



West Virginia Health Care Authority

Healthcare-Associated Infection Public Reporting Program

2013 Annual Report

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Earl Ray Tomblin

Governor

Rocco S. Fucillo, Secretary

West Virginia Department of Health and Human Resources

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Melody Gwilliam, Epidemiologist
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West Virginia Healthcare-Associated Infection Control Advisory Panel

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

Dee Bixler, MD
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 E. 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

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

Thomas Rushton, MD, FACP, FIDSA, FSHEA
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

Introduction

Healthcare-associated infections (HAIs) can be acquired from any healthcare setting, but patients receiving medical or surgical care in a hospital are particularly vulnerable. According to the Centers for Disease Control and Prevention (CDC), HAIs rank as one of the top 10 leading causes of death in the U.S.¹ It is estimated that there were approximately 1.7 million HAIs in U.S. hospitals in 2002, resulting in nearly 99,000 deaths.² Direct medical costs of HAIs on the healthcare system are estimated to be \$28-\$45 billion annually.³ While age and underlying risk factors increase the risk of patients developing infections, 20%-70% of HAIs are often preventable through adherence to infection prevention guidelines. Infection prevention and control activities in healthcare settings are an integral component of patient safety programs.

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 Health Care 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 Hospital Association, and Public Health 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 results of required reporting to the Legislative Oversight Committee on Health and Human Resources Accountability.

HAI Measures and Reporting

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 the ability for hospitals to collect and report the data. Reporting guidance is developed and distributed to infection control contacts at each hospital. Hospitals submit data to the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN). NHSN was developed as a voluntary surveillance system for hospitals to identify and monitor HAIs, but is being used by multiple states for mandatory HAI reporting. Hospitals give permission for the WVHCA to access the data submitted to NHSN.

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 has decided to adopt the CMS requirements as West Virginia's reporting requirements. Table 1 summarizes the measures currently required to be submitted for West Virginia's HAI Public Reporting Program.

This report summarizes data reported on central line-associated blood stream infections (CLABSIs) and healthcare personnel seasonal influenza vaccinations in 2011. Due to the data collection and processing schedule, this report does not include any data submitted in 2012. 2012 data will be summarized in future reports.

Central Line-Associated Blood Stream Infections

Hospitals have been required to report data on central line-associated blood stream infections (CLABSIs) among patients in medical, surgical, and medical/surgical intensive care units (ICUs) since July 2009. This report summarizes the data submitted by 37 West Virginia hospitals and 44 ICUs in 2011.

Healthcare Personnel Seasonal Influenza Vaccinations

Hospitals are required to report the number of personnel directly employed by the hospital (excluding contract employees, volunteers, etc.) that received a seasonal influenza vaccination each season (September to March). All 55 acute care, critical access, long-term acute care, and psychiatric hospitals (excluding state psychiatric hospitals) reported during the 2009-2010 influenza season. The next year, the reporting requirement was extended to include the five rehabilitation hospitals. Annually, each hospital completes the *Hospital Seasonal Influenza Vaccination Survey* to summarize details of its hospital vaccination program. Due to the complexity of the NHSN healthcare personnel influenza vaccination reporting protocols, the Panel determined that the data would be submitted monthly to the WVHCA. However, beginning with the 2012-2013 influenza season, all hospitals will begin reporting healthcare personnel influenza vaccination data annually to the revised NHSN module that now allows for aggregate reporting.

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 results are disseminated to the HAI Control Advisory Panel for review and approval prior to release. Table 2 summarizes the reporting requirements by hospital.

Table 1
West Virginia HAI Public Reporting
Required Measures

Measure	Hospital/Unit/Procedure	Effective Date
Healthcare Personnel Seasonal Influenza Vaccinations	All hospitals, excluding state psychiatric hospitals and rehabilitation hospitals	Sept. 2009
	Rehabilitation hospitals	Sept. 2010
Central Line-Associated Blood Stream Infections (CLABSI)	Medical, Surgical, Medical/Surgical ICUs	July 2009
	All ICUs*	January 2012
	Long Term Acute Care Hospitals*	October 2012
Catheter-Associated Urinary Tract Infections (CAUTI)	All adult and pediatric ICUs*	January 2012
	Medical, Surgical, and Adult Mixed Acuity Units in Acute Care and Critical Access Hospitals without an ICU	January 2012
	Rehabilitation Hospitals/Units and Long Term Acute Care Hospitals.*	October 2012
	Medical/Surgical Wards in Acute Care and Critical Access Hospitals without an ICU	January 2013
Surgical Site Infections (SSI)	Colon and Abdominal Hysterectomy Procedures in Acute Care Hospitals*	January 2012
MRSA Bacteremia LabID Event	Acute Care Hospitals*	January 2013
<i>Clostridium difficile</i> LabID Event	Acute Care Hospitals*	January 2013

*This measure is required by the CMS Hospital Inpatient Quality Reporting Program

Note: All data are reported monthly (except Healthcare Personnel Seasonal Influenza Vaccinations data, which are reported annually) to NHSN. Data on Healthcare Personnel Seasonal Influenza Vaccinations was reported to the WVHCA from September 2009 – March 2012.

Central Line-Associated Blood Stream Infections

A central line is a tube inserted into a large vein in the neck, chest, arm, or groin and is used to administer fluids and medications and to withdraw blood. Central line-associated blood stream infections (CLABSIs) occur when microorganisms enter the blood through the tube.

It is estimated that between 250,000 and 500,000 CLABSIs occur in U.S. hospitals each year, causing serious complications including longer inpatient stays, increased costs, and higher risk of death.⁴ The non-inflation-adjusted attributable cost of CLABSIs is estimated to range from \$3,700 to \$29,000 per episode.⁵ CLABSIs can often be prevented by adherence to evidence based guidelines for the insertion, use, and maintenance of central lines.

Since July 2009, West Virginia hospitals have been reporting CLABSIs that occur in all medical, surgical, and medical/surgical ICUs.

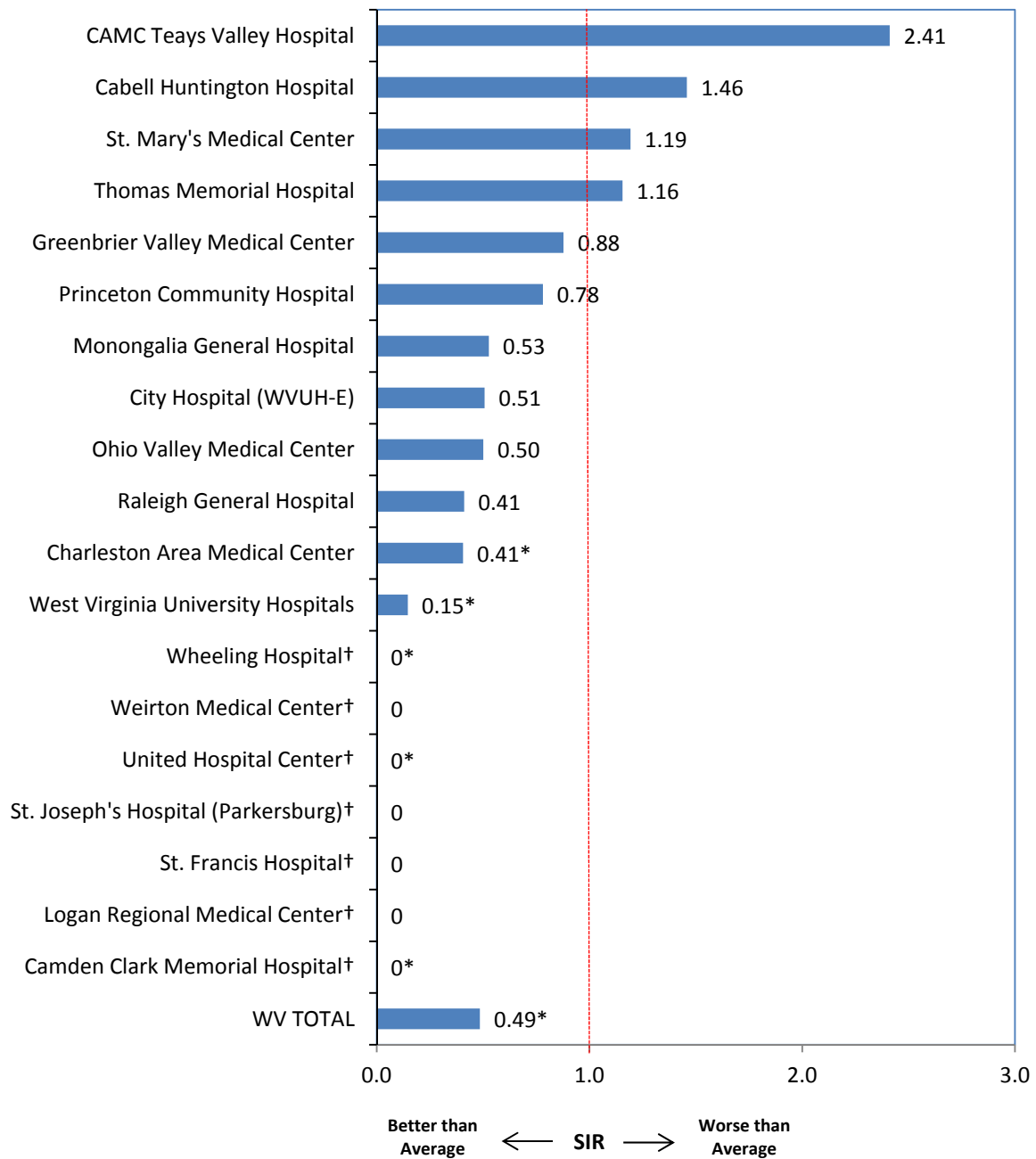
Key Findings

- In 2011, 48 CLABSIs in medical, surgical, and medical/surgical ICUs were reported by West Virginia hospitals.
- Significantly fewer CLABSIs occurred in West Virginia medical, surgical, and medical/surgical ICUs in 2011 than what were expected based on national averages. The West Virginia Standard Infection Ratio (SIR)* was 0.49, indicating that 51% fewer CLABSIs occurred than expected.
- Among West Virginia hospitals, the 2011 CLABSI SIR ranged from a low of 0.0 (no CLABSIs reported) to a high of 2.41 (141% more CLABSIs occurred than expected).
- In 2011, central lines were used on about 43% of patient days spent in a medical, surgical, or medical/surgical ICU in West Virginia (49,824 of the 115,464 patient days), compared to the 2010 national average of 48%.
- Among West Virginia hospitals, the central line utilization ratio ranged from a low of 2% to a high of 76% of patient days. Central line use is expected to differ based on the type of ICU and patient risk factors.
- Hospital-specific CLABSI results are presented in Figure 1.

In fall 2012, APIC Consulting Services, Inc. (ACSI) visited 30 hospitals to review procedures for collecting and reporting CLABSI data. Data auditors reviewed eight randomly selected patient charts to determine if the NHSN CLABSI case definition was appropriately applied. They also conducted an interview with individuals from each hospital who collect HAI surveillance data, including infections and associated denominator data. The final results will be available in March 2013.

* See the Technical Notes section on page 10 for a detailed explanation of the Standard Infection Ratio (SIR).

Figure 1
Central line-Associated Blood Stream Infection Standardized Infection Ratio
West Virginia Hospital Medical, Surgical, and Medical/Surgical ICUs
Calendar Year 2011



Note: The following hospitals had an expected CLABSI <1; therefore, a SIR could not be calculated: Beckley Appalachian Regional Hospital, Bluefield Regional Medical Center, Davis Memorial Hospital, Fairmont General Hospital, Grant Memorial Hospital, Jackson General Hospital, Jefferson Memorial Hospital, Plateau Medical Center, Pleasant Valley Hospital, Potomac Valley Hospital, Preston Memorial Hospital (reporting June-December), Reynolds Memorial Hospital, St. Joseph's Hospital (Buckhannon), Stonewall Jackson Memorial Hospital, Summersville Memorial Hospital, Welch Community Hospital, Wetzel County Hospital, and Williamson Memorial Hospital

*The SIR for this hospital is significantly lower than what is expected based on the NHSN 2006-2008 average. The SIR for all other hospitals is not statistically different than expected/average.

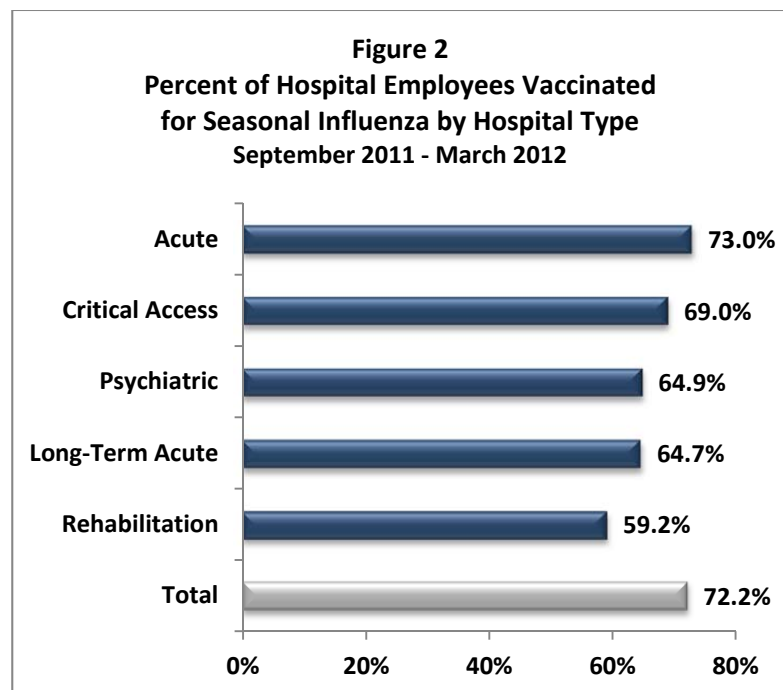
†Hospitals with an SIR of 0 reported no CLABSI events in 2011.

Healthcare Personnel Influenza Vaccinations

Healthcare workers play an important role in protecting public health. Influenza vaccinations safeguard healthcare workers from infection but also protect patients from becoming infected. The Centers for Disease Control and Prevention (CDC) recommends that all healthcare workers get an annual influenza vaccination.⁶ Several national professional organizations endorse mandatory policies for influenza vaccination as a condition of employment within healthcare facilities, and 87 facilities in 30 states and D.C. have implemented mandatory vaccination requirements.⁷

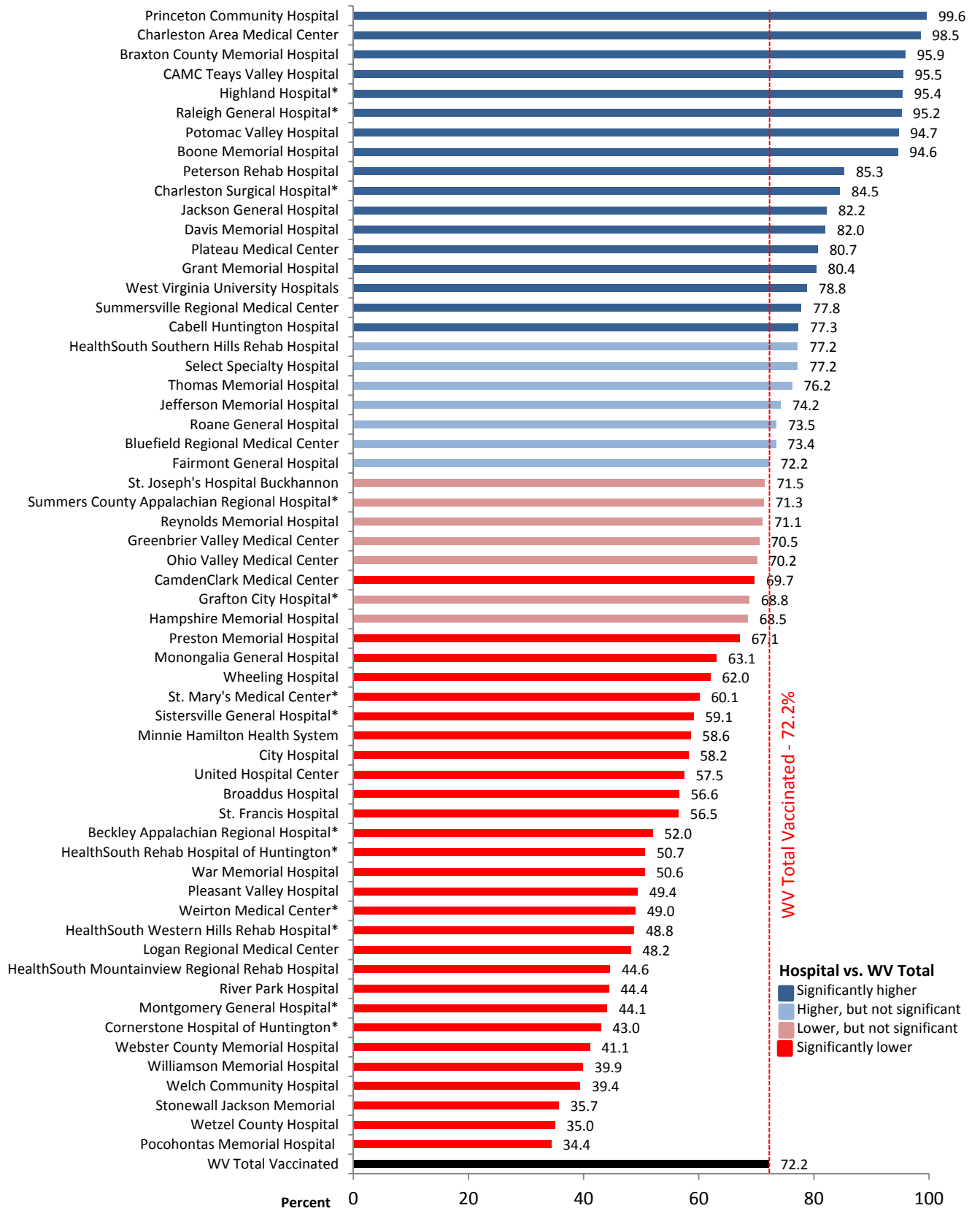
Key Findings

- 72.2% of all hospital employees in West Virginia received a seasonal influenza vaccination during the 2011-2012 influenza season, compared with an estimated 66.9% nationally.⁸
- The influenza vaccination rate was significantly higher in acute care hospitals (73%) than critical access, psychiatric, and rehabilitation hospitals (see Figure 2).
- The percentage of healthcare personnel that received an influenza vaccination ranged from a low of 34.4% to a high of 99.6% in West Virginia hospitals.



- During the 2011-2012 influenza season, all 59 hospitals provided the seasonal influenza vaccine to all employees at no cost, and 96.6% (57) of hospitals provided the vaccine during all work shifts.
- Hospitals utilized a variety of strategies to promote influenza vaccination to employees. The most common strategies were: A vaccination campaign, including posters, flyers, buttons, or fact sheets (89.8% of hospitals); Reminders by mail, email, or pager (88.1%); Coordination of vaccination with other annual programs (28.8%); Incentives (22%).
- 52.5% of hospitals conducted formal educational programs on seasonal influenza vaccination for employees. Vaccination was significantly higher among employees from hospitals that provided formal education (75.8% were vaccinated) than employees from hospitals with no educational program (63.4% were vaccinated).
- Hospital-specific data on healthcare personnel influenza vaccinations is presented in Figure 3.

Figure 3
Percent of Healthcare Personnel Vaccinated for Seasonal Influenza
West Virginia Hospitals, September 2011 – March 2012



*Vaccinations of employees not administered by the hospitals are not included.

Future HAI Initiatives

Over the next year, the WVHCA and the HAI Control Advisory Panel will:

- Continue the collection and quality review of HAI data.
- Develop guidelines for the public release of data.
- Revise reporting requirements as necessary to align with state and national priorities.
- Collaborate with the Bureau for Public Health, Office of Epidemiology and Prevention Service's HAI Program to implement a State Plan for reducing HAIs.
- Provide HAI data to the West Virginia Department of Health and Human Resources as requested for consideration in their hospital oversight and epidemiology and disease surveillance programs.

Technical Notes

Standard Infection Ratio (SIR)

There are various statistics that can be used to summarize and report HAI data at a national, state, or local level over time. 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 CLABSIs reported by the hospital to the baseline U.S. experience (from the National Healthcare Safety Network aggregate data), adjusting for several risk factors that have been found to be significantly associated with differences in infection incidence. A SIR greater than 1.0 indicates that more CLABSIs occurred in the hospital than what was predicted based on national averages for a hospital of that type and size; conversely, a SIR less than 1.0 indicates that fewer CLABSIs occurred than were expected.⁹ For example, a SIR of 1.20 indicates that the hospital had 20% more CLABSIs than expected; a SIR of 0.80 indicates that the hospital had 20% fewer CLABSIs than expected. When the number of expected CLABSI is <1, the number of procedures performed is too low to calculate a precise SIR and comparative statistics.

Healthcare Personnel Influenza Vaccinations

Results may not be directly comparable across time due to differences in data reporting methodologies. The 2010-2011 and 2011-2012 data represent vaccinations among personnel employed at any time during the influenza season, regardless of length of employment. Personnel that terminated employment prior to being vaccinated are included in the results. Therefore, the results may not represent the vaccination rate among current personnel.

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Table 2
West Virginia Healthcare-Associated Infection Public Reporting Requirements

Hospital	Hospital County	Hospital Type	Influenza Reporting Required	CLABSI Reporting	
				Reporting Required	Number of ICUs 2011
Beckley Appalachian Regional Hospital	Raleigh	Acute	Yes	Yes	1
Bluefield Regional Medical Center	Mercer	Acute	Yes	Yes	1
Boone Memorial Hospital	Boone	Critical Access	Yes	No	
Braxton County Memorial Hospital	Braxton	Critical Access	Yes	No	
Broaddus Hospital Association	Barbour	Critical Access	Yes	No	
Cabell Huntington Hospital	Cabell	Acute	Yes	Yes	2
CAMC Teays Valley Hospital	Putnam	Acute	Yes	Yes	1
Camden-Clark Memorial Hospital	Wood	Acute	Yes	Yes	1
Charleston Area Medical Center	Kanawha	Acute	Yes	Yes	4
Charleston Surgical Hospital	Kanawha	Acute	Yes	No	
City Hospital	Berkeley	Acute	Yes	Yes	1
Cornerstone Hospital of Huntington	Cabell	Long-Term Acute	Yes	No	
Davis Memorial Hospital	Randolph	Acute	Yes	Yes	1
Fairmont General Hospital	Marion	Acute	Yes	Yes	1
Grafton City Hospital	Taylor	Critical Access	Yes	No	
Grant Memorial Hospital	Grant	Critical Access	Yes	Yes	1
Greenbrier Valley Medical Center	Greenbrier	Acute	Yes	Yes	1
Hampshire Memorial Hospital	Hampshire	Critical Access	Yes	No	
Highland Hospital	Kanawha	Psychiatric	Yes	No	
HealthSouth Rehabilitation Hospital of Huntington*	Cabell	Rehabilitation	Yes	No	
Jackson General Hospital	Jackson	Acute	Yes	Yes	1
Jefferson Memorial Hospital	Jefferson	Critical Access	Yes	Yes	1
Logan Regional Medical Center	Logan	Acute	Yes	Yes	1
Minnie Hamilton Health System	Calhoun	Critical Access	Yes	No	
Monongalia General Hospital	Monongalia	Acute	Yes	Yes	1
Montgomery General Hospital	Fayette	Critical Access	Yes	No	
HealthSouth Mountain View Regional Rehabilitation Hospital*	Monongalia	Rehabilitation	Yes	No	
Ohio Valley Medical Center	Ohio	Acute	Yes	Yes	1
Peterson Rehabilitation and Geriatric Hospital*	Ohio	Rehabilitation	Yes	No	
Plateau Medical Center	Fayette	Critical Access	Yes	Yes	1
Pleasant Valley Hospital	Mason	Acute	Yes	Yes	1
Pocahontas Memorial Hospital	Pocahontas	Critical Access	Yes	No	

Table 2, cont.
West Virginia Healthcare-Associated Infection Public Reporting Requirements

Hospital	Hospital County	Hospital Type	Influenza Reporting Required	CLABSI Reporting	
				Reporting Required	Number of ICUs 2011
Potomac Valley Hospital	Mineral	Critical Access	Yes	Yes	1
Preston Memorial Hospital	Preston	Critical Access	Yes	Yes	1
Princeton Community Hospital	Mercer	Acute	Yes	Yes	1
Raleigh General Hospital	Raleigh	Acute	Yes	Yes	2
Reynolds Memorial Hospital	Marshall	Acute	Yes	Yes	1
River Park Hospital	Cabell	Psychiatric	Yes	No	
Roane General Hospital	Roane	Critical Access	Yes	No	
Select Specialty Hospital	Kanawha	Long-Term Acute	Yes	No	
Sistersville General Hospital	Tyler	Critical Access	Yes	No	
HealthSouth Southern Hills Regional Rehabilitation Hospital*	Mercer	Rehabilitation	Yes	No	
St. Francis Hospital	Kanawha	Acute	Yes	Yes	1
St. Joseph's Hospital of Buckhannon	Upshur	Acute	Yes	Yes	1
St. Joseph's Hospital of Parkersburg	Wood	Acute	Yes	Yes	1
St. Mary's Medical Center	Cabell	Acute	Yes	Yes	1
Stonewall Jackson Memorial Hospital	Lewis	Acute	Yes	Yes	1
Summers County Appalachian Regional Hospital	Summers	Critical Access	Yes	No	
Summersville Memorial Hospital	Nicholas	Acute	Yes	Yes	1
Thomas Memorial Hospital	Kanawha	Acute	Yes	Yes	1
United Hospital Center	Harrison	Acute	Yes	Yes	1
War Memorial Hospital	Morgan	Critical Access	Yes	No	
Webster County Memorial Hospital	Webster	Critical Access	Yes	No	
Weirton Medical Center	Brooke	Acute	Yes	Yes	1
Welch Community Hospital	McDowell	Acute	Yes	Yes	1
West Virginia University Hospitals	Monongalia	Acute	Yes	Yes	2
HealthSouth Western Hills Regional Rehabilitation Hospital*	Wood	Rehabilitation	Yes	No	
Wetzel County Hospital	Wetzel	Acute	Yes	Yes	1
Wheeling Hospital	Ohio	Acute	Yes	Yes	2
Williamson Memorial Hospital	Mingo	Acute	Yes	Yes	1
TOTAL			60	37	44

* Hospital began reporting healthcare personnel influenza vaccinations in September 2010.

Note: State Psychiatric Hospitals (Mildred Mitchell-Bateman Hospital and Sharpe Hospital) are exempt from HAI reporting.