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Assembly
of Ontario



Assemblée
législative
de l'Ontario

STANDING COMMITTEE ON PUBLIC ACCOUNTS

PREVENTION AND CONTROL OF HOSPITAL- ACQUIRED INFECTIONS

(Special Report of the Auditor General of Ontario, September 2008)

1st Session, 39th Parliament
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The Honourable Steve Peters, MPP
Speaker of the Legislative Assembly

Sir,

Your Standing Committee on Public Accounts has the honour to present its Report and commends it to the House.

A handwritten signature in black ink, appearing to read 'Norman W. Sterling'.

Norman W. Sterling, MPP
Chair

Queen's Park
June 2009

STANDING COMMITTEE ON PUBLIC ACCOUNTS

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LIST OF ABBREVIATIONS

ARO	Antibiotic-resistant (micro)organism
<i>C. difficile</i>	<i>Clostridium difficile</i>
CDAD	<i>C. difficile</i> -associated disease
CNISP	Canadian Nosocomial Infection Surveillance Program
CSA	Canadian Standards Association
FRI	Febrile Respiratory Illness
HAI	Hospital-acquired infection
ICP	Infection-prevention-and-control practitioner
ISMPC	Institute for Safe Medication Practices Canada
LHIN	Local Health Integration Network
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
OAHP	Ontario Agency for Health Protection and Promotion
PHAC	Public Health Agency of Canada
PIDAC	Provincial Infectious Diseases Advisory Committee
RICN	Regional Infection Control Network
SAPRMD	Scientific Advisory Panel on Reprocessing of Medical Devices
SARS	Severe acute respiratory syndrome
SHEA	Society for Healthcare Epidemiology of America
SHN	Safer Healthcare Now!
VRE	Vancomycin-resistant enterococci

PREAMBLE

On June 11, 2008, the Standing Committee on Public Accounts passed the following motion:

That, following the Auditor General's completion of his value-for-money audit of the prevention and control of hospital-acquired infections, including *C. difficile* in the selected hospitals, if, in the Auditor General's opinion, his recommendations could have a significant and timely impact on public health, the Standing Committee on Public Accounts of the Legislative Assembly of Ontario calls on the Auditor General to consider using the discretion outlined in section 12(1) of the *Auditor General Act* to release that chapter of his Annual Report in a special report to the Speaker; and that, prior to the tabling of this report with the Committee, the Auditor General may inform the Deputy Minister of Health of his opinions, observations, or recommendations.

The Auditor General released his *Special Report: Prevention and Control of Hospital-Acquired Infections* on September 29, 2008 primarily because of the above motion.¹ The Committee held hearings on the report on October 29, 2008. It has endorsed the Auditor's findings and recommendations.

This report constitutes the Committee's findings and recommendations as they relate to those areas of concern to Committee members. Background information on sections of the original audit report is followed by an overview of the hearings' main findings and new recommendations. *Hansard*, the verbatim record of the hearings, should be consulted for the complete proceedings.

Acknowledgements

The Committee extends its appreciation to officials from the Ministry of Health and Long-Term Care, the Ontario Hospital Association, the North York General Hospital, The Ottawa Hospital, the Windsor Regional Hospital, and the Erie St. Clair and Central Local Health Integration Networks (LHINs) for their attendance at the hearings. (Representatives of the Champlain LHIN were unable to attend. See Appendix A for a complete list of witnesses.) The Committee also acknowledges the assistance provided during the hearings and report writing deliberations by the Office of the Auditor General, the Clerk of the Committee, and staff of the Legislative Library's Research and Information Services.

1. OVERVIEW

Hospital-acquired infections (HAIs) are acquired by a patient being treated for some other condition while in a hospital. Their impact on patients ranges from longer hospital stays to conditions that may require surgery or result in negative long-term effects. In severe cases, they can cause death. HAIs increase treatment costs and result in longer wait times for a hospital bed for other patients.

Information on the total number of HAIs in Ontario each year is not available, but a 2003 Canadian study estimated that there are 220,000 cases in hospitals each year that result in at least 8,000 deaths annually. More recently, the Canadian Institute for Health Information has noted that one in 10 adults and one in 12 children will contract an HAI. The Centers for Disease Control and Prevention estimate that there are 1.7 million HAIs in American hospitals each year and 99,000 related deaths.

Some HAIs are infectious diseases. Four serious HAIs are *Clostridium difficile* (*C. difficile*), Febrile Respiratory Illness (FRI), methicillin-resistant *staphylococcus aureus* (MRSA), and vancomycin-resistant enterococci (VRE). Each is described below. Further details can be found in Appendix B.

<i>C. difficile</i>	A patient takes antibiotics that reduce the normal levels of good bacteria in the intestines and colon. This allows <i>C. difficile</i> bacteria to grow and produce toxins. Possible effects include diarrhea and more serious intestinal conditions (e.g., colitis) that may require surgery. Death can occur in extreme cases. ²
FRI	"FRI is a term used to describe a wide range of droplet-spread respiratory infections, such as colds, influenza, influenza-like illness (ILI) and pneumonia. . . ." ³ "Droplet' transmission involves the infected person coughing or sneezing and causing droplets to come into direct contact with another person." ⁴
MRSA	"Staphylococcus aureus is a germ that lives on the skin and mucous membranes of healthy people. Occasionally S. aureus can cause an infection. When S. aureus develops resistance to certain antibiotics, it is called methicillin-resistant Staphylococcus aureus, or MRSA." ⁵
VRE	"Enterococci are a type of bacteria normally present in the human intestines and in the environment. These bacteria can sometimes cause infections. Vancomycin is an antibiotic that is often used to treat infections caused by enterococci. In some instances, enterococci have become resistant to this drug and thus are called vancomycin-resistant enterococci (VRE)." ⁶

All four HAIs can be transmitted through contact; therefore, handwashing, and cleaning and disinfecting surfaces that patients and staff come into contact with are critical in preventing their spread. (FRI can also be transmitted by droplets coming into direct contact with another person (e.g., through inhaling).

As indicated above, HAIs such as MRSA and VRE are resistant to most antibiotics. The incidence of MRSA approximately doubled, while that of VRE

more than tripled, between 1999 and 2006, according to data reported by the Canadian Nosocomial Infection Surveillance Program (CNISP). Increases in antibiotic-resistant organisms suggest that antibiotics are becoming increasingly ineffective against certain diseases.

CNISP information from 2005 to 2007 indicates that certain of the HAIs referred to above may be somewhat more prevalent in Ontario. The incidence of *C. difficile* may be slightly higher in Ontario than in Canada as a whole. The incidence of MRSA and VRE may be slightly higher in Ontario and Quebec combined than in the country as a whole.⁷

The risk of outbreaks is a concern with *C. difficile* as many people in hospitals take antibiotics. Because hospitals were not required to report *C. difficile* cases or the related patient outcome at the time of the audit, there was no province-wide information on the prevalence of outbreaks. In the last few years, though, several hospitals have reported significant outbreaks. Examples include the Sault Area Hospital, the Trillium Health Centre in Mississauga and Joseph Brant Memorial Hospital in Burlington.

HAIs other than those referred to above often involve individual patients undergoing particular medical procedures (e.g., central-line infections, surgical-site infections and ventilator-associated pneumonia).⁸

2. AUDIT OBJECTIVE AND MAIN FINDINGS

The audit's objective was to assess whether selected hospitals followed effective policies and procedures for the prevention and control of HAIs. A preliminary visit to a hospital allowed audit staff to become familiar with infection-prevention-and-control activities. Audit work was then undertaken at three other hospitals which varied in size and communities served: North York General Hospital (two sites), The Ottawa Hospital (three sites) and Windsor Regional Hospital (two sites).

The prevention and control of HAIs was discussed with the regional infection control networks (RICNs) and the Local Health Integration Networks (LHINs) associated with each hospital. Independent medical consultants also assisted in the audit. Audit work was largely based on best practices developed by the Provincial Infectious Diseases Advisory Committee (PIDAC). The management of infection-prevention-and-control services was discussed with members of PIDAC.

The audit focused on *C. difficile*, FRI, MRSA, and VRE, central-line infections, surgical-site infections, and ventilator-associated pneumonia. MRSA and VRE have developed rapidly over the last few decades. The other HAIs were selected primarily because of their prevalence in hospitals.⁹

The Auditor found that some of the formal processes to prevent and control HAIs in place at the hospitals visited were working well. At the same time, there was room for improvement in a number of areas. Observations included the following:

- **Availability and Comparability of Data on HAIs:** Ministry information on the number of cases of most HAIs or resulting patient outcomes will not be available until the fall of 2008 at the earliest. HAI information from the hospitals visited could not be compared because definitions and counting methodologies differed.
- **Procedures for Screening for FRIs:** The three hospitals had different procedures to ensure that patients were screened for FRIs such as influenza.
- **MRSA and VRE:** Each hospital had different processes to review whether it had identified patients with a high risk of having MRSA and VRE, and had taken a sample to obtain laboratory confirmation of infection. Review results indicated that hospital policies were not always followed.
- **Handwashing Compliance:** MRSA, VRE and *C. difficile* are most commonly spread via the hands of health-care workers. By the end of the Ministry's hand hygiene pilot program, compliance ranged from only 40% to 75% at the 10 participating hospitals, one of which was visited for the purposes of the audit. Physician compliance increased from 18% to 28%. Nurse compliance rose from 44% to 60%.
- **Monitoring Use of Personal Protective Equipment:** None of the hospitals had systems to periodically monitor staff use of personal protective equipment. One did conduct periodic reviews from October 2006 to April 2007 and noted that staff in a relatively high-risk unit did not always use, or used incorrectly, personal protective equipment. The other two hospitals only reviewed glove use.
- **Isolating Patients with Infectious Diseases:** Hospitals had different policies on when to isolate patients with infectious diseases in private rooms. Two immediately isolated all patients transferred directly from institutions outside of Canada because MRSA and VRE rates are generally higher outside of Canada. The third waited for confirmation but acknowledged that it could take up to four days after the laboratory received the sample to get confirmation.
- **Cleaning of Rooms Occupied by *C. difficile* patients:** Two hospitals cleaned rooms occupied by *C. difficile* patients twice a day, in accordance with PIDAC recommendations. However, they could not determine if the cleaning occurred because neither tracked when the rooms were cleaned. The third cleaned rooms occupied by *C. difficile* patients once a day.
- **Use of Antibiotics:** The judicious use of antibiotics, promoted by all three hospitals, reduces the incidence of *C. difficile* and MRSA. Monitoring effectiveness involved a labour-intensive manual inspection of patient charts because none of the hospitals had an information system that would enable an analysis of drug utilization patterns by physician or the reasons underlying specific drug use.
- **Definition and Surveillance of HAIs:** Each hospital defined HAIs and performed surveillance activities differently. This can cause large variations in reported infection rates.

- **Provision of Surgical-Site Infection Rates:** A best practice followed by one hospital was to track surgical-site infection rates by each surgeon and provide them with the information. Neither of the other two hospitals provided all surgeons with their surgical-site infection rates.
- **Disinfecting or Sterilizing Medical Equipment:** None of the hospitals had processes to audit whether staff disinfected or sterilized medical equipment in accordance with manufacturers' instructions or hospital policy.¹⁰

3. COMMITTEE REQUEST FOR MINISTRY RESPONSE

The Committee requests that the Ministry provide the Committee Clerk with a written response within 120 calendar days of the tabling of this report with the Speaker of the Legislative Assembly, unless otherwise specified in a recommendation.

3.1 Committee Recommendations

- 1. The Ministry of Health and Long-Term Care shall provide the Committee with a status report on how Local Health Integration Networks have ensured that hospital boards have addressed the Auditor General's recommendations concerning hospital-acquired infections.**
- 2. The Ministry of Health and Long-Term Care shall report to the Committee on the results of its consultations regarding the use and cost of universal screening of MRSA, VRE and FRI, and whether specific screening practices should be recommended.**
- 3. The Ottawa Hospital provide the Committee with a written overview of the results of its universal screening trial for MRSA within 60 days of the completion of its evaluation, including the impact on hospital-acquired infection rates and cost-effectiveness.**
- 4. The Ministry of Health and Long-Term Care:**
 - a) should ensure that all hospitals regularly perform hand hygiene audits employing consistent processes and definitions that include whether hands are washed at the appropriate times (e.g., before and after patient contact), as well as whether hands are appropriately cleaned; and**
 - b) as part of the public reporting on patient safety indicators, and in conjunction with Local Health Integration Networks and hospitals, shall develop a process to ensure hand-hygiene compliance rates reported by hospitals are reliable and comparable, and reported by health care occupational group (e.g., nurses and physicians).**

5. **The Ministry of Health and Long-Term Care, in co-operation with the Provincial Infectious Diseases Advisory Committee, shall develop specific best-practice guidelines with respect to infectious diseases isolation policies for high-risk patients.**
6. **The Ministry of Health and Long-Term Care undertake a cost-benefit analysis of the capital cost of making all new hospital rooms private, with their own washroom, versus the long-term costs related to hospital-acquired infections.**
7. **The Ministry of Health and Long-Term Care shall advise the Committee when in 2009 it is expected that the Provincial Infectious Diseases Advisory Committee's best practice document for environmental cleaning will be made available to hospitals. It is the Committee's expectation that this document will include best practices for both the prevention and the control of hospital-acquired infections.**
8. **The Ministry of Health and Long-Term Care, in conjunction with the Provincial Infectious Diseases Advisory Committee, should investigate new technologies for monitoring cleanliness, especially since a visual inspection of cleanliness will not detect most infectious organisms.**
9. **The Ontario Agency for Health Protection and Promotion, through the Ministry of Health and Long-Term Care, after its receipt and evaluation of the findings of the Institute for Safe Medication Practices Canada's study of hospital antibiotic use, shall report to the Committee within 60 days on plans to promote optimal antibiotic use.**
10. **The Windsor Regional Hospital report to the Committee on the impact of its new electronic drug dispensing system in facilitating the monitoring of antibiotic use during its first 12 months of operation, within 90 days of the system's one year anniversary.**
11. **The Ministry of Health and Long-Term Care, in conjunction with the Provincial Infectious Diseases Advisory Committee, shall report to the Committee on the establishment of target rates for hospital-acquired infections that would serve as benchmarks for all hospitals.**
12. **The Ministry of Health and Long-Term Care shall work with the Provincial Infectious Diseases Advisory Committee on the development of best practices with respect to the reporting of outbreaks of hospital-acquired infections to the public (e.g., the timing of announcements, and the use of websites, telephone messages, and signage) to ensure standardization across the province.**

4. AUDIT OBSERVATIONS AND RECOMMENDATIONS

4.1 Accountability for Patient Care

Responsibility for the patient-care issues posed by HAIs is shared and falls under several pieces of legislation. The Auditor's report and the presentation made by Ministry staff during the hearings focussed on five statutes.

- ***Public Hospitals Act:*** The Act and its regulations provide the framework within which hospitals operate and set out the responsibilities of boards and medical committees with respect to patient care.
- ***Ministry of Health and Long-Term Care Act:*** Under this legislation, the Minister's duties and functions include governing the care, treatment, services, and facilities provided by hospitals.
- ***Local Health System Integration Act, 2006:*** Fourteen LHINs are responsible for prioritizing and planning health services and funding hospitals. They are accountable to the Ministry. As of April 1, 2007, hospitals are directly accountable to their respective LHINs for most matters.¹¹
- ***Regulated Health Professions Act, 1991:*** Each regulated health profession is governed by this legislation and a specific profession act, under which a college operates as the self-regulating body for its members.
- ***Health Protection and Promotion Act:*** The Act contains the mandate for boards of health and local medical officers of health. Its purpose is the organization and delivery of public health programs and services, the prevention of the spread of disease, and health promotion and protection. Medical officers of health are responsible for ensuring local services and compliance with mandatory public health programs.¹²

The Ministry provides hospitals with approximately 85% of their funding. Other funding sources may include accommodation charges and donations. The total operating cost of the over 150 hospital corporations was approximately \$20 billion in 2007/08. Infection-prevention-and-control activities should be integrated throughout hospital operations, making it difficult to isolate costs attributable to these activities. None of the hospitals visited tracked the total cost of preventing and controlling HAIs.¹³

Committee Hearings

Hospitals and their staff are key to the prevention, management and control of HAIs, but the success of infection control was said to be dependent on everyone within the hospital and health care system, as well as the broader community.¹⁴

LHINs support hospitals and coordinate the sharing and implementation of best practices across their respective systems, including CCACs, long-term care homes and community service agencies. These functions, as they relate to infection prevention and control, are supported by RICNs. The Committee was advised that patients, as well as best practices, can be shared within and between systems.¹⁵

Hospitals are required to report *C. difficile*-associated disease (CDAD) outbreaks immediately to their local public health units to give medical officers of health the information they need to monitor and respond to emergent outbreaks. In turn, medical officers of health inform the Ministry of outbreaks.¹⁶

The audited hospitals spoke of their accountability as agencies to provide leadership and to work with all partners within their individual organizations. It is their responsibility to do the best they can with what they are given (e.g., expert resources) in order to ensure best practices are followed.¹⁷ One of the LHINs reported that it would be discussing the Auditor's recommendations with its hospitals and how they would work together as a network in response.¹⁸

Cost of Preventing and Controlling HAIs

Reference was made to figures cited in PIDAC's *Best Practices for Infection Prevention and Control Programs in Ontario*. That document reports that antibiotic resistant microorganisms (AROs) have been estimated to increase the

annual direct and indirect costs to patients by an additional \$40 [million] to \$52 million in Canada.¹⁹

The Committee also heard that over the past two years, organizations that have dealt with CDAD outbreaks have incurred additional costs that ranged from \$750,000 to \$3 million or \$4 million. One witness cautioned that calculating the cost of an HAI outbreak was extremely complex and probably could not be accurately measured.²⁰

Committee Recommendation

The Committee supports the LHIN that stated it will review the Auditor's report with all of the hospitals within its jurisdiction.

The Standing Committee on Public Accounts therefore recommends that:

- 1. The Ministry of Health and Long-Term Care shall provide the Committee with a status report on how Local Health Integration Networks have ensured that hospital boards have addressed the Auditor General's recommendations concerning hospital-acquired infections.**

4.2 Initiatives

A number of Ministry initiatives for preventing and controlling infections arose from the outbreak of severe acute respiratory syndrome (SARS) in 2003. Details on key initiatives were provided in the Auditor's report and by Ministry staff during the Committee's hearings.

-
- **Provincial Infectious Diseases Advisory Committee (PIDAC):** PIDAC has advised the Chief Medical Officer of Health since its creation in 2004. It has issued best-practice documents that incorporate applicable standards from bodies such as the Canadian Standards Association (CSA) and the Public Health Agency of Canada (PHAC), as well as recommendations from medical literature. In conjunction with the Ministry, PIDAC has developed educational materials to enhance infection-control training for front-line staff. (See Appendix C for a list of PIDAC best-practice documents and PIDAC/Ministry core competency materials.)²¹
 - **Hand Hygiene Improvement Program:** In March 2006, the Ministry and the PHAC held a workshop to learn about programs that resulted in sustainable change in hand hygiene practices. The Ministry developed the Hand Hygiene Improvement Program on the basis of this workshop. The Program was piloted in selected units at 10 hospitals from December 2006 to August 2007.²²
 - **Ontario Agency for Health Protection and Promotion (OAHPP):** The OAHPP was established in 2007 as a centre for research, infectious disease control and prevention, health promotion, chronic disease and injury prevention, as well as environmental health. It will provide knowledge and technical support to public health units, health care providers and Ministry partners.²³
 - **Just Clean Your Hands Program:** The Program was launched in March 2008. Hospitals were provided with train-the-trainer sessions, tools and related materials. The Program includes an audit tool to evaluate its impact and a dedicated website.²⁴
 - **Infection-Prevention-and-Control Practitioners (ICPs):** ICPs are responsible for a hospital's infection-prevention-and-control activities. The Ministry has funded 166 ICPs since 2004, one for every 100 hospital beds, said to be the best ratio of ICPs to beds in North America.²⁵
 - **Regional Infection Control Networks (RICNs):** At the time of the audit, 14 RICNs were being established, one in each LHIN. RICNs assist with coordinating infection prevention and control activities, and promote standardization in health facilities. They work with ICPs from across the health care sector.²⁶
 - **Infection Control Resource Teams:** Teams are being created to provide rapid on-site assistance with outbreak investigation and management in hospitals. Established through the OAHPP, they will be assembled and deployed to support facilities and public health units when the Chief Medical Officer of Health determines a need exists.²⁷
 - **Public Reporting on Patient Safety Indicators:** The Ministry announced plans on May 28, 2008 for all hospitals to introduce public reporting on eight patient safety indicators. Dr. Michael Baker of the University Health Network has been appointed to oversee the patient safety agenda. Reporting on each of the indicators began by the following dates:
 - *C. difficile* - September 30, 2008;

- MRSA, VRE and hospital standardized mortality ratio - December 31, 2008; and
- ventilator-associated pneumonia, central-line infections, surgical-site infections, and hand hygiene compliance among health-care workers - April 30, 2009.²⁸

Committee Hearings

Ministry staff outlined a three-pronged approach to combating infections in hospitals: turning expert advice into action; supporting front-line health care workers; and establishing strong leadership and clear lines of accountability.

The Committee was told the Ministry has made progress and continues to work on addressing the challenges in controlling infectious diseases in health care settings. The focus of its work to date has been on building capacity, increasing resources, and now on provincial reporting and intervention as needed.²⁹

The Ontario Hospital Association (OHA) has delivered a variety of video conferences, webcasts and education conferences related to patient safety and infection prevention and control, PIDAC's best practices documents and public reporting of patient safety indicators.

Members heard that hospitals have sound infection control models and are committed to using standardized patient safety data and public reporting to drive improvements. They also incorporate the recommendations of third parties, like the Auditor, into their continuous quality improvement programs. They partner with PIDAC, the Ministry and each other to share best practices.³⁰

The three audited hospitals expressed their support for the Auditor's report and his recommendations. The government was thanked for its investments in expert reports, structures and evidence-based processes. Reference was made to SARS and how it launched the health care system on a quest to learn more about infection prevention and control. Work remains to be done to ensure front-line staffs have the requisite resources, education and support in order to provide the best and safest care for patients.³¹

Infectious diseases were said to be a reality in hospitals around the world. A system without infectious outbreaks was not something to which anyone could commit. A more realistic goal would be making hospitals as safe as possible and assuring the public that health care providers are doing the best they can in the circumstances.³²

4.3 Screening

Screening often enables the identification of patients who have an infectious organism or disease. Effective screening can also save hospitals from incurring additional costs. The screening process generally involves consideration of various factors to determine which patients have a higher risk of having certain

organisms or diseases, then taking a sample from them and forwarding it to the laboratory. Screening is sometimes extended to either every patient admitted or all patients meeting certain criteria in a process called “universal screening.”

PIDAC has made recommendations with respect to screening:

- assess all patients for symptoms of FRI;
- actively screen all patients admitted for their risk of having MRSA or VRE through a series of specific questions; and
- regularly conduct audits to evaluate patient-screening practices as part of a continuous program for managing and improving quality.³³

MRSA and VRE

All three hospitals identified patients with a high risk for MRSA and VRE in accordance with PIDAC criteria. Each screened patients in the emergency room, the admitting unit or both. Samples were expected to be taken within 24 hours of identifying a patient as high risk.

There is little authoritative guidance on when universal screening is appropriate. However, one hospital’s policy was to perform universal sample-testing in some units. The hospital indicated that a low number of patients with MRSA or VRE were in the units where it did not perform universal sample-testing. This indicated to the hospital that universal screening was not cost-effective. Another had considered, but had not implemented, universal sample-testing. Its reasons were cost, the lack of a specific PIDAC recommendation, and a lack of private rooms for isolating potentially high-risk patients.

At the third hospital, screening only high-risk patients failed to identify those who had acquired MRSA or VRE outside of a health-care setting. This hospital thought that not screening every patient may have played a significant role in the transmission of MRSA and VRE. The hospital had about 18 to 20 outbreaks every year. From April to August 2007, it implemented a policy of taking samples from all patients in four units.

In January 2008, one hospital began a one-year trial of universally screening all patients admitted. All three hospitals performed periodic audits of MRSA and VRE screening; they found various degrees of compliance.³⁴

The Auditor recommended that hospitals routinely monitor whether their screening processes are in accordance with PIDAC recommendations. The Ministry, in conjunction with PIDAC, should assess the results of current universal-screening projects and recommend practices based on their results.³⁵

Responses to Auditor’s Report and Ministry Update

The hospitals generally agreed with the recommendation. One was following it already. Another was addressing it. The third was providing weekly unit-specific data to all units on their compliance with MRSA and VRE admission screening.

This hospital also highlighted the need for electronic systems to accurately monitor whether patients with FRI, MRSA and VRE are being screened in a timely fashion.

The Ministry and PIDAC supported routine monitoring of screening processes. A screening program identifying patients with risk factors for AROs had been shown to reduce the number of AROs in hospitals and was recommended by PIDAC's best-practice guidelines. PIDAC had indicated that there was limited evidence to support universal screening for AROs, and did not include this in its best-practice document.³⁶

Consultations regarding the use of universal screening of MRSA, VRE and FRI were ongoing, and will take into account scientific evidence, as well as lessons learned from other government initiatives.³⁷

Committee Hearings

Universal Screening

The Auditor mentioned that one of the audited hospitals had started a universal screening trial of all admitted patients for MRSA in January 2008. The Committee learned that the facility involved was the Ottawa Hospital.

In 2001/02, the Hospital's infection control team was fairly confident that patients coming from at-risk environments could be identified. Over the next few years, there were breaches in identifying at-risk patients and breakdowns in screening. Senior management decided to make an investment of over \$1 million in universal screening for MRSA but agreed that an investment of that size warranted an evaluation of universal versus specific screening. A framework for monitoring the evaluation has been developed and will be discussed in January 2009.³⁸

Discharge Screening

When asked about the use of discharge screening, witnesses acknowledged it was an option, but one that was used less often than admission screening. Discharge screening was referred to as an added cost and a workload issue; however, it has been used in units with problems with nosocomial transmission and outbreaks.³⁹

The majority of patients who acquire MRSA and VRE do not exhibit symptoms upon discharge. One hospital reported that all discharged patients who have received antibiotics are provided with an information sheet on *C. difficile* which outlines the symptoms that should be reported to their physician.⁴⁰

Committee Recommendations

The Standing Committee on Public Accounts recommends that:

2. **The Ministry of Health and Long-Term Care shall report to the Committee on the results of its consultations regarding the use and cost of universal screening of MRSA, VRE and FRI, and whether specific screening practices should be recommended.**

Since its hearings, the Committee has learned of The Ottawa Hospital's intent to share the results of its universal screening trial for MRSA with the province's other hospitals. The Standing Committee on Public Accounts commends this plan and recommends that:

3. **The Ottawa Hospital provide the Committee with a written overview of the results of its universal screening trial for MRSA within 60 days of the completion of its evaluation, including the impact on hospital-acquired infection rates and cost-effectiveness.**

4.4 Routine Patient Practices and Infection-Specific Precautions

A number of "routine practices" can help prevent and control the transmission of micro-organisms that cause infectious diseases. According to PIDAC, only their consistent use will prevent the spread of infectious diseases. Additional precautions are also necessary to prevent and control certain infectious diseases, such as MRSA, VRE and *C. difficile*. Health Canada says additional precautions should be implemented immediately when a patient has or is suspected of having an infectious disease.

PIDAC has made recommendations with respect to practices and precautions in various areas, including hand hygiene, the use of private rooms and the cleaning of patient rooms.⁴¹

Hand Hygiene

Hand hygiene is considered the most important activity for controlling the spread of infectious diseases. PIDAC says all hospital staff must wash their hands with an alcohol-based rub or soap and water before and after contact with a patient. It also directs that all health-care settings must develop and implement a hand hygiene program that includes ongoing monitoring and observation. Hands must be cleaned even if staffs wear gloves because leaks in the gloves or improper removal can cause their hands to become contaminated.

Studies have reported poor hand hygiene compliance by health care workers. For example, a March 2006 Ontario study examined compliance at seven hospitals and reported 32% adherence to good practices. Adherence was higher when staff used infection-specific precautions or performed activities requiring gloves and gowns. Compliance at the beginning of the Hand Hygiene Improvement Program pilot ranged from 24% to 62%. By the end, it ranged from 40% to 75%. Compliance also varied by type of worker. Physician compliance started at 18% and increased to 28%. Rates for nurses started at 44% and rose to 60%. The three hospitals visited all performed some hand hygiene audits; one participated as a pilot site in the Hand Hygiene Improvement Program. Compliance rates were not comparable because different processes were used to measure compliance.⁴²

Use of Private Rooms

One of PIDAC's infection-specific precautions is isolating infectious patients in private rooms. The American Institute of Architects' 2006 *Guidelines for Design and Construction of Health Care Facilities* recommend that 100% of the rooms in surgical, medical and postpartum nursing units be private. At the hospitals visited, 25% to 36% of beds were in private rooms. One hospital said a lack of private rooms and high occupancy rates restrict their ability to control the spread of infectious organisms. They can also affect the emergency department where infectious patients often wait for a private bed.

PIDAC recommends cohorting patients with similar infectious diseases if private rooms are not available. Two of the hospitals did this, but neither monitored its frequency. None of the three tracked the number of times that infectious patients had to share a room with patients who did not have a similar disease. One isolated infectious patients in semi-private rooms by closing the second bed.

PIDAC does not provide direction on when to place a patient with an infectious disease in a private room. Health Canada's direction also leaves implementation details up to hospital policies. The three hospitals had policies to isolate *C. difficile* patients as soon as they had symptoms. Isolation policies for other infectious diseases varied.⁴³

Cleaning of Patient Rooms

PIDAC identifies special requirements for cleaning the rooms of VRE and *C. difficile* patients. Routine cleaning and disinfection methods that are adequate for dealing with MRSA may not be adequate to remove VRE or *C. difficile*. Health Canada recommends cleaning rooms according to a predetermined schedule that assigns staff to specific tasks. Hospitals are also advised to conduct periodic audits of environmental-cleaning protocols.

All three hospitals maintained a schedule of cleaning duties assigned to specific staff. Door signage indicated that additional precautions must be taken upon entering the rooms of patients with infectious diseases. In a shared room, the sign was placed on the curtain around the patient's bed.

Two hospitals provided guidance in their policies on how to clean rooms where precautions had to be taken before entering. The third used checklists for cleaning these rooms. Audit staff reviewed a sample of checklists to determine if staff completed procedures. One hospital site did not keep the checklists; the other could locate only four, one of which was blank.

Two hospitals cleaned rooms with *C. difficile* patients twice a day. However, it was not possible to determine if the cleaning had actually occurred since neither documented when the rooms were cleaned. The third said that rooms with *C. difficile* patients were cleaned once a day because it had chosen to concentrate its cleaning on multiple-bed rooms.

All three hospitals had a process for visually inspecting patient rooms and other areas. One visually inspected selected patient rooms after discharge. However, it could not locate the results of its 2007 review. The other two did periodic visual inspections and found that they were appropriately cleaned.

Audit staff noted that some other jurisdictions use independent assessors to judge the visual cleanliness of hospital rooms.⁴⁴

The Auditor recommended that hospitals monitor whether prevention best practices and infection-specific precautions are conducted in accordance with PIDAC recommendations. The Ministry, along with hospitals and LHINs, should consider including hand hygiene compliance rates by type of health-care staff as part of its public-reporting requirements. Because many hospitals have a shortage of single-bed rooms, the Ministry should also develop and implement, in conjunction with hospitals, guidance for consistently isolating patients who have, or are at high risk of having, infectious diseases.⁴⁵

Responses to Auditor's Report and Ministry Update

The hospitals generally agreed with the recommendation. One had taken action to address it. Another noted that additional resources were needed to implement PIDAC's best practices. The third felt there was a need for provincial standards for housekeeping resources. The Ministry's development and approval of PIDAC's environmental standards best-practices guideline should be a priority. New technologies for monitoring cleanliness should be evaluated as a visual inspection of a patient's environment will not detect microbial contamination. Basic educational materials should be expanded to cover support staff and physicians.

One hospital thought hand hygiene compliance rates should specify the type of worker and the circumstances of compliance. LHINs supported monitoring performance measures for compliance by type of staff. They agreed that isolation guidelines were necessary and suggested including long-term care homes.

The Ministry had invested in relevant programs. Auditing checklists were available in several PIDAC documents. The Ministry would investigate reporting compliance rates by type of health care staff.

PIDAC guidelines relating to the use of single rooms take into account patient needs and existing resources. Hospital staff should, working with their ICP, use clinical judgement in making these decisions. The Ministry supported hospitals' use of current PIDAC guidelines.⁴⁶

PIDAC was working on a best-practice document for environmental cleaning that was expected to be available in 2009. Current PIDAC documents refer to best practices for environmental cleaning.⁴⁷

Committee Hearings

Hand Hygiene

The Just Clean Your Hands Program will take 13 months to implement and should be fully in place by April 2009. (April 30, 2009 is the date on which hospitals must begin to report hand hygiene compliance among health care workers as part of public reporting on patient safety indicators.) Regional training sessions delivered by the OHA and the Ministry have been attended by every hospital. The week before the hearings, the OHA and the Ministry launched Clean Hands Protect Lives, a campaign designed to educate patients about the importance of effective hand hygiene.⁴⁸

Committee members were assured that health care providers do wash their hands. The challenge for administrators was ensuring that they washed them at the appropriate times (e.g., before contact with a patient, after contact and before an aseptic procedure), in the appropriate way and for the appropriate length of time (i.e., at least 15 seconds).

Consistent audits and definitions, along with the right information and the expectation of accountability, will help to change the attitudes and behaviours of health care professionals. Witnesses referred to the need for a cultural change among health-care workers and hoped that public views might be positively affected as well.⁴⁹

Use of Private Rooms

Guidelines for the planning, design and construction of new hospitals have been developed to improve their ability to prevent the spread of infectious diseases and are included in the recently approved Generic Output Specifications.⁵⁰

The Ministry considers the proposed number of single in-patient medical and surgical rooms on a project-by-project basis. It has noted a general increase in the proposed percentage of single medical, surgical and oncology rooms. Projects like the Sault Area Hospital, Niagara Health System's new hospital in St. Catharines and the Trillium Health Centre included increases in the percentage of single medical-surgical rooms as a result of discussions with the hospitals.⁵¹

Committee members were told that the average hospital building is 46 years old. About \$8 billion in capital construction is needed to bring hospitals up to more modern design standards; that was before there was a sense of the need for more single rooms. There were \$5 billion worth of capital projects ongoing at the time of the hearings.

Hospitals without a capital program are considering operational responses such as cohorting and the use of semi-private rooms for one patient. The latter causes pressure in terms of the number of patients a hospital can deal with at any one time. Because there is little more that can be done in the midst of an outbreak,

identification, isolation and control are the most expedient responses for these facilities.

While witnesses recognized that single-patient rooms was the ideal, they believed that significant capacity could be freed up if Alternate Level of Care (ALC) patients could be moved to a more appropriate level of care. According to the OHA, the most difficult challenge the hospital sector is facing at the moment is the ALC issue. It represents 20% of overall beds. Approximately 37% of medical beds are occupied by people who would be better cared for in the community. In the case of one of the audited hospitals, half of its medical beds are occupied by ALC patients.⁵²

The matter of ALC patients and their effect on the availability of hospital beds was discussed in the Committee's report *Hospitals – Management and Use of Surgical Facilities*, tabled in September 2008. While the issue was presented in a different context at that time, the concerns raised were very similar.

Cleaning of Patient Rooms

The housekeeping staff at Windsor Regional Hospital and North York General Hospital are hospital employees. Housekeeping staff at one of the Ottawa Hospital's three sites are hospital employees. Those at the other two are contract staff.

Hospital representatives told the Committee that there was an expectation that all staff, both hospital employees and contract workers, would comply with established policies, procedures and training methods. Auditing processes were also expected to be in place in both circumstances.⁵³

Committee Recommendations

The Standing Committee on Public Accounts recommends that:

4. The Ministry of Health and Long-Term Care:

- a) should ensure that all hospitals regularly perform hand hygiene audits employing consistent processes and definitions that include whether hands are washed at the appropriate times (e.g., before and after patient contact), as well as whether hands are appropriately cleaned; and
- b) as part of the public reporting on patient safety indicators, and in conjunction with Local Health Integration Networks and hospitals, shall develop a process to ensure hand-hygiene compliance rates reported by hospitals are reliable and comparable, and reported by health care occupational group (e.g., nurses and physicians).

5. **The Ministry of Health and Long-Term Care, in co-operation with the Provincial Infectious Diseases Advisory Committee, shall develop specific best-practice guidelines with respect to infectious diseases isolation policies for high-risk patients.**
6. **The Ministry of Health and Long-Term Care undertake a cost-benefit analysis of the capital cost of making all new hospital rooms private, with their own washroom, versus the long-term costs related to hospital-acquired infections.**
7. **The Ministry of Health and Long-Term Care shall advise the Committee when in 2009 it is expected that the Provincial Infectious Diseases Advisory Committee's best practice document for environmental cleaning will be made available to hospitals. It is the Committee's expectation that this document will include best practices for both the prevention and the control of hospital-acquired infections.**
8. **The Ministry of Health and Long-Term Care, in conjunction with the Provincial Infectious Diseases Advisory Committee, should investigate new technologies for monitoring cleanliness, especially since a visual inspection of cleanliness will not detect most infectious organisms.**

4.5 Antibiotic Use

Research indicates an association between the increased use of antibiotics and the resistance of infections to certain antibiotics. Hospitals use antibiotics to prevent and treat infections; however, infectious bacteria are developing resistance to antibiotics, increasing the risk that antibiotics will no longer effectively treat certain infections in the future.

Individuals are at increased risk for acquiring certain infections if they are taking antibiotics. *C. difficile* infection usually occurs when the use of antibiotics reduces the normal levels of good bacteria found in the intestines and colon. The *C. difficile* bacteria is then able to grow and produce toxins that make the patient sick. The US Food and Drug Administration (FDA) revised the safety labels for certain antibiotics in 2007. They now warn that taking the antibiotic poses a risk of *C. difficile* and that nearly all antibiotics have been associated with an increased risk of *C. difficile*.

A number of CDAD outbreaks in Ontario have reinforced the need for judicious use of antibiotics. The Office of the Chief Coroner's investigation into 18 deaths directly or indirectly caused by *C. difficile* at the Sault Area Hospital in 2006 noted that the use of antibiotics was likely a contributing factor. It recommended prescribing only where clear indications exist and after careful consideration. A March 2007 review by the Trillium Health Centre noted that judicious use of antibiotics is key to reducing *C. difficile* rates.

PIDAC has recommended that hospitals implement policies and procedures to promote judicious antibiotic use and review actual antibiotic use to assess its appropriateness.⁵⁴

Promoting Judicious Antibiotic Use

Each of the hospitals visited had procedures to promote the judicious use of antibiotics. All three had an antibiotic drug formulary and a process to ensure they obtained an infectious-disease specialist's approval for using certain antibiotics. Laboratory results were accompanied by a list of the antibiotics that were most effective in combating the identified infection. The use of certain antibiotics was restricted to specific patient-related conditions. Each hospital determined which antibiotics to restrict and what the restrictions should be.⁵⁵

Reviewing Actual Use of Antibiotics

None of the hospitals had an information system that enabled the analysis of drug utilization patterns by physician or the reasons for specific drug use. One was planning to implement a new pharmacy information system in the fall of 2008. (The Committee was advised that the hospital involved was the Windsor Regional Hospital. Since its hearings, the Committee has learned that implementation of the new system, which the Hospital anticipates will assist with the monitoring of antibiotic usage, was delayed until February 2009.⁵⁶)

One hospital monitored the use of certain antibiotics through a monthly review. Audit staff's review of the antibiotics committee's minutes indicated that most were used appropriately. However, some were not used in accordance with hospital restrictions or their appropriateness was questionable.

Another hospital started examining antibiotic use in April 2007. A February 2008 analysis noted trends associated with increasing antibiotic use during the winter and the incidence of VRE and *C. difficile*. Four antibiotics appeared to have high usage. At the time of the audit, the hospital was planning further investigation.

The third hospital reviews selected antibiotics on a quarterly basis but did not document the results. Hospital staff noted excessive use of two restricted-use antibiotics in late 2007. After discussions among its infectious disease specialists, the use of these antibiotics dropped.

The Ministry funded a survey of hospital antibiotic use by the Institute for Safe Medication Practices Canada (ISMPC) in the spring of 2008. It included questions on restricted antibiotics, hospital antibiotic stewardship programs and what worked best to control antibiotic use.

The Auditor recommended that hospitals, in conjunction with the appropriate medical groups, establish practices for consistently identifying which antibiotics should be restricted. Consideration should be given to implementing the best practices for the judicious use of antibiotics as noted by the ISMPC, once available. Hospitals should also consider implementing electronic drug-dispensing systems to track antibiotic use and monitor prescribing practices. They should also share best practices.⁵⁷

Responses to Auditor's Report and Ministry Update

The hospitals generally agreed with the recommendation. One was working on developing an antibiotic stewardship program, but noted that physicians are regulated by professional colleges, making it difficult for hospitals to completely control prescribing. Another had started to integrate its pharmacy system with other data systems, and had drafted a new antibiotic formulary and guidelines.

The third hospital agreed that electronic monitoring systems were needed to enable benchmarking. It also felt that the appropriateness of the type of antibiotic, its dose and the duration of its use needed to be reviewed at a patient-specific level and financially supported by the Ministry. It was unaware of Canadian standards for determining appropriateness of use and noted that there are no benchmarks or comparators against which it could measure the success of its antimicrobial stewardship program.⁵⁸

The OAHPP was working with the ISMPC and infectious disease expert, Dr. Allison McGeer of Mount Sinai Hospital, on ways to better integrate the principles of antibiotic stewardship. Dr. McGeer and the ISMPC will work with hospitals to design possible steps to promote optimal antibiotic use. Based on the ISMPC study findings, expected in the fall of 2008, a series of interventions will be put in place in pilot sites and evaluated. The best of those with an effective impact will be implemented.

The Ministry will ensure that best practices related to the judicious use of antibiotics are made available to providers and will work with the professional regulatory colleges.⁵⁹

Committee Hearings

The judicious use of antibiotics in a hospital setting is significant for various reasons. For example, antibiotic resistance, as discussed in the Auditor's report, is an ongoing issue. There are also financial concerns as over-prescribing contributes to the cost of operating a facility.

Physicians' prescribing practices are often overseen by a hospital's medical advisory committee. The degree to which the process is managed varies from hospital to hospital. The Committee was told that best-practice documents envision full-time monitoring. Meeting this standard was said to be challenging, even for large teaching hospitals with a number of infectious disease physicians and microbiologists. The Committee also heard that there are some areas where the standardization of antibiotic use is relatively easy and others where the process will take more time.

The OAHPP and the ISMPC have been working on a program to support hospitals and manage antibiotics, but this was said to be a long-term strategy. In the short-term, there are existing guidelines related to antibiotics that could be disseminated.⁶⁰

Committee Recommendations

The Standing Committee on Public Accounts recommends that:

9. **The Ontario Agency for Health Protection and Promotion, through the Ministry of Health and Long-Term Care, after its receipt and evaluation of the findings of the Institute for Safe Medication Practices Canada's study of hospital antibiotic use, shall report to the Committee within 60 days on plans to promote optimal antibiotic use.**

The Standing Committee on Public Accounts applauds the Windsor Regional Hospital's initiative in implementing a new electronic drug dispensing system and therefore recommends that:

10. **The Windsor Regional Hospital report to the Committee on the impact of its new electronic drug dispensing system in facilitating the monitoring of antibiotic use during its first 12 months of operation, within 90 days of the system's one year anniversary.**

4.6 Surveillance

PIDAC defines surveillance as the systematic ongoing collection, collation, and analysis of data with timely distribution of information in order to allow necessary action to be taken. It notes that there is conclusive evidence to show that a surveillance system is associated with reductions in infection rates. It is particularly useful in monitoring the effectiveness of infection-prevention-and-control programs. All three hospitals had ICPS.

PIDAC has issued and other organizations have published recommendations with respect to the surveillance of HAIs.⁶¹

Reporting Results

Reporting to Public Health Units and Safer Healthcare Now!

Governments in certain other jurisdictions require hospitals to report on HAIs. References were made to Quebec, Manitoba and the United Kingdom. The *Health Protection and Promotion Act* requires Ontario hospitals to report on certain diseases to their local public health unit. Identification of *C. difficile* outbreaks was included in these requirements effective September 1, 2008. Many other HAIs, such as MRSA and VRE, had yet to be reported.

The 2007/08 Wait Time Strategy agreement required participating hospitals to work towards submitting data on surgical-site infections, central-line infections, and ventilator-associated pneumonia to Safer Healthcare Now! (SHN) by March 31, 2008. All three hospitals were participating in that Wait Time Strategy.

The 2008/09 Wait Time Strategy agreement requires reporting data on central-line infections and ventilator-associated pneumonia through the Ministry to SHN and the collection of information on the reduction of surgical-site infections.⁶²

Reporting to the Public

The 2008/09 Wait Time Strategy agreement requires that hospitals publicly report information on central-line infections, surgical-site infections, and ventilator-associated pneumonia on their websites by April 2009. One of the hospitals visited was already reporting its central-line and ventilator-associated pneumonia infection rates. Two posted quality indicator reports four times a year.

A number of jurisdictions publicly report HAIs. While audit staff understand that hospitals generally support the reporting of “superbug” data to the public, most are not yet publicly reporting such data. The Auditor believed public reporting of selected HAIs is a positive step, but felt the Ministry will need to give direction to ensure consistent reporting. It will then be possible for the public to be assured that these data are comparable and fairly presented.⁶³

The Auditor recommended that the Ministry, with LHINs and hospitals, ensure that hospitals identify and track HAIs, and other reportable patient safety indicators in a consistent and comparable manner. He also recommended establishing targeted benchmark rates for more prevalent HAIs and looking into expanding public reporting to include key patient outcome data.

Hospitals should also provide each surgeon with his or her surgical-site infection rates and discuss any related infection-control issues with a view to identifying practice adjustments.⁶⁴

Responses to Auditor’s Report and Ministry Update

The hospitals generally concurred with the recommendation. One indicated that most surveillance is manual. An electronic system would enable accurate and expeditious data collection. Targeted maximum rates or other benchmarks for HAIs were needed. This hospital was reporting information to its surgeons on their surgical-site infection rates.

Another hospital felt that HAIs should be tracked in a consistent manner and that benchmark rates should be made available. Surveillance and reporting activities are very labour-intensive and would require additional resources, without which there could be data quality problems.

The third hospital planned to adopt available Ministry and PIDAC definitions for HAIs. In August 2008, a standard form for tracking surgical-site infections was developed for use across its LHIN. It expected to start providing each surgeon with their surgical-site infection rates in the fall of 2008.

LHINs supported public presentation of key safety information, such as HAIs, along with performance measures and patient outcomes.

In preparation for reporting on CDAD, the Ministry, with input from infection-control experts, had developed consistent definitions and collection processes. This would allow for standardized provincial reporting and trending, and eventually, benchmarking that can be used for the purpose of comparisons.⁶⁵

Information on other patient safety indicators is under development. Dr. Michael Baker has asked the OAHPP to conduct a study that will analyze and calculate patient outcomes (including morbidity). The OAHPP will present the study and findings to him and he will make recommendations to the government.⁶⁶

Committee Hearings

Reporting to the Public

There is no specific requirement that a hospital notify the public about HAIs, beyond the eight patient safety indicators (seven of which relate to HAIs) that are and will be reported.⁶⁷ Each indicator has a specific definition and data collection methodology. PIDAC is partnering with the OHA and RICNs in educating hospitals to ensure they understand the definitions, and how to collect and submit data. The Ministry wants to be sure it can make comparative statements about hospitals and that hospitals can judge their own performance against those of their peers, something they have been unable to do until now.⁶⁸

Witnesses were questioned about the reporting of outbreaks of HAIs. The Committee was told that the term "outbreak" was misleading as it is a mathematical calculation. Its use indicates the need for heightened awareness but does not mean everyone is at risk.

Ontario's public health system deals with over 2,600 outbreaks each year. The decision to communicate an outbreak to the public requires judgement and is based on an evaluation of criteria such as the population affected, how the outbreak can be controlled and the amount of risk involved.

According to the OHA, hospitals report outbreaks in various ways, for example, on their websites, on their telephone messages and through signage. One of the three audited hospitals had no outbreak experience but did communicate with HAI patients and their families, as well as relevant hospital staff. Another hospital communicated with HAI patients and their families through letters and signage, and had had some experience with non-*C. difficile* outbreaks.

Representatives of the third hospital, The Ottawa Hospital, told the Committee that they publicly reported an MRSA outbreak in their neonatal unit in December 2007. In this instance, visitors were asked to stay away. The Hospital also had a mechanism in place which was used to inform expectant mothers of the problem and to direct them elsewhere, if possible. Hospital staff said there was no rule dictating how and who they would notify. They also referred to the advice that is shared within the community of infection control professionals.

Witnesses spoke of the need for full disclosure. Without it, the public could receive misleading information.⁶⁹

Reporting Patient Outcome Data

The Ministry's status update (see page 23 of this report) indicated that the public reporting of HAIs will be expanded to include patient outcomes. Staff were asked when this expansion was expected. Committee members were told that patient outcomes are, in general terms, a definitional issue. Before outcomes can be publicly reported, clear definitions will have to be provided so that data is comparable.

The OAHPP has spoken to colleagues in Quebec and other jurisdictions who have been challenged in terms of the "reproducibility" of determining causes of death, *C. difficile* being a good example. Protocols are being developed, but nothing with respect to reporting is expected for the better part of a year.⁷⁰

Electronic Records

Patient tracking and monitoring would be facilitated with the use of electronic records. Witnesses felt that anything that could speed the flow of information would allow for faster responses. Reference was made to Panorama, a new public health surveillance, tracking and monitoring system.⁷¹ Ontario plans to implement Panorama, a pan-Canadian system, in 2011.⁷²

Committee Recommendations

The Standing Committee on Public Accounts recommends that:

- 11. The Ministry of Health and Long-Term Care, in conjunction with the Provincial Infectious Diseases Advisory Committee, shall report to the Committee on the establishment of target rates for hospital-acquired infections that would serve as benchmarks for all hospitals.**

- 12. The Ministry of Health and Long-Term Care shall work with the Provincial Infectious Diseases Advisory Committee on the development of best practices with respect to the reporting of outbreaks of hospital-acquired infections to the public (e.g., the timing of announcements, and the use of websites, telephone messages, and signage) to ensure standardization across the province.**

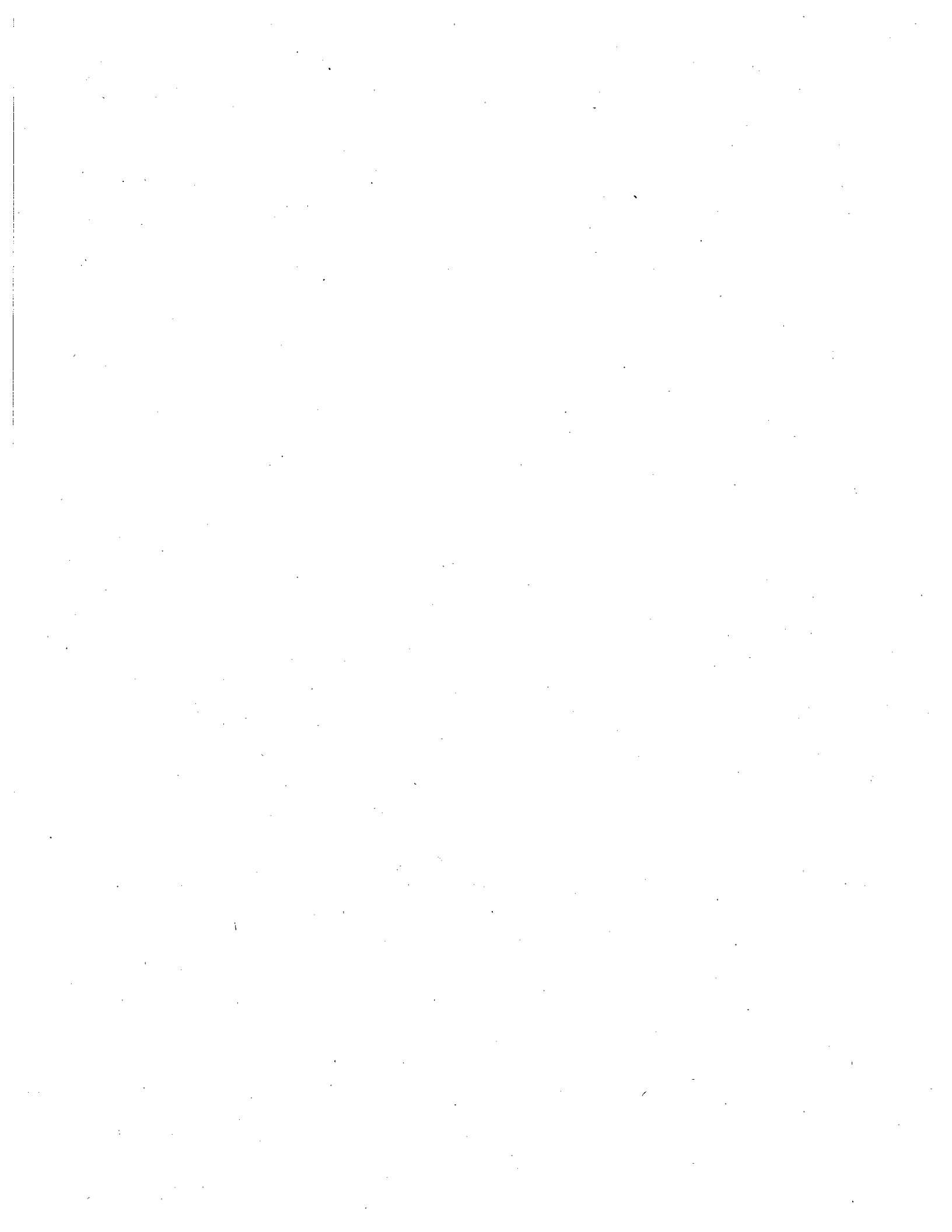
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- ¹ Ontario, Office of the Auditor General, *Special Report: Prevention and Control of Hospital-Acquired Infections* (Toronto: The Office, September 2008), p. 9. Internet site at http://www.auditor.on.ca/en/reports_en/hai_en.pdf, accessed 24 November 2008.
- ² Office of the Auditor General, *Special Report: Prevention and Control of Hospital-Acquired Infections*, Figure 1, p. 6.
- ³ Ontario, Ministry of Health and Long-Term Care, Provincial Infectious Diseases Advisory Committee (PIDAC), *Preventing Febrile Respiratory Illnesses*, rev. August 2006 (Toronto: PIDAC, reprint March 2008), p. v. Internet site at http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_fri_0804_06.pdf, accessed 1 December 2008.
- ⁴ Office of the Auditor General, *Special Report: Prevention and Control of Hospital-Acquired Infections*, Figure 1, p. 7, footnote 2.
- ⁵ Ontario, Ministry of Health and Long-Term Care, "Methicillin-Resistant Staphylococcus (MRSA): Fact Sheet for Patients and Visitors." Internet site at http://www.health.gov.on.ca/patient_safety/pro/fs/mrsa_fs_health_care_patients_20081120.pdf, accessed 11 March 2009.
- ⁶ Ontario, Ministry of Health and Long-Term Care, "Vancomycin Resistant Enterococcus (VRE)," last modified 30 December 2008. Internet site at http://www.health.gov.on.ca/patient_safety/public/vre/vre_pub.html, accessed 9 February 2009.
- ⁷ See figures 1 and 2 in Office of the Auditor General, *Special Report*, pp. 6-7.
- ⁸ *Ibid.*, pp. 5-8.
- ⁹ *Ibid.*, pp. 8-9.
- ¹⁰ *Ibid.*, pp. 10-12.
- ¹¹ *Ibid.*, pp. 13-14.
- ¹² Ontario, Legislative Assembly, Standing Committee on Public Accounts, *Official Report of Debates (Hansard)*, 39th Parl., 1st Sess. (29 October 2008): P-194. Internet site at http://www.ontla.on.ca/committee-proceedings/transcripts/files_pdf/29-OCT-2008_P012.pdf, accessed 12 November 2008.
- ¹³ Office of the Auditor General, *Special Report*, pp. 13-14.
- ¹⁴ Standing Committee on Public Accounts, *Official Report of Debates*, p. P-195.
- ¹⁵ *Ibid.*, pp. P-204 – P-205.
- ¹⁶ *Ibid.*, p. P-195.
- ¹⁷ *Ibid.*, p. P-213.
- ¹⁸ *Ibid.*, pp. P-204 – P-205.
- ¹⁹ Ontario, Ministry of Health and Long-Term Care, Provincial Infectious Diseases Advisory Committee, *Best Practices for Infection Prevention and Control Programs in Ontario* (Toronto: The Committee, September 2008), p. 16. Internet site at http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_ipcp_20_080905.pdf, accessed 24 November 2008.
- ²⁰ Standing Committee on Public Accounts, *Official Report of Debates*, pp. P-207 – P-208.
- ²¹ Office of the Auditor General, *Special Report*, p. 14; and Standing Committee on Public Accounts, *Official Report of Debates*, p. P-194.
- ²² Office of the Auditor General, *Special Report*, pp. 42-43.
- ²³ Standing Committee on Public Accounts, *Official Report of Debates*, p. P-194.
- ²⁴ *Ibid.*
- ²⁵ Office of the Auditor General, *Special Report*, p. 14; and Standing Committee on Public Accounts, *Official Report of Debates*, p. P-194.
- ²⁶ Office of the Auditor General, *Special Report*, p. 14; and Standing Committee on Public Accounts, *Official Report of Debates*, pp. P-194 – P-195.
- ²⁷ Standing Committee on Public Accounts, *Official Report of Debates*, p. P-195.
- ²⁸ Office of the Auditor General, *Special Report*, p. 15; and Standing Committee on Public Accounts, *Official Report of Debates*, p. P-195.
- ²⁹ Standing Committee on Public Accounts, *Official Report of Debates*, pp. P-193 – P-195.
- ³⁰ *Ibid.*, p. P-197.

- ³¹ Ibid., p. P-198.
- ³² Ibid., p. P-196 and pp. P-213 – P-214.
- ³³ Office of the Auditor General, *Special Report*, pp. 15-16.
- ³⁴ Ibid., pp. 17-18.
- ³⁵ Ibid., p. 18.
- ³⁶ Ibid., pp. 18-19.
- ³⁷ Ontario, Ministry of Health and Long-Term Care, “Summary Status Table in Response to the Report of the Auditor General of Ontario: Prevention and Control of Hospital-Acquired Infections,” October 2008.
- ³⁸ Standing Committee on Public Accounts, *Official Report of Debates*, p. P-207.
- ³⁹ Nosocomial means hospital-acquired.
- ⁴⁰ Standing Committee on Public Accounts, *Official Report of Debates*, pp. P-203 – P-204.
- ⁴¹ Office of the Auditor General, *Special Report*, pp. 19-20.
- ⁴² Ibid., pp. 19-21.
- ⁴³ Ibid., pp. 22-23. It can take a laboratory up to 72 hours to confirm MRSA and up to 96 hours to confirm VRE.
- ⁴⁴ Ibid., pp. 20 and 23-24.
- ⁴⁵ Ibid., p. 24.
- ⁴⁶ Ibid., pp. 24-25.
- ⁴⁷ Ministry of Health and Long-Term Care, “Summary Status Table.”
- ⁴⁸ Standing Committee on Public Accounts, *Official Report of Debates*, p. P-197.
- ⁴⁹ Ibid., pp. P-203, P-211 and P-212.
- ⁵⁰ A Ministry *Backgrounder* issued in September 2008 announced the GOS. See, Ontario Ministry of Health and Long-Term Care, “Hospital Design and Infection Control,” *Backgrounder*, 26 September 2008. Internet site at http://www.health.gov.on.ca/english/media/news_releases/archives/nr_08/sep/gos_infection_prevention_fs_01_20080925.pdf, accessed 26 November 2008.
- ⁵¹ Standing Committee on Public Accounts, *Official Report of Debates*, p. P-195; and Office of the Auditor General, *Special Report*, p. 25..
- ⁵² Standing Committee on Public Accounts, *Official Report of Debates*, pp. P-211 – P-212.
- ⁵³ Ibid., pp. P-198 – P-199.
- ⁵⁴ Office of the Auditor General, *Special Report*, p. 26.
- ⁵⁵ Ibid., pp. 26-27.
- ⁵⁶ E-mail from Vice President, Acute Care Services, Windsor Regional Hospital, Windsor to Research Officer, 9 March 2009.
- ⁵⁷ Office of the Auditor General, *Special Report*, pp. 27-28.
- ⁵⁸ Ibid., pp. 28-29.
- ⁵⁹ Ministry of Health and Long-Term Care, “Summary Status Table”; and Office of the Auditor General, *Special Report*, pp. 28-29.
- ⁶⁰ Standing Committee on Public Accounts, *Official Report of Debates*, pp. P-209 – P-210.
- ⁶¹ Office of the Auditor General, *Special Report*, p. 29.
- ⁶² Office of the Auditor General, *Special Report*, pp. 33-34.
- ⁶³ Ibid., pp. 34-35.
- ⁶⁴ Ibid., p. 35.
- ⁶⁵ Ibid., pp. 35-36.
- ⁶⁶ Ministry of Health and Long-Term Care, “Summary Status Table.”
- ⁶⁷ Standing Committee on Public Accounts, *Official Report of Debates*, p. P-205.
- ⁶⁸ Ibid., pp. P-212 and P-202.
- ⁶⁹ Ibid., pp. P-205 - P-207.
- ⁷⁰ Ibid., p. P-212.
- ⁷¹ Ibid., pp. P-211.
- ⁷² Ontario, Ministry of Health and Long-Term Care, “Building Infrastructure for Health System Preparedness,” *Fact Sheet*, 4 March 2008. Internet site at http://www.health.gov.on.ca/english/media/news_releases/archives/nr_08/mar/materials_20080304/infrastructure_health_prep_fs_20080304.pdf, accessed 20 November 2008.

APPENDIX A

List of Witnesses



List of Witnesses

Organization	Representative(s)
Ministry of Health and Long-Term Care	Ron Sapsford, Deputy Minister Dr. David Williams, Acting Chief Medical Officer of Health
Ontario Hospital Association	Tom Closson, President and Chief Executive Officer
North York General Hospital	Bonnie Adamson, President and Chief Executive Officer Dr. Kevin Katz, Medical Director, Infection Prevention and Control
The Ottawa Hospital	Dr. Jack Kitts, President and Chief Executive Officer Dr. Kathryn Suh, Acting Director, Infection Prevention and Control Program
Windsor Regional Hospital	Karen McCullough, Vice President, Acute Care and Chief Nursing Executive
Ontario Agency for Health Protection and Promotion	Dr. Michael Gardam, Director, Infectious Diseases Prevention and Control
Provincial Infectious Diseases Advisory Committee	Dr. Mary Vearncombe, Chair, Infection Prevention and Control Subcommittee
Central Local Health Integration Network	Hy Eliasoph, Chief Executive Officer
Erie St. Clair Local Health Integration Network	Gary Switzer, Chief Executive Officer

APPENDIX B

Characteristics of Four Hospital-Acquired Infections

Characteristics of Four Hospital-Acquired Infections

CLOSTRIDIUM DIFFICILE (<i>C. difficile</i>)	
Initial Infection	patient generally takes antibiotics that reduce normal levels of good bacteria in intestines and colon which allows <i>C. difficile</i> to grow and produce toxins
Possible Effects	diarrhea, more serious intestinal conditions (e.g., colitis) that may require surgery, death in extreme cases
Transmission	contact
Possible Treatments	mild cases may not require treatment, antibiotics for severe cases
Other Concerns	can lead to outbreaks because many people in hospitals take antibiotics; spore difficult to destroy because resistant to number of chemicals; alcohol-based hand cleansers may not be as effective as soap and water

FEBRILE RESPIRATORY ILLNESS (FRI)	
Initial Infection	patient inhales droplets containing disease-causing organisms; patient touches droplets and then touches mouth, nose or eyes; immunization prior to exposure important preventative measure
Possible Effects	fever greater than 38°C; new or worsening cough; shortness of breath; death in extreme cases
Transmission	droplet or contact
Possible Treatments	antibiotics where applicable
Other Concerns	droplets can live on surfaces for hours but are easy to kill with disinfectants and good hand hygiene

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)	
Initial Infection	<i>Staphylococcus aureus</i> (<i>S. aureus</i>) bacteria living on skin, nose or in lower intestine may cause infection and resist common class of antibiotics (people may carry bacteria without having symptoms)
Possible Effects	skin infections that can quickly turn into deep abscesses that require surgical draining; infections in bones, joints, surgical wounds, bloodstream, heart valves, and lungs; death in extreme cases
Transmission	contact
Possible Treatments	mild cases may not require treatment; severe cases treated with other antibiotics
Other Concerns	although infections caused by MRSA may not be more serious than infections caused by <i>S. aureus</i> bacteria, fewer antibiotics are available to treat MRSA-caused infections; bacteria can live on surfaces for months

VANCOMYCIN-RESISTANT ENTEROCOCCI (VRE)	
Initial Infection	Enterococci bacteria in lower intestine and/or possibly in other areas (e.g., urine, blood, skin) may cause infection and resist Vancomycin antibiotic; people may carry bacteria without having symptoms
Possible Effects	fever, swelling, redness and/or pus; death in extreme cases
Transmission	Contact
Possible Treatments	other antibiotics
Other Concerns	bacteria can live on surfaces for 5 days to weeks and on hands for several hours; bacteria relatively easy to kill with disinfectants (provided bacteria in contact with disinfectant for long enough period) and good hand hygiene

Source: Ontario, Office of the Auditor General, *Special Report: Prevention and Control of Hospital-Acquired Infections* (Toronto: The Office, September 2008), pp. 6-7, Figure 1.

APPENDIX C

PIDAC Best-Practice Documents

PIDAC and Ministry Core Competencies Projects

PIDAC Best-Practice Documents (as of May 2009)

PIDAC's best-practices documents, as well as their publication dates and Internet URLs, are listed below.

Best Practices for Cleaning, Disinfection and Sterilization (March 2006, revised April 2006)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_cds_2.pdf

Preventing Febrile Respiratory Illnesses (September 2005, revised August 2006, reprint March 2008)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_fri_080406.pdf

Best Practices for Infection Prevention and Control of Resistant Staphylococcus aureas and Enterococci (March 2007)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_staff.pdf

Best Practices Document for the Management of Clostridium difficile in all health care settings (December 2004, revised January 2009)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_cdifff.pdf

Best Practices for Hand Hygiene (May 2008, revised January 2009)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_hh_20080501.pdf

Best Practices for Surveillance of Health Care-Associated Infections in Patient and Resident Populations (June 2008)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_hai.pdf

Best Practices for Infection Prevention and Control Programs in Ontario (September 2008)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_ipcp_20080905.pdf

Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations (April 2009)

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_sti.pdf

At the time of the audit, PIDAC was expected to release best-practice documents on environmental cleaning in early 2009.

PIDAC and Ministry Core Competencies Projects

PIDAC and the Ministry developed educational material to enhance infection-control training for front-line staff in response to the 2004 *Final Report of the Ontario Expert Panel on SARS and Infectious Disease Control*. In the spring of 2007, three educational modules were developed and posted on the Ministry's website for health-care professionals. The modules and their Internet URLs are listed below.

Routine Practices Module

http://www.health.gov.on.ca/english/providers/program/infectious/routine_practices/scorm/RoutinePractices.html

Hand Hygiene Module

<http://www.health.gov.on.ca/english/providers/program/pubhealth/handwashing/flash/handhygiene.html>

Chain of Transmission Module

http://www.health.gov.on.ca/english/providers/program/infectious/chain_of_trans/scorm/chainTrans.html