West Virginia Health Care Authority

Healthcare-Associated Infection Public Reporting Program

Annual Report 2016

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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 U.S., and these infections were associated with 99,000 deaths.[1] In a more recent study, the CDC estimated that in 2011, approximately 722,000 HAIs occurred nationally, which equated to 4% of inpatients in U.S. acute care facilities, and were associated with as many as 75,000 deaths.[2] 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.[2] 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,[3] 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:

- 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.[3]

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

[1] 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.

[2] 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.

[3] 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.

and the potential risk factors for contracting HAIs are the major goals of HAI surveillance and reporting. As a result, effective control and prevention measures can be designed and implemented for improving the incidence of HAIs while reducing associated financial burdens on facilities. The costs associated with HAI treatment are substantial, with the annual cost of treating HAIs in U.S. hospitals estimated to be $28 to $33 billion dollars.[4]

HAIs are considered preventable; however, discussions regarding how many of these HAIs are truly preventable have 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).[5] 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.[5] By instituting prevention measures that reduce HAIs by 20%, it is predicted $5.7 to $6.8 billion dollars a year in U.S. hospitals would be saved.[4]

A recent report from the Department of Health and Human Services (DHHS) 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, a 17% reduction in hospital acquired conditions over that time period.[6]

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.[7] As of October 2014, approximately 750 hospitals face over $330 million dollars a year in penalties.[7] 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

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[4] Scott RD. The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention.

[5] 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.

[6] 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.

[7] 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.

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 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."[8] 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 2014, fifty-nine (59) West Virginia hospitals fell under that definition and are represented in this report; thirty (30) general acute care hospitals, twenty (20) 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

[8] 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%203%20%20.htm. November 2014.

reporting guidance is developed, it is distributed to infection control contacts at each hospital. As a requirement of WV State Statute §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 and the federal government.

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 at this time. 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 the 2014 data collection period.

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 2014-2015 reporting period. Due to the data collection and processing schedule, this report only includes healthcare-associated infection data submitted in calendar year 2014, and does not include any data from calendar year 2015. The 2015 data will be summarized in future reports.

Report Limitations

It is important to note that there are limitations to the data presented. The 2014 data in this report is pulled directly from the CDC's NHSN and input by the individual facility after following the NHSN protocol and procedures outlined in the West Virginia Healthcare-Association Infection 2014 Reporting Guide provided to each facility and available on the WVHCA 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

Reporting Requirement	Facility Type	HAI Event	Reporting Specifications
CMS Requirement	General Acute Care Hospitals Only (Non-Critical Access)	CLABSI	Adult, Pediatric/Neonatal ICUs
		CAUTI	Adult and Pediatric ICUs Medical/Surgical Wards if no ICU
		SSI: COLO	Inpatient COLO Procedures
		SSI: HYST	Inpatient HYST Procedures
		MRSA Bacteremia LabID Event	Facility Wide Inpatient
		C. *difficile* LabID Event	Facility Wide Inpatient
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
	Long-Term Acute Care Hospitals	CLABSI	Adult & Pediatric LTAC ICUs & Wards
		CAUTI	Adult & Pediatric LTAC ICUs & Wards
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
	Inpatient Rehabilitation Facility	CAUTI	Adult and Pediatric Wards
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
State Requirement	Critical Access Hospitals	CAUTI	Medical, Surgical, Medical/Surgical, ICUs Medical/Surgical Wards if no ICU
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
	Psychiatric Hospitals (Excluding State-Run Facilities)	Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel

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 CLABSIs in the U.S. for non-neonatal intensive care units in 2011.[2] CLABSIs 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 a CLABSI is estimated to be between $7,000 and $29,000 per patient.[4] 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 are also required to report facility data on CLABSIs.

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

- In 2014, 75 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 0.44, indicating that 56% 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.
- Of 30 General Acute Care Hospitals, 16 (53%) General Acute Care Hospitals had zero CLABSIs.

FIGURE 1: 2014 CLABSI DATA, GENERAL ACUTE CARE HOSPITALS

Central Line Associated Blood Stream Infections (CLABSI) in General Acute Care Hospitals, 2014

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	24.35	8661	0.58	0.33, 0.94
Charleston Area Medical Center (CAMC)	✓	26	53.10	22369	0.49	0.33, 0.71
St. Mary's Medical Center	✓	9	18.59	6963	0.48	0.24, 0.89
West Virginia University Hospital (WVUH)	✓	8	29.48	12009	0.27	0.13, 0.52
Monongalia General Hospital	✓	1	5.08	3473	0.20	0.01, 0.97
Bluefield Regional Medical Center	=	3	1.78	1189	1.68	0.43, 4.58
Princeton Community Hospital	=	2	1.33	702	1.50	0.25, 4.95
Thomas Memorial Hospital	=	3	3.55	2375	0.85	0.22, 2.30
Wheeling Hospital	=	3	4.89	3260	0.61	0.16, 1.67
CAMC- Teays Valley Hospital	=	1	2.01	1337	0.50	0.03, 2.46
Raleigh General Hospital	=	2	5.29	2509	0.38	0.06, 1.25
Camden Clark Memorial Hospital*	=	1	3.31	2225	0.30	0.02, 1.49
United Hospital Center	=	1	3.31	2207	0.30	0.02, 1.49
Ohio Valley Medical Center	=	0	2.42	1153	0.00	0, 1.24
Weirton Medical Center	=	0	1.66	1109	0.00	0, 1.80
City Hospital-WVUH-E	=	0	2.74	1304	0.00	0, 1.10
Beckley Appalachian Regional Hospital	=	0	1.18	788	0.00	0, 2.53
Logan Regional Medical Center	=	0	2.34	1560	0.00	0, 1.28
Saint Francis Hospital	=	0	1.01	676	0.00	0, 2.95
Fairmont General Hospital, Inc.	N/P	0	0.64	429	Too Small to Calculate	
Williamson Memorial Hospital	N/P	0	0.16	85	Too Small to Calculate	
CCMC- St. Joseph's Campus*	N/P	0	0.70	500	Too Small to Calculate	
Pleasant Valley Hospital	N/P	1	0.27	181	Too Small to Calculate	
Reynolds Memorial Hospital	N/P	0	0.25	166	Too Small to Calculate	
Davis Memorial Hospital	N/P	0	0.78	517	Too Small to Calculate	
Summersville Regional Medical Center	N/P	0	0.12	80	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/P	0	0.45	303	Too Small to Calculate	
Wetzel County Hospital	N/P	0	0.05	25	Too Small to Calculate	
Welch Community Hospital	=	0	0.17	116	Too Small to Calculate	
Greenbrier Valley Medical Center	=	0	0.95	635	Too Small to Calculate	
Overall WV SIR	✓	**75**	**171.99**	**78906**	**0.44**	**0.35, 0.54**

*CCMC- St. Joseph's Campus merged with Camden Clark Memorial Hospital during the fourth quarter of 2014

Legend:	
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	General 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

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

- In 2014, 11 CLABSIs were reported for Long Term Acute Care Facilities in West Virginia.
- The 2014 CLABSI SIR for West Virginia Long Term Acute Care Facilities is not significantly different than the national SIR from NHSN, with 3% fewer CLABSIs than expected.
- All West Virginia Long Term Acute Care facilities met national standards of CLABSI events by having as many or fewer events than expected.

FIGURE 2: 2014 CLABSI DATA, LONG TERM ACUTE CARE FACILITIES

Central Line Associated Blood Stream Infections (CLABSI) in Long Term Acute Care Hospitals, 2014

Hospital	Hospital Performance Compared to the National Baseline	Number of Infections	Number of Central Line Days	Number of Predicted Infections	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Select Specialty Hospital, Charleston	=	9	6280	5.65	1.60	0.78, 2.92
Cornerstone Hospital of Huntington	=	2	6296	5.67	0.35	0.06, 1.17
WV Overall SIR	=	**11**	**12576**	**11.32**	**0.97**	**0.51, 1.69**

Legend:	
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	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

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.[2] The aggregate attributable patient hospital cost of a CAUTI is between $800 and $1000 per patient.[4] 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.

Beginning in 2013, general acute care hospitals and critical access hospitals that did not have an adult/pediatric ICU were required to report CAUTI events for inpatient Medical/Surgical units as well.

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

- In 2014, there were 162 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 0.79, indicating that 21% 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, with the exception of two (0.07%) General Acute Care Hospitals.
- Of 30 General Acute Care Hospitals, 11 (37%) General Acute Care Hospitals had zero CAUTIs.

FIGURE 3: 2014 CAUTI DATA FOR GENERAL ACUTE CARE HOSPITALS

Catheter Associated Urinary Tract Infections (CAUTI) in General Acute Care Hospitals, 2014

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
West Virginia University (WVUH)	✓	7	25.46	11027	0.28	0.12, 0.54
Raleigh General Hospital	✓	2	10.08	4366	0.20	0.03, 0.66
Monongalia General Hospital	✓	1	5.51	4043	0.18	0.01, 0.89
City Hospital- WVUH-E	✓	1	5.94	2581	0.17	0.01, 0.83
Logan Regional Medical Center	✓	0	3.73	2873	0.00	0, 0.80
Thomas Memorial Hospital	=	8	3.75	2888	2.13	0.99, 4.05
Davis Memorial Hospital	=	2	1.10	844	1.82	0.31, 6.02
Ohio Valley Medical Center	=	5	4.00	1737	1.25	0.46, 2.77
Cabell Huntington Hospital	=	34	28.31	10761	1.20	0.85, 1.66
Bluefield Regional Medical Center	=	2	2.26	1886	0.88	0.15, 2.92
Charleston Area Medical Center (CAMC)	=	49	57.93	22111	0.85	0.63, 1.11
St. Mary's Medical Center	=	18	21.42	8431	0.84	0.51, 1.30
Weirton Medical Center	=	1	1.50	1153	0.67	0.03, 3.29
Princeton Community Hospital	=	3	4.77	2386	0.63	0.16, 1.71
CAMC- Teays Valley Hospital	=	1	2.11	1621	0.48	0.02, 2.34
United Hospital Center	=	1	4.83	4022	0.21	0.01, 1.02
Williamson Memorial Hospital	=	0	1.13	565	0.00	0, 2.65
Beckley Appalachian Regional Hospital	=	0	2.24	1722	0.00	0, 1.34
Greenbrier Valley Medical Center	=	0	1.93	1483	0.00	0, 1.55
Saint Francis Hospital	=	0	1.72	1321	0.00	0, 1.74
Camden Clark Memorial Hospital*	▽	12	4.67	3773	2.57	1.39, 4.37
Wheeling Hospital	▽	12	5.36	4469	2.24	1.21, 3.80
Fairmont General Hospital, Inc.	N/P	1	0.83	637	Too Small to Calculate	
CCMC- St. Joseph's Campus*	N/P	0	1.00	594	Too Small to Calculate	
Pleasant Valley Hospital	N/P	2	0.61	466	Too Small to Calculate	
Reynolds Memorial Hospital	N/P	0	0.93	716	Too Small to Calculate	
Summersville Regional Medical Center	N/P	0	0.29	225	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/P	0	0.73	559	Too Small to Calculate	
Wetzel County Hospital	N/P	0	0.17	86	Too Small to Calculate	
Welch Community Hospital	N/P	0	0.53	411	Too Small to Calculate	
Overall WV SIR	✓	**162**	**204.85**	**99757**	**0.79**	**0.68, 0.92**

Legend:	*CCMC- St. Joseph's Campus merged with Camden Clark Memorial Hospital during the fourth quarter of 2014
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	General 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: Long Term Acute Care Hospitals (Figure 4)

- In 2014, 23 CAUTIs were reported for Long Term Acute Care Facilities in West Virginia.
- The 2014 CAUTI SIR for West Virginia Long Term Acute Care Facilities was not significantly different than the national rate, with 5% fewer CAUTIs than expected.
- All West Virginia long term acute care facilities met national standards for CAUTI events by having a similar number of CAUTI events compared to what was expected.

FIGURE 4: 2014 CAUTI DATA FOR LONG TERM ACUTE CARE HOSPITALS

Catheter Associated Urinary Tract Infections (CAUTI) in Long Term Acute Care Hospitals, 2014

Hospital	Hospital Performance Compared to the National Baseline	Number of Infections	Number of Urinary Catheter Days	Number of Predicted Infections	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Cornerstone Hospital of Huntington	=	12	5779	11.56	1.04	0.56, 1.77
Select Specialty Hospital, Charleston	=	11	6276	12.55	0.88	0.46, 1.52
WV Overall SIR	=	**23**	**12055**	**24.11**	**0.95**	**0.62, 1.41**

Legend:	
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	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 2014, there were 2 CAUTIs reported for all West Virginia Critical Access Hospitals.
- The number of CAUTIs that occurred in West Virginia Critical Access Hospitals in 2014 were less than expected based on the national baseline.
- The West Virginia SIR was 0.20, indicating that 80% fewer CAUTIs occurred than the NHSN baseline expected.
- Of 20 Critical Access Hospitals, 19 (95%) Critical Access Hospitals had zero CAUTIs.

FIGURE 5: 2014 CAUTI DATA FOR CRITICAL ACCESS HOSPITALS

Catheter Associated Urinary Tract Infections (CAUTI) in Critical Access Hospitals, 2014

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
Grafton City Hospital	=	2	1.32	825	1.51	0.25, 4.99
Roane General Hospital	=	0	1.20	749	0	0, 2.50
Sistersville General Hospital	N/P	0	0.06	36	Too Small to Calculate	
Braxton County Memorial Hospital	N/P	0	0.57	358	Too Small to Calculate	
Preston Memorial Hospital	N/P	0	0.85	539	Too Small to Calculate	
Montgomery General Hospital	N/P	0	0.82	434	Too Small to Calculate	
Summers County ARH	N/P	0	0.97	510	Too Small to Calculate	
Minnie Hamilton Health System	N/P	0	0.13	81	Too Small to Calculate	
Potomac Valley Hospital	N/P	0	0.19	93	Too Small to Calculate	
Jackson General Hospital	N/P	0	0.30	234	Too Small to Calculate	
Plateau Medical Center	N/P	0	0.32	245	Too Small to Calculate	
Jefferson Memorial Hospital	N/P	0	0.41	317	Too Small to Calculate	
St. Joseph's Hospital of Buckhannon	N/P	0	0.23	179	Too Small to Calculate	
Grant Memorial Hospital	N/P	0	0.38	290	Too Small to Calculate	
Hampshire Memorial Hospital	N/P	0	0.65	343	Too Small to Calculate	
Broaddus Hospital	N/P	0	0.28	147	Too Small to Calculate	
Pocahontas Memorial Hospital	N/P	0	0.22	136	Too Small to Calculate	
War Memorial Hospital	N/P	0	0.78	489	Too Small to Calculate	
Webster County Memorial Hospital	N/P	0	0.00	2	Too Small to Calculate	
Boone Memorial Hospital	N/P	0	0.17	109	Too Small to Calculate	
Overall WV SIR	✓	**2**	**9.86**	**6116**	**0.20**	**0.03, 0.67**

Legend:	
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	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

Key Findings for CAUTI: Inpatient Rehabilitation Hospitals, Freestanding and Units within a Hospital (Figure 6)

- In 2014, a total of 7 CAUTIs were reported for Freestanding Inpatient Rehabilitation Hospitals and Rehabilitation Units within Hospitals in West Virginia.
- The 2014 CAUTI SIRs for West Virginia Freestanding Inpatient Rehabilitation Hospitals and Rehabilitation Units within Hospitals was not significantly different than the national rate.
- All West Virginia Inpatient Rehabilitation Hospitals and Units met national standards for CAUTI events.
- Of the 8 Inpatient Rehabilitation Hospitals and Units in West Virginia, 3 (38%) of Inpatient Rehabilitation Hospitals and Units had zero CAUTIs.

FIGURE 6: 2014 CAUTI DATA FOR INPATIENT REHABILITATION HOSPITALS, WITHIN HOSPITALS AND FREESTANDING

Catheter Associated Urinary Tract Infections (CAUTI) in Inpatient Rehabilitation Facilities (Within Hospitals and Freestanding), 2014

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)	=	3	1.41	541	2.13	0.54, 5.81
Peterson Rehabilitation Hospital	=	1	1.47	312	0.68	0.03, 3.36
HealthSouth Rehabilitation Hospital of Huntington	=	1	2.05	974	0.49	0.02, 2.41
HealthSouth Western Hills Regional Rehabilitation Hospital	=	1	2.87	931	0.35	0.02, 1.71
HealthSouth Mountain View Regional Rehabilitation Hospital	=	1	3.45	1645	0.29	0.01, 1.43
HealthSouth Southern Hills Rehabilitation Hospital	=	0	1.58	753	0.00	0, 1.89
Weirton Medical Center	N/P	0	0.35	136	Too Small to Calculate	
Logan Regional Medical Center	N/P	0	0.17	67	Too Small to Calculate	
Overall WV SIR	=	**7**	**13.37**	**5359**	**0.52**	**0.23, 1.04**

Legend:	
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	Inpatient 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.[9] 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 7)

- In 2014, there were 87 SSIs for colon procedures reported for all West Virginia General Acute Care Hospitals.
- A significantly higher number of SSIs for colon procedures occurred in West Virginia General Acute Care Hospitals in 2014 than were expected based on the national baseline.
- The West Virginia SIR was 1.39, indicating that 39% more SSIs for colon procedures occurred than were expected.
- Of the 30 General Acute Care Hospitals, 12 (40%) General Acute Care Hospitals had zero SSIs for colon procedures.

[9] 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 7: 2014 SSI FOR COLON PROCEDURES DATA, GENERAL ACUTE CARE HOSPITALS

Surgical Site Infections (SSI) for Colon Procedures (COLO) in General Acute Care Hospitals, 2014

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
Thomas Memorial Hospital	▬	6	2.44	72	2.46	1.00, 5.12
Monongalia General Hospital	▬	6	3.89	137	1.54	0.63, 3.21
Charleston Area Medical Center (CAMC)	▬	18	12.14	340	1.48	0.91, 2.30
United Hospital Center	▬	4	2.78	89	1.44	0.46, 3.47
Ohio Valley Medical Center	▬	2	1.65	49	1.21	0.20, 4.00
Weirton Medical Center	▬	2	1.67	49	1.20	0.20, 3.96
Wheeling Hospital	▬	4	3.52	105	1.14	0.36, 2.74
City Hospital-WVUH-E	▬	2	2.47	74	0.81	0.14, 2.67
Cabell Huntington Hospital	▬	3	3.95	111	0.76	0.19, 2.07
West Virginia University Hospital (WVUH)	▬	4	5.51	147	0.73	0.23, 1.75
Princeton Community Hospital	▬	1	2.13	65	0.47	0.02, 2.31
Camden Clark Memorial Hospital*	▬	0	2.94	94	0.00	0, 1.02
Beckley Appalachian Regional Hospital	▬	0	1.12	31	0.00	0, 2.67
Saint Francis Hospital	▬	0	1.57	46	0.00	0, 1.91
Davis Memorial Hospital	▼	4	1.05	34	3.82	1.21, 9.21
Fairmont General Hospital, Inc.	▼	5	1.45	44	3.44	1.26, 7.63
Raleigh General Hospital	▼	11	3.53	102	3.11	1.64, 5.41
St. Mary's Medical Center	▼	10	4.38	141	2.28	1.16, 4.07
Williamson Memorial Hospital	N/P	0	0.00	0	Too Small to Calculate	
CCMC- St. Joseph's Campus*	N/P	0	0.03	1	Too Small to Calculate	
Pleasant Valley Hospital	N/P	0	0.35	10	Too Small to Calculate	
Reynolds Memorial Hospital	N/P	1	0.20	8	Too Small to Calculate	
Summersville Regional Medical Center	N/P	0	0.79	22	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/P	0	0.56	17	Too Small to Calculate	
Wetzel County Hospital	N/P	0	0.00	0	Too Small to Calculate	
CAMC- Teays Valley Hospital	N/P	0	0.80	26	Too Small to Calculate	
Bluefield Regional Medical Center	N/P	0	0.71	19	Too Small to Calculate	
Logan Regional Medical Center	N/P	1	0.30	9	Too Small to Calculate	
Welch Community Hospital	N/P	0	0.22	6	Too Small to Calculate	
Greenbrier Valley Medical Center	N/P	3	0.68	22	Too Small to Calculate	
Overall WV SIR	▼	**87**	**62.81**	**1870**	**1.39**	**1.12, 1.70**

*CCMC- St. Joseph's Campus merged with Camden Clark Memorial Hospital during the fourth quarter of 2014

Legend:	
✓	The number of infections was **significantly lower (better)** than predicted
▬	The number of infections was **similar (not significantly different)** than predicted
▼	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	General Acute Care patients had too few colon prodecures 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 8)

- In 2014, 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 2014 than were expected based on the national baseline.
- The West Virginia SIR was 1.13, indicating that 13% more 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.
- Of the 30 General Acute Care Hospitals, 19 (63%) of General Acute Care Hospitals had zero SSIs for abdominal hysterectomy procedures.

FIGURE 8: 2014 SSI FOR ABDOMINAL HYSTERECTOMY PROCEDURES, GENERAL ACUTE CARE HOSPITALS

Surgical Site Infections (SSI) for Abdominal Hysterectomies (HYST) in General Acute Care Hospitals, 2014

Hospital	Hospital Performance Compared to NHSN National Baseline	Number of Infections	Number of Predicted Infections	Number of Abdominal Hysterectomies Performed	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Camden Clark Memorial Hospital*		4	1.49	162	2.68	0.85, 6.46
Thomas Memorial Hospital		4	2.67	202	1.50	0.48, 3.61
Charleston Area Medical Center (CAMC)		3	3.63	313	0.83	0.21, 2.25
Cabell Huntington Hospital		2	3.24	280	0.62	0.10, 2.04
West Virginia University Hospital (WVUH)		1	1.62	139	0.62	0.03, 3.04
Monongalia General Hospital		0	1.80	183	0.00	0, 1.66
Raleigh General Hospital	N/P	0	0.13	13	Too Small to Calculate	
Fairmont General Hospital, Inc.	N/P	0	0.08	7	Too Small to Calculate	
Williamson Memorial Hospital	N/P	0	0.19	18	Too Small to Calculate	
CCMC- St. Joseph's Campus*	N/P	0	0.00	0	Too Small to Calculate	
Pleasant Valley Hospital	N/P	0	0.09	8	Too Small to Calculate	
Reynolds Memorial Hospital	N/P	1	0.20	17	Too Small to Calculate	
Davis Memorial Hospital	N/P	0	0.43	37	Too Small to Calculate	
Summersville Regional Medical Center	N/P	0	0.01	1	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/P	0	0.21	17	Too Small to Calculate	
Ohio Valley Medical Center	N/P	0	0.44	47	Too Small to Calculate	
Weirton Medical Center	N/P	0	0.49	43	Too Small to Calculate	
Princeton Community Hospital	N/P	2	0.20	20	Too Small to Calculate	
Wetzel County Hospital	N/P	0	0.00	0	Too Small to Calculate	
City Hospital-WVUH-E	N/P	0	0.40	33	Too Small to Calculate	
CAMC- Teays Valley Hospital	N/P	0	0.03	2	Too Small to Calculate	
Beckley Appalachian Regional Hospital	N/P	0	0.09	8	Too Small to Calculate	
Bluefield Regional Medical Center	N/P	0	0.14	13	Too Small to Calculate	
Logan Regional Medical Center	N/P	0	0.03	3	Too Small to Calculate	
United Hospital Center	N/P	0	0.26	19	Too Small to Calculate	
Welch Community Hospital	N/P	1	0.13	12	Too Small to Calculate	
Greenbrier Valley Medical Center	N/P	1	0.23	25	Too Small to Calculate	
St. Mary's Medical Center	N/P	0	0.22	25	Too Small to Calculate	
Wheeling Hospital	N/P	2	0.99	94	Too Small to Calculate	
Saint Francis Hospital	N/P	1	0.12	9	Too Small to Calculate	
Overall WV SIR		**22**	**19.53**	**1750**	**1.13**	**0.72, 1.68**

*CCMC- St. Joseph's Campus merged with Camden Clark Memorial Hospital during the fourth quarter of 2014

Legend:	
	The number of infections was **significantly lower (better)** than predicted
	The number of infections was **similar (not significantly different)** than predicted
	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	General Acute Care patients had too few abdominal hysterectomies 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.[10]

Beginning in 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.[11]

Key Findings for MRSA Bacteremia LabID Events: General Acute Care Hospitals (Figure 9)

- In 2014, there were 74 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 2014 than were expected based on the national baseline.
- The West Virginia SIR was 0.84, indicating that 16% 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.
- Of the 30 General Acute Care Hospitals, 14 (47%) General Acute Care Hospitals had zero infections.

[10] 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.

[11] 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. November 2014.

FIGURE 9: 2014 MRSA BACTEREMIA LABID EVENTS, GENERAL ACUTE CARE HOSPITALS

Methicillin-Resistant *Staphylococcus aureus* (MRSA) Infections in General Acute Care Hospitals, 2014

Hospital	Hospital Performance Compared to NHSN National Baseline	Number of Infections	Number of Predicted Infections	Number of Patient Days	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
West Virginia University Hospital (WVUH)	✓	6	14.48	140979	0.41	0.17, 0.86
Logan Regional Medical Center	=	4	1.38	23568	2.90	0.92, 7.00
Raleigh General Hospital	=	5	2.96	51202	1.69	0.62, 3.75
Cabell Huntington Hospital	=	9	6.45	97884	1.40	0.68, 2.56
United Hospital Center	=	4	3.73	64113	1.07	0.34, 2.59
Charleston Area Medical Center (CAMC)	=	22	21.35	198031	1.03	0.66, 1.54
Saint Francis Hospital	=	1	1.01	16649	0.99	0.05, 4.90
St. Mary's Medical Center	=	9	10.18	97656	0.88	0.43, 1.62
Bluefield Regional Medical Center	=	1	1.25	16255	0.80	0.04, 3.96
Fairmont General Hospital, Inc.	=	1	1.27	26287	0.79	0.04, 3.88
Camden Clark Memorial Hospital	=	2	2.76	61632	0.73	0.12, 2.40
Beckley Appalachian Regional Hospital	=	1	1.62	25804	0.62	0.03, 3.05
Princeton Community Hospital	=	1	2.03	41548	0.49	0.03, 2.43
Monongalia General Hospital	=	1	2.10	42238	0.48	0.02, 2.35
Thomas Memorial Hospital	=	0	2.44	49928	0.00	0, 1.23
Ohio Valley Medical Center	=	0	2.20	38409	0.00	0, 1.36
Weirton Medical Center	=	0	1.29	24287	0.00	0, 2.32
City Hospital-WVUH-E	=	0	2.10	42417	0.00	0, 1.43
Greenbrier Valley Medical Center	=	0	1.59	17948	0.00	0, 1.88
Wheeling Hospital	▽	6	2.27	50024	2.65	1.07, 5.51
Williamson Memorial Hospital	N/P	0	0.24	6069	Too Small to Calculate	
CCMC- St. Joseph's Campus*	N/P	0	0.35	9761	Too Small to Calculate	
Pleasant Valley Hospital	N/P	0	0.27	5888	Too Small to Calculate	
Reynolds Memorial Hospital	N/P	0	0.35	9689	Too Small to Calculate	
Davis Memorial Hospital	N/P	1	0.51	11888	Too Small to Calculate	
Summersville Regional Medical Center	N/P	0	0.44	8098	Too Small to Calculate	
Stonewall Jackson Memorial Hospital	N/P	0	0.37	7992	Too Small to Calculate	
Wetzel County Hospital	N/P	0	0.16	3219	Too Small to Calculate	
CAMC- Teays Valley Hospital	N/P	0	0.64	10667	Too Small to Calculate	
Welch Community Hospital	N/P	0	0.06	1750	Too Small to Calculate	
Overall WV SIR	=	**74**	**87.84**	**1201880**	**0.84**	**0.67, 1.05**

Legend:	*CCMC- St. Joseph's Campus merged with Camden Clark Memorial Hospital during the fourth quarter of 2014
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	General Acute Care patients 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
Italics	The facility has at least one quarter where the community-onset prevalence rate was higher than 0.88 (NHSN pre-determined threshold), therefore those affected outlier quarters are removed from SIR calculation by NHSN.

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.[11] 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.[12]

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.[12]

Key Findings for CDI LabID Events: General Acute Care Hospitals (Figure 10)

- In 2014, there were 810 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 2014 than were expected based on the national baseline.
- The West Virginia SIR was 0.96, indicating that 4% fewer 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 two West Virginia General Acute Care Hospitals met or exceeded national standards.
- Of the 30 General Acute Care Hospitals, 2 (0.07%) General Acute Care Hospitals had zero CDI LabID Events.

[12] 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. November 2014.

FIGURE 10: 2014 CDI LABID EVENTS, GENERAL ACUTE CARE HOSPITALS

***Clostridium difficile* Infections (CDI) in General Acute Care Hospitals, 2014**

Hospital	Hospital Performance Compared to NHSN National Baseline	Number of Infections	Number of Predicted Infections	Number of Patient Days	Standardized Infection Ratio (SIR)	95% Confidence Interval for SIR
Cabell Huntington Hospital	✓	50	69.52	76716	0.72	0.54, 0.94
Camden Clark Memorial Hospital*	✓	24	35.77	58058	0.67	0.44, 0.98
United Hospital Center	✓	28	46.41	64113	0.60	0.41, 0.86
City Hospital-WVUH-E	✓	21	35.46	42317	0.59	0.38, 0.89
Princeton Community Hospital	✓	17	31.12	39765	0.55	0.33, 0.86
Ohio Valley Medical Center	✓	12	29.51	37600	0.41	0.22, 0.69
Davis Memorial Hospital	✓	1	5.65	11615	0.18	0.01, 0.87
Summersville Regional Medical Center	=	5	2.79	5449	1.79	0.66, 3.97
CAMC- Teays Valley Hospital	=	8	5.10	5781	1.57	0.73, 2.98
Bluefield Regional Medical Center	=	11	8.10	16161	1.36	0.71, 2.36
Wheeling Hospital	=	47	36.09	46734	1.30	0.97, 1.72
Saint Francis Hospital	=	10	9.01	16649	1.11	0.56, 1.98
Beckley Appalachian Regional Hospital	=	20	18.49	25804	1.08	0.68, 1.64
Charleston Area Medical Center (CAMC)	=	177	173.11	183971	1.02	0.88, 1.18
Fairmont General Hospital, Inc.	=	16	16.25	25703	0.99	0.58, 1.57
Monongalia General Hospital	=	24	25.60	40930	0.94	0.62, 1.37
West Virginia University Hospital (WVUH)	=	99	110.28	123258	0.90	0.73, 1.09
Stonewall Jackson Memorial Hospital	=	3	3.37	7809	0.89	0.23, 2.42
Greenbrier Valley Medical Center	=	8	8.99	15990	0.89	0.41, 1.69
Logan Regional Medical Center	=	12	13.50	22946	0.89	0.48, 1.51
Weirton Medical Center	=	15	17.33	24287	0.87	0.50, 1.40
Pleasant Valley Hospital	=	2	2.85	5737	0.70	0.12, 2.32
Wetzel County Hospital	=	1	1.48	3021	0.68	0.03, 3.34
Thomas Memorial Hospital	=	15	22.42	44610	0.67	0.39, 1.08
Reynolds Memorial Hospital	=	3	6.16	9689	0.49	0.12, 1.33
CCMC- St. Joseph's Campus*	=	1	4.26	9761	0.24	0.01, 1.16
Williamson Memorial Hospital	=	0	2.57	5897	0.00	0, 1.17
Raleigh General Hospital	▽	57	26.37	47749	2.16	1.65, 2.78
St. Mary's Medical Center	▽	123	74.57	96738	1.65	1.38, 1.96
Welch Community Hospital	N/P	0	0.75	1606	Too Small to Calculate	
Overall WV SIR	=	**810**	**842.89**	**1116464**	**0.96**	**0.90, 1.03**

*CCMC- St. Joseph's Campus merged with Camden Clark Memorial Hospital during the fourth quarter of 2014

Legend:	
✓	The number of infections was **significantly lower (better)** than predicted
=	The number of infections was **similar (not significantly different)** than predicted
▽	The number of infections was **significantly higher (worse)** than predicted
No Comparison Possible (N/P)	General Acute Care patients 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
Italics	The facility has at least one quarter where the community-onset prevalence rate was higher than 1.78 (NHSN pre-determined threshold), therefore those affected outlier quarters are removed from SIR calculation by NHSN.

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.[13]

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 58 West Virginia hospitals (general acute care, critical access, long term acute care, non-state run psychiatric hospitals, and inpatient rehabilitation hospitals) that were required to report, did so for the 2014-2015 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) were required to report both inpatient and outpatient personnel who worked in the healthcare facility for at least one day during the reporting season. Additionally, inpatient rehabilitation units within hospitals were required to report personnel influenza vaccination status separately from the rest of the facility.

For the 2014-2015 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. A combined graph of all hospitals and units was also created for both employees and healthcare workers for the 2014-2015 influenza season.

[13] 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.

Key Findings for Healthcare Personnel Influenza Vaccinations, by Hospital Type and Healthcare Personnel Population (Figures 11-22)

- 78.4% of all healthcare workers in all West Virginia hospitals (including employees, licensed independent practitioners, and student volunteers) received a seasonal influenza vaccination during the 2014-2015 influenza season, up from 76.9% from last year.
- The percentage of healthcare employees in West Virginia that received a seasonal influenza vaccination ranged from a low of 45% to a high of 100% by facility for the 2014-2015 season, with an average of 81.1% of hospital employees vaccinated.
- 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 2014-2015 season, 20 of 58 (34%) of West Virginia hospitals have exceeded this goal.[14]
- During the 2014-2015 seasons, 100% (58) of hospitals provided the seasonal influenza vaccine to all employees at no cost.
- Methods of influenza vaccination included: vaccination in wards, clinics, cafeterias, and/or common areas (77.5%), mobile vaccination carts (75.8%), vaccinations at meetings or grand rounds (67.2%), vaccination during nights and weekends (98.3%), and vaccination through occupational/employee health (89.7%). Other methods included a special vaccination week, facility health assessments, health fairs, and 24/7 access to vaccination in ED.
- For declinations, 79.3% (46) of hospitals require a completed form from the employee, 9% (5) of hospitals accept verbal declinations, and 3.5% (2) of hospitals do not require anything from employees who refuse vaccination.
- Vaccination strategies of hospitals included 87.9% (51) plan to provide feedback of vaccination rates to administration, 84.5% (49) had vaccination campaigns, including posters, flyers, buttons, and/or fact sheets, 31% (18) of hospitals coordination vaccination with other annual programs, 96.6% (56) of hospitals provide education on benefits and risks of vaccination, 17.2% (10) require receipt of vaccination as condition of employment, 32.8% (19) provide incentives for vaccination, and 75.9% (44) send reminders by mail, email, and/or pager.
- 56.9% (33) of hospitals track unit-based vaccination rates for some units, while 51.7% (30) of hospitals track vaccination rates on a regular basis for targeting purposes.
- Vaccination campaigns of hospitals include 100% (58) of hospitals target full-time and part-time employees, 82.8% (48) of hospitals targeted a campaign to students and trainees, and 77.6% (45) of hospitals targeted adult volunteers.
- Of 58 hospitals, 54 (93.1%) required documentation for off-site vaccinations.

[14] 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 11: 2014-2015 INFLUENZA SEASON, HOSPITAL EMPLOYEES, GENERAL ACUTE CARE HOSPITALS

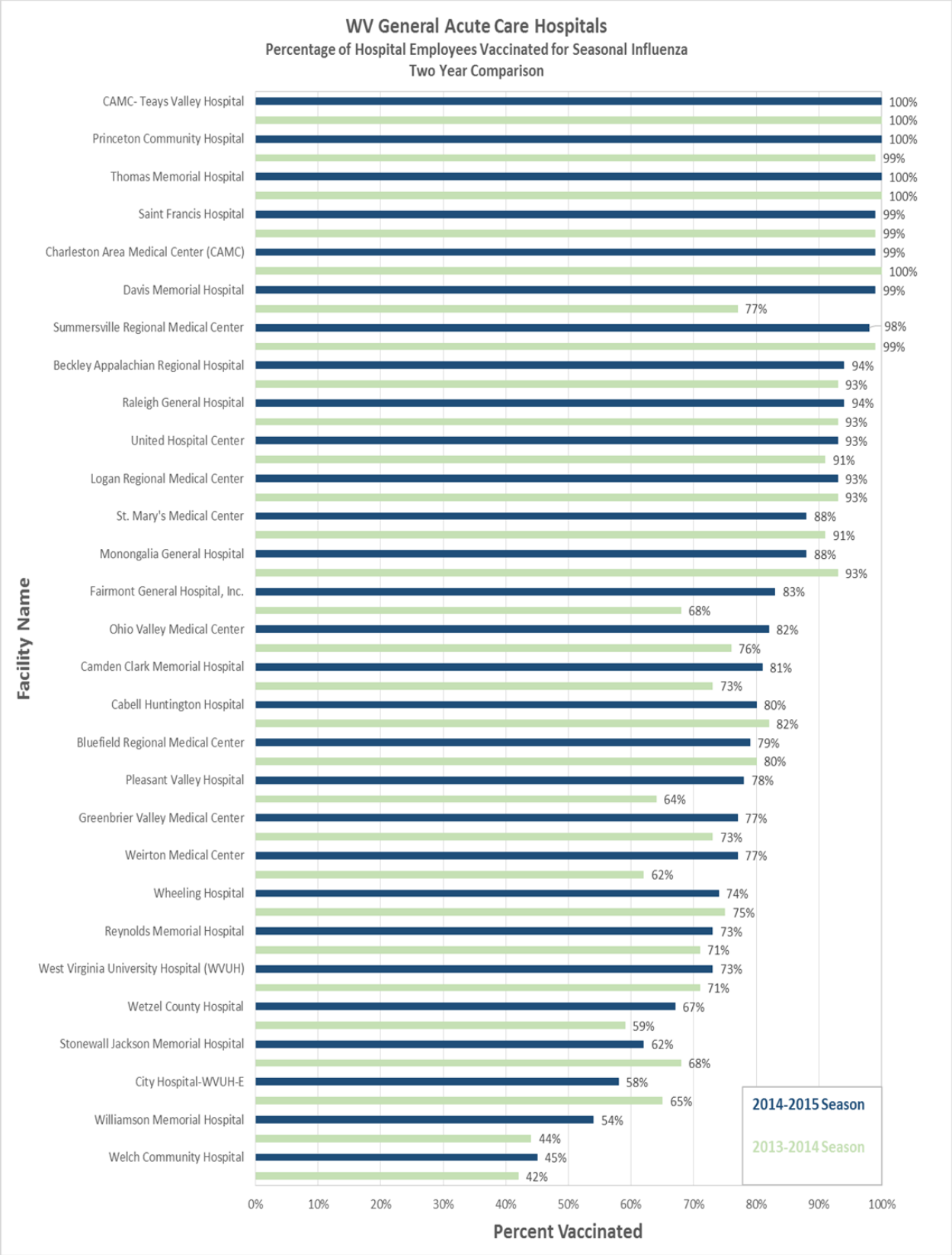


FIGURE 12: 2014-2015 INFLUENZA SEASON, ALL HOSPITAL WORKERS, GENERAL ACUTE CARE HOSPITALS

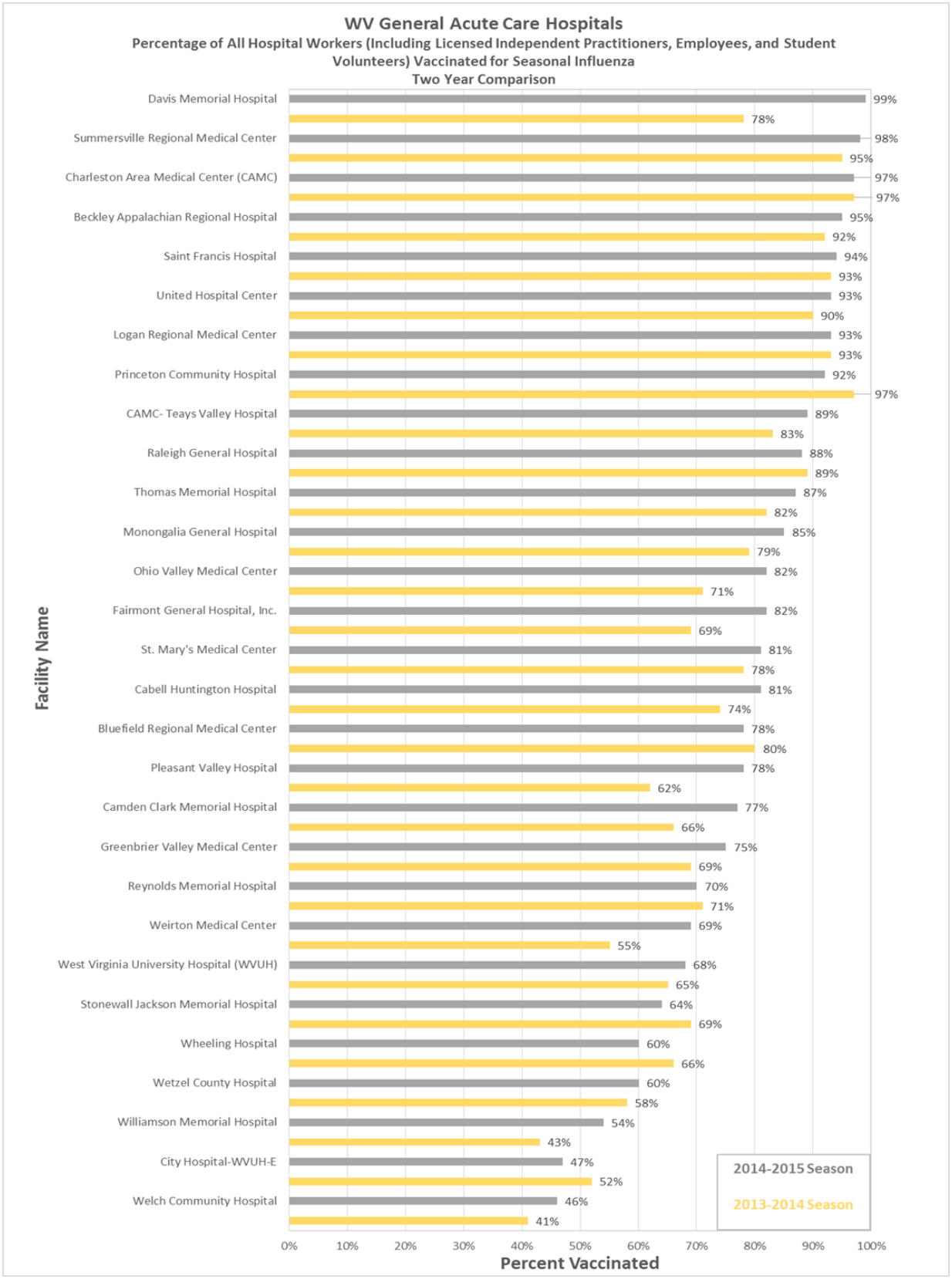


FIGURE 13: 2014-2015 INFLUENZA SEASON, HOSPITAL EMPLOYEES, CRITICAL ACCESS HOSPITALS

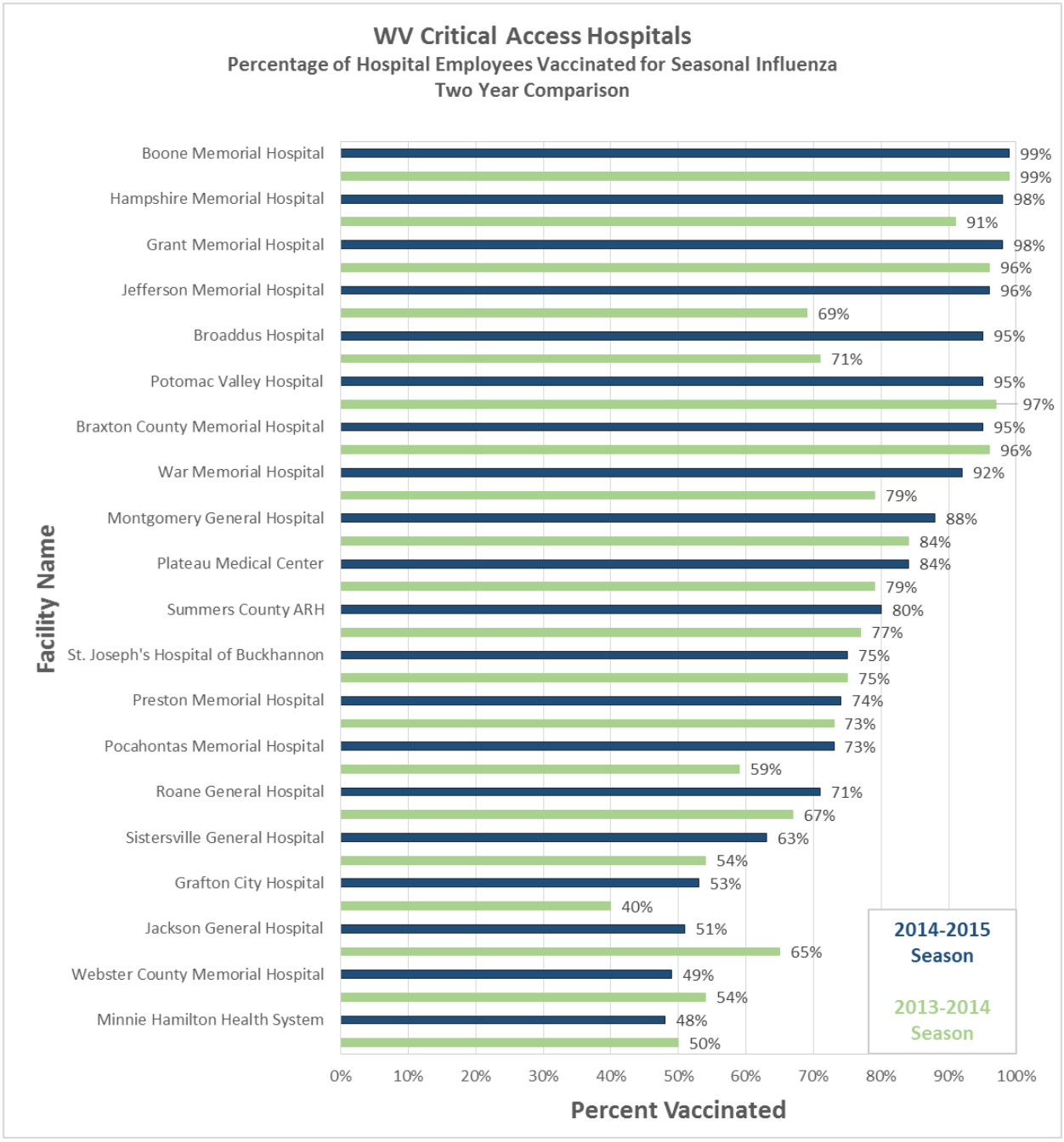


FIGURE 14: 2014-2015 INFLUENZA SEASON, ALL HOSPITAL WORKERS, CRITICAL ACCESS HOSPITALS

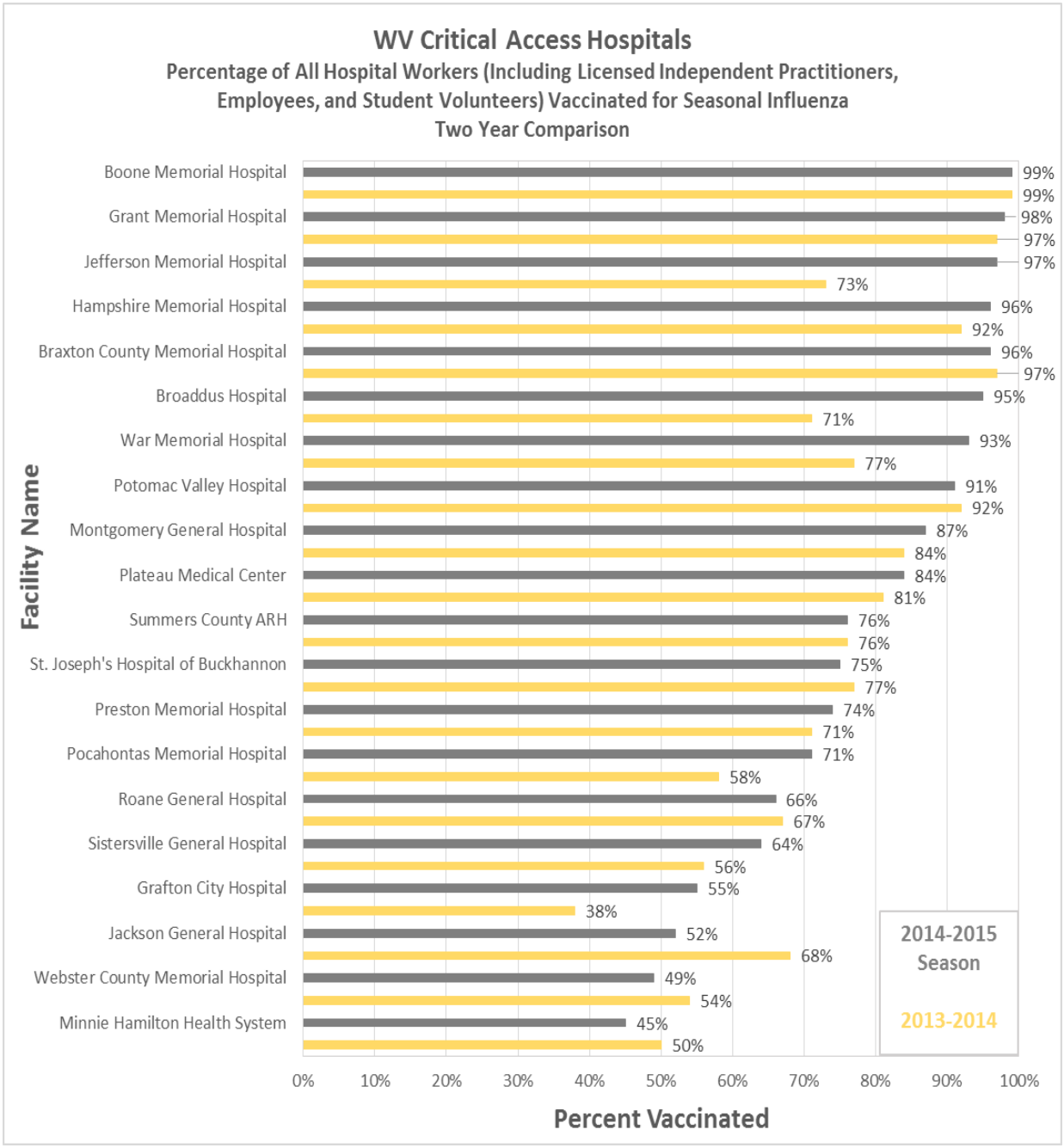


FIGURE 15: 2014-2015 INFLUENZA SEASON, HOSPITAL EMPLOYEES, INPATIENT REHABILITATION HOSPITALS AND WARDS

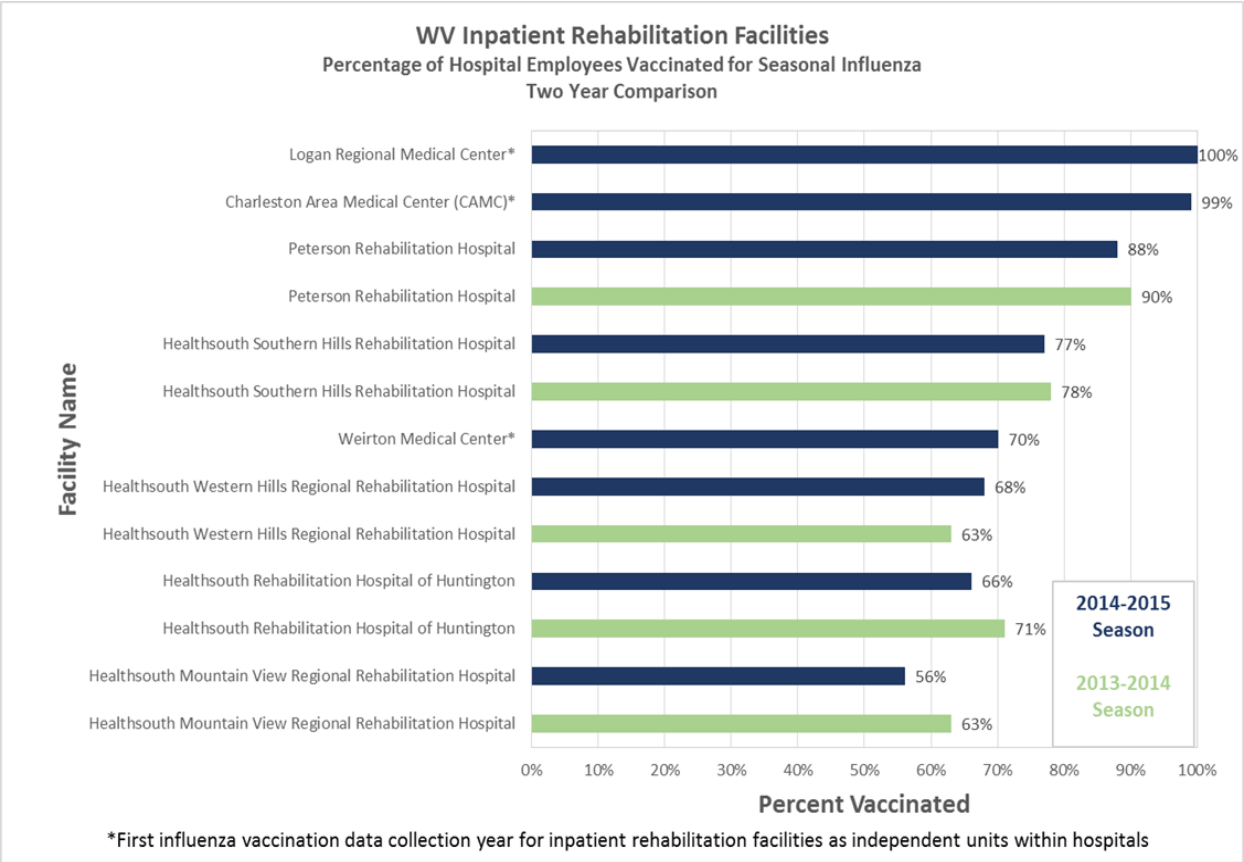


FIGURE 16: 2014-2015 INFLUENZA SEASON, ALL HOSPITAL WORKERS, INPATIENT REHABILITATION HOSPITALS AND WARDS

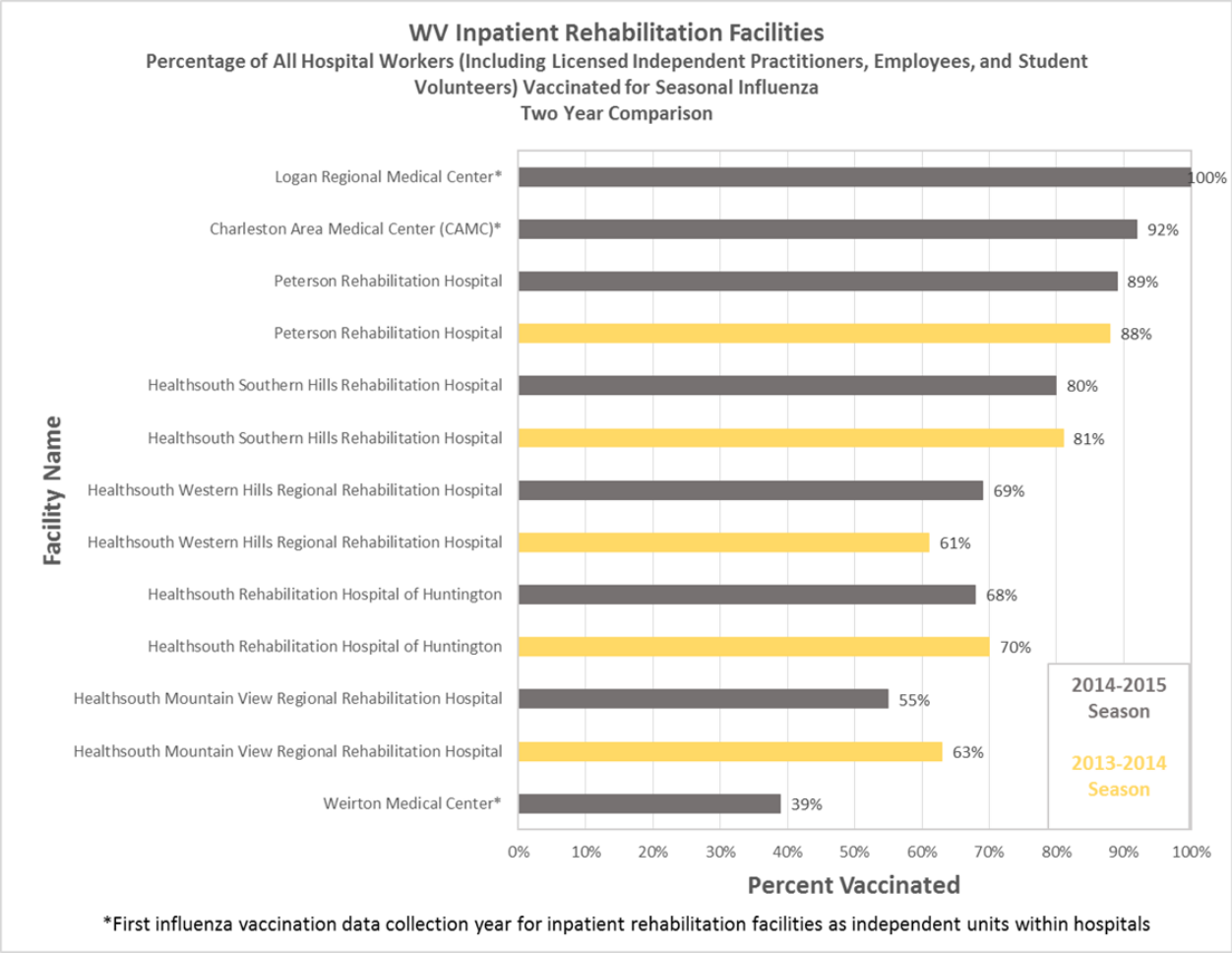


FIGURE 17: 2014-2015 INFLUENZA SEASON, HOSPITAL EMPLOYEES, PSYCHIATRIC HOSPITALS

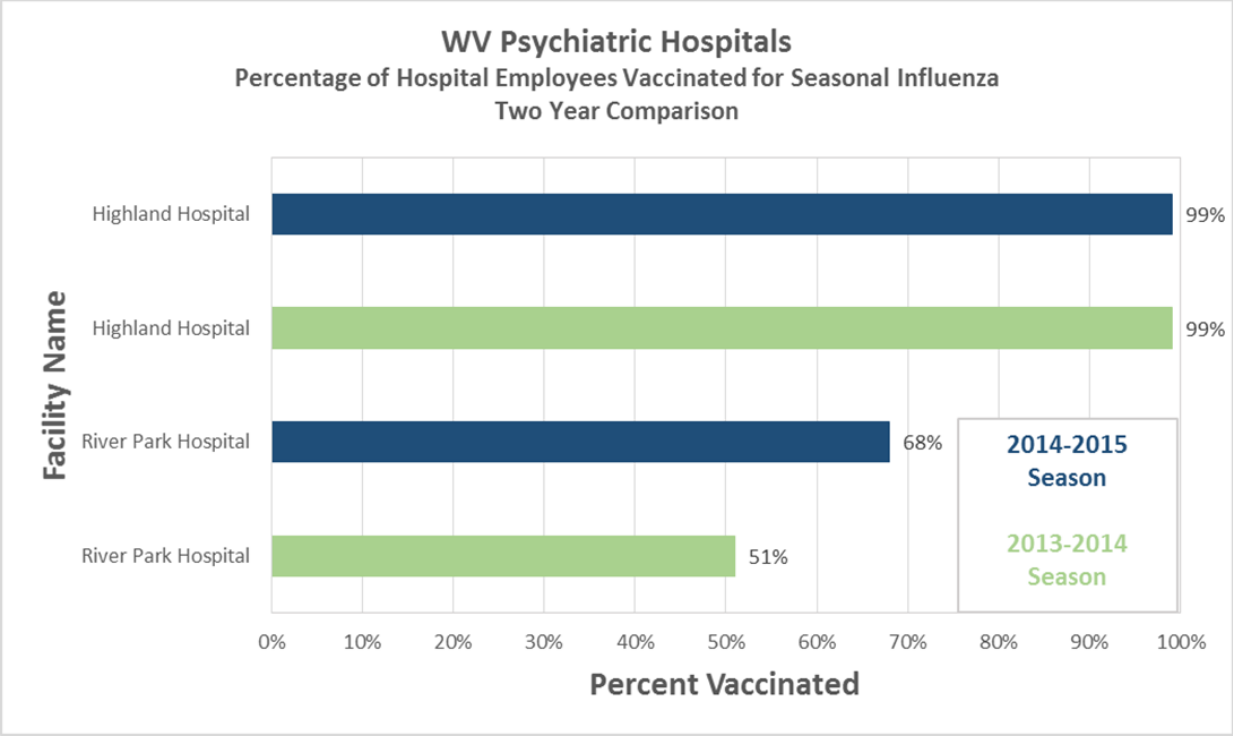


FIGURE 18: 2014-2015 INFLUENZA SEASON, ALL HOSPITAL WORKERS, PSYCHIATRIC HOSPITALS

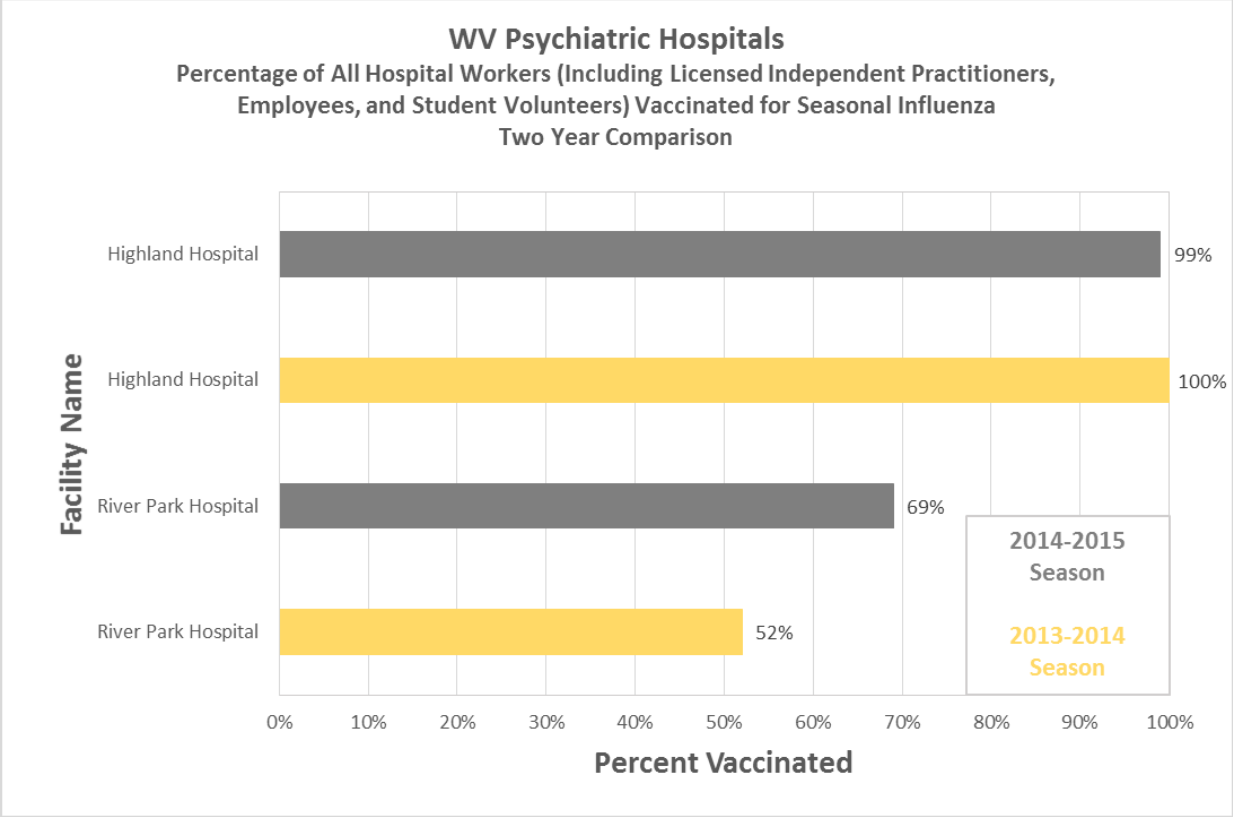


FIGURE 19: 2014-2015 INFLUENZA SEASON, HOSPITAL EMPLOYEES, LONG TERM ACUTE CARE HOSPITALS

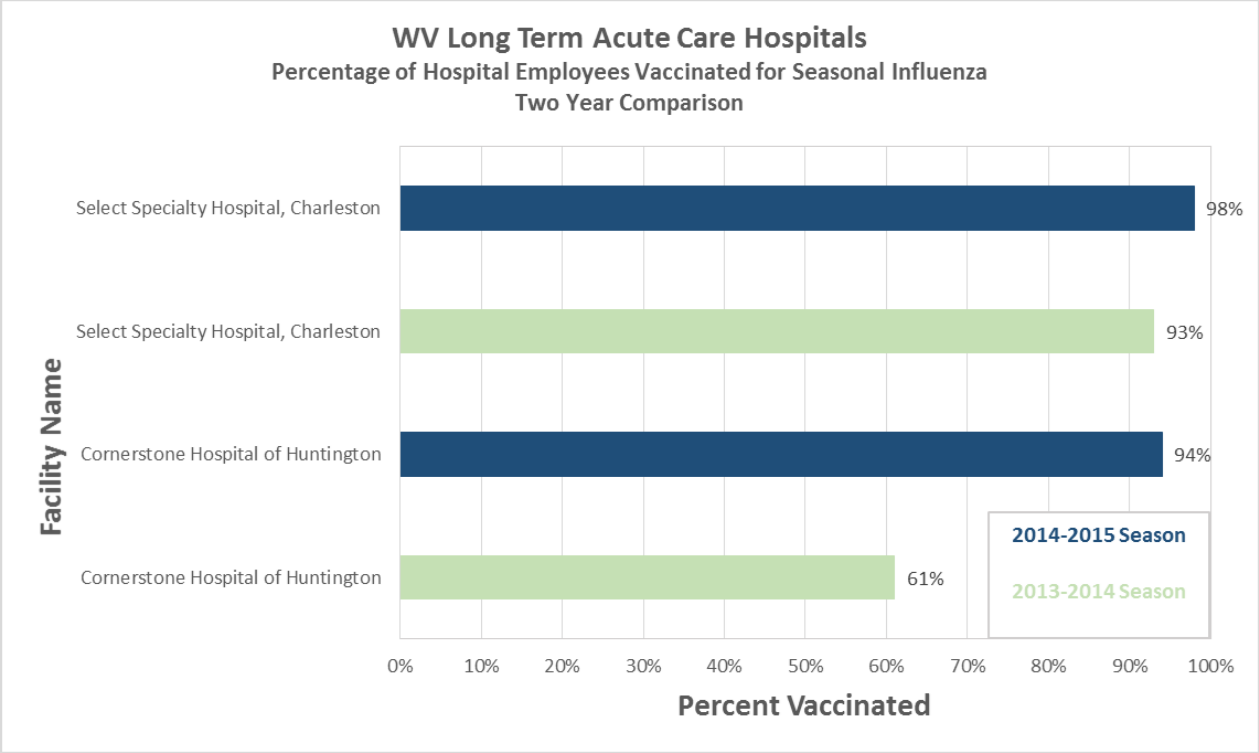


FIGURE 20: 2014-2015 INFLUENZA SEASON, ALL HOSPITAL WORKERS, LONG TERM ACUTE CARE HOSPITALS

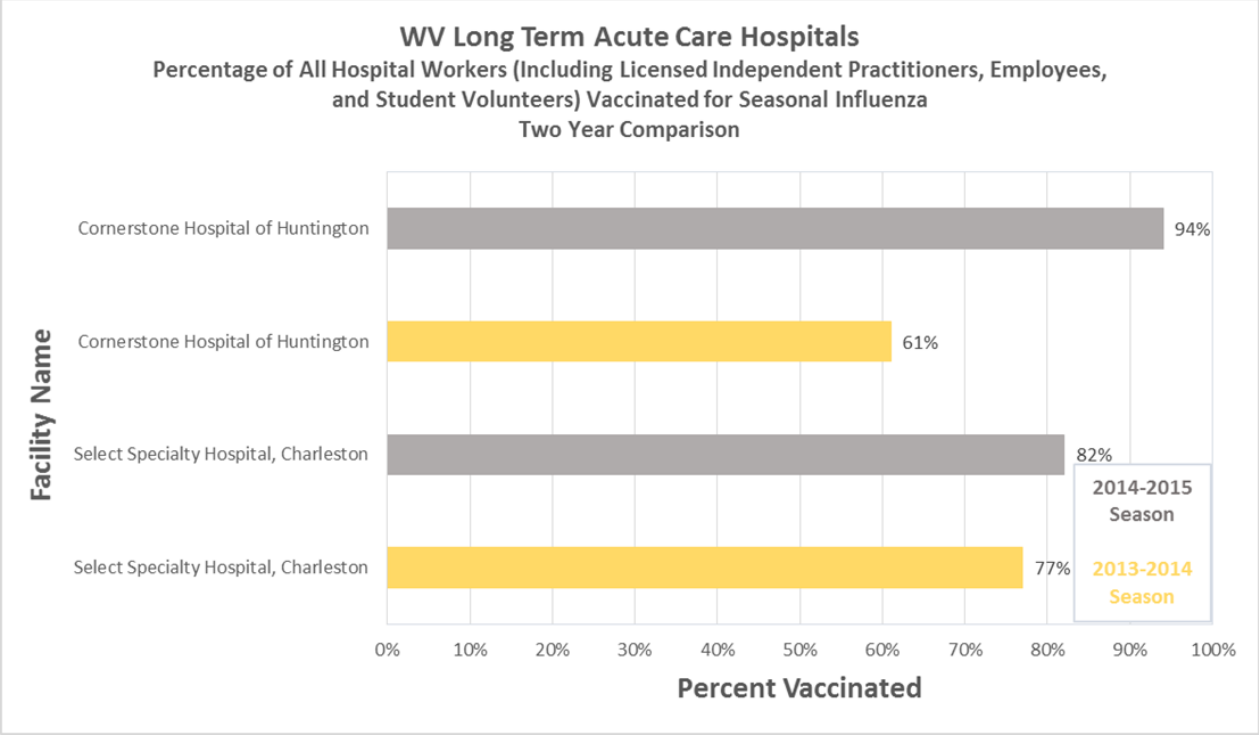


FIGURE 21: 2014-2015 INFLUENZA SEASON, HOSPITAL EMPLOYEES, ALL WV HOSPITALS (WV AVERAGE: 81.1%)

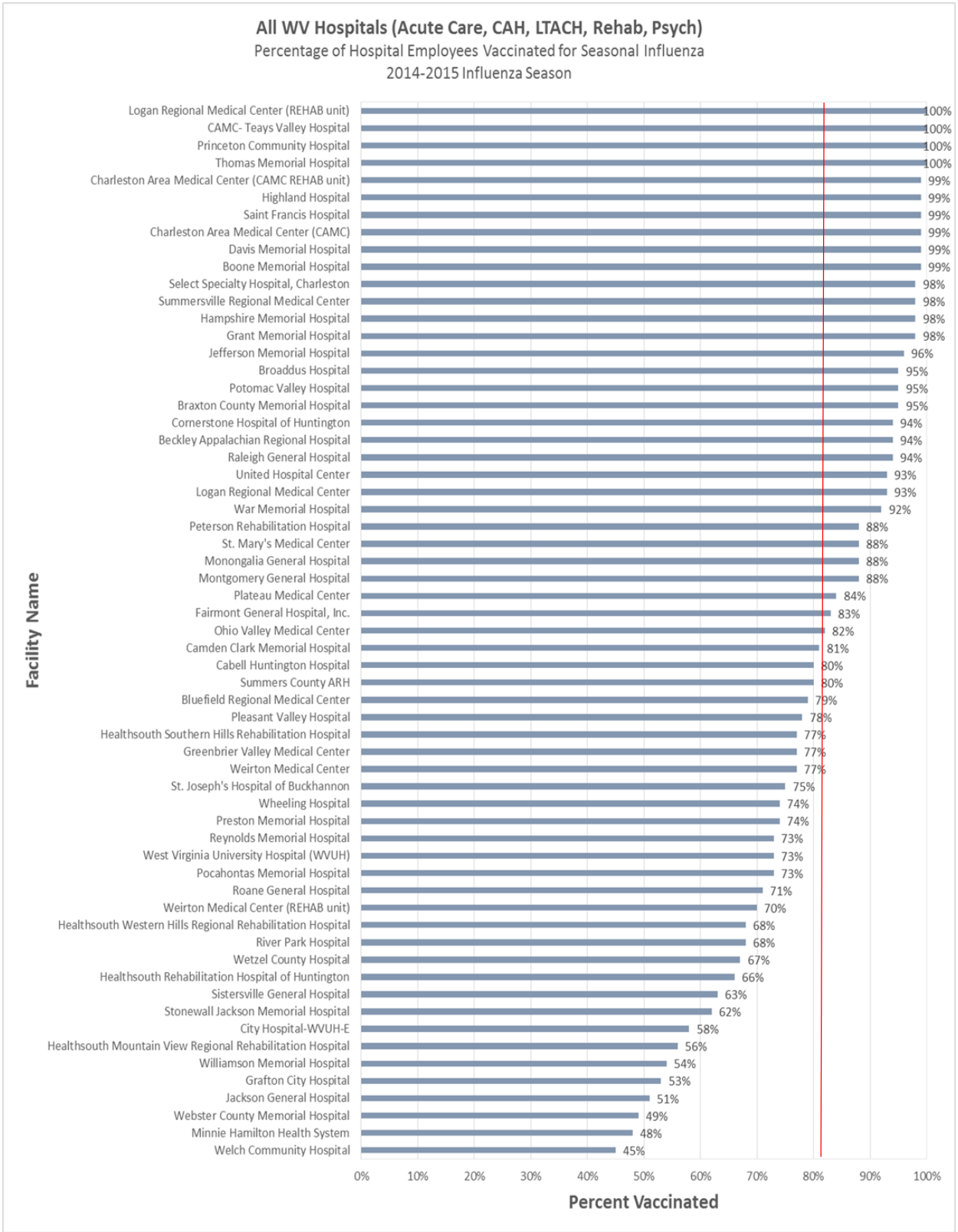
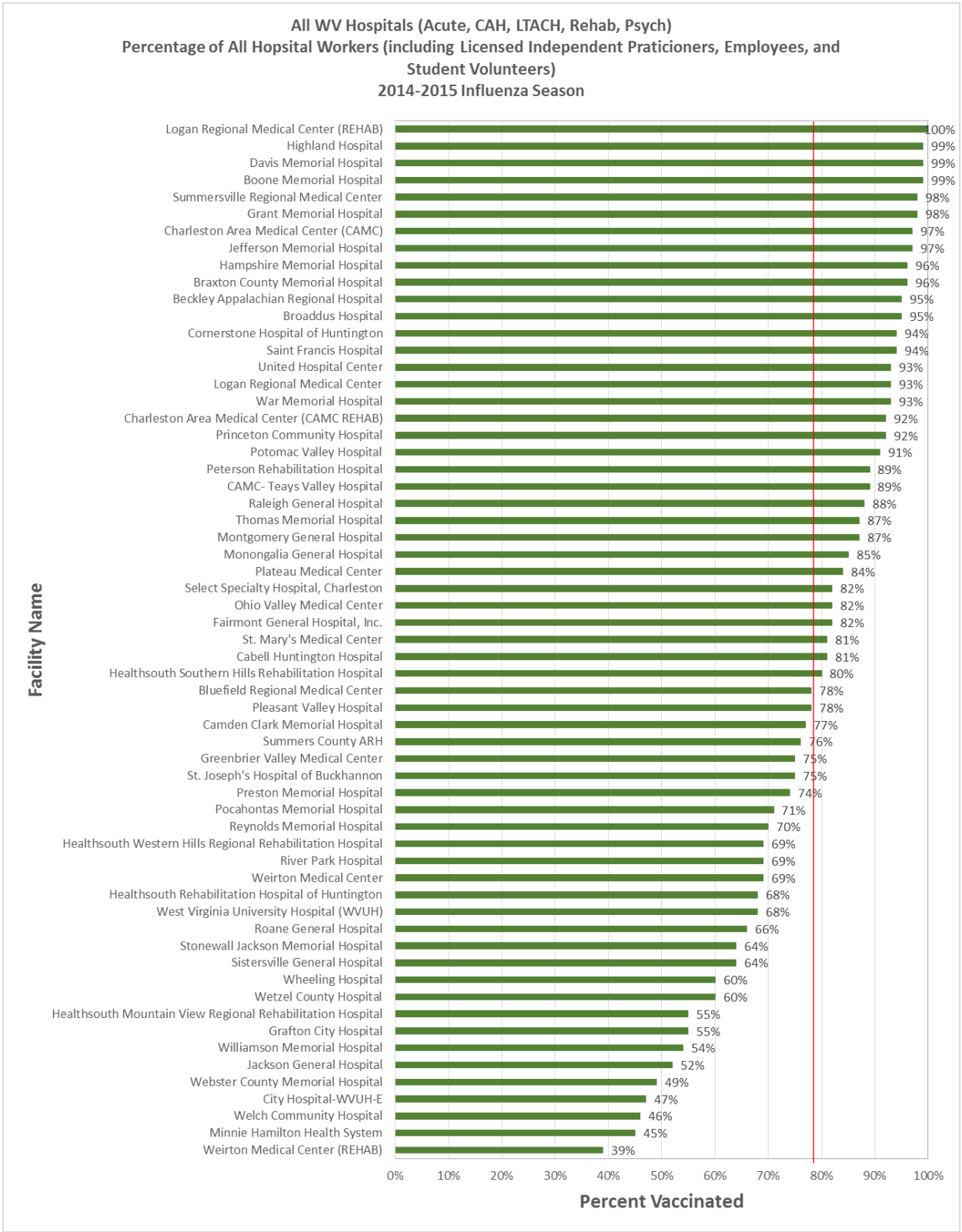


FIGURE 22: 2014-2015 INFLUENZA SEASON, ALL HOSPITAL WORKERS, ALL WV HOSPITALS (WV AVERAGE: 78.4%)



Advisory Panel Accomplishments and Future Directions

The HAI Control Advisory Panel has made some changes to published hospital reporting by continuing to redesign and simplify the HAI reports, including the addition of color-coded SIR graphs, expansion of the influenza graphs to include all hospital comparisons during the season and the provision of hospital influenza survey data.

Due to the success of its first implementation, the HAI Control Advisory Panel has continued the HAI Data Submission Quality Review Schedule and Procedure, which provides hospitals with data submission deadlines that may assist in avoiding state penalties, and potentially, federal penalties. For the first time in the last several years, all hospitals are now submitting the data timely and according to the schedule.

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 2014 HAI Report, a set of future HAI initiatives were proposed. Below is a description of the Panel's goals and actions for meeting those goals:

2014 HAI Panel Goals	Actions
Continue to revise and update the data quality review schedule and procedure to ensure timely data submission	Updated and continued the data quality review schedule after the success of the first year of implementation
Continue to assist healthcare facilities regarding data submission and technical concerns regarding NHSN	Provided email and phone support for hospitals submitting data and assisted with 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	Reporting requirements were reviewed and the HAI Control Advisory Panel advised to continue following CMS reporting requirements into the next data year. In addition, the reporting guide was updated to reflect current reporting requirements

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 moved into the new data collection year, the goals for the 2015 data collection year 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 and investigate additional avenues to assist hospitals with NHSN
- Explore potential areas of collaboration with other agencies and organizations to provide training, education, or other information regarding hospital reporting in NHSN
- Revise reporting requirements for 2015 data collection year (**Table 2**) 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.

TABLE 2: WEST VIRGINIA HAI PUBLIC REPORTING REQUIRED MEASURES, 2015

Reporting Requirement	Facility Type	HAI Event	Reporting Specifications
CMS Requirement	General Acute Care Hospitals Only (Non-Critical Access)	CLABSI	Adult, Pediatric/Neonatal ICUs, Adult/Pediatric Medical, Surgical, and Medical/Surgical Wards
		CAUTI	Adult and Pediatric ICUs, Adult/Pediatric Medical, Surgical, and Medical/Surgical Wards
		SSI: COLO	Inpatient COLO Procedures
		SSI: HYST	Inpatient HYST Procedures
		MRSA Bacteremia LabID Event	Facility Wide Inpatient, Emergency Department and Observation Stays
		C. *difficile* LabID Event	Facility Wide Inpatient, Emergency Department and Observation Stays
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel, with inpatient rehab units reporting separately
	Long-Term Acute Care Hospitals	CLABSI	Adult & Pediatric LTAC ICUs & Wards
		CAUTI	Adult & Pediatric LTAC ICUs & Wards
		MRSA Bacteremia LabID Event	Facility Wide Inpatient
		C. difficile LabID Event	Facility Wide Inpatient

		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
	Inpatient Rehabilitation Facility	CAUTI	Adult and Pediatric Wards
		MRSA Bacteremia LabID Event	Facility Wide Inpatient
		C. difficile LabID Event	Facility Wide Inpatient
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
State Requirement	Critical Access Hospitals	CAUTI	Medical, Surgical, Medical/Surgical, ICUs, Adult/Pediatric Medical, Surgical, and Medical/Surgical Wards
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
	Psychiatric Hospitals (Excluding State-Run Facilities)	Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel

There were no reporting changes between the 2014 and 2015 data reporting years; however, CMS continues to review critical access hospitals and mandatory reporting for future years.

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.[15] 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.

[15] Centers for Disease Control and Prevention. NHSN e-News: *SIRs Special Edition.* October 2010 (updated December 2010);1.