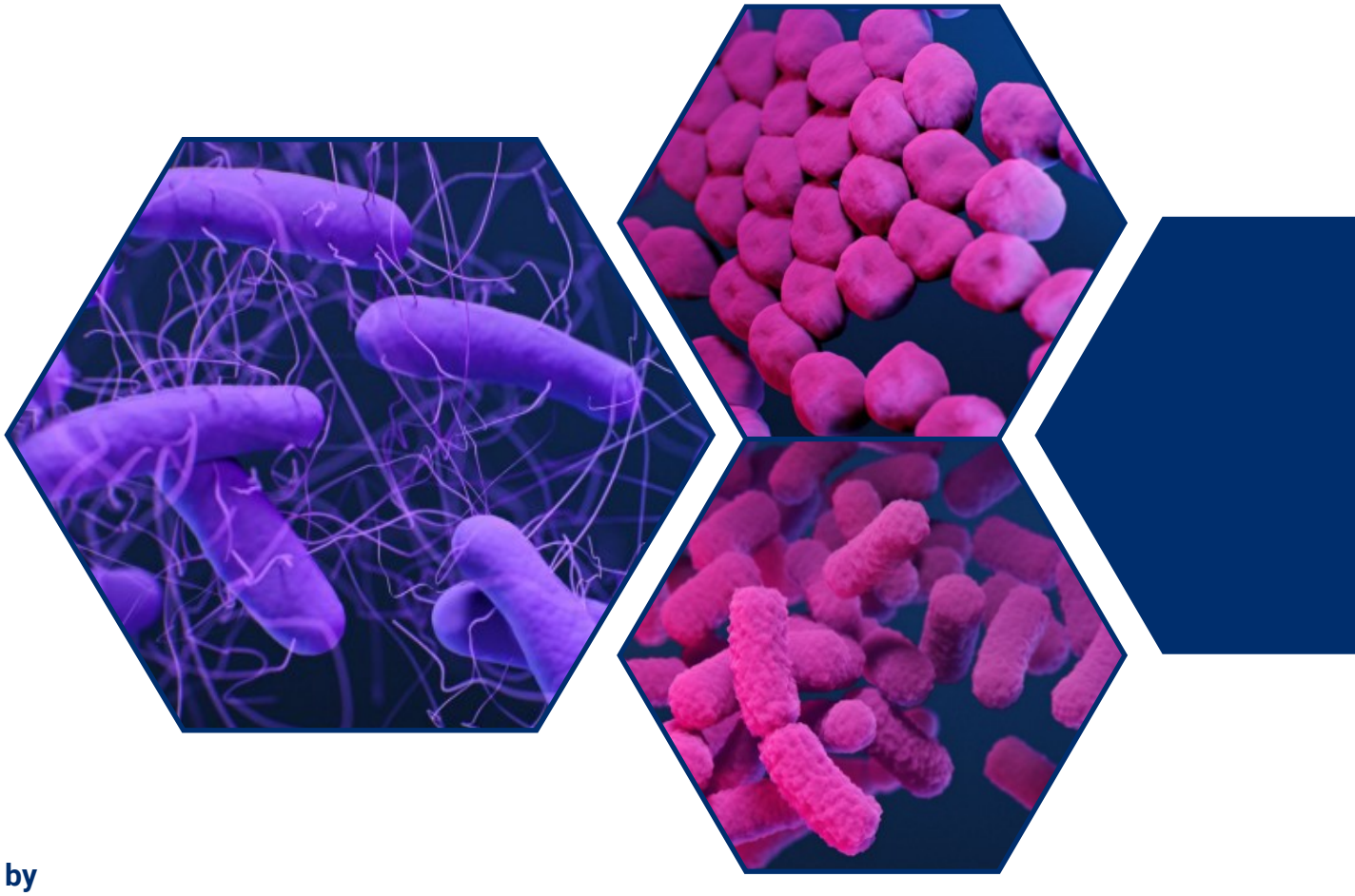
2024 Annual Report

Infection Control and Prevention and Healthcare-Associated Infections in Montana



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Public Health and Safety Division

Montana Department of Public Health and Human Services (DPHHS)

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PublicHealth IN THE 406

MONTANA
INFECTION CONTROL AND
HEALTHCARE-ASSOCIATED
INFECTIONS SECTION

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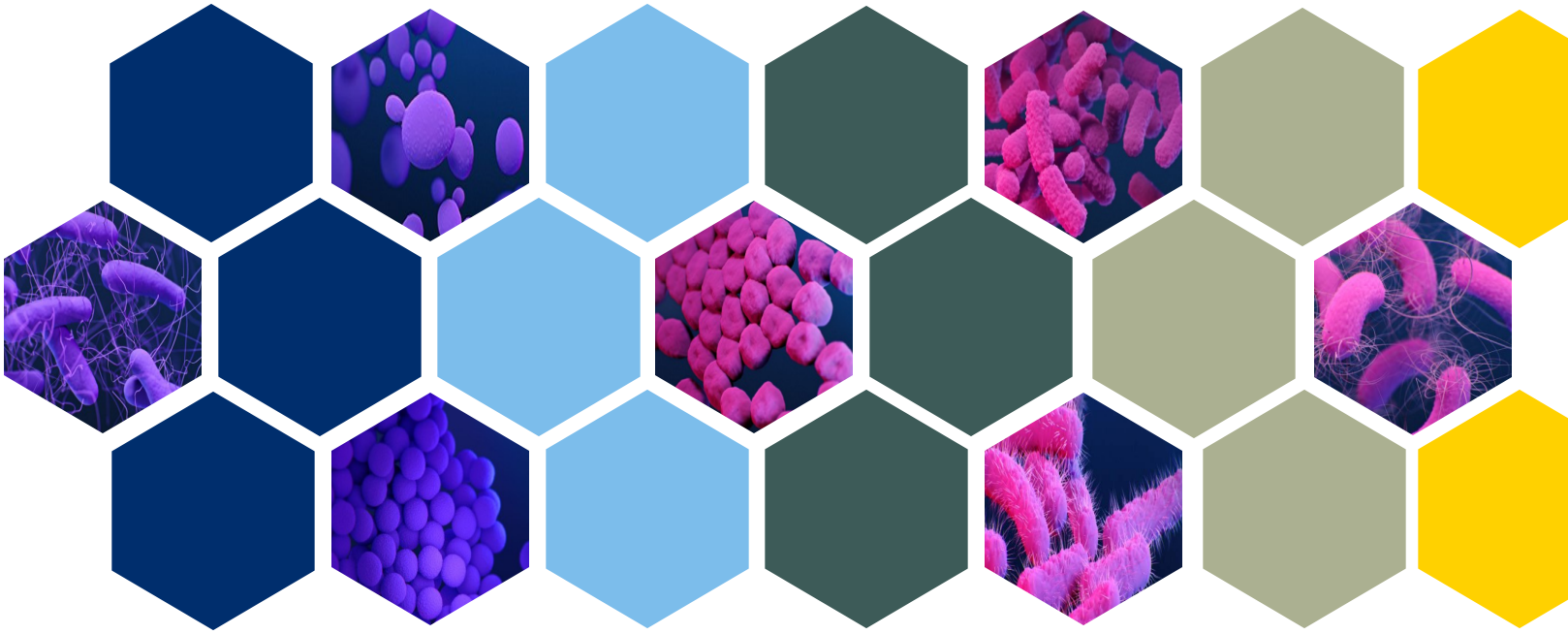

PublicHealth IN THE 406

MONTANA
INFECTION CONTROL AND
HEALTHCARE-ASSOCIATED
INFECTIONS SECTION

Message from the DPHHS Public Health Physician and State Epidemiologist

This is an exciting time to practice public health as the field continues to evolve and practitioners address increasingly complex issues in new and innovative ways. The Infection Control and Prevention and Healthcare-Associated Infections in Montana 2024 Annual Report summarizes and highlights the diseases and outbreaks investigated by the MT DPHHS Infection Control and Prevention and Healthcare-Associated Infections Section, local and tribal public health jurisdictions, and healthcare partners during 2024, with an emphasis on data trends and important public health events.

The prevention and control of communicable disease is one of the most important aspects of public health practice in the United States and is necessary to ensure the health and well-being of Montana citizens. Core public health activities include:

- Responding to and tracking outbreaks of infectious diseases, such as influenza, norovirus, respiratory syncytial virus (RSV), and
- Newly emerging diseases or threats, such as carbapenemase-producing carbapenem-resistant organisms;
- Testing for and treating infectious diseases;
- Preparing healthcare facilities for disease outbreaks of all scales; and
- Providing education and key messaging to prevent transmission of disease.

The unique nature of this work requires staff to be 'on call' for disease reporting, consultation, and outbreak investigation to quickly respond to communicable disease urgencies and emergencies.

Over the last year, the Montana Department of Public Health and Human Services (DPHHS) has worked closely with local and tribal health jurisdictions and Montana healthcare facilities. We collectively exercised our outbreak response skills to effectively manage the spread of communicable diseases in our healthcare facilities by promoting prevention through readily available vaccination, and supporting efficient disease recognition, diagnosis, and treatment, when necessary, as well as improved infection control and prevention measures. We also worked together in new ways to raise awareness and provide education on the increased incidence of carbapenemase-producing carbapenem-resistant organisms in Montana and the emergence of *Candida auris* infection in surrounding states.

The Montana Infection Control and Prevention and Healthcare-Associated Infections Annual Report summarizes and highlights the work of the Montana Infection Control and Prevention and Healthcare-Associated Infections Section in conjunction with local and tribal health jurisdictions and partners during 2024. Data trends and public health events of importance are described and analyzed in order to understand the impact of specific communicable diseases on the health of people living in Montana.

We thank the public health staff who have demonstrated inspiring resiliency while performing and coordinating public health activities that keep our Montana communities safe and healthy!

Maggie Cook-Shimanek, M.D., M.P.H.
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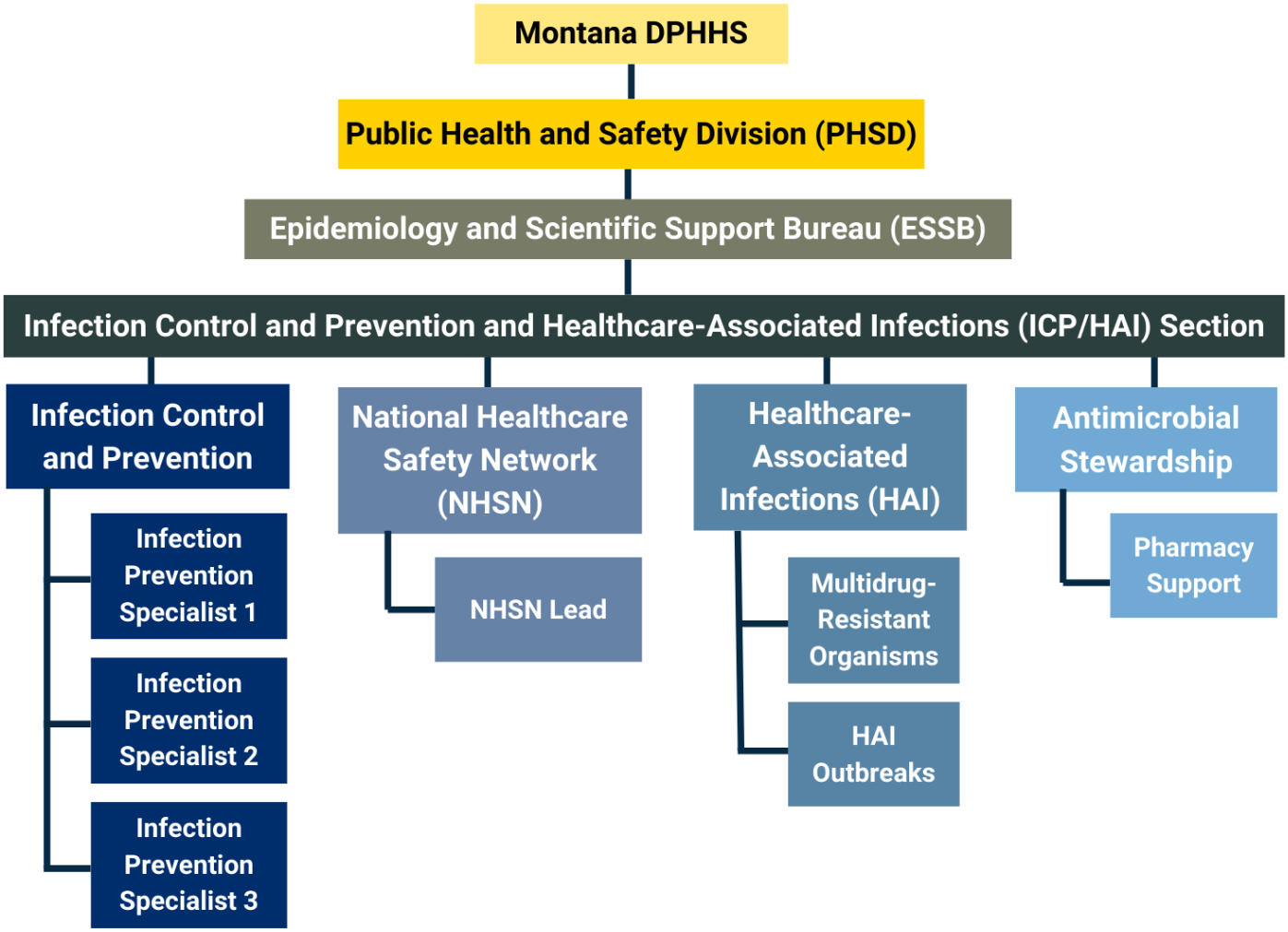
State Epidemiologist
Montana Department of Public Health and Human Services

Who We Are & What We Do

The Infection Control and Prevention/Healthcare-Associated Infections (ICP/HAI) Section consists of epidemiology, infection prevention and control, and pharmacy expertise.



Who We Are & What We Do

The Montana ICP/HAI Section's mission is to increase infection control expertise across the healthcare spectrum in Montana through training, education, and infection control assessments. To achieve this, the Montana ICP/HAI Section works closely with stakeholders from around the state including, but not limited to:

Montana DPHHS

- Epidemiology and Scientific Support Bureau
- Communicable Disease and Prevention Bureau
- Montana Public Health Laboratory
- Office of Inspector General
- Community Services Bureau
- Local/Tribal Public Health Jurisdictions
- Disaster Emergency Services

Outside Stakeholders

- Montana Hospital Association
- University of Montana Skaggs School of Pharmacy
- Montana Public Health Institute
- Mountain-Pacific Quality Health
- Montana Healthcare Facilities

The Montana ICP/HAI Section offers the following services to all Montana healthcare facilities: Infection Control Assessments and Response (ICAR), outbreak consultations (disease-specific and infection control and prevention-specific), training and webinars, creation of tools and resources, and one-on-one support.

These services are offered to over 400 healthcare facilities, with the current landscape of Montana healthcare facilities including:

- 15 Acute Care Hospitals
- 48 Critical Access Hospitals
- 1 Long-Term Acute Care Hospital
- 1 Rehabilitation Hospital
- 206 Assisted Living Facilities
- 62 Long-Term Care/Skilled Nursing Facilities
- 17 Dialysis Facilities
- 33 Surgery Centers
- Many Outpatient and Dental Facilities

Key Highlights

The *2024 Annual Report: Infection Prevention and Control and Healthcare-Associated Infections in Montana* contains data for notifiable diseases and other conditions reported to Montana DPHHS in 2024. Data are reported from laboratories and healthcare facilities to local and tribal public health jurisdictions as required in the Administrative Rules of Montana (ARM) 37.114.203 and 37.114.313 or through the National Healthcare Safety Network (NHSN).

Healthcare-Associated Infections: NHSN

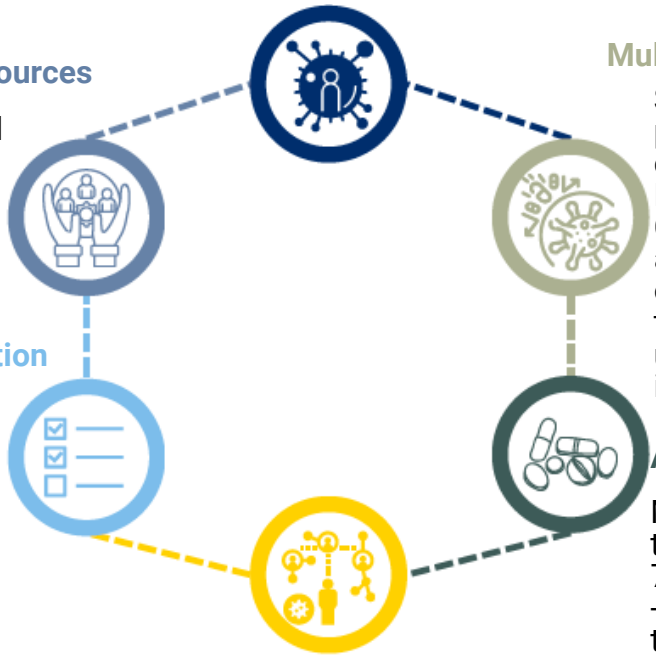
In 2024, central line-associated bloodstream Infections reported by Montana acute care hospitals were higher than the national benchmark. Catheter-associated urinary tract infections and healthcare-onset *Clostridioides difficile* infections decreased from 2023 to 2024.

Educational Trainings and Resources

The ICP/HAI Section provided over 70 educational webinars and created 8 new resources for Montana healthcare facilities.

Infection Control and Prevention

The ICP/HAI Section completed 45 infection control assessment and responses (ICARs), spending about 536 hours on the road driving almost 35,000 miles across Montana. Twelve outbreak consultations were conducted.



Multidrug-Resistant Organisms

Since the first carbapenemase-producing organism (CPO) case was identified in 2019, Montana has identified 20 CPOs collected from patients at Montana healthcare facilities or from Montana residents through 2024. In 2024, eight unique CPOs (40%) in seven individuals were identified.

Antimicrobial Stewardship

Most Montana hospitals attested in NHSN to meeting all 7 core elements. In 2024, thirty-two Montana healthcare facilities participated in the Montana antimicrobial stewardship program.

Healthcare Facility Outbreaks

The team investigated the following outbreaks and clusters:

- **312** COVID-19
- **28** Influenza
- **24** Norovirus/Acute Gastrointestinal Illness
- **8** Carbapenemase-Producing Organisms
- **7** Acute Respiratory Illness
- **7** Respiratory Syncytial Virus (RSV)
- **3** Group A *Streptococcus*
- **1** Lice

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MONTANA INFECTION CONTROL AND HEALTHCARE-ASSOCIATED INFECTIONS SECTION

Healthcare-Associated Infections- National Healthcare Safety Network

What is NHSN?

The National Healthcare Safety Network (NHSN) is a nationwide healthcare-associated infection (HAI) tracking system administered by the Centers for Disease Control and Prevention (CDC). It began with 300 hospitals decades ago and now has over 38,000 healthcare facilities including all hospitals, nursing homes, dialysis centers, and ambulatory surgery centers.

NHSN is used to:

- Identify infection prevention problems by facility, state, or specific quality improvement projects.
- Benchmark progress of infection prevention efforts.
- Comply with state and federal public reporting mandates.*
- Drive national progress towards the elimination of HAIs.

*Montana healthcare facilities are required to only report federal Centers for Medicaid and Medicare Services (CMS) requirements. There are no additional state reporting requirements. Montana healthcare facilities must give DPHHS permission to view their NHSN data (confer rights). In 2024, 86 of the eligible 115 Montana healthcare facilities including dialysis, hospitals, and outpatient surgery centers conferred rights. Data in this report only include those facilities which have given DPHHS confer rights.

What do the summary measures mean?

The standardized infection ratio (SIR) is a summary measure created by NHSN and the CDC that can be used to track HAIs over time and can be calculated on a variety of levels, including unit, facility, state, and nation. It adjusts for differences between healthcare facilities such as types of patients and procedures, as well as other factors such as the facility's size and whether it is affiliated with a medical school. It compares the number of infections reported by a facility within a given time period to the number of infections that were predicted using data from a baseline time period, which varies for different infection types. The predicted number of infections is calculated by the CDC using information submitted by facilities through the annual patient safety survey. Lower SIRs indicate that the facility had less infections than expected.

$$SIR = \frac{\text{Observed HAIs}}{\text{Predicted HAIs}}$$

- An SIR of 1.0 means the observed number of infections is equal to the number of predicted infections.
- An SIR greater than 1.0 means there were more infections than predicted. For example, if a facility has a CLABSI SIR=1.5, they experienced 50% more CLABSIs than predicted.
- An SIR less than 1.0 means there were fewer infections than predicted. For example, if a facility has a CLABSI SIR=0.8, they experienced 20% fewer CLABSIs than predicted.

How to interpret the SIR 95% Confidence Interval (CI):

- If the CI does not include 1 in its range, then the SIR is significantly different than 1.0 (the national baseline), meaning the number of infections is significantly different than the number of predicted infections. Example: 95% CI= (0.29, 0.97).
- If the CI does include 1 in its range, then the SIR is not significantly different than 1.0, and the number of infections is not significantly different than the number of observed infections. Example: 95% CI= (0.15, 1.37).

The cumulative attributable difference (CAD) is another measure created by NHSN and the CDC that can be used to help target HAI prevention efforts. It determines the number of infections that needed to be prevented during a specific timeframe to reach the target SIR.

$$CAD = \text{Observed HAIs} - (\text{Predicted HAIs} * SIR_{Target})$$

- A CAD greater than 0 means that there were more infections than predicted to reach the target SIR. For example, if the target SIR was 0.7 and the facility had 7 infections but was only predicted to have 3.3 infections, 5 infections would have needed to be prevented to reach the target SIR of 0.7.
- A CAD equal to 0 means that there were equal to or fewer infections than predicted to reach the target SIR.

Healthcare-Associated Infections- National Healthcare Safety Network

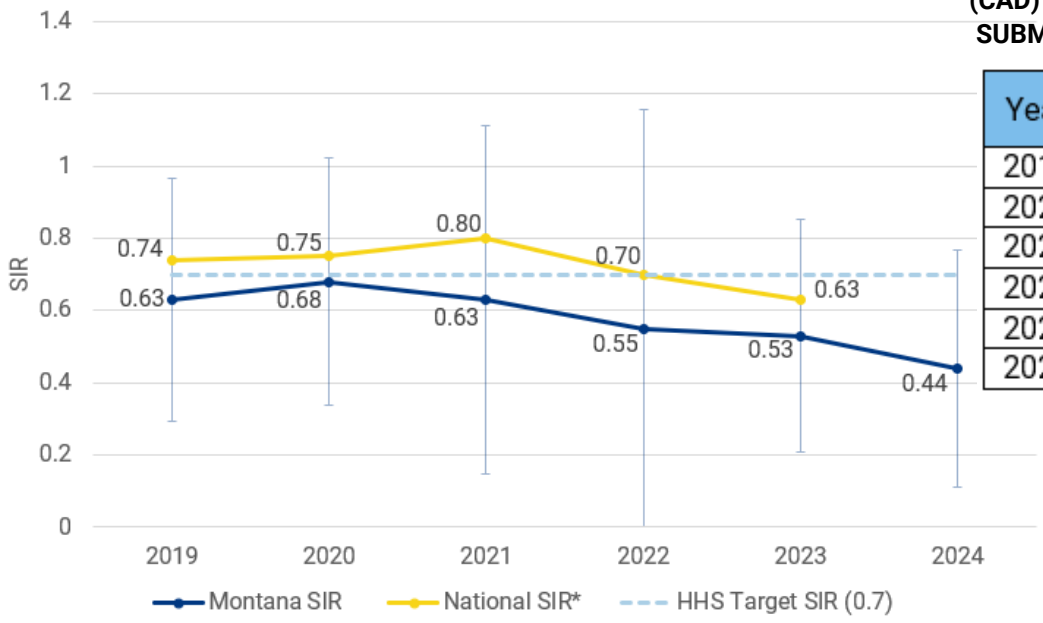
Catheter-Associated Urinary Tract Infection (CAUTIs)

An indwelling urinary catheter, sometimes referred to as a foley catheter, is a drainage tube that is inserted into the urinary bladder through the urethra, is left in place, and is connected to a closed collection system. A catheter-associated urinary tract infection (CAUTI) occurs when germs (usually bacteria) enter the urinary tract through the urinary catheter and cause infection. CAUTIs have been associated with increased morbidity, mortality, healthcare costs, and length of stay. Healthcare facilities can prevent CAUTIs by following appropriate infection prevention recommendations when inserting and maintaining indwelling urinary catheters, and by removing a urinary catheter as soon as it is no longer medically necessary.

The statewide CAUTI data shown below only includes Montana Acute Care Prospective Payment System (PPS) Hospital data. Acute Care PPS Hospitals are required by the CMS to submit CAUTI data for the following units: Adult Intensive Care Units (ICUs), Pediatric ICUs, and Neonatal ICUs (NICU), as well as Adult and Pediatric Medical, Surgical & Medical/Surgical Wards. For the purposes of this report, all CAUTI data reported from Rehab and NICU units have been removed as these are not included in the calculation of the National SIR completed by CDC.

In Montana, no pattern has been observed indicating a seasonality for CAUTI events. Montana Acute Care Hospitals reported a slight increase in the number of observed CAUTI events and a decrease in the SIR in 2024 compared to 2023, as described in Table 1. There was an increase of 3% in the total number of observed CAUTI events in 2024 compared to 2023. There was a decrease of 17% in the CAUTI SIR in 2024, decreasing from 0.53 in 2023 to 0.44 in 2024, as shown in Figure 1. The Montana Acute Care Hospital CAUTI SIR remained below the HHS Target SIR of 0.7. Because the CAUTI SIR has remained below the HHS Target SIR, the CAD has remained at zero indicating that no infections needed to be prevented to reach the SIR goal.

FIGURE 1. CATHETER-ASSOCIATED URINARY TRACT INFECTIONS (CAUTI) STANDARDIZED INFECTION RATIOS (SIR) FOR MONTANA ACUTE CARE HOSPITALS SUBMITTING DATA TO NHSN, 2019-2024.



*National SIR Data acquired from CDC HAI Progress Reports for 2019-2023

TABLE 1. CATHETER-ASSOCIATED URINARY TRACT INFECTIONS (CAUTI) ACTUAL AND PREDICTED NUMBER OF EVENTS AND CUMULATIVE ATTRIBUTABLE DIFFERENCE (CAD) MONTANA ACUTE CARE HOSPITALS SUBMITTING DATA TO NHSN, 2019-2024.

Year	Observed Events (n)	Predicted Events (n)	CAD
2019	31	49.25	0
2020	36	52.72	0
2021	47	74.54	0
2022	39	70.46	0
2023	33	62.73	0
2024	34	76.54	0

Healthcare-Associated Infections- National Healthcare Safety Network

Central Line-Associated Bloodstream Infections (CLABSIs)

A central line (also known as a central venous catheter) is a catheter (tube) that healthcare providers often place in a large vein in the neck, chest, or groin to give medication or fluids or to collect blood for medical tests. Central lines are different from intravenous therapy because central lines access a major vein that is close to the heart and can remain in place for weeks to months and be much more likely to cause serious infection. Central lines are commonly used in intensive care units. A central line-associated bloodstream infection (CLABSI) is a serious infection that occurs when germs (usually bacteria or viruses) enter the bloodstream through the central line. Healthcare providers must follow a strict protocol when inserting the line to make sure the line remains sterile and a CLABSI does not occur. In addition to inserting the central line properly, healthcare providers must use stringent infection control practices each time they check the line or change the dressing. Healthcare facilities can prevent CLABSIs by following appropriate infection prevention recommendations when placing and maintaining a central line, and by removing a central line as soon as it is no longer medically necessary.

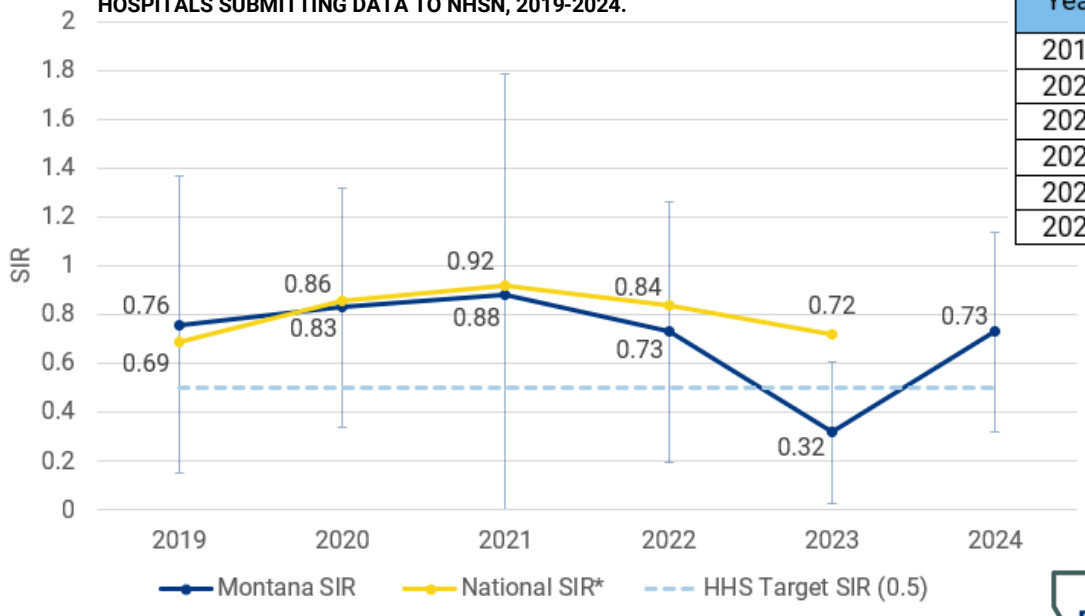
The statewide CLABSI data shown below only includes Montana Acute Care PPS Hospital data. Acute Care PPS Hospitals are required by the CMS to submit CLABSI data for the following units: Adult Intensive Care Units (ICUs), Pediatric ICUs, and Neonatal ICUs (NICU), as well as Adult and Pediatric Medical, Surgical & Medical/Surgical Wards. For the purposes of this report, all CLABSI data reported from Rehab and NICU units have been removed as these are not included in the calculation of the National SIR completed by CDC.

In Montana, no pattern has been observed indicating a seasonality for CLABSI events. Montana Acute Care Hospitals had an increase in both the number of observed CLABSI events and the SIR in 2024 compared to 2023, as described in Table 2. There was an increase of 155% in the total number of observed CLABSI events in 2024 compared to 2023, with numbers returning to those seen in 2022. There was an increase of 128% in the CLABSI SIR in 2024, increasing from 0.32 in 2023 to 0.73 in 2024, as shown in Figure 2. In 2024, the Montana Acute Care Hospitals had a CLABSI CAD of nine, indicating that nine infections needed to be prevented to reach the SIR goal.

TABLE 2. CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI) ACTUAL AND PREDICTED NUMBER OF EVENTS AND CUMULATIVE ATTRIBUTABLE DIFFERENCE (CAD) MONTANA ACUTE CARE HOSPITALS SUBMITTING DATA TO

Year	Observed Events (n)	Predicted Events (n)	CAD
2019	24	31.55	12
2020	26	31.25	14
2021	33	37.62	18
2022	26	35.61	12
2023	11	34.61	0
2024	28	38.29	9

FIGURE 2. CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI) STANDARDIZED INFECTION RATIOS (SIR) FOR MONTANA ACUTE CARE HOSPITALS SUBMITTING DATA TO NHSN, 2019-2024.



*National SIR Data acquired from CDC HAI Progress Reports for 2019-2023

Healthcare-Associated Infections- National Healthcare Safety Network

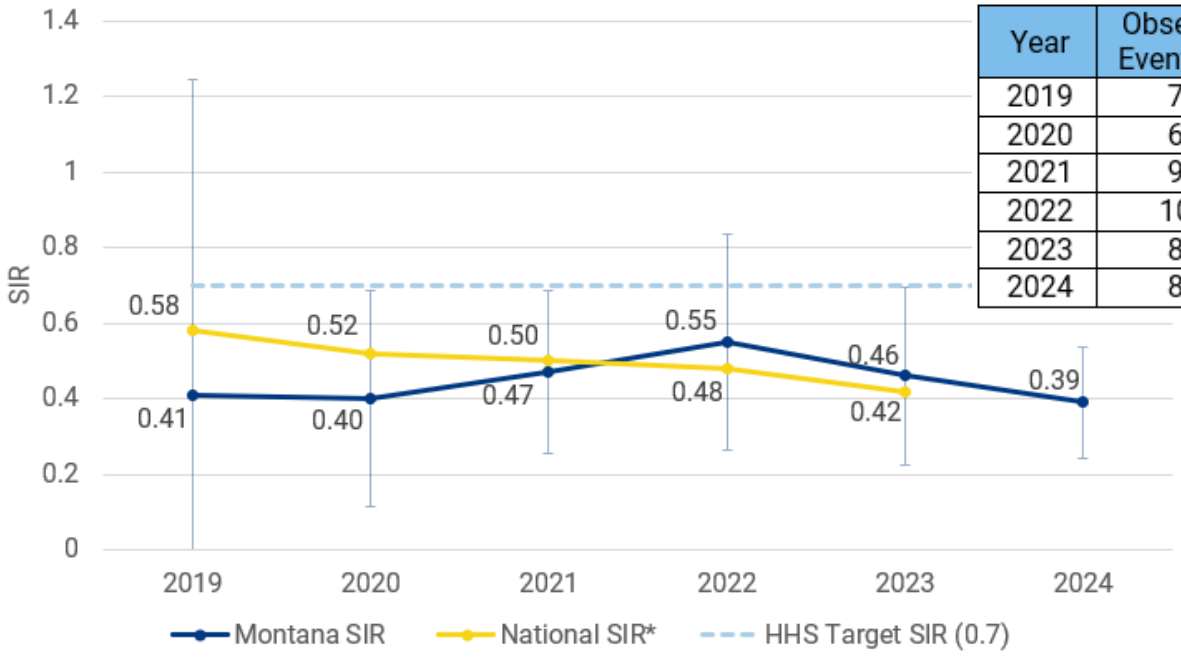
Healthcare-Onset *Clostridioides difficile* Infection (CDIs)

Clostridioides difficile (*C. difficile*) is a bacterium that naturally resides in the bowels of some people without symptoms of infection. *C. difficile* is responsible for a spectrum of *C. difficile* infections (CDI), including gastrointestinal illness which can lead to severe complications including sepsis and death. CDI can occur when *C. difficile* spores are transferred to patients via the hands of healthcare personnel or other contaminated surfaces or items. Healthcare facilities can prevent CDI by using antibiotics wisely and following infection prevention recommendations, including hand hygiene, environmental cleaning, and Contact Precautions, a type of transmission-based precaution, to prevent the spread of *C. difficile* in the healthcare setting.

The statewide CDI data shown below only includes Montana Acute Care PPS Hospital data.

In Montana, a pattern can be seen with healthcare-onset CDI events, with the highest percentage of infections and SIRs occurring for the period between January and March. Montana Acute Care Hospitals had a decrease in both the number of observed CDI events and the SIR in 2024 compared to 2023, as described in Table 3. There was a decrease of 2% in the total number of observed CDI events in 2024 when compared to 2023. There was a decrease of 15% in the CDI SIR in 2024, decreasing from 0.46 in 2023 to 0.39 in 2024, as shown in Figure 3. The Montana Acute Care Hospital CDI SIR remained below the HHS Target SIR of 0.7 in 2023 with the SIR returning to lower levels similar to before the COVID-19 pandemic. Because the CDI SIR has remained below the HHS Target SIR, the CAD has remained at zero indicating that no infections needed to be prevented to reach the SIR goal.

FIGURE 3. LABORATORY-IDENTIFIED HEALTHCARE-ONSET *C. DIFFICILE* INFECTIONS (CDI) STANDARDIZED INFECTION RATIOS (SIR) IN MONTANA HOSPITALS SUBMITTING DATA TO NHSN, 2019-2024.



**National SIR Data acquired from CDC HAI Progress Reports for 2019-2023*

TABLE 3. LABORATORY-IDENTIFIED HEALTHCARE-ONSET *C. DIFFICILE* INFECTIONS (CDI) ACTUAL AND PREDICTED NUMBER OF EVENTS AND CUMULATIVE ATTRIBUTABLE DIFFERENCE (CAD) MONTANA ACUTE CARE HOSPITALS SUBMITTING DATA TO NHSN, 2019-2024.

Year	Observed Events (n)	Predicted Events (n)	CAD
2019	70	169.97	0
2020	63	156.8	0
2021	91	191.8	0
2022	101	185.32	0
2023	82	177.29	0
2024	80	203.76	0

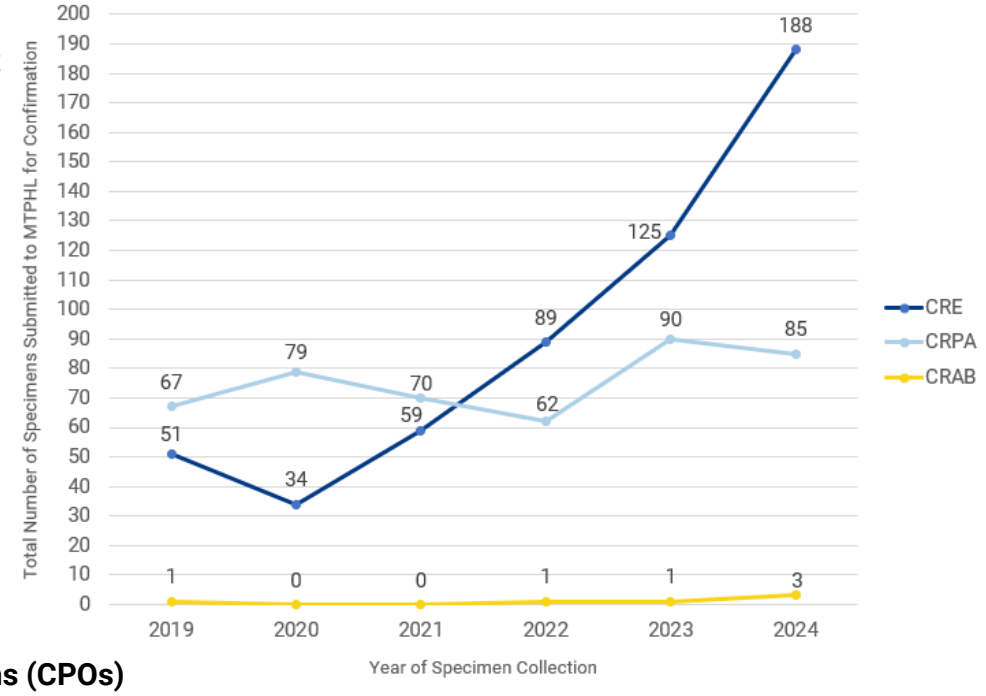
Multidrug-Resistant Organisms

In Montana, select multidrug-resistant organisms (MDROs), including *Candida auris*, carbapenem-resistant organisms (CROs), carbapenemase-producing organisms (CPOs), vancomycin-intermediate *Staphylococcus aureus* (VISA), and vancomycin-resistant *Staphylococcus aureus* (VRSA), are reportable as required by the Administrative Rules of Montana 37.114.203 and 37.114.313. Outbreaks of other MDROs are also monitored, such as methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus*.

Carbapenem-Resistant Organisms (CROs)

CROs are organisms that are resistant to the antibiotic class of carbapenems. The most common CROs within the United States are within the Enterobacterales order (CRE), *Acinetobacter baumannii* (CRAB), and *Pseudomonas aeruginosa* (CRPA). CROs are required to be sent to the Montana Public Health Laboratory (MTPHL) for confirmation. The MTPHL was in the process of validating their antimicrobial susceptibility testing in 2024, so the numbers represented in Figure 4 refer only to CRO specimens that were submitted to the MTPHL from healthcare facilities based on internal testing, not necessarily specimens confirmed at

FIGURE 4. NUMBER OF CRO SPECIMENS SUBMITTED TO THE MTPHL FOR CONFIRMATORY TESTING, 2019-2024



Carbapenemase-Producing Organisms (CPOs)

CROs that produce carbapenemases, enzymes that break down the antibiotic class of carbapenems, are considered CPOs. The carbapenemase gene can be easily shared between bacteria, leading to the rapid spread of resistance. These organisms can be spread within the healthcare setting through contaminated healthcare worker hands or through contaminated equipment.

Since the first CPO case was identified in 2019, Montana has had a total of twenty confirmed CPO cases detected from Montana healthcare facilities or Montana residents through 2024, as described in Table 4. In 2024, eight unique CPOs from seven individuals were identified from Montana healthcare facilities or Montana residents prompting a public health response. Three CP-CREs identified in 2024 were identified with the carbapenemase gene of *Klebsiella pneumoniae* carbapenemase (KPC). Two CP-CREs were identified in 2024 with the carbapenemase gene of imipenemase (IMP). Two CP-CREs were identified in 2024 with the carbapenemase gene of Oxacillinase 48 (OXA-48). One CP-CRAB was identified in 2024 with the carbapenemase gene of Oxacillinase 23 (OXA-23). In 2024, Montana saw its first gene transfer between two different organisms within a single individual.

TABLE 4. ABBREVIATED LINE LIST OF REPORTED CPOS DETECTED FROM MONTANA HEALTHCARE FACILITIES OR MONTANA RESIDENTS, 2020-2024.

CPOs	2020 (n, organism-gene)		2021 (n, organism-gene)		2022 (n, organism-gene)		2023 (n, organism-gene)		2024 (n, organism-gene)	
CP-CRE	1	• *E. cloacae* complex-NDM	1	• *E. cloacae* complex-NDM	3	• *K. pneumoniae*-KPC • *K. pneumonia*-NDM (also CP-CRAB)* • *E. cloacae* complex-other	2	• *E. coli*-NDM • *K. pneumoniae*-NDM	7*	• *E. coli*-KPC (2) • *E. cloacae complex*-IMP • *P. mirabilis*-IMP • *E. coli*-OXA48 • *K. pneumoniae*-KPC • *Raoultella spp.*-OXA48
CP-CRPA	0		0		0		2	• *P. aeruginosa*-VIM • *P. aeruginosa*-Other (also CP-CRAB) *	0	
CP-CRAB	0		0		1	• *A. baumannii*-OXA235 (also CP-CRE) *	2	• *A. baumannii*-OXA23 (1-not MT resident; 1-also CP-CRPA*)	1	• *A. baumannii*-OXA23

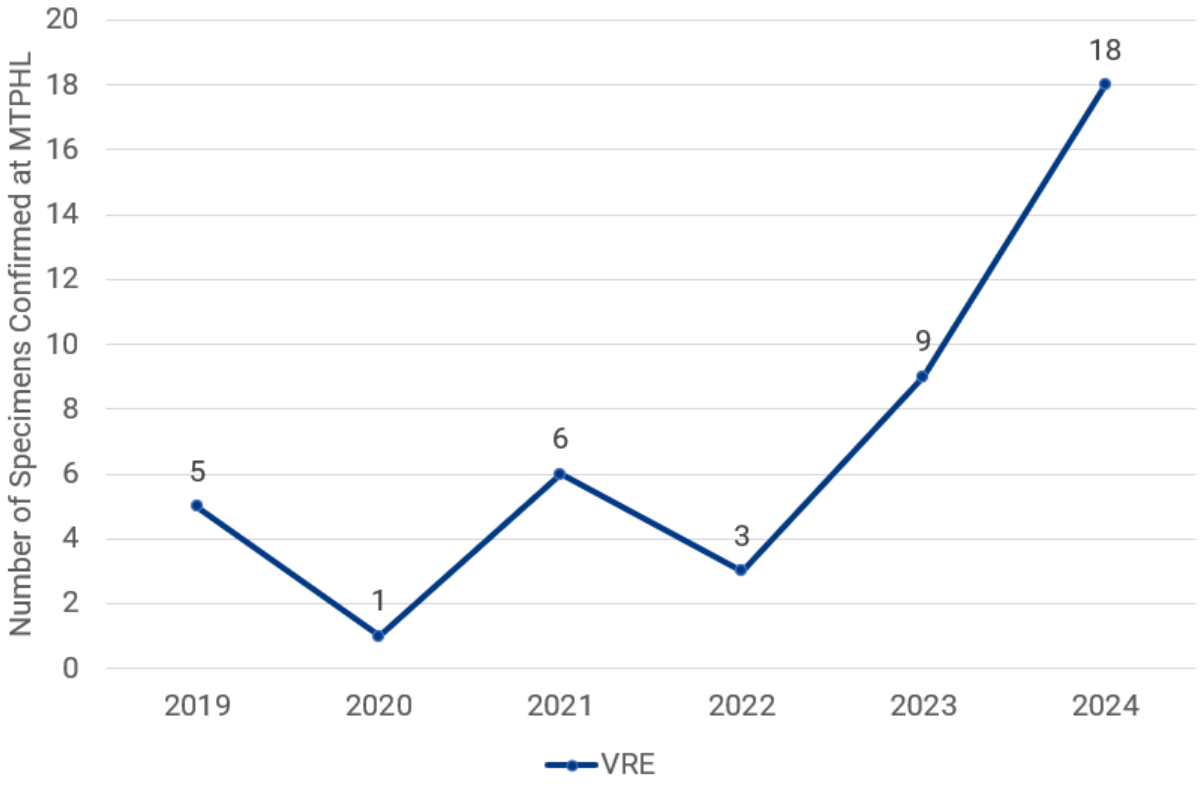
**Note, in 2022 , 2023, and 2024, three of the cases had different CPO gene and organism combinations detected, therefore the sum of CPO genes detected is 23, but the total number of individuals with a positive CPO result remains at 20.*

Multidrug-Resistant Organisms

Vancomycin-Resistant Organisms

Vancomycin is an antibiotic used to treat bacterial infections throughout the body and is frequently used for individuals with penicillin allergies. The most common vancomycin-resistant organisms within the United States are *Enterococcus* (VRE) and *Staphylococcus aureus* (VISA/VRSA). *Staphylococcus aureus* can also exhibit a range of resistance to vancomycin, with VRSA being the most resistant to vancomycin and VISA being intermediately resistant to vancomycin. VISA/VRSA infections are exceptionally rare in the United States and specimens are required to be sent to the MTPHL for confirmatory testing. Montana has not confirmed a specimen as VISA/VRSA since 2015, therefore, neither are included in Figure 5. Although, VRE is not specifically stated in the ARMs, VRE outbreaks are still reportable in all healthcare settings as outbreaks of communicable diseases in healthcare settings are specifically mentioned in ARM 37.114.203. VRE specimens can be sent to the MTPHL for confirmation. In 2024, the number of VRE specimens confirmed at the MTPHL doubled compared to 2023, as shown in Figure 5.

FIGURE 5. NUMBER OF SPECIMENS CONFIRMED AS VRE AT THE MTPHL, 2019-2024.



Candida auris

Candida auris (*C. auris*) is a type of yeast that can cause severe illness and spreads easily among patients in healthcare facilities. It is often resistant to antifungal treatments, which means that the medications that are designed to kill the fungus and stop infections do not always work. In 2024, *C. auris* was identified in several states surrounding Montana. This demonstrates the increased need for screening within Montana healthcare facilities, especially among out-of-state transfers.

FIGURE 6. CDC CORE ELEMENTS OF ANTIMICROBIAL STEWARDSHIP

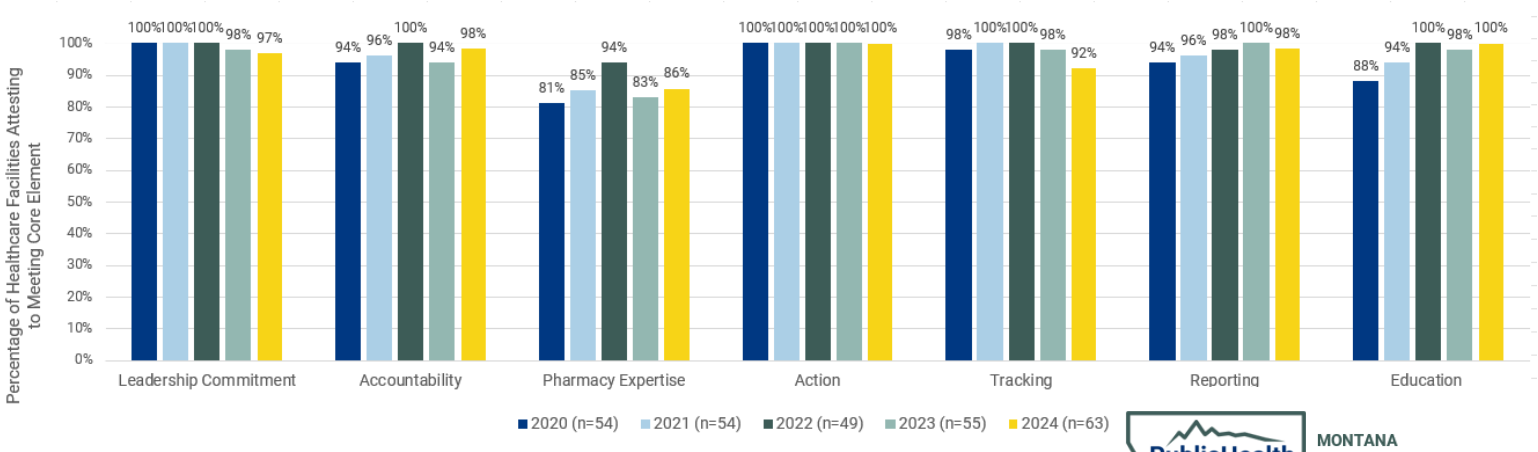
Core Elements of Antimicrobial Stewardship

Optimizing the use of antibiotics is critical to effectively treat infections, protect patients from harms caused by unnecessary antibiotic use, and combat antibiotic resistance. In 2014, CDC called on all hospitals in the United States to implement antibiotic stewardship programs and released the Core Elements of Hospital Antibiotic Stewardship Programs (Core Elements) to help hospitals achieve this goal. The Core Elements outlines structural and procedural components that are associated with successful stewardship programs. In 2015, The United States National Action Plan for Combating Antibiotic Resistant Bacteria set a goal for implementation of the Core Elements in all hospitals that receive federal funding. The Core Elements include the following: Hospital Leadership Commitment, Accountability, Pharmacy Expertise, Action, Tracking, Reporting, and Education, as described in Figure 6.

Healthcare facilities provide their attestation to meeting these core elements yearly through the NHSN Patient Safety and Long-Term Care Component Annual Surveys. All core element data was retrieved from NHSN via the Montana DPHHS DUA with NHSN and only includes data provided by hospitals including acute care, critical access, psychiatric, rehabilitation, veterans' and Indian Health Services. Sixty-three (98%) Montana healthcare facilities completed the NHSN Patient Safety Annual Survey in 2024.

In 2024, 35 (74%) critical access hospitals (CAH) attested to meeting all seven core elements. All other hospital types (15) attested to meeting all seven core elements in 2024. Overall, in all hospital types in 2024, there was a decrease in the percent of facilities meeting certain core elements, as shown in Figure 7. Tracking saw the greatest decrease (6%) from 2023, decreasing from 98% to 92%. Leadership Commitment and Reporting also saw a decrease of 1% and 2% in 2024 from 2023, respectively. Accountability saw the greatest increase (5%) from 2023, increasing from 94% to 98%.

FIGURE 7. PERCENTAGE OF MONTANA HOSPITALS ATTESTING TO FULFILLING EACH OF THE SEVEN CORE ELEMENTS OF ANTIMICROBIAL STEWARDSHIP IN NHSN ANNUAL SURVEY, 2020-2024.



Montana Antimicrobial Stewardship Program

To aid Montana healthcare facilities in meeting the seven core elements of antimicrobial stewardship, the Montana DPHHS in conjunction with the University of Montana Skaggs School of Pharmacy, hosts a free yearly antimicrobial stewardship program.

A total of thirty-two facilities submitted a letter of enrollment in 2024: twenty-eight CAH and three PPS Hospitals. Ten additional facilities submitted complete (12 months) Days of Therapy (DOT) data, but did not submit a letter of enrollment. Twenty-one facilities completed the antibiogram survey. Fourteen facilities submitted an antibiogram, and eleven of these facilities granted permission to publish antibiogram data. Sixty-four facilities conferred rights to the NHSN. Of these facilities, sixty-three completed the annual patient safety survey, and thirty-four submitted 12 months of DOT data. Thirty facilities reported data to the NHSN AUR module and four reported data directly to MT DPHHS using the provided tracking tool. A scorecard providing the details of deliverables completed will be created for each participating facility.

The measurable deliverables for 2024 included: Letter of Enrollment, Antibiogram Survey, Patient Safety Survey, and DOT data submission. Below are statistics of the deliverables completed and additional data collected. All of the participating facilities (n=32) completed at least one deliverable as described in Table 5. Additional data collected from all Montana healthcare facilities that completed the NHSN annual survey (n=63) are described in Table 6.

TABLE 5. ACTIVITIES MEASURED - MONTANA 2024 AMS PROGRAM.

Deliverable	Number (Percent) n=32
Submitted Letter of Enrollment	32 (100%)
Antibiogram Survey	21 (66%)
Submitted Antibiogram	14 (44%)
Submitted Complete (12-Month) DOT Data	32 (100%)

TABLE 6. ADDITIONAL ACTIVITIES MEASURED - MONTANA 2024 AMS PROGRAM.

Additional Data Collected	Number (Percent) n=63
Implementation of All 7 Core Elements of Antimicrobial Stewardship	50 (79%)
Completed Annual Patient Safety Survey in NHSN	63 (100%)
Data Submission to NHSN via the AUR Module (Minimum of 1 Month of Data)	43 (68%)
Data Submission to NHSN via the AUR Module (12 Month of Data)	34 (54%)

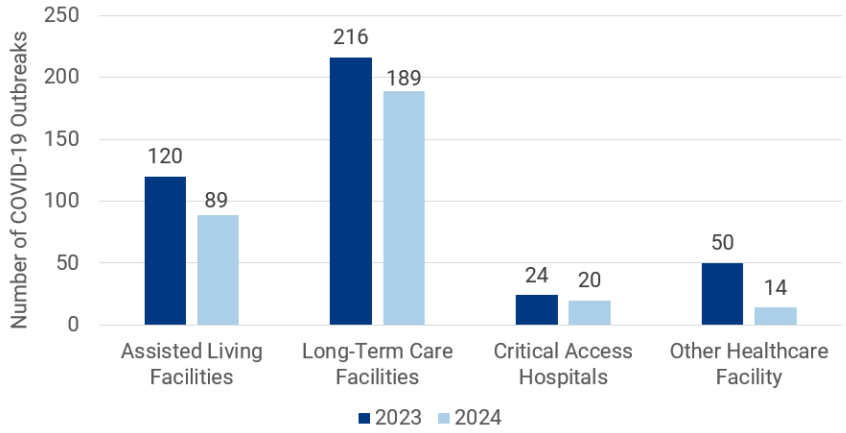
Healthcare Facility Outbreaks

In Montana, all confirmed or suspected outbreaks of communicable diseases within all types of healthcare facilities are reportable as required by the Administrative Rules of Montana 37.114.203.

COVID-19

In 2024, the Montana ICP/HAI section investigated 312 COVID-19 outbreaks in healthcare facilities which was a decrease of 24% from 2023. Long-Term Care (LTCF) and Assisted Living (ALF) facilities accounted for 89% of healthcare COVID-19 outbreaks in 2024, as shown in Figure 8. Critical Access Hospitals (CAH) and other healthcare facilities accounted for the other 11% of healthcare COVID-19 outbreaks in 2024. In 2024, there were 320 COVID-19 outbreaks reported in all settings across Montana. Of those 320 COVID-19 outbreaks, 312 (98%) occurred in Montana healthcare settings.

FIGURE 8. TOTAL NUMBER OF COVID-19 OUTBREAKS BY HEALTHCARE FACILITY TYPE, 2023-2024.



Other Communicable Diseases

In December 2021, the section began to monitor other types of communicable disease outbreaks, in addition to COVID-19, in healthcare facilities. In 2024, Montana healthcare facilities saw a 600% increase in acute respiratory illness (ARI) outbreaks as well as a 300% increase in influenza outbreaks compared to 2023. Montana saw a 40% decrease in Group A *Streptococcus* (GAS) outbreaks and a 31% decrease in norovirus/acute gastrointestinal illness (AGI) outbreaks in healthcare facilities. LTCF accounted for 55% of the other communicable disease outbreaks in 2024, followed by ALF (23%) and Hospitals (19%). In 2024, Montana healthcare facilities accounted for 70% of all influenza outbreaks, 58% of all RSV outbreaks, and 46% of all norovirus/AGI outbreaks reported, as described in Table 7.

TABLE 7. HEALTHCARE FACILITY OUTBREAKS OF COMMUNICABLE DISEASES EXCLUDING COVID-19, 2023-2024.

Disease	2023 - Healthcare Setting Outbreaks	2024- Healthcare Setting Outbreaks	2024 - All Setting Outbreaks	2024 - Percentage of All Outbreaks in Healthcare Settings
Acute Respiratory Illness	1	7	28	25%
C. difficile	1	0	0	N/A
Carbapenemase-Producing Organism	5	8	8	100%
Group A *Streptococcus*	5	3	10	30%
Influenza	7	28	40	70%
Lice	0	1	1	100%
Norovirus/Acute Gastrointestinal Illness	35	24	52	46%
Respiratory Syncytial Virus (RSV)	0	7	12	58%
Serratia marcescens	1	0	0	N/A
Yersinia enterocolitica	1	0	0	N/A
Total	56	78	151	52%

This table only includes commonly reported outbreaks in healthcare settings and does not include every type of communicable disease outbreak that occurs in Montana.

Infection Control and Prevention

Infection Control Assessment and Response (ICAR)

ICARs are used to systematically assess a healthcare facility's infection control and prevention practices and guide quality improvement activities by identifying gaps and strengths of the facility's practices. The areas covered by ICARs include IPC program and infrastructure, training, auditing, and feedback, hand hygiene (HH), transmission-based precautions (TBP), environmental services (EVS), high-level disinfection, sterilization, infection safety, point-of-care (POC) testing, wound care, healthcare laundry, antibiotic stewardship, and water exposure. The Montana ICP/HAI section provides free, non-regulatory infection control assessments to all healthcare and congregate settings in Montana. In 2024, the Montana ICP/HAI section completed 45 ICARs, spending about 536 hours on the road driving almost 35,000 miles across Montana. The distribution of ICARs completed by healthcare facility type is shown in Figure 9 and geographic distribution in Figure 10.

FIGURE 9. TOTAL NUMBER OF INFECTION CONTROL ASSESSMENT AND RESPONSE BY HEALTHCARE FACILITY TYPE, 2023-2024.

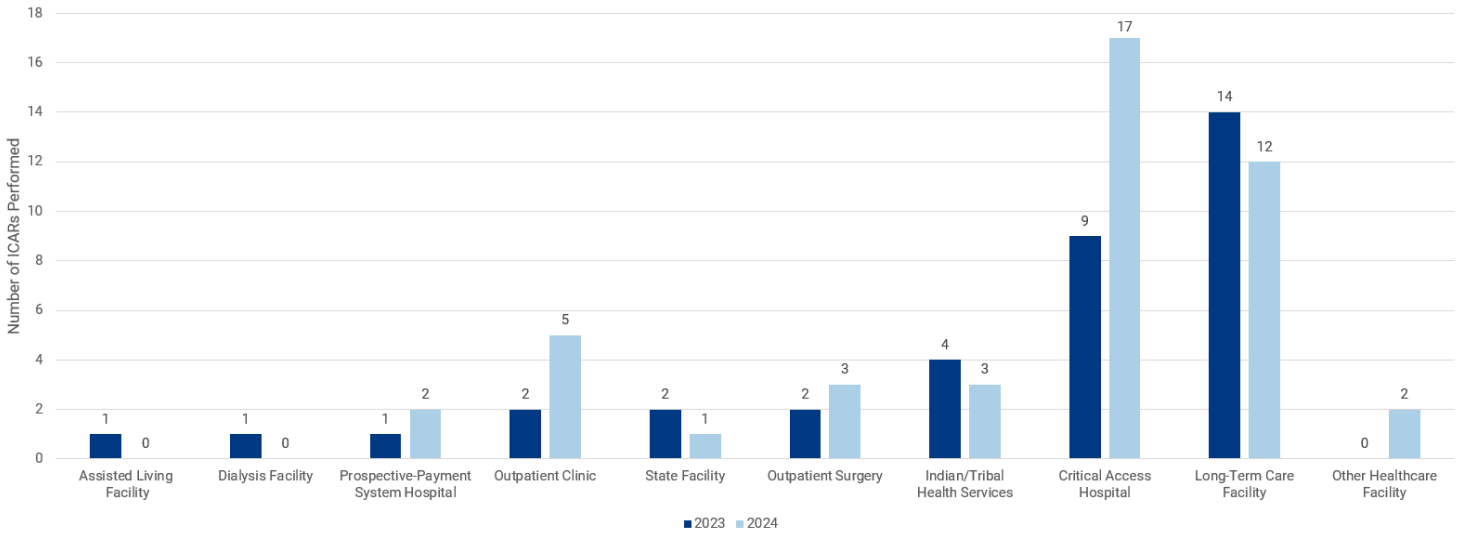
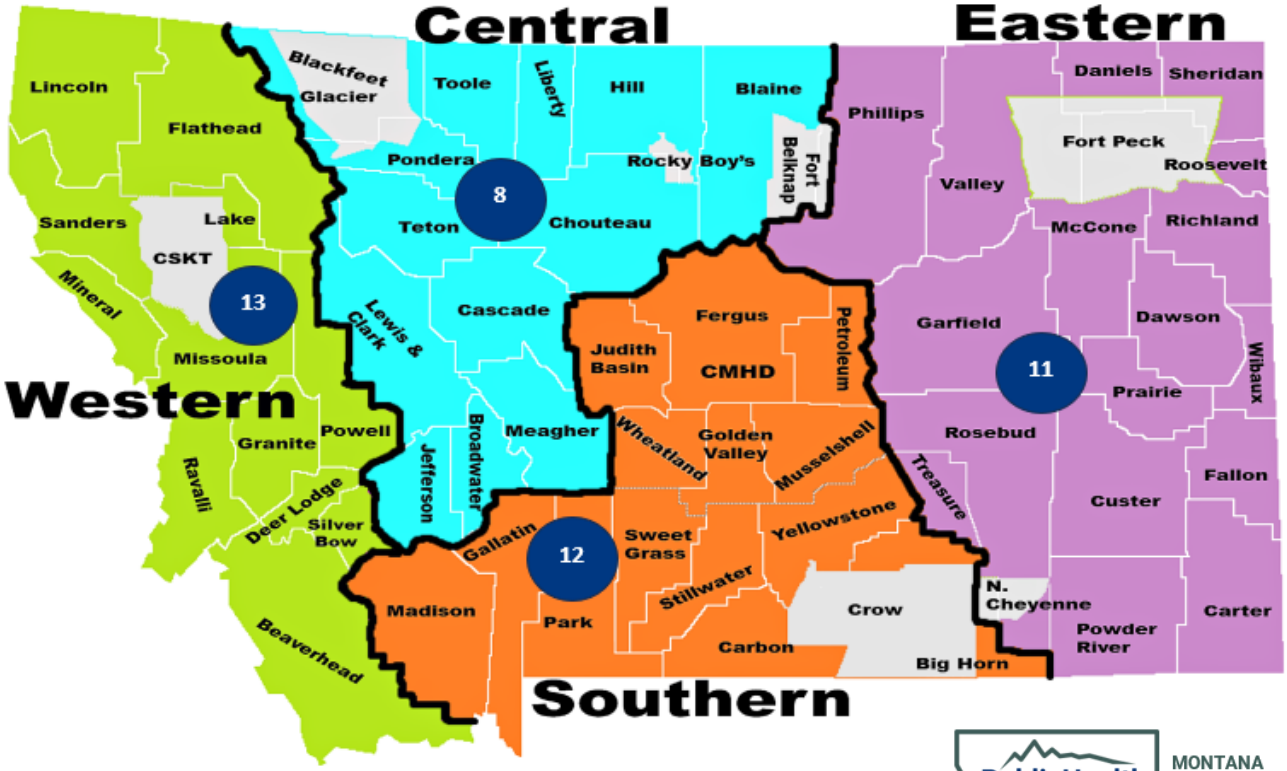


FIGURE 10. TOTAL NUMBER OF INFECTION CONTROL ASSESSMENT AND RESPONSE BY HEALTHCARE COALITION REGION, 2024.



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MONTANA INFECTION CONTROL AND HEALTHCARE-ASSOCIATED INFECTIONS SECTION

Infection Control Assessment and Response (ICAR)

Each ICAR is tailored to the specific facility, with the selection of a few infection prevention and control modules that the facility identifies as areas of concern. Therefore, not every infection prevention and control area will be selected for each ICAR. After each ICAR is completed, a gap assessment is completed to help identify any areas that education and training can be developed and provided for. In 2024, the top gaps that were identified in infection prevention and control module containing at least 75% of all LTCFs/ALFs that received an ICAR were in EVS followed by training, auditing, and feedback, as shown in Table 8. The top gaps of 2024 identified in infection prevention and control module containing at least 75% of all for hospitals and outpatient facilities that received an ICAR were EVS and training, auditing, and feedback. A gap assessment was not conducted on 2 ICARs as these were targeted ICARs in partnership with a stakeholder.

TABLE 8. AVERAGE PERCENTAGE OF ICAR ELEMENTS BEING FULFILLED BY INFECTION PREVENTION AND CONTROL MODULE AREA FOR EACH LOCATION TYPE, 2024.

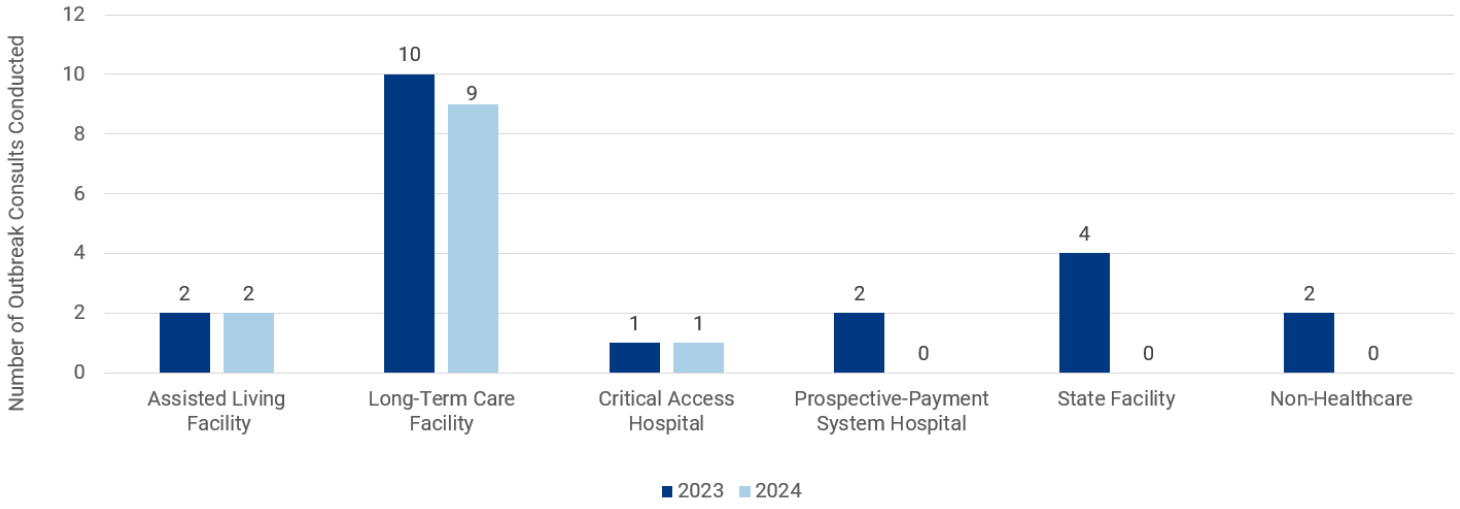
Infection Prevention and Control Module	LTCF/ALF (total n=14) % (n*)	CAH/PPS (total n=20) % (n*)	Outpatient (total n=9) % (n*)
IPC Program and Infrastructure	73% (13)	77% (20)	68% (9)
Training, Auditing, and Feedback	68% (13)	67% (18)	66% (9)
Hand Hygiene	58% (8)	67% (9)	57% (6)
Transmission-Based Precautions	59% (6)	77% (6)	30% (3)
Environmental Services	54% (10)	49% (18)	35% (7)
High-Level Disinfection	N/A	62% (2)	72% (3)
Sterilization	N/A	67% (2)	61% (6)
High-Level Disinfection Quality Assurance	N/A	80% (1)	93% (3)
Sterilization Quality Assurance	N/A	70% (2)	69% (5)
Injection Safety	94% (4)	91% (6)	69% (5)
POC Testing	100% (4)	100% (2)	N/A
Wound Care	70% (5)	53% (5)	N/A
Healthcare Laundry - Offsite	N/A	52% (2)	N/A
Healthcare Laundry - Onsite	53% (4)	48% (8)	N/A
Healthcare Laundry-Laundry Personnel Training and Quality Assurance	46% (4)	39% (8)	N/A
Antibiotic Stewardship	81% (5)	83% (11)	N/A
Water Management	N/A	71% (1)	N/A

**Number of facilities that selected the specific infection prevention and control*

Outbreak Consultations

Healthcare and congregate settings in Montana have the opportunity to request one-on-one consultations with the Montana ICP/HAI section during active outbreaks of communicable disease. Outbreak consultations help to identify any potential gaps in infection control and prevention practices that could be contributing to the continued transmission of communicable diseases. In 2024, the Montana ICP/HAI section completed 12 outbreak consultations which was a decrease of 40% from the number of outbreak consultations completed in 2023. The majority of outbreak consultations in 2024 were completed with LTCFs, as shown in Figure 11. In 2024, 9 of the 12 outbreak consultations in healthcare facilities were for COVID-19. Additional outbreak consultations addressed topics related to norovirus, RSV, and ARI outbreaks.

FIGURE 11. TOTAL NUMBER OF OUTBREAK CONSULTATIONS COMPLETED BY FACILITY TYPE, 2023-2024.

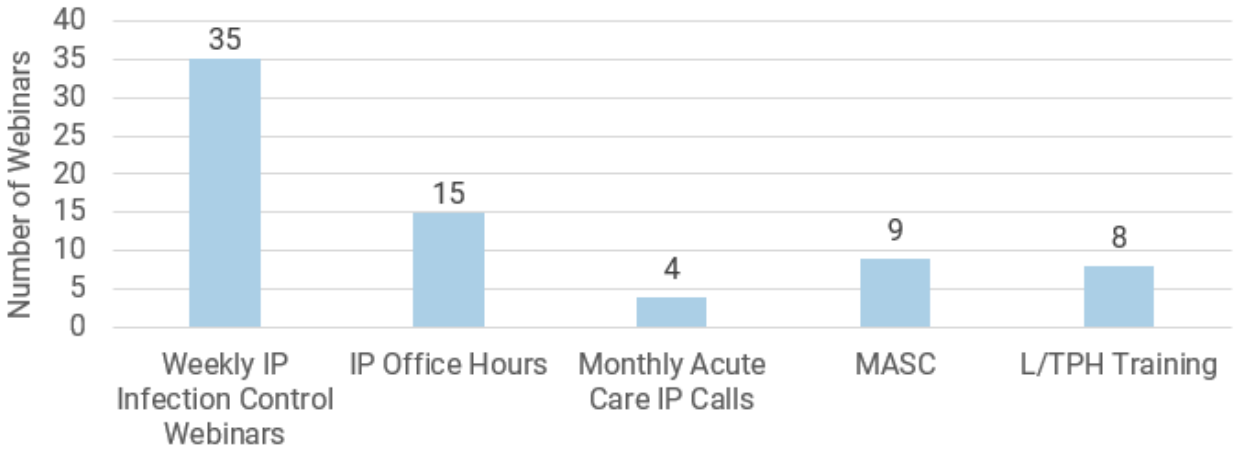


Educational Training and Resources

Webinars

In 2024, the ICP/HAI Section offered many routine educational webinars and open office hours to provide infection preventionist a space to share, ask questions, and learn about various aspects of infection prevention and control. These included biweekly IP office hours, weekly IP infection control webinars, monthly acute care IP calls, Certificate in Infection Control (CIC) Study Group sessions and NHSN training sessions. The ICP/HAI Section also partnered with the University of Montana Skaggs School of Pharmacy to host a monthly Montana Antimicrobial Stewardship Coalition (MASC) webinar series intended for all those in healthcare that would like to participate in antimicrobial stewardship. The ICP/HAI section provides regular education related to infection control and prevention to local and tribal public health jurisdictions as well. In 2024, over 70 educational webinars and open office hours were offered to Montana healthcare facilities in addition to some healthcare facilities from surrounding states, as shown in Figure 12.

FIGURE 12. TOTAL NUMBER OF WEBINARS HOSTED BY WEBINAR TYPE, 2024.



Resources Created

The ICP/HAI section works with Montana healthcare facilities and partners to create resources that will be most useful to them. These are designed to address common questions and new or updated CDC guidance. In 2024, the ICP/HAI section created 8 resources for healthcare facilities. These include the following:

- Infection Prevention 101 Online Course
- NHSN Facility Guides
  - LTCF
  - ACH
  - CAH
- Enhanced Barrier Precautions Implementation Guide
- MDRO Guide
- MIDIS CPO Case Investigation Guide
- MT DPHHS ICP/HAI Section Annual Report 2023

Acknowledgements

We thank all Montana healthcare facilities for their continued effort to provide the best and safest healthcare for everyone. We would also like to thank our local and tribal public health jurisdictions for their dedication to protecting the public and working with their healthcare partners. Additional gratitude to the Montana Public Health Laboratory for assistance during disease and outbreak investigations as well as technical assistance to hospital laboratories. Lastly, we would like to thank all of our partners for your continued support and collaboration efforts.

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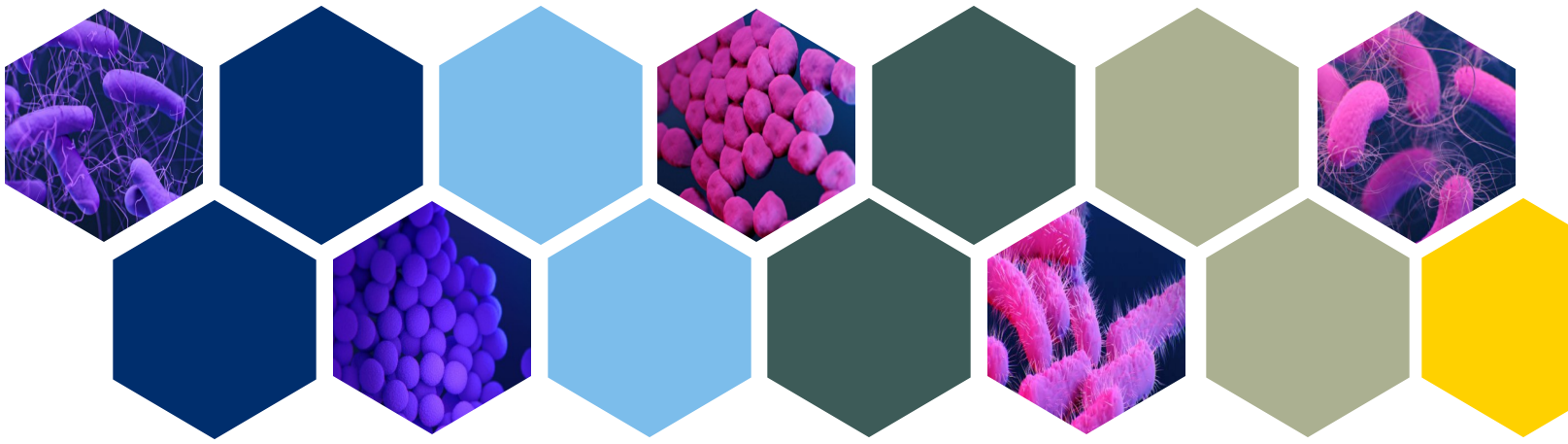
2. National Healthcare Safety Network
3. Healthcare-Associated Infections - Community Interface (HAIC)
4. Healthcare Cost and Utilization Project
5. HCUPanalysisCdiff2019 (ahrq.gov)
6. National HAI Targets & Metrics | HHS.gov
7. Central Line-associated Bloodstream Infections: Resources for Patients and Healthcare Providers | HAI | CDC
8. HAIs: Reports and Data | HAIs | CDC
9. Catheter-associated Urinary Tract Infection Basics | UTI | CDC
10. C. diff | CDC
11. About Carbapenem-resistant Enterobacterales | CRE | CDC
12. 2019 Antibiotic Resistance Threats Report | Antimicrobial Resistance | CDC
13. Core Elements of Hospital Antibiotic Stewardship Programs | Antibiotic Prescribing and Use | CDC



Appendix I:
Diseases Reportable to Public Health in Montana, 2024

Montana health care providers are required to report cases of the following conditions to their local health department*. This reporting falls within HIPAA medical privacy exceptions for release of information. Reporting patients with the conditions below does not require patient consent. Reporting enables public health officials to conduct follow up on cases of significance, and to identify outbreaks or emerging health concerns.

- Acute flaccid myelitis (AFM)
- AIDS and HIV infection
- Anthrax
- Arboviral disease (including California serogroup, Eastern equine encephalitis, Powassan, St. Louis encephalitis, West Nile Virus, Western equine encephalitis)
- Arsenic poisoning (≥ 70 micrograms per liter total arsenic in urine; or ≥ 35 µg/L methylated plus inorganic arsenic in urine)
- Babesiosis
- Botulism (including infant botulism)
- Brucellosis
- Cadmium poisoning (≥ 5 µg/L total blood cadmium levels; or ≥ 3 µg/L in urine)
- *Candida auris*
- Campylobacteriosis
- Carbapenemase-Producing Organism (CPO)
- Chancroid
- *Chlamydia trachomatis* infection
- Cholera
- Coccidioidomycosis
- Colorado Tick Fever
- Coronavirus Disease 2019 (COVID-19)
- Cronobacter in infants
- Cryptosporidiosis
- Cyclosporiasis
- Dengue virus
- Diphtheria
- *Escherichia coli*, Shiga toxin-producing (STEC)
- Gastroenteritis outbreak
- Giardiasis
- Gonorrheal infection
- *Granuloma inguinale*
- Group A *Streptococcus,* invasive disease
- *Haemophilus influenzae*, invasive disease
- Hansen's disease (leprosy)
- Hantavirus Pulmonary Syndrome/infection
- Hemolytic Uremic Syndrome, post-diarrheal
- Hepatitis A
- Hepatitis B, acute, chronic, perinatal
- Hepatitis C, acute, chronic
- Human Immunodeficiency Virus (HIV)
- Influenza (including hospitalizations/deaths)
- Legionellosis
- Leptospirosis
- Listeriosis
- Lyme disease
- Lymphogranuloma venereum
- Malaria
- Measles (*rubeola*)
- Melioidosis
- Meningococcal disease (*Neisseria meningitidis*)
- Mercury poisoning (≥ 10 µg/L total mercury in urine; or 10 µg elemental mercury/g creatinine in urine; or ≥ 10 µg/L elemental, organic, and inorganic blood mercury levels)
- Multisystem inflammatory syndrome in children (MIS-C);
- Mpox
- Mumps
- Pertussis (whooping cough)
- Plague (*Yersinia pestis*)
- Poliomyelitis, paralytic or nonparalytic
- Psittacosis
- Q fever (*Coxiella burnetii*)
- Rabies, human and animal (including exposure to a human by a species susceptible to rabies infection)
- Rickettsiosis
- Rubella (including congenital)
- *Salmonella Paratyphi* infection
- *Salmonella Typhi* infection
- Salmonellosis
- Severe Acute Respiratory Syndrome-associated coronavirus (SARS)
- Shigellosis
- Smallpox
- *Streptococcus pneumoniae*, invasive disease
- Streptococcal toxic shock syndrome (STSS)
- Syphilis
- Tetanus
- Tickborne relapsing fever
- Toxic shock syndrome (TSS), non-streptococcal
- Transmissible Spongiform Encephalopathies
- Trichinellosis (Trichinosis)
- Tuberculosis
- Tularemia
- Varicella
- Vibriosis
- Viral Hemorrhagic fevers
- Yellow Fever

Also reportable is an outbreak of any communicable disease listed in the “Control of Communicable Diseases Manual” that occurs in an institutional or congregate setting and any unusual incident of unexplained illness or death in a human or animal with potential human health implications.

An up-to-date list of Reportable Diseases in Montana is maintained on the State of Montana’s website. To view the current list, please visit: https://rules.mt.gov/browse/collections/aec52c46-128e-4279-9068-8af5d5432d74/policies/a10d456a-4ef9-43d1-a9a8-93d7b010e4ed.

**Specific requirements related to reporting, investigation, and control of specific conditions are found in the Administrative Rules of Montana*

Appendix II:
Diseases Requiring Confirmation with Public Health in Montana, 2024

Montana laboratories and all out-of-state reference laboratories are required to send all positive specimens of the following diseases to the Montana Public Health Laboratory for confirmatory testing*. This reporting falls within HIPAA medical privacy exceptions for release of information. Sending specimens identified with the conditions below does not require patient consent. Reporting enables public health officials to conduct follow up on cases of significance, and to identify outbreaks or emerging health concerns.

- Anthrax
- Arboviral disease (including California serogroup, Eastern equine encephalitis, Powassan, St. Louis encephalitis, West Nile Virus, Western equine encephalitis)
- Botulism (including infant botulism)
- Brucellosis
- *Candida auris*
- Carbapenem-Resistant Organisms
- Cholera
- Diphtheria
- *Escherichia coli*, Shiga toxin-producing (STEC)
- *Haemophilus influenzae*, invasive disease
- Hantavirus Pulmonary Syndrome/infection
- Influenza
- Listeriosis
- Measles (*rubeola*)
- Meningococcal disease (Neisseria meningitidis)
- Plague (*Yersinia pestis*)
- Poliomyelitis, paralytic or non-paralytic
- Rabies (human)
- Rubella (including congenital)
- Salmonellosis (including *Salmonella Typhi* and *Paratyphi*)
- Severe Acute Respiratory Syndrome-associated coronavirus (SARS)
- Shigellosis
- Smallpox
- Trichinellosis (Trichinosis)
- Tuberculosis
- Tularemia
- Vancomycin-intermediate Staphylococcus aureus (VISA)
- Vancomycin-resistant Staphylococcus aureus (VRSA)
- Vibriosis

In the event of an outbreak, emergence of a communicable disease or a disease of public health importance, specimens must be submitted at the request of the department until a representative sample has been reached as determined by the department.

An up-to-date list of diseases requiring confirmation of disease in Montana is maintained on the State of Montana's website. To view the current list, please visit: https://rules.mt.gov/browse/collections/aec52c46-128e-4279-9068-8af5d5432d74/policies/6975eb67-3d42-4b65-8016-78e4f9924534.

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DEPARTMENT OF
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