

Progress Toward Eliminating Healthcare-Associated Infections Meeting Report Summary

INTRODUCTION

On September 23-24, 2010, the Department of Health and Human Services (HHS) Steering Committee for the Prevention of Healthcare-Associated Infections hosted the meeting “Progress Toward Eliminating Healthcare-Associated Infections” in Arlington, Virginia. The two-day meeting was convened to:

- Review progress toward achieving the nine five-year national healthcare-associated infection (HAI) prevention targets for reducing the incidence of specific HAIs and increasing adherence to specific sets of recommended prevention practices. These goals were established in September 2008 and are included in the [HHS Action Plan to Prevent Healthcare-Associated Infections](#);
- Review draft sections in the revised Action Plan for reducing HAIs in outpatient settings, specifically [ambulatory surgical centers](#) (ASCs) and [end-stage renal disease \(ESRD\) facilities](#), and establish infection prevention goals for ASCs, ESRD facilities and for reducing the incidence of ventilator-associated pneumonia (VAP) in acute care hospitals.

Over 170 participants attended the meeting over both days. On the first day, participants heard [plenary presentations](#) including a review of the [current data](#) on the status toward achieving each of the nine Action Plan goals (e.g., 50% decrease in central-line associated bloodstream infections by the end of 2013),¹ updates from the HHS Steering Committee Working Groups and perspectives from those “in the field”, working to prevent, reduce, and eventually eliminate HAIs.²

In the afternoon of the first day, meeting attendees participated in two breakout group sessions:

- The first session addressed a series of questions regarding how to accelerate progress toward meeting the Action Plan goals within the context of the five goal areas: central line-associated bloodstream infections, catheter-associated urinary tract infections, surgical site infections, methicillin-resistant *Staphylococcus aureus* (MRSA) infections and *Clostridium difficile* infections.
- The second session addressed a similar set of questions within the context of five of the HHS Action Plan content areas represented by Working Groups of the HHS Steering Committee for the Prevention of HAIs: Prevention and Implementation; Information Systems and Technology; Outreach, Messaging and Communications; Incentives and Oversight; and Research.

On the [second day](#) of the meeting, attendees broke into three separate tracks to discuss infection prevention in ASCs and ESRD facilities, and prevention of VAP in acute care hospitals.

¹ For a full description of progress towards these five-year goals, see *Monitoring Progress Toward Action Plan Goals: A Mid-Term Assessment* at: <http://www.hhs.gov/ash/initiatives/hai/nationaltargets/index.html>

² Presentations are available at http://www.hhs.gov/ash/initiatives/hai/Events/hai_events.html

EXECUTIVE SUMMARY

Over the course of the meeting, several key themes and HAI prevention strategies emerged. Though it is difficult to capture the nuance of the discussions briefly, the list below summarizes group consensus on some key strategies to prevent, reduce, and eventually eliminate HAIs. As this list indicates, no one action alone performed by any one sector will eliminate HAIs. However, taken together, these strategies employed by various sectors in partnership may move the nation closer to preventing and eliminating HAIs:

- **Reduce device use**
HAIs can be reduced by using catheters and endotracheal tubes only when necessary, and removing devices promptly once they are no longer needed.
- **Increase flu vaccination of healthcare personnel**
In order to decrease provider-to-patient transmission of the influenza virus, there must be a nationwide increase in rates of healthcare personnel flu vaccination.
- **Implement and sustain aggressive antimicrobial stewardship practices**
Providers and patients must partner to use antibiotics only when needed, completing scheduled doses appropriately, and limiting prophylactic use.
- **Change the culture of healthcare delivery**
Healthcare facilities must move towards a culture of safety that includes all providers, patients and families, environmental services personnel, and pharmacy as members of the healthcare team.
- **Engage “C-Suite” leadership**
Strong leadership at multiple levels (i.e., executive leaders, unit managers) is needed to support patient safety improvements. Patient advocates and providers should make the business case for HAI elimination.
- **Evidence-based systemic approaches**
Introducing checklists and standardizing care or protocols for procedures associated with HAI incidence (i.e., catheter insertion) have been helpful in reducing infections and promoting stronger healthcare teams.
- **Use technology more effectively**
Electronic systems have the potential to bring about further advances in HAI prevention, but they are not the only answer. Technology resources need to be targeted for smaller, rural, or under-resourced hospitals. Finally, the timeliness of data feedback must be improved for real-time improvements.
- **Strengthen public reporting of validated data**
We must improve surveillance definitions and denominators that can be consistently applied and validated for inter-facility comparisons to support

meaningful public reporting. The goal is to report actionable, timely data that consumers can use readily and that providers can use for quality improvement.

- **Establish and maintain partnerships**, traditional and non-traditional
Meaningful partnerships across sectors could uncover innovative ways to improve patient safety across the continuum of care.
- **Implement and maintain appropriate hand hygiene practices**
Simple, inexpensive steps as well as behavior change can be among the most effective tools in HAI elimination.

These key themes along with the feedback received throughout the meeting will inform the revision of the HHS Action Plan to Prevent Healthcare-Associated Infections. The 2011 Action Plan will reflect the progress made since its initial release in 2009 as well as stakeholder input from this meeting.

MEETING REPORT

This meeting report includes summaries of the key points from the breakout conversations on the first day of the meeting and for the ASC, ESRD and VAP breakouts on the second day. These summaries include notes from the report-outs that occurred following each of the breakout sessions, as well as a review of the individual feedback forms and easel pad notes.

REPORT OUTS: DAY 1, BREAKOUT 1

Catheter-Associated Urinary Tract Infection (CAUTI)

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?
 - Multi-disciplinary approaches (e.g., nurse-based approaches) work well
 - However, much State-to-State variability in what nurses are allowed to do under their licenses, as well as barriers for other team members to act on nurse-directed orders
 - Physician support of nurse-based interventions and nurse-directed protocols is helpful
 - Importance of unit-level team leaders and local leadership rather than purely top-down approach. Changing “bed-side habits”.
 - Electronic systems work great, but are not the only answer
 - Focus on preventing catheters, and catheter removal has been effective
2. What has worked in preventing these infections?
 - Financial support for unit-based activities
 - Physician leaders/champions
 - Linking financial incentives to performance for hospital executives and middle managers
 - Changing perspective on importance of CAUTI and focus on non-UTI complications associated with catheterization (e.g., venous thromboembolism, decubitus ulcers and urethral strictures)
 - Reminders to promptly remove catheters and stop-orders have worked well
 - Standardizing care or protocols for catheter insertion and maintenance, as well as standardizing education about protocols across units has been helpful
3. What are some specific barriers that have been impeding our progress in preventing this infection? How can we overcome those obstacles?
 - Challenges of metrics - Definitions and denominators (i.e., catheter days); Consistency across hospitals for inter-facility comparisons or measuring CAUTI consistently
 - Catheters placed while patients are in the emergency department (ED) or operating room (OR)/during surgery are challenging to track; Difficult to regulate which patients get a catheter in these settings

- Removal programs can be burdensome; Tracking without adequate electronic medical record (EMR) systems challenging; Difficult to capture who has catheter and manage the number of alerts
 - Lack of awareness that the device is in a patient
 - Barriers to catheter removal - Challenge for nurses because some patients prefer catheters for comfort or it is easier for nurses to use a catheter for some patients with mobility constraints
4. What actions can you suggest, that if implemented nationally or within a state within the next 12-24 months, will help ensure achievement of the nine target goals?
- Consider monitoring of catheter placement as a procedure
 - Change attitude towards catheter insertion as an invasive procedure
 - Require training and dedicated competency for insertion and maintenance
 - National recommendation to state licensing agencies to allow nurse empowerment program (nurse-directed protocols)
 - National recommendations for educational programs that can be used for state licensing/certification
 - Engaging ED staff (placement bundles) including nurses and hospitalists
 - Assess antibiotic appropriateness as it relates to treatment of positive urine cultures
 - Enhancements of data collection and data validation to better document and track catheter use
 - Better estimates of cost of catheter use including non-infectious complications to make the financial case; and as a corollary, make financial case for alternatives to indwelling catheters
 - Investigate the relationship between catheters and falls
5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?
- Engaging ED and OR staff for shared solutions throughout the patient's stay to decrease risk of infection
 - Engaging consumers, nurses (especially), critical care nurses/doctors, hospitalists
 - American Association of Critical Care Nurses (Beacon Award)
 - Federal agencies collaboratives – CDC, Centers for Medicare & Medicaid Services (CMS)
 - The Joint Commission
 - Documentation of best practices around stop orders and reminders
 - Engage broad array of partners to improve measure definitions
6. Within my specialty's or my organization's area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?
- Improving ED processes and policies
 - Improving documentation/tracking of catheter placement and use

- Financial incentives for executives & local team members
- Making HAIs, including CAUTIs a target for quality improvement
- Changing culture – propose a CAUTI/CUSP collaborative

Central Line-Associated Bloodstream Infection (CLABSI)

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?

- Standardization of practices and enacting those practices
- Simple measures are easiest to educate about and implement
- Improvements in understanding of implementation; Diffusing down to local level on the wards
- We have filled some, but need to fill more research gaps, especially around maintenance of central lines outside the intensive care unit (ICU)
- Importance of monitoring compliance; Appreciation that simple interventions and simple messages can make a big difference (e.g., insertion campaign)
- Wider acceptance that these infections are very preventable
- Importance of teamwork and a local champion in the hospital (e.g., physician, executive, infection preventionist [IP])
- Value of applying lessons from the acute care setting to the ESRD context

2. What has worked in preventing these infections?

- Not one thing, but a broader CUSP-like approach that can be widely applied in many settings
- Hospital administration/leadership making CLABSI prevention a priority
- Cultural change (e.g., seen through the Comprehensive Unit-Based Safety Protocol) has been vital
- Having good data on infections, preventability, and cost that is locally relevant, especially for administrators
- Campaigns promoting interventions, engaging providers and patients, especially around simple messages and easy-to-implement interventions
- Incorporating change packages into regular routines
- Patient/Staff stories can be very powerful in making the case for practice change
- Empowering nurses and patients to be more proactive and intervene to improve practices
- Getting catheters out as soon as possible
- Simple steps can be the most effective in changing practice
- Ongoing feedback of data and information is very effective in making the case
- Education of everyone on the healthcare team and beyond on what works and its effectiveness
- Maintenance toolkits to ensure sustainability of better outcomes and best practices
- Increased coordination between CDC and CMS (link between guidelines and rules)
- Targeting “mid-performers” instead of focusing all attention on low performers
- Prevention education utilizing simulation of real-life scenarios

3. What are some specific barriers that have been impeding our progress in preventing this infection? How can we overcome those obstacles?

- Difficulty with surveillance; Data collection, especially for denominator data (i.e., central line days), can be a challenge particularly for those with limited staff resources. Additionally, some lack of understanding about the value of surveillance data.
- Variable standards – Different people doing and measuring different things (both in terms of data collected and reported, as well as variance in standards for practice)
- Lack of resources for prevention and infection control
- Silos exist throughout the system - not just within the Federal Government
- Policy (hospital/reimbursement/oversight) doesn't always keep pace with new technology
- Lack of maintenance bundles – Need more research data
- It can be hard to up-scale even proven approaches from a unit to a whole facility
- Sustainability - Need a better understanding of this
- We still get mixed messages on what is most effective from multiple reports and studies
- Need more of an enterprise perspective and long-term benefit perspective; Not just focus on short term cost
- Organizational culture in some places is still not conducive to consistent quality improvement
- Smaller facilities have severe resource limitations that impede driving change; Need better understanding of the resource limitations of small hospitals
- Lack of education and awareness among both patients and providers on HAI prevention

4. What actions can you suggest, that if implemented nationally or within a state within the next 12-24 months, will help ensure achievement of the nine target goals?

- Mandating reporting – with standardization of what is reported, validation of what is being reported
- Develop better mechanisms to record surveillance data, especially denominator data
- Develop better and more consistent evidence around catheter maintenance and implementation of bundles
- Continue to improve collaboration among all stakeholders
- Develop automated mechanism (i.e., stop orders, reminders, clinical decision support) to ensure timely removal of catheters as soon as possible
- Improve effectiveness and timeliness of feedback mechanisms for infection rates at all levels - from ward to hospital to state to national
- Integration of patient experience into infection prevention strategies
- Broaden focus of HAI prevention outside the ICU

5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?

- Better coordination to avoid duplication of reporting requirements and mandates
- A “data summit” to evaluate CLABSI reporting mandates, mechanisms, processes, and goals
- Continue to engage national professional organizations whose members can impact CLABSI rates in both inpatient and outpatient settings [e.g., APIC, SHEA, pediatric care professionals, dialysis professionals/providers, home care providers, medical and nursing schools (to improve training and education) critical care nurses, local and state governments, non-profit and consumer organizations]
- Address concerns among health departments to support their efforts after the American Recovery and Reinvestment Act (ARRA) money runs out
- Cross collaboration across broad array of facilities
- Medical professional schools and associations
- The Joint Commission
- Continued federal collaboration

6. Within my specialty’s or my organization’s area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?

- Expand intervention efforts beyond the ICU
- Specific evaluations to look at sustainability
- Develop collaborative research networks to fill knowledge gaps
- Ongoing continuing education, especially of IPs in how best to implement programs and be “change agents”
- Work to automate surveillance using EMR and other electronic data sets
- Ongoing evaluation of processes, practices, and outcomes with feedback to all stakeholders in the hospital
- Work with patient service organizations to share patient and staff stories to promote change

Clostridium difficile Infection (CDI)

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?

- Need to manage *C. difficile* as a local epidemic
- Using a bundle approach is effective, both within a single hospital and hospital systems
- A regional approach may be necessary.
- Must get a handle on present-on-admission cases to establish denominator
- Certain systems that have seen reductions in *C. difficile* may have been in “hyper endemic” situations. It is not known if a hyper endemic state had any influence on the observed reduction in cases due to a variety of interventions.

- Really effective antimicrobial stewardship can make a difference in decreasing *C. difficile* rates
 - May not be able to achieve the 5-year goal by the end of 2013
 - Successes in the United Kingdom and VA facilities show it *is* possible.
2. What has worked in preventing these infections?
- Antimicrobial stewardship
 - Treating cases are part of an epidemic
 - Multi-modal, cross-disciplinary interventions; Engage everyone (e.g., IPs, all patient care personnel, housekeeping, executives, patients, and families)
3. What are some specific barriers that have been impeding our progress in preventing this infection? How can we overcome those obstacles?
- Prevention is resource intense; Need more support (financial, IPs, environmental services personnel, ability to isolate *C. difficile* patients, *et al*)
 - Need better measurement across the continuum of care; Patients are entering and leaving the hospital with *C. difficile*
 - Have significant gaps in our knowledge
 - Insufficient knowledge about the biology of transmission, especially in endemic situations
 - Insufficient knowledge about the epidemiology of transmission
 - Need to better define what is a “clean environment”
 - Payment buckets → LTAC v. hospitals, ESRD v. hospitals
4. What actions can you suggest, that if implemented nationally or within a state within the next 12-24 months, will help ensure achievement of the nine target goals?
- More quality control emphasis on environmental issues; Combat environmental contaminants
 - Multi-language materials for environmental services leaders
 - Need to aggressively educate the public about the proper use of antimicrobials and about *C. difficile*
 - Develop better performance measures and definitions to assess uptake and effectiveness of interventions
 - Study epidemiology of antimicrobial prescribing and antimicrobial stewardship in relationship to *C. difficile*
 - Process measures
 - Make the business case
5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?
- Need to continue to broaden partnerships for research and evaluation of interventions and practices

- Federal: National Institutes of Health (NIH), CDC, Agency for Healthcare Research and Quality (AHRQ), HRSA: grants on Pharmacist-Physician collaboration, Centers for Medicare and Medicaid Services
- State/Local: Council of State and Territorial Epidemiologists (CSTE), National Association of City and County Health Officials (NACCHO)
- Professional: Society for Healthcare Epidemiology of America (SHEA), Association of Professionals in Infection Control (APIC), American Society of Hospital Pharmacists, Society of Hospital Medicine, American Society of Healthcare Environmental Services (ASHES)
- Providers: American Hospital Association (AHA), long-term care (LTC) facilities, nurse practitioner groups, Pharmacists, CNAs, *et al*
- Consumers

6. Within my specialty's or my organization's area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?

- Consumer campaign around appropriate antimicrobial use
- Professional education about *C. difficile* risks and specific prevention strategies
- Antimicrobial stewardship: Develop a simple 'how to' with standard measures; Describe how to identify high-risk *C. difficile* situations
- Work for more funding for research to close substantial science gaps
- Establish acceptable, uniformly used definitions
- Develop and implement process measures
- Move toward public reporting

Surgical Site Infection (SSI)

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?

- Need to keep working on changing the system and culture because it impedes improvements on the part of good, committed people
- Importance of measuring both process and outcomes in improving prevention
- Importance of composite measures
- There are challenges in ensuring both individual and corporate accountability for adhering to best practices
- Carrots work better than sticks; Incentives may be more effective than punishments
- Having management truly engaged has been effective
- Need to keep addressing gaps in systems for effective and efficient data collection and communication and in ensuring accountability
- Importance of education for all staff on evidence-based best practices and the need to adhere to practices to change culture and practice
- Utility of bundling individual evidence-based practices to ease implementation; Idea that bundles may also promote teamwork

- May be the appropriate time for specialty- or procedure-specific guidelines or interventions to emerge or be developed
2. What has worked in preventing these infections?
 - Using and providing feedback according to the CMS Surgical Care Improvement Project (SCIP) measures
 - Acceptance of the SCIP measures by surgical societies
 - Teamwork and shared vision among all people on the pre-, operating room (OR), and post-surgical teams
 - Assignment of responsibility for coordination of patient care through the entire spectrum of pre-, peri-, and post-operative care
 - Making better use of technology and electronic tools [(e.g., electronic health records (EHRs))] to capture data and provide feedback
 - System/culture change to spur changes in individual behavior, especially by holding organizations and individuals responsible for outcomes
 - Systems approaches to establish best practices as the default (e.g., pre-printed antibiotic orders, checklists)
 - Feedback of post-surgical complications to surgeons and clinical leadership so that facilities are better able to detect problems
 3. What are some specific barriers that have been impeding our progress in preventing this infection? How can we overcome those obstacles?
 - Need to support research to identify innovative and non-traditional methods for post-discharge SSI surveillance; Traditional methods don't work well for post-discharge surveillance, especially when patients are not readmitted or are readmitted to a facility other than where the surgery was performed
 - Need to identify the best ways to feedback SSI data to surgeons
 - Surveillance data can often be incomplete (e.g., variable case ascertainment, lack of post-discharge surveillance methods, lack of validated data); Need to identify ways to streamline and standardize SSI surveillance (e.g., use of diagnosis codes and/or pharmacy data to screen for patients likely to have SSIs)
 - Lack of standardized access to data required for surveillance; Need for standardized information technology support for surveillance; Inadequate technology in some facilities impedes data collection and reporting
 - Concern over surveillance definitions and how they are consistently capturing rates across facilities
 - State-level reporting would be more effective and comparable if it was standardized nationwide
 - Association between adherence to process measures and outcomes is not well-established or clearly articulated (e.g., if SCIP compliance is >90%, why is there not a bigger drop in infections)
 - Over-emphasis on process measures and not enough on outcome measures
 - Opposition to reporting surgeon-specific rates because of difficult issues around case-mix adjustment and surgeon fear of liability or a punitive outcome for reporting
 - Perioperative "hierarchy" interferes with culture of safety

- Need better patient education, especially about prevention measures and for detecting post-discharge SSI
 - Current SCIP focus on the Medicare population which may overlook other populations, including pediatrics, etc.
 - Paucity of new evidence-based strategies for preventing SSI; Need to support research to improve our understanding of risk factors (e.g., obesity), procedure specific prevention strategies, how to accommodate or adapt to emerging technologies, etc.
 - Increasing complexity of patient populations (i.e., obesity, diabetes, immunosuppressed) creates additional challenges for SSI prevention
 - [Challenge of the Department of Health and Human Services and National Quality Forum aligning to co-develop robust, evidence-based quality measures.](#)
4. What actions can you suggest, that if implemented nationally or within a state within the next 12-24 months, will help ensure achievement of the nine target goals?
- Do not limit post-surgical outcomes to infection only; Addressing all surgical complications may be a more effective strategy
 - Update SSI prevention guidelines; Could potentially focus on strategies for preventing SSI following specific high-risk procedures (e.g., colorectal surgeries)
 - Need better data and research to more closely link practice and process to outcomes
 - Need standardized data and data collection methods, but need to balance this with “measurement fatigue”; Balance between national standardization and local innovation
 - Consider implementation of a national unique patient identifier to better track surgical complications that are detected post-discharge or after ambulatory surgery; Identifier could facilitate surveillance involving multiple healthcare facilities (e.g., ambulatory surgical centers and acute care hospitals)
 - Examine utility of a local “near miss” database that would be able to identify trends in infection control practice problems and inform prevention strategies
 - Look more closely and more critically (and with more transparency) at relationship between volume of surgical procedures (by surgeon and facility) and outcome
 - More basic research, especially on effectiveness of prevention measures, epidemiological cluster studies, and links between process and outcome
 - Develop better linkages with international organizations, especially where they have strategies (e.g., World Health Organization (WHO) Surgical Safety Checklist) that may lead to lower infection rates
 - Engage professional schools and training programs in the prevention discussion and incorporate infection prevention concepts into early professional education
 - Empower any individual on the surgical team to stop surgery if poor practices are occurring or about to occur (e.g., surgical “time-outs”)
 - Adequately fund or incentivize adherence to appropriate evidence-based practices
 - Adequately fund and support SSI surveillance and prevention efforts
 - Public education focusing on pre-illness health and post-discharge prevention

- Alignment of provider incentives with regulations, payment policies, survey and certification processes, quality initiatives, etc.; Alignment of incentives around the patient and maintaining the patient's health and safety
5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?
- Need to work with information technology community to develop better standards to facilitate reporting and data collection
 - Involve private insurers to get data on outcomes and SSI
 - Continue to work with CMS regarding SSI and Conditions of Participation (COPs)
 - APIC, Association of periOperative Registered Nurses (AORN), others to make recommendations for hospitals
 - Partner with FDA and device manufacturers
 - Engagement of patients and primary care physicians
 - Strengthen alignment with the American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) and HHS systems
6. Within my specialty's or my organization's area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?
- Relate SSIs to admissions and readmissions and calculate "total cost" per case including resource use after discharge
 - More education on SSI prevention for professional school students and competency evaluations
 - Try novel approaches for post-discharge outcomes

Methicillin-resistant Staphylococcus aureus (MRSA) Infection

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?
- Just having a national target has helped to focus attention on prevention
 - Multifaceted strategies are necessary, not every combination of interventions will work the same way with the same result at each type of facility
 - Some components of a prevention strategy may be harder to implement and may require more incentives to put in place in some settings than in others
 - Keeping focus on multiple aspects of the prevention strategy; there is no single "silver bullet"; bundles are helpful but what gets bundled and the priority of each component may be different in different facilities
 - Culture change – Infection prevention is everyone's responsibility
 - Having senior management paying attention helps promote positive change
 - Realistic goals that still stretch for achievement helps promote engagement and action
 - Financial incentives help focus attention, especially for hospital leadership

2. What has worked in preventing these infections?

- Different approaches:
 - Collaboratives among facilities, public and private sectors, disciplines
 - Involving state and local health departments helps improve communication across facilities in a region or locality
 - Focus on basic infection control practices (e.g., barrier precautions, surveillance)
 - Focus on standardizing measures across facilities and settings for reporting and benchmarking
 - Focus on decreasing device use by ensuring appropriateness for insertion and maintenance
 - Active detection and isolation (ADI) appears to work remains somewhat controversial as to whether its costs justify its results
- Allowing some heterogeneity in terms of how success is defined; different facilities may have different abilities to achieve certain outcomes
- Ensuring the availability of local data for local action/local strategies for local issues

3. What are some specific barriers that have been impeding our progress in preventing this infection? How can we overcome those obstacles?

- Prevention strategies not regionally integrated across the care continuum;
- Not enough focus on prevention across the continuum of care; Too much variation place to place; reduction efforts in one facility are hampered by continuous risk of reintroduction from neighboring facilities
- National measures may miss significant regional variation; state-level, local/regional and facility-level reporting of rates is necessary
- Lack of personal accountability among healthcare personnel; many if not most HCWs are engaged, but leadership is necessary to ensure accountability at every level, starting at the top
- Too narrow focus – MRSA, while very important, is only one of several multi-drug resistant organisms (MDROs) which pose imminent threats; combating MRSA should be part of a broader effort to address antimicrobial resistant infections
- Still not enough involvement of patients and families in education and prevention efforts
- The growing community acquired (CA)-MRSA epidemic is impacting our ability to identify and prevent transmission within the facility; we need better tools to differentiate healthcare-associated from CA that is not related to healthcare
- Similarly, there is confusion over community based vs. healthcare based interventions to prevent spread, especially in non-hospital environments (e.g., some outpatient settings)
- There needs to be clearer and more consistent curriculum content in health professionals education, especially medical education; health professions graduates should be a familiar with infection control and AR issues as with any other vital clinical issue

- Financial incentives are not sufficiently aligned; this leads to a lack of resources for implementing prevention; this lack of resources also impedes optimal development of the culture of safety and the growth of personal accountability within the hospital
 - Controversy over ‘best approach’ (lack of research) continues to impede progress; Debate over what is the best approach and what elements of an prevention strategy should be prioritized
4. What actions can you suggest, that if implemented nationally or within a state within the next 12-24 months, will help ensure achievement of the nine target goals?
- Learn from success stories; Do a better job of sharing what’s worked in various settings
 - Greater focus on regional approach/coordination involving state and local health departments
 - Tying payment to improvement in MRSA rates: Accountable care organizations could be important if pilots for incentivizing prevention and better outcomes improve availability of resources for infection control
 - Enhanced electronic data reporting; improve local data including facility–level rates
 - Mandates for implementing certain interventions and strategies, including public reporting, can be useful, but only if the interventions are practical and evidence-based; it can be difficult to translate a successful strategy in one facility or one local/regional collaborative to a national mandate where the effectiveness of national implementation may not be proven (works in some settings but not in all); then mandates may be counter-productive and harmful to overall prevention efforts
 - Surveillance efforts need to be better coordinated; lab-based surveillance should become routine
5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?
- State and local health departments, communities, hospitals/long-term care/outpatient environments all need to work together especially where there is movement of patients between settings; need to have effective prevention and consistent application of strategies across the continuum of care
 - Federal agencies need to continue to coordinate actions, measures, communications across agencies and agree on a standardized public health approach
 - Medical, nursing, public health schools and other health education institutions need to continue to enhance infection control within the curriculum
 - National, state and local groups should work more with both traditional and new media to educate the public and engage health care workers (as part of the public)
 - Work closely with health professional organizations to both listen to practitioners and disseminate messages

- Continue to try to get better data exchange from electronic health records and lab information system vendors
6. Within my specialty's or my organization's area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?
- Continue to promote the idea of personal accountability for everyone on the care team and everyone in the hospital at every level
 - Educational initiatives for both healthcare personnel and consumers
 - Incorporate infection prevention competencies into medical and public health education
 - Standardize protocols for prevention, particularly in pre-operative and surgical suites
 - Translate and disseminate success stories for broadest impact and encourage innovation in implementation
 - Engage policymakers, particularly around payment
 - MRSA ("superbug") awareness among consumers may be greater than for other HAI issues; Could leverage this awareness to promote broader HAI prevention awareness
 - Continue to promote electronic reporting with clear standards
 - Engage all segments of the care continuum, especially LTC and rehabilitation facilities

REPORT OUTS: DAY 1, BREAKOUT 2

Prevention and Implementation

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?
 - Systems approaches effective
 - Implementing bundles effective
 - Focusing on a team approach
 - National organizations coming together with a common purpose and consistent set of strategies and having national goals are powerful drivers
 - Transparency in measurement and reporting; Having "report cards"
 - Support at all levels (state, regional, and local leadership, both within the facility, within the community, and within government)
 - Senior leadership and ownership of the issue at all levels
 - Culture change is a very powerful tool that can facilitate changes in practice, greater accountability, and better outcomes
2. What has worked in preventing these infections?
 - Education and training
 - Public reporting of rates
 - Incentivizing/Pay for performance

- Quality assessment and performance improvement in infection prevention (as a COP)
 - Communicating clear and concise evidence-based guidelines
 - Surveillance/Timely feedback of data and rates
3. What are some specific barriers that have been impeding our progress in preventing this/these infections? How can we overcome those obstacles?
- Need better training for more hospital staff; Better competencies in infection control; Still some lack of knowledge in microbiology and risks for transmission
 - Lack of both personal and corporate accountability
 - Need to prioritize practices for implementation; Which are most important
 - Confusion over EHRs - What's available, which are best, how to make interoperable, different systems even in the same hospital, when and what to install, cost-benefit short-term vs. long-term
 - Lack of quality data when needed and for all venues
 - Difficulty linking process measures to outcomes and infection rates to long-term morbidity, mortality, and cost in a consistent standardized way; Need alternate or surrogate measures for outcomes
 - Inadequate resources for infection control
 - Tools that facilitate translation of proven strategies into broadly implemented practices that are widely and routinely adopted and followed
 - Tailored practices for the pediatric community
4. What actions can you suggest--that if implemented nationally or within a state in the next 12-24 months -- will help ensure achievement of the target goal (s)?
- Involving front line personnel in both the design and implementation of prevention initiatives
 - Getting leadership similarly involved to help gain their support and promote helpful decision-making on their part
 - Look at targets across the entire continuum of care (what goes on in the hospital is affected too greatly by what happens in other care settings)
 - Data validation; Find ways to reduce or eliminate "gaming" the system of reporting
 - Consumer/Public education to continue consumer involvement and advocacy; One of the most powerful drivers of change
 - Set priorities for practices to implement first and have minimum standards for which practices are in place
5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?
- Engage specialty societies
 - Medical / Research
 - Nursing
 - Pharmacists
 - Therapists

- Other

6. Within my specialty's or my organization's area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?

- In service and staff educational initiatives
- Better dissemination of information and messaging about what works and the importance of HAI prevention to members of all organizations
- Be our own champions
- Pilot and evaluate more new interventions
- Continue to work on sustainability of practice change and improved outcomes
- Continue to monitor outcomes as a measure of effectiveness of HAI prevention
- Consumer Literacy

Outreach, Messaging, and Communications

1. What has worked in preventing these infections?

- Approaching HAI prevention from the standpoint of the chronic disease model; Needs ongoing support within the healthcare environment and much consumer/patient involvement
- Public reporting at the state-level very effective in calling attention to the issue and its solutions
- Consumer education and empowerment: What can the patient do with regard to her/his/family's approach, encouraging better practice in the healthcare environment, knowing what questions to ask providers
- Clarity about what works and how bundles can be effective in HAI prevention
- Messaging on "never events" has been successful; Reach could be broadened even more
- Messaging about checklists (Pronovost, Gawande) has been effective in disseminating messages
- Even 'in the know' consumers find it difficult to ask questions of healthcare personnel or even know the right questions to ask
- OSCE as a learning/teaching tool in PharmD and nursing education
- Media wants details, consumers don't; complex details don't translate to the public

2. What are some specific barriers that have been impeding our progress in preventing this/these infections? How can we overcome those obstacles?

- Still not messaging effectively enough to providers nor providing adequate education venues either for students or continuing education for providers
- Cultural competence in communicating with consumers and make care patient-centered
- Competing priorities both among providers and the healthcare team, the media and among consumers; Is HAI prevention ever the highest priority on a regular basis?

- Segmented marketing works best, but with so many segments to reach there are resource limitations
- Many of the HAI prevention messages are complex; How do we communicate accurately and simply without losing the message
- Not enough resources for outreach and messaging
- Government has materials, but it isn't always available to frontline workers in a way that they can gain maximal use of those materials
- Still trying to overcome reluctance to change among providers and patients
- Level of marketing skill and capacity is very variable; Could be doing a better job with the information and messages we already have
- Linkage of infection control practice and outcomes is still not strong enough; Consider a bigger and more rigorous factor in accreditation, licensure; Is there a way to incentivize rather than be punitive?
- Should provider organizations (and oversight organizations - accrediting organizations, licensing authorities, and government) have patient advisory councils to represent consumer interests on boards?
- Message across the continuum of care; Move beyond acute care hospitals
- Need segmented messaging to hospitals with the worst resource problems (public and urban, small and rural) on what can be done in the most severely resource constrained environments
- Competing priorities/messages
- Using data, science to create effective behavior change materials
- Need to make data more accessible and relevant to consumers; Perhaps not just at the state level, but at the community level as well
- Need to disseminate messages in ways that are actionable and compelling both for consumers who need to make decisions about where to seek care and for healthcare providers
- Need bi-directional or multi-directional communication/feedback structures
- Public reporting of actionable data
- Formative research needed on how public uses HAI information

4. What actions can you suggest--that if implemented nationally or within a state in the next 12-24 months -- will help ensure achievement of the target goal(s)?

- To increase engagement of consumers and providers, we need better data sharing across facilities and jurisdictions, standardized data and reporting protocols; If this requires more standardization of EHRs, that should be a higher priority
- Need more consumer input: CMS Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is good, but doesn't cover all patients' experiences
- Make sure data provided is what patients want to see; Get more consumer inputs; "Quality is in the eye of the beholder"
- Continue to move beyond the acute care hospital
- Assist resource poor hospitals that don't have full-time (or adequate) IP assistance; What can they do with what little they've got
- Need to get the word out on how much progress has been made and that elimination is possible

- Need more visuals; Information in the form of “maps” of how we get from here to there on elimination
- Mechanism for patients to report their own HAIs
- Using chronic care model for healthcare ‘frequent fliers’
- Increase overall info about effort at provider level; a consumer campaign is not enough, must include providers
- Target resource-poor hospitals

5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?

- Continue to work with consumers and consumer groups; Public engagement is a good strategy
- Add to the “Patients Bill of Rights” so that quality and infection-free care is a “right”
- Engage directly with hospital boards on status with regard to infection prevention and control
- Outreach to schools; Patient education on infection control and prevention for students
- More involvement with pediatric providers
- Broaden to other associations for healthcare providers that may not yet be engaged
- More effort into reaching vulnerable populations Message about Value-Based Purchasing, increase transparency

6. Partnerships

- Improve marketing of SHEA/CDC patient guides
- The Joint Commission’s Patient-Family Advisory Commission
- All health professional organizations
- NACCHO
- Pharmacists are the forgotten members of the healthcare team
- *Everyone* in a healthcare facility is healthcare personnel

Incentives and Oversight

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?

- Voluntary collaborations among governmental and healthcare system partners lead to better buy-in and support
- Executive and board buy-in is crucial for success
- Financial incentives (pay for participation/reporting/performance) can be a powerful tool for engagement, especially among executives; Helps to open doors
- Public reporting has helped encourage healthcare organizations to pay more attention to HAIs

- Private sector involvement and coalitions (e.g., Leap Frog) can carry a lot of weight with healthcare provider organizations
 - Important drivers of organizational change are: Being very clear with what is necessary, what works, and what appropriate guidelines and practices (and outcomes) should be
 - Broad coalitions from different sectors all providing guidance and support to both healthcare organizations and oversight bodies (e.g., public health, accreditors) works well
2. What has worked in preventing these infections?
- Public engagement, consumer advocacy
 - Peer pressure among organizations, individuals
 - Implementation strategies linked to outcome data
 - Audit and feedback to units and facilities
 - Positive financial incentives
 - Voluntary participation in regional efforts
 - Non-payment for poor performance or non-performance
 - Clear ICP standards for non-hospital settings
 - Hospital Acquired Conditions-Present on Admission payment policy
 - A clear champion for prevention in facilities
3. What are some specific barriers that have been impeding our progress in preventing this/these infections? How can we overcome those obstacles?
- Still major concerns about the accuracy, validity, and appropriateness of comparative data; Also concerns that people are “gaming” the system
 - Perceptions that for-profit medicine has different incentives for performance, decision-making
 - Lack of alignment between financial goals/requirements, organizational “culture,” and process/behavior change
 - Not clear what is the best mix of incentives (“carrot” vs. “stick”, financial vs. other) to drive change and achieve better outcomes
 - Promoting process change without a clear and definable linkage between process and outcomes [e.g., cost-benefit or “dose-response” (Do continual improvements in process lead to measurably comparable change in outcomes?)]
 - Perfection, if the enemy of good
 - Effective messaging about incentives and oversight
 - Need to get the definitions and the metrics right
 - Incentives and oversight must be more aggressive
4. What actions can you suggest--that if implemented nationally or within a state in the next 12-24 months -- will help ensure achievement of the target goal(s)?
- Address Physician Quality Reporting Initiative (PQRI) opt-out question
 - Rewrite and strengthen the CMS Conditions of Participation (COPs) to promote outcomes-based process change
 - Develop legislation and regulation in a more open and transparent way

- Develop a system for consumers to report HAIs or HAI-related quality issues/problems
 - Accelerate pace of value-based purchasing initiatives
 - Improve reporting capacity – Make data more timely (quicker turnaround), more actionable (relate process to outcome), better validated (greater assurance of reliability, comparability between facilities and over time)
 - Reimburse for quality, safe care
 - Extend accreditation to all settings
 - Clear, user friendly communication from CMS, HHS
 - Pilots across the continuum of care
 - National attention on success; positive incentives
 - National standards for data collection
 - Endorsement of HAI Action Plan and measures
5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?
- Among all payers - Private payers, state agencies (Medicaid), Federal
 - Executive and trustee engagement with infection control activity
 - Develop better linkages to assist small and rural (especially critical access) hospitals with HAI prevention
 - Public health agencies and non-governmental organizations/community-based organizations
 - Local/community health departments
 - Export accreditation requirements to other organizations; Consistent requirements for “deeming” status
 - Higher education, for example, health professional programs
 - QIOs
 - Long term care facilities
6. Within my specialty’s or my organization’s area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?
- Get support for extending Federal HAI prevention activities to other settings
 - Public education; Get consumer more involved; Broaden outreach and marketing on role of consumers in system quality-improvement
 - Fast-track Implementation programs for which CMS currently has authority
 - Make greater and more effective use of CMS Quality Improvement Organizations (QIOs) in both measurement (outcome/process monitoring) and assisting in implementation of best practices
 - Networking/coalition building/connections among smaller hospitals and some a bit larger, but with significant financial constraints (“tweeners”)
 - Networking to help facilities get expert advice/mentoring for staff they do not have capacity in house

- Standardizing measures and ensuring consistency of data; Working with the National Quality Forum (NQF), AHA, Joint Commission Center for Transforming Healthcare
- Increase transparency in decision-making
- “Rescue” bundle for poor performing facilities
- Greater focus across the continuum: on smaller hospitals, hospital outpatient departments, and affiliated clinics.

Research

1. Major areas where there are gaps in knowledge?
 - *C. difficile* epidemiology is still poorly understood
 - Ventilator-associated pneumonia (VAP) needs better definition and epidemiologic study
 - Need a better understanding of how to scale up prevention most effectively from local to regional to national
 - Need to study effectiveness and impact of antibiotic use/stewardship policies on infections, especially for MDROs;
 - Epidemiology of antimicrobial use
 - Epidemiology of non-device associated HAIs
 - Studies on impact of systems: Where is the evidence-base for research on human factors/human engineering (“software”) or on the design of physical plant (“hardware”)?
 - Need to develop biomarkers for more rapid diagnosis of infection and colonization and to differentiate infection vs. colonization
 - Need a better understanding of impact of transitions/hand-offs across the continuum of care on the epidemiology of infections
 - More translational research, both for adapting basic science discoveries and for moving from efficacy to effectiveness studies
 - Need research outside traditional healthcare fields—education, social systems, etc.--to better understand how to move from knowledge to action and sustained implementation in various settings
 - Need to study linkage (and impact) of non-infectious adverse outcomes (do infection control measures also reduce other adverse outcomes and increase cost-effectiveness?).
2. What could help encourage research activities and more impactful outcomes?
 - Collaborative networks are vital especially to study hand-offs, regional variation and scale-up effectiveness; need more large, multi-center studies. Europe has successful models for large multi-center studies and considerable success with this approach; that success could serve as a model

- NIH National Heart, Lung, and Blood Institute ARDS Network is also a potential model for VAP collaboration
 - Need more support for small-scale developmental projects; “test-beds” or “incubators” for innovative studies which may be outside the routine approaches
 - Better ability to measure outcomes in a consistent way, especially over time (post-discharge).
3. What are some specific barriers that have been impeding our progress in preventing this/these infections? How can we overcome those obstacles?
- Inadequate funding for all kinds of research—both small scale pilots and large multi-center collaboratives
 - Overemphasis on implementation to the exclusion of more basic research
 - Institutional Review Board (IRB) regulation, human subjects protections may be slowing down pace of studies, especially multi-center research
 - Need to be more innovative in study design; use state-of-the-art epidemiological and statistical methods to overcome the limitations of some types of traditional studies
 - Need to move beyond the randomized control trial model and do more cluster randomized trials; DBRCT (double blind randomized controlled clinical trials) are often not feasible in this field; they can’t always be the gold standard for accepting research outcomes
 - Still difficult to measure outcomes, especially medium- and long-term outcomes; need better proxies for outcomes and/or standardization of intermediary outcomes
4. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?
- Work more closely with industry on device issues, on antimicrobial drug development, on use of digital systems in implementation, on better diagnostics, on human factors research
 - Work locally and regionally with public health at all levels: Federal, regional, state, and local and incorporate all types of facilities, especially long-term care in effectiveness studies
 - Engage partners across the spectrum of healthcare delivery, for example, need to work with intensivists, hospitalists, surgeons on studying antimicrobial stewardship programs.
 - Coordination among regional and local players to conduct and disseminate research findings

Information Systems and Technology

1. What have we learned in the past two years that is helping us make progress toward achieving the target goals?
- Collaboration with health information technology (HIT) vendors works and can be productive

- Having agreed-upon standards and interoperable tools for HAI reporting is critical for success
 - Training system users is crucial, both on-site, web-based, train-the-trainers with ongoing user support is very important
 - CDC National Healthcare Safety Network (NHSN) can serve as a useful foundation for providing standard definitions and tools
 - Broad-based collaborations (states, CMS QualityNet, AHRQ Patient Safety Organizations, CDC NHSN, etc.) more likely to succeed
 - HAI data collection needs to be part of the routine workflow of patient care
 - Validation of electronic data is crucial
2. What has worked in preventing these infections?
- Information systems and technology frees up IP's time to increase prevention (e.g., assist with surgical denominator data collection)
 - Improving detection
 - Real-time decision support and computerized physician order entry (CPOE) systems that assist with decisions/actions for HAI prevention
3. What are some specific barriers that have been impeding our progress in preventing this/these infections? How can we overcome those obstacles?
- IPs are not ready to give up control to automated processes
 - Relative discomfort with HIT in more senior cohort of users
 - Need to audit HIT detection and reporting standards; Data viewed by some as unreliable
 - Need for additional resources and qualified staff; Not enough workforce
 - Hard for purchasers to evaluate quality of IT vendor products, particularly for quality measurement purposes
 - Hard to get quality data out of some EHR and electronic surveillance systems
 - Incomplete national HIT infrastructure and incomplete adoption of the component parts required to build that infrastructure
 - Culture in healthcare promotes the idea of uniqueness and promotes variability, which extends to HAI detection and reporting systems
 - Data fatigue/burden continues to increase
4. What actions can you suggest--that if implemented nationally or within a state in the next 12-24 months -- will help ensure achievement of the target goal(s)?
- Move electronic lab reporting from being part of a menu of options for meaningful use (MU) to a core requirement to qualify for MU; This needs to be presented to the HIT policy committee
 - Allow importation of data from other sources into NHSN-based systems
 - Advance the science of CLABSI algorithmic detection
 - Increased capture and reporting of immunization information through state and federal systems
 - Standardized vocabulary for data collection

5. What are some key partnerships or collaborations that need to be developed, promoted, or strengthened to help prevent these infections and achieve/exceed the target goals by 2013?

- State-Federal – e.g. Steve Ostroff’s idea of a national HAI “data summit”
- Connect provider health information exchanges (HIEs) with HAI reporting systems
- Hospital systems – Roll outs within systems
- Broad based collaborations
 - Government agencies: intra-Federal and intra-state and Federal state
 - HIT vendors
 - Healthcare providers and professional organizations: American Medical Association (AMA), American Nurses Association (ANA), specialty societies
 - Hospital associations (AHA)
 - Subject matter expert professional organizations (e.g. SHEA, APIC)
 - IT professional organizations: Healthcare Information and Management Systems Society (HIMISS), American Health Information Management Association (AHIMA), American Medical Informatics Association (AMIA)
 - Standards development organizations

6. Within my specialty’s or my organization’s area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?

- Incentivizing adoption of standards for electronic reporting, including electronic lab reporting
- National patient identifier (worth addressing again)
- Learn from the Department of Defense (DoD) about secure electronic messaging of clinical information and adaptation to ensure privacy and confidentiality
- Work with CMS to ensure that appropriate privacy policies don’t deter data exchange with other Federal agencies for quality monitoring, public health purposes, or necessary research

REPORT OUT: DAY2, AMBULATORY SURGERY CENTERS (ASCs)

This session was attended by approximately 60 meeting participants representing a variety of stakeholders (e.g., professional groups, trade associations, accrediting organizations, consumers, DHHS agencies, state health departments).

The agenda consisted of an introductory session where the Draft ASC Action Plan was reviewed, three breakout sessions (6 tables each) where participants discussed potential metrics for both process and outcome measures and strategies for HAI prevention in ASCs and a sharing/summary session where key ideas from each of the breakout sessions were presented.

The metrics and key questions discussed during the breakout sessions are included below along with the main themes that emerged from the sharing/summary session.

Input gathered from the breakout sessions as well as comments provided as part of the public review period for the Draft ASC Action Plan are currently being reviewed and will be incorporated as appropriate into an updated draft of the module. This updated draft will be available for additional public review and comment in early 2011.

Breakout Session #1 – Process Measures

The draft metrics under discussion were as follows:

P1. By December 31, 2015, all certified/accredited ambulatory surgical centers will demonstrate 100% adherence to the following measures contained within the current infection control worksheet:

- Staff perform hand hygiene before performing invasive procedures (e.g., placing an IV);
- Needles and syringes are used only for one patient;
- Single-dose vials, IV solutions, and IV tubing are used only for one patient;
- Items undergoing sterilization and high-level disinfection are pre-cleaned appropriately; and,
- Any fingerstick testing is conducted using only a single-use auto-disabling lancing device for each patient.

P2. By December 31, 2015, all certified/accredited ambulatory surgical centers will demonstrate 100% adherence to Surgical Care Improvement Project/National Quality Forum infection process measures (i.e., perioperative antibiotics, hair removal, postoperative glucose control, normothermia).

P3. By December 31, 2015, and within two years of National Quality Forum endorsement, all certified/accredited ambulatory surgical centers will have implemented any new applicable healthcare-associated infection-related measures (e.g., endoscope reprocessing, immunization).

P4. By December 31, 2015, all certified/accredited ambulatory surgical centers will have on staff or on contract the services of a certified infection preventionist.

Breakout Session #2 – Outcome Measures

The draft metrics under discussion were as follows:

O1. By December 31, 2011, identify selected common ambulatory surgical center surgical procedures for which surgical site infection definitions and methods should be developed and develop a multi-year plan and phased approach to support routine surveillance.

O2. By December 31, 2013, all certified/accredited ambulatory surgical centers will have in place a surveillance system for procedure-related adverse events, including no less than 30 days post-discharge surveillance for all patients.

O3. By December 31, 2015, all certified/accredited ambulatory surgical centers will be reporting surveillance data in standardized formats to both Patient Safety Organizations and to the National Healthcare Safety Network.

O4. By December 31, 2015, all certified/accredited ambulatory surgical centers will have achieved a zero incidence of “Never Events” as defined by the National Quality Forum.

Breakout Session #3 – Strategies for Success

The discussion was organized around the following questions:

D1. Please suggest activities/policies likely to facilitate implementation of evidence based-practices? Possibilities include: changing accreditation standards, staff training (requirements, minimal standards), performance and outcome measurement, third-party payer financial incentives and payment policies?

D2. Improving surveillance of process and outcome measures is of vital importance for monitoring quality. What are the significant obstacles you foresee in implementing surveillance programs and state and/or national reporting in ASCs? How can these be overcome? Similarly, what are the significant obstacles you foresee in implementing electronic health records in ASCs? How can these be overcome?

D4. What do you think are the highest priorities for national action to help enhance HAI prevention in ASCs?

D5. Within your specialty’s or your organization’s area of expertise and/or focus, what are some priorities you plan to focus on in the next 12 -24 months to help enhance HAI prevention in ASCs?

Sharing / Summary Session

Brief reports were made by facilitators from each of the six roundtable groups, with several themes emerging, as follows:

- Infection control practice process measures are important but a 5-year goal is not consistent with current requirements which specify ongoing compliance (100%);

monitoring mechanisms (e.g., self-report vs. external audits in the form of regular inspections) require further discussion.

- Quality metrics are needed but currently available measures are not generally applicable to the ASC environment and efforts are needed to adapt or develop process measures specifically for ASCs.
- An analysis of common ASC procedures is necessary to support both process and outcome measurement efforts.
- Measure development should focus on specific procedures and apply across setting types, to the extent possible; individual facilities also need to perform their own risk assessments.
- Process measures that relate to provider and patient education, safety culture, and prevention activities are needed.
- While various methods for HAI outcomes surveillance have been proposed, more research is needed to evaluate and standardize these; a set of complementary approaches, including patient/provider follow-up and electronic health record mining, may be needed.
- The need for and utility of routine HAI surveillance should be established more firmly; alternative approaches for identifying potential signals of HAI transmission could be considered.
- Lack of support for electronic health data in the ASC environment represents a significant barrier.
- Support for strengthening both education and oversight is needed to improve HAI risk reduction and prevention in ASCs.

REPORT OUT: DAY 2, END STAGE RENAL DISEASE (ESRD) FACILITIES BREAKOUT

Key Outcomes from the ESRD breakout sessions

Metrics and Evaluation - the following are the top five priority metrics and evaluation targets identified by the participants:

1. All bloodstream infections (BSI) stratified by access-type
2. Annual influenza vaccination for ESRD patients
3. Annual influenza vaccination for ESRD facility healthcare workers
4. Increase in number of ESRD facilities reporting to NHSN
5. (Ties for 5th place):
 - a. Arteriovenous fistula (incidence and prevalence rates)
 - b. IV antibiotic starts (data source for evaluation target may be lacking)
 - c. Screening for Hepatitis C
 - d. Hepatitis B vaccination for hemodialysis patients

Prevention Priorities - participants suggested speaking more toward *process* of implementation rather than specific priorities themselves

1. Conditions for Coverage
 - The 2008 expansion of CMS' condition for coverage (cfc) for ESRD facilities were a great step in helping to standardize infection control requirements. CfC also served as a mechanism for awareness for infection control processes and standards
 - Interpretive guidance for cfc may serve as a way to further prioritize and expand infection control priorities in this setting (i.e. Professionalization and/or certification of the person in the IC role)
2. Checklists
 - An easy-to-understand, immediately available and concise checklist for IC processes prior to, during and/or after dialysis treatment, required for a certain HD treatment, would be a good way to implement priority practices at the facility level.
Examples include
 - a. Checklist for catheter maintenance
 - b. Checklist for correct method of infection surveillance & infection data reporting
 - c. Checklist in form of treatment flow sheets
3. Training and Education: Emphasis on training/education w/consideration to formalizing of this process including survey and certification and cfc.
 - Collaborate with professional organizations who can provide this type of resource (APIC, SHEA, NKF)

- Train at every entry level: student education (RN students, residents, technician students)
 - Patient education. Empower and train at every level and opportunity): i.e., “Welcome to Medicare” benefit, CKD
 - Family/caregiver education
 - Establishment of communication and learning centers (ESRD networks, QIOs, community leadership to promote spread)
4. Accountability
- Quality Assessment and Improvement plans: sustainability
 - Engaging leadership and holding leadership accountable for IC process & outcomes
 - Data collection and feedback unit/facility-wide
5. Collaboration
- ID and ESRD community are siloed
 - (see training and education)
 - Federal Agency collaboration-states/local/community/other Federal Agencies

Information Systems and Technology – The top three priorities that emerged from these breakout conversations are standardization, data sharing and appropriate incentives.

1. Standardization
- Specific definitions w/emphasis on maximal objectivity
 - Toolkits for ESRD facilities for reporting to promote standardization
 - Make available national patient identifier
 - Data validation methods
2. Data sharing
- REDUCE DATA REPORTING BURDEN ON FACILITIES
 - Integrate electronic systems (i.e. CrownWeb-NHSN)
 - EHR certified data sharing, including physician practices & hospitals to share information with dialysis facilities
 - Consider use of state immunization registries for immunization practice data
 - Other collaborative efforts to consider: EHR vendors, other HMOs
3. Incentivize
- Electronic reporting and EHRs for facilities: Include ESRD providers in “meaningful use” incentive adding ESRD quality measures

Research Priorities

1. Understanding research dynamics in ESRD facilities
- What are the predictors of who gets an infection in ESRD facilities?
 - Understanding cultural models

- Understanding/research on behavioral science and models
 - Facility design and process
2. Research topics
- Validation of electronic data
 - The epidemiology of vascular access placement - Understanding how choice of access is determined, who gets catheters and the risk of infections, what are the predictors of success
 - Understanding infection transmission dynamics in dialysis facilities - Especially for gram negative organisms, MDROs, and C diff; understanding the prevalence of antimicrobial resistance organisms in dialysis patients. Science around antimicrobial lock solutions
 - Novel approaches to vascular access care; can include site prep for cannulation, CVC care, etc
 - Consequences of certain initiatives like Fistula First
 - Best practices studies/implementation research
 - What IC practices are optimal for peritoneal dialysis?
 - Cost/benefit analysis of certain IC processes
3. Collaboration
- ESRD networks
 - Smaller facilities
 - Veteran's Health Administration
 - Hospitals, academia and HMOs
 - Learning from ongoing studies like NHSN validation
 - CMS Centers for Innovation (new leveraging opportunity?)
4. Funding is a key barrier to addressing these research gaps

Full Meeting Summary for ESRD

These summaries include notes from the report-outs that summarized the breakout conversations of the ESRD breakout, as well as a review of the individual feedback forms and easel pad notes

Prevention Priorities

1. What have we learned in the past two years that is helping us make progress toward increasing prevention in ESRD facilities?
 - Increased awareness of burden of infections in ESRD facilities
 - Need for increased collaboration between IPs and facilities
 - Increased need for infection prevention and control training and education; need dedicated IP staff in the ESRD setting
 - CMS cfc inclusions of CDC recommendations is good, but more is needed
 - Outbreak investigations have helped to inform safety practices for all

- Proper CKD management and early fistula placement before $GFR \leq 15$
2. What has worked in preventing these infections? What are some specific barriers that have been impeding our progress in preventing this infection? How can we overcome those obstacles?
 - CMC cfs and certification of recommendations
 - Increased priority on IC and surveillance for HAIs
 - Surveillance guidance and tools
 - Dialysis participation in NHSN reporting
 - Hand hygiene policies and protocols, annual refresher training on this and other prevention measures
 - Empowering patients and staff in infection control practices
 - Barriers–
 - Staff resources, including dedicated IPs in ESRD facilities
 - Need to change the culture in the facility
 - How to implement the recommendations... limited understanding of what interventions/previous recommendations are most effective
 3. What prevention recommendations do you agree with/disagree with in the ESRD draft module? What alternatives would you suggest?
 - Increased focus on staff education and training, including medical schools
 - Increased resources for IC&P
 - Increased emphasis on maintenance of CVCs
 4. What are some of the key partnerships or collaboration that need to be developed, promoted or strengthened to help prevent these infections?
 - Networks
 - Professional organizations
 - Renal
 - Infection control
 - NKF
 - Hospital organizations
 - CDC Dialysis collaborative
 - Participation in NHSN
 - Need to use partnerships to gain consistency
 5. What actions can you suggest—that if implemented nationally or within a state within the next 12-24 months—will help ensure achievement of the target goals?
 - Investigation of what prevention recommendations are most effective
 - Collection of “best practices”
 - Identification of innovative educational practices for staff and patients
 - CDC/CMS annual survey of facility practices
 - Development of checklists/simplify practices
 - Emphasize not just “fistula first” but also “catheter last”
 - Increase coordination among partners for consistency
 - Research best practices for process of care recommendations and education
 - Catheter maintenance

- Surface disinfection
- Patient flow sheets per treatment encounter
- Surveillance
- Plan, Do, Study, Act cycle (PDSA)

6. Within my specialty's or my organization's area of expertise and/or focus, what are some priorities we plan to focus on in the next 12-24 months to help achieve the national goals for preventing HAIs?

- Minimize CVC
- Collaborations
- Increased education in our facilities, leveraging partnerships
- Empowerment of patients, their families, and all levels of staff

Information Technology Breakout

1. What have we learned in the past two years that is helping us make progress toward successfully using IT to track ESRD infection rates?
 - ESRD service providers are making substantial investments in HIT
 - Considerable work in ESRD HIT on standardization of identifying, demographic, clinical and laboratory data
2. What has worked in preventing these infections? What are some specific barriers that have been impeding our progress in preventing this infection? How can we overcome those obstacles?
 - Absence of national patient identifier impedes record matching and data linkage
 - Data burden due to multiple external reporting requirements
 - Omissions of ESRD EHRs from Stage 1 meaningful use
 - Memorandum of understanding and HIPAA privacy challenges to data exchanges
 - Most metrics for ESRD HAI reporting are relatively new and without operational experience or systems at the national level
3. What IT recommendations do you agree with/disagree with in the ESRD draft module? What alternatives would you suggest?
 - Agreement with the 2 recommendations in the draft module
 - Add recommendations to use state immunization registries to fulfill vaccine coverage metrics for ESRD population.
 - For Meaningful Use, make sure providers and hospitals use EHR certified systems that include the data sharing for ESRD service providers
 - For Meaningful Use, leverage quality measure reporting as a way to incorporate ESRD EHR systems into Meaningful Use
4. What are some of the key partnerships or collaboration that need to be developed, promoted or strengthened to help successfully use IT?
 - EHR IT vendors – ESRD service providers
 - State immunization registries – ESRD service providers

- Insurance providers, in addition to CMS—ESRD providers
 - Interagency partnerships federal-federal and federal-state
 - QIOs – ESRD service providers to facilitate adoption of HIT
5. What actions can you suggest—that if implemented nationally or within a state within the next 12-24 months—will help ensure achievement of the target goals?
 - Took kits for ESRD service providers to enable electronic reporting to HAI data aggregating systems - a plug-and-play concept
 - Further work on standardization: definitions, metrics, terminology
 - Increase incentives for non-proprietary interfaces
 6. Within my specialty's or my organization's area of expertise and/or focus, what are some of the priorities we plan to focus on in the next 12-24 months to help achieve these goals?
 - Federal-federal and federal-state collaboration including CrownWeb – NHSN connection
 - Pilot project, ongoing, involving data exchanges: National Renal Administration Association and Nationwide Health Information Network (NHIN)
 - Durable Medical Equipment (DME)
 - Machine interface with clinical systems
 - Tightening up data collection systems for HAI, e.g. attribution of infection to vascular access

Research Breakout

1. What are the current research gaps in ESRD?
 - BEHAVIORAL RESEARCH
 - Transmission dynamics in the dialysis facility
 - Prevalence of AR in the setting
 - Understanding GNRs and C. difficile
 - Predictors of not getting catheter and infections among those with CKD
 - Antimicrobial stewardship / Antimicrobial Use
 - Validation of electronic data for surveillance
 - Novel approaches to vascular access care
 - Use of antimicrobial locks
 - Needless connectors
 - CVC care
 - Role of Facility size and ownership
 - Best Practices studies Cluster randomized trials
 - Implementation research
 - Understanding cultural models
 - Revisit HBV isolation given low incidence
 - Skin disinfection and antisepsis
 - Use of ultrapure dialysate
 - Epidemiology of vascular access (Predictors of success)

- Consequences of Fistula First
 - What about Peritoneal Dialysis?
 - Facility design to mirror processes
2. What specific barriers currently exist to addressing these research gaps?
 - Funds available for research activities
 - Push-back from the dialysis companies
 - Validated data
 - Uncertainty about data ownership
 3. What actions can we all take to address these gaps now?
 - Partnerships
 - Cost-benefit analysis
 - Comparative effectiveness studies
 - CMS Center for Innovations
 4. What research do you agree with what alternatives?
 - Big list can we prioritize
 - Vascular access, antimicrobial resistance
 - Consider including implementation research to understand the culture
 - Patient attitudes and behaviors
 - Understanding the culture
 5. What actions can be done in 12-24 months on national regional or state level?
 - See what other data are available
 - Prevention collaboratives (CDC)
 - AHRQ Practices study
 - CDC Scrub the hub study
 - Antibiotic Stewardship Study in Boston
 - Evaluation of electronic data submission
 - Learning from Outbreak investigations
 - Projects or Pilot studies possibly with funding from CMS office of Innovation
 6. Key research collaborations
 - Working with the ESRD Networks
 - Partner with the smaller chains and facilities
 - The Veteran's Health Administration
 - DCI, pro-research
 - HMOs and/or hospital chains (Premier, HCA, Kaiser)

REPORT OUT: DAY 2, VENTILATOR-ASSOCIATED PNEUMONIA (VAP) BREAKOUT

Day 2 VAP Session Key Summary Points:

- Participants expressed the following regarding the draft “ventilator-associated lower respiratory infection” definition presented for discussion and input by the Centers for Disease Control and Prevention (CDC)
 - Recognition that it could be applied in a more standard way than the current CDC National Healthcare Safety Network (NHSN) VAP definition (would be more reliably captured)
 - Concern that the preventable fraction of the event defined by the draft definition is unknown, thus there was reluctance to support its use as a measure to include in the HHS Action Plan to Prevent Healthcare-Associated Infections
- Participants generally expressed agreement that the ability to reliably capture and report patients with VAP varies between facilities as the core of controversy about what constitutes an accurate definition of VAP
- Participants discussed the need to improve VAP surveillance by reducing the variability and subjectivity in existing definitions
- Participants discussed the need for a clinically relevant definition that was able to detect preventable infections (i.e., the events detected by the definition should be demonstrated to be preventable) and thus could provide “data for action” where making progress in reducing infection rates is reflective of improvements in care
- Participants also discussed the need for a reproducible, reliable, objective, and streamlined definition and/or measure for use (1) at the national, regional, state, local, and facility levels; (2) in public reporting; and (3) for national benchmarking (i.e., inclusion as a goal in the Action Plan)
- While recognizing the challenges associated with accurately capturing and quantifying VAP, participants generally agreed that an appropriate overall approach to measure progress of improving patient care related to ventilation (i.e., Action Plan) and holding healthcare facilities accountable for this progress [i.e., Centers for Medicare & Medicaid Services (CMS) Inpatient Prospective Payment System (IPPS)] would be to (1) focus on process measures at this time and (2) concurrently develop a clinically credible VAP surveillance definition and outcome measures for VAP suitable for use in measuring, comparing, and reducing occurrences of VAP
 - Some expressed the concern that compliance with process measures could be gamed and in some cases could not be easily validated
 - It was felt to be important to maintain consistency of any process measures included in the Action Plan with the Institute for Healthcare Improvement (IHI) ventilator bundle
- Consensus was reached on a group of process measures for mechanically ventilated adults that could be incorporated into the Action Plan:
 - Head-of-bed elevation to 30-45° (unless medically contraindicated)

- Daily sedation vacation (unless medically contraindicated)
- Daily assessment of readiness to wean (unless medically contraindicated)
- Daily oral care with 0.12% chlorhexidine oral rinse (unless medically contraindicated)
- Targets (Adults) for these measures were proposed for daily sedation vacations and daily assessment of readiness to wean as follows:
 - 100% compliance with assessment of patient eligibility for sedation vacation
 - 100% compliance with performing daily lightening of sedation (in accordance with an established protocol) in those patients eligible for a sedation vacation
 - 100% compliance with assessment of patient eligibility for spontaneous breathing trials
 - 100% compliance with performing spontaneous breathing trials in those patients eligible for such trials
 - Specific targets were not determined for head-of-bed elevation or chlorhexidine oral care
 - Participants discussed what the frequency of assessment for head-of-bed elevation should be (e.g., daily vs. once per shift). The group did not reach consensus on this issue.
 - Participants discussed what the frequency of performing oral care with chlorhexidine should be. The group did not reach consensus on this issue, although it was mentioned that the IHI bundle specifies only “daily care,” and others mentioned that chlorhexidine is typically administered twice daily.
- Targets for pediatric and neonatal patients require discussion and vetting
- NHSN could be used as the system into which facilities would enter process measure compliance data, although it would mean creation of a new “VAP prevention” module in the Patient Safety Component of the system
- Participants supported creation of a toolbox that would provide facilities with resources to aid in implementation of the proposed process measures and assessment and tracking of compliance.
- Participants discussed the possible development of an informed research agenda that would address gaps in our understanding of detecting, preventing, and treating VAP