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Report of the  
**Auditor General  
of Canada**  
to the House of Commons

MAY

**Chapter 5**  
Surveillance of Infectious Diseases—  
Public Health Agency of Canada



Office of the Auditor General of Canada

*The May 2008 Report of the Auditor General of Canada comprises A Message from the Auditor General of Canada, Main Points—Chapters 1 to 8, and eight chapters. The main table of contents for the Report is found at the end of this publication.*

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Chapter

# 5

Surveillance of Infectious Diseases  
Public Health Agency of Canada

*All of the audit work in this chapter was conducted in accordance with the standards for assurance engagements set by The Canadian Institute of Chartered Accountants. While the Office adopts these standards as the minimum requirement for our audits, we also draw upon the standards and practices of other disciplines.*

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# Surveillance of Infectious Diseases

## Public Health Agency of Canada

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### Main Points

#### What we examined

The Public Health Agency of Canada is the federal organization responsible for the surveillance of infectious diseases. It was created in 2004, following the outbreak of SARS (severe acute respiratory syndrome) in Canada.

The Agency defines surveillance as the ongoing, systematic use of routinely collected health data to guide timely public health action. To obtain the surveillance data it needs, the Agency works in concert with other federal departments and agencies and other levels of government, as well as health professionals, hospitals, and laboratories across the country.

We examined whether the Agency, in collaboration with its partners, has obtained, analyzed, and disseminated the information needed to help anticipate, prevent, and respond to threats of infectious disease. We also followed up on some serious concerns raised by our audits in 1999 and 2002, when surveillance of infectious diseases was the responsibility of Health Canada.

#### Why it's important

Effective surveillance of infectious diseases can lead to concrete actions such as responding to outbreaks of food-borne illness, controlling insects that carry disease, and developing new vaccines. Well-informed and rapid public health actions can prevent and contain outbreaks, reduce the economic burden of infectious diseases, and ultimately save lives.

Canada's international obligation to report serious infectious diseases to the World Health Organization became more demanding with the recent strengthening of the *International Health Regulations*. Outbreaks of diseases such as SARS and the avian influenza have underscored the need for such reporting.

#### What we found

- The Agency has surveillance systems in place to detect and monitor existing and emerging infectious diseases in Canada, but fundamental weaknesses noted in our 1999 and 2002 reports remain. We recognize that there were competing demands associated with launching a new organization and that the collaboration of its partners is necessary to

achieve some results. However, while important steps have been taken to respond to our past recommendations, the Agency has not made satisfactory progress on those related to strategic direction, data quality, results measurement, and information sharing.

- To obtain routine surveillance information, the Agency relies on the goodwill of the provinces and territories. However, due to gaps in its information-sharing agreements with them, it is not assured of receiving timely, accurate, and complete information. A data-sharing agreement recently signed with Ontario re-established the regular flow of information about individual cases after two years when this flow was limited. However, the Agency has not reached similar data-sharing agreements with the remaining provinces and territories. This limits its ability to provide Canadians with a complete and consistent national picture of infectious diseases as a basis for public health actions.
- With its partners, the Agency has laid the groundwork for sharing essential information in the event of a public health emergency. However, critical arrangements—such as procedures for notifying other parties, and protocols affecting the collection, use, and disclosure of personal information—still need to be sorted out. The 2003 SARS crisis demonstrated why such arrangements were needed. Until these arrangements are in place, it may be more difficult for the Agency to obtain the information needed to prevent and respond to a disease outbreak. Consequently, faced with a public health threat that could affect other countries, the Agency may be unable to notify the World Health Organization within the times specified in the revised *International Health Regulations* and to keep it informed of subsequent events.
- The Public Health Agency and the Canadian Food Inspection Agency have not determined jointly which of the animal diseases that could affect people are the highest priorities for surveillance, and which of the two agencies will carry out surveillance of what diseases. Given that 65 to 80 percent of newly identified human diseases come from animals, it is important that these health risks to Canadians be well managed.

**The Public Health Agency of Canada, Health Canada, and the Canadian Food Inspection Agency have responded.** The Public Health Agency of Canada, Health Canada, and the Canadian Food Inspection Agency have agreed with our recommendations and are taking action to address the concerns raised in the chapter. Their detailed responses follow each recommendation throughout the chapter.



## Introduction

**Infectious disease**—Illness caused by the spread of bacteria, viruses, and other infecting agents from person to person or from animal to human. Transmission may occur through diverse pathways, including inhalation and sexual activity. Infecting agents may be transmitted as well through blood, food, water, and insects and other animals. Also known as contagious or communicable disease.

**5.1** Public health officials need to know when and where **infectious disease** outbreaks occur so that they can reduce the health impacts on Canadians. To gain this knowledge, they require effective surveillance. The Public Health Agency of Canada defines surveillance as the ongoing, systematic use of routinely collected health data to guide timely public health action. For example, surveillance results showing the recent dramatic increase in sexually transmitted infections in Canada led to a rethinking of prevention strategies.

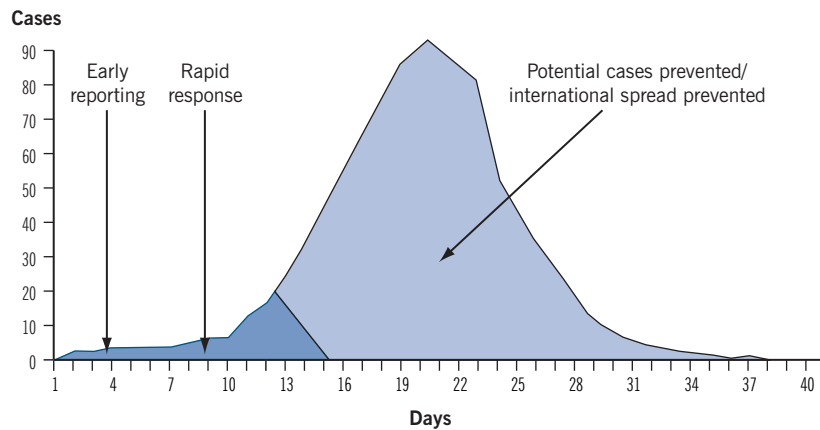
**5.2** Outbreaks of infectious diseases, such as influenza, can strike quickly, with huge and unpredictable economic impacts. The 2003 SARS (severe acute respiratory syndrome) outbreak in Asia and Canada had an estimated economic impact of over \$20 billion, even though fewer than 9,000 people contracted the disease. Well-informed and rapid public health actions can prevent and contain outbreaks, reduce the economic burden of infectious diseases, and ultimately save lives (Exhibit 5.1).

### Threats from infectious diseases

**5.3** Infectious diseases do not respect national borders, making all nations vulnerable to outbreaks. According to the World Health Organization (WHO), infectious diseases are emerging more quickly than ever before: there are now nearly 40 diseases that were unknown a generation ago. Factors that contribute to the increase in risk include the following:

- Rapid growth in international travel and trade is providing greater opportunities for infectious diseases to spread. Airlines carried an estimated 2.1 billion passengers in 2006.
- Resistance to antimicrobial drugs is growing, making many common infectious diseases more expensive or difficult to treat.
- Climate change and land use changes are displacing animals and bringing them into closer contact with humans. Diseases that were previously confined to animals can cross the species barrier and infect humans.

**5.4** These trends make it even more important for public health officials to detect new outbreaks quickly and to have surveillance programs for systematically monitoring the spread of infectious diseases. Public health officials also require appropriate tools to monitor possible international public health threats that could affect Canada.

**Exhibit 5.1** Early detection of global outbreaks can reduce the number of people affected

This exhibit is based on a theoretical model of the impact of public health actions.

Source: World Health Organization

### Shared responsibilities for infectious disease surveillance

**5.5** Many players are involved in infectious disease surveillance in Canada (Exhibit 5.2). The provinces and territories have primary responsibility for detecting, monitoring, and reporting infectious disease cases. The Public Health Agency of Canada leads federal efforts. Its Infectious Disease and Emergency Preparedness Branch had a budget of \$139.4 million in the 2006–07 fiscal year; within it, the Centre for Infectious Disease Prevention and Control had a budget of \$71.2 million in the same year. Its role is to mobilize pan-Canadian action to prevent infectious diseases, and to work with its partners to promote and protect national and international public health. To obtain the surveillance data it needs, the Agency works with other federal departments and agencies, and other levels of government, as well as health professionals, hospitals, and laboratories across the country. Internationally, it works with WHO and public health organizations in other countries.

### Concerns raised in 1999 and 2002

**5.6** In 1999 and 2002, we examined the management of federal surveillance programs for infectious diseases, which was then the responsibility of Health Canada. In 1999, we found several shortcomings:

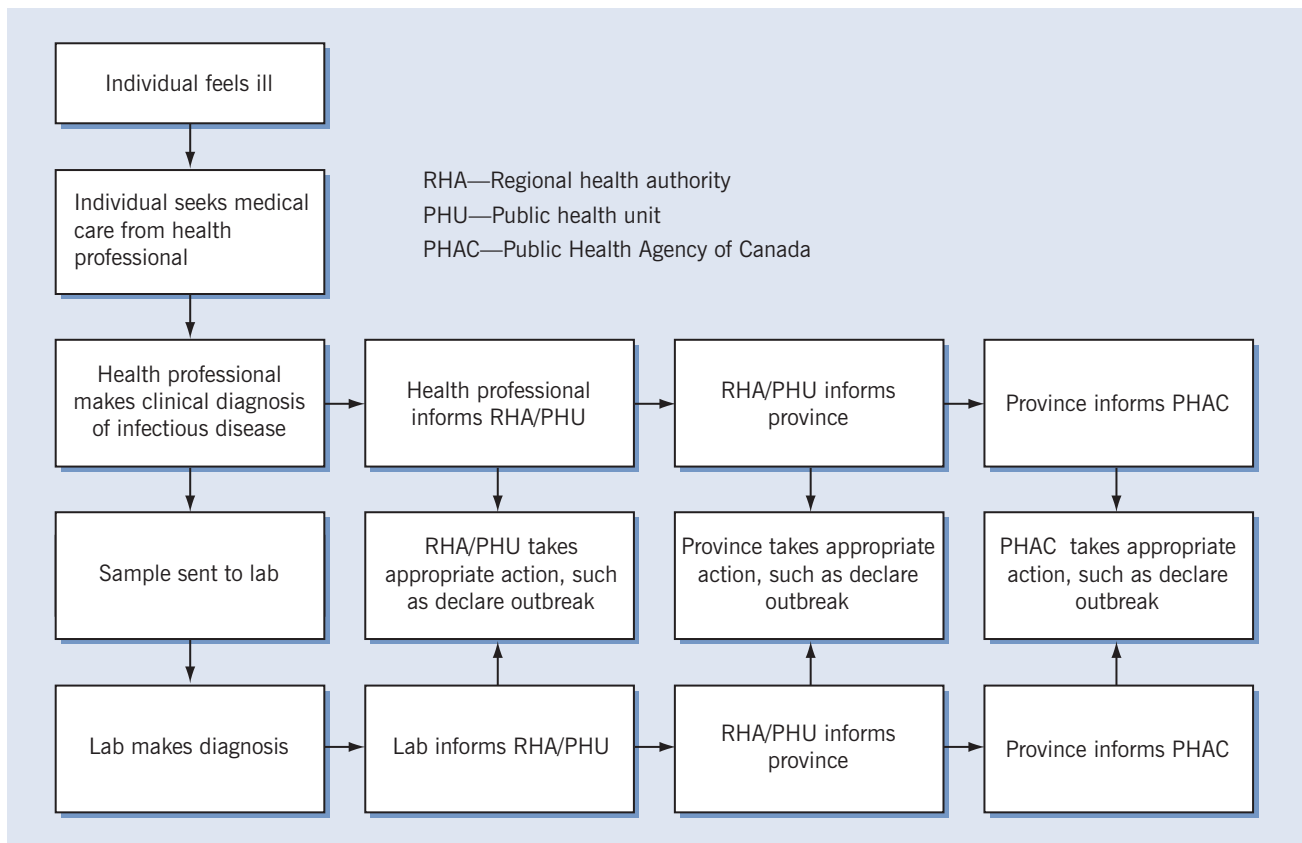
- There was no specific legislation, policy, or agreement linking separate components of public health functions across Canada's various levels of government.

- Key surveillance systems were not working as intended.
- Steps had been taken to create a national health surveillance network but there was no schedule for implementation.

**5.7** In 2002, we found only limited progress toward resolving some of these issues. National surveillance remained weak: many systems still lacked timely, accurate, and complete infectious disease information; gaps persisted in surveillance. The legislative review by Health Canada had not been completed and no public health legislation was in place. We reported that an integrated approach to national health surveillance was still years away.

**5.8** In 1999 and again in 2002, we concluded that the weaknesses, taken together, compromised Health Canada's ability to anticipate, prevent, identify, respond to, monitor, and control diseases and injuries. Furthermore, they compromised the Department's ability to design, deliver, and evaluate public health activities. Given the importance of our past observations and the limited progress achieved by Health Canada, we decided to revisit the topic.

**Exhibit 5.2** How surveillance information gets to the Public Health Agency of Canada



### **New challenges and opportunities**

**5.9** Since our 2002 audit, the situation has changed significantly:

- In response to recommendations in reports on the 2003 SARS outbreak, the federal government established the Public Health Agency of Canada in 2004. The Agency has taken over responsibility for most public health issues from Health Canada, including surveillance of infectious diseases. The report by the National Advisory Committee on SARS and Public Health signalled the need for several measures to strengthen surveillance, including additional funds.
- WHO has set new expectations for member countries with regard to reporting and responding to the international spread of infectious diseases. Instead of simply reporting on the presence of a small number of diseases, the new *International Health Regulations* require WHO members to continually assess new public health threats and determine whether any of them represent a potential public health emergency of international concern.
- The Pan-Canadian Public Health Network was created in 2005, bringing together federal, provincial, and territorial representatives. It serves as a mechanism for collaboration and coordination on public health issues.

**5.10** These developments have raised expectations and created opportunities for improving how the federal government manages the surveillance of infectious diseases in Canada.

### **Focus of the audit**

**5.11** Our audit examined whether the Agency had set objectives and priorities for surveillance based on the public health threats of infectious diseases, and the extent to which it had defined its roles and responsibilities in this area. We also wanted to know whether the Agency had obtained, analyzed, and reported information on selected existing infectious diseases as well as emerging ones (Exhibit 5.3). Furthermore, we wanted to determine whether the Agency was meeting its new international obligations. Finally, we examined the Agency's progress on selected recommendations from our past reports.

**5.12** Within the Public Health Agency, we focused our work on the centres responsible for infectious diseases and emergency preparedness, including the laboratories directly involved in surveillance. Given the close links between animal and human diseases, we also considered surveillance activities carried out by the Canadian Food Inspection Agency.

**5.13** The audit focused on the surveillance of infectious diseases. We did not audit the surveillance of chronic diseases and injuries, nor did we audit emergency preparedness or the management of outbreaks.

**5.14** More details on the audit objectives, scope, approach, and criteria are in **About the Audit** at the end of this chapter.

### Exhibit 5.3 Infectious diseases selected for analysis



HIV

The human immunodeficiency virus (HIV) causes acquired immunodeficiency syndrome (AIDS). Its attacks on the immune system result in a chronic, progressive illness, leaving infected people vulnerable to opportunistic infections and cancers. The Agency estimated that 58,000 Canadians were living with HIV infections at the end of 2005—a 16 percent increase from the 2002 estimate of 50,000.



Verotoxigenic *E. coli* bacterium

Verotoxigenic *Escherichia coli* is a particularly toxic variant of this type of bacterium, found naturally in the intestines of cattle and other animals. Infections can result in serious illness. One study estimates the number of cases of food-borne illness each year in Canada at 11 to 13 million. The proportion due to *E. coli* is not known.



West Nile virus

The West Nile virus is transmitted to humans mainly through the bite of infected mosquitoes. The mosquitoes become infected by feeding on the blood of birds carrying the virus. Most people infected with the virus have no symptoms or else have flu-like symptoms. The virus can cause severe illness, resulting in hospitalization and even death. There were 2,353 cases of West Nile virus infections reported in Canada in 2007 and two deaths reported in 2006.



Influenza virus

The influenza (or flu) virus causes a common respiratory illness. The number of affected people typically peaks in winter. Each year, an estimated maximum of 6 million Canadians fall sick with influenza, an average of 20,000 are hospitalized, and an average of 4,000 (between 1,000 and 8,000) Canadians die of the disease and its complications.

Source: Public Health Agency of Canada

## Observations and Recommendations

### Strategic directions

**5.15** Well-formulated objectives and priorities allow an organization to define what it should be doing and allocate its resources efficiently. According to the World Health Organization guidelines,

prioritization is part of the process to strengthen a national surveillance system for communicable diseases and can be used as an aid in making decisions for resource allocation. Once priorities are set, the adequacy of the existing surveillance system to cover the most important diseases needs to be reviewed and, if necessary, revised. Alternative methods of surveillance need to be considered and areas for improvement need to be identified.

### The Agency is taking some steps to develop strategic objectives and priorities

**5.16** To set a strategic direction for infectious disease surveillance, we expected the Public Health Agency of Canada to have established surveillance objectives and priorities based on public health threats.

**5.17** We observed that the Agency had assessed the public health threats from existing infectious diseases. Beginning in 2005, it coordinated a systematic threat assessment of known infectious diseases to update the list of nationally **notifiable diseases**. A working group ranked a long list of infectious diseases against criteria such as severity, prevalence, outbreak potential, preventability, socio-economic burden, and need for public health action. The top 60 diseases formed the updated list published in October 2006. The provinces and territories have agreed to report cases of these diseases to the Agency voluntarily.

**5.18** We found that the Agency has not used these public health threat assessment results, or another consistently applied risk assessment, to set its objectives and priorities. The Agency's Report on Plans and Priorities for the 2007–08 fiscal year lays out broad directions, but does not indicate which surveillance systems are priorities and why.

**5.19** Emerging threats from infectious diseases also need to be assessed when setting objectives and priorities. Assessing these threats can be a daunting task. The Agency's senior managers assess daily information from different sources regarding threats to the health of Canadians. Actions are taken to address the immediate threats. The discussions of public health threats result in decisions, such as advising Canadians travelling abroad of the risks they may face.

**Notifiable disease**—An infectious disease deemed of sufficient importance to public health to require that its occurrence be reported to public health officials.

**5.20** Another important aspect of assessing emerging threats is the long-range analysis of trends and predicted conditions to identify future surveillance needs. The Agency supported a project to gather information on trends and future conditions related to infectious diseases. The project report, produced in 2005, presents gaps or changes in emphasis in the research on and response to infectious diseases for the next five years and makes several recommendations. We found, however, that the Agency has not used the results of this exercise to set long-term objectives and priorities for surveillance of emerging diseases.

**5.21** In 2002, we noted that Health Canada had not identified its surveillance priorities. Following its creation, the Agency is now putting in place its approach for managing public health issues, including the way in which it will perform surveillance. It has acknowledged the need for surveillance objectives and priorities, and it has recently taken steps to establish them. In March 2007, the Agency created a working group to coordinate a strategic approach to surveillance. By November 2007, the working group had produced a plan for working toward a surveillance strategy.

**5.22 Recommendation.** To ensure effective management of risks posed by existing and emerging infectious diseases, the Public Health Agency of Canada should use public health threat assessments to set objectives and priorities for its national surveillance activities.

**The Public Health Agency's response.** Agreed. The Agency is assessing, on a daily basis, public health risks to Canadians posed by existing and emerging infectious diseases, which are recorded in its Daily Intelligence Report. The Agency has written its Surveillance Strategy Framework, initiated its implementation process, and is committed to complete its implementation over the next three years. This will include a formalized decision process using health threat risk assessments to address priorities and objectives. The Agency's Integrated Risk Assessment Framework will be in place by December 2009.

#### **Long-standing uncertainties about roles and responsibilities still need to be resolved**

**5.23** The Agency is a new organization facing substantial challenges posed by the complex relationships with provinces and territories. Since surveillance is a shared set of activities, all parties need to understand each other's roles and responsibilities. We expected the Agency to have worked with its national partners to define its roles and responsibilities regarding infectious disease surveillance. The Agency has acknowledged the lack of clear roles and responsibilities at all levels. For example,

it is not clear how the Agency works with its partners to ensure that tuberculosis cases are reported using consistent definitions so that results can be compared across provinces.

**5.24** Through the new Pan-Canadian Public Health Network, the Agency has worked with its partners to define roles and responsibilities for specific aspects of infectious disease surveillance; for example, it has sought to define the reporting relationships of the various federal-provincial-territorial working groups and to place them in a coherent single structure. The Network has a mandate to promote communications among all jurisdictions and provide support during public health emergencies. Its priorities include implementing agreements on public health issues and developing joint strategies.

**5.25** One mechanism for clarifying roles and responsibilities is federal legislation. In 2002, we reported that a review then under way might lead to the introduction of federal public health legislation that would better support national health surveillance. Since then, the federal government has created the Agency and Parliament has passed the *Public Health Agency of Canada Act*. The Act focuses on the mechanics of setting up the new Agency. Our audit found that the legislative review being led by Health Canada is still needed and is continuing.

**5.26** We noted that the Agency does not have clear and up-to-date legislative authorities for its surveillance activities, either for routine data collection or when it needs to respond to emergency situations. The *Department of Health Act* currently provides legal authority for the collection, analysis, interpretation, publication, and distribution of public health information, but it does not specifically cover personal information.

**5.27** Recent changes to provincial and territorial legislation, including the adoption of privacy laws, have led some provinces and territories to question the Agency's authority to collect, use, and disclose public health information. In the absence of a decision on new legislation, for the past two years the Agency has been working on regulations to authorize it to receive public health information under the *Public Health Agency of Canada Act*. According to the Agency, the regulations are needed to ensure that it can help the provinces and territories prepare for and respond to public health emergencies, and that it can meet its international reporting obligations. There is no firm timetable for completing the regulations.

**5.28 Recommendation.** To help clarify its roles and responsibilities, ensure that it receives relevant and timely surveillance information,



and ensure that it has adequate legislative and regulatory authorities for the collection, use, and disclosure of public health information, the Public Health Agency should, with Health Canada, complete the legislative review and, if necessary, seek the additional authorities for the Agency to carry out surveillance.

**Health Canada and the Public Health Agency’s response.** Agreed. The Agency and Health Canada will continue to work together to develop legislative and regulatory authorities for the collection, use, and disclosure of public health research and surveillance information.

### **Surveillance for diseases that may pass from animals to humans is not based on an integrated risk assessment**

**5.29** An estimated 65 to 80 percent of newly identified human diseases are zoonotic—that is, caused by pathogens that pass from animals to humans; examples are the West Nile virus and the avian influenza virus. We wanted to know whether the Agency and its partners were monitoring this key source of emerging diseases through well-coordinated and risk-based surveillance of human and animal health.

**5.30** We did not look closely at the cooperation between the key players, but focused on how well the roles and responsibilities were defined for the main federal players—the Public Health Agency, Health Canada, and the Canadian Food Inspection Agency (CFIA). According to the CFIA, its mandate is to ensure that animal diseases transmissible to humans are controlled within animal populations and to conduct the surveillance necessary for this purpose. The CFIA has focused its surveillance on cattle and swine; and four diseases, including bovine spongiform encephalopathy (“mad cow” disease) in cattle, are regularly sampled. No regular samples are taken for avian influenza in domestic poultry; however, this disease is tracked in wild birds.

**5.31** According to the Public Health Agency, it also has a mandate for surveillance of zoonotic diseases. We observed that the Public Health Agency is currently performing such surveillance based on its responsibilities for public health. For example, it is monitoring the ticks that carry Lyme disease by tracking tick populations and doing diagnostic testing.

**5.32** We found that the CFIA and the Public Health Agency have not done an integrated risk assessment to determine what the risks are and then identified which agency will do which surveillance. We also found that a draft memorandum of understanding between the two agencies and Health Canada does not clarify this situation. Both agencies

acknowledge that the responsibilities for surveillance of wildlife and pets, two potentially important sources of human disease, have not been sorted out. We are concerned that federal organizations may not be tracking animal diseases capable of affecting human health in the right places at the right times.

**5.33 Recommendation.** To improve their ability to anticipate and control zoonotic diseases, the Public Health Agency of Canada and the Canadian Food Inspection Agency should jointly assess the possible risks to human and animal health, clarify how the responsibilities will be divided, and act on joint surveillance objectives and priorities.

**The agencies' response.** Agreed. To further ensure collaboration and coordination, including clarification of roles and responsibilities for issues surrounding zoonotic diseases and the potential impacts on human and animal health, the Public Health Agency, CFIA, and Health Canada are currently finalizing a Memorandum of Understanding. In addition, the Public Health Agency addresses issues related to diseases transmitted via food and water through the Foodborne and Waterborne Issue Group, a federal-provincial-territorial committee of the Public Health Network. Also, a newly established Issue Group of the Communicable Disease Expert Group has been created to deal with issues related to animal-to-human infections that are not typically transmitted through food and water. This federal-provincial-territorial committee, as well as forums such as the annual National West Nile Virus and Other Non-Enteric Zoonotic Diseases meetings, provides the Public Health Agency a platform for discussion with stakeholders and the CFIA.

CFIA and the Public Health Agency will implement a risk assessment by spring 2009 and enhancements will be made to the surveillance zoonotic alert module.

## Existing infectious diseases

**5.34** Surveillance makes it possible to detect the threats from infectious diseases and take action to reduce the impacts on Canadians' health and the economy. We expected the Public Health Agency of Canada, working with its partners, to obtain, analyze, and disseminate the information needed to take such action.

### Long-standing issues constrain the Agency's surveillance activities

**5.35 Few agreements with the provinces and territories.** The Agency relies on the provinces and territories to voluntarily send useful and complete data, but this is not always done. For example, when Ontario and Quebec send positive HIV test results, they do not indicate the

ethnicity or country of origin of the persons testing positive, as requested by the Agency. While people from countries where HIV is endemic make up only about 2 percent of the Canadian population, they represented about 16 percent of all new cases in Canada in 2005. Without this information, it is difficult for the Agency to fully describe the HIV situation and target actions appropriately.

**5.36** Since 2002, the Agency has taken steps toward comprehensive data-sharing agreements with the provinces and territories; however, its surveillance activities still depend on a small number of disease-specific agreements and sometimes on verbal commitments. Although the Agency has been able to obtain information in most cases, the flow of information has been interrupted at times. For example, beginning in 2005, Ontario stopped supplying the Agency with routine data on individual cases until the province and the federal government had a legal agreement consistent with Ontario's privacy laws (The province did agree to supply more detailed information in response to emergency requests from the Agency). We were told of several other situations where the Agency had not received the data it needed on specific diseases.

**5.37** After two years of negotiation, the Agency signed a comprehensive information-sharing agreement with Ontario in September 2007. This was an important accomplishment because the flow of regular detailed information was re-established. Moreover, the Agency is optimistic that the comprehensive agreement with Ontario can be adapted to provide the basis for agreements with other provinces and territories. However, it took considerable time and effort to reach this agreement. We are concerned that a nationally standardized approach to disease reporting remains years away.

**5.38** In 1999 and 2002, we recommended that Health Canada work with the provinces and territories to establish information-sharing agreements. The Department agreed to do so, but did not say when it would complete this. In our view, the progress on these recommendations has not been satisfactory.

**5.39 Recommendation.** The Public Health Agency of Canada should establish data-sharing agreements to ensure that it receives timely, complete, and accurate surveillance information from all provinces and territories. In collaboration with its partners, the Agency should set timelines for putting these agreements in place.

**The Public Health Agency's response.** Agreed. The Agency recognizes the importance of sharing data in a timely, complete, and

accurate fashion. Over the last three years, the Agency has worked with provinces and territories to put in place data-sharing agreements. It also participated in a number of provincial and territorial forums to address issues of surveillance information, such as the Public Health Network and the Committee of Chief Medical Officers of Health.

Furthermore, the Agency is in the process of developing a Privacy Framework for the management of privacy issues, such as record information sharing and managed information sharing agreements, with an expected completion date of March 2009. During the 2008–09 fiscal year, the Agency will continue its partnership work with provinces and territories on information sharing and complete the portion of data-sharing agreements that is under its jurisdiction, while engaging provincial and territorial partners to complete their respective portions.

**5.40 Comprehensive surveillance standards still to be finalized.**

Surveillance standards ensure that infectious disease occurrences are defined, reported, and recorded uniformly across the country. They are essential for detecting outbreaks quickly and accurately, describing national trends reliably, and planning and evaluating control measures consistently. Surveillance standards can specify

- the infectious diseases that should be reported,
- the definitions to be used,
- the information to be provided for each case,
- timelines for reporting the information,
- the method for submitting the information, and
- the parties required to submit reports.

**5.41** Without approved standards, cases may be reported by using differing sets of symptoms or diagnostic tests. This makes it difficult to compare findings for certain diseases across jurisdictions and increases the workload at the federal level in trying to resolve inconsistencies. An Agency report described one instance in which differences in reporting requirements might explain inconsistent national results that showed a much higher incidence of *Haemophilus influenzae* type b (a bacterium that can cause respiratory infections and meningitis) in one province than in its neighbours. Since 2002, the Agency has worked with the provinces and territories to prepare the updated list of nationally notifiable diseases mentioned above. The list appeared in 2006, but the accompanying standards for data formats, definition of cases of an infectious disease, data submission guidelines, and laboratory diagnostic tests have not been finalized.

**5.42** In 2002, we recommended that Health Canada work with the provinces and territories to establish common standards, and it agreed to do so. Work is under way on these standards, but in our view, the progress on this recommendation has been unsatisfactory.

**5.43 Recommendation.** The Public Health Agency of Canada should work with its partners to implement agreed-on standards for the data it receives from provinces and territories. Steps should include finalizing agreements with all provinces and territories on the data to be provided for each infectious disease.

**The Public Health Agency's response.** Agreed. The standards for notifiable diseases were agreed to and signed by one province as of September 2007. The Agency will continue working toward finalizing more of these data-sharing agreements with provinces and territories. Additionally, the revised case definitions for notifiable diseases will be finalized and published by December 2009.

**5.44 No framework to ensure data quality.** Organizations such as Statistics Canada regularly work with data provided by other parties. They use data quality frameworks, which include clear and consistent criteria and tests, in order to judge and document the quality of the data they use.

**5.45** In 2002, Health Canada undertook to implement a data quality framework for its public health data in response to one of our recommendations. Progress was very limited until 2007, when the Agency began three pilot projects to assess how a data quality framework might be used. For the one pilot project examining surveillance of an infectious disease, the project report noted that less than half of the applicable data quality criteria were met. We conclude that progress on our 2002 recommendation has been unsatisfactory. One consequence is that the Agency does not have a consistent basis for comparing data quality between different surveillance systems and reports, and deciding where it should focus its efforts for improvement.

**5.46 Recommendation.** To ensure adequate data quality to support public health actions, the Public Health Agency of Canada should put in place the necessary procedures for assessing and documenting its data quality, and should work with its partners to address deficiencies.

**The Public Health Agency's response.** Agreed. The Agency has been working and will continue its work to formalize the data quality checks that it has already undertaken. A data quality process has been piloted within the Agency and is expected to be completed by March 2009. As outlined in the Surveillance Strategy Framework, the Agency will

**Enteric diseases**—Bacterial and viral infections of the gastrointestinal tract. The enteric pathogens cause disease symptoms ranging from mild gastroenteritis to life-threatening systemic infections and severe dehydrating diarrhea.

continue to strengthen its existing activities to formalize procedures internally, and will work with partners to address any deficiencies that become apparent.

**5.47 Continuing weaknesses in evaluations.** Also essential to effective surveillance are evaluations and performance measures for ensuring that systems do what they are supposed to do. For example, a recent evaluation of a surveillance system for **enteric diseases** recommended streamlining the set of reports produced by the Agency. The Agency could also use this evaluation information to report publicly on the effectiveness of its surveillance programs. However, we found that few evaluations were performed for infectious disease surveillance.

**5.48** Certain surveillance systems have performance measures, but the Agency has yet to develop and implement a comprehensive approach and method for consistently measuring performance—one that also includes targets. The Agency recently restated the need to resolve this long-standing issue. It is a matter that requires sustained attention from management.

**5.49** In 1999, we noted that Health Canada had completed few evaluations and had no formal plan to evaluate its surveillance systems. In 2002, we found that Health Canada was still developing its performance measures and that reports to Parliament remained inadequate. We expected that the Agency would now have implemented procedures for measuring the effectiveness of its surveillance systems, for instance, by using a framework similar to that developed by the Centers for Disease Control and Prevention in the United States. We also expected the Agency would have reported the results publicly. In our opinion, progress has been unsatisfactory on these recommendations.

**5.50 Recommendation.** The Public Health Agency of Canada should periodically evaluate its surveillance systems to ensure that they are working as intended, and it should report the results publicly.

**The Public Health Agency's response.** Agreed. During the 2008–09 fiscal year, the Agency will finalize and implement the existing Evaluation Framework for Surveillance Systems throughout the organization. This Framework will be used to perform regular evaluations of surveillance systems.

**5.51 Recommendation.** To regularly measure the performance of its surveillance systems, the Public Health Agency of Canada should establish indicators with targets and report the results against those targets.

**The Public Health Agency's response.** Agreed. In conjunction with current work being done on revising and detailing its Strategic Outcome and Program Activities, the Agency will work to establish required indicators and subsequent reporting in the 2009–10 fiscal year.

**For four infectious diseases, the Agency is producing reports, but some weaknesses remain**

**5.52** Given the long-standing weaknesses we have noted, the Agency faces significant obstacles in obtaining and reporting surveillance information. To understand the practical consequences of the weaknesses and the extent to which the Agency has overcome the obstacles, we focused on surveillance of four important infectious diseases: infections caused by HIV, *E. coli*, the West Nile virus, and the influenza virus. Our observations on these do not apply to other diseases.

**5.53 Needs not well assessed and documented.** We wanted to know how well the Agency's reports and analyses were meeting the needs of public health officials in Canada and other users. With the exception of *E. coli*, we found that the Agency had not determined how well its reports and analyses supplied the information required for anticipating, preventing, and responding to public health threats. The Agency identifies incremental improvements through internal discussions and meetings with its federal, provincial, and territorial partners. We observed, however, that the needs of the users have not been systematically assessed and documented, nor has the extent to which the Agency's analyses and reports have met those needs. In 1999, we recommended that Health Canada properly assess user needs. In our view, progress on this recommendation has not been satisfactory.

**5.54 Recommendation.** To ensure that its surveillance systems for HIV, the West Nile virus, and the influenza virus are best meeting the needs of the users, the Public Health Agency of Canada should systematically assess and document the user needs.

**The Public Health Agency's response.** Agreed. The Agency will implement a user needs assessment program for surveillance systems by December 2008.

**5.55 Steps taken to address under-reporting.** To make well-informed, timely decisions, the Agency and its partners need to be able to rely on the information it produces. In turn, the information needs to be based on complete, accurate, and timely data.

**5.56** Organizations that collect health surveillance information have challenges obtaining complete data, in part because of under-reporting. The Agency has little influence over some of the factors that may contribute to the problem. For example, the Agency reported that health care providers who treat patients and laboratories that process clinical samples may not report the illnesses within their jurisdictions.

**5.57** If reporting rates vary among different data providers, it is difficult for the Agency to determine which regions of the country are most affected. And if reporting rates vary from year to year, trend estimates may not be accurate. For example, the Agency's FluWatch program uses a network of physicians to track the number of patients with symptoms similar to influenza every week, but reporting rates are much lower from one province than from other provinces. This means that there may be delays identifying an outbreak and that it is difficult to determine if the outbreak is more severe in one province than in another.

**5.58** The Public Health Agency has acknowledged the need to improve reporting rates and consistency among data providers. In our view, under-reporting will always require attention and the Agency needs to continue to improve the consistency of reporting from different provinces and territories, and to document the impacts on its surveillance results. We found that the Agency has taken concrete measures to address the issues of reporting rates and consistency in data. It has produced national estimates of the extent of under-reporting for influenza, HIV and *E. coli* infections for selected years. Users of the Agency's reports need such information to interpret the surveillance results.

**5.59 Mixed success promoting accuracy.** We found that the Agency has had mixed success with steps it has taken to ensure that the data it receives is accurate. For laboratory-based data, it has worked closely with provincial laboratories to ensure uniformity in testing and reporting. For other data sources, procedures include logic checks, such as flagging cases where an individual's date of birth is recorded as occurring after the date of diagnosis of an infectious disease. However, the Agency does not use a consistent set of procedures for verifying that it receives information as required and documenting the results. A data quality framework would include such checks and could be part of information-sharing agreements with the provinces and territories.

**5.60 Steps taken to provide timely information.** How soon public health officials find out about a disease outbreak affects how quickly they respond and how successful they can be in controlling it. Timeliness in responding to an outbreak depends on the interval between the time a



person is first seen by a health care provider and the time a report on the event is produced. The Agency can directly control only the time from when it receives information or specimens to when it produces its reports; the first steps are largely beyond its scope.

**5.61** We found that the Agency has designed its surveillance activities to match the speed with which different diseases spread. For example, the Agency produces weekly reports on West Nile virus, influenza, and *E. coli* cases. For influenza and *E. coli*, it has set target times for the analyses it needs to perform and generally respects them. For some of the information we examined, however, we found that the Agency has not worked with its partners to review how long the different stages in the flow of information are taking, what the acceptable total times are, and what that means in terms of target times for the steps the Agency manages. A needs assessment could spell out these expectations for timeliness of information in more detail (see recommendation 5.54).

**5.62 Some analyses and reports linked to public health action.**

The Agency produces a diverse set of analyses and reports based on its surveillance data, including online databases, maps, newsletters, annual reports, and research studies. Some outputs have directly supported public health actions. For example, Agency analysis of the genetic characteristics of food-borne pathogens has helped pinpoint clusters of related cases, resulting in food recalls. The surveillance of influenza strains circulating in Canada led to the detection of increased resistance to an antiviral drug, which, in turn, led to changes in prescription practices. Surveillance results have also contributed to policy decisions. For example, the Federal/Provincial/Territorial Advisory Committee on AIDS used evidence from HIV surveillance and analyses of how many people were affected to determine that harm reduction measures—such as safe injection sites and clean needles—were effective in reducing the spread of the disease among injection drug users and their partners.

**5.63** Given that most public health actions are taken at provincial, territorial, and local levels, and given that the Agency has not documented what needs it is trying to meet with its surveillance systems for these four infectious diseases, we could not determine how useful its suite of analyses and reports was in anticipating, preventing, and responding to threats of infectious diseases.

**Emerging infectious diseases**

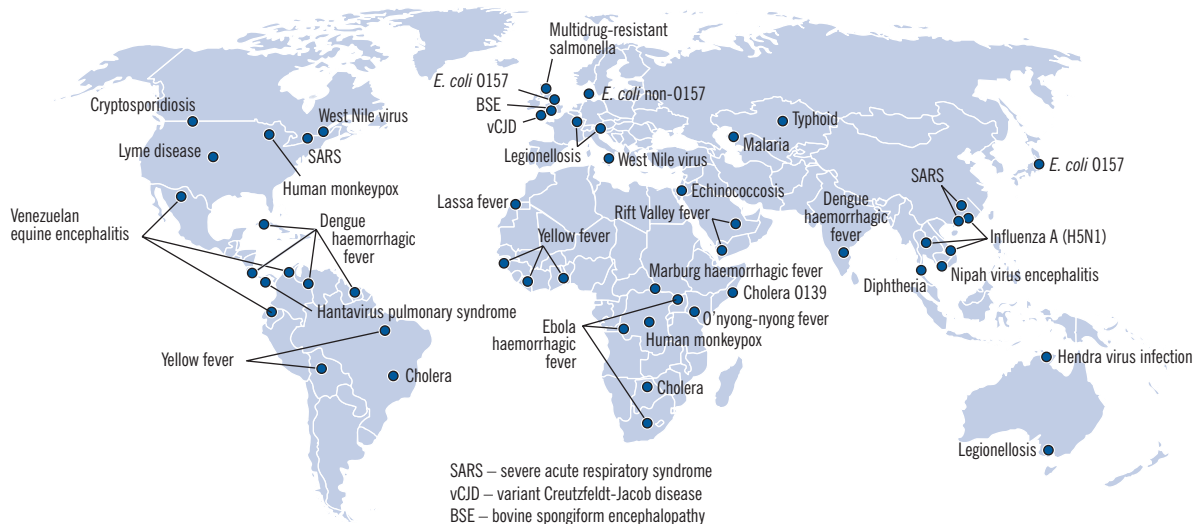
**5.64** The Public Health Agency of Canada must respond as some infectious diseases fade and others erupt. Threats may come from diseases never before seen in Canada, such as SARS in 2003 (Exhibit 5.4). These diseases can originate inside or outside Canada. Threats may also come from strains of existing infectious diseases that have acquired new and dangerous properties, such as drug resistance; an example is tuberculosis. Other infectious diseases that had been virtually eliminated from Canada through vaccination programs may re-emerge if immunity levels fall; an example is mumps.

**5.65** We expected the Agency to be able to detect and then monitor emerging infectious diseases, and to communicate the information to its partners. Detection means that the Agency finds out about one or more cases of a new infectious disease; monitoring means obtaining detailed and systematic information about the cases and how the disease is spreading. The Agency’s capacity to do this depends on its laboratories and on its contacts with public health officials in other levels of government. For re-emerging diseases, the Agency also relies on established surveillance systems.

**The Agency has the capacity to detect emerging infectious diseases, but monitoring needs to be strengthened**

**5.66** A network to detect infectious diseases in other countries. Beginning in 1997, Health Canada developed an innovative system to detect international public health threats. The Global Public Health

**Exhibit 5.4** New diseases can arise in all parts of the world



Source: U.S. Government Accountability Office (sources listed as the World Health Organization and the U.S. Centers for Disease Control)

Intelligence Network combines powerful computer search functions that continuously scan media reports from around the world in eight languages, with human analysts to filter and interpret the output. Canada, other countries, and WHO depend on this system as an essential source of information about the spread of new infectious diseases. An analysis by WHO found that during 2001 and 2002, the Network supplied about 40 percent of WHO's early warning outbreak information. The development of this system was a major accomplishment for Canada.

**5.67 A central role for national laboratories in detecting new infectious diseases and new strains of existing diseases.** The Agency is able to detect an infectious disease new to Canada when provincial or territorial health officials send a specimen containing the pathogen to the national laboratories for analysis. The laboratories have a strong analytical and research capacity, and their reference collections enable them to compare new pathogens with previously identified ones. The laboratory facilities maintain the highest level of biological security, making it possible to work with particularly dangerous pathogens such as the **Ebola virus**. We found that the national laboratories are working to provide services to meet the needs of their users, primarily the provincial laboratories.

**Ebola virus**—The virus that causes Ebola hemorrhagic fever. This is a severe, often-fatal disease occurring in humans and non-human primates, such as monkeys and gorillas. It has appeared sporadically since it was identified in 1976. It is named after the Ebola River in the Democratic Republic of the Congo, where the first recognized outbreak occurred.

**5.68** The same laboratory capacity is used to detect new strains of infectious diseases in Canada. For three of the four existing infectious diseases we selected, the laboratories have systematic surveillance programs and can distinguish new strains, including those associated with drug resistance. We found, however, that the Agency was not able to estimate accurately how common the new strains were or where they were found because of gaps and delays in the supply of data by the provinces and territories. For example, only five of the provinces and territories have agreements to supply specimens to the Agency to check for new strains of HIV. This could delay the response to an outbreak involving a new strain. (See paragraphs 5.35 to 5.39 for more details on agreements with the provinces and territories.)

**5.69 Surveillance systems to detect re-emerging infectious diseases.** For some diseases that have the potential to re-emerge, systematic and active surveillance systems are in place—that is, the Agency and its partners are checking for possible cases. Such systems can provide baselines so officials can assess whether the number of new cases is higher than typical levels. About half of the 60 nationally notifiable diseases fall in this category.

**5.70** For other infectious diseases on this list that may re-emerge, the Agency could detect such diseases through the procedures for reporting notifiable diseases. We found that the Agency has only limited assurance that it will receive the information it seeks because the provinces and territories are the jurisdictions with statutory authority to require reporting by physicians and laboratories, and because provincial and territorial lists of notifiable diseases are inconsistent with the national list.

**5.71 Informal mechanisms to detect and monitor emerging infectious diseases.** Another way for the Agency to detect new and re-emerging infectious diseases is through direct contacts with public health officials around the country, a key part of any health surveillance system. We found that these direct contacts are used to detect cases and to monitor the spread of outbreaks by obtaining and sharing additional information. However, there are risks related to the use of these mechanisms unless they are formalized:

- It is very difficult for senior managers to determine if the mechanisms are working as they should, unless robust documentation is available for tracking phone conversations, email exchanges, and decisions taken.
- The mechanisms may not provide all the required information in a consistent format to all the people who need to know.
- The mechanisms may not respect protocols for storing and sharing information.
- The mechanisms may not provide a basis for tracking an outbreak as it evolves.
- The mechanisms may not support reliable reporting to international organizations.

The Agency needs to strengthen its internal systems for managing surveillance information. We discuss these observations further in the context of how the Agency complies with the *International Health Regulations* (paragraphs 5.83 to 5.89).

**A new system is intended to improve communication about emerging infectious diseases**

**5.72** To speed up the process of alerting public health officials to possible health risks from existing, re-emerging, or new infectious diseases, and to formalize communication with its partners, the Agency designed and built a Canada-wide public health alerting system. The Canadian Network for Public Health Intelligence is now in

use in all provinces and territories. It provides a way to notify other jurisdictions about relevant public health events. The Agency has used it to alert public health officials to its test results for food-borne pathogens and to international public health events, such as the spread of avian influenza. However, the Network only includes up-to-date information on a few diseases, and it does not support systematic tracking or communication of all the information needed about an outbreak. Agency officials told us they plan to strengthen both of these features.

**5.73** We conclude that the Agency has the capacity and systems to detect an emerging infectious disease, a new strain of an existing disease, or a re-emerging infectious disease. We also conclude that the informal mechanisms for detecting and monitoring these diseases need to be strengthened. This, coupled with gaps and delays in the supply of the data by the provinces and territories means that the Agency cannot always systematically analyze and report information on public health threats. The Agency is working to improve how it communicates relevant information to its partners.

### New international commitments

**5.74** The *International Health Regulations* were adopted by Canada and most other countries in 2005 to control public health threats with the potential to affect other countries. Examples of infectious diseases that fall in this category are SARS and a novel human influenza virus.

**5.75** All countries that adopted the Regulations will be obligated to report cases of an infectious disease that may constitute a public health emergency of international concern. This includes cases where infectious diseases are used as bioterrorism agents. Countries are expected to assess their capacity to meet the core surveillance and response capacity requirements by 15 June 2009, but compliance with surveillance aspects of the Regulations is not mandatory until June 2012.

**5.76** To strengthen pandemic influenza preparedness and response, the World Health Organization called on member countries to comply immediately and voluntarily with key provisions of the Regulations. In May 2006, Canada agreed to immediately implement components of the Regulations relating to surveillance, including

- establishing a national focal point for round-the-clock operations that can communicate with the WHO and other countries,
- assessing all reports of urgent events within 48 hours to determine whether a potential public health emergency of international concern exists, and
- notifying the WHO within 24 hours of the assessment.

**5.77** We expected the Public Health Agency of Canada to have the capacity to detect, assess, notify, and report infectious diseases of international significance, as required under the new *International Health Regulations*. We also expected the Agency to honour Canada's undertaking to adopt key provisions of the Regulations early.

**The Agency is making progress on respecting the *International Health Regulations*, but has not yet taken all the necessary steps**

**5.78** The Regulations contain several specific requirements for member countries, some of which will be difficult to implement for countries like Canada that operate a federal system, where the responsibilities for public health are shared and a pan-Canadian effort and commitment will be required. According to the Regulations, the different levels of government need to jointly develop, strengthen, and maintain the capacity to detect, assess, notify, and report significant public health events.

**5.79** The Agency has taken several steps to comply with the requirements of the new *International Health Regulations*. The Agency has been designated as the national focal point in Canada for matters related to the Regulations. According to the WHO, the national focal point is a centre or office that

- is accessible at all times;
- can communicate information regarding public health emergencies with the WHO and other countries; and
- can disseminate information to and consolidate input from those responsible for surveillance, such as clinics and hospitals.

The Agency is now setting up an Emergency Operations Centre that will operate continuously.

**5.80** The Agency has also obtained general support from all of the provinces and territories for implementing the *International Health Regulations* in Canada. This support is critical to the successful implementation of these Regulations.

**5.81** To find out where it is on the path to full implementation, the Agency has done some informal internal assessments and is now taking steps to document its internal capacity to meet the requirements. It plans to coordinate an assessment of local, provincial, and territorial capacity beginning in 2008.

**5.82** More work remains to be done to ensure that the Agency can obtain the information needed to meet its international obligations (see recommendations 5.88 and 5.89).

### **A proposed information-sharing agreement needs to be completed**

**5.83** Local or provincial public health officials will almost certainly be the first to detect a public health emergency of international concern, as defined by the revised Regulations. The Agency therefore relies on the provinces and territories to supply the information it needs to meet its assessment and reporting obligations to the WHO.

**5.84** Agency officials have stated that they would expect to receive the necessary information in a timely way through direct contacts with local, provincial, and territorial public health officials. An Agency working group recently documented several concerns with its current approach, such as a lack of a standard procedure for responding to public health events, a lack of records for how the Agency has responded to different public health events, and weaknesses in its contact information. Our audit has confirmed these concerns. The Agency needs to be able to provide assurance that its informal systems will function as needed to complement formal arrangements with the provinces and territories.

**5.85** To formalize provincial and territorial cooperation, the Agency has developed an intergovernmental memorandum of understanding on sharing information during a public health emergency. (This agreement would complement the one described in paragraph 5.37 for routine and ongoing surveillance.) This memorandum requires each province or territory to notify other jurisdictions, including the federal government, when it believes that there may be a public health risk or emergency in its jurisdiction. The memorandum also calls on jurisdictions to share detailed and possibly personally identifiable information regarding the risk or emergency. As of January 2008, the memorandum was awaiting approval of federal, provincial, and territorial ministers.

**5.86** In its current form, the memorandum is largely a statement of principle and is not sufficient to ensure a complete and timely flow of information between the Agency and the provinces and territories on public health risks and emergencies. The parties have recognized that critical aspects of the agreement still need to be worked out—for example, procedures for notifying other parties, privacy considerations, and protocols surrounding the provision of potentially sensitive public health information required by the WHO.

**5.87** Until these arrangements have been worked out, we are concerned that the Agency may be unable to notify the WHO within the times specified in the Regulations and keep it informed of subsequent events. Reports following the SARS experience in 2003 pointed to several deficiencies in dealing with the crisis. Among these were the absence of protocols for data sharing among levels of government, uncertainties about data ownership, and inadequacies in outbreak management protocols. Although some progress has been made, these arrangements have not yet been fully defined. The Agency needs to work closely with its partners to develop the remaining elements so that the situation in 2003 is not repeated.

**5.88 Recommendation.** To ensure that it can meet its obligations under the *International Health Regulations*, the Public Health Agency of Canada should ensure that its internal systems for managing information about significant public health events are comprehensive and well-documented.

**The Public Health Agency's response.** Agreed. In the 2008–09 and 2009–10 fiscal years, the Agency will formalize comprehensive and well-documented internal systems for managing information during a significant public health event. This will be accomplished through strengthening existing daily briefings of executive management and responsible officers of data systems, laboratories, and relevant surveillance systems.

**5.89 Recommendation.** To ensure that it can meet its obligations under the *International Health Regulations*, the Public Health Agency of Canada should work with its partners to establish an action plan with clear and realistic deadlines for implementing the memorandum of understanding on the sharing of information during a public health emergency.

**The Public Health Agency's response.** Agreed. The Agency continues to work on a comprehensive plan to ensure that it meets its obligations under the *International Health Regulations*. This includes finalizing the Memorandum of Understanding on Information Sharing during a Public Health Emergency developed by the Public Health Network's Surveillance and Information Expert Group, and, during the 2008–09 fiscal year, supporting and participating in the collaborative action plan for its implementation.

Also, as required by the World Health Organization, the Agency will work with partners to develop a comprehensive action plan by



December 2009 that will outline how Canada intends to meet its obligations under the Regulations.

The Agency believes that Canada's public health systems are in a much better position than in 2003 to deal with an infectious disease threat of national importance. For example, the agreements that have been concluded between the Agency and its partners since 2004 and the experience of events that have occurred since SARS demonstrate the ability of the Agency and its partners nationally and internationally to address public health threats effectively.

**5.90 Privacy considerations still unresolved.** The Agency needs to demonstrate that it complies with privacy laws. A recent report prepared for the Agency highlighted the need for it to conduct a privacy impact assessment to assure its senior management and provincial and territorial partners that it could properly protect confidential information in the event of a public health emergency. This kind of assessment is a Treasury Board Secretariat policy requirement. We found that the Agency is slowly taking steps to prepare this assessment.

**5.91 Recommendation.** To comply with Treasury Board Secretariat requirements and aid negotiations with the provinces and territories, the Public Health Agency of Canada should take steps to complete a privacy impact assessment that covers the information-sharing requirements outlined in the memorandum of understanding on the sharing of information during a public health emergency.

**The Public Health Agency's response.** Agreed. In the coming year, the Agency plans to develop and perform privacy impact assessments in compliance with Treasury Board Secretariat policies. The Agency is committed to protecting the privacy of Canadians, and will continue to work with provinces and territories to assess and manage the privacy implications of all types of information shared in the context of public health.

## Progress on past recommendations

### Progress on past recommendations has been unsatisfactory

**5.92** We examined health surveillance in 1999 and 2002, and made recommendations in several areas, including with regard to infectious diseases. For this audit, we expected to find satisfactory progress on the recommendations we selected. We have commented earlier on the progress so far.

**5.93** We recognize that there were competing demands associated with launching a new organization, but we are nonetheless

concerned about the overall lack of progress on our past recommendations. For some recommendations, the chief obstacle seems to have been difficulty in coordinating action with the provinces and territories. For others, progress seems to have been blocked mainly by a failure to apply certain management principles, such as setting priorities, tracking performance, and periodically evaluating progress.

**5.94** Our past recommendations came before the 2003 SARS outbreak, but that event highlighted the importance of the concerns we raised. In our view, the Public Health Agency of Canada needs to remedy the weaknesses in surveillance to lessen the potential impact of similar crises.

## Conclusion

**5.95** The Public Health Agency of Canada has been in operation for over three years. Although some work is under way, it has not yet clearly defined its roles and responsibilities with respect to the surveillance of infectious diseases. The Agency has also not yet set objectives and priorities for the surveillance of infectious diseases, but has taken initial steps to do so. The Agency has been considering the need for legislative and regulatory measures to clarify its authority to collect and manage surveillance information, but these changes have not yet been made.

**5.96** Given that 65 to 80 percent of newly identified human diseases come from animals, it is important that these health risks to Canadians be well managed. The Public Health Agency and the Canadian Food Inspection Agency have not done a systematic analysis of the risks to human health to justify the selection of the diseases to be monitored. The two agencies also need to resolve the division of responsibilities for surveillance of diseases in animals that could affect people.

**5.97** We selected four infectious diseases for in-depth analysis and concluded that the Agency is obtaining, analyzing, and reporting information on these public health threats. Even though the Agency is struggling with the completeness, timeliness, and accuracy of the information provided by its partners, it carries out analyses and disseminates reports that support public health action. However, several fundamental weaknesses remain. The Agency relies on the goodwill of the provinces and territories to supply the needed information and this flow has sometimes been interrupted. For its part, the Agency has not done enough to assess and document the information needs of users, to establish common surveillance

standards, to implement a data quality framework, to evaluate its surveillance systems, and to obtain data-sharing agreements with the provinces and territories.

**5.98** For emerging infectious diseases, the Agency uses an internationally recognized system for monitoring diseases that may arrive in Canada from other countries. For infectious diseases in Canada, the Agency has a strong laboratory capacity that provides a base for detecting and describing new diseases. However, largely because of gaps and delays in the data supplied by its partners and because of weaknesses in its informal data sharing methods, the Agency may not be able to systematically analyze and report information on public health threats. It is working to improve how it communicates relevant information to its partners.

**5.99** Given heightened concerns about new outbreaks, the World Health Organization passed new *International Health Regulations* to prevent the spread of infectious diseases. In May 2006, the federal government committed to implement parts of the Regulations. The Agency has made progress, but has not yet taken all the necessary steps to meet these commitments. In the event of a public health emergency, the Agency runs the risk of not obtaining the information needed to do an assessment of the situation within 48 hours, to notify the WHO within 24 hours, and to keep it informed of subsequent events, as required, because information-sharing agreements with the provinces and territories are missing.

**5.100** We selected several recommendations relevant to the surveillance of infectious diseases from our 1999 and 2002 reports. All of them are still unresolved even though Health Canada agreed to act on them. We conclude that the Agency has not achieved satisfactory progress in addressing these recommendations.

**5.101** Given that the threats from infectious diseases are rising, Canadians expect the Agency to ensure that it is adequately monitoring important public health events to minimize the potential risks to their health and the economy. Despite some important accomplishments, the Agency has not satisfactorily addressed many of the concerns raised in our previous audits, some of which were evident during the SARS crisis. It is imperative that the Agency address these long-standing issues and complete the initiatives it has started in order to fulfill its responsibilities under the *International Health Regulations*.

## About the Audit

### Objectives

The objectives of this audit were to determine whether the Public Health Agency of Canada has

- set objectives and priorities for surveillance based on the public health threats of infectious diseases in Canada;
- in collaboration with its partners, defined its roles and responsibilities with respect to the surveillance of infectious diseases in Canada;
- in collaboration with its partners, obtained, analyzed, and reported information on public health threats from selected existing infectious diseases as well as emerging ones, in accordance with its objectives and priorities;
- taken the necessary steps to comply with requirements of the *International Health Regulations* related to infectious disease surveillance; and
- made satisfactory progress in addressing recommendations from our 1999 and 2002 reports concerning the surveillance of infectious diseases.

### Scope and approach

Within the Public Health Agency, the Infectious Disease and Emergency Preparedness Branch manages most of the federal activities related to the surveillance of infectious diseases. Our work focused on the Centre for Infectious Disease Prevention and Control, the Centre for Emergency Preparedness and Response, the National Microbiology Laboratory, the National HIV and Retrovirology Laboratories, and the Laboratory for Foodborne Zoonoses. We also examined some activities in the Public Health Practice and Regional Operations Branch.

We carried out audit work at the Canadian Food Inspection Agency to assess the coordination between the two agencies for surveillance of animal diseases that are transmissible to humans.

We examined surveillance systems designed to collect, analyze, and disseminate information on existing and emerging public health threats. The audit focused exclusively on the surveillance of infectious diseases. We did not audit surveillance of chronic diseases or injuries, nor did we audit activities related to emergency preparedness or the management of outbreaks.

For detailed audit work, we selected infectious diseases caused by four pathogens:

- the human immunodeficiency virus (HIV),
- verotoxigenic strains of the *Escherichia coli* (*E. coli*) bacterium,
- West Nile virus, and
- the influenza virus.

We selected these from a recent ranking by public health experts of the diseases with the highest priority for national reporting. We chose diseases for which the Agency had established surveillance systems. We also examined emerging infectious diseases for which surveillance systems are not yet in place.

We collected evidence through interviews with key personnel and external stakeholders, review of relevant documents, examination of the selected surveillance systems and their outputs, and site visits to the national laboratories.

### Criteria

We expected to find the following with regard to the Public Health Agency of Canada:

- The Agency has developed its objectives and priorities for the surveillance of infectious diseases.
- The Agency has assessed the threats of infectious diseases, and used the assessment to set its objectives and priorities.
- The Agency has worked with its national partners to define its roles and responsibilities in the surveillance of infectious diseases.
- In collaboration with its partners, the Agency has obtained, analyzed, and disseminated the information needed to help anticipate, prevent, and respond to threats of existing infectious diseases.
- The Agency has the capacity to detect and monitor emerging infectious diseases and communicate the information to its partners.
- The Agency has measured the effectiveness of its surveillance systems and reported the results.
- The Agency has the capacity to detect, assess, notify, and report infectious diseases of international concern, as required under the *International Health Regulations*.
- Satisfactory progress has been made on addressing the recommendations from our 1999 and 2002 reports concerning the surveillance of infectious diseases.

### Audit work completed

Audit work for this chapter was substantially completed on 19 October 2007.

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## Appendix List of recommendations

The following is a list of recommendations found in Chapter 5. The number in front of the recommendation indicates the paragraph where it appears in the chapter. The numbers in parentheses indicate the paragraphs where the topic is discussed.

Recommendation	Response
<b>Strategic directions</b>	
<p><b>5.22</b> To ensure effective management of risks posed by existing and emerging infectious diseases, the Public Health Agency of Canada should use public health threat assessments to set objectives and priorities for its national surveillance activities. (5.15–5.21)</p>	<p><b>The Public Health Agency’s response.</b> Agreed. The Agency is assessing, on a daily basis, public health risks to Canadians posed by existing and emerging infectious diseases, which are recorded in its Daily Intelligence Report. The Agency has written its Surveillance Strategy Framework, initiated its implementation process, and is committed to complete its implementation over the next three years. This will include a formalized decision process using health threat risk assessments to address priorities and objectives. The Agency’s Integrated Risk Assessment Framework will be in place by December 2009.</p>
<p><b>5.28</b> To help clarify its roles and responsibilities, ensure that it receives relevant and timely surveillance information, and ensure that it has adequate legislative and regulatory authorities for the collection, use, and disclosure of public health information, the Public Health Agency of Canada should, with Health Canada, complete the legislative review and, if necessary, should seek the additional authorities for the Agency to carry out surveillance. (5.23–5.27)</p>	<p><b>Health Canada and the Public Health Agency’s response.</b> Agreed. The Agency and Health Canada will continue to work together to develop legislative and regulatory authorities for the collection, use, and disclosure of public health research and surveillance information.</p>

Recommendation	Response
<p><b>5.33</b> To improve their ability to anticipate and control zoonotic diseases, the Public Health Agency of Canada and the Canadian Food Inspection Agency should jointly assess the possible risks to human and animal health, clarify how the responsibilities will be divided, and act on joint surveillance objectives and priorities. (5.29–5.32)</p>	<p><b>The agencies' response.</b> Agreed. To further ensure collaboration and coordination, including clarification of roles and responsibilities for issues surrounding zoonotic diseases and the potential impacts on human and animal health, the Public Health Agency, CFIA, and Health Canada are currently finalizing a Memorandum of Understanding. In addition, the Public Health Agency addresses issues related to diseases transmitted via food and water through the Foodborne and Waterborne Issue Group, a federal-provincial-territorial committee of the Public Health Network. Also, a newly established Issue Group of the Communicable Disease Expert Group has been created to deal with issues related to animal-to-human infections that are not typically transmitted through food and water. This federal-provincial-territorial committee, as well as forums such as the annual National West Nile Virus and Other Non-Enteric Zoonotic Diseases meetings, provides the Public Health Agency a platform for discussion with stakeholders and the CFIA.</p> <p>CFIA and the Public Health Agency will implement a risk assessment by spring 2009 and enhancements will be made to the surveillance zoonotic alert module.</p>
<hr/>	
<p><b>Existing infectious diseases</b></p>	
<p><b>5.39</b> The Public Health Agency of Canada should establish data-sharing agreements to ensure that it receives timely, complete, and accurate surveillance information from all provinces and territories. In collaboration with its partners, the Agency should set timelines for putting these agreements in place. (5.34–5.38)</p>	<p><b>The Public Health Agency's response.</b> Agreed. The Agency recognizes the importance of sharing data in a timely, complete, and accurate fashion. Over the last three years, the Agency has worked with provinces and territories to put in place data-sharing agreements. It also participated in a number of provincial and territorial forums to address issues of surveillance information, such as the Public Health Network and the Committee of Chief Medical Officers of Health.</p> <p>Furthermore, the Agency is in the process of developing a Privacy Framework for the management of privacy issues, such as record information sharing and managed information sharing agreements, with an expected completion date of March 2009. During the 2008–09 fiscal year, the Agency will continue its partnership work with provinces and territories on information sharing and complete the portion of data-sharing agreements that is under its jurisdiction, while engaging provincial and territorial partners to complete their respective portions.</p>

Recommendation	Response
<p><b>5.43</b> The Public Health Agency of Canada should work with its partners to implement agreed-on standards for the data it receives from provinces and territories. Steps should include finalizing agreements with all provinces and territories on the data to be provided for each infectious disease. (5.40–5.42)</p>	<p>Agreed. The standards for notifiable diseases were agreed to and signed by one province as of September 2007. The Agency will continue working toward finalizing more of these data-sharing agreements with provinces and territories. Additionally, the revised case definitions for notifiable diseases will be finalized and published by December 2009.</p>
<p><b>5.46</b> To ensure adequate data quality to support public health actions, the Public Health Agency of Canada should put in place the necessary procedures for assessing and documenting its data quality, and should work with its partners to address deficiencies. (5.44–5.45)</p>	<p>Agreed. The Agency has been working and will continue its work to formalize the data quality checks that it has already undertaken. A data quality process has been piloted within the Agency and is expected to be completed by March 2009. As outlined in the Surveillance Strategy Framework, the Agency will continue to strengthen its existing activities to formalize procedures internally, and will work with partners to address any deficiencies that become apparent.</p>
<p><b>5.50</b> The Public Health Agency of Canada should periodically evaluate its surveillance systems to ensure that they are working as intended, and it should report the results publicly. (5.47–5.49)</p>	<p>Agreed. During the 2008–09 fiscal year, the Agency will finalize and implement the existing Evaluation Framework for Surveillance Systems throughout the organization. This Framework will be used to perform regular evaluations of surveillance systems.</p>
<p><b>5.51</b> To regularly measure the performance of its surveillance systems, the Public Health Agency of Canada should establish indicators with targets and report the results against those targets. (5.47–5.49)</p>	<p>Agreed. In conjunction with current work being done on revising and detailing its Strategic Outcome and Program Activities, the Agency will work to establish required indicators and subsequent reporting in the 2009–10 fiscal year.</p>
<p><b>5.54</b> To ensure that its surveillance systems for HIV, the West Nile virus, and the influenza virus are best meeting the needs of the users, the Public Health Agency of Canada should systematically assess and document the user needs. (5.52–5.53)</p>	<p>Agreed. The Agency will implement a user needs assessment program for surveillance systems by December 2008.</p>



Recommendation	Response
<p><b>New international commitments</b></p> <p><b>5.88</b> To ensure that it can meet its obligations under the <i>International Health Regulations</i>, the Public Health Agency of Canada should ensure that its internal systems for managing information about significant public health events are comprehensive and well-documented. (5.74–5.87)</p> <p><b>5.89</b> To ensure that it can meet its obligations under the <i>International Health Regulations</i>, the Public Health Agency of Canada should work with its partners to establish an action plan with clear and realistic deadlines for implementing the memorandum of understanding on the sharing of information during a public health emergency. (5.74–5.87)</p> <p><b>5.91</b> To comply with Treasury Board Secretariat requirements and aid negotiations with the provinces and territories, the Public Health Agency of Canada should take steps to complete a privacy impact assessment that covers the information-sharing requirements outlined in the memorandum of understanding on the sharing of information during a public health emergency. (5.90)</p>	<p>Agreed. In the 2008–09 and 2009–10 fiscal years, the Agency will formalize comprehensive and well-documented internal systems for managing information during a significant public health event. This will be accomplished through strengthening existing daily briefings of executive management, and responsible officers of data systems laboratories, and relevant surveillance systems.</p> <p>Agreed. The Agency continues to work on a comprehensive plan to ensure that it meets its obligations under the <i>International Health Regulations</i>. This includes finalizing the Memorandum of Understanding on Information Sharing during a Public Health Emergency developed by the Public Health Network’s Surveillance and Information Expert Group, and, during the 2008–09 fiscal year, supporting and participating in the collaborative action plan for its implementation.</p> <p>Also, as required by the World Health Organization, the Agency will work with partners to develop a comprehensive action plan by December 2009 that will outline how Canada intends to meet its obligations under the Regulations.</p> <p>The Agency believes that Canada’s public health systems are in a much better position than in 2003 to deal with an infectious disease threat of national importance. For example, the agreements that have been concluded between the Agency and its partners since 2004 and the experience of events that have occurred since SARS demonstrate the ability of the Agency and its partners nationally and internationally to address public health threats effectively.</p> <p>Agreed. In the coming year, the Agency plans to develop and perform privacy impact assessments in compliance with Treasury Board Secretariat policies. The Agency is committed to protecting the privacy of Canadians, and will continue to work with provinces and territories to assess and manage the privacy implications of all types of information shared in the context of public health.</p>



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