

Chapter 21

Saskatchewan Health Authority—Preventing and Controlling Hospital-Acquired Infections in the Regina General and Pasqua Hospitals

1.0 MAIN POINTS

The Saskatchewan Health Authority is responsible for keeping patients safe, including in hospitals. Infections acquired in hospitals can extend a patient's hospital stay and may lead to increased complications and treatment costs.

By February 2022, the Authority made some progress to improve its processes to prevent and control hospital-acquired infections at the Regina General and Pasqua Hospitals, but further work is needed.

The Authority makes training on infection prevention and control practices available on its website to its hospital staff responsible for patient care. However, the training is not mandatory, and staff are not sufficiently aware of its availability. Periodic staff training reinforces the importance of strong infection prevention and control practices thereby reducing the risk of inappropriate actions that may increase infection transmission.

The Authority is not yet using external observers to conduct regular direct observation hand-hygiene compliance audits. As well, it does not monitor hand-hygiene compliance rates and whether patient-care units take action to address low compliance rates. We reviewed three units and found one unit with low hand-hygiene compliance rates (i.e., less than 55%). Also, we found unit managers were inconsistently aware of their units' compliance rates. Actively holding patient-care units with unacceptable hand-hygiene compliance rates accountable increases timely corrective actions, and reduces patient and staff risk of hospital-acquired infections.

In addition, the Authority needs to regularly give senior management a written analysis of emerging risks and causes based on trends of hospital-acquired infections. While senior management continues to receive quarterly reports showing historical infection rates in Regina hospitals (i.e., back to 2019), the reports do not include trend analysis or potential root causes for the changes. Without routine analysis of infection trends and linkage to audit results of infection prevention and control practices, the Authority may not sufficiently make changes to protect staff and patients from hospital-acquired infections.

2.0 INTRODUCTION

The Provincial Health Authority Act makes the Saskatchewan Health Authority responsible for planning, organizing, delivering, and evaluating provincial health services. *The Provincial Health Authority Administration Regulations* specify that health services include disease and injury prevention services.



Regina General Hospital and Pasqua Hospital are the two major hospitals providing healthcare services to people of southern Saskatchewan. For the year ending March 31, 2021, about 33,800 people were admitted to these two hospitals.¹

A hospital-acquired infection is an infection that a patient acquires while in a hospital that was not present or incubating on admission.² Examples of common hospital-acquired infections include infections caused by organisms such as *Clostridium difficile* (CDI), Methicillin-resistant staphylococcus aureus (MRSA), and Vancomycin-resistant enterococcus (VRE).^{3,4,5} COVID-19 is another example of an infection patients can acquire while in hospital.

Such infections can extend a patient's hospital stay, and may lead to additional complications and treatment costs. Having an effective infection prevention and control program can help reduce the burden associated with hospital-acquired infections, reduce the length of hospital stay, and lower costs related to the treatment of infections.

2.1 Focus of Follow-Up Audit

This audit assessed the status of four recommendations made in our *2018 Report – Volume 2*, Chapter 24, about the Saskatchewan Health Authority's processes to prevent and control hospital-acquired infections in the Regina General and Pasqua Hospitals. We concluded for the 12-month period ended August 31, 2018, the Authority had, other than the areas identified in our four recommendations, effective processes.⁶

To conduct this audit engagement, we followed the standards for assurance engagements published in the *CPA Canada Handbook—Assurance* (CSAE 3001). To evaluate the Authority's progress toward meeting our recommendations, we used the relevant criteria from the original audit. The Authority's management agreed with the criteria in the original audit.

To complete this follow-up audit, we interviewed key Authority staff responsible for infection prevention and control in Regina hospitals. We examined and assessed relevant documentation including policies and procedures, hand-hygiene audit compliance reports, infection rate reports, as well as one of the Authority's online training modules.

3.0 STATUS OF RECOMMENDATIONS

This section sets out each recommendation including the date on which the Standing Committee on Public Accounts agreed to the recommendation, the status of the recommendation at February 28, 2022, and the Authority's actions up to that date.

¹ Information provided by the Saskatchewan Health Authority.

² World Health Organization, *Health care without avoidable infections, The critical role of infection prevention and control*, (2016), p. 4.

³ *Clostridium difficile* is a bacterial spore that causes irritation in the bowel leading to severe cramps and diarrhea.

⁴ Methicillin-resistant staphylococcus aureus is a bacterium resistant to common antibiotics and affects the heart, lungs, bones, joints, and/or bloodstream.

⁵ Vancomycin-resistant enterococcus is a bacterium resistant to common antibiotics and causes severe urinary tract infections.

⁶ *2018 Report – Volume 2, Chapter 24*, pp. 151–167.

3.1 Staff Unaware of Available Training

We recommended the Saskatchewan Health Authority give hospital staff, responsible for patient care, formal training updates on infection prevention and control practices at least annually. (2018 Report – Volume 2, p. 158, Recommendation 1; Public Accounts Committee agreement March 1, 2022)

Status—Partially Implemented

The Saskatchewan Health Authority makes training on infection prevention and control practices available on its website to its hospital staff responsible for patient care; however, the training is not mandatory and staff are not sufficiently aware of its availability.

In 2019, the Authority launched the Saskatchewan Health Training online platform. It includes various learning modules with one specific to infection prevention and control practices. The module includes an overview of:

- Routine practices (e.g., point-of-care risk assessments, cleaning techniques)
- Chain of infection (explaining how infection spreads)
- Hand hygiene (outlines when to perform hand hygiene, such as after risk of exposure to bodily fluid)
- Personal protective equipment (PPE) (information on how to put on and take off)

We found the module includes training videos (e.g., how to conduct proper hand hygiene) and links to standard procedures for proper donning and removal of PPE. In addition, we found the module aligns with standards set out by Accreditation Canada in relation to key components of infection prevention and control practices.

The Authority expects staff to complete this training annually; however, the training is not mandatory, and the Authority does not track who takes the training. We also found not all staff are aware of the training. During our discussions with three unit nurse managers, two were unaware of the training available to them and their staff. Authority management acknowledged its need to improve communication with all hospital staff (e.g., nursing, housekeeping) about available training.

The Authority also indicated that once it implements the new Administrative Information Management System (AIMS) in 2022–23, it expects the annual refresher training will become mandatory and managers can start using the system to track staff completion of the training.

In addition to the training described above, we found the Authority maintained and updated various infection prevention and control procedures associated with the COVID-19 pandemic. For example, it developed COVID-19 infection prevention and control guidance for acute care settings outlining procedures such as screening; hand hygiene; point-of-care risk assessments; continuous mask use and eye protection; PPE; and environmental cleaning and disinfection. We found the Authority periodically held virtual town-hall presentations to inform staff about changes to protocols and guidance during the



pandemic. For example, in July 2021, the Authority provided an overview of the PPE guidance, the current precautions, and changes to the visitor protocols in the Authority's facilities. The Authority also provided various safety bulletins on its website providing healthcare workers with ongoing direction about recommended safety guidelines, processes, and PPE supply.

Periodic refresher training helps keep staff up-to-date, and provides an opportunity to reinforce the importance of key activities to prevent and control hospital-acquired infections. Without periodic refresher training, it increases the risk of inappropriate practices that may increase infection transmission, and compromise the wellness and health of patients and staff.

3.2 External Observers Not Conducting Hand-Hygiene Compliance Audits

We recommended the Saskatchewan Health Authority use external observers to conduct regular direct observation hand-hygiene compliance audits in its hospitals. (2018 Report – Volume 2, p. 161, Recommendation 2; Public Accounts

Committee agreement March 1, 2022)

Status—Partially Implemented

The Saskatchewan Health Authority does not use external observers to conduct regular direct observation hand-hygiene compliance audits in its hospitals.

In summer 2021, the Authority recognized the need for a consistent approach for collecting and analyzing hand-hygiene observations across the province. As a result, it signed a project agreement for a new IT system for hand-hygiene audits and began a system trial in January 2022. The Regina hospitals are part of this trial, which involves staff within patient-care units (i.e., not external observers) using the IT system to conduct monthly hand-hygiene audits.

If the trial is successful, the Authority indicated it plans to train a pool of staff to be hand-hygiene auditors. It expects to assign these auditors to patient-care units to conduct external direct observation hand-hygiene audits by fall 2022.

Not using external observers to conduct hand-hygiene compliance audits increases the risk of observation bias and having inaccurate compliance rates.⁷ This may increase the risk of the Authority not taking sufficient or timely action to improve staff hand-hygiene practices. This in turn places patients and staff at greater risk of hospital-acquired infections.

⁷ During our 2018 audit, we found the Authority used external observers to conduct a series of direct observation hand-hygiene compliance audits in the Regina hospitals in May 2017. The compliance rate for these audits were significantly lower than the rates for audits where patient-care units had one of their own staff members complete the observations. Some units had a 60–70% difference in compliance rates between these two types of audits—suggesting actual compliance rates for hand hygiene may be significantly different than reported (i.e., depending on who completes the observations).

3.3 Hand-Hygiene Compliance Rates Not Monitored

We recommended the Saskatchewan Health Authority actively monitor actions taken by Regina hospitals' patient-care units with lower than acceptable hand-hygiene compliance rates. (2018 Report – Volume 2, p. 163, Recommendation 3; Public Accounts Committee agreement March 1, 2022)

Status—Not Implemented

The Saskatchewan Health Authority does not monitor hand-hygiene audit compliance rates and whether units take action to address low compliance rates. In addition, it has not set an acceptable hand-hygiene compliance rate to enable managers in Regina hospitals' patient-care units to assess when they should take action.

The Authority expects unit managers to monitor hand-hygiene compliance rates and develop action plans to address lower than acceptable hand-hygiene compliance rates. However, we found the Authority has not set what it considers an acceptable compliance rate that would trigger an action plan (e.g., compliance rate less than 90%). The Authority indicated the provincial Infection Prevention and Control Team plans to meet by fall 2022 to determine an acceptable compliance rate.

As of February 2022, the Authority does not sufficiently monitor hand-hygiene compliance rates and whether units take action to address low compliance rates.

Staff within patient-care units (e.g., clinical nurse educators) are responsible for posting the results of their units' hand-hygiene compliance audits on their units' visibility walls.⁸ In one of the three patient-care units we reviewed, the unit had low compliance rates associated with its hand-hygiene audits. In December 2021 and January 2022, the unit's compliance rates were 50% and 55% respectively.⁹ The unit did not develop an action plan to address the low compliance rates. We found the other two patient-care units tested had compliance rates exceeding 80%. However, we found the managers for these two units were unaware of their units' compliance rates.

The Authority is piloting a new IT system for hand-hygiene audits and anticipates using reports from this system to determine whether there is any correlation between the location of increased infection transmissions and low hand-hygiene compliance rates.

Without setting an acceptable hand-hygiene compliance rate target, patient-care unit managers do not know when they should develop an action plan to address low compliance rates. Without action plans, unit managers may not actively reinforce the importance of good hand-hygiene practices, or take sufficient steps to improve hand-hygiene activities of staff in their unit.

Actively holding patient-care units with unacceptable hand-hygiene compliance rates accountable increases timely corrective actions, and reduces patient and staff risk of hospital-acquired infections.

⁸ A visibility wall is an essential element of daily management—it provides a permanent location to easily view the work of the organization or unit. www.rqhealth.ca/department/quality-improvement-and-planning/visibility-walls (21 March 2022).

⁹ In our 2018 audit, we found the Authority had an average compliance rate between 80% and 87% for hand-hygiene audits completed by staff within each patient-care unit in its two Regina hospitals between September 2017 and June 2018.



3.4 Better Analysis of Hospital-Acquired Infection Causes Needed

We recommended the Saskatchewan Health Authority regularly give senior management a written analysis of emerging risks and causes based on trends of hospital-acquired infections. (2018 Report – Volume 2, p. 166, Recommendation 4; Public Accounts Committee agreement March 1, 2022)

Status—Not Implemented

The Saskatchewan Health Authority does not give senior management a written analysis of emerging risks and causes based on trends of hospital-acquired infections.

The Authority continues to track the number of hospital-acquired infections by unit in each facility. As shown in **Figure 1**, the number of infections for each type of hospital-acquired infection decreased since 2017–18. The Authority indicated this was due to fewer outbreaks, as well as increased use of PPE and safety precautions during the COVID-19 pandemic.

Figure 1—Number of Infections by Organism Acquired at Regina General and Pasqua Hospitals

Organism	2017–18	2018–19	2019–20	2020–21
Regina General Hospital				
Vancomycin-resistant enterococcus (VRE)	94	11	46	4
Methicillin-resistant staphylococcus aureus (MRSA)	52	3	4	6
Clostridium difficile (CDI)	41	3	3	4
Pasqua Hospital				
Vancomycin-resistant enterococcus (VRE)	112	9	32	64
Methicillin-resistant staphylococcus aureus (MRSA)	26	3	2	2
Clostridium difficile (CDI)	19	9	13	11
Total	344	38	100	91

Source: Adapted from information provided by the Saskatchewan Health Authority.

In addition, we found the Authority tracked hospital-acquired COVID-19 infections since March 2020.¹⁰ During the period of April 1, 2020 to January 16, 2022, the Authority had 24 and 12 patients with hospital-acquired COVID-19 infections in the Regina General and Pasqua Hospitals, respectively.¹¹

Senior management continues to receive quarterly reports on bloodstream infection rates for MRSA and VRE—this aligns with good practice. We observed two quarterly reports and found the reports showed historical infection rates in the hospitals to identify trends. However, we found the reports do not include trend analysis or potential root causes for the changes.

¹⁰ When determining hospital-acquired COVID-19 infections in the Regina General and Pasqua Hospitals, the Authority uses best clinical judgment along with the following criteria: patient symptoms begin at least seven or more calendar days after admission to the reporting hospital, or a patient is re-admitted with a positive COVID-19 test result less than seven days after discharge from hospital.

¹¹ Adapted from information provided by the Saskatchewan Health Authority.

The Authority explained it is the provincial epidemiologist's responsibility to analyze results to identify emerging risks and causes associated with hospital-acquired infections. Due to a vacancy for the epidemiologist position since September 2019, the Authority has not completed an infection rate analysis. The Authority filled this position in January 2022 and expected the new epidemiologist to begin analyzing infection rates.

We also found the Authority continued to collect data about CDI infections at both hospitals. However, due to the epidemiologist vacancy, senior management did not receive an analysis of CDI infections over the past 18 months. The Authority explained this is a high-priority for the newly hired epidemiologist.

Without routine analysis of infection trends and linkage to audit results of infection prevention and control practices, the Authority may not sufficiently protect staff and patients from hospital-acquired infections. The Authority may also miss identifying opportunities for improvement at hospitals and units therein with higher than normal rates of hospital-acquired infection.

