept of Operations were:

1. The trigger to deploy the Rapid Response Team would be a laboratory confirmed case of EVD coupled with a call by the affected province or territory's Chief Medical Officer of Health to the Agency's Chief Public Health Officer (CPHO).
2. The Agency Rapid Response Team could offer technical expertise in any combination of six areas: epidemiology and surveillance, infection prevention and control, communications, emergency preparedness and response/logistics, biosafety, and laboratory support (**Table 1**).

Table 1: Agency Ebola Virus Disease Rapid Response Team technical support

Technical area	Nature of support to provinces and territories
Epidemiology and surveillance	Support contacting, tracing, data management, analysis and reporting.
Infection prevention and control	Provide guidance on infection prevention and control measures in hospitals and community, including patient transport, use of healthcare worker personal protective equipment (PPE), hospital waste management and decontamination.
Communications	Support coordinated risk communications, media enquiries, technical briefings and <i>International Health Regulations</i> reporting.
Emergency preparedness and response/logistics	Support provincial and territorial and mobilization of the Rapid Response Team and other Agency human resources or material assets (e.g., access to additional PPE).
Biosafety	Provide guidance on bio-containment and biosafety protocols, technical support for waste management and environmental decontamination.
Laboratory support	Support laboratories for specimen testing, including potential deployment of the mobile laboratory.

Once the Rapid Response Team Concept of Operations was accepted in principle, there was agreement that the Rapid Response Team would conduct advance planning site visits to provincial and territorial jurisdictions to further refine the Concept of Operations and tailor their approach to meet each local context and needs.

Between December 2014 and April 2015, the Agency Rapid Response Team conducted site visits with all provinces and territories. These included table top and field exercises, planning meetings and/or hospital site visits. Technical discussions between Rapid Response Team members and provinces and territories counterparts were undertaken in each of the six areas outlined in **Table 1**, enabling a customized approach to be developed with each provincial and territorial jurisdiction. For example, it was agreed the logistics and transportation requirements for both laboratory specimens and suspected cases of EVD in the territories required that Agency's Mobile Laboratory would be requested early on for a suspected case of EVD so that on-site laboratory testing could take place at the same time as arrangements for the transportation of a suspected case of EVD to a specialized treatment centre in another province.

Upon completion of the site visits, the Concept of Operations was further refined to include the following points:

- The inclusion of a senior Agency technical liaison as the Rapid Response Team Lead who would serve as the primary on-site Agency point of contact, working directly with the Chief Medical Officer of Health and other senior provincial and territorial officials. This addition was universally supported, as both strategic and operational federal, provincial and territorial collaboration would be required to manage the rapidly changing and complex demands related to an EVD case in Canada.
- The Rapid Response Team Communications Lead would likely be included as part of the initial request for Agency Rapid Response Team support to ensure a coordinated federal, provincial and territorial approach to risk communications.
- Flexibility in the initial request and deployment of the Rapid Response Team. E.g., some jurisdictions indicated that they may request immediate deployment of the full Rapid Response Team while others indicated that they would likely initially request only the Rapid Response Team Lead, with the option to request additional Rapid Response Team expertise as the situation evolved (e.g., complex contact tracing).
- The option to trigger earlier deployment of specific components of the Rapid Response Team to support management of a suspected case of EVD, e.g., the mobile laboratory.
- Expansion of the Agency Rapid Response Team approach (beyond EVD), to include all potential high-consequence public health events.

At the same time, Agency staff engaged with international partners, including the US CDC, the Pan-American Health Organization (PAHO) and the World Health Organization (WHO), to ensure the Agency's Rapid Response Team approach was consistent with like-minded regional (US, PAHO) and international (WHO) partners to maintain a deployment ready workforce to mitigate any public health event of high consequence.

Discussion

The Agency Rapid Response Team supports surge capacity in provinces and territories to manage cases of EVD and other high-consequence public health events. The Agency Rapid Response Team has evolved through close collaboration and consultation with provinces and territories. Advance planning site visits provided an opportunity to discuss various operational aspects and refined a Concept of Operations that enables the Agency's Rapid Response Team to meet unique provincial and territorial needs.

It is important to note that the Agency's Rapid Response Team could be leveraged to support a global response for similar high-consequence public health events internationally.

The Agency will continue to engage with domestic and global public health partners regarding best practices to maintain a highly skilled and nimble Rapid Response Team which is operationally ready to support both domestic and international public health emergencies.

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Conflict of interest

None.

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