DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health
Office of Infectious Disease Epidemiology

Delaware's Report on Healthcare-Associated Infections for Healthcare Consumers

January 1 – December 31, 2015

HAI Advisory Committee Delaware

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EXECUTIVE SUMMARY

INTRODUCTION

What is the purpose of this report?

This report is meant to help consumers who need medical treatment decide whether they should be concerned about healthcare-associated infections (HAIs) at the hospital(s) they are considering for inpatient medical treatment. HAIs are infections patients can get while receiving medical treatment in a healthcare facility. These HAIs can worsen existing illnesses or prolong hospital stays.

Patients should know that these infections are unintended. Ideally, HAIs should never happen, but sometimes they do. The most recent survey from the Centers for Disease Control and Prevention (CDC) that sampled a large number of U.S. acute care hospitals found that on any given day, **about 1 in 25 hospitalized patients** has at least one HAI.[1] Results of a survey of HAIs in U.S. acute care hospitals found that in 2011 there were an estimated **722,000 HAIs** and about **75,000 deaths associated with HAIs**.[2]

The Delaware General Assembly passed House Bill 47 in 2007, establishing the "Healthcare Associated Infections Disclosure Act" (Title 16 Chapter 10A of the *Delaware Code*).[3] The law requires hospitals to report HAIs to the Department of Health and Social Services (DHSS) by using the CDC's National Healthcare Safety Network (NHSN).[4] CDC's NHSN is the nation's most widely used tracking system for healthcare-associated infections. NHSN provides healthcare facilities and states with data collection and reporting capabilities using standardized definitions, allowing them to identify infection prevention problem areas, benchmark progress and comply with public reporting mandates in order to drive progress towards elimination of HAIs.

Hospitals track and report HAIs for many reasons. In some cases they are required to do so either by state public health authorities or by federal health agencies. Hospitals report numbers of certain HAIs because they want to know how well they are doing in preventing them and how they compare with other hospitals of similar size and with similar kinds of patients.

It is important for patients and their family members or advocates using this information to ask healthcare providers questions, both before seeking medical treatment and when they are receiving medical treatment. Asking the right questions can help patients and family members learn what

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[1] https://www.cdc.gov/hai/surveillance/index.html

[2] Magill SS, Edwards JR, Beldavs ZG, et al. Multistate Point-Prevalence Survey of Health Care-Associated Infections. *NEJM.* 2014;370(13):1198-1208. http://www.cdc.gov/media/DPK/2014/docs/hai/Multistate-Point-Prevalence.pdf

[3] http://delcode.delaware.gov/title16/c010a/index.shtml

[4] http://www.cdc.gov/nhsn/about.html

they can do to help prevent infections.

This report looks at five healthcare-associated infections:

1. Central line-associated bloodstream infections (CLABSIs) in adult and pediatric intensive care units (ICUs) and neonatal ICUs.
2. Catheter-associated urinary tract infections (CAUTIs) in adult and pediatric intensive care units (ICUs).
3. Surgical site infections (SSIs) following colon surgery and abdominal hysterectomy
4. Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria in the bloodstream.
5. *Clostridium difficile* (*C. difficile*) bacteria found in a stool (fecal) sample.

Click here[5] for "Fast Facts" about central lines, urinary catheters and the HAIs discussed in this report.

The report also shares information on healthcare worker vaccination for influenza (or the "flu"). The Centers for Disease Control and Prevention (CDC) the Delaware Division of Public Health recommend that all personnel who work in a healthcare setting receive the flu vaccine each year to help prevent the spread of flu.

Click here[5] for a guide to understanding healthcare worker flu vaccination.

Delaware acute care hospitals are required to report these and other HAIs to the Delaware Division of Public Health (DPH). More information about Delaware's mandatory reporting can be found at: http://delcode.delaware.gov/title16/c010a/index.shtml

These HAI measures do not represent all possible infections, but were selected because they give a good overview of how a hospital is doing in preventing healthcare-associated infections. These infections are largely preventable when healthcare providers use infection prevention steps recommended by the CDC. The information in this report can help you to think about whether a particular hospital is the best place for you to receive care. However, there are other things to consider when making a decision about where to get your care. You should use this information as a starting point to ask your healthcare provider questions and use the answers in your decision making.

Click here[5] for things to consider when choosing a healthcare facility.

Click here[5] for what patients can do to prevent infections.

[5] **Click CTRL+HOME to return to the beginning of the report**

METHODS

How should I read the report?

This report looks at how hospitals in Delaware performed in terms of infection prevention by displaying how many healthcare-associated infections (HAIs) they reported from January 1, 2015 – December 31, 2015. It shows whether a hospital had more HAIs, fewer HAIs, or about the same number of HAIs compared to the national baseline (national experience) based on previous years of reported data. This comparison takes into account differences between hospitals such as types of patients and procedures, as well as other factors such as the hospital's size and whether it is affiliated with a medical school.

What do the numbers mean?

It's important to understand that numbers alone won't show how well a hospital is doing in preventing HAIs. This report shows how hospitals performed during a single year (2015) and compares each hospital's performance to the national baseline. It does not track the hospital's performance over time.

Larger hospitals that see more patients or do more surgeries may have more infections compared to smaller hospitals. Therefore, it is important not only to consider the "interpretation" for each hospital, but to also look at the total number of procedures performed and the total number of infections identified in that time period.

If a hospital has zero (0) infections, what does that mean?

The total number of infections listed in the data tables represents a count of the number of infections reported by this hospital. If the number of infections is zero, this means that the hospital saw no infections of this type during 2015. It does NOT mean that the hospital failed to report all of their infections. If a hospital reported zero infections, it may be important to consider the size of the hospital and to look at the total number of procedures performed and the total number of infections that were predicted (also shown in the data tables).

Where do the numbers come from?

Hospitals self-report their HAI data to the Centers for Disease Control and Prevention (CDC) using a web-based software system called the National Healthcare Safety Network (NHSN). CDC provides training to hospital staff on the appropriate use of this system and provides guidance on how to track infections in a standard way. More information about NHSN can be found at: http://www.cdc.gov/nhsn/.

Things to consider when looking at the report

To learn more about how the numbers in the tables are calculated as well as a list of data considerations and limitations, refer to the technical report available at: http://dhss.delaware.gov/dph/epi/files/hai_report_2015.pdf.

This report covers data from January 1, 2015 to December 31, 2015 and the data were downloaded from the National Healthcare Safety Network (NHSN) on July 31, 2016. Any changes made to the data after this date are not reflected in this report. Before reviewing this report, a few clarifications about the data need to be made:

***1. The data within this report have been formally double-checked*.** Reported and unreported infections are compared to a standard definition to see if the infections were classified correctly. Delaware's HAI Program has also reviewed the quality of the data to identify any potential errors or data entry mistakes.

2. There may be differences in reporting practices among hospitals. Hospitals with more infection control personnel and resources may be able to identify and report more infections compared to a hospital with fewer infection control resources.

3. There may be differences between results published by the Delaware Division of Public Health and results published elsewhere (e.g., CMS - Centers for Medicare and Medicaid Services Hospital Compare website). Results may differ due to using data from different time periods, different facility types, different patient populations and/or different methods of analysis.

4. The Delaware Division of Public Health does not compare the observed number of infections when the number of predicted infections is less than one. In these situations, the "How Does This Hospital Compare to the National Experience" text says "No conclusion." This does not mean that the hospital failed to report data, or that the hospital did not report all necessary data; it only means that the number of patients, devices (central lines or urinary catheters) and/or procedures that were seen at this hospital during this time period did not meet the established threshold. This minimum value is based on CDC recommendations. In other words, there is not enough information to make a reliable conclusion about this hospital's performance on this measure.

***5. Laboratory-Identified Events (LabID Events)*:** Clostridium difficile infections (CDI) and methicillin-resistant Staphylococcus aureus (MRSA) bacteremia (blood infection) LabID events rely on laboratory data. Patients did not have to be ill to have a positive result and a positive result can be determined without requiring clinical information about the patient. This allows for a much less labor-intensive means to track CDI and MRSA infections. Only those LabID events that occurred more than 3 calendar days after hospital admission are displayed in this report.

RESULTS

Reading Guide to the HAI Data Tables

Below is an explanation of each variable shown in the HAI data tables:

- **Title**: The title of the table gives you information about the type of infection, procedure type, time period, geographic location and hospital unit types included in the table.
- **Hospital Name:** This is the name of the hospital. Facilities with multiple campuses will have each hospital campus identified separately.
- **Procedure Type:** This is the specific type of surgery for which the surgical site infection (SSI) data are presented (such as abdominal hysterectomy or colon surgery).
- **Unit/Unit Type:** This is the specific unit/type of unit in the hospital from which the data were collected. Hospitals have distinct locations, or units, within the hospital that are designated for certain types of patients.
- **Number of Procedures:** This is the total number of surgeries performed by a hospital during 2015.
- **Observed Infections (or Observed Events):** This is the number of infections (or events, for LabID measures) that was reported by the hospital.
- **Predicted Infections (or Predicted Events):** This is a calculated value that reflects the number of infections (or events, for LabID measures) that are "predicted" to occur in this hospital, based on the national experience.
- **"How Does This Hospital Compare to the National Experience?"** Colors and symbols are used to help you quickly understand and interpret the hospital's data. This is the 'take-home message' about healthcare-associated infections in this hospital:

★ Indicates that the hospital had fewer infections than were predicted (better than the national experience).

= Indicates that the hospital had about the same number of infections as were predicted (same as the national experience).

✖ Indicates that the hospital had more infections than were predicted (worse than the national experience).

No Conclusion: Indicates that the hospital reported data, but there was not enough information to make a reliable comparison to the national experience (number of predicted infections was less than one).

Central Line-Associated Bloodstream Infections (CLABSIs)

A **central line** is a tube placed in a large vein to allow access to the bloodstream and provide the patient with important medicine. A **central line-associated bloodstream infection (CLABSI)** can occur when bacteria or other germs travel along a central line and enter the blood. When not put in correctly or kept clean, central lines can become a pathway for germs to enter the body and cause serious infections in the blood.

Delaware collects CLABSI data from adult and pediatric intensive care units (ICUs), neonatal ICUs (NICUs) and inpatient wards. Only those unit types from which data have been reported and/or that are present in the hospital are shown in Table 1 below.

Overall in Delaware, there were fewer central line-associated bloodstream infections (CLABSIs) in adult and pediatric intensive care units (ICUs) and neonatal ICUs than predicted based on the national experience from 2006-2008. Two hospitals, AI duPont and Christiana, had fewer infections than predicted. For the remaining hospitals, the number of CLABSIs is about the same as predicted based on the national experience.

Table 1. Central Line-Associated Bloodstream Infections (CLABSIs) in Delaware Acute Care Hospital Adult and Pediatric Intensive Care Units (ICUs), January 1 – December 31, 2015

Hospital	Central Line Device Days[a]	Observed Infections	Predicted Infections	How Does This Hospital Compare to the National Experience?
ALL HOSPITALS	33,496	**30**	**75.64**	★ Better
AI duPont	8,173	10	22.89	★ Better
Beebe	3,732	2	5.60	= Same
Christiana	13,853	14	34.12	★ Better
Kent General	3,391	3	5.45	= Same
Milford	1,075	0	1.61	= Same
Nanticoke	1,114	0	1.67	= Same
St. Francis	1,232	0	2.34	= Same
Wilmington	926	1	1.95	= Same

a. Device day is a count of patients with a central line in the patient care location during January 1 – December 31, 2015.

Legend			
★ Fewer infections **(better)** observed than predicted based on the national experience.*	= About the **same** number of infections as predicted based on the national experience. *	X More infections **(worse)** observed than predicted based on the national experience. *	**No Conclusion** When the number of predicted infections is less than one, no conclusion can be made.
*** National experience contains data from 2006 – 2008 for central line-associated bloodstream infections.**			

Catheter-Associated Urinary Tract Infections (CAUTIs) in Adult and Pediatric Intensive Care Units (ICUs)

A **urinary catheter** is a tube placed in the bladder to drain urine. A **catheter-associated urinary tract infection (CAUTI)** can occur when bacteria or other germs travel along a urinary catheter, resulting in an infection in the bladder or the kidney.

Delaware collects CAUTI data from adult and pediatric intensive care units (ICUs) only. Only those unit types from which data have been reported and/or that are present in the hospital are shown in Table 2.

For all Delaware hospitals combined, there were fewer catheter-associated urinary tract infections (CAUTIs) in adult and pediatric ICUs than predicted based on the national experience from 2009. By hospital, the number of observed CAUTI infections was about the same number as predicted.

Table 2. Catheter-Associated Urinary Tract Infections (CAUTIs) in Delaware Acute Care Hospital Adult and Pediatric Intensive Care Units (ICUs), January 1 – December 31, 2015

Hospital	Urinary Catheter Device Days[a]	Observed Infections	Predicted Infections	How Does This Hospital Compare to the National Experience?
ALL HOSPITALS	24,441	**34**	**54.41**	★ Better
Al duPont	1,999	6	5.53	= Same
Beebe	4,027	5	4.83	= Same
Christiana	9,801	19	28.19	= Same
Kent General	4,004	3	8.18	= Same
Milford	1,296	1	1.69	= Same
Nanticoke	1,269	0	1.65	= Same
St. Francis	1,195	0	2.39	= Same
Wilmington	850	0	1.96	= Same

a. Device day is a count of patients with a urinary catheter in the patient care location during January 1 – December 31, 2015.

Legend			
★ Fewer infections **(better)** observed than predicted based on the national experience.*	= About the **same** number of infections as predicted based on the national experience. *	X More infections **(worse)** observed than predicted based on the national experience. *	**No Conclusion** When the number of predicted infections is less than one, no conclusion can be made.
*** National experience contains data from 2009 for catheter-associated urinary tract infections.**			

Surgical Site Infections (SSIs) Following Colon Surgery and Abdominal Hysterectomy

A **surgical site infection (SSI)** occurs after surgery in the part of the body where the surgery took place. These infections may involve only the skin or may be more serious and involve tissue under the skin or organs. SSIs sometimes take days or months after surgery to develop. Symptoms may include fever, redness or pain around the surgical site, or drainage of fluid from the wound.

Colon surgery

For all Delaware hospitals combined, there were more surgical site infections (SSIs) following colon procedures than predicted based on the national experience from 2006-2008 (Table 3). Three hospitals (Christiana, Milford and Wilmington) had more surgical site infections than predicted. For the remaining hospitals, the number of SSIs following colon procedures is about the same as predicted based on the national experience.

Table 3. Surgical Site Infections (SSIs) following Colon Surgeries in Delaware Acute Care Hospitals, January 1 – December 31, 2015

Hospital	Inpatient Procedures[a]	Observed Infections	Predicted Infections	How Does This Hospital Compare to the National Experience?
ALL HOSPITALS	1,140	**65**	**36.78**	**X Worse**
Beebe	134	1	4.03	**= Same**
Christiana	645	38	21.09	**X Worse**
Kent General	151	6	4.99	**= Same**
Milford	65	6	2.02	**X Worse**
Nanticoke	42	0	1.29	**= Same**
St. Francis	40	2	1.28	**= Same**
Wilmington	63	12	2.09	**X Worse**

a. An inpatient procedure is a procedure performed on a patient whose date of admission to the hospital and date of discharge are different calendar days and the procedure takes place during a surgical operation.

Legend			
★ Fewer infections **(better)** observed than predicted based on the national experience.*	= About the **same** number of infections as predicted based on the national experience. *	X More infections **(worse)** observed than predicted based on the national experience. *	**No Conclusion** When the number of predicted infections is less than one, no conclusion can be made.
*** National experience contains data from 2006 – 2008 for surgical site infections.**			

Abdominal hysterectomy

For all Delaware hospitals combined, there were about the same number of SSIs following abdominal hysterectomy procedures as predicted based on the national experience from 2006-2008 (Table 4). Two hospitals (Christiana and Kent General) had about the same number of surgical site infections as predicted based on the national experience. No conclusion can be drawn for the remaining hospitals since the number of predicted infections was less than 1.0.

Table 4. Surgical Site Infections (SSIs) following Abdominal Hysterectomies in Delaware Acute Care Hospitals, January 1 – December 31, 2015

Hospital	Inpatient Procedures[a]	Observed Infections	Predicted Infections	How Does This Hospital Compare to the National Experience?
ALL HOSPITALS	961	**15**	**9.27**	= Same
Beebe	51	1	Less than 1.0	**No Conclusion**
Christiana	545	9	5.39	= Same
Kent General	165	2	1.58	= Same
Milford	22	0	Less than 1.0	**No Conclusion**
Nanticoke	54	0	Less than 1.0	**No Conclusion**
St. Francis	37	1	Less than 1.0	**No Conclusion**
Wilmington	87	2	Less than 1.0	**No Conclusion**

b. An inpatient procedure is a procedure performed on a patient whose date of admission to the hospital and date of discharge are different calendar days and the procedure takes place during a surgical operation.

Legend			
★ Fewer infections **(better)** observed than predicted based on the national experience.*	= About the **same** number of infections as predicted based on the national experience. *	X More infections **(worse)** observed than predicted based on the national experience. *	**No Conclusion** When the number of predicted infections is less than one, no conclusion can be made.
*** National experience contains data from 2006 – 2008 for surgical site infections.**			

Hospital-Onset Methicillin-resistant Staphylococcus aureus (MRSA) Laboratory-Identified (LabID) Events

Methicillin-resistant *Staphylococcus aureus* (MRSA) infections are caused by bacteria that are resistant to certain types of drugs. MRSA can cause skin or wound infections. Sometimes, MRSA can infect the blood and cause serious illness and even death. Only MRSA bloodstream infections are shown in this report.

During 2015 in Delaware, there were more positive lab results with methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria found in the bloodstream than predicted based on the national experience from 2010-2011 (Table 5). Two hospitals (Christiana and Nanticoke) had more positive lab results with MRSA than predicted. For the remaining hospitals, the number of positive lab results with MRSA was about the same as predicted based on the national experience or no comparison could be made because the number of predicted infections was less than 1.0.

Table 5. Hospital-Onset Methicillin-resistant *Staphylococcus aureus* (MRSA) Laboratory-Identified (LabID) Events in Delaware Acute Care Hospitals, January 1 – December 31, 2015

Hospital	Patient Days[a]	Observed Infections	Predicted Infections	How Does This Hospital Compare to the National Experience?
ALL HOSPITALS	462,587	**48**	**31.51**	**X Worse**
Al duPont	45,363	0	2.39	**= Same**
Beebe	44,478	2	2.37	**= Same**
Christiana	195,922	36	18.68	**X Worse**
Kent General	72,796	4	3.04	**= Same**
Milford	23,729	1	Less than 1.0	**No Conclusion**
Nanticoke	20,299	5	1.05	**X Worse**
St. Francis	17,951	0	Less than 1.0	**No Conclusion**
Wilmington	42,049	0	2.29	**= Same**

a. The number of patient days is a count of the number of patients in a patient care location during January 1 – December 31, 2015.

Legend			
★ Fewer infections **(better)** observed than predicted based on the national experience.*	= About the **same** number of infections as predicted based on the national experience. *	X More infections **(worse)** observed than predicted based on the national experience. *	**No Conclusion** When the number of predicted infections is less than one, no conclusion can be made.
*** National experience contains data from 2010-2011 for MRSA laboratory-identified events.**			

Hospital-Onset Clostridium difficile (C. difficile) Laboratory-Identified (LabID) Events

***Clostridium difficile* (*C. difficile*)** is a type of bacteria that causes severe diarrhea and can be deadly. *C. difficile* infections usually occur in people who have recently taken antibiotics and have been under medical care.

For all Delaware hospitals combined in 2015, there was about the same number of positive lab results with *Clostridium difficile* found in stool as predicted based on the national experience from 2010-2011 (Table 6). One hospital (Beebe) had more positive lab results with *C. difficile* than predicted. For the remaining hospitals, the number of positive lab results with *C. difficile* was about the same as predicted based on the national experience.

Table 6. Hospital-Onset *Clostridium difficile (C. Diff)* Laboratory-Identified (LabID) Events in Delaware Acute Care Hospitals, January 1 – December 31, 2015

Hospital	Patient Days[a]	Observed Infections	Predicted Infections	How Does This Hospital Compare to the National Experience?
ALL HOSPITALS	508,628	**401**	**386.03**	= Same
Al duPont	46,990	30	36.11	= Same
Beebe	44,478	62	31.44	X Worse
Christiana	230,749	181	179.39	= Same
Kent General	80,015	52	58.13	= Same
Milford	24,397	21	18.30	= Same
Nanticoke	20,299	11	9.03	= Same
St. Francis	19,651	16	18.65	= Same
Wilmington	42,049	28	34.98	= Same

a. The number of patient days is a count of the number of patients in a patient care location during January 1 – December 31, 2015.

Legend			
★ Fewer infections **(better)** observed than predicted based on the national experience.*	= About the **same** number of infections as predicted based on the national experience. *	X More infections **(worse)** observed than predicted based on the national experience. *	**No Conclusion** When the number of predicted infections is less than one, no conclusion can be made.
*** National experience contains data from 2010-2011 for *Clostridium difficile* laboratory-identified events.**			

Reading Guide for the Data Tables for Healthcare Worker Influenza Vaccination

Influenza, or the flu, is a mild to severe respiratory illness caused by the influenza virus. It is a contagious illness, meaning that it can easily spread from person to person. If healthcare workers (also known as healthcare personnel) become infected with the flu, they can spread this illness to their coworkers and patients. Some patients in a hospital are at high risk for complications from the flu, such as the elderly, very young, or those with severe chronic illnesses. Extra care should be taken to prevent the spread of the flu among healthcare workers and patients.

The best way to prevent the flu is by getting vaccinated. The Centers for Disease Control and Prevention (CDC) recommends that all healthcare personnel who work in a healthcare setting receive the flu vaccine each year to help prevent the spread of flu within the workplace.[6] Healthcare personnel in the following tables include all facility employees, licensed independent practitioners, adult students/trainees, and volunteers regardless of full time/part time status, clinical responsibility or patient contact. Contracted personnel who don't otherwise fit into the categories described are not included in this report. Data were generated through CDC's National Safety Healthcare Network (NHSN) on May 25, 2016.

All hospitals in Delaware have policies requiring mandatory vaccination. Currently, there are no state regulations requiring vaccination in Delaware and healthcare workers are able to decline the flu vaccine for any reason.

This report shows the percentage of all healthcare workers in each hospital who received the flu vaccine. Higher percentages are better, because this indicates that a greater number of 92.0 percent. The Department of Health and Human Services (HHS) Healthy People 2020 goal for healthcare worker flu vaccination in the United States is 90 percent. In Delaware, five of seven acute care hospitals met this goal for the 2015-2016 flu season.

For more information about the CDC recommendations and the national trends of influenza vaccination coverage see here: http://www.cdc.gov/flu/healthcareworkers.htm

Explanation of variables in the Healthcare Worker Vaccination table:

- **Hospital Name:** Hospital facilities with multiple campuses will have each hospital campus identified separately.

- **Healthcare workers:** comprise the following four categories regardless of full-time/part-time status or patient contact:

    (1) **Employees:** This includes all persons who receive a direct paycheck from the reporting

[6] https://www.cdc.gov/flu/healthcareworkers.htm

facility (i.e., on the facility's payroll), regardless of clinical responsibility or patient contact.

(2) **Licensed independent practitioners (LIPs):** This includes physicians (MD, DO), advanced practice nurses and physician assistants who are affiliated with the reporting facility, but are not directly employed by it (i.e., they do not receive a paycheck from the facility), regardless of clinical responsibility or patient contact. Post-residency fellows are also included in this category if they are not on the facility's payroll.

(3) **Adult students/trainees and volunteers:** This includes medical, nursing or other health professional students, interns, medical residents or volunteers aged 18 or older who are affiliated with the healthcare facility, but are not directly employed by it (i.e., they do not receive a paycheck from the facility), regardless of clinical responsibility or patient contact.

(4) **Other contract personnel** (optional): Facilities may also report on individuals who are contract personnel. However, reporting for this category is optional at this time. Contract personnel are defined as persons providing care, treatment or services at the facility through a contract who do not fall into any of the above-mentioned denominator categories.

- **Percentage of Healthcare Workers Vaccinated:** This is calculated as a percentage (how many per hundred) of all healthcare workers in the hospital who received the flu vaccine. This includes all facility employees, licensed independent practitioners, adult students, adult volunteers and contractors regardless of full time/part time status, clinical responsibility or patient contact.

$$\frac{\textbf{Number of healthcare workers vaccinated}}{\textbf{Total number of healthcare workers at the hospital}^{*}} \times 100\%$$

⁎ - Healthcare workers were physically present in the healthcare facility for at least one working day between October 1, 2015, and March 31, 2016.

- **How Does This Hospital Compare to the Healthy People 2020 Goal of 90 Percent?:**

★ **Better – Vaccination percentage is higher (better) than the Healthy People 2020 Goal**

= **Same – Vaccination percentage is similar to the Healthy People 2020 Goal**

✖ **Worse – Vaccination percentage is lower (worse) than the Healthy People 2020 Goal**

Healthcare Worker Influenza Vaccination

During the 2015-2016 influenza season (October 4, 2015 - March 21, 2016)., Delaware's average vaccination rate for healthcare personnel in seven acute care hospitals was 92.0 percent, above the Healthy People 2020 (HP 2020) goal of 90 percent (Table 7). Vaccination rates ranged from 68.0 percent (St. Francis) to 96.0 percent (Wilmington), with five of the seven hospitals exceeding the HP 2020 goal (Wilmington, Milford, Nanticoke, Christiana and Kent).

Table 7. Delaware Hospital Healthcare Worker Influenza Vaccination Percentages, 2015-2016 Influenza Season

Hospital Name	Percentage of Healthcare Workers Vaccinated	How Does This Hospital Compare to the Healthy People 2020 Goal of 90 Percent?
ALL HOSPITALS	**92.0%**	★ **Better**
AI duPont[a]	---	**Not reported**
Beebe	**79.8%**	**X Worse**
Christiana	**94.8%**	★ **Better**
Kent General	**94.5%**	★ **Better**
Milford	**95.9%**	★ **Better**
Nanticoke	**95.7%**	★ **Better**
St. Francis[b]	**68.0%**	**X Worse**
Wilmington	**96.0%**	★ **Better**

a. Data were not available for AI duPont Hospital at the time of this report.
b. Vaccination status could not be determined for licensed independent contractors. Excluding this category, the healthcare personnel vaccination rate was 93.8%.

Legend		
★ Vaccination rate is higher **(better)** than the Healthy People 2020 Goal of 90 percent	= Vaccination rate is **similar** to the Healthy People 2020 Goal of 90 percent	**X** Vaccination rate is lower **(worse)** than the Healthy People 2020 Goal of 90 percent

To learn more about healthcare work vaccination and trends in Delaware hospitals over the past four flu seasons, refer to the technical report available at: http://dhss.delaware.gov/dph/epi/files/influenzavaccinationrates2016.pdf.

SUMMARY OF FINDINGS

During 2015, Delaware acute care hospitals reported:

- Fewer central line-associated bloodstream infections (CLABSIs) in adult and pediatric intensive care units (ICUs) and neonatal ICUs than predicted based on the national experience from 2006-2008.

- Fewer catheter-associated urinary tract infections (CAUTIs) in adult and pediatric ICUs than predicted based on the national experience from 2009.

- More surgical site infections (SSIs) following colon procedures than predicted based on the national experience from 2006-2008.

- About the same number of surgical site infections (SSIs) following abdominal hysterectomies as predicted based on the national experience from 2006-2008.

- More positive lab results with methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria found in the bloodstream than predicted based on the national experience from 2010-2011.

- About the same number of positive lab results with Clostridium difficile found in stool as predicted based on the national experience from 2010-2011.

- On average, 92.0 percent of the healthcare workers in Delaware acute care hospitals had documented vaccination for seasonal influenza for the 2015-2016 flu season (October 4, 2015 - March 21, 2016). Five of the seven hospitals exceeded the Healthy People 2020 Goal of 90.0 percent.

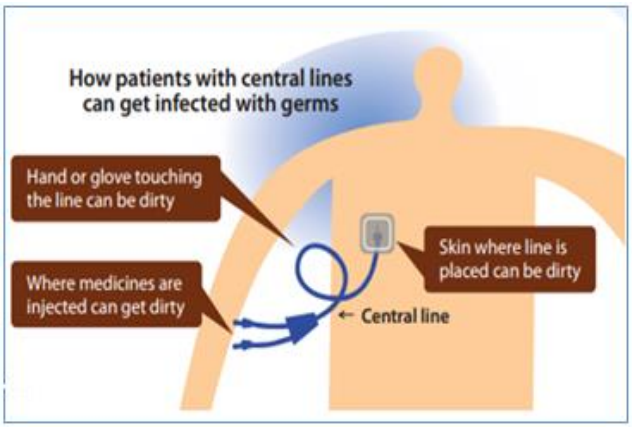
ADDITIONAL INFORMATION FOR HEALTHCARE CONSUMERS

***FAST FACTS: What You Need to Know about Healthcare-Associated Infections*[7]**

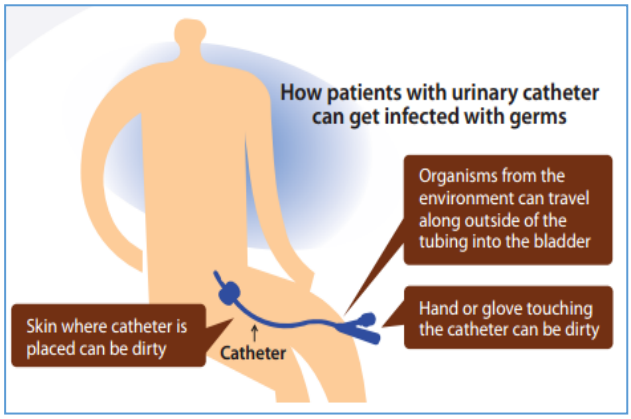
Modern healthcare employs many types of invasive devices and procedures to treat patients and to help them recover. Infections can be associated with the devices used in medical procedures, such as catheters or central lines.

These healthcare-associated infections (HAIs) include central line-associated bloodstream infections and catheter-associated urinary tract infections. Infections may also occur at surgery sites, known as surgical site infections. CDC works with healthcare providers and state health departments to monitor and prevent these infections because they are an important threat to patient safety. For more information click **here** or go to: https://www.cdc.gov/HAI/infectionTypes.html.

A **central line** is a tube placed in a large vein to allow access to the bloodstream and provide the patient with important medicine. A central line-associated bloodstream infection (CLABSI) can occur when bacteria or other germs travel along a central line and enter the blood. When not put in correctly or kept clean, central lines can become a pathway for germs to enter the body and cause serious infections in the blood. FAQs about CLABSIs can be found **here** or at: https://www.shea-online.org/images/patients/NNL_CA-BSI.pdf

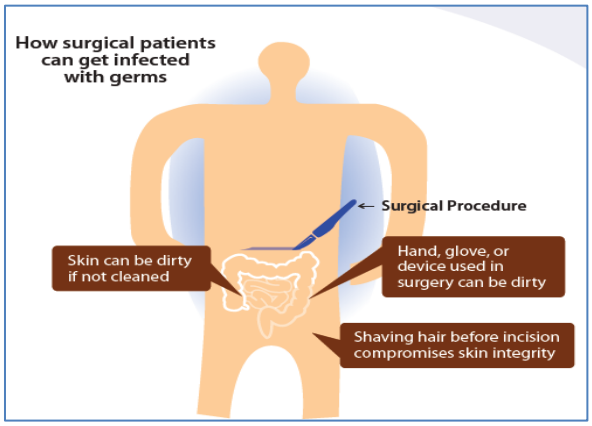


A **urinary catheter** is a tube placed in the bladder to drain urine. A catheter-associated urinary tract infection (CAUTI) can occur when bacteria or other germs travel along a urinary catheter, resulting in an infection in the bladder or the kidney. FAQs about CAUTIs can be found **here** or at: https://www.shea-online.org/images/patients/NNL_CA-BSI.pdf.

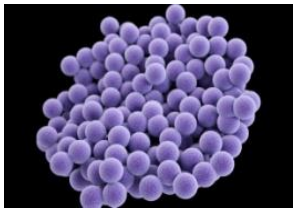


[7] "Fast Facts" was created with the permission of the Kansas Department of Health and Environment– infographics were taken from their report. Images of MRSA and C. diff are from CDC.

A surgical site infection (SSI) occurs after surgery in the part of the body where the surgery took place. These infections may involve only the skin or may be more serious and involve tissue under the skin or organs. SSIs sometimes take days or months after surgery to develop. Symptoms may include fever, redness or pain around the surgical site, or drainage of fluid from the wound. FAQs about SSIs can be found **here** or at: https://www.shea-online.org/images/patients/NNL_SSI.pdf.



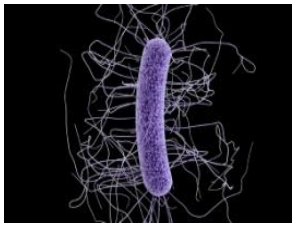
Methicillin-resistant *Staphylococcus aureus* (MRSA) infections are caused by bacteria that are resistant to certain types of drugs. MRSA can cause skin or wound infections. Sometimes, MRSA can infect the blood and cause serious illness and even death. Only MRSA bloodstream infections are shown in this report. FAQs on MRSA can be found **here** or at: https://www.shea-online.org/images/patients/NNL_MRSA.pdf.



In healthcare facilities patients most likely to get a MRSA infection are those with other health conditions making them sick. Also, hospital or nursing home patients who have been treated with antibiotics, have wounds or invasive medical devices such as catheters, are more likely to get an infection. Being treated in the same room as or close to another patient with MRSA also increases a patient's risk, as the bacteria are easily spread on unclean hands or medical equipment.

People who are healthy and who have not been in the hospital or a nursing home can also get MRSA infections. These infections usually involve the skin. More information about this type of MRSA infection, known as **community-associated MRSA**, is available **here** or at: https://www.cdc.gov/mrsa/community/index.html

Clostridium difficile (C. difficile) is a type of bacteria that causes severe diarrhea and can be deadly. *C. difficile* infections usually occur in people, especially older adults, who have recently taken antibiotics and have been under medical care. FAQs on *C. difficile* can be found **here** or at: https://www.shea-online.org/images/patients/NNL_C-Diff.pdf



Guide to Understanding Healthcare Worker Influenza Vaccination

Influenza, or "the flu," is a mild to severe respiratory illness caused by the influenza virus. It is a contagious illness, meaning that it can easily spread from person to person. If healthcare workers become infected with the flu, they can spread this illness to their coworkers and patients. Some patients in a hospital are at high risk for complications from the flu, such as the elderly, very young, or those with severe chronic illnesses. Extra care should be taken to prevent the spread of the flu among healthcare workers and patients.

The best way to prevent the flu is by getting vaccinated. The Centers for Disease Control and Prevention (CDC) recommends that all healthcare personnel who work in a healthcare setting receive the flu vaccine each year to help prevent the spread of flu within the workplace. Healthcare personnel include all facility employees, licensed independent practitioners, adult students/trainees, volunteers and contractors regardless of full time/part time status, clinical responsibility or patient contact. Studies show that patients benefit when healthcare workers get vaccinated.

All hospitals in Delaware have policies requiring mandatory vaccination. Currently, there are no state regulations requiring vaccination in Delaware and healthcare workers are able to decline the flu vaccine for any reason.

This report shows the percentage of all healthcare workers in each hospital who received the flu vaccine. Higher percentages are better, because this indicates that a greater number of 92.0 percent. The Department of Health and Human Services (HHS) Healthy People 2020 goal for healthcare worker flu vaccination in the United States is 90 percent. In Delaware, five of seven acute care hospitals met this goal for the 2015-2016 flu season.

For more information about the CDC recommendations and the national trends of influenza vaccination coverage see here: http://www.cdc.gov/flu/healthcareworkers.htm

Things to Consider When Choosing a Healthcare Facility

- Does your doctor recommend the facility? Why or why not?
- Does your health insurance cover treatment at this facility? If not, ask your doctor if there are benefits of out-of-network care.
- Is your hospital accredited by a nonprofit organization that seeks to improve the quality and safety of healthcare (e.g., The Joint Commission)?
- Do you know your doctor's or healthcare provider's qualifications? Is he or she licensed and board-certified? Consult your state licensing board for information on licensure and disciplinary actions that may have been taken.
- What infection prevention resources are at your healthcare facility? If you have questions, find out how you can get in touch with someone in infection prevention before you visit the facility.
- Does your healthcare facility have a patient advocate? If so, s/he may be able to provide additional consultation and services before, during and after your medical treatment.
- If you are planning to have surgery:
    - Does the hospital do a lot of the procedures that you will be having? Patients who have surgery at hospitals that do more surgical procedures may have better outcomes.[8]
    - Does the hospital have a floor or unit that only does the type of surgery you are having? For example, for hip replacement surgery, does the hospital have a floor or unit that is used only for joint replacement surgeries?
    - Does the hospital have one or more operating rooms that are used only for your type of surgery?
    - Does the hospital follow specific guidelines so that everyone who has your type of surgery receives consistent care?
- The federal government reports other quality information about hospitals, in addition to healthcare associated-infections. Find this information online at: http://www.hospitalcompare.hhs.gov.
- The Centers for Medicare and Medicaid Services (CMS) has a comprehensive guide available to assist patients in selecting a hospital. Find this at: http://www.medicare.gov/Pubs/pdf/10181.pdf.

[8] Ho, V. Evolution of the Volume-Outcome Relations for Hospitals Performing Coronary Angioplasty. Circulation (2000) 101: 1806-1811.

What Patients Can Do to Prevent Infections

To prevent all infections:

If you do not see your healthcare providers clean their hands before caring for you, don't be shy about asking them to do so. This is your health care and you have a right to speak up.

Make sure you and your family members and friends keep their hands clean too.

Ask your healthcare provider what specific steps they take to prevent infections as well as what you can do to prevent infections before, during and after your visit as it applies to your care.

To prevent central line-associated bloodstream infections (CLABSIs) and catheter-associated urinary tract infections (CAUTIs):

- If you have a central line or urinary catheter put in place, ask your doctors and nurses to explain why you need it and how long you will have it.
- Ask your healthcare providers each day if you still need it.
- If the bandage covering your central line becomes wet or dirty, tell your nurse or doctor immediately.
- Tell your nurse or doctor if the area around your central line or catheter is sore or red, or you feel feverish.
- Follow your healthcare providers' instructions for the care of the central line or urinary catheter to keep it working as it should and keep it clean and free of germs.
- Do not let family and friends touch the central line tubing or bandage.

To prevent surgical site infections (SSIs):

IMMEDIATELY AFTER YOUR SURGERY AND DURING RECOVERY:

- Do not touch your incision area and follow all instructions from your doctor about how to take care of your incision.
- Before and after taking care of your incision area, wash your hands or use an alcohol-based hand sanitizer and have any family member helping with your care do the same.
- If you have any infection signs/symptoms like redness, pain, fever, or drainage, call your doctor *ASAP.*
- Until the incision is completely healed, always use a different washcloth for the incision

area than the one used for the rest of your body.

- Keep clean sheets on your bed and make sure the clothes that come in contact with your incision are clean.
- Keep pets away from the incision until healed.

BEFORE YOU LEAVE THE HOSPITAL OR AMBULATORY SURGERY CENTER:

- Make sure you understand how to take care of your wound and ask questions when you are unsure.
- Know who to contact if you have questions or problems after you get home.
- Keep all appointments scheduled at the time of discharge.

To prevent Clostridium difficile infections:

- Take antibiotics only as prescribed by your doctor and complete the course of treatment.
- Tell your doctor if you have recently been on antibiotics or if you get diarrhea within a few months of taking the antibiotics.
- Wash your hands before eating and after using the bathroom.

To prevent methicillin-resistant Staphylococcus aureus (MRSA) infections:

- Clean your hands often, especially before and after changing wound dressings or bandages.
- Keep wounds clean and change bandages as instructed until healed.
- Do not share personal items such as towels or razors.
- Take antibiotics only as prescribed by your doctor and complete the course of treatment.

To prevent influenza or the "flu":

Get vaccinated against the flu each year, clean your hands often, and cover your cough with your sleeve.

APPENDIX – ACRONYMS

BSI	Bloodstream infection
CAUTI	Catheter-associated urinary tract infection
CDC	Centers for Disease Control and Prevention
C. difficile	*Clostridium difficile*
CDI	*Clostridium difficile i*nfection
CMS	Centers for Medicare and Medicaid Services
CLABSI	Central line-associated bloodstream infection
DPH	Division of Public Health
ED	Emergency department
FAQs	Frequently asked questions
HAI	Healthcare-associated infection
ICU	Intensive care unit
IP	Infection preventionist
MRSA	Methicillin-resistant *Staphylococcus aureus*
NHSN	National Healthcare Safety Network
NICU	Neonatal intensive care unit
SSI	Surgical site infection