



2015-17 Report to the Washington State Legislature: Healthcare Associated Infections



May 2017
Washington State Department of Health Healthcare Associated Infections
Program

Healthcare Associated Infections

2015-17 Report to the Washington State Legislature

May 2017



DOH Publication #420-113

For more information or additional copies of this report contact:

Washington State Department of Health
Division of Disease Control and Health Statistics
Communicable Disease Epidemiology
1610 NE 150th Street
Shoreline WA 98155
Phone: 206-418-5500

John Wiesman, DrPH, MPH
Secretary of Health

Table of Contents

<i>Executive Summary</i>	1
<i>Healthcare Associated Infections (HAI) Advisory Committee</i>	2
<i>Current HAI Requirements</i>	3
<i>HAI Related to Invasive Procedures</i>	4
<i>HAI and Antimicrobial Resistance</i>	5
<i>Proposed Modifications to HAI Reporting Categories</i>	7
<i>Barriers to HAI Reporting</i>	8
<i>Evaluating the Quality of HAI Reporting</i>	9
<i>Conclusions</i>	10
<i>References</i>	11

Executive Summary

Healthcare associated infections (HAIs) are a threat to patient safety. HAIs are infections that people acquire while receiving treatment for another condition in a healthcare setting. The impact of HAIs is significant, contributing to increased hospitalization, financial burden, loss of trust in healthcare, and potential death in affected patients. A prevalence survey conducted by the Centers for Disease Control and Prevention (CDC) found that on any given day, about one in 25 hospital patients has at least one HAI.

The preventability factor of these infections supports robust public health surveillance of HAIs. The Washington State Department of Health's (DOH's) HAI Program works closely with Washington State hospitals to track HAIs. Tracking is performed in a standardized way, using the CDC's National Healthcare Safety Network (NHSN) surveillance system. This standardized surveillance ensures that infection rates are tracked consistently over time and are comparable across the nation. Based on HAI trends and guidance from the CDC and other healthcare partners, the department's HAI Program identifies and recommends targeted prevention programs to reduce these impactful infections.

Under RCW 43.70.056 and WAC 246-440-100, the DOH's HAI Program monitors HAIs in hospitals. Examples of HAIs monitored under Washington State legislation include:

- Central-line associated bloodstream infections (CLABSI)
- Certain types of surgical site infections (SSI)
- *Clostridium difficile* (*C. difficile*) infections

During the past 10 years, federal programs have implemented new strategies to advance efforts toward preventing HAIs. The U.S. Department of Health and Human Services' (HHS) National HAI Action Plan provides a strategic plan that outlines metrics and methods for eliminating certain types of HAIs. Furthermore, the CDC identified HAIs as one of six "winnable battles." DOH's HAI Program has addressed key aspects of these recommended federal initiatives including combating antibiotic resistance and improving infection prevention in healthcare facilities.

This biennial report to the Legislature, prepared as required by RCW 43.70.056 (3)(b), summarizes the role of the HAI Advisory Committee, current hospital HAI reporting requirements, and proposed modifications to HAI reporting requirements.

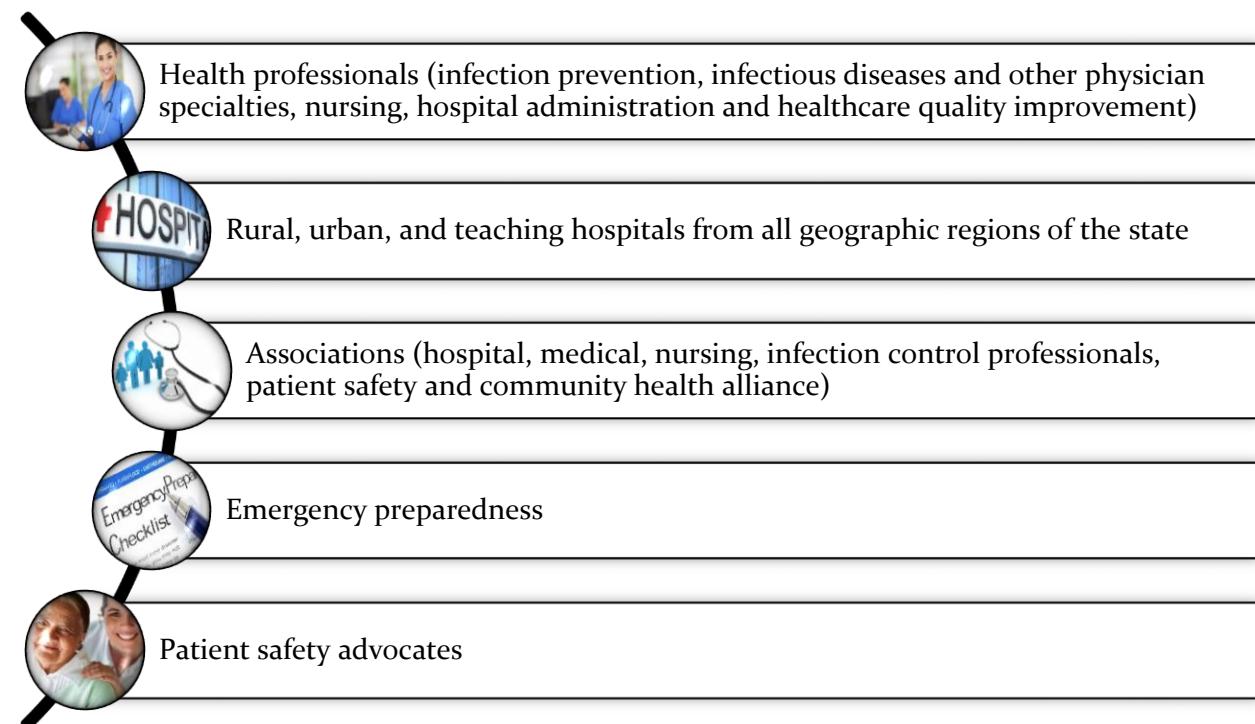
The modifications we propose are as follows:

1. Consider amending RCW 43.70.056 to include all facilities that provide the same services as acute care hospitals. Revisions to RCW 43.70.056 are needed to expand the types of healthcare settings that are mandated to report HAIs (e.g. ambulatory surgery, dialysis, long-term care, home IV providers).
2. Consider amending RCW 70.41.430 to include multi-drug resistant organisms (MDRO), in addition to Methicillin-resistant *Staphylococcus aureus* (MRSA). MDRO screening practices in hospitals should be based on each hospital's annual infection prevention risk assessment results.

Healthcare Associated Infections (HAI) Advisory Committee

Washington State Department of Health's (DOH's) Healthcare Associated Infections (HAI) Program works closely with healthcare partners in the community to ensure that the work is guided with continuous feedback from a diverse group of experts representing patients, healthcare, and quality improvement organizations. One of the ways in which this feedback is gathered is through the HAI Advisory Committee. The committee, established per RCW 43.70.056(5), was formed in 2007 and continues to meet regularly to discuss a variety of HAI-related topics including HAI reporting and surveillance, preparedness for high-risk pathogens [e.g., Ebola and Middle East Respiratory Syndrome (MERS)], and combating antibiotic resistance.

The HAI Advisory Committee includes individuals representing:



The HAI Advisory Committee fosters collaborations, which have enabled us to provide more effective infection prevention outreach throughout Washington. The member composition of the committee is meant to be adaptable; as new HAI issues are identified, the department has the capability to invite other community experts to participate in active discussions and prevention planning efforts. An example of this flexibility occurred after the Ebola situation in 2014-15. This prompted the HAI Program to extend a committee invitation to emergency preparedness experts.

Current Reporting Requirements for Healthcare Associated Infections

Washington enacts the following HAI reporting requirements through RCW 43.70.056, WAC 246-440-100, RCW 70.41.430, and Chapter 246-101 WAC.

Washington State HAI Reporting Requirements

RCW 43.70.056

A hospital shall collect data related to healthcare-associated infections:

- **Central-line associated bloodstream infection** data for all in-patient units.
- **Surgical site infection** data for deep sternal wound for cardiac surgery, including coronary artery bypass graft; total hip and knee replacement surgery; colon surgery and abdominal hysterectomy procedures.

WAC 246-440-100

A hospital shall also collect and report data for ***Clostridium difficile (C. difficile)*** infections by the CDC National Healthcare Safety Network (NHSN) surveillance database.

RCW 70.41.430

A hospital that has identified a hospitalized patient who has a diagnosis of **methicillin-resistant *Staphylococcus aureus (MRSA)*** shall report the infection to the department using the Comprehensive Hospital Abstract Reporting system (CHARS).

Chapter 246-101 WAC

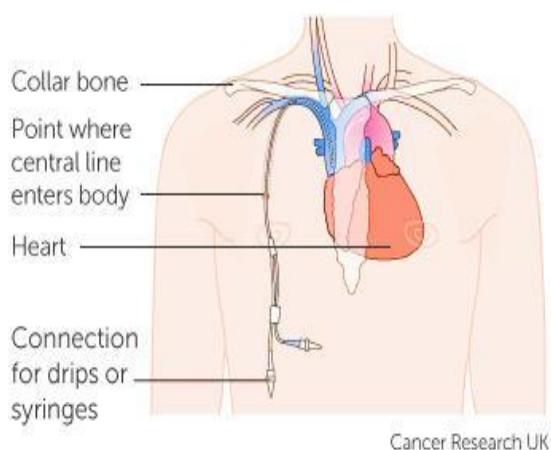
Requires reporting “outbreaks of disease that occur or are treated in the healthcare facility.” Also requires reporting of “rare diseases of public health significance.” An example of a “rare disease” that is reported per this WAC is **Carbapenem-resistant Enterobacteriaceae**.

It is important to note that hospitals are impacted by both federal and state HAI reporting requirements. For example, Centers for Medicare and Medicaid (CMS) enforce national reporting requirements for hospitals. Aligning with national partners for reporting requirements, when feasible, is ideal as it helps to minimize reporting confusion and streamline reporting practices for hospitals. This alignment is referenced in RCW 43.70.056(2)(b): *“The department shall, by rule, delete, add, or modify categories of reporting when the department determines that doing so is necessary to align state reporting with the reporting categories of the centers for Medicare and Medicaid services . . .”*

The remainder of this section further defines the reporting requirements, including important rationale for tracking specific HAIs.

Healthcare Associated Infections Related to Invasive Procedures:

Certain HAIs have been shown to have significant effects on patient outcomes during hospitalization, particularly those infections associated with injection and surgical practices. Tracking HAIs related to these invasive procedures is a way to ensure that prevention measures are consistently used in hospitals. When a rise in these types of HAIs is observed, it triggers the HAI Program to investigate causes and assist in mitigating the outbreak. The two types of infections that hospitals are required to report to the HAI Program per RCW 43.70.056 are **Central Line Associated Bloodstream Infections (CLABSI)** and **Surgical Site Infections (SSI)**. Hospital-specific CLABSI and SSI infection rates are published on the HAI Program website: <http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/HealthcareAssociatedInfections/AnnualReports>



Central Line Associated Bloodstream Infections (CLABSI):

Central venous catheters (CVCs) allow for the administration of intravenous fluids, blood products, medications, and more. However, their use is associated with the risk of bloodstream infection. CLABSIs are associated with increased morbidity, mortality, and healthcare costs. It is now recognized that CLABSIs are largely preventable when evidence-based guidelines are followed.



Surgical Site Infections (SSI):

A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. Surgical site infections can sometimes be superficial infections involving the skin only. Other SSIs are more serious and can involve tissues under the skin, organs, or implanted material.

The Impact of Antimicrobial Resistance in Healthcare:

Antimicrobial resistance is when microbes are less treatable with one or more antimicrobial medications used to treat or prevent infection (e.g., antibiotics are not effective). It is a worldwide concern for healthcare and the public due to:

- Overuse and inappropriate use of antibiotics;
- Spread of resistant organisms; and
- The inability to develop new antibiotics fast enough.

In the U.S. alone, it is estimated that bacterial resistance causes **two million infections** and **23,000 deaths per year**. Additionally, infections from *Clostridium difficile* can lead to death, and most cases are related to antibiotic exposure.

“Detect, Protect, Prevent” is the national strategy of 1) identifying important organisms through heightened awareness and rapid laboratory testing; 2) protecting patients from transmission by optimizing infection control and; 3) proper antibiotic prescribing. These three actions are critically important to combat resistance. The three types of organisms reported to the Department of Health (DOH), which demonstrate resistance to antibiotics or are related to taking antibiotics, include:

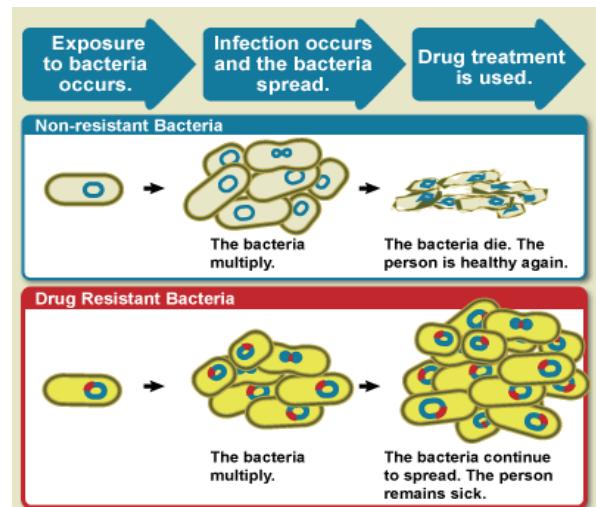
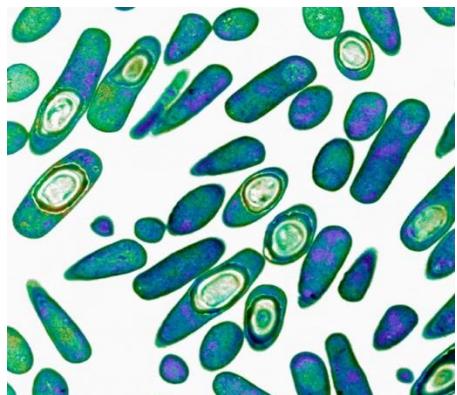


Diagram showing the difference between non-resistant bacteria and drug resistant bacteria.

Photo Source: National Institutes of Health

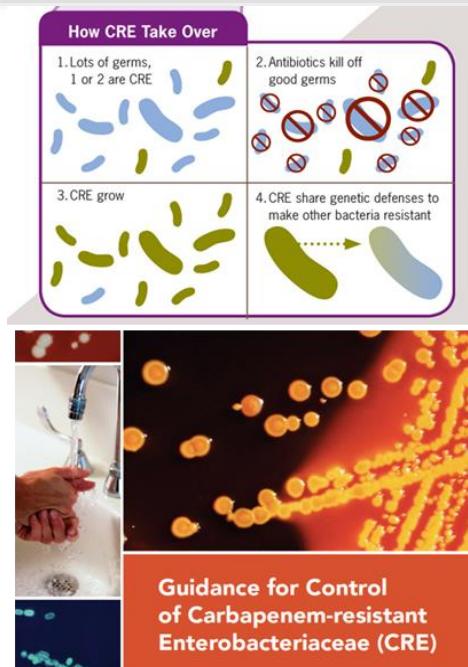
Type of Infection	Legal Mandate
<i>Clostridium difficile</i>	Chapter 246-440-100 WAC
Carbapenem-resistant Enterobacteriaceae	Chapter 246-101 WAC as a rare disease of public health significance
Methicillin-resistant <i>Staphylococcus Aureus</i>	RCW 70.41.430

Summary of Infections Resistant to Antibiotics or Caused by Taking Antibiotics That Are Reportable in Washington State



Clostridium difficile (C. difficile):

C. difficile is a bacterium that causes inflammation of the colon, known as colitis. *C. difficile* causes colitis by producing toxins that damage the lining of the colon. People who have other illnesses requiring prolonged use of antibiotics, and the elderly, are at greater risk of acquiring this disease. An estimated 15,000 deaths are directly attributable to *C. difficile* infections, making it a substantial cause of death in the United States. People can become infected if they touch items or surfaces that are contaminated with feces and then touch their mouth or mucous membranes. Healthcare workers can spread the bacteria to patients or contaminate surfaces through hand contact.



Carbapenem-resistant Enterobacteriaceae (CRE):

CRE are a family of germs that are difficult to treat because they have high levels of resistance to antibiotics. *Klebsiella* species and *E. coli* are examples of Enterobacteriaceae, a normal part of the human gut bacteria. Sometimes these bacteria become carbapenem-resistant and spread outside the gut to cause serious infections, such as urinary tract infections, bloodstream infections, wound infections, and pneumonia. Healthy people usually do not get CRE infections – they usually happen to patients in hospitals, nursing homes, and other healthcare settings.

Carbapenems are a group of antibiotics usually reserved to treat serious infections. There are different ways bacteria can become resistant to carbapenemase antibiotics. The most concerning is through the production of carbapenemase, an enzyme that makes the antibiotic ineffective. There are now several different types of carbapenemase enzymes circulating in bacteria in different parts of the world, all of which have spread to the United States. Fortunately, spread can be controlled through strict infection control measures.



Methicillin-resistant *Staphylococcus Aureus* (MRSA):

MRSA is a type of bacteria (*Staphylococcus aureus*) that is resistant to many antibiotics. In the community, most MRSA infections are skin infections. In medical facilities, MRSA can cause life-threatening bloodstream infections, pneumonia and surgical site infections. Sometimes, people carry MRSA without having any symptoms. This is known as colonization. People infected or colonized with MRSA can spread the infection.

Proposed Modifications to HAI Reporting Categories

The two recommendations proposed by the Washington State Department of Health (DOH) HAI Program and supported by the HAI Advisory Committee are summarized below:

Recommendations for Modifying HAI Reporting

- #1** Consider amending RCW 43.70.056 to include all facilities that provide the same services as acute care hospitals. Revisions to RCW 43.70.056 are needed to expand the types of healthcare settings that are mandated to report HAIs (e.g. ambulatory surgery, dialysis, long-term care, home IV providers).

RATIONALE:

RCW 43.70.056 does not provide authority to extend reporting requirements beyond acute care hospitals to all facilities that present similar risks. In order to provide the full picture of HAI, it would be beneficial to expand surveillance beyond hospitals to include all settings where patients have central lines or surgical procedures.

- #2** Consider amending RCW 70.41.430 to include multi-drug resistant organisms (MDRO), in addition to Methicillin-resistant *Staphylococcus aureus* (MRSA). MDRO screening practices in hospitals should be based on each hospital's annual infection prevention risk assessment results.

RATIONALE:

MRSA is not the only important drug-resistant bacteria. Allowing each hospital to use its annual infection prevention risk assessment to tailor its screening of MDROs is more effective than regulating each MDRO separately. This customized assessment can provide a cost-effective and flexible option for hospitals. For example, certain patient populations are at higher risk for Vancomycin-resistant *Enterococcus* (VRE); therefore, it may also make sense to swab patients for VRE upon admission to ensure that they are isolated appropriately. DOH's oversight of the annual risk assessment process, potentially as part of regulatory inspection, would be appropriate to include as part of the department's role.

Barriers to HAI Reporting

Reporting HAIs presents challenges to healthcare facilities. Barriers do differ depending on the type of medical facility, as non-hospital settings may not have comprehensive infection prevention programs. A summary of the reporting barriers is provided below:

Barriers in HAI Reporting for Healthcare Settings

+ = Minor Barrier, ++ = Moderate Barrier, +++ = Significant Barrier

Barrier	Hospitals	Long-Term Care	Ambulatory Surgery Facilities
Ability to interpret complex HAI definitions	+	+++	++
Trained infection prevention staff to complete surveillance	+	+++	+++
Ability to conduct patient follow-up for patients following surgical procedures <i>(e.g. patients with surgical site infections may not present with symptoms up to 90 days following surgical procedure)</i>	++	NA*	+++
Consistency in reporting between facilities	++	+++	+++
Lack of electronic medical record	+	+++	++
Information technology (IT) access and support for HAI surveillance activities	+	++	++
Fear that reporting infection data will have negative consequences for the facility	+++	+++	+++

*NA – Not applicable as long-term care facilities do not usually care for patients following surgery

Evaluating the Quality of HAI Reporting

At the Department of Health (DOH), HAI surveillance expertise is provided to hospitals through the assistance of a nurse consultant and an epidemiologist. Both experts work closely with Washington hospitals to ensure that infections are identified and entered into the surveillance system correctly. These "quality checks" are based on the International Organization for Standardization (ISO) standards, which provide guidance on quality control. This process is outlined below:

Hospital Self Assessments ("internal validation")

- Every year, Washington hospitals participate in a self-assessment of their CLABSI surveillance database.
- Hospitals compare lab results with their infection database to determine if HAI cases were identified correctly.
- Hospitals complete a worksheet and send results to the HAI Program.

Hospital Site Visits ("external validation")

- Based on the results of the hospital self-assessments, the HAI Program conducts on-site reviews at selected hospitals.
- During the visit, the HAI Program reviews hospital medical records to determine if any infections were missed, overcounted, or misclassified.
- These site visits provide the HAI Program with an opportunity to work with infection prevention experts in hospitals.

Conclusion

Healthcare expands beyond hospital walls, spanning the entire continuum of care (e.g., long-term care, ambulatory care, home health). The remarkable growth of ambulatory surgery centers and long-term care facilities is a reflection of this new healthcare paradigm. Having a broader awareness of the HAI risk in these non-hospital settings is imperative as patients oftentimes move throughout the healthcare continuum during their care. Improved tracking of HAIs in hospitals and non-hospital healthcare facilities will enable us to design more effective infection prevention interventions. Furthermore, the threat of antimicrobial resistance in the community and in healthcare has now reached crisis levels. Infection prevention experts have been studying multi-drug resistant organism extensively, and there is now a better understanding of how certain infections impact different patient populations. In order to ensure hospitals have the ability to monitor antimicrobial resistant organisms of biggest concern, legislation should allow for some flexibility so infection prevention experts can adapt patient screening practices to reflect the most current evidence. Ultimately, the HAI Program at the department aims to improve patient safety by monitoring infection trends, providing education for the public and healthcare, and promoting infection prevention across the continuum of care.

Selected References

Centers for Disease Control and Prevention. (2015). Facility guidance for control of Carbapenem-resistant Enterobacteriaceae. Accessed online on 12/31/15:
<http://www.cdc.gov/hai/pdfs/cre/CRE-guidance-508.pdf>

Centers for Disease Control and Prevention (2009). The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention. Accessed online on 12/31/15:
http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf

The Joint Commission. Preventing central line-associated bloodstream infections: A global challenge, a global perspective. (2012). *Joint Commission Resources*. Accessed online on 12/31/15: <http://www.PreventingCLABSI.pdf>

Magill S, Edwards J, Bamberg W, Beldavs Z, Dumyati G, et al. (2014). Multistate Point-Prevalence Survey of Health Care-Associated Infections. NEJM, 370 (13): 1198-1208.

Talbot TR, Bratzler DW, Carrico RM, Diekema DJ, Hayden MK, Huang SS, et al. (2013) Public reporting of health care-associated surveillance data: Recommendations from the Healthcare Infection Control Practices Advisory Committee. Ann Intern Med. 2013; 159:631-635.

U.S. Department of Health and Human Services (HHS) (2013). National action plan to prevent health care-associated infections: Road map to elimination. Accessed online on 12/31/15:
<http://health.gov/hcq/prevent-hai-action-plan.asp>

Council of State and Territorial Epidemiologists (2015). Recommendations for surveillance and reporting of healthcare associated infections in long term care facilities. Accessed online on 5/11/2017: <http://cymcdn.com/sites/www.cste.org/resource/resmgr/2015PS/2015PSFinal/15-ID-04.pdf>

Alvarez A and Bursell D. (2012) Virginia Department of Health Division of Surveillance and Investigation Healthcare-Associated Infections Program. Accessed online on 5/11/2017:
<http://www.vdh.virginia.gov/content/uploads/sites/3/2016/03/SSI-pilot-report-FINAL.pdf>