New Mexico Healthcare-associated Infections 2010 Report

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New Mexico Healthcare-associated Infections Advisory Committee

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This document and further New Mexico healthcare-associated infection information can be found at **www.nmhealth.org/HAI**

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EXECUTIVE SUMMARY

Healthcare-associated infections (HAI) are localized or systemic conditions resulting from the presence of an infectious agent(s) or its toxin(s) for which there is no evidence that the infection was present or incubating at the time of admission to the healthcare setting. Healthcare-associated infections may be caused by infectious agents from endogenous sources (i.e., body sites such as the skin, nose, mouth, gastrointestinal tract or vagina that are normal habitats of microorganisms) or exogenous sources (i.e., non-patient sources such as healthcare personnel, visitors, patient care equipment, medical devices or the healthcare environment). Healthcare-associated infections are one of the top ten leading causes of death in the U.S., causing an estimated 99,000 associated deaths each year.[1] Evidence-based interventions have been successful in preventing HAI. In order to monitor successes in HAI prevention and control, surveillance for HAI is necessary. Public health surveillance—including that for HAI—is the ongoing, systematic collection, analysis and interpretation of health data essential to the planning, implementation and evaluation of public health practice. Publicly reported HAI data encourages facilities to implement evidence-based best practices by integrating infection prevention with quality and performance improvement projects.

The New Mexico (NM) HAI Advisory Committee is a multi-disciplinary group of stakeholders led by the New Mexico Department of Health (NMDOH) that formed in 2008. The Advisory Committee has overseen statewide efforts to conduct HAI surveillance and use the information to guide HAI prevention. The first two HAI indicators for which hospitals voluntarily submitted data were central line-associated bloodstream infections (CLABSIs) in adult intensive care unit (ICU) settings and influenza vaccination rates in healthcare personnel (HCP). These two indicators were chosen because of significant impact on patients' health and also because hospitals can improve on those outcomes. Many states monitor CLABSIs which can cause patients to become very sick, have prolonged hospital stays, and even die. These infections can lead to high costs for patients and the healthcare system. Evidence-based best practices exist for CLABSI prevention. Influenza vaccination of HCP is crucial because it protects them and, therefore, their vulnerable patients from influenza which can also cause severe illness and even death.

Healthcare-associated infection surveillance in NM began with a pilot among nine adult ICUs in six volunteer hospitals from July 2008 through May 2009. During that time, hospitals submitted data showing 0.81 CLABSI per 1,000 central line days and 54.6% of the HCP at those six participating hospitals were reported to have received seasonal influenza vaccine.

During the next data collection period, May 2009 through April 2010, 16 pediatric and adult ICUs in 11 hospitals identified 0.78 CLABSI per 1,000 central line days, significantly lower than a national comparison rate. During the 2009-2010 influenza season, 25 healthcare facilities submitted data showing that 60.2% of HCP received seasonal influenza vaccine and 50.2% received 2009 H1N1 influenza vaccine, better than rates reported through the National Health Interview Survey conducted by Centers for Disease Control and Prevention (CDC).

The past three years have provided valuable lessons including:

- Utilizing the CDC National Healthcare Safety Network (NHSN) for CLABSI event tracking has prepared healthcare facilities for the national data submission standard set by Centers for Medicare and Medicaid Services (CMS).
- Developing state-based tools for submitting HCP influenza vaccination data has been valuable in monitoring this important indicator.
- Healthcare-associated infection prevention at healthcare facilities requires adequate infection prevention resources (particularly Infection Preventionists), commitment, time, significant effort, and multidisciplinary collaboration.
- Building and maintaining relationships and networks is critical for HAI surveillance and prevention.
- Expectations are high from the public and their elected officials as they relate to HAI prevention.
- Public information needs to be clear, useful and ongoing.

The next two HAI indicators for which data will be submitted in NM starting in November of 2010 are CLABSI in non-ICU settings and *Clostridium difficile* infection (CDI). A recent CDC article suggests that while ICU CLABSI may be an appropriate HAI reduction target and interventions may be effective, there are also a large number of central lines in units outside of the ICU.[2] As the focus on ICU CLABSI is able to reduce those infections, surveillance should be expanded to include non-ICU areas. *Clostridium difficile* infections are caused by bacteria and symptoms range from diarrhea to life-threatening inflammation of the colon. These infections occur in both community and healthcare settings but most commonly occur in older adults in hospitals or long-term care facilities. *Clostridium difficile* infection typically occurs after the use of antibiotic medications.

The NM HAI Advisory Committee is committed to ongoing building of HAI capacity in surveillance, validation and prevention. Early public reports, such as this, have provided aggregate data with limited validation. Validation activities in NM are being strengthened with the addition of onsite medical record audits in the hospitals that participated in the first pilot year of data submission. Lessons learned from this first comprehensive validation will be used to continue validation among all participating healthcare facilities over time and will provide specific feedback and suggestions to facilities.

At this time, the NM HAI Advisory Committee recommendations are:

- Continue to expand NM HAI surveillance and data submission based on: a) ability to conduct standardized and high quality surveillance; b) capacity of partners to expand; and c) goals and objectives of the NM HAI Prevention Plan.
- Maintain and strengthen the NM HAI Advisory Committee as the body to make recommendations for ongoing HAI surveillance and prevention in New Mexico.
- Remain aware of expectations of the public and their elected officials about HAI prevention: set realistic goals and communicate clearly.
- Focus on the following four of the top ten outreach messages from the U.S. Department of Health and Human Services Action (HHS) Plan regarding HAI.[3]

- "Many healthcare-associated infections are preventable."
- "Preventive steps to control and prevent HAI are cost-effective, and will save many lives, and reduce disability for Americans."
- "Educating patients on HAI and how to prevent them will be a critical part of the national effort."
- "An informed media can help promote the education of the American public about the need to prevent HAI and what HHS and its partners are doing."
- Mandate NM HAI data submission and public reporting.

The NM HAI Advisory Committee and NMDOH are committed to continued efforts to improve quality of healthcare delivery and patient outcomes through HAI surveillance and prevention.

BACKGROUND

A healthcare-associated infection (HAI) is defined as a localized or systemic condition occurring in a patient in a healthcare setting resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) for which there is no evidence that the infection was present or incubating at the time of admission to the healthcare setting. Healthcare-associated infections may be caused by infectious agents from endogenous sources (i.e., body sites such as the skin, nose, mouth, gastrointestinal tract or vagina that are normally inhabited by microorganisms) or exogenous sources (i.e., sources external to the patient such as healthcare personnel, visitors, patient care equipment, medical devices or the healthcare environment). Healthcare-associated infections can be associated with advances in medical care, such as implanted devices and bone marrow transplantation. Healthcare-associated infections are one of the top ten leading causes of death in the United States (U.S.) and account for an estimated 1.7 million infections and 99,000 associated deaths each year.[4] The direct medical cost associated with HAI was estimated, in 2007 dollars, to be $25,903 per patient.[5]

Recognizing that both developed and resource-poor countries are faced with the burden of HAI, the World Health Organization (WHO) has been involved in multiple studies and prevention efforts including a cooperative hospital study involving HAI, a multi-year intensive care unit (ICU) surveillance study, and prevention challenge programs. With increasing recognition of the burden of HAI, national surveillance systems have been developed in various countries; these have shown that nationwide HAI surveillance systems are effective in reducing HAI.[6]

Healthcare-associated infections remain a burden to patients and to the healthcare system causing significant patient harm, including deaths, high costs, and decreased efficiency of healthcare delivery. In order to monitor successes in HAI prevention and control, surveillance for HAI is necessary. Public health surveillance is the ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice and is closely integrated with the timely dissemination of these data to those responsible for prevention and control. Significant progress is being made in the U.S. toward nationwide HAI surveillance and reduction through the cooperation of federal regulatory

agencies, state health departments, healthcare stakeholders, and an informed and active public.

National Focus on Healthcare-associated Infection Surveillance

As national attention is focused on HAI, surveillance is key to further defining the magnitude of the problem, understanding trends, and monitoring progress in reducing and eliminating these infections. At the March 2010 Fifth Decennial International Conference on Healthcare-Associated Infections, Dr. Tom Frieden, CDC Director, stated in his keynote address that "the role of public health is to define the unacceptable". He went on to say that what is unacceptable about HAI is how many there are, how little we know about them, and how poorly we have implemented preventive measures. Dr. Don Wright spoke in his capacity as Deputy Assistant Secretary for Healthcare Quality and chair of the U.S. Department of Health and Human Services (HHS) Senior Level Steering Committee to Prevent Healthcare-associated Infections, which produced the "HHS Action Plan to Prevent Healthcare-Associated Infections" in 2008 (currently in revision).[7] The concurrent appearance of these two leaders emphasized the policy and action focus on HAI at the highest levels of government.

The Centers for Medicare and Medicaid Services (CMS) has also recognized the importance of surveillance and prevention of HAI for reduction of healthcare costs. They released a final rule (CMS 1498) July 30, 2010 under their pay-for-performance plan to provide financial incentives for CMS HAI data submission. In order to earn full reimbursement for patient care, hospitals that accept Medicare patients must submit data on CLABSIs that occur in ICUs beginning January 1, 2011.[8] A central line is a vascular infusion device that terminates at or close to the heart in one of the great vessels and is used for infusion (e.g. medications), withdrawal of blood, or hemodynamic monitoring. A CLABSI is a primary bloodstream infection in a patient who had a central line placed within the 48 hours before the bloodstream infection developed. The Centers for Medicare and Medicaid Services will release this CLABSI information to consumers on the Hospital Compare website and also use these data to determine part of the hospital reimbursement beginning fiscal year 2013. Surgical site infection (SSI) data submission is proposed for inclusion in the pay-for-performance plan beginning January 1, 2012.

In addition to HAI surveillance data being used for payment incentives, the data are critical to monitor HAI epidemiology and trends. National studies have examined prevalence of HAI and tracked rates over time. One such study by the CDC Emerging Infections Program (EIP) tracked invasive infections due to methicillin-resistant *Staphylococcus aureus* (MRSA) in nine population areas and found significant yearly declines in hospital-onset and community-onset invasive MRSA infections from 2005 to 2008.[9] The collection of these data involved trained public health personnel and was resource-intensive. This large-scale public health evaluation was not designed to explore the reasons for these changes in rates; however, intensified infection control measures have been associated with declines in MRSA infections in many hospital systems. In 2007, the Healthcare Cost and Utilization Project of Agency for Healthcare Research and Quality (AHRQ) found a modest decline in the adjusted rate of hospital

stays with infections due to medical care, from 2.30 per 1,000 hospitalizations in 2004 to 2.03 in 2007.[10]

The National Healthcare Safety Network (NHSN), a web-based secure data repository, was developed by CDC and provides a key mechanism that enables healthcare facilities to collect and use HAI surveillance data. This system includes the following advantages: 1) use of standardized definitions for all HAI; 2) built-in analytic tools; 3) user training and support; 4) ability to benchmark HAI rates specific to facility type; and 5) built-in data quality checks. The National Healthcare Safety Network is technically maintained and regularly upgraded by CDC. Availability of this electronic system eliminates the need for individual states to design and support their own systems. As of October 2010, CDC has enrolled over 3000 healthcare facilities in NHSN and that number continues to rise.

The National Healthcare Safety Network is currently being used by states with mandatory and those with voluntary HAI data submission policies, and also as the mechanism to submit HAI data to CMS. The broad participation throughout the country allows for analysis and reporting of national and state trends in HAI. In May of 2010, CDC Department of Healthcare Quality and Promotion (DHQP) published the "First State-specific Healthcare-associated Infections Summary Data Report".[11] This report includes CLABSI data submitted by healthcare facilities to NHSN in states with mandatory CLABSI reporting. New Mexico state-specific data was not included because CLABSI data submission is currently voluntary in NM.

This initial CDC DHQP report presented state-specific data from the 17 states with mandatory CLABSI data submission and compared them to overall national data. The standardized infection ratio (SIR) (Appendix C) was used to compare data submitted to NHSN from January through June 2009 with national NHSN data during 2006-2008. The standardized infection ratio is a summary measure used to compare rates (in this case CLABSI) among a group of locations to that of a standard population. The standard population comes from NHSN data submitted from all U.S. hospitals using that system. The SIR represents the observed number of infections divided by the expected number of infections. The expected data for the DHQP report was based on historical data for CLABSI at the national level.

This national SIR calculation showed an 18% national decrease in CLABSI during the first six months of 2009 compared to the previous three years. Benefits of using NHSN data to determine state-specific CLABSI rates include use of both standard definitions and standard data collection methods. Standardization is essential to providing comparable information. Federal agencies did not conduct validation of the published data, but rather relied on states to perform their own validation. Formal validation was done by five states: Connecticut, Maryland, New York, South Carolina and Tennessee. Because public reports such as this rely on surveillance data to provide critical information on HAI rates and trends, American Recovery and Reinvestment Act of 2009 (ARRA) funds are currently supporting efforts throughout the country for surveillance and prevention of HAI. New Mexico is one of those recipient states that will be conducting HAI surveillance and prevention activities, as well as validation of its HAI data, with the support of ARRA funds.

This CDC DHQP report has been promoted by DHQP and HHS as a national baseline measurement to guide state prevention activities to fulfill the HHS "Action Plan to Prevent Healthcare-associated Infections." The Action Plan includes a five-year goal to reduce CLABSI by 50%, as well as reduction goals for four additional HAI.[12] The HHS Action Plan was a key resource used in the development of the NM HAI Prevention Plan of January 2010. Future CDC DHQP reports will include aggregate state SIRs and are anticipated to be published in six-month intervals. Monitoring trends included in the published CDC reports will be used to evaluate the impact of prevention efforts including the Comprehensive Unit-based Safety Program (CUSP), formerly Stop BSI (bloodstream infections)/Michigan Keystone Project, and local CLABSI prevention collaboratives and/or facility-specific efforts over time. Data from NHSN can help identify institutional problems and is used to monitor infection rates over time to help evaluate implementation of best infection prevention practices and innovative approaches.

National Focus on Healthcare-associated Infection Prevention

Healthcare-associated infection prevention efforts have been shown to reduce HAI when properly applied. A prime example is CUSP, a collaborative effort among Johns Hopkins University Quality and Safety Research Group, the Health Research and Educational Trust and the Michigan Health and Hospital Association's Keystone Center for Patient Safety and Quality. The Comprehensive Unit-based Safety Program was implemented throughout Michigan for 18 months and reduced CLABSI rates by 66%.[13]

The primary CUSP goals are to: 1) eliminate or reduce CLABSI rates to no more than one infection per 1,000 catheter days at the end of two years; and 2) to improve and strengthen the overall safety culture on hospital units. These goals are furthered by several key components. This includes following a short protocol--essentially a central line insertion checklist--each time a central line is placed. An equally important component is the formation and empowerment of teams within the hospital to identify defects, implement interventions and monitor outcomes. In February 2010, 30 additional states signed up to participate in CUSP and more states are implementing components of the program. New Mexico signed on to participate in CUSP in fall 2010.

A complementary approach to CUSP being used by many states, including New Mexico, is the formation of learning collaboratives. Collaboratives bring together professionals in settings where members interact by sharing experiences and knowledge to search for comprehension, significance and solutions. Healthcare-associated infection prevention collaboratives focus on identification and implementation of best practices, including sharing of technical knowledge and processes, related to a specific HAI indicator. A systematic review of outcomes of collaborative effectiveness showed that the evidence underlying this strategy is positive but limited and the effects cannot yet be predicted with certainty. Further research is needed to quantify and attribute the outcomes from prevention collaboratives.[14] While specific HAI prevention outcomes can be difficult to quantify, anecdotal evidence from NM learning collaborative shows this strategy provides professional development and networking opportunities and further builds momentum toward overcoming barriers to HAI prevention efforts.

Evidence-based interventions, such as the Keystone Project, have been successful in preventing and reducing HAI.[15] While some efforts may initially result in modest decreases in overall rates, all gains are large in terms of their impact on individual patients. On September 29, 2010, CDC announced its "Winnable Battles" which are public health priorities with large-scale impact on health that have proven strategies for intervention. The success of evidence-based interventions for HAI prevention is what puts HAI at the top of the list of "Winnable Battles".[16]

New Mexico has made great strides in HAI surveillance and prevention similar to national efforts in those areas. Since 2007 there has been consistent and growing interest and activity to determine HAI prevalence in New Mexico and to implement prevention interventions.

New Mexico Healthcare-associated Infection Surveillance

A Task Force charged with studying the feasibility of conducting surveillance for HAI in New Mexico (NM) was formed under House Joint Memorial 67 in 2007. The NM HAI Advisory Committee formed in 2008 at the direction of the New Mexico Department of Health (NMDOH) Secretary Vigil (Appendix D) to implement a voluntary HAI surveillance pilot. The pilot year included six hospitals conducting surveillance for two HAI indicators from July 1, 2008 through May 31, 2009. The pilot HAI indicators for New Mexico were chosen because they can have significant impact on patients' health and also because hospitals can improve on those outcomes. The two indicators were CLABSIs in adult ICUs and influenza vaccination rates of healthcare personnel (HCP). Central line-associated bloodstream infections are monitored by many states because patients can become very sick, have prolonged hospital stays and even die from their infections. In addition, these infections can lead to additional and unnecessary expenses for patients and for the healthcare system. Influenza vaccination of HCP is crucial because it protects them and, therefore, their vulnerable patients from influenza which can also cause severe illness and even death. Despite this knowledge, many HCP do not protect themselves and their patients through influenza vaccination.

Pilot hospitals worked to collect the information for the two indicators and analyze the data. They also put practices into place to eliminate CLABSIs and increase HCP influenza vaccination rates. These practices can also help to improve other aspects of patient safety. Details on the process and findings of the NM HAI pilot can be found in the full report at
http://nmhealth.org/HAI/documents/HAIPilotReport_Final_August2009.pdf.

Beyond implementing the voluntary HAI surveillance pilot, the NM HAI Advisory Committee (Appendix E) provides guidance to NMDOH for an action plan to create an ongoing, sustainable statewide program of HAI data submission, surveillance, prevention and public reporting. Guidance falls within the following areas:

- Establishing objectives, definitions, criteria and standards for HAI data submission
- Selecting HAI indicator(s) for surveillance and public reporting
- Recruiting healthcare facilities
- Supporting data collection through NHSN or other state-specific data collection systems

- Evaluating HAI surveillance and quality of data collected
- Providing and/or identifying training resources for the prevention and control of HAI
- Public reporting

The HAI Advisory Committee is facilitated by NMDOH and has been meeting monthly since February 2008. The Committee includes representatives from:

- Consumers
- Association for Professionals in Infection Control and Epidemiology (APIC) New Mexico
- New Mexico Hospital Association (NMHA)
- New Mexico hospitals (including large urban and smaller rural settings)
- New Mexico Medical Review Association (NMMRA)
- Local representative of Society for Hospital Epidemiology of America (SHEA)
- New Mexico Department of Health (NMDOH)

The NM HAI Advisory Committee has, from its inception, planned surveillance and prevention activities in the context of national trends in the public reporting of HAI. The NM HAI Advisory Committee plans reflect national recommendations, including the HHS "Action Plan to Prevent Healthcare-associated Infections", which were adapted to the needs and capacity of NM's healthcare system. Experience from other states, scientific literature, and discussions with experts further informed the Advisory Committee's plans.

The NM HAI Advisory Committee recognizes that the public wants to know--and should know--about the quality of care that hospitals provide. Furthermore, hospitals can use the information gained from monitoring and analyzing patient care indicators to improve patient safety. Starting July 2011, the NM HAI initiative will begin to publicly report facility-specific HAI data in a manner designed to be understandable and useful for the public. Since NM healthcare facilities vary in size and services, it is important that data is gathered and analyzed accurately for comparison purposes. Facility-specific data from the pilot were not made publicly available in order to allow hospitals to learn the new system and to allow the NM HAI Advisory Committee to determine the most appropriate way to interpret and present the data.

The NM HAI Advisory Committee recommended the use of NHSN as a mechanism to collect HAI surveillance data beginning in 2008. A feature known as conferring rights permits data sharing with NMDOH, thereby supplying a mechanism to provide for public reporting without duplication of work by facilities. Utilization of NHSN presented several significant benefits for NM including cost savings for facilities and for NMDOH. New Mexico healthcare facilities that have been voluntarily submitting data through NHSN are now prepared for the CMS data submission which begins January 2011 that requires knowledge and use of NHSN.

New Mexico Healthcare-associated Infection Prevention

Healthcare-associated infection reduction efforts in NM are guided by the NM HAI Prevention Plan which, in addition to standardized data submission, provides for implementation of best practices to prevent HAI in NM healthcare facilities. New Mexico

Medical Review Association (NMMRA) coordinates the activity of HAI learning collaboratives and prevention initiatives related to the indicators selected by the NM HAI Advisory Committee. In accordance with the NM HAI Prevention Plan, NMMRA has formed a year-long CLABSI Collaborative focused on CLABSI detection and prevention as well as a workgroup on HCP influenza vaccination.

Collaborative learning opportunities have included statewide face-to-face meetings, monthly group conference calls or webinars, and site-specific technical assistance provided by phone or during site visits. Educational topics have included surveillance definitions, data collection processes, process measure implementation, risk assessment, team building and HAI root cause analysis. For example, case studies have been shared for group review to provide learning and interactive discussion about NHSN. Presentations by leaders of successful national and state initiatives have provided encouragement and best practice models.

All hospitals participating in the CLABSI Collaborative are required to complete monthly progress reports which document process measures, improvement targets, and barriers to success and how to overcome them. This information is discussed in order to help hospital staffs learn from peers and advisors. At this stage, for most hospitals, the focus for CLABSI reduction is the implementation and assurance of consistent use of the central line insertion checklist (a previously mentioned component of CUSP).

A total of 24 healthcare facilities are participating in the CLABSI Collaborative. Twelve of the facilities are currently submitting CLABSI data to NMDOH through NHSN and several others will begin data submission in late 2010. New Mexico Hospital Association signed on to take part in the national CUSP in early fall of 2010 and is actively recruiting hospital participants.

NEW MEXICO OUTCOMES FOR 2009-2010 HEALTHCARE-ASSOCIATED INFECTION SURVEILLANCE AND PREVENTION

Central Line-associated Bloodstream Infection Surveillance and Prevention

The House Joint Memorial (HJM) 67 Task Force studied the feasibility of conducting surveillance for HAI in NM and recommended CLABSI surveillance in adult ICUs because it has objective, accurate and consistent definitions that allow for standardized data submission and analysis. Since July 2008, six hospitals in NM have submitted CLABSI data to NHSN from nine ICUs of the following types: medical; surgical; neurosurgical; and medical-surgical. Assurances were given to pilot hospitals that data submitted to NHSN to which NMDOH had been granted viewing privileges would be treated confidentially with respect to hospital identifiers during the pilot (Appendix D).

Starting January 2010, five additional hospitals began to monitor CLABSI in NHSN resulting in seven additional ICUs submitting data. The additional units include the following ICU types: pediatric; medical; surgical; and medical-surgical. For each ICU, hospitals collect the number of CLABSI events, the number of patient days, and the number of central line days. The central line days are counted at the same time each

day. Each patient with one or more central lines at the time the count is performed is considered one central line day.

The number of hospitals and ICUs submitting data on CLABSI nearly doubled from nine ICUs in six hospitals in the pilot year to sixteen ICUs in 11 hospitals during the May 1, 2009 - April 30, 2010 data collection period. From May 1, 2009 through December 31, 2009, the nine adult ICUs from the six pilot hospitals continued to enter CLABSI events into NHSN.

Because data from all patients for all times at a given hospital cannot be obtained (i.e., a hospital's true "population" data), it is conventional to use statistical procedures to estimate various measurements. Ninety-five percent confidence limits (or intervals) are used to describe the variability around an estimate. The confidence intervals (CIs) that are used in this public report provide the range within which the "true" value will fall 95% of the time (see Glossary). An additional statistical test reported here is that of the p-value which tells the statistical significance of a result. This report considers a p-value of $p \leq .05$ statistically significant (see Glossary).

In NM, the ICU CLABSI rate remained low as more hospitals volunteered to publicly report these events. All ICUs submitting data were at or below the NHSN pooled mean, or national average, for the corresponding type of ICU. The total number of CLABSI events during the data collection period of May 2009 – April 2010 in the 16 participating ICUs was 22 (Table 1). The total number of central line days was 28,077. This resulted in a CLABSI rate of 0.78 per 1,000 central line days (95% CI 0.5-1.1).

Table 1. Aggregate Intensive Care Unit (ICU) Central Line Associated Bloodstream Infection (CLABSI) Rates, New Mexico, May 1, 2009- April 30, 2010

	Total number CLABSI events	Total number central line days	Aggregate CLABSI rate per 1,000 central line days (95% CI)	Pooled mean (national average) CLABSI rate per 1,000 central line days for all NHSN hospitals* (95% CI)
Aggregate data for 16 participating ICUs in NM	22	28,077	0.78 (0.46-1.11)	2.06 (2.02-2.10)

*Summary data from NHSN as of November 2008.

The range of CLABSI rates for the 16 ICUs submitting data was 0.0-2.2 CLABSI events per 1,000 central line days. The range of NHSN pooled mean CLABSI rates reflecting the national rate of corresponding ICU types is 1.5-3.0 CLABSI events per 1,000 central line days. All NM ICUs submitting data were at or below the NHSN pooled mean for the corresponding type of ICU. There was a statistically significant difference (p < .001) between the statewide aggregate rate (0.78 per 1,000 central line days) and the calculated aggregate national rate for corresponding type of ICUs (2.06 per 1,000 central line days). The CLABSI rate during the pilot year July 1, 2008 through May 31,

2009 was 0.81 (95% CI 0.44-1.17) CLABSI per 1,000 central line days. There was no statistically significant difference between the aggregate rate for May 1, 2009 through April 30, 2010 and the pilot year aggregate rate (p=1.0).

Limitations of this surveillance data include that the NHSN pooled mean rates for ICU types are based on data from the November 2008 NHSN data summary, which includes data for 2006-2008. Data calculated for the 16 ICUs should be interpreted with caution as the data submission time period for all units was not equal. Seven units contributed four months of data. These units are included in aggregate data presented above. Also, CLABSI data validation by NMDOH to check for accuracy and completeness of submitted data has been limited thus far.

In addition to collecting data on CLABSI events, data has been collected on CLABSI prevention efforts in the above-mentioned NM ICUs. This was accomplished by asking Infection Preventionists (IPs) to complete a survey regarding their CLABSI prevention efforts as of April 30, 2010. Infection Preventionists are health professionals specially trained in monitoring and prevention of infections and they are key to HAI surveillance, data collection and prevention efforts in healthcare facilities. A majority of ICUs (93.8%) reported routine use of a checklist for central line insertion. The ICU not routinely using the checklist does have other central line bundle elements (i.e., group of interventions related to disease process that when implemented together result in better outcomes than when implemented individually) in place and is working to increase provider usage of the checklist during all routine central line insertions. A majority (93.8%) of ICU's reported using a standardized cart or kit for routine central line placement. A majority (81.3%) had presented specific CLABSI prevention education to staff. This education varied by facility and included in-services to cardiovascular surgical providers, addition of the new APIC education CLABSI prevention module to nursing staff annual competencies, education of staff nurses on the care and maintenance of central lines by a peripherally inserted central catheter (PICC) nurse and certified vascular access instructor, and posting reminders for line care in patient rooms. Thirty seven and a half percent of hospitals introduced new products in an effort to prevent CLABSIs. Facilities not reporting introduction of new products for CLABSI prevention were not asked if they already have such products in place. New products introduced included a chlorhexidine (CHG) impregnated dressing, BioPatch™ which is a CHG impregnated disc that sits at the insertion site, and hub scrubbers for all intravenous (IV) access. Several hospitals also noted that their quality improvement initiative included joining the NM CLABSI Learning Collaborative.

Overall, CLABSI surveillance and prevention has improved in NM. Reporting ICUs have low rates of CLABSI and have adopted practices to prevent CLABSIs. While the state aggregate ICU CLABSI rate for the May 1, 2009 through April 30, 2010 was not different from the pilot year CLABSI rate, the CLABSI rate among ICUs submitting data in NM was lower than the calculated national aggregate CLABSI rate for corresponding ICU types.

Healthcare Personnel Influenza Vaccination Surveillance

Influenza vaccination of HCP was selected as an indicator because it is a critical patient safety measure endorsed by CDC, The Joint Commission (TJC) and many professional

organizations. Increased influenza vaccination rates are associated with decreased mortality in elderly patients (e.g., patients in long-term care settings) and decreased HCP lost work time.[17,18,19,20] Asymptomatic HCP can shed influenza. Healthcare facility-associated influenza outbreaks have been well described in studies.[21,22] In past years, healthcare-associated influenza infections have been documented in healthcare settings and HCP have been implicated as the potential source of these infections. Measuring HCP influenza vaccination rates is a requirement of TJC which also requires year-to-year improvements and expansion of facility programs. Monitoring HCP influenza vaccination rates is a suggested process measure for HAI tracking by the HAI Working Group of the Joint Public Policy Committee (a multi-organizational group represented by the APIC, CDC, Council of State and Territorial Epidemiologists [CSTE], and Society for Healthcare Epidemiology of America [SHEA]); however, at the time that recommendation was issued, no standardized measure was in place.[23] Despite this knowledge, even best performing organizations rarely exceed 70% influenza vaccination (data from the University HealthSystem Consortium, a collection of academic medical centers and their affiliated hospitals).[24] According to CDC, in the 2005-2006 influenza season, only 42% of surveyed HCP received influenza vaccination.

The NHSN module to collect data on HCP influenza vaccinations was not available for the 2008-2009 influenza season; therefore, the NM pilot developed its own methodology for hospitals to collect and submit data. Written instructions were provided that included data requirements and definitions (Appendix F). For the second data collection period, the NHSN module was available but was determined to be too cumbersome for most facilities. It required employee-specific tracking as well as a four-page form for each vaccination during an influenza season when two influenza vaccines were being encouraged (i.e., pandemic H1N1 and seasonal influenza). All NM facilities accredited by TJC were encouraged to participate in TJC influenza vaccination challenge. The Joint Commission planned to recognize all facilities achieving 2008-2009 vaccination rates of HCP higher than the historical norm of 43%.

Both seasonal and pandemic H1N1 (pH1N1) influenza vaccination data were submitted for HCP during the 2009-2010 influenza season as a process measure for NM. Four times as many facilities submitted data on HCP influenza vaccinations during the 2009-2010 influenza season as compared to the 2008-2009 influenza season: 25 versus six, respectively. Facilities submitting data for 2009-2010 included acute care hospitals, an ambulatory surgery center, and state-run long-term care facilities.

Healthcare personnel were defined as the total number of hospital employees identified via payroll plus the number of physician and other licensed independent providers identified via credentialing or Medical Staff Affairs as of September 30, 2009. Volunteers and students were excluded from the count. Healthcare personnel influenza vaccination data was collected from September 1, 2009 through March 31, 2010. In April 2010, facilities submitted their data electronically to NMDOH.

A total of 14,832 HCP were noted to have received the seasonal influenza vaccination at the 25 facilities submitting data during the 2009-2010 influenza season (Table 2). The total number of HCP documented by these facilities was 24,624. The aggregate HCP influenza vaccination rate for 2009-2010 influenza season was 60.2%. This was similar to the HHS Healthy People 2010 goal of 60.0% for HCP influenza vaccination coverage.

There was an increase in the number of HCP vaccinated during 2009-2010 influenza vaccination season as compared to the pilot year. The odds of HCP being vaccinated for seasonal influenza during 2009-2010 was 30% higher than in 2008-2009 (odds ratio (OR) = 1.3; 95% confidence interval (CI) = 1.2-1.3).

Table 2. Aggregate Data for Healthcare Personnel (HCP) Seasonal Influenza Vaccination in New Mexico, 2008-2009 and 2009-2010

Influenza season	Total number facilities submitting HCP vaccination uptake data	Total number HCP receiving seasonal influenza vaccine	Total number HCP at facilities (hospital employees plus physicians)	Seasonal influenza vaccination rate (range)	U.S. Department of Health and Human Services Healthy People 2010 Goal
2008-2009	6	9,717	17,783	54.6% (45.3%-60.8%)	60.0%
2009-2010	25	14,832	24,624	60.2% (28.0%-88.0%)	60.0%

A total of 12,368 HCP were noted to have received pH1N1 influenza vaccination at the 25 facilities submitting data during the 2009-2010 influenza season (Table 3). The total number of HCP documented by these facilities was 24,624. The aggregate HCP pH1N1 influenza vaccination rate for 2009-2010 influenza season was 50.2%. Nationwide, the number of HCP who self-reported vaccination status for pH1N1 influenza to a CDC electronic survey was 37.1%.[25]

Table 3. Aggregate Data for Pandemic Influenza A (pH1N1) Vaccination, All Reporting Facilities in New Mexico, 2009-2010

Total number of facilities submitting data for 2009-2010 influenza season	Number of all HCP (including hospital employees and physicians) vaccinated with pH1N1 vaccine	Total number of HCP (hospital employees plus physicians)	Aggregate percentage of HCP receiving pH1N1 vaccine in NM (range)	Percentage of HCP receiving pH1N1 vaccine per National Health Interview Survey[26]
25	12,368	24,624	50.2% (27.0%-81.0%)	37.1%

Multiple strategies can be used to improve influenza vaccine uptake among HCP, including vaccination campaigns, vaccine education, use of declination statements, and increased access to vaccine. In NM, all participating facilities conducted seasonal and pH1N1 influenza vaccination campaigns. Fifty two percent of facilities included influenza

vaccine education as part of their vaccination campaigns. Attendance at an educational session was mandatory in 28.5% of facilities conducting educational campaigns. Increased access to influenza vaccine by use of peer-vaccinators and multiple delivery methods is recommended to increase uptake of influenza vaccine by HCP. All participating facilities provided seasonal and pH1N1 influenza vaccination to employees via one or more of the following delivery methods: peer vaccinators; vaccine at congregate settings (e.g., conferences, meetings, and/or cafeteria); mobile carts and centralized mass vaccination campaigns; at the occupational health clinic; at the nurses' station; in the Emergency Department; and one-on-one calls and pages.
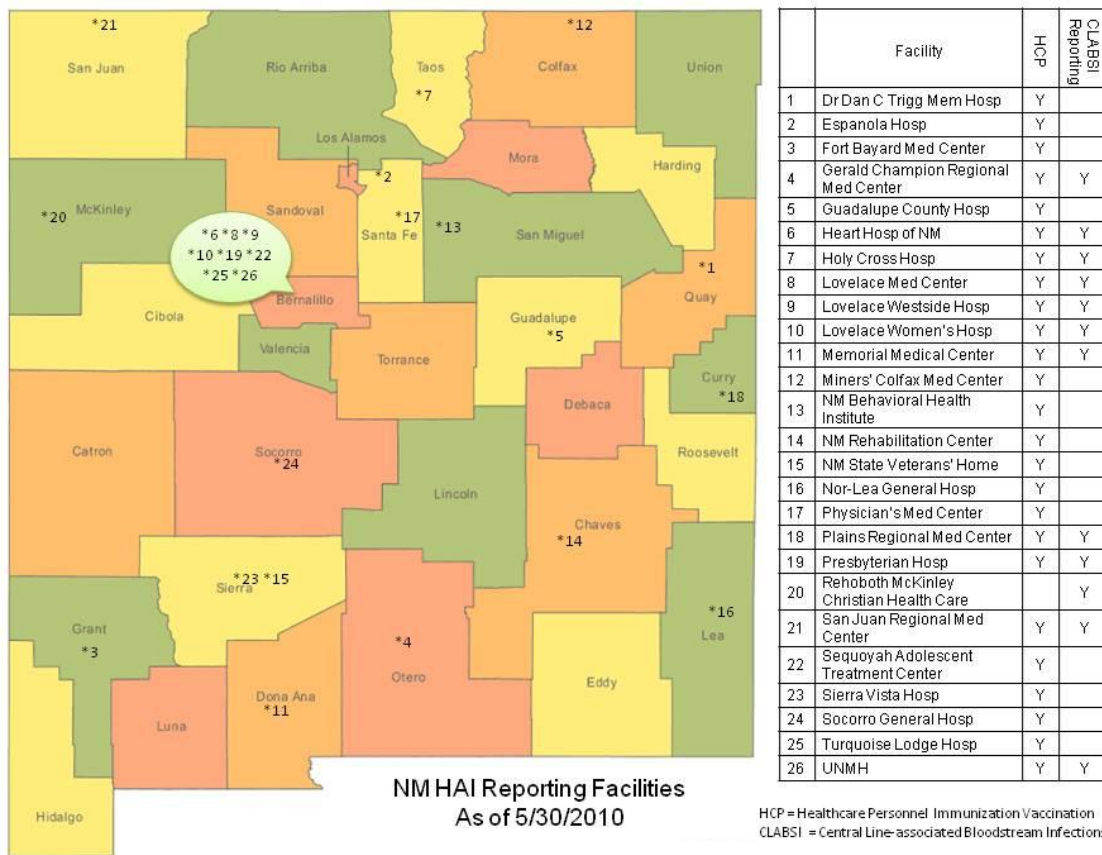
The use of declination statements (i.e., requiring HCP to sign a form if they refuse vaccination) when combined with a multifaceted education program is recommended by the national ACIP and can provide incremental increases in the number of HCP receiving influenza vaccination. Sixty eight percent of participating NM facilities required declination statements from individuals who did not receive influenza vaccination either due to personal or medical reasons. All facilities offered seasonal influenza vaccine to all HCP. Facilities followed the tiered-priority group distribution strategy as outlined by CDC and NMDOH for distribution of pH1N1 influenza vaccine to HCP. Free or reduced cost influenza vaccine is also recommended as a strategy to promote influenza vaccination among HCP. Ninety six percent of participating facilities provided both seasonal and pH1N1 influenza vaccine to HCP at no cost.

The NM HCP influenza vaccination data has limitations. There is not currently a standardized method for collection of HCP influenza vaccination data and therefore no national benchmark for comparison purposes. In NM, several facilities experienced difficulty obtaining data on physicians and other licensed independent providers who were not hospital employees. Physicians comprised 16.1% of the total number of HCP in the data above. Due to the difficulties associated with tracking influenza vaccination in this population, data submitted might underestimate actual vaccination rates. This is not an issue unique to NM. In a national survey of 55 University HealthSystem Consortium members, only 32% of responders tracked visiting physicians.[27] In addition, 20% of NM participating facilities during the 2009-2010 influenza season did not gather information on individuals who were vaccinated off site. Of the participating facilities collecting information on individuals vaccinated off site, 28.5% required written documentation of vaccination elsewhere. These practices might have led to an underestimate of vaccination rates.

Overall there have been improvements in NM on the HCP influenza vaccination indicator. The number of facilities in NM submitting HCP influenza vaccination data increased from six in 2008-2009 to 25 in 2009-2010. The aggregate HCP seasonal influenza vaccination rate increased from 2008-2009 to 2009-2010 from 54.6% to 60.2%, respectively. The aggregate rate of HCP receiving the pH1N1 influenza vaccine in NM was higher than the nationally reported rate.

Map of New Mexico Facilities Submitting HAI Data as of May 30, 2010

This map represents the healthcare facilities contributing data on the two NM HAI indicators of CLABSI and HCP influenza vaccination.

	Facility	HCP	CLABSI Reporting
1	Dr Dan C Trigg Mem Hosp	Y	
2	Espanola Hosp	Y	
3	Fort Bayard Med Center	Y	
4	Gerald Champion Regional Med Center	Y	Y
5	Guadalupe County Hosp	Y	
6	Heart Hosp of NM	Y	Y
7	Holy Cross Hosp	Y	Y
8	Lovelace Med Center	Y	Y
9	Lovelace Westside Hosp	Y	Y
10	Lovelace Women's Hosp	Y	Y
11	Memorial Medical Center	Y	Y
12	Miners' Colfax Med Center	Y	
13	NM Behavioral Health Institute	Y	
14	NM Rehabilitation Center	Y	
15	NM State Veterans' Home	Y	
16	Nor-Lea General Hosp	Y	
17	Physician's Med Center	Y	
18	Plains Regional Med Center	Y	Y
19	Presbyterian Hosp	Y	Y
20	Rehoboth McKinley Christian Health Care		Y
21	San Juan Regional Med Center	Y	Y
22	Sequoyah Adolescent Treatment Center	Y	
23	Sierra Vista Hosp	Y	
24	Socorro General Hosp	Y	
25	Turquoise Lodge Hosp	Y	
26	UNMH	Y	Y

HCP = Healthcare Personnel Immunization Vaccination
CLABSI = Central Line-associated Bloodstream Infections

NEXT STEPS FOR HEALTHCARE-ASSOCIATED INFECTION SURVEILLANCE AND PREVENTION IN NEW MEXICO

The New Mexico HAI initiative is midway through the third data collection cycle for ICU CLABSI and for HCP influenza vaccination. Program developments during the next twelve months will center on validation of prior ICU CLABSI data submitted, completion of a survey on surveillance methods and capacity, implementation of surveillance and data submission for additional NM indicators, adjustment of HCP influenza vaccination data collection to coordinate with a CDC pilot of a National Quality Forum (NQF) data collection measure (NQF is a nonprofit organization dedicated to healthcare quality improvement), and execution of Emerging Infection Program (EIP) HAI projects.

Validation of Intensive Care Unit CLABSI Data Submission

Throughout the two years of HAI data collection in NM, concurrent quality checks of CLABSI event data entered in NHSN have been occurring along with consistency and

logic reviews of denominator data. A checklist worksheet created by NMDOH HAI staff was provided to IPs to help assure that positive blood cultures met NHSN surveillance definitions. For each CLABSI event entered in NHSN, the facility IP completed the checklist and faxed it to the NMDOH IP for review. Timely reviews avoided a number of errors that may not have been detected at all or may not have been noticed until a time when an error would be harder to correct. To further assess the ability to apply NHSN definitions and collect denominator data, facility staffs are being presented with monthly standardized case studies and a questionnaire designed to gauge adherence to NHSN definitions. Results from the CLABSI case studies will be used to develop continuing education.

New validation activities will be implemented in November 2010 and will include an assessment of the surveillance capacity at individual healthcare facilities as well as a review of positive blood cultures to identify possible under-counting or over-counting of CLABSIs. A standardized electronic survey will be administered to the facility IP or Infection Control Director to determine staffing resources, electronic capacity to collect surveillance data, level of NHSN usage, and additional duties assigned to the IP; results will be compared to data from pre-pilot surveys of facilities. This information will provide a better understanding of surveillance methods and capacity within NM facilities.

Central line-associated bloodstream infection data validation will be performed on a sample of ICUs for the time period November 1, 2009 through January 21, 2010. A list of individuals with positive blood cultures for each facility will be matched to ICU admissions for that facility. Each matched record will be independently reviewed by two blinded (i.e., unaware of the source of the records or previous CLABSI determination) NMDOH auditors. There will be an expert reviewer consulted for difficult cases. This validation will review the facility's application of NHSN HAI definitions and will determine the accuracy of data submitted to NHSN by the hospitals. Data submission errors will be corrected during the course of the validation.

Additional Indicators Selection and Implementation Plan

The NM HAI Advisory Committee uses a systematic evaluation process for selection of new indicators for public reporting. Factors taken into account include the broad endorsement of the indicator as a measure of safe practice by national advisory bodies such as the National Quality Forum, and technical issues such as availability of a data collection module in NHSN and of national data for comparison.[28,29]

Recommended interventions to prevent the selected HAI should be based on strong evidence, and the indicator should be applicable across the spectrum of care from large to small hospitals and long-term or skilled nursing facilities. Other considerations when evaluating potential new indicators are more subjective and based on the experience of NM HAI Advisory Committee members:

1. How feasible is the surveillance given local IP capacity?

2. Can the results be communicated to the public in a meaningful way?

3. Is there reported experience in using local quality improvement collaboratives or similar modalities in reducing the incidence of the HAI?

4. Is the measure a criterion for accrediting agencies such as The Joint Commission?

The NM HAI Advisory Committee plans to expand current collection of CLABSI and HCP influenza vaccination data and move in accordance with national priorities and requirements in adding new indicators. The current NM CLABSI Learning Collaborative is educating 24 participating facilities in surveillance and elimination of CLABSI. Beginning November 2010, non-ICU CLABSI will be added as a new NM HAI indicator. This expanded indicator was chosen to build on the experience of the hospitals submitting ICU CLABSI data and to address the interest of the CLABSI Learning Collaborative participants who do not have ICUs. This will allow smaller hospitals without ICUs to receive the support and expertise that has been available to larger hospitals. This includes support in joining NHSN for data submission purposes and improving their surveillance and prevention activities. A recent CDC article suggests that while ICU CLABSI may be an appropriate HAI reduction target and interventions may be effective, there are also a large number of central lines in units outside of the ICU.[30] As the focus on ICU CLABSI is able to reduce those infections, surveillance should be expanded to include non-ICU areas. In a survey of hospitals participating in the CDC EpiCenter Program, 70% of central lines were in patients outside of the ICU.[31] Much will be learned as hospitals begin to collect central line days, review central line maintenance and continuation decisions, and monitor CLABSIs outside of ICUs.

Similarly, data collection on HCP influenza vaccinations will be expanded with guidance from CDC. New Mexico is currently working with CDC and other selected states to implement a pilot project to examine barriers to measurement of HCP vaccination and test data collection methods. The Joint Commission Challenge has raised expectations significantly this year, with recognition granted only to those facilities with 75% or greater employee participation in influenza vaccination.[32]

A second new indicator will be *Clostridium difficile* infection (CDI). *Clostridium difficile* is the etiologic agent of severe and sometimes fatal diarrhea usually related to antibiotic use. *Clostridium difficile* infections are caused by bacteria and symptoms range from diarrhea to life-threatening inflammation of the colon. These infections occur in both community and healthcare settings but most commonly occur in older adults in hospitals or long-term care facilities. *Clostridium difficile* infection has increased substantially over the past decade, with significant increases in morbidity and mortality, which are even greater in long-term care facilities than in acute-care hospitals.[33] Published experience from individual facilities and the National Health Service of the United Kingdom indicate that CDI can be controlled by a "bundle" of interventions that includes improved testing and isolation of infected patients, environmental cleaning, and antimicrobial stewardship programs.[34] The NM HAI Advisory Committee is exploring community capacity in these areas with a goal of instituting a statewide prevention Collaborative in 2011. Data collection will be facilitated by use of a laboratory test-based definition and data submission in the NHSN Multidrug-Resistant Organism (MDRO) module. Data collection for this indicator is voluntary and will begin in November 2010. Consistent with the Advisory Committee's approach of implementing HAI surveillance in a measured and manageable fashion, facilities are encouraged to select one unit for initial non-ICU CLABSI data collection. A medical or surgical unit provides the best opportunity for

comparison with national risk-adjusted NHSN data. Similarly, facilities are encouraged to track CDI in one unit, preferably Medical/Surgical or General Medicine.

At this time the current NM HAI indicators are in keeping with HHS and CMS priorities and data submission requirements. Starting in 2011, hospitals participating in the CMS Inpatient Prospective Payment System must enter all adult, pediatric and neo-natal ICU CLABSI events in NHSN. These data will be then be made publicly available on the Hospital Compare website.[35] Healthcare personnel influenza vaccination rates are also planned for inclusion in pay-for-performance plans.

Recruitment of Facilities for Healthcare-associated Infection Surveillance and Prevention

In recruiting new facilities to participate in the NM HAI Prevention Plan, healthcare facilities are informed of the benefits of participation which include:

- Local support from the NM HAI Program in enrolling in and learning NHSN
- Access to Learning Collaboratives and other educational programming
- Participation in current CLABSI Prevention Collaborative and upcoming *Clostridium difficile* Learning Collaborative scheduled for spring of 2011
- Access to monthly HAI Reporting Group calls and peer network
- Support from dedicated NM HAI Program staff
- Preparation for compliance with the 2010 CMS rule, requiring ICU CLABSI data submission beginning in January 2011, without duplication of effort

Those facilities newly enrolling in NHSN for the purpose of submitting data to NMDOH understand that data from their first data collection period (defined as November 1, 2010 through April 30, 2011 for the two new indicators) will be reported in aggregate in the 2011 public report. This assures them that they have one data collection cycle to become competent and consistent in applying surveillance definitions and using the system prior to facility-specific data being publicly reported.

Healthcare Personnel Influenza Vaccination Data Submission and CDC National Reporting Pilot

In mid-2010, CDC was issued a time-limited NQF endorsed quality measure for HCP influenza vaccination data submission (measure 0431). Centers for Disease Control and Prevention invited NMDOH to participate in a pilot to test this NQF quality measure due to New Mexico's past experience reporting aggregate HCP influenza vaccination and interest in using NHSN to collect this data. The web-based pilot data collection tool is expected to inform development of a HCP influenza vaccination module in NHSN.

New Mexico assisted in the development of the protocol and continues to provide input and feedback to CDC. The pilot uses simplified data collection methods similar to those used by New Mexico healthcare facilities in recent influenza seasons. The pilot objective is to determine if the personnel groups and proposed ways of categorizing vaccination status can be realistically collected by various types of healthcare facilities.

The technical workgroup of the NM HAI Advisory Committee recommended adopting the NQF pilot measure for those facilities currently submitting HCP influenza vaccination

data to NMDOH. Measures endorsed by NQF tend to be adopted by regulatory bodies such as CMS and TJC, as well as state HAI programs. By aligning with NQF measure 0431, NM facilities will be prepared for potential future regulatory and/or legislative requirements utilizing this measure. Another benefit of participation is the opportunity to impact national policy by providing information on data collection, particularly in small/rural healthcare facilities.

Changes from previous NM guidelines include the addition of a new "other non-employee" personnel category as well as collection of numbers of personnel refusing vaccination or having a medical contraindication to the vaccine. To maintain continuity of previous data and acknowledge the barriers facilities may encounter while collecting HCP vaccination data in the new categories, the decision was made to publicly report facility-specific data in July 2011 only for categories most similar to the historically collected categories.

It was necessary to recruit additional NM facilities to meet the CDC pilot project's goal of examining the feasibility of implementing NQF measure 0431 in various healthcare settings. A total of 69 facilities from several categories--acute care, long-term care, ambulatory surgery centers, dialysis clinics and physician/provider offices--will be submitting data for NM. Facilities were strongly encouraged to join the pilot as participation will provide feedback regarding the design of the quality measure and the data collection tool, even if only to determine whether and why some information is not available. New Mexico was able to exceed the established recruitment goal due to an encouraging response from NM healthcare facilities.

New Mexico facilities will submit aggregate, facility-level HCP influenza vaccination information to CDC via a secure, web-enabled database. No individual employee level vaccination data will be collected and facilities will not be identified in any reporting of the data by CDC. Centers for Disease Control and Prevention will release these data to NMDOH for state-level reporting purposes.

The New Mexico Medical Review Association provided material to assist with vaccination campaigns to all hospitals in New Mexico, and facilitated a webinar to review the revised definitions, data collection tool, review barriers to HCP influenza vaccination acceptance, ways to overcome those barriers, and answer questions about the 2010-2011 influenza vaccination data collection.

New Mexico Emerging Infections Program Healthcare-associated Infection Projects

The Emerging Infections Program (EIP) is a population-based network of CDC and ten state health departments, including NM, and their partners (e.g., IPs, academic centers, and other federal agencies) that serves as a national resource for surveillance, prevention and control of emerging infectious diseases. There are a number of activities conducted by EIP, including Healthcare Associated Infections-Community Interface (HAIC) projects. There are two current HAIC projects in which NM is participating: 1) HAI and Antimicrobial Use Prevalence Survey and 2) NHSN Denominator Simplification Project.

The objectives of the HAI and Antimicrobial Use Prevalence Survey are to estimate HAI prevalence among inpatients in acute healthcare facilities (i.e., hospitals), determine distribution of HAI by pathogen and major infection site, and to estimate prevalence and describe rationale for antimicrobial use in acute healthcare facilities. There are three phases to this project: 1) single-city pilot, 2009; 2) limited roll-out, 2010; and 3) full-scale survey, 2011. This project is currently in phase 2 (limited roll-out). This phase will achieve the above-mentioned objectives in a limited number of healthcare facilities while also providing the ability to work out logistical issues with survey methodology and procedures. For this phase, each state engaged one to three facilities with a combined average daily patient census of 400 and conducted the survey on a single day in August 2010. Institutional Review Board (IRB) approval was obtained at the state level as well as from the participating facilities. Eligible patients for the survey were acute care inpatients of any age in randomly selected beds on the survey morning (33% random sample).

There are three teams of individuals participating in data collection for this survey: 1) primary team; 2) EIP team; and 3) evaluation team. The primary team, which consists of IPs at the healthcare facility, collected the following information on the survey day: basic demographic data, presence of urinary catheter or central line and use of mechanical ventilation or antimicrobials. The EIP team, which consists of NMDOH staff (two physicians and one epidemiologist) conducted retrospective medical record reviews on patients who were documented to be on antimicrobials. This record review involved documenting the reason for antimicrobial use (e.g., treatment of an active infection) and assessing if an HAI was present using standardized NHSN definitions. If an HAI was present, the type and location of that HAI was determined and documented. The evaluation team is composed of expert IPs hired by CDC to perform validation of data collected on a subset of patients. All data will be entered into a web-based, password protected data management system designed by CDC for this project. The data submitted to CDC will not contain any unique patient identifiers (e.g., patient name). Centers for Disease Control and Prevention will then perform aggregated data analysis to generate prevalence estimates of HAI and antimicrobial use. Logistic regression will be used to assess variables associated with HAI and antimicrobial use. The national EIP network plans to conduct phase 3 (full-scale survey) in 2011. This phase will involve conducting the survey at additional hospitals to obtain broader representation of acute care inpatient facilities.

The objectives of the NHSN Denominator Simplification Project are to: 1) evaluate use of a simple, less labor intensive method for estimating device-days denominator data; 2) determine if denominator sampling methods can be successfully implemented; and 3) determine if denominator sampling methods can generate valid estimates of device-days. The expected benefits of this project are to validate sampling methodology which could then contribute to reduction in HAI surveillance data collection burden, increased HAI surveillance participation, and improved denominator data reliability and accuracy.

This project has two phases: 1) retrospective data collection; and 2) prospective data collection. The data collection for this project will not involve collection of any unique patient identifiers or confidential patient information and therefore is not considered to be human subjects research. For this national project, each EIP state will identify 10-15

acute care inpatient facilities to participate. Participating facilities must be enrolled in NHSN and conducting CLABSI surveillance. The retrospective phase will involve facility IPs providing 12 consecutive months of monthly device-days (i.e., central line) denominator worksheets. This data will be used to retrospectively assess the feasibility of using sampling methods to obtain estimates of central line-days in both ICU and non-ICU settings. The data analysis will be performed by CDC. This phase will be conducted in the fall of 2010.

The prospective phase will involve facilities continuing to collect denominator data using current methods for 12 consecutive months while also conducting independent sampling (one day per week) of denominator data from the same inpatient units. This phase will allow for prospective assessment of the feasibility of implementing the use of sampling methods to collect patient-days and central line-days denominator data. In addition, this phase will provide data to compare estimates of central line-days derived from denominator data collected using sampling methodology against data collected using current denominator data collection practices. This comparison will determine if estimates of central line-days and CLABSI rates generated are suitable for the purposes of conducting HAI surveillance and submitting data to NHSN. All data analysis will be performed by CDC. This phase will begin in January 2011.

LESSONS LEARNED AND RECOMMENDATIONS

In late summer of 2009, ARRA HAI funding became available through the CDC Epidemiology and Laboratory Capacity (ELC) for Infectious Diseases and Emerging Infections Program (EIP) Cooperative Agreements. New Mexico proposed, through ARRA HAI ELC funding, to continue to regularly convene the New Mexico HAI Advisory Committee and its work groups as it expanded the number of facilities participating in HAI surveillance. Up to that point, the work of the pilot and of the Advisory Committee had consisted of primarily in-kind activities from the participating individuals and organizations. Awarding of ARRA HAI ELC funds in the fall of 2009 allowed for planning of full, timely implementation of the intent of the New Mexico Hospital-Acquired Infection Act, N.M. Stat. Ann. § 24-29-1 (2009). These intentions, along with the objectives set out by CDC, were incorporated into the New Mexico Healthcare-associated Infections Prevention Plan, submitted to the HHS on January 1, 2010.[36] The Plan targets four general areas: 1) enhancing HAI program infrastructure; 2) surveillance, detection, reporting and response; 3) prevention; and 4) evaluation, oversight and communication.

The NM HAI Advisory Committee and the stakeholders with whom it has been working have learned a number of lessons since initiation of the year-long HAI surveillance pilot on July 1, 2008. Since that time, HAI surveillance has been expanded to include additional healthcare facilities and new indicators. Prevention activities are also evolving from which much is being learned. The following recommendations are based on those lessons learned.

1. **Continue to expand NM HAI surveillance and data submission based on: a) ability to conduct standardized and high quality surveillance using criteria developed by the NM HAI Advisory Committee; b) capacity of partners to expand; and c) goals and objectives of the NM HAI Prevention Plan.**

Lessons learned include the fact that processes at healthcare facilities and partner agencies, such as NMDOH, are resource intensive. Infection prevention resources in healthcare facilities will be a limiting factor in expanded HAI surveillance. Healthcare facility IPs, especially in small, rural facilities, frequently have multiple roles and expectations of these personnel are continually increasing.

Multiple HAI expectations are being placed on healthcare facilities simultaneously, thus stressing their resources and enthusiasm. Mandatory data submission would place additional burdens on already taxed systems. Timely, complete data submissions have been impacted by competing urgent issues (e.g., 2009 H1N1 pandemic influenza) and occasionally by staff turnover and absences. Education on use of HAI definitions for monitoring and prevention purposes must be ongoing as new indicators are added or old ones change and as staff turnover occurs at facilities

In order to conduct high quality HAI surveillance and prevention, there is a need to engage multi-disciplinary teams. Infection Preventionists working in isolation cannot change the culture of an institution/unit: their role should be to support data collection and dissemination of the information for prevention purposes. This is a difficult message to convey to healthcare facilities that tend to rely on the IP for implementation of HAI prevention interventions.

Another important lesson learned is that HAI prevention at the healthcare facility level takes time. In many cases, facilities that are looking hard for infections (i.e., double checking and validating their data entry) will find more infections, and their initial infection rate will reflect that work. Monitoring HAI can identify problems in order to fix those problems and can also provide a measure of whether prevention strategies put in place are actually working.

2. **Maintain and strengthen the NM HAI Advisory Committee as the body to make recommendations for ongoing HAI surveillance and prevention in New Mexico.**

Lessons learned include the fact that building and maintaining relationships and networks is crucial to HAI surveillance and prevention. Collaboration through monthly face-to-face meetings (NM HAI Advisory Committee), ad hoc workgroup meetings, and conferences (both national and state-based) are important to bolster supportive learning environments and sharing of expertise to obtain the best outcomes possible.

The NM HAI Advisory Committee composition and active involvement of members has encouraged and enabled cooperation among state government representatives, healthcare facilities, professional organizations and the public. Partnerships in HAI-related federal projects also provide early insight on trends, solutions and priorities that might not otherwise be learned at the state level.

3. **Remain aware of expectations of the public and their elected officials about HAI prevention: set realistic goals with those expectations in mind and communicate clearly.**

Lessons learned include awareness that expectations from the public and their elected officials are high as they relate to HAI prevention. For that reason, it is important to communicate clearly while setting goals in order to achieve realistic outcomes. The NM HAI Advisory Committee is committed to striving for a *"culture where targeting zero healthcare-associated infections is fully embraced"* **(**Association for Professionals in Infection Control and Epidemiology Position Statement, July 18, 2008 can be accessed at: http://www.apic.org/AM/CM/ContentDisplay.cfm?ContentFileID=11707.)

At the same time, the Advisory Committee is aware that even fully embracing this philosophy will not eliminate 100% of HAI. Public reporting and prevention of HAI are high priority patient safety issues at both the national and state levels that require broad collaboration to maximize resources and to impact outcomes.

4. **Focus on the following four of the top ten messages for outreach from the U.S. Department of Health and Human Services Action Plan regarding HAI[37]**

   o "Many healthcare-associated infections are preventable."
   o "Preventive steps to control and prevent HAI are cost-effective, and will save many lives, and reduce disability for Americans."
   o "Educating patients on HAI and how to prevent them will be a critical part of the national effort."
   o "An informed media can help promote the education of the American public about the need to prevent HAI and what HHS and its partners are doing."

Lessons learned include the understanding that messages are effective only when they are accompanied by actions showing good faith progress toward the intentions and outcomes that have been communicated. The NM HAI Advisory Committee has learned the value of communication with all stakeholders. For that reason, feedback to individual facilities, annual public reporting, interim press releases and web-based resource provision are all part of the NM HAI Prevention Plan.

Sharing New Mexico HAI information with the public has been a goal since the beginning of voluntary NM HAI surveillance. Public reporting of HAI in New Mexico began with the Healthcare-associated Infections Advisory Committee Pilot Report of July 31, 2009 which included aggregate data on ICU CLABSIs and HCP influenza vaccination. In the summer of 2011, the NM HAI Advisory Committee plans to release the first report including facility-specific data on ICU CLABSIs and on HCP influenza vaccination. The 2011 summer report will also include aggregate data on non-ICU CLABSI and CDI rates. All reports will be posted on the 'Healthcare-associated Infections in New Mexico' website which can be accessed at: http://nmhealth.org/hai/.

Reporting efforts will only be effective if the public has access to the information, understands it, and finds it useful. As with influenza and other infectious diseases, the public has a role to play in minimizing these infections and in communicating their expectations of a high standard of care from their healthcare providers. The NM HAI initiative will need to work closely with the public to understand their priorities and expectations. Plans are to work with focus groups,

consumer groups, and public health education experts to determine what presentation, messaging, and outlets are most effective and accessible to a cross section of New Mexico's population in order to implement best public reporting mechanisms.

As an extension of the messages to patients, and recognizing that media personnel can also be a subset of the patient population, it is critical to provide adequate background and context to media so that it can accurately portray HAI-related information. The NM HAI Advisory Committee plans to distribute an HAI media background packet and provide a minimum of bi-annual updates which will improve the ability of the media to act as informed partners when presenting HAI prevention information. The HAI Advisory Committee will also continue providing press releases and special interest stories to media across the state.

5. Mandate NM HAI data submission and public reporting

The NM HAI Advisory Committee has studied other states' legislation, spoken with individuals working on HAI surveillance and prevention at local, state and national levels, and currently has one of its members participating on the Association of State and Territorial Health Officials/CDC Healthcare-Associated Infections Workgroup which is working on an HAI policy toolkit for states. Whether NM moves forward as a voluntary or a mandatory reporting state, the NMHAI Advisory Committee identified the following issues that would benefit from specific regulation: a) how and which HAI indicators are chosen and the specifics of what is required for data submission purposes; b) appropriate confidentiality and privilege protections for patients and healthcare facilities; and c) feasibility of healthcare facilities' compliance to assure high quality information for the public and for HAI prevention purposes. Confidentiality and privilege protections are particularly important. These protections are recognized by the NM HAI Advisory Committee as important tools for promoting accurate data submission. A 2008 study published in *Health Affairs* found that the lack of confidentiality protection was a barrier to accurate medical error reporting.[38] To promote HAI prevention, the NM HAI Advisory Committee recommends incorporating these important protections into future HAI legislation to counter the possibility of inaccurate or incomplete submission of HAI data.

The NM HAI Advisory Committee is currently guided by The Hospital-Acquired Infection Act, NMSA §§ 24-29-1 to 24-29-6 (2009), voluntary legislation which has worked well to date. A key lesson learned by other states, including NM, is that experts working on HAI surveillance and prevention are well placed to provide consultation in order to achieve the best legislation for state constituencies. Some states learned the hard way by not taking advantage of such expertise. New Mexico has, fortunately, not been one of those states.

The NM HAI Advisory Committee has diligently studied relevant legislative HAI issues. The HAI policy environment is evolving and changing on a daily basis. The Advisory Committee believes that it is important to have legislation with both broad authority and flexible provisions in order to obtain the best HAI information for prevention purposes.

CONCLUSION

The NM HAI Advisory Committee will continue to encourage healthcare facilities to submit HAI data in New Mexico and will provide ongoing training and support to new and currently participating facilities. This focus on HAI surveillance and data submission is to provide information to the healthcare facilities and to the public so that all stakeholders can work together on effective prevention of HAI for the ultimate purpose of improved health status for New Mexicans.

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APPENDICES

Appendix A: Acronyms

AHA	American Hospital Association
AHRQ	Agency for Healthcare Research and Quality
APIC	Association for Professionals in Infection Control and Epidemiology
ARRA	American Recovery and Reinvestment Act
BSI	Bloodstream infection
CI	confidence interval
CDI	*Clostridium difficile* infection
CDC	Centers for Disease Control and Prevention
CLABSI	Central line associated bloodstream infection
CMS	Centers for Medicare and Medicaid Services
CUSP	Comprehensive Unit-based Safety Program
DHQP	Division of Healthcare Quality Promotion
EIP	Emerging Infections Program
HAI	Healthcare-associated infection
HCP	Healthcare personnel
HHS	Department for Health and Human Services
HICPAC	Healthcare Infection Control Practices Advisory Committee
IP	Infection Preventionist
ICU	Intensive care unit
MRSA	Methicillin-resistant *Staphylococcus aureus*
NHSN	National Healthcare Safety Network
NM	New Mexico
NMDOH	New Mexico Department of Health
NMHA	New Mexico Hospital Association
NMMRA	New Mexico Medical Review Association
NQF	National Quality Forum
SHEA	Society for Hospital Epidemiology of America
SIR	Standardized infection ratio
SSI	Surgical site infection
TJC	The Joint Commission
U.S.	United States
WHO	World Health Organization

Appendix B: Glossary

Antimicrobial stewardship: A program which seeks to optimize antimicrobial (e.g., antibiotic, antiviral) prescribing through selecting an appropriate drug and optimizing its dose and duration in order to cure an infection and improve individual patient care as well as reduce healthcare facility costs and slow the spread of antimicrobial resistance.

Central line-associated bloodstream infection (CLABSI): A primary bloodstream infection (BSI) in a patient that had a central line within the 48-hour period before the development of the BSI. If the BSI develops within the 48-hours of discharge from a location, it is associated with the discharging location. (CDC, The National Healthcare Safety Network Manual: Patient Safety Component Protocol, January, 2008.)

***Clostridium difficile* (also commonly called 'C. diff' or *C. difficile*):** A bacterium that results in a gastrointestinal illness. Symptoms can range from diarrhea to life-threatening inflammation of the colon. *C. difficile* infection (CDI) most commonly affects older adults in hospitals or long-term care facilities. Patients taking antibiotics are at risk of becoming infected with *C. difficile. C. difficile* is recognized as one of the most common causes of healthcare-associated diarrhea.

Confidence interval (CI): A CI describes the range of values consistent with the actual data. Confidence intervals provide a measure of the level of precision (a wide CI reflects a large amount of variability or imprecision and a narrow CI reflects little variability and high precision) and significance of a result by providing lower (minimum) and upper (maximum) limits for the calculated result. The null hypothesis is a statistical hypothesis that states that there are no differences between observed and expected data: a CI that includes 1.0 is consistent with the null hypothesis. Conversely, a CI that does not include 1.0 indicates that the result is significant. For example, a CLABSI rate of 1.5 with a 95% CI of 0.8 – 2.0 indicates that 95% of the time the minimum CLABSI rate is 0.8 and the maximum CLABSI rate is 2.0; this result is not significant because the CI includes 1.0. On the other hand, a CLABSI rate of 1.5 with a 95% CI of 1.2 – 3.0 indicates that 95% of the time the minimum CLABSI rate is 1.2 and the maximum CLABSI rate is 3.0; this result is significant because the CI does not include 1.0.

Healthcare-associated infection (HAI): A localized or systemic condition that: a) results from an adverse reaction to the presence of an infectious agent or its toxin; and b) was not present or incubating at the time of admission to the healthcare facility. (CDC, The National Healthcare Safety Network Manual: Patient Safety Component Protocol, January, 2008.)

Healthcare personnel: Worker with direct patient contact and working in essential services needed to maintain healthcare services (e.g., dietary, housekeeping, admissions, blood collection staff, respiratory therapy staff, imaging services).

Insertion bundle: A group of procedures related to insertion of a central line that include hand washing, insertion site sterilization, full body drape, use of hat, mask & sterile gown by HCP, and selection of optimal insertion site.

Intensive care unit (ICU): A care area that provides intensive observation, diagnosis, and therapeutic procedures for adults and/or children who are critically ill. Care areas that provide step-down, intermediate care or telemetry only are not ICUs. Specialty care areas are also excluded. The type of ICU in NHSN is determined by the kind of patients cared for in that unit. That is, if 80% of patients are of a certain type (e.g., patients with trauma), then that ICU is designated as that type of unit (in this case, trauma ICU). When a unit houses roughly equal populations of medical and surgical patients, it is called a medical/surgical unit. (CDC, The National Healthcare Safety Network Manual: Patient Safety Component Protocol, January, 2008.)

Learning collaborative: A learning collaborative is based on the model that knowledge can be created within a population where members actively interact by sharing experiences and engage in a common task where each individual depends on and is accountable to each other.

Odds ratio: The measure of the odds of a particular event occurring in one group as compared to another.

p-value: A p-value provides an assessment of whether a difference between two results is statistically significant. For example, a p value of less than or equal to 0.05 indicates that the difference found between two results is significant and has a 5% or less chance of being due to chance alone. Conversely, a p-value of greater than 0.05 indicates that there is no significant difference between the results.

Risk adjusted: A standardized method used to ensure that intrinsic and extrinsic risk factors for a healthcare-associated infection are considered in the calculation of healthcare-associated infection rates.

Surveillance: Ongoing, systematic collection, analysis, and interpretation of health-related data essential to the planning, implementation and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control.

Appendix C: Standardized Infection Ratio

The standardized infection ratio (SIR) is a summary statistic used to compare the healthcare associated infection (HAI) experience of a particular group to a reference population. Standardized infection ratio is similar to standardized mortality ratio which compares the number of observed deaths to the number of expected deaths. Standardized infection ratio is an estimate based on calculations from reported data, and confidence intervals are included to assist with interpretation of data.

Standardized infection ratio allows facilities and/or units to compare the number of observed HAI events to the number of expected HAI events. The number of expected events is calculated based on the reference population. When using SIR to report CLABSI data, the reference population is the NHSN pooled mean for the ICU type for each location. This statistic is based on a risk adjusted population and the results for individual units may be combined without further risk adjustment. The SIR can also be used at a state level to calculate a statewide SIR based on NHSN units and their varying risk categories.

Using the SIR to compare data

Standardized infection ratios can be calculated at a facility or unit level and are specific to the group being evaluated. Statistical analysis can be performed to provide comparison between facilities and/or units. Standardized infection ratios can track trends over time in single units and or large groups and will also reflect changes in risk over time.

Interpreting the SIR

The SIR is a ratio and is comparable to one. Standardized infection ratios less than one indicate the number of observed HAI events is fewer than the number expected. SIRs equal to one indicates the number of observed events is the same as the number expected, and SIRs greater than one indicates the number of observed events is greater than expected.

Reporting CLABSI data by SIR

A CLABSI SIR adjusts for patient mix by accounting for patient-care location, hospital affiliated with a medical school, and bed size of patient location. The Center for Disease Control and Prevention (CDC) recently released state-specific SIR calculations for states with legislative mandates for public reporting. New Mexico data was not included in the public release; there are plans to include all states' data in future releases. Several states are currently reporting facility specific SIR data in accordance with state mandates. During the period (January- June-2009) examined by CDC, 18% fewer CLABSIs than expected were reported nationally.

Benefits of the SIR

A benefit of using SIR is that the time frame for data collection is not important as it is with rate calculations. This is because the number of observed events is compared to the expected number of events. The number of expected events is derived from the NSHN pooled mean for the unit type and the number of line days by the unit.

Limitations to the SIR

The reference population is based on data from the December 2009 NHSN summary data release, which included data from 2006-2008 and not the same time period as observed events; NHSN data is not available real-time.

New Mexico CLABSI SIR

New Mexico is reporting a statewide SIR as facility specific reports are not scheduled for release until July 1, 2011. During the data collection period of May 1, 2009 through April 30, 2010 the New Mexico intensive care unit SIR is reported as 0.41 (95% CI 0.23-0.57) . SIR is significantly different from 1.0 (*p<0.001).* Based on the SIR calculated for the aggregate reported data, participating ICUs observed 60% fewer CLABSI than expected. Fewer CLABSI events were observed in New Mexico during the data collection period compared to the national reference data.

Appendix D: Letter

LETTER FROM THE SECRETARY OF HEALTH:
APPOINTMENT OF THE HAI ADVISORY COMMITTEE

NEW MEXICO
DEPARTMENT OF
HEALTH

Building a Healthy New Mexico!

Alfredo Vigil, MD
Secretary

Bill Richardson, Governor

Katrina Hotrum
Deputy Secretary

Duffy Rodriguez
Deputy Secretary

Jessica Sutin
Deputy Secretary

Karen Armitage, MD
Chief Medical Officer

February 7, 2008

Dear Members of the HJM 67 Task Force,

I would first like to offer my sincere gratitude for your report entitled "Feasibility of Conducting Surveillance for Healthcare-Associated Infections (HAI) in New Mexico" in response to House Joint Memorial 67. I have carefully read your report studying this important issue and have the following points to make:

- I direct the Epidemiology and Response Division (ERD) of the New Mexico Department of Health to appoint a multi-disciplinary advisory committee to guide the development of HAI surveillance methods, reporting methods to the public, and inform any future legislation on HAI surveillance in New Mexico. It is my hope that you will all be able to continue working on this issue in some fashion.
- The first year of HAI surveillance will be a pilot year that is voluntary for healthcare facilities and provides a confidential report of findings. The New Mexico Hospital Association shall be a key partner in identifying a minimum of three hospitals to participate in this pilot year. These facilities should be identified prior to April 30, 2008.
- Your research and work has identified two logical, evidence-based measures to monitor in this first pilot year: a) central-line-associated bloodstream infections and b) influenza vaccination rates of healthcare workers. These measures should be systematically monitored by the pilot facilities beginning no later than June 30, 2008.
- An analysis of the first month of data collection should occur no later than July 30, 2008. Following the first six months of data collection, a thorough evaluation of the process and quality of data will occur. After the pilot, the measures will be expanded to all acute care hospitals as directed by the Advisory Committee. Other evidence-based measures, as determined by the Advisory Committee may be added in the future depending on resource availability.
- Implementing a system such as the National Healthcare Safety Network (NHSN) will align New Mexico's efforts with national movements and is a logical step forward. Training in this system or a similar system for the pilot facilities should be initiated as

soon as these facilities are identified and should be completed no later than May 15, 2008.

- Your other recommendations regarding reporter liability, patient confidentiality, public reporting method, and identification of healthcare facilities are important elements for the Advisory Committee to consider as this work proceeds.

I recommend that your task force resume meeting as quickly as possible. NMDOH will appoint the Advisory Committee from appropriate stakeholders and ask that as it manages the implementation of HAI surveillance consistent with your recommendations. At this point, no new funds have been identified or procured to perform this work although this may change at some point in the future as this effort develops. I compliment and thank you for your contributions thus far and believe that your expertise will continue to benefit all New Mexicans as we work toward decreasing the burden of healthcare-associated infections.

Sincerely,

Alfredo Vigil, MD
Secretary, New Mexico Department of Health

Cc: Karen Armitage, MD MPH, Chief Medical Officer, New Mexico Department of Health

Appendix E: New Mexico HAI Advisory Committee Membership

2010

Member	Role	Voting Member
Armitage, Karen	Chief Medical Officer, NMDOH	
Baumbach, Joan	NM HAI Prevention Coordinator, NMDOH, Advisory Committee Facilitator	
Bowdey, Lisa	NM HAI Prevention Program Manager, NMDOH	
Brown, Carlene	NM Medical Review Association	√
Connell, Cynthia	Infection Prevention Consultant	
Dye, Jeff	NM Hospital Association	√
Garduño, Trish	NM Hospital Association	
Gillespie, Roger	Division of Health Improvement, NMDOH	√
Interlandi, Ellen	NM Hospital Association	
Jaco, Mary	Large/Urban Facility Infection Preventionist	√
Kellie, Susan	Hospital Epidemiologist/Academic	√
Makvandi, Monear	Infection Prevention/Epidemiologist, NMDOH	√
Minnick, Chris	Public Information Officer, NMDOH	
O'Kelly, Sandra	Small/Rural Facility Infection Preventionist	√
Popejoy, Suzanne	NM APIC Representative	√
Reagan, Julie	Attorney & Healthcare Consultant, Community Member	
Rinaldi, Ophelia	Consumer	√
Sewell, C. Mack	State Epidemiologist, NMDOH	
Stryker, David	SHEA representative	√
Timmins, Anne	NM Medical Review Association	

Appendix F: Healthcare Worker Influenza Immunization Guidelines

Healthcare Workers (HCW) Influenza Immunization Guidelines for the New Mexico Pilot Year: 2008-2009 Influenza Season

Background

The following requirements for reporting rates of employee influenza immunization are based on a pilot survey of 7 hospitals in New Mexico. All facilities surveyed had the capability of assessing total employee numbers, total medical staff numbers, recording influenza vaccines given, and providing an overall rate of immunization of hospital employees plus medical staff. Almost all facilities could provide a rate deemed accurate, despite using, in most cases, paper records which were simply counted or transferred to electronic databases for analysis.

Measurement of unit-specific influenza vaccination rates may be performed for internal quality assurance purposes and to guide vaccination efforts, but unit-specific rates are not required for the pilot project. The pilot project acknowledges the fluidity of staffing in hospitals and staff turnover. All staff have potential contact with patients and their families and visitors, even those not classified as performing "direct patient care", hence all paid staff and all medical staff with privileges, plus residents, will be included in this surveillance. Many medical staff maintains privileges at multiple facilities, and many healthcare workers work at more than one facility, so these individuals may be counted more than once. "Medical staff" includes all licensed independent providers with hospital privileges, including physicians and midlevels. In this setting, an employee's or physician/midlevel's report that they were immunized elsewhere is sufficient to document vaccination for that healthcare worker.

Hospitals should not include volunteers and students in their data submission. Many hospitals include volunteers in their vaccination programs, but volunteers are not usually included in employee health records and may also be immunized elsewhere. Students may intern at multiple facilities. Hosting facilities have vaccination requirements for students, and are encouraged to add a requirement for influenza vaccination.

Other opportunities for facilities include participation in the New Mexico Influenza Vaccine Consortium to facilitate the supply of vaccine and materials to support employee immunization programs. University Hospital has enrolled in the University HealthSystem Consortium Influenza Vaccination Benchmarking Project to improve healthcare worker immunization rates. All facilities accredited by the Joint Commission are encouraged to participate in the Joint Commission's Influenza Vaccination Challenge for the 2008-9 influenza season. The Joint Commission will recognize all facilities achieving immunization rates of healthcare workers higher than the historical norm of 43%. From the results of our pilot survey, we would expect all participants to be able to achieve this recognition. This program is being run by Joint Commission Resources and participants may enroll at www.fluvaccinationchallenge.com.

Reporting requirements

Core measures for the pilot project include the following:

Denominator:

# of all hospital employees (non-physician) on payroll as of September 30, 2008 (current immunization season) (Note: the number should be the number of individuals employed, not FTE)

PLUS

# of medical staff (including employed physicians and residents) as of September 30, 2008

Denominator data must be submitted to the project by November 1, 2008

Numerator**:**

# of all hospital employees immunized as of March 31, 2009 (current immunization season)

PLUS

# of medical staff immunized as of March 31, 2009 (includes resident physicians)

Numerator data must be submitted to the project by May 15, 2009

Information on data gathering and analysis:

Participants are also required to submit a brief description of their HCW vaccination processes, to include the following:

1. How information is obtained to ascertain number of employees on payroll and all medical staff (plus residents).
2. How the information on each individual immunized is collected (consent form, roster, direct entry into computer system etc).
3. How the immunization data are linked to the employee database and medical staff database (data entry on each individual, automated system, tally of paper records such as consent forms or roster etc).
4. As applicable, how information is collected on employees declining influenza vaccination (declination form, roster etc).