



**West Virginia Health Care  
Authority**

# **Healthcare-Associated Infection Public Reporting Program**

**2015  
Annual Report**

**Earl Ray Tomblin  
Governor**

**James L. Pitrolo, Board Chair  
West Virginia Health Care Authority**

# West Virginia Health Care Authority Healthcare-Associated Infection Public Reporting Program 2015 Annual Report

## West Virginia Health Care Authority Board

James L. Pitrolo, Jr., Chairman  
Sonia D. Chambers  
Marilyn G. White

## Healthcare-Associated Infection Control Program Staff

Sharon Hill, Director of Clinical Analysis  
Shelley Baston, MBA, RNC-NIC, CPC  
Laura Boutwell, DVM, MPH, Epidemiologist  
Muluken Aseffa, MSHI, Epidemiologist

## West Virginia Healthcare-Associated Infection Control Advisory Panel

Randy Ashlock, RN, BSB, BSN, CIC  
*Infection Preventionist, HealthSouth Rehabilitation Hospital*

Dee Bixler, MD, MPH  
*Director, Division of Infectious Disease Epidemiology, WV Bureau for Public Health*

Janet Crigler, MT (ASCP), CIC  
*Infection Preventionist, Fairmont General Hospital*

L. Scott Dean, PhD, MBA  
*Senior Biostatistician, Charleston Area Medical Center Health Education and Research Institute*

Dianne DeAngelis, RN, ICP, CIC  
*Infection Control Practitioner, West Virginia University Hospital*

Brooks Gainer II, MD, FACP, FIDSA, FSHEA  
*Associate Clinical Professor, West Virginia University Section of Infectious Diseases  
Infectious Disease Society of America Liaison for West Virginia*

Sharon Gaston, RN, BSN, MPH, CIC  
*Infection Control Practitioner, Braxton County Memorial Hospital*

Loretta Haddy, PhD  
*State Epidemiologist, Office of Epidemiology and Prevention Services, WV Bureau for Public Health*

Cynthia Isaacs, RN, BSN, MBA  
*Chief Executive Officer, Cornerstone Healthcare Group, Hospital of Huntington*

Rashida Khakoo, MBChB, MACP  
*Professor and Chief of the Section of Infectious Diseases, West Virginia University*

Jim Kranz  
*Vice President, Professional Activities, West Virginia Hospital Association*

Terrie Lee, RN, MS, MPH, CIC  
*Director, Infection Prevention & Employee Health, Charleston Area Medical Center*

Linda Minnich, SM (AAM and ASCP), MS  
*Virologist, Charleston Area Medical Center*

Thomas Rushton, MD, FACP, FIDSA, FHSEA  
*Infectious Diseases, Marshall University School of Medicine*

Will Wright  
*Medicare/Hospital Program Manager, Office of Health Facility Licensure and Certification, WV Office of Inspector General*

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## **Introduction**

Healthcare-associated infections (HAIs) are infections that are acquired by patients when seeking treatment in a healthcare setting. In 2002, the Centers for Disease Control and Prevention (CDC) estimated that there were 1.7 million HAIs occurring annually in hospitals in the US, and these infections were associated with 99,000 deaths.<sup>1</sup> In a more recent study, the CDC estimated that in 2011, approximately 722,000 HAIs occurred nationally, which equated to 4% of inpatients in US acute care facilities, and were associated with as many as 75,000 deaths.<sup>2</sup> While both of these studies were estimates and with differing methodology, they illustrate the point that potentially over a million Americans are at risk for contracting a healthcare-associated infection. Of those infected, tens of thousands of deaths are attributable to HAIs.<sup>2</sup> However, these infections are preventable and therefore, a major public health focus for governments and healthcare facilities.

In order to address this serious problem, many national and state agencies have been working towards understanding the full extent of HAIs and how to prevent them from occurring. While elimination of HAIs is a long term goal nationwide,<sup>3</sup> prevention is the focus of short term intervention strategies. In a joint call to action, the Association of Professionals in Infection Control and Epidemiology (APIC), the Society for Healthcare Epidemiology of America (SHEA), and the CDC, along with other public health associations, called for the elimination of HAIs by: <sup>3</sup>

- Promoting adherence to evidence-based practices through partnering, educating, implementing, and investing;
- Increasing sustainability through the alignment of financial incentives and reinvestment in successful strategies;
- Filling knowledge gaps to respond to emerging threats through basic, translational, and epidemiological research;
- Collecting data to target prevention efforts and to measure progress; and
- Sufficient investment underpinning these efforts;<sup>3</sup>

Because HAIs place a large financial burden on the healthcare system, these key principles call upon financial and interagency support to be effective. Understanding the prevalence of HAIs and the potential risk factors for contracting HAIs are the major goals of HAI surveillance and reporting. This is so that effective control and prevention measures can be designed and implemented for improving the incidence of HAIs while reducing associated financial burdens on

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<sup>1</sup> Klevens RM, Edwards JR, Richards CL, Jr., et al. Estimating health care-associated infections and deaths in U.S. hospitals, 2002. *Public Health Report*. Mar-Apr 2007;122(2):160-166. Available at <http://www.cdc.gov/HAI/surveillance/index.html>.

<sup>2</sup> Magill SS, Edwards JR, Bamberg W, et al. Multistate point-prevalence survey of health care-associated infections. *N Engl J Med*. Mar 2014;370:1198-208. Doi: 10.1056/NEJMoa1306801.

<sup>3</sup> Cardo D, Dennehy PH, Halverson P, et al. Moving towards elimination of healthcare-associated infections: A call to action. *Am J Infect Control*. 2010;1-5. Doi: 10.1016/j.ajic.2010.09.001.

facilities. The costs associated with HAI treatment are substantial, with the annual cost of treating HAIs in US hospitals estimated to be \$28 to \$33 billion dollars.<sup>4</sup>

HAIs are considered preventable, but there is discussion regarding how many of these HAIs are truly preventable. This has stemmed from the 2008 Medicare decision to stop payment on eight preventable conditions, three of which are considered “reasonably preventable” HAIs: central line associated blood stream infection (CLABSI), catheter associated urinary tract infection (CAUTI), and surgical site infections (SSI).<sup>5</sup> There was a systematic review conducted in 2011 to determine the proportion of HAIs that are preventable under the current intervention practices. The study determined that up to 70% of CLABSI and CAUTI cases and 55% of SSI cases are preventable.<sup>5</sup> By instituting prevention measures that reduce HAIs by 20%, \$5.7 to \$6.8 billion dollars a year in US hospitals would be saved.<sup>4</sup>

A recent report from the Department of Health and Human Services (HHS) shows similar outcomes. In a press release published in December 2014, improved patient safety initiatives to reduce hospital-acquired conditions saved an estimated 50,000 patient lives, preventing 1.3 million hospital acquired infections and saving approximately \$12 billion dollars in healthcare costs between 2010 and 2013, which is a 17% reduction in hospital acquired conditions over that time period.<sup>6</sup>

In addition to the financial incentive of instituting prevention measures within hospitals, the nationwide Hospital-Acquired Condition Reduction Program, instituted in 2010, is a mandatory pay-for-performance program that penalizes hospitals with the highest rates of infections in the nation with a 1% loss to every Medicare payment for one year.<sup>7</sup> As of October 2014, approximately 750 hospitals face over \$330 million dollars a year in penalties.<sup>7</sup> The growing pressure of penalties, coupled with the concern over patient safety, place the prevention of healthcare-associated infections as one of the highest priorities for healthcare facilities across the nation.

### **HAI Reporting in West Virginia**

In 2008, the West Virginia Legislature created §16-5B-17 to make HAI data available to the public and to promote quality improvement initiatives to reduce HAIs in West Virginia hospitals. The legislation mandated hospitals to report HAI data and required the West Virginia Healthcare

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<sup>4</sup> Scott RD. The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention.

<sup>5</sup> Umscheid CA, Mitchell MD, Doshi JA, et al. Estimating the Proportion of Healthcare-Associated Infections that are Reasonably Preventable and the Related Mortality and Costs. *Infect Control Hosp Epidemiol* Feb 2011;32(2):101-114. Doi:10.1086/657912.

<sup>6</sup> US Department of Health and Human Services, *HHS News* (press release). December 2, 2014. Website: <http://www.hhs.gov/news/press/2014pres/12/20141202a.html>. December 2014.

<sup>7</sup> Rau, Jordan. Hospitals to Pay Big Fines for Infections, Avoidable Injuries. *NPR News*. June 23, 2014. Website: <http://www.npr.org/blogs/health/2014/06/23/323998618/hospitals-to-pay-big-fines-for-infections-avoidable-injuries>. October 2014.

Authority (WVHCA) to create a HAI Control Advisory Panel to assist in performing the following activities:

- Provide guidance to hospitals in their collection of information regarding healthcare-associated infections;
- Provide evidence-based practices in the control and prevention of healthcare-associated infections;
- Establish reasonable goals to reduce the number of healthcare-associated infections;
- Develop plans for analyzing infection-related data from hospitals;
- Develop healthcare-associated advisories for hospital distribution; and
- Determine a manner in which reporting of healthcare-associated infections is made available to the public in an understandable fashion.

The HAI Control Advisory Panel was initially convened by the WVHCA in January 2009. The Panel consists of representatives from hospitals, the West Virginia Hospital Association, public health, professionals with expertise in infectious disease control and prevention, biostatistics, microbiology, and health policy. The Panel members are listed on page 2.

The WVHCA has been mandated by the West Virginia Legislature to annually summarize and report progress of the HAI Control Advisory Panel and the results of required reporting to the Legislative Oversight Committee on Health and Human Resources Accountability.

For the purposes of this report, a hospital has been defined in West Virginia §16-29B-3 as “any facility subject to licensure as such under the provisions of article five-b of this chapter, and any acute care facility operated by the state government which is primarily engaged in providing to inpatients, by or under the supervision of physicians, diagnostic and therapeutic services for medical diagnosis, treatment and care of injured, disabled or sick persons, and does not include state mental health facilities or state long-term care facilities.”<sup>8</sup> Although the terms hospital and facility have differing definitions, in this report the use of facility and hospital is used interchangeably to refer to a hospital as defined previously. In 2013, fifty-nine (59) West Virginia hospitals fell under that definition and are represented in this report; thirty-one (31) general acute care hospitals, nineteen (19) critical access hospitals, two (2) long term acute care hospitals, two (2) psychiatric hospitals, and five (5) rehabilitation hospitals.

### **HAI Surveillance and Reporting Requirements**

Annually, the HAI Control Advisory Panel reviews and updates the hospital HAI public reporting requirements. When choosing the measures required for reporting, the Panel considers the impact of HAIs on patient outcomes and ability for hospitals to collect and report the data. Once reporting guidance is developed, it is distributed to infection control contacts at each hospital.

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<sup>8</sup> West Virginia Legislature, West Virginia Code §16-29B-3. Website: <http://www.legis.state.wv.us/legisdocs/code/16/WVC%2016%20-%20-%2029%20B-%20-%20-%20203%20-%20.htm>. November 2014.

As a requirement of WV regulation §16-5B-17, hospitals must submit data to the CDC's National Healthcare Safety Network (NHSN), which was developed as a voluntary surveillance system for hospitals to identify and monitor HAIs, but has evolved as the tool for mandatory HAI reporting by many states.

West Virginia HAI reporting requirements began in July 2009. In January 2011, the Centers for Medicare and Medicaid Services (CMS) implemented HAI reporting requirements for hospitals participating in the Hospital Inpatient Quality Reporting Program. To reduce the reporting burden on hospitals, the Panel decided to adopt CMS requirements as West Virginia's reporting requirements. In addition, the HAI Control Advisory Panel recommended that Critical Access Hospitals (CAHs) also report State specific HAI since the Hospital Inpatient Quality Reporting Program is voluntary and not required for CAHs by CMS. Healthcare Personnel Influenza vaccination data was also required of non-state run psychiatric facilities. These additional requirements were approved by the WVHCA Board in August 2012. **Table 1**, page 8, summarizes the measures required to be submitted for West Virginia's HAI Public Reporting Program in 2014.

The WVHCA monitors reporting compliance and provides technical assistance to infection control contacts to ensure timely and accurate data submission. Submitted data are managed and analyzed by the WVHCA and the results are disseminated to the HAI Control Advisory Panel for review and approval prior to release.

This report summarizes data reported on central line associated blood stream infections (CLABSI), catheter associated urinary tract infections (CAUTI), surgical site infections (SSI) for colon surgeries and abdominal hysterectomies, Methicillin-Resistant *Staphylococcus aureus* (MRSA) bacteremia, *C. difficile* infections, as well as healthcare personnel seasonal influenza vaccinations for the 2013-2014 reporting period. Due to the data collection and processing schedule, this report does not include any healthcare-associated infection data submitted in 2014. The 2014 data will be summarized in future reports.

### **Report Limitations**

It is important to note that there are limitations to the data presented. The 2013 data in this report is pulled directly from NHSN and input by the individual facility following the NHSN protocol and procedures, now outlined in the West Virginia Healthcare-Association Infection 2014 Reporting Guide (available on the WVHCA website), as well as directly from the CDC's NHSN website. The data was not validated, but was analyzed by the WVHCA for completeness.

There is also great variability in the internal surveillance methods used by facilities for HAI detection and these methods are not standardized across facilities. Finally, the actual case definition for these HAI events changes on an almost annual basis, so a comparison of different years of data should be interpreted with these changes in mind. The 2015 reporting changes for NHSN will be outlined in the "Advisory Panel Accomplishments and Future Directions" section of this report.

**TABLE 1: WEST VIRGINIA HAI PUBLIC REPORTING REQUIRED MEASURES, 2014**

<b>Reporting Requirement</b>	<b>Facility Type</b>	<b>HAI Event</b>	<b>Reporting Specifications</b>
<b>CMS Requirement</b>	<b>General Acute Care Hospitals Only (Non-Critical Access)</b>	<b>CLABSI</b>	<b>Adult, Pediatric/Neonatal ICUs</b>
		<b>CAUTI</b>	<b>Adult and Pediatric ICUs</b>
		<b>SSI: COLO</b>	<b>Inpatient COLO Procedures</b>
		<b>SSI: HYST</b>	<b>Inpatient HYST Procedures</b>
		<b>MRSA Bacteremia LabID Event</b>	<b>Facility Wide Inpatient</b>
		<b>C. difficile LabID Event</b>	<b>Facility Wide Inpatient</b>
		<b>Healthcare Personnel Influenza Vaccination</b>	<b>All Inpatient Healthcare Personnel</b>
	<b>Long-Term Acute Care Hospitals</b>	<b>CLABSI</b>	<b>Adult &amp; Pediatric LTAC ICUs &amp; Wards</b>
		<b>CAUTI</b>	<b>Adult &amp; Pediatric LTAC ICUs &amp; Wards</b>
		<b>Healthcare Personnel Influenza Vaccination</b>	<b>All Inpatient Healthcare Personnel</b>
	<b>Inpatient Rehabilitation Facility</b>	<b>CAUTI</b>	<b>Adult and Pediatric Wards</b>
		<b>Healthcare Personnel Influenza Vaccination</b>	<b>All Inpatient Healthcare Personnel</b>
	<b>State Requirement</b>	<b>Critical Access Hospitals</b>	<b>CAUTI</b>
<b>Healthcare Personnel Influenza Vaccination</b>			<b>All Inpatient Healthcare Personnel</b>
<b>Psychiatric Hospitals (Excluding State-Run Facilities)</b>		<b>Healthcare Personnel Influenza Vaccination</b>	<b>All Inpatient Healthcare Personnel</b>



## **How to Read the HAI Report Graphs**

The outcome of each hospital is depicted and coded based on performance. Those hospitals that exceeded the national baseline (i.e. performed better than expected) are noted with a green checkmark. Those hospitals that met expectations are noted with the yellow “equal” sign, and those that performed worse than expected are noted with a red “yield” sign. Some hospitals do not have enough data available to calculate standardized infection ratio (SIR) accurately and are noted with the “N/R” symbol and the reporting measure is indicated as “Too Small to Calculate”.

### **I. Central Line Associated Blood Stream Infections (CLABSI)**

A central line, also known as a central catheter, is a tube that is inserted into a large vein, usually in the neck, chest, arm, or groin and is commonly used to administer fluids and medications as well as draw blood. Depending on its use in the patient, it may be left in place for days to weeks in order to help facilitate treatment. Central line-associated blood stream infections occur when microorganisms, like bacteria, enter into the blood stream via the tube.

In a multistate survey of HAIs, the CDC estimates that there were approximately 15,600 CLABIs in the US for non-neonatal intensive care units in 2011,<sup>2</sup> which can lead to serious complications including an increased number of inpatient stays, increased costs and increased risk of death. The aggregate attributable patient hospital cost of CLASBI is estimated to be between \$7,000 and \$29,000 per patient.<sup>4</sup> CLABSIs can often be prevented by adherence to evidence-based guidelines for the insertion, use, and maintenance of central lines.

Since January 2011, West Virginia General Acute Care Hospitals have been required to report data on CLABSIs that occur among patients in all ICUs. Beginning in October 2012, Long Term Acute Care Hospitals have also been required to report facility data on CLABSIs.

#### **Key Findings for CLABSI: General Acute Care Hospitals (Figure 1)**

- In 2013, 71 CLABSIs were reported in all ICUs in West Virginia General Acute Care Hospitals.
- Significantly fewer CLABSIs occurred in these units in West Virginia General Acute Care Hospitals than were expected based on national baseline set by NHSN. The West Virginia SIR\* was 0.40, indicating that 60% fewer CLABSI events occurred than the NHSN baseline expected.
- Of those facilities that had a sufficient number of central line days to calculate a reliable SIR, all West Virginia General Acute Care Hospitals met or exceeded national standards of CLABSI events by having as many or fewer events than expected.
- West Virginia’s 2013 SIR of 0.40 falls below the 2013 national SIR target of 0.50.<sup>9</sup>

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<sup>9</sup> US Department of Health and Human Services, *National Targets and Metrics*, Website: [http://www.health.gov/hai/prevent\\_hai.asp#hai\\_measures](http://www.health.gov/hai/prevent_hai.asp#hai_measures). November 2014.

\* See Technical Notes Section on page 38 for detailed explanation of Standard Infection Ratio (SIR)

**FIGURE 1: 2013 CLABSI DATA, GENERAL ACUTE CARE HOSPITALS**

<b>Central Line Associated Blood Stream Infections (CLABSI) in General Acute Care Hospitals, All ICUs, 2013</b>						
Hospital	Hospital Performance Compared to NHSN National Baseline	Number of Infections	Number of Predicted Infections	Number of Central Line Days	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Cabell Huntington Hospital	✓	14	24.94	8888	0.56	0.32, 0.92
Charleston Area Medical Center (CAMC)	✓	24	60.54	25457	0.40	0.26, 0.58
St. Mary's Medical Center	✓	6	17.79	6697	0.34	0.14, 0.70
West Virginia University Hospitals (WVUH)	✓	5	28.91	11622	0.17	0.06, 0.38
Raleigh General Hospital	✓	1	6.57	3137	0.15	0.01, 0.75
Monongalia General Hospital	▬	4	3.42	2322	1.17	0.37, 2.82
Ohio Valley Medical Center	▬	3	2.72	1294	1.10	0.28, 3.00
Saint Francis Hospital	▬	1	1.06	707	0.94	0.05, 4.65
Camden Clark Memorial Hospital	▬	2	2.42	1614	0.83	0.14, 2.73
United Hospital Center	▬	3	3.96	2643	0.76	0.19, 2.06
Beckley Appalachian Regional Hospital	▬	1	1.55	1033	0.65	0.03, 3.18
Thomas Memorial Hospital	▬	2	3.36	2253	0.60	0.10, 1.97
Logan Regional Medical Center	▬	1	1.92	1281	0.52	0.03, 2.57
Wheeling Hospital	▬	1	4.41	2937	0.23	0.01, 1.12
Bluefield Regional Medical Center	▬	0	2.58	1229	0	0, 1.16
CCMC- St. Joseph's Campus	▬	0	1.60	1131	0	0, 1.88
CAMC Teays Valley Hospital	▬	0	1.29	863	0	0, 2.31
City Hospital-WVUH-E	▬	0	2.53	1207	0	0, 1.18
Princeton Community Hospital	▬	0	1.34	789	0	0, 2.24
Weirton Medical Center	▬	0	1.45	965	0	0, 2.07
Davis Memorial Hospital	N/R	0	0.47	316	Too Small to Calculate	
Fairmont General Hospital, Inc.	N/R	0	0.66	437	Too Small to Calculate	
Greenbrier Valley Medical Center	N/R	0	0.94	629	Too Small to Calculate	
Pleasant Valley Hospital	N/R	0	0.33	221	Too Small to Calculate	
Reynolds Memorial Hospital	N/R	1	0.38	255	Too Small to Calculate	
St. Joseph's Hospital of Buckhannon	N/R	0	0.21	137	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/R	2	0.33	218	Too Small to Calculate	
Summersville Regional Medical Center	N/R	0	0.24	161	Too Small to Calculate	
Welch Community Hospital	N/R	0	0.27	177	Too Small to Calculate	
Wetzel County Hospital	N/R	0	0.02	12	Too Small to Calculate	
Williamson Memorial Hospital	N/R	0	0.23	119	Too Small to Calculate	
<b>West Virginia Total</b>	✓	<b>71</b>	<b>178.86</b>	<b>81028</b>	<b>0.40</b>	<b>0.31, 0.50</b>






<b>Legend:</b>	
✓	The number of infections was <b>significantly lower (better)</b> than predicted
▬	The number of infections was <b>similar (not significantly different)</b> than predicted
▼	The number of infections was <b>significantly higher (worse)</b> than predicted
Not reportable (N/R)	General Acute Care ICU patients had too few central line days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

## Key Findings for CLABSI: Long Term Acute Care Facilities (Figure 2)





- In 2013, the CLABSI rate for Long Term Acute Care Facilities in West Virginia was 0.38 infections per 1,000 central line days.
- The 2013 rate of CLABSI for Long Term Acute Care Facilities is not significantly different than the national rate from NHSN.
- All West Virginia long term acute care facilities met or exceeded national standards of CLABSI events, by having as many or fewer events than expected.

As there was no established baseline for Long Term Acute Care Facilities CLABSI in 2009 when NHSN HAI baselines were created, the measure of CLABSI rate is instead compared to a NHSN pooled mean rate calculated every year based on the previous year's data.<sup>10\*</sup>

FIGURE 2: 2013 CLABSI DATA, LONG TERM ACUTE CARE FACILITIES

Central Line Associated Bloodstream Infections (CLABSI) for Long Term Acute Care Hospitals, 2013					
Hospital	Hospital Performance Compared to the National Mean Rate	Number of Infections	Number of Central Line Days	Rate of Central Line Associated Bloodstream Infections*	NHSN Pooled Mean Rate*
Cornerstone Hospital of Huntington		1	6637	0.15	1.00
Select Specialty Hospital, Charleston	 	4	6662	0.60	1.00
<b>West Virginia Total</b>	 	<b>5</b>	<b>13299</b>	<b>0.38</b>	<b>1.00</b>

\*Rate per 1,000 Central Line days

Legend:	
	The rate of infections was <b>significantly lower (better)</b> than the national NHSN pooled mean for 2012
 	The rate of infections was <b>similar (not significantly different)</b> than the national NHSN pooled mean for 2012
	The rate of infections was <b>significantly higher (worse)</b> than the national NHSN pooled mean for 2012
Not reportable (N/R)	Long Term Acute Care patients had too few central line days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

<sup>10</sup> Dudeck MA, Weiner LM, Allen-Bridson K, et al. National Healthcare Safety Network (NHSN Report), data summary for 2012, Device-associated Module. *Am J Infect Control* 2013;41:1148-66. Doi: 10.1016/j.ajic.2013.09.002.

\* See Technical Notes Section on page 38 for detailed explanation of rate and pooled mean rate.

## **II. Catheter Associated Urinary Tract Infection (CAUTI)**

Urinary tract infections are infections of any part of the urinary system, which includes the bladder and the kidneys. Catheter associated urinary tract infections (CAUTI) arise in those hospitalized patients who have had a urinary catheter placed, which is a tube that is inserted into the bladder to drain urine into a connected bag. In the same way that central lines can introduce microorganisms, urinary catheters provide an access point for these infections to spread into the body, in this case the urinary tract. CAUTIs are much more common than CLABSIs, with the CDC estimating approximately 35,600 CAUTI events in 2011.<sup>2</sup> The aggregate attributable patient hospital cost of CAUTIs is between \$800 and \$1000 per patient.<sup>4</sup> CAUTIs can also often be prevented using evidence-based guidelines for insertion, use, and maintenance, just as with all other HAIs.

Since January 2012, all general acute care hospitals and critical access hospitals with an ICU were required to report CAUTI for all adult and pediatric ICUs. Those general acute care hospitals and critical access hospitals without an ICU were required to report CAUTI for Inpatient Medical Wards. Because of CMS' differing reporting cycles, long term acute care hospitals and inpatient rehabilitation facilities began reporting CAUTI in October 2012.

In 2013, Inpatient Medical/Surgical Wards for both general acute care hospitals and critical access hospitals were required to report CAUTI events as well.

### **Key Findings for CAUTI: General Acute Care Facilities (Figure 3)**

- In 2013, there were 135 CAUTIs reported for all West Virginia General Acute Care Hospitals.
- Significantly fewer CAUTIs occurred in West Virginia General Acute Care Hospitals than were expected based on the national baseline set by NHSN. The West Virginia SIR was 0.63, indicating that 37% fewer CAUTIs occurred than were expected.
- Of those facilities that had a sufficient number of urinary catheter days to calculate a reliable SIR, national standards were met or exceeded.
- West Virginia's 2013 SIR of 0.63 falls below the 2013 national reduction target of 0.75.<sup>9</sup>

**FIGURE 3: 2013 CAUTI DATA FOR GENERAL ACUTE CARE HOSPITALS**

<b>Catheter Associated Urinary Tract Infections (CAUTI) in General Acute Care Hospitals, All ICUs, 2013</b>						
Hospital	Hospital Performance Compared to NHSN National Baseline	Number of Infections	Number of Predicted Infections	Number of Urinary Catheter Days	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Charleston Area Medical Center (CAMC)	✓	39	66.97	25536	0.59	0.42, 0.79
Raleigh General Hospital	✓	5	11.85	5142	0.42	0.16, 0.94
West Virginia University Hospitals (WVUH)	✓	6	27.10	11704	0.22	0.90, 0.46
Bluefield Regional Medical Center	✓	1	5.19	2257	0.19	0.01, 0.95
City Hospital-WVUH-E	✓	0	5.43	2360	0	0, 0.55
Logan Regional Medical Center	✓	0	4.21	2991	0	0, 0.71
Ohio Valley Medical Center	▬	8	4.47	1945	1.79	0.83, 3.40
Wheeling Hospital	▬	10	5.62	4680	1.78	0.90, 3.17
CAMC-Teays Valley Hospital	▬	2	1.52	1162	1.32	0.22, 4.37
Thomas Memorial Hospital	▬	4	3.71	2853	1.08	0.34, 2.60
CCMC-St. Joseph's Campus	▬	2	1.90	1179	1.05	0.17, 3.47
Cabell Huntington Hospital	▬	26	25.53	9893	1.02	0.68, 1.47
Princeton Community Hospital	▬	4	3.94	2539	1.02	0.32, 2.45
St. Mary's Medical Center	▬	19	21.63	8431	0.88	0.55, 1.35
Camden Clark Memorial Hospital	▬	3	3.82	3182	0.79	0.20, 2.14
Greenbrier Valley Medical Center	▬	1	2.04	1573	0.49	0.02, 2.41
Monongalia General Hospital	▬	2	4.65	3528	0.43	0.07, 1.42
United Hospitals Center	▬	1	3.69	3079	0.27	0.01, 1.33
Fairmont General Hospital, Inc.	▬	0	1.05	808	0	0, 2.85
Williamson Memorial Hospital	▬	0	1.06	530	0	0, 2.83
Reynolds Memorial Hospital	▬	0	1.13	868	0	0, 2.66
Davis Memorial Hospital	▬	0	1.05	805	0	0, 2.86
Weirton Medical Center	▬	0	1.54	1185	0	0, 1.95
Saint Francis Hospital	▬	0	1.77	1362	0	0, 1.70
Beckley Appalachian Regional Hospital	▬	0	2.03	1559	0	0, 1.48
Pleasant Valley Hospital	N/R	1	0.64	495	Too Small to Calculate	
Summersville Regional Medical Center	N/R	0	0.57	435	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/R	1	0.75	578	Too Small to Calculate	
Wetzel County Hospital	N/R	0	0.13	65	Too Small to Calculate	
Welch Community Hospital	N/R	0	0.56	433	Too Small to Calculate	
St. Joseph's Hospital of Buckhannon	N/R	0	0.34	262	Too Small to Calculate	
<b>West Virginia Total</b>	✓	<b>135</b>	<b>214.78</b>	<b>103282</b>	<b>0.63</b>	<b>0.53, 0.74</b>

<b>Legend:</b>	
✓	The number of infections was <b>significantly lower (better)</b> than predicted
▬	The number of infections was <b>similar (not significantly different)</b> than predicted
▼	The number of infections was <b>significantly higher (worse)</b> than predicted
Not reportable (N/R)	General Acute Care ICU patients had too few urinary catheter days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

### Key Findings for CAUTI: Long Term Acute Care Hospitals (Figure 4)

- In 2013, the CAUTI rate for Long Term Acute Care Facilities in West Virginia was 1.90 infections per 1,000 urinary catheter days.
- The 2013 rate of CAUTI for Long Term Acute Care Facilities is not significantly different than the national rate.
- All West Virginia long term acute care facilities met national standards of CAUTI events by having a similar number of CAUTI events compared to what was expected.

As there was no established baseline for Long Term Acute Care Facilities CAUTI in 2009 when NHSN HAI baselines were created, the measure of CAUTI rate is instead compared to a NHSN pooled mean rate calculated every year based on the previous year’s data.<sup>10</sup>

**FIGURE 4: 2013 CAUTI DATA FOR LONG TERM ACUTE CARE HOSPITALS**

Catheter Associated Urinary Tract Infections (CAUTI) for Long Term Acute Care Hospitals, 2013					
Hospital	Hospital Performance Compared to the National Mean Rate	Number of Infections	Number of Urinary Catheter Days	Rate of Urinary Catheter Infections*	NHSN Pooled Mean Rate*
Select Specialty Hospital, Charleston		12	6152	1.95	2.00
Cornerstone Hospital of Huntington		12	6507	1.84	2.00
<b>West Virginia Total</b>		<b>24</b>	<b>12659</b>	<b>1.90</b>	<b>2.00</b>



\* Rate per 1,000 Catheter days




Legend:	
	The rate of infections was <b>significantly lower (better)</b> than the national NHSN pooled mean for 2012
	The rate of infections was <b>similar (not significantly different)</b> than the national NHSN pooled mean for 2012
	The rate of infections was <b>significantly higher (worse)</b> than the national NHSN pooled mean for 2012
Not reportable (N/R)	Long Term Acute Care patients had too few urinary catheter days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

### Key Findings for CAUTI: Critical Access Hospitals (Figure 5)

- In 2013, there were 3 CAUTIs reported for all West Virginia Critical Access Hospitals.
- The number of CAUTIs that occurred in West Virginia Critical Access Hospitals in 2013 were similar to those expected based on the national baseline.
- The West Virginia SIR was 0.54, indicating that 46% fewer CAUTIs occurred than the NHSN baseline expected.
- West Virginia’s 2013 SIR of 0.54 falls below the 2013 national target of 0.75.<sup>9</sup>

**FIGURE 5: 2013 CAUTI DATA FOR CRITICAL ACCESS HOSPITALS**

<b>Catheter Associated Urinary Tract Infections, Critical Access Hospitals, 2013</b>						
Hospital	Hospital Performance Compared to NHSN National Baseline	Number of Infections	Number of Urinary Catheter Days	Number of Predicted Infections	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Summers County ARH		0	654	1.24	0	0, 2.41
Braxton County Memorial Hospital	N/R	0	266	0.43	Too Small To Calculate	
Preston Memorial Hospital	N/R	0	45	0.06	Too Small To Calculate	
Roane General Hospital	N/R	1	47	0.08	Too Small To Calculate	
Minnie Hamilton Health System	N/R	0	214	0.34	Too Small To Calculate	
Potomac Valley Hospital	N/R	0	125	0.25	Too Small To Calculate	
Jackson General Hospital	N/R	0	190	0.25	Too Small To Calculate	
Plateau Medical Center	N/R	0	283	0.37	Too Small To Calculate	
Jefferson Memorial Hospital	N/R	1	197	0.26	Too Small To Calculate	
Grant Memorial Hospital	N/R	0	290	0.38	Too Small To Calculate	
Hampshire Memorial Hospital	N/R	1	328	0.62	Too Small To Calculate	
Pocahontas Memorial Hospital	N/R	0	126	0.20	Too Small To Calculate	
Grafton City Hospital	N/R	0	62	0.11	Too Small To Calculate	
Boone Memorial Hospital	N/R	0	211	0.34	Too Small To Calculate	
Broadus Hospital	N/R	0	251	0.48	Too Small To Calculate	
<b>Sistersville General Hospital</b>	~	~	~	~	~	~
<b>Montgomery General Hospital</b>	~	~	~	~	~	~
<b>War Memorial Hospital</b>	~	~	~	~	~	~
<b>Webster County Memorial Hospital</b>	~	~	~	~	~	~
<b>West Virginia Total</b>		<b>3</b>	<b>3385</b>	<b>5.52</b>	<b>0.54</b>	<b>0.14, 1.48</b>

<b>Legend:</b>	
	The number of infections was <b>significantly lower (better)</b> than predicted
	The number of infections was <b>similar (not significantly different)</b> than predicted
	The number of infections was <b>significantly higher (worse)</b> than predicted
Not reportable (N/R)	Critical Access patients had too few urinary catheter days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1






*\*Note that Sistersville General Hospital, Montgomery General Hospital, War Memorial Hospital, and Webster County Memorial Hospital data is not yet available because either the facility has not granted the WVHCA permission rights to view, the facility has not submitted the data, or the data cannot be viewed by the WVHCA at this time.*

## Key Findings for CAUTI: Inpatient Rehabilitation Hospitals, Freestanding (Figure 6)




- In 2013, the CAUTI rate for Freestanding Inpatient Rehabilitation Hospitals in West Virginia was 0.60 infections per 1,000 urinary catheter days.
- The 2013 rate of CAUTI for West Virginia Freestanding Inpatient Rehabilitation Hospitals is significantly lower than the national rate.
- All West Virginia Freestanding Inpatient Rehabilitation Hospitals met or exceeded national standards of CAUTI events, by having as many or fewer events than expected.

As there was no established baseline for Freestanding Inpatient Rehabilitation Hospitals CAUTI in 2009 when NHSN HAI baselines were created, the measure of CAUTI rate is instead compared to a NHSN pooled mean rate calculated every year based on the previous year's data.<sup>10</sup>

**FIGURE 6: 2013 CAUTI DATA FOR INPATIENT REHABILITATION HOSPITALS, FREESTANDING**

Catheter Associated Urinary Tract Infections (CAUTI) for Rehabilitation Hospitals- Freestanding, 2013					
Hospital	Hospital Performance Compared to the National Mean Rate	Number of Infections	Number of Urinary Catheter Days	Rate of Urinary Catheter Infections*	NHSN Pooled Mean Rate*
HealthSouth Mountain View Regional Rehabilitation Hospital		1	2340	0.43	2.9
HealthSouth Rehabilitation Hospital of Huntington		2	937	2.13	2.9
HealthSouth Western Hills Regional Rehabilitation Hospital		0	938	0	2.9
HealthSouth Southern Hills Regional Rehabilitation Hospital		0	749	0	2.9
<b>West Virginia Total, Freestanding Adult Rehab Facilities</b>		<b>3</b>	<b>4964</b>	<b>0.60</b>	<b>2.9</b>

\* Rate per 1,000 Catheter days

Legend:	
	The rate of infections was <b>significantly lower (better)</b> than the national NHSN pooled mean for 2012
	The rate of infections was <b>similar (not significantly different)</b> than the national NHSN pooled mean for 2012
	The rate of infections was <b>significantly higher (worse)</b> than the national NHSN pooled mean for 2012
Not reportable (N/R)	Rehabilitation patients had too few urinary catheter days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1



## Key Findings for CAUTI: Inpatient Rehabilitation Hospitals, Within Hospital (Figure 7)

- In 2013, the CAUTI rate for Inpatient Rehabilitation Hospitals (Units within Hospitals) in West Virginia was 0 infections per 1,000 urinary catheter days.
- The 2013 rate of CAUTI for West Virginia Inpatient Rehabilitation Hospitals (Units within Hospitals) is significantly lower than the national rate from NHSN.
- All West Virginia Inpatient Rehabilitation Hospitals, Within a Hospital, met or exceeded national standards.

The designation of “Within a Hospital” refers to those hospitals that have an inpatient rehabilitation unit within the hospital, and not a freestanding inpatient rehabilitation hospital. As there was no established baseline for Inpatient Rehabilitation Hospitals for CAUTI in 2009 when NHSN HAI baselines were created, the measure of CAUTI rate is instead compared to a NHSN pooled mean rate calculated every year based on the previous year’s data.<sup>10</sup>

**FIGURE 7: 2013 CAUTI DATA FOR INPATIENT REHABILITATION HOSPITALS, WITHIN HOSPITAL**

Hospital	Hospital Performance Compared to the National Mean Rate	Number of Infections	Number of Urinary Catheter Days	Rate of Urinary Catheter Infections*	NHSN Pooled Mean Rate*
Peterson Rehabilitation Hospital		0	405	0	3.2
Charleston Area Medical Center (CAMC)		0	353	0	3.2
Logan Regional Medical Center		0	141	0	3.2
<b>West Virginia Total, Rehabilitation Unit Within Hospital</b>		<b>0</b>	<b>899</b>	<b>0</b>	<b>3.2</b>

\* Rate per 1,000 Catheter days

Legend:	
	The rate of infections was <b>significantly lower (better)</b> than the national NHSN pooled mean for 2012
	The rate of infections was <b>similar (not significantly different)</b> than the national NHSN pooled mean for 2012
	The rate of infections was <b>significantly higher (worse)</b> than the national NHSN pooled mean for 2012
Not reportable (N/R)	Rehabilitation patients had too few urinary catheter days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

### **III. Surgical Site Infections (SSI)**

Surgical site infections are infections that occur at the site where a surgical procedure was performed and may be superficial or involve tissue, organs or implanted material.<sup>11</sup> CMS requirements for HAI reporting target two types of surgeries: colon procedures and abdominal hysterectomies. Colon procedures are surgeries that involve the colon, or large intestine, but do not include any procedure involving the rectum. An abdominal hysterectomy is a surgery that removes the uterus by entering and exiting via an abdominal incision. Adherence to proper sterilization procedures throughout the surgical process helps reduce the risk of SSIs.

Since January 2012, General Acute Care Hospitals are required to report SSIs for colon procedures and abdominal hysterectomies. The following data has been broken down by the procedure type.

#### **Key Findings for SSI: General Acute Care Hospitals for Colon Procedures (Figure 8)**

- In 2013, there were 65 SSIs for colon procedures reported for all West Virginia General Acute Care Hospitals.
- A similar (not significantly different) number of SSIs for colon procedures occurred in West Virginia General Acute Care Hospitals in 2013 than were expected based on the national baseline.
- The West Virginia SIR was 0.95, indicating that 5% fewer SSIs for colon procedures occurred than were expected.
- Of those facilities that had a sufficient number of colon procedures to calculate a reliable SIR, all but one West Virginia General Acute Care Hospitals met or exceeded national standards.
- West Virginia's 2013 SIR of 0.95 exceeded the 2013 national target of 0.75.<sup>9</sup>

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<sup>11</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention, *Surgical Site Infections*, Website: <http://www.cdc.gov/HAI/ssi/ssi.html>. November 2014.

**FIGURE 8: 2013 SSI FOR COLON PROCEDURES DATA, GENERAL ACUTE CARE HOSPITALS**

Surgical Site Infections (SSI) for Inpatient Colon Procedures in General Acute Care Hospitals, 2013						
Hospital	Hospital Performance Compared To NHSN National Baseline	Number of Infections	Number of Predicted Infections	Number of Colon Procedures Performed	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
West Virginia University Hospital (WVUH)		0	5.49	150	0	0, 0.55
United Hospital Center		0	2.98	94	0	0, 1.00
Cabell Huntington Hospital		8	5.17	144	1.55	0.72, 2.94
Charleston Area Medical Center (CAMC)		17	12.22	344	1.39	0.84, 2.18
Raleigh General Hospital		4	3.01	87	1.33	0.42, 3.20
City Hospital-WVUH-E		2	1.59	47	1.26	0.21, 4.17
Ohio Valley Medical Center		2	1.78	54	1.12	0.19, 3.71
Wheeling Hospital		3	3.18	97	0.94	0.24, 2.57
Bluefield Regional Medical Center		1	1.11	33	0.90	0.05, 4.43
Monongalia General Hospital		5	5.81	185	0.86	0.32, 1.91
Saint Francis Hospital		1	1.21	36	0.83	0.04, 4.07
Thomas Memorial Hospital		3	4.13	119	0.73	0.19, 1.98
Camden Clark Memorial Hospital		2	3.15	102	0.64	0.11, 2.10
St. Joseph's Hospital of Buckhannon		1	2.13	62	0.47	0.02, 2.32
Beckley Appalachian Regional Hospital		0	1.28	35	0	0, 2.33
Princeton Community Hospital		0	1.93	60	0	0, 1.55
Summersville Regional Medical Center		0	1.23	34	0	0, 2.43
Fairmont General Hospital, Inc.		0	1.15	36	0	0, 2.60
St. Mary's Medical Center		9	4.39	144	2.05	1.00, 3.76
Williamson Memorial Hospital	N/R	0	0.12	3	Too Small to Calculate	
CCMC- St. Joseph's Campus	N/R	0	0.51	17	Too Small to Calculate	
Pleasant Valley Hospital	N/R	0	0.36	11	Too Small to Calculate	
Reynolds Memorial Hospital	N/R	1	0.56	18	Too Small to Calculate	
Davis Memorial Hospital	N/R	2	0.93	29	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/R	2	0.70	21	Too Small to Calculate	
Weirton Medical Center	N/R	1	0.62	17	Too Small to Calculate	
Wetzel County Hospital	N/R	0	0.07	2	Too Small to Calculate	
CAMCTeays Valley Hospital	N/R	0	0.43	13	Too Small to Calculate	
Logan Regional Medical Center	N/R	0	0.51	15	Too Small to Calculate	
Welch Community Hospital	N/R	0	0.15	4	Too Small to Calculate	
Greenbrier Valley Medical Center	N/R	1	0.50	15	Too Small to Calculate	
<b>West Virginia Total</b>		<b>65</b>	<b>68.41</b>	<b>2028</b>	<b>0.95</b>	<b>0.74, 1.20</b>

Legend:	
	The number of infections was <b>significantly lower (better)</b> than predicted
	The number of infections was <b>similar (not significantly different)</b> than predicted
	The number of infections was <b>significantly higher (worse)</b> than predicted
Not reportable (N/R)	General Acute Care hospitals had too few inpatient colon procedures to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

**Key Findings for SSI: General Acute Care Hospitals for Abdominal Hysterectomy Procedures (Figure 9)**

- In 2013, there were 22 SSIs for abdominal hysterectomy procedures reported for all West Virginia General Acute Care Hospitals.
- A similar (not significantly different) number of SSIs for abdominal hysterectomy procedures occurred in West Virginia General Acute Care Hospitals in 2013 than were expected based on the national baseline.
- The West Virginia SIR was 0.94, indicating that 6% fewer SSIs for abdominal hysterectomy procedures occurred than the NHSN baseline expected.
- Of those facilities that had a sufficient number of abdominal hysterectomy procedures to calculate a reliable SIR, all West Virginia General Acute Care Hospitals met national standards.
- West Virginia's 2013 SIR of 0.94 exceeded the 2013 national target of 0.75.<sup>9</sup>

**FIGURE 9: 2013 SSI FOR ABDOMINAL HYSTERECTOMY PROCEDURES, GENERAL ACUTE CARE HOSPITALS**

<b>Surgical Site Infections (SSI) for Abdominal Hysterectomy Procedures in General Acute Care Hospitals, 2013</b>						
Hospital	Hospital Performance Compared to NHSN National Baseline	Number of Infections	Number of Predicted Infections	Number of Hysterectomy Procedures Performed	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Wheeling Hospital		3	1.08	108	2.78	0.71, 7.55
Camden Clark Memorial Hospital		3	1.50	162	2.01	0.51, 5.46
Cabell Huntington Hospital		8	4.72	393	1.70	0.79, 3.22
Charleston Area Medical Center (CAMC)		5	3.26	317	1.53	0.56, 3.40
Monongalia General Hospital		1	4.35	444	0.23	0.01, 1.13
Thomas Memorial Hospital		0	2.27	182	0	0, 1.32
West Virginia University Hospital (WVUH)		0	1.52	137	0	0, 1.98
Raleigh General Hospital	N/R	0	0.20	16	Too Small to Calculate	
Fairmont General Hospital, Inc.	N/R	1	0.07	6	Too Small to Calculate	
Williamson Memorial Hospital	N/R	0	0.23	22	Too Small to Calculate	
CCMC-St. Joseph's Campus	N/R	0	0.01	1	Too Small to Calculate	
Pleasant Valley Hospital	N/R	0	0.08	5	Too Small to Calculate	
Reynolds Memorial Hospital	N/R	0	0.30	27	Too Small to Calculate	
Davis Memorial Hospital	N/R	0	0.50	48	Too Small to Calculate	
Summersville Regional Medical Center	N/R	0	0.09	9	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/R	0	0.07	6	Too Small to Calculate	
Ohio Valley Medical Center	N/R	0	0.28	28	Too Small to Calculate	
Weirton Medical Center	N/R	1	0.56	61	Too Small to Calculate	
Princeton Community Hospital	N/R	0	0.31	32	Too Small to Calculate	
Wetzel County Hospital	N/R	0	0.00	0	Too Small to Calculate	
City Hospital-WVUH-E	N/R	0	0.36	32	Too Small to Calculate	
CAMC- Teays Valley Hospital	N/R	0	0.05	4	Too Small to Calculate	
Beckley Appalachian Regional Hospital	N/R	0	0.17	14	Too Small to Calculate	
Bluefield Regional Medical Center	N/R	0	0.28	22	Too Small to Calculate	
Logan Regional Medical Center	N/R	0	0.05	4	Too Small to Calculate	
United Hospital Center	N/R	0	0.27	32	Too Small to Calculate	
Welch Community Hospital	N/R	0	0.20	15	Too Small to Calculate	
Greenbrier Valley Medical Center	N/R	0	0.11	12	Too Small to Calculate	
St. Mary's Medical Center	N/R	0	0.27	28	Too Small to Calculate	
St. Joseph's Hospital of Buckhannon	N/R	0	0.37	29	Too Small to Calculate	
Saint Francis Hospital	N/R	0	0.01	1	Too Small to Calculate	
<b>West Virginia Total</b>		<b>22</b>	<b>23.50</b>	<b>2197</b>	<b>0.94</b>	<b>0.60, 1.40</b>

<b>Legend:</b>	
	The number of infections was <b>significantly lower (better)</b> than predicted
	The number of infections was <b>similar (not significantly different)</b> than predicted
	The number of infections was <b>significantly higher (worse)</b> than predicted
Not reportable (N/R)	General Acute Care hospitals had too few inpatient hysterectomy procedures to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

#### **IV. Inpatient Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bacteremia**

While *Staphylococcus aureus* is a common bacteria found both in the environment and on humans, it normally does not affect them. MRSA, however, is a variant of the bacteria that is resistant to antibiotics. MRSA is spread via direct contact and can cause serious complications, including wound infections or blood stream infections (bacteremia), which makes hospitals and other healthcare facilities at a high risk of spreading the infection to patients and healthcare workers.<sup>12</sup>

Beginning January 2013, West Virginia general acute care hospitals were required to report MRSA Bacteremia LabID events for facility-wide inpatient areas. LabID events are those that are positive or meet positive guidelines using either standard susceptibility testing or other Food and Drug Administration (FDA) approved testing.<sup>13</sup>

#### **Key Findings for MRSA Bacteremia LabID Events: General Acute Care Hospitals (Figure 10)**

- In 2013, there were 81 MRSA Bacteremia LabID events reported for all West Virginia General Acute Care Hospitals.
- A similar (not significantly different) number of MRSA Bacteremia LabID events occurred in West Virginia General Acute Care Hospitals in 2013 than were expected based on the national baseline.
- The West Virginia SIR was 0.94, indicating that 6% fewer MRSA Bacteremia LabID events occurred than the NHSN baseline expected.
- Of those facilities that had a sufficient number of patient days to calculate a reliable SIR, all but one West Virginia General Acute Care Hospitals met national standards.
- West Virginia's 2013 SIR of 0.94 exceeded the 2013 national target of 0.75.<sup>9</sup>

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<sup>12</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention, *Methicillin-Resistant Staphylococcus aureus (MRSA) Infections*, Website: <http://www.cdc.gov/mrsa/healthcare/index.html>. November 2014.

<sup>13</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention, *Multi-drug Resistant Organism & Clostridium difficile Infection (MDRO/CDI) Module*, Website: [http://www.cdc.gov/nhsn/PDFs/pscManual/12pscMDRO\\_CDADcurrent.pdf](http://www.cdc.gov/nhsn/PDFs/pscManual/12pscMDRO_CDADcurrent.pdf). November 2014.

**FIGURE 10: 2013 MRSA BACTEREMIA LABID EVENTS, GENERAL ACUTE CARE HOSPITALS**

Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) Infections in General Acute Care Hospitals, 2013						
Hospital	Hospital Performance Compared To NHSN National Baseline	Number of MRSA Infections	Number of Predicted MRSA Infections	Number of Patient Days	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Monongalia General Hospital		3	1.57	33808	1.91	0.49, 5.20
Beckley Appalachian Regional Hospital		4	2.15	26089	1.86	0.59, 4.49
Raleigh General Hospital		5	3.67	55432	1.36	0.50, 3.02
Charleston Area Medical Center (CAMC)		21	20.20	200018	1.04	0.66, 1.56
CAMC Teays Valley Hospital		1	1.01	8165	0.99	0.05, 4.89
United Hospital Center		3	3.09	57071	0.97	0.25, 2.64
St. Mary's Medical Center		8	8.27	100499	0.97	0.45, 1.84
Princeton Community Hospital		2	2.60	45519	0.77	0.13, 2.54
Ohio Valley Medical Center		2	2.62	38599	0.76	0.13, 2.52
Logan Regional Medical Center		2	2.63	25642	0.76	0.13, 2.51
Thomas Memorial Hospital		2	2.92	49696	0.69	0.12, 2.27
West Virginia University Hospitals (WVUH)		7	11.64	143740	0.60	0.26, 1.19
Weirton Medical Center		1	1.67	29063	0.60	0.03, 2.95
City Hospital-WVUHE		1	2.01	40524	0.50	0.03, 2.46
Bluefield Regional Medical Center		1	2.07	17952	0.48	0.02, 2.38
Camden Clark Memorial Hospital		1	3.32	80352	0.30	0.02, 1.49
Fairmont General Hospital, Inc.		0	1.08	27428	0	0, 2.78
Wheeling Hospital		0	1.99	48268	0	0, 1.51
Cabell Huntington Hospital		12	6.31	94917	1.90	1.03, 3.23
Williamson Memorial hospital	N/R	0	0.40	7362	Too Small To Calculate	
CCMC- St. Joseph's Campus	N/R	1	0.68	18986	Too Small To Calculate	
Pleasant Valley Hospital	N/R	0	0.44	6743	Too Small To Calculate	
Reynolds Memorial Hospital	N/R	0	0.44	10848	Too Small To Calculate	
Saint Francis Hospital	N/R	0	0.86	18495	Too Small To Calculate	
Davis Memorial Hospital	N/R	1	0.65	15065	Too Small To Calculate	
Summersville Regional Medical Center	N/R	1	0.43	8352	Too Small To Calculate	
Stonewall Jackson Memorial Hospital	N/R	1	0.44	8497	Too Small To Calculate	
Wetzel County Hospital	N/R	0	0.14	3807	Too Small To Calculate	
Welch Community Hospital	N/R	0	0.15	1961	Too Small To Calculate	
Greenbrier Valley Medical Center	N/R	0	0.93	16665	Too Small To Calculate	
St. Joseph's Hospital of Buckhannon	N/R	1	0.22	5233	Too Small To Calculate	
<b>West Virginia Total</b>		<b>81</b>	<b>86.60</b>	<b>1244796</b>	<b>0.94</b>	<b>0.75, 1.16</b>

Legend:	
	The number of infections was <b>significantly lower (better)</b> than predicted
	The number of infections was <b>similar (not significantly different)</b> than predicted
	The number of infections was <b>significantly higher (worse)</b> than predicted
Not reportable (N/R)	General Acute Care Hospital inpatients had too few patient days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

## **V. Inpatient *Clostridium difficile* Infection (CDI)**

*Clostridium difficile* (CDI) is a bacteria that can cause diarrhea and large intestine inflammation, usually in those patients with a recent history of antibiotic use. CDI is spread through direct contact with contaminated surfaces and can live outside the body in a hardy spore form for a long time.<sup>11</sup> Therefore, environmental control in healthcare settings is one of the most critical forms of prevention, along with proper hygiene and adherence to evidence-based practices.<sup>14</sup>

Beginning in January 2013, all general acute care hospitals were required to report facility wide, inpatient CDI LabID Events. As with MRSA, LabID events are those that are positive or meet positive guidelines using either standard susceptibility testing or other Food and Drug Administration (FDA) approved testing.<sup>13</sup>

### **Key Findings for CDI LabID Events: General Acute Care Hospitals (Figure 11)**

- In 2013, there were 877 CDI LabID events reported for all West Virginia General Acute Care Hospitals.
- A similar (not significantly different) number of CDI LabID events occurred in West Virginia General Acute Care Hospitals in 2013 than were expected based on the national baseline.
- The West Virginia SIR was 1.02, indicating that 2% more CDI LabID events occurred than the NHSN baseline expected.
- Of those facilities that had a sufficient number of patient days to calculate a reliable SIR, all but five West Virginia General Acute Care Hospitals met or exceeded national standards.
- West Virginia's 2013 SIR of 1.02 exceeded the 2013 national target of 0.75.<sup>9</sup>

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<sup>14</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention, *Healthcare-Associated Infections: Frequently Asked Questions about *Clostridium difficile* for Healthcare Providers*. Website: [http://www.cdc.gov/HAI/organisms/cdiff/Cdiff\\_faqs\\_HCP.html](http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_faqs_HCP.html). November 2014.



**FIGURE 11: 2013 CDI LABID EVENTS, GENERAL ACUTE CARE HOSPITALS**

<b>Clostridium difficile Infections in General Acute Care Hospitals, 2013</b>						
Hospital	Hospital Performance Compared to NHSN National Baseline	Number of <i>C. difficile</i> Infections	Number of Predicted <i>C. difficile</i> Infections	Number of Patient Days	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Cabell Huntington Hospital	✓	46	67.28	77412	0.68	0.51, 0.90
Ohio Valley Medical Center	✓	14	29.51	37827	0.47	0.27, 0.78
Greenbrier Valley Medical Center	✓	4	9.80	15256	0.41	0.13, 0.99
CCMC- St. Joseph's Campus	✓	3	8.46	18986	0.36	0.09, 0.97
City Hospital-WVUH-E	✓	12	35.15	40524	0.34	0.19, 0.58
Princeton Community Hospital	✓	8	37.21	48889	0.22	0.10, 0.41
St. Joseph's Hospital of Buckhannon	✓	0	3.02	5233	0	0, 0.99
Fairmont General Hospital, Inc.	▬	22	16.98	26568	1.30	0.83, 1.93
Wheeling Hospital	▬	44	38.30	45237	1.15	0.85, 1.53
Monongalia General Hospital	▬	30	26.47	33369	1.13	0.78, 1.60
Logan Regional Medical Center	▬	15	13.38	25165	1.12	0.65, 1.81
Weirton Medical Center	▬	16	14.97	29015	1.07	0.63, 1.70
Saint Francis Hospital	▬	11	10.36	18495	1.06	0.56, 1.85
Thomas Memorial Hospital	▬	24	23.02	44782	1.04	0.68, 1.53
Bluefield Regional Medical Center	▬	9	8.99	17914	1.00	0.49, 1.84
Camden Clark Memorial Hospital	▬	36	37.41	74889	0.96	0.68, 1.32
Williamson Memorial Hospital	▬	3	3.17	7266	0.95	0.24, 2.58
Wetzel County Hospital	▬	2	2.23	3807	0.90	0.15, 2.96
Beckley Appalachian Regional Hospital	▬	11	16.93	26089	0.65	0.34, 1.13
United Hospital Center	▬	39	50.52	57071	0.77	0.56, 1.05
CAMC Teays Valley Hospital	▬	4	5.36	8255	0.75	0.24, 1.80
Reynolds Memorial Hospital	▬	4	6.81	10620	0.59	0.19, 1.42
Davis Memorial Hospital	▬	3	7.31	15065	0.41	0.10, 1.12
Pleasant Valley Hospital	▬	1	3.43	6492	0.29	0.02, 1.44
Stonewall Jackson Memorial Hospital	▬	1	3.82	8497	0.26	0.01, 1.29
Welch Community Hospital	▬	0	2.77	3763	0	0, 1.08
Summersville Regional Medical Center	▽	14	3.91	7287	3.58	2.04, 5.87
Raleigh General Hospital	▽	58	38.69	52752	1.50	1.15, 1.92
St. Mary's Medical Center	▽	107	76.54	99547	1.40	1.15, 1.68
West Virginia University Hospitals (WVUH)	▽	159	119.21	126464	1.33	1.14, 1.55
Charleston Area Medical Center (CAMC)	▽	177	138.41	186244	1.28	1.10, 1.48
<b>West Virginia Totals</b>	▬	<b>877</b>	<b>859.40</b>	<b>1178780</b>	<b>1.02</b>	<b>0.95, 1.09</b>

<b>Legend:</b>	
✓	The number of infections was <b>significantly lower (better)</b> than predicted
▬	The number of infections was <b>similar (not significantly different)</b> than predicted
▽	The number of infections was <b>significantly higher (worse)</b> than predicted
Not reportable (N/R)	General Acute Care Hospital inpatients had too few patient days to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.
Too Small to Calculate	The expected number of infections was below 1

## **VI. Healthcare Personnel Influenza Vaccinations**

Influenza vaccinations are important for healthcare personnel as they not only safeguard the individual, they also help protect patients from becoming infected. The CDC, the Advisory Committee on Immunization Practices (ACIP), and the Healthcare Infection Control Practices Advisory Committee (HICPAC) recommends that all healthcare workers receive a seasonal influenza vaccination.<sup>15</sup>

Hospitals are required to report the number of personnel, including employees, licensed independent practitioners, and student volunteers, who received vaccination during the influenza season (October to March). All 59 West Virginia hospitals (general acute care, critical access, long term acute care, non-state run psychiatric hospitals, and rehabilitation hospitals) that were required to report, did so for the 2013-2014 influenza season.

Beginning January 2012, all non-federal hospitals (excluding state run psychiatric facilities) were required to report personnel vaccination status. Beginning October 2014, all non-federal hospitals (excluding state-run psychiatric facilities) are required to report personnel that work in outpatient departments as well as inpatient departments, who have worked in the healthcare facility for at least one day during the reporting season.

For the 2013-2014 influenza season, the percent of personnel vaccinated was split into two population categories, hospital employees (paid by the facility) and all healthcare workers (which includes employees, licensed independent practitioners, and student volunteers). Now, individual facilities can determine how many non-employee workers in the healthcare facility did not receive a vaccination, potentially putting patients at risk for contracting influenza while receiving care. By separating employees from non-employees working in the facility, hospitals can see their progress from year to year.

A two year, side-by-side comparison was also completed for each hospital, and for each population group, to show changes in vaccination percentages and trends over time for each facility, which is useful to monitor if a facility institutes new policies or guidelines regarding influenza vaccination.

### **Key Findings for Healthcare Personnel Influenza Vaccinations, by hospital type and healthcare personnel population (Figures 12-21)**

- 76.9% of all healthcare workers in all West Virginia hospitals (including employees, licensed independent practitioners, and student volunteers) received a seasonal influenza vaccination during the 2013-2014 influenza season, up from 74.3% from last year.

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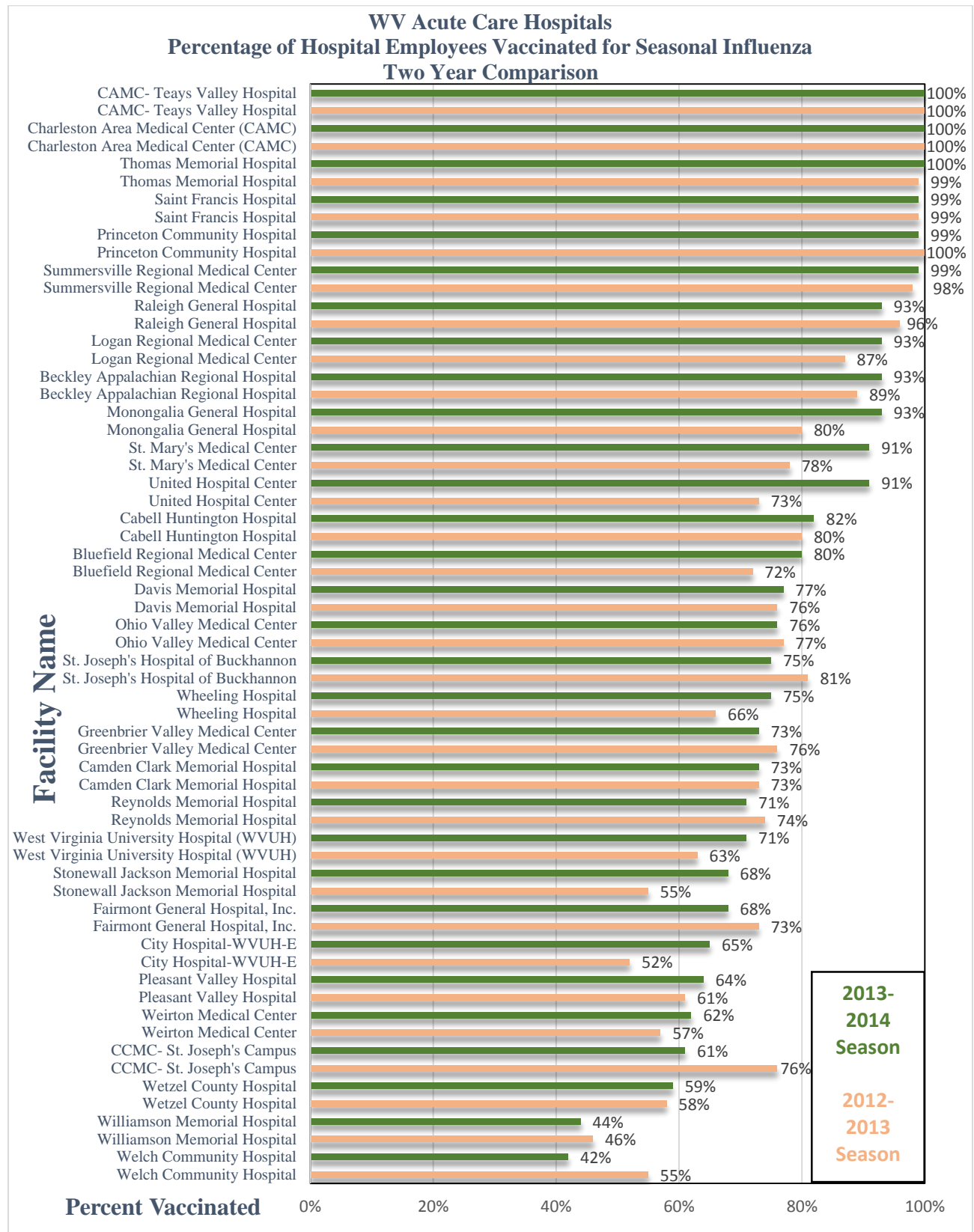
<sup>15</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention, *Influenza Vaccination Information for Health Care Workers*. Website: <http://www.cdc.gov/flu/healthcareworkers.htm>. November 2014.

- That percentage is higher than the 2013-2014 national average for influenza vaccination of healthcare workers of 75.2%.<sup>12</sup>
- The percentage of all healthcare workers in West Virginia (including employees, licensed independent practitioners, and student volunteers) that received a seasonal influenza vaccination ranged from a low of 38% to a high of 100% by facility for the 2013-2014 season.
- The percentage of healthcare employees in West Virginia that received a seasonal influenza vaccination ranged from a low of 40% to a high of 100% by facility for the 2013-2014 season.
- In the federally run program Healthy People 2020, which gives health related goals for the nation to meet by the year 2020, the goal for healthcare worker influenza vaccination is 90% in each facility. In the 2013-2014 season, 13 of 59 (22%) of West Virginia hospitals have exceeded this goal.<sup>16</sup>
- 28 of 59 (47.5%) of West Virginia hospitals had a higher vaccination percentage of all healthcare workers (including employees, licensed independent practitioners, and student volunteers) in 2013-2014 than the national average of 75.2%.

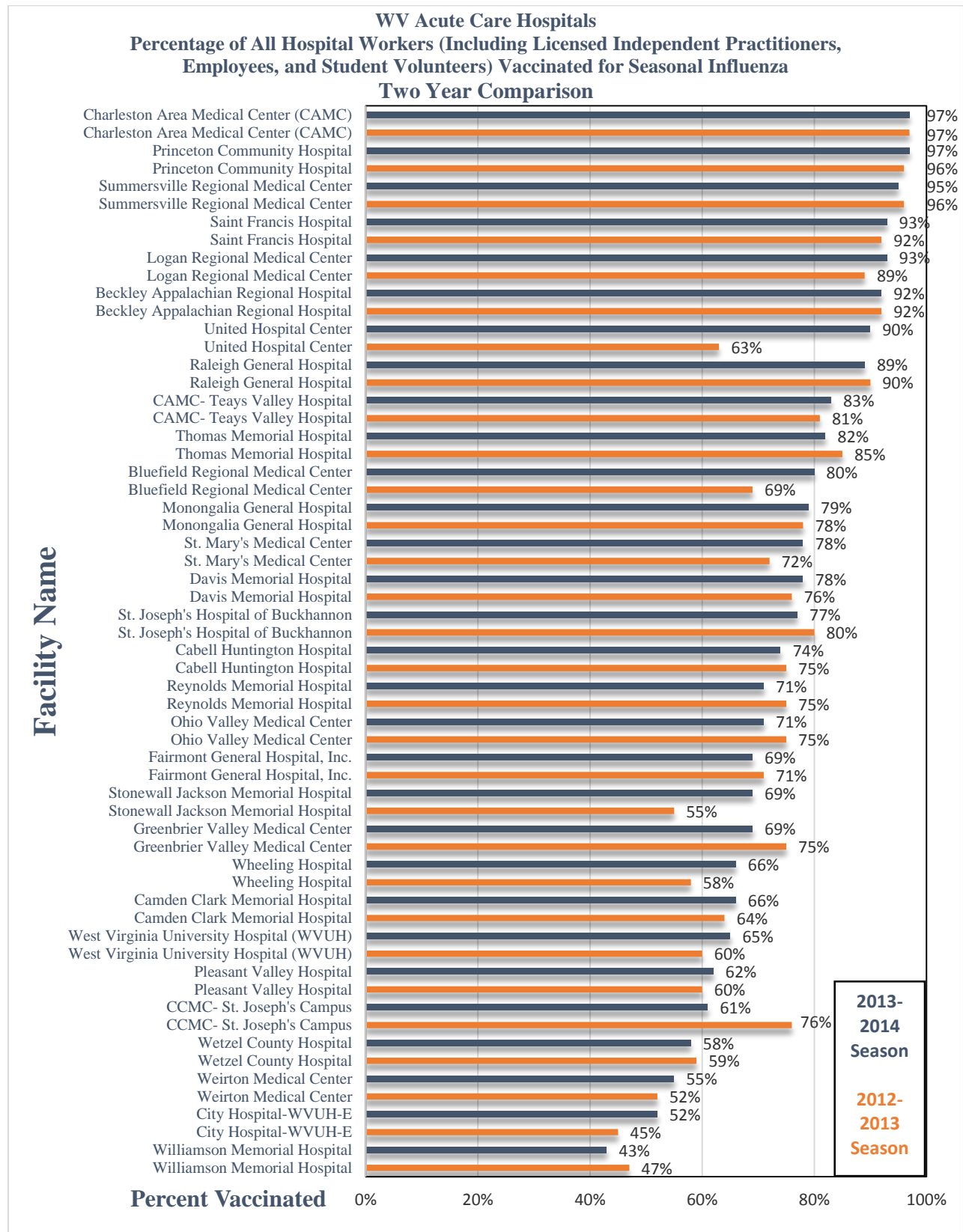
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<sup>16</sup> US Department of Health and Human Services, Healthy People 2020, *Immunization and Infectious Disease*. Goal IID-12.13. Website: <https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/objectives>. November 2014.

FIGURE 12: 2013-2014 INFLUENZA SEASON, HOSPITAL EMPLOYEES, GENERAL ACUTE CARE HOSPITALS



**FIGURE 13: 2013-2014 INFLUENZA SEASON, ALL HOSPITAL WORKERS, GENERAL ACUTE CARE HOSPITALS**



**FIGURE 14: 2013-2014 INFLUENZA SEASON, HOSPITAL EMPLOYEES, CRITICAL ACCESS HOSPITALS**

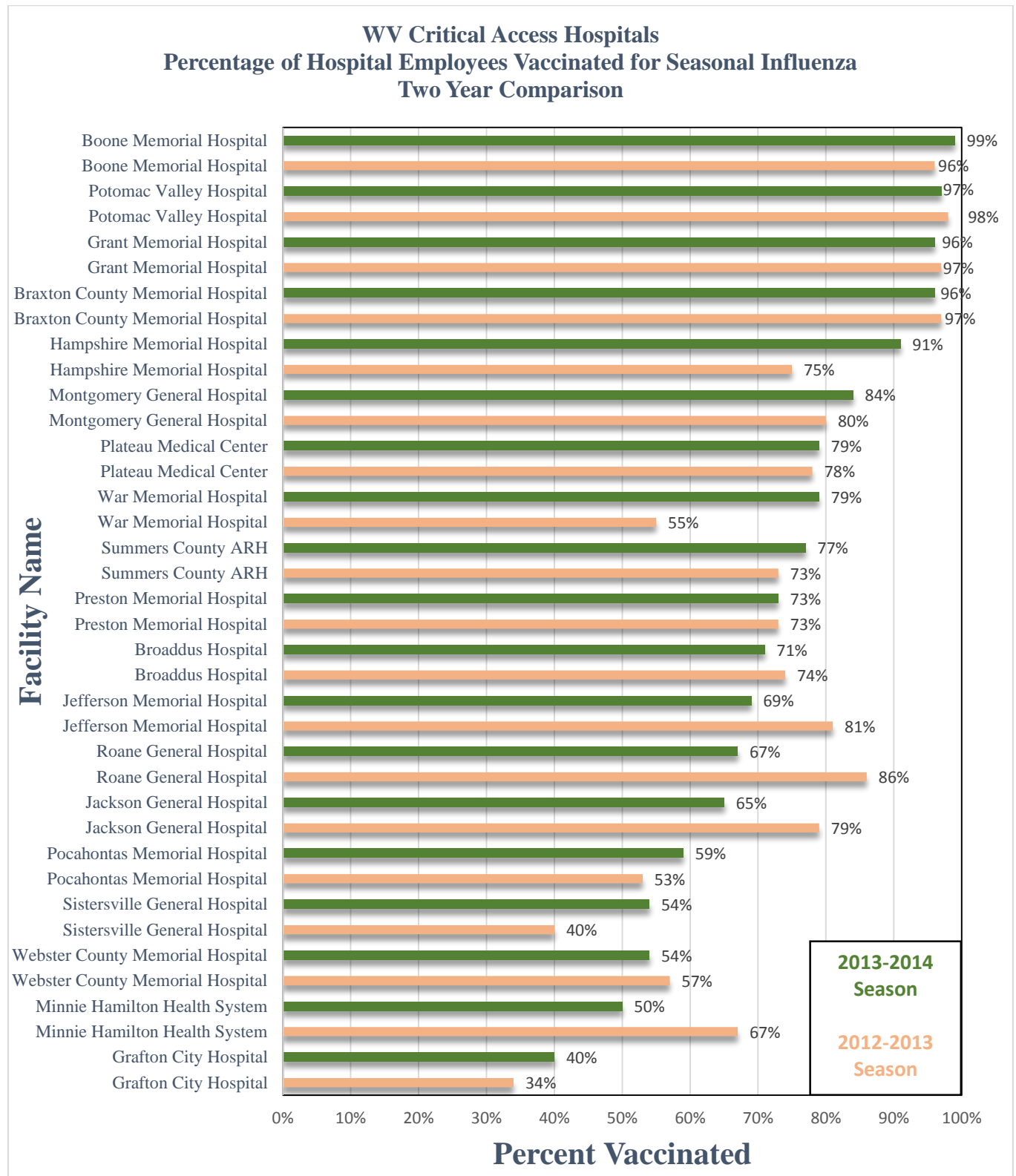
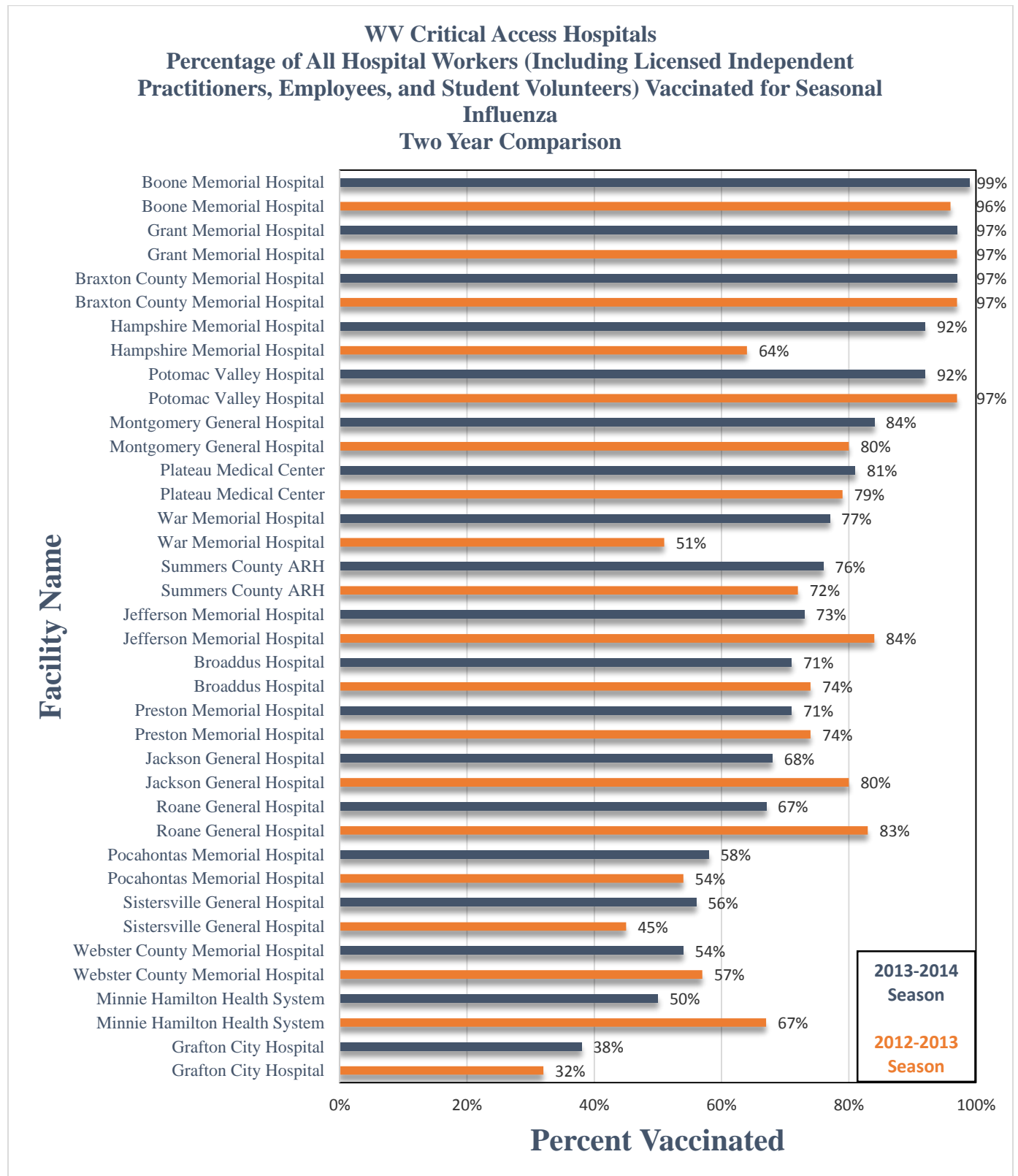
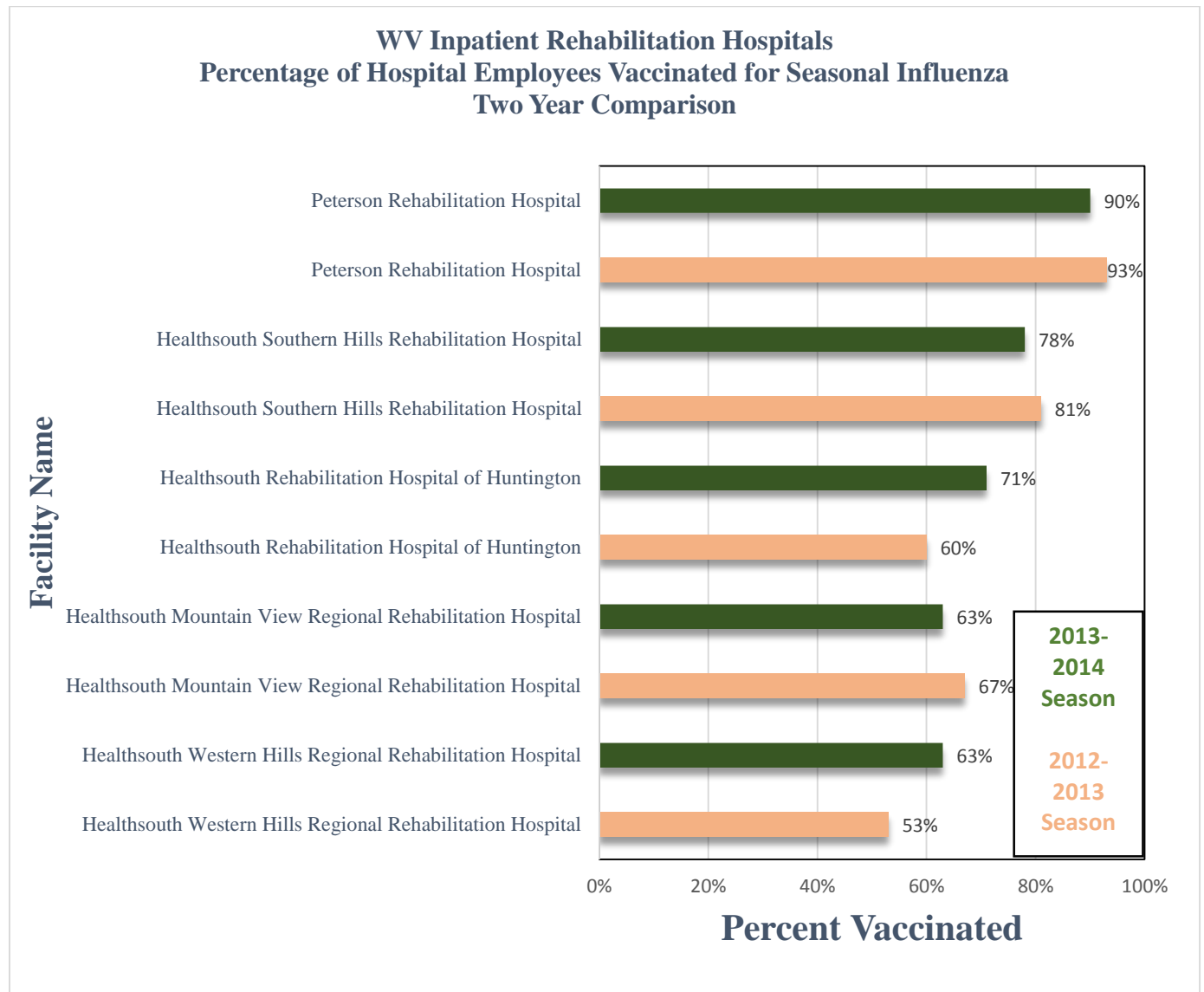


FIGURE 15: 2013-2014 INFLUENZA SEASON, ALL HOSPITAL WORKERS, CRITICAL ACCESS HOSPITALS



**FIGURE 16: 2013-2014 INFLUENZA SEASON, HOSPITAL EMPLOYEES, INPATIENT REHABILITATION HOSPITALS**





**FIGURE 17: 2013-2014 INFLUENZA SEASON, ALL HOSPITAL WORKERS, INPATIENT REHABILITATION HOSPITALS**

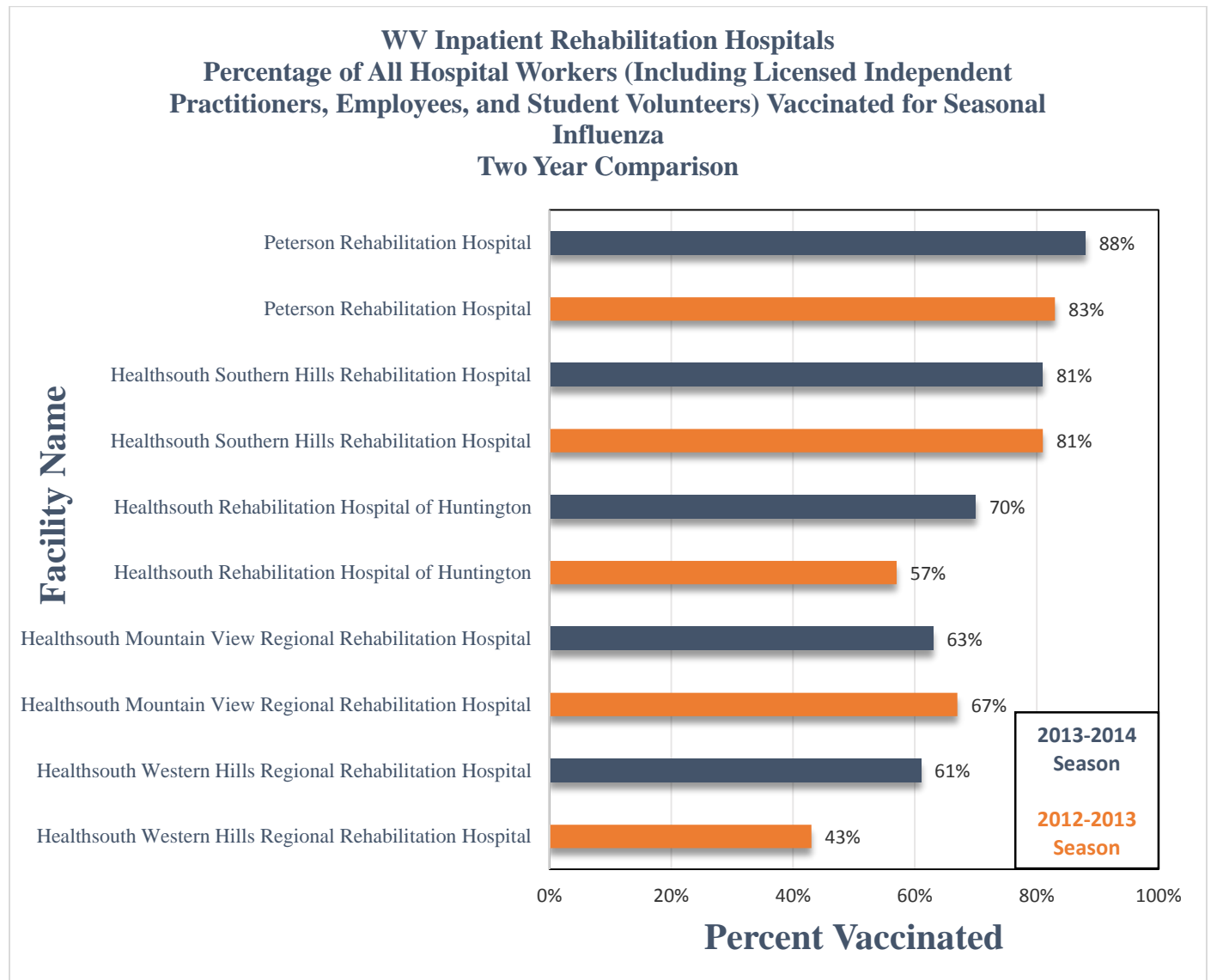


FIGURE 18 2013-2014 INFLUENZA SEASON, HOSPITAL EMPLOYEES, PSYCHIATRIC HOSPITALS

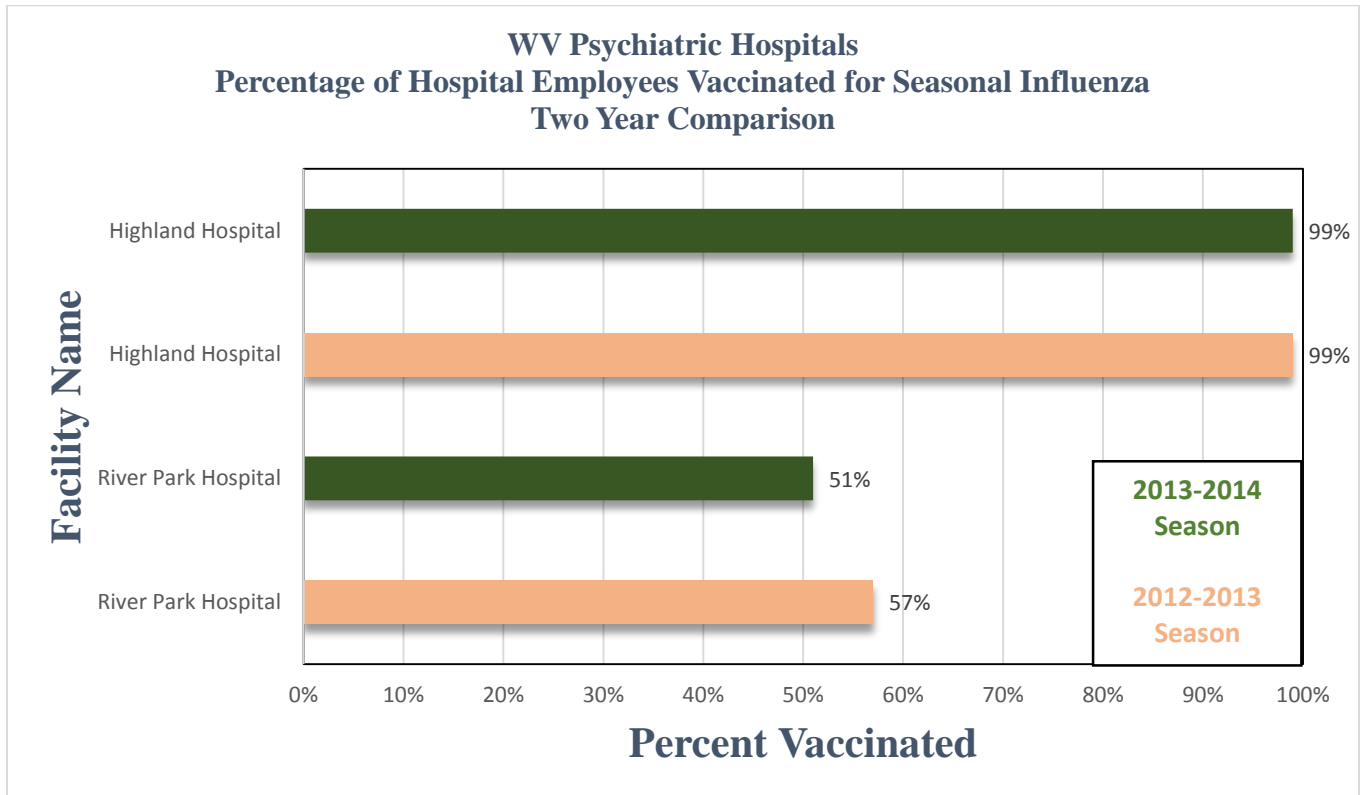


FIGURE 19: 2013-2014 INFLUENZA SEASON, ALL HOSPITAL WORKERS, PSYCHIATRIC HOSPITALS

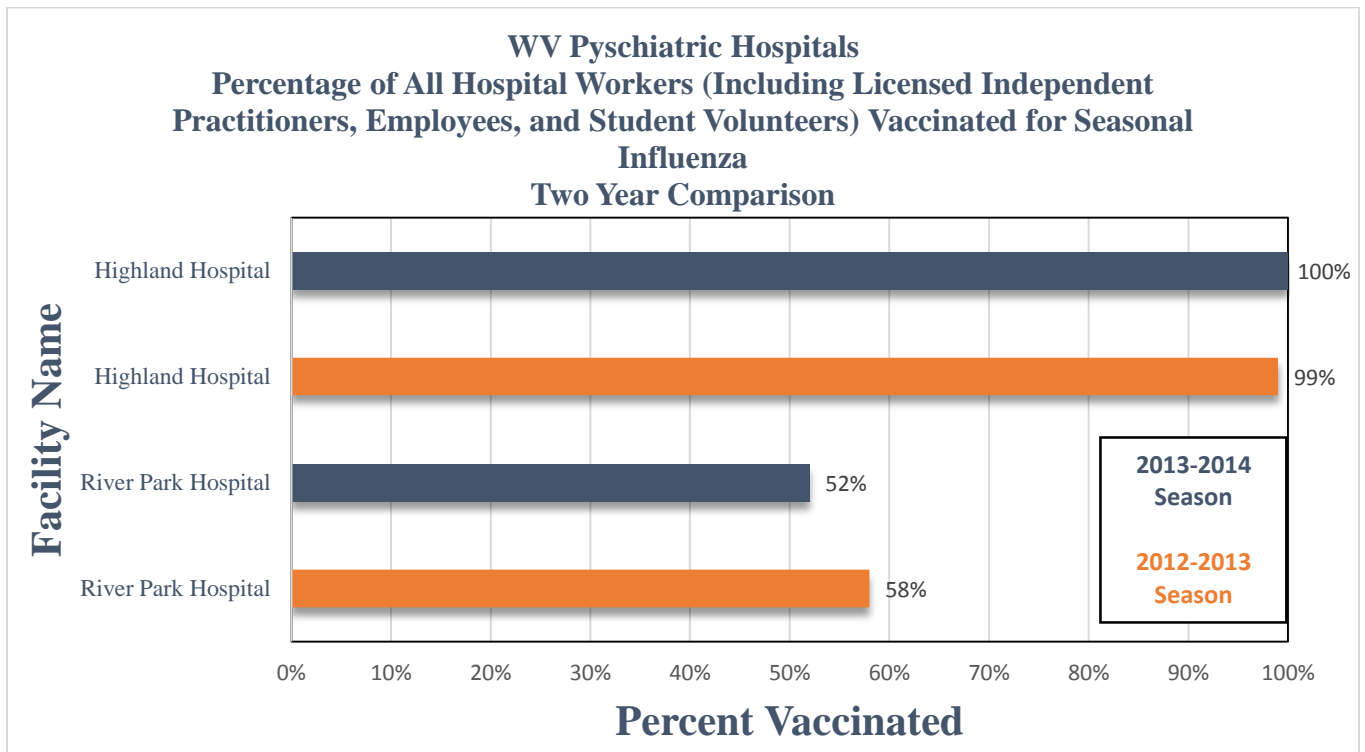


FIGURE 20: 2013-2014 INFLUENZA SEASON, HOSPITAL EMPLOYEES, LONG TERM ACUTE CARE HOSPITALS

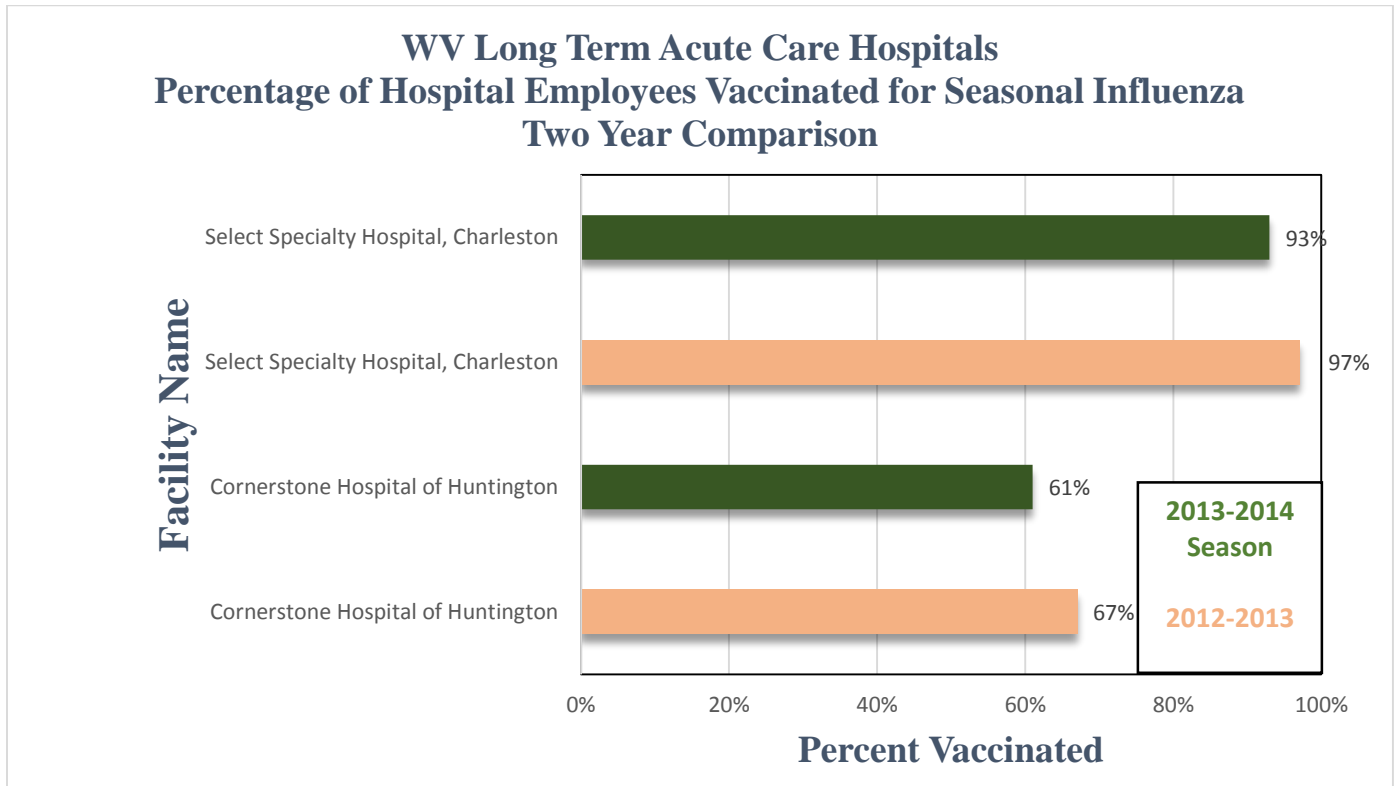
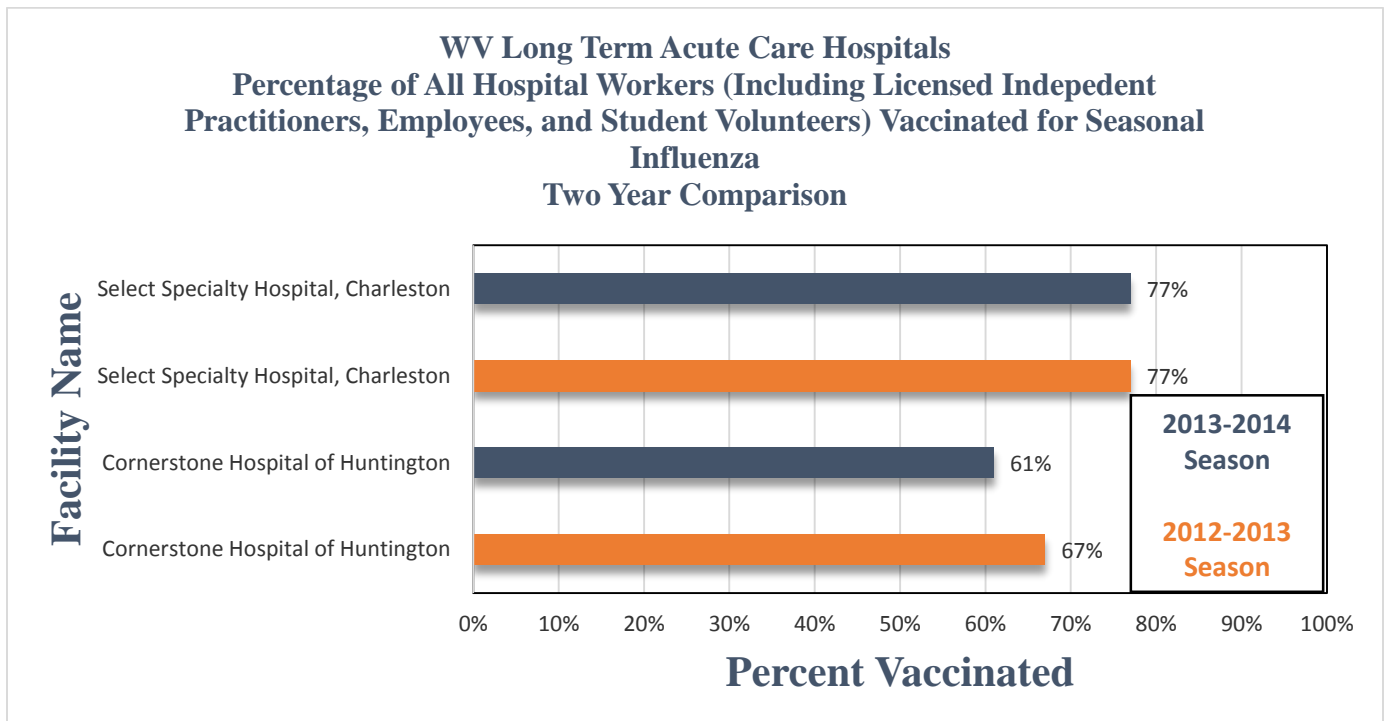


FIGURE 21: 2013-2014 INFLUENZA SEASON, ALL HOSPITAL WORKERS, LONG TERM ACUTE CARE HOSPITALS



**Advisory Panel Accomplishments and Future Directions**

The HAI Control Advisory Panel has made some changes to published hospital reporting by redesigning and simplifying the HAI reports, including the addition of color-coded SIR and rate graphs.

In order to assist hospitals in meeting reporting requirements, the HAI Control Advisory Panel developed the HAI Data Submission Quality Review Schedule and Procedure, which provided hospitals with data submission deadlines that may assist in avoiding state penalties, and potentially, federal penalties.

In order to further interagency partnerships, the West Virginia Bureau of Public Health (BPH) was provided access to the NHSN system as well as training per the recommendation of the HAI Control Advisory Panel. This was implemented to help further the BPH’s role in hospital oversight, epidemiology, and disease surveillance programs.

Continued surveillance and reporting of HAIs is imperative for implementing control and prevention strategies to ensure the safety of patients in healthcare facilities. As such, the HAI Control Advisory Panel and the WVHCA are committed to continually improving reporting strategies, interagency communication, and data quality reviews. In the 2013 HAI Report, a set of future HAI initiatives were proposed; in 2014, each goal was met. Below is a description of the goals and how they were met:

<b>2013 HAI Report Goals</b>	<b>2014 HAI Actions</b>
Continue the collection and quality review of HAI data	Continued to collect and review HAI data, as well as created a data quality review schedule and procedure to help healthcare facilities with timely submission of data and to avoid state penalties
Develop guidelines for the public release of data	Revised the annual report to include more detailed HAI data as well as develop simplified reports for public use
Revise reporting requirements as necessary to align with state and national priorities	Reporting requirements were reviewed and the HAI Control Advisory Panel advised to continue following CMS reporting requirements into the next data year. In addition, a reporting guide was developed to outline reporting requirements
Collaborate with the Bureau for Public Health (BPH), Office of Epidemiology and Prevention Service’s HAI Program by providing data for consideration in hospital oversight, epidemiology, and surveillance programs	Bureau of Public Health (BPH) was provided access to the NHSN system as well as training per the recommendation of the HAI Control Advisory Panel to further interagency cooperation and communication and assist with hospital oversight, epidemiology, and surveillance programs

While these goals were met, the HAI Control Advisory Panel continues to work on improving procedures and lowering the rates of HAIs in West Virginia hospitals. As hospitals move into a new data collection year, the goals for 2015 have been updated as follows:

- Continue to revise and update the data quality review schedule and procedure to ensure timely data submission
- Continue to assist healthcare facilities regarding data submission and technical concerns regarding NHSN
- Revise reporting requirements and update reporting guide as needed to align with state and national priorities as directed by the HAI Control Advisory Panel and WVHCA Board of Directors

In our efforts to keep West Virginia hospitals up to date, there are some upcoming changes to reporting for the next few years that are important to note. As of September 2014, updates have been noted but may not be finalized or complete.

<b>Facility Type</b>	<b>Reporting Event</b>	<b>Requirement Change</b>	<b>Effective Date</b>
General Acute Care Facilities	CLABSI, CAUTI	New reporting locations: adult and pediatric medical, surgical, and medical/surgical ward	January 1 <sup>st</sup> , 2015
	MRSA, CDI	Reporting locations expanded to include Emergency Department and 24 hour Observation units	January 1 <sup>st</sup> , 2015
General Acute Care & Critical Access Hospitals	Healthcare Personnel Influenza Vaccination	Inpatient psychiatric wards can be mapped in NHSN (similar to IRF wards within hospitals) and are required to report summary data	October 1 <sup>st</sup> , 2015
Inpatient Rehabilitation Facilities (IRF)	MRSA, CDI	Reporting at Facility Wide, Inpatient Level; as well as for IRF units within a hospital	January 1 <sup>st</sup> , 2015
Inpatient Psychiatric Facilities (IPF) Units within an Acute care facility	MRSA, CDI	IPF units will be mapped in NHSN and will be EXCLUDED from CMS reported data regarding MRSA and CDI for the whole facility	January 1 <sup>st</sup> , 2015
Long Term Acute Care Facilities	MSRA, CDI	Reporting at Facility Wide, Inpatient Level	January 1 <sup>st</sup> , 2015

\*Table is adapted from the NHSN e-News Letter, Volume 9, Issue 3 (September 2014)

Additionally, national baselines are being updated for both long term acute care facilities and inpatient rehabilitation facilities in 2015, and reporting will move from pooled mean rate to SIR.

There were no changes to critical access hospital reporting for next year, and they will continue to report CAUTI events and healthcare personnel influenza vaccinations; however, CMS is reviewing critical access hospital mandatory reporting for future years. Psychiatric hospitals, excluding state-run facilities, are still only required to report healthcare personnel vaccinations as well.

## **Technical Notes**

### **Standardized Infection Ratio (SIR)**

There are various statistics that can be used to summarize and report HAI data at a national, state, or local level. The standardized infection ratio (SIR) is a commonly reported summary measure because it adjusts for patients of varying risk within each facility, which allows for valid comparisons between facilities. The SIR compares the actual number of infections reported by the hospital to the national baseline (from the National Healthcare Safety Network (NHSN) aggregate data), adjusting for several risk factors that have been significantly associated with differences in infection incidence. A SIR greater than 1.0 indicates that more infections occurred in the hospital than were expected based on national averages for hospitals of that type and size. Conversely, a SIR less than 1.0 indicates that fewer infections occur than expected.<sup>17</sup> For example, a SIR of 1.20 indicates that the hospital had 20% more infections than expected; a SIR of 0.80 indicates that the hospital had 20% fewer infections than expected. When the number of expected infections are <1, the number of procedures performed is too low to calculate a precise SIR and comparative statistics.

### **Rate and Pooled Mean Rate**

Another summary measure that is used to report HAI data is the rate. The rate is the measure of the number of events that occurred in a certain population in a specified time period. When reporting for large populations and/or rare events, the rate is often reported as a function of units of populations, chosen to present the rate in a simpler numeric form. For example, if an event occurs in 1 out of every 1000 patients, the rate is 0.001. However, if the rate is defined as being out of 1000 patients, the rate becomes 1. In this report, the rate and pooled mean rate is defined as being out of 1000 patients. The pooled mean rate is how NHSN defines data from hospitals across the country of similar type and size and pools the rates to develop the mean. This process of developing a pooled mean rate is completed every year by NHSN, which becomes the baseline for next year's data. Therefore, the pooled mean rates in this report are from national 2012 data collected by NHSN.

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<sup>17</sup> Centers for Disease Control and Prevention. NHSN e-News: *SIRs Special Edition*. October 2010 (updated December 2010);1.