

**Department of Health & Human Services
Office of the Assistant Secretary for Health**

**Road Map to Eliminate HAI:
2013 Action Plan Conference**

**U.S. Institute of Peace
Washington, D.C.
September 25–26, 2013**

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LIST OF ABBREVIATIONS

ABC	CDC Active Bacterial Core Surveillance System
ABCs Program	Hospital Corporation of America’s Active Bacterial Core Surveillance
AHRQ	Agency for Healthcare Research and Quality
ARM	adjusted ranking metric
ASC	ambulatory surgical center
BSI	bloodstream infection
CAD	cumulative attributable difference
CAUTI	catheter-associated urinary tract infection
CDA	Clinical Document Architecture
CDC	Centers for Disease Control and Prevention
CDI	<i>Clostridium difficile</i> infection
<i>C. difficile</i>	<i>Clostridium difficile</i>
CEO	Chief Executive Officer
CHG	chlorhexidine gluconate
CLABSI	central line-associated bloodstream infection
CLD	central line day
CMS	Centers for Medicare & Medicaid Services
CUSP	Comprehensive Unit-based Safety Program
CVC	central venous catheter

CW	CROWNWeb
DFE	dialysis facility event
EHR	electronic health record
EIP	Emerging Infection Program
ESRD	end-stage renal disease
FY	fiscal year
HAC	hospital-acquired condition
HAI	health care–associated infection
HCA	Hospital Corporation of America
HCUP	AHRQ Healthcare Cost and Utilization Project
HCV	hepatitis C virus
HEN	Hospital Engagement Network
HHS	U.S. Department of Health & Human Services
Hospital IQR	Hospital Inpatient Quality Reporting Program
HVBP	Hospital Value-based Purchasing Program
ICU	intensive care unit
IHS	Indian Health Service
IPPS	CMS Inpatient Prospective Payment System
IT	information technology
LabID	laboratory-identified
LAN	Learning and Action Network
LTC	long-term care
LTCF	long-term care facility
MRSA	methicillin-resistant <i>Staphylococcus aureus</i>
NHSN	CDC National Healthcare Safety Network
ONC	Office of the National Coordinator for Health Information Technology
PfP	Partnership for Patients
QIO	Quality Improvement Organization
RIR	relative improvement rate
SCIP	Surgical Care Improvement Project
SDUR	standardized device utilization rate

SIR	standard infection ratio
SSI	surgical site infection
UCD	urinary catheter day
UTI	urinary tract infection
USIP	U.S. Institute of Peace

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DAY ONE: WELCOME

Dr. Don Wright, U.S. Department of Health & Human Services (HHS) Deputy Assistant Secretary for Health, welcomed the conference attendees and introduced Dr. Andrew Blum of the U.S. Institute of Peace (USIP).

Andrew Blum, Ph.D., Vice President for Program Management and Evaluation, U.S. Institute of Peace

Dr. Blum, USIP's vice president for program management and evaluation, welcomed the attendees to USIP. Congress founded USIP in the mid-1980s as an independent but federally funded national security institution. Its mission is to prevent, manage, and resolve violent conflicts around the world. Dr. Blum's boss, former Congressman Jim Marshall, describes USIP's mission as, "We stop fights." USIP staff is on the ground in places like Libya, Iraq, Afghanistan, Colombia, and just outside Syria. They bring people together in those societies to work on the problems that are driving violence. USIP also finds the change agents in those societies to ensure that they have the skills and resources they need to address violence in their communities.

In Syria, USIP is working with the opposition, drawing on the lessons of Iraq. USIP has a detailed plan, "The Day After," to implement the day after the war ends in Syria. This is a plan to rebuild Syria, to reconcile the warring parties, and to avoid the retaliatory violence seen elsewhere.

USIP also works within the U.S., like with the U.S. Agency for International Development, the State Department, and the Department of Defense, to make sure that they have the skills they need when they are working in conflict zones. They also work with educators who train the next generation of peace builders, teaching them that there are practical alternatives to violence.

Dr. Blum noticed a commonality between USIP’s work and the goals of those attending this conference—both groups intend to save lives. Dr. Blum again welcomed the group and introduced Dr. Howard Koh.

OPENING REMARKS

Howard K. Koh, M.D., M.P.H., Assistant Secretary for Health, HHS Office of the Assistant Secretary for Health

Dr. Koh thanked Dr. Blum for hosting this conference and stated his respect for Dr. Blum’s aspirations. Dr. Koh welcomed all attendees and thanked them for their commitment to a healthier country.

Dr. Koh stated that this conference will review many topics about health care–associated infections (HAIs), but the overriding question is, “How do we restore the trust of our patients so that they can have confidence in a system that will keep them safe?”

Dr. Koh provided the following remarks as well:

Patients enter health care settings expecting to get better, not sicker. Unfortunately, for far too long, HAIs have caused significant morbidity and mortality.

So many people have worked hard to make a difference in this vital area of public health. In September 2008, the first key meeting brought together stakeholders to coordinate and drive down the rates of HAIs. That meeting helped shape the first HAI Action Plan in 2009; since then, there have been regular updates and stunning successes. Dr. Koh has great gratitude to all of those present, particularly for Dr. Wright. Dr. Koh lauded Dr. Wright and his team in the Office of Disease Prevention and Health Promotion (ODPHP).

Patients are now safer. One key example of the success is with central line–associated bloodstream infections (CLABSIs). In 2008, the nationwide target was set to reduce CLABSI by 50%. At the time it seemed unreal, but its current reduction rate is already at 44%, well on its way to meeting the target. Other areas of key HAIs are surgical site infections (SSIs) and methicillin-resistant *Staphylococcus aureus* (MRSA).

The HAI Action Plan has aligned many agencies efforts. For example, the Centers for Disease Control and Prevention (CDC) has built a strong surveillance system; the Agency for Healthcare Research and Quality (AHRQ), has supported the Comprehensive Unit-based Safety Program (CUSP); the Centers for Medicare & Medicaid Services (CMS) has advocated for the HAI Action Plan; and the Partnership for Patients Network (PfP) has engaged people in health safety. It is always inspirational to hear about PfP working in more than 3,700 hospitals. There are people to thank outside the federal government, including clinicians, public health professionals, academic researchers, and, most importantly, patients and their families.

Many great speakers will inspire the attendees, like Dr. Mary Brennen-Taylor, who experienced a personal loss due to HAIs, and Dr. Atul Gawande, a surgeon and national leader in HAIs from Harvard and Brigham and Women's Hospital.

None of this is easy, but it is about hard work and dreams of a safer and healthier country. This meeting is about aspiration, inspiration, perspiration, and motivation.

At the conclusion of his remarks, Dr. Koh introduced Dr. Wright.

Don Wright, M.D., M.P.H., Deputy Assistant Secretary for Health, HHS Office of the Assistant Secretary for Health

Dr. Wright thanked Dr. Koh for his remarks and Dr. Blum for sharing the facility. A HAI conference is like a family reunion of those involved since 2007. He thanked all of those attending the conference and their willingness to improve the quality of health care in the U.S.

Dr. Wright reviewed the stakeholders in the room, from national experts of HAIs to health care providers to consumers. To accomplish the ultimate goal of eliminating HAIs, Dr. Wright stated that all stakeholders play a critical role toward this achievement.

This morning, the federal experts from CMS, AHRQ, and CDC will present their report cards. Do not just focus on the progress made, but also on the areas where there is more to be done. The information presented on Day One represents a wide array of health care providers; some data is from only a select group of providers who voluntarily report their data, while for other cases the HAI reporting is mandatory and reflects the nation. A cautionary thought is that, even with the robust data, a narrower context is needed. There is not an even spread among the regions, states, or institutions. Institutions that have had success should be models for those that are not successful.

Even though there is so much data about HAIs, many institutions are not using their own data to enhance their internal quality improvement efforts. Routine evaluation of their data can help institutions identify areas of improvements, discern which units are more effective at prevention efforts, and become active participants for improving patient safety.

Following the first plenary session, there will be two sets of breakout groups that will allow participants to share in the dialogue of HAI prevention efforts. There are two objectives for these breakout groups:

- (i) Identify opportunities and strategies to continue to decrease HAIs. In areas with little progress, like catheter-associated urinary tract infections (CAUTIs), discuss what works and how to spread this information.
- (ii) Evaluate the targets that were set in the 2009 National Action Plan and discuss, based on the data, what can be ambitious, but achievable, targets for the remainder of this decade. Those in the Healthy People 2020 breakout group that deal with CLABSI and

MRSA need to evaluate the appropriateness of the current Healthy People goals so that they can be aligned with today's HAI Action Plan goals.

The dialogue that takes place today is invaluable to the Federal Steering Committee for the Prevention of HAIs in discussing new benchmarks to reduce HAIs. Health care consumers bring perspective to the discussion and put a face on what needs to be done. In this vein, Dr. Wright introduced Dr. Mary Brennan-Taylor.

CONSUMER'S ACCOUNT

Mary Brennan-Taylor, Patient Safety Advocate for the Consumer Reports Patient Project; Adjunct Faculty, Department of Family Medicine, University at Buffalo

Ms. Mary Brennan-Taylor stated it was an honor to be a part of this conference. She mentioned that losing a loved one to HAIs, as she lost her mother, Ms. Alice Brennan, is one of the most painful experiences the human heart can bear. She thanked Dr. Koh, Dr. Wright, and the conference organizers for giving her the chance to speak for those whose voices have been silenced by HAIs.

Four years ago, many of the attendees at this conference were part of phase one of the HAI Action Plan, formerly referred to as the *HHS Action Plan to Prevent Healthcare-Associated Infections*. The year was 2009, the same year Ms. Brennan-Taylor lost her dear mother. As a result of four HAIs, Alice died on August 29, 2009, just 48 days after going into a community hospital for a routine, noninvasive treatment for gout. The first HAI was MRSA, followed by a raging urinary tract infection (UTI), *Clostridium difficile* (*C. difficile*), and vancomycin-resistant enterococci. No one should go into a hospital for noninvasive treatment for gout and die 48 days later of sepsis.

Since her mother's death, Ms. Brennan-Taylor has thought constantly about what could have been done to prevent Alice's suffering and death, and that of hundreds and thousands of others like her. Ms. Brennan-Taylor hopes that this conference will indeed move the country closer to eliminating HAIs.

As Ms. Brennan-Taylor recalls, Alice was a cross between Lucille Ball and Carol Burnett. She was funny, irreverent, lived in her own home, managed her own financial affairs, and, at time of her hospitalization, was planning her high school reunion. Alice trusted the health care system implicitly. She would rather die than ask a health care professional if they had washed their hands- and tragically, she did die. She was full of life, but the toxicity of multiple HAIs was too much for her increasingly fragile body after she experienced falls, dehydration, medication error, and the four HAIs.

Almost daily it seemed like Ms. Brennan-Taylor's family was being informed that her mother was suffering from another infection, an alphabet soup of HAI acronyms that were confusing to the family.

Alice's Certificate of Death states that sepsis was her cause of death, specifically calling out UTIs and *C. difficile*. This propelled Ms. Brennan-Taylor into the patient safety field.

The conference's lifesaving task over the next two days is to review the latest data for the HAI Action Plan and discuss the target-setting methodology and potential HAI targets in acute care hospitals, ambulatory surgical centers (ASCs), end-stage renal disease (ESRD) facilities, and long-term care facilities (LTCFs).

As the attendees contemplate the data, Ms. Brennan-Taylor reminded the participants to remember that the numbers are cold and impersonal. Behind every number is a person who was cherished and irreplaceable. Alice may have been only one of 14,000 who died of *C. difficile* in 2009, or one of those older than 85 years old whose risk of acquiring *C. difficile* increases 201%, but to those who loved her, Alice was not these statistics. Alice was a mother, grandmother, and friend and that is the data that should be driving the conference participants.

The only acceptable data is zero; zero patients who should become infected, be tortured, or die from preventable HAIs. While we can take to heart that there is progress, much work has yet to be done. A collaborative approach needs to include all stakeholders, especially the patients and their family caregivers.

Alice's story should never be repeated! As the conferences' discussions take place, Ms. Brennan-Taylor urged the participants to ask if these recommendations would have been helpful in saving Alice and hundreds of thousands of others like her who have died from HAIs. Speak with the other patient consumer advocates because they have their own stories that can only come from experiencing firsthand the devastation of losing something to an avoidable HAI. As Peter, Paul, and Mary sang, "How many deaths will it take until we know that too many people have died?"

Ms. Brennan-Taylor thanked the attendees for their lifesaving work and she stated that this is her idea of true health care reform.

PLENARY I: 2012 DATA UPDATES FOR PHASE ONE ACTION PLAN GOALS, ACUTE CARE HOSPITALS

Introduction

Yael Harris, Ph.D., Director, Division of Health Care Quality, Office of Disease Prevention and Health Promotion

Dr. Yael Harris introduced herself as the moderator for this session. She thanked Ms. Brennan-Taylor for telling her story because it gives purpose to what the attendees do every day. Dr. Harris also stated that what happened to her [Ms. Brennan-Taylor's] mother is a disgrace, but hopefully her death was not in vain because it motivates the attendees to move forward with their important work.

Dr. Harris said that the upcoming speakers were going to give data updates on Phase One of the HAI Action Plan that focused on acute care hospitals. On Day Two conference participants will hear and discuss updates on outpatient and long-term care (LTC) settings.

Dr. Harris introduced the following presenters:

Dr. Paul McGann, the Deputy Chief Medical Officer for the CMS and Co-Director of PFP. Dr. McGann would be co-presenting with Mr. Dennis Wagner, Co-Director for PFP and Associate Director for Campaign Leadership within CMS's Center for Medicare and Medicaid Innovation.

Dr. Jim Poyer, CMS Director of the Surgical Care Improvement Program and Hospital Value-based Purchasing Program. He serves as Director of the Division of Quality Improvement Policy (QIP) for Acute Care and for CMS's Quality Improvement Group within the Center for Clinical Standards and Quality.

Ms. Cathy Maffry, Director of the Improving Individual Patient Care at the National Coordinating Center that provides leadership and support for the Quality Improvement Organizations (QIOs) across the U.S.

Dr. Claudia Steiner, Research Medical Officer with the Center for Delivery, Organizations, and Markets within AHRQ. Dr. Steiner will provide an update on *C. difficile* hospitalizations.

Mr. Paul Malpiedi, an epidemiologist in the Division of Healthcare Quality Promotion at CDC. He will be providing an update on *C. difficile*, MRSA, CLABSI, CAUTI, and SSIs.

Centers for Medicare & Medicaid Services Updates

Partnership for Patients

Dr. Paul McGann, M.D., Co-Director of the Partnership for Patients Initiative; Deputy Chief Medical Officer, Centers for Medicare & Medicaid Services

Mr. Dennis Wagner, M.P.A., Co-Director of the Partnership for Patients Initiative; Associate Director for Campaign Leadership, Centers for Medicare & Medicaid Services

Dr. McGann thanked Ms. Brennan-Taylor for sharing her story and thanked all of the consumer representatives that were present.

Mr. Wagner stated the two main aims for PFP: a 40% reduction in preventable HAI conditions that entails 1.8 million fewer injuries and 60,000 saved lives, and a 20% reduction in 30-day readmissions that entails 1.6 million patients recovering without readmission. In April 2011, Secretary Kathleen Sibelius, former CMS Administrator Don Berwick, and others committed to these ambitious aims. PFP would like to achieve them by December 2014. Mr. Wagner's request to the conference attendees was to recommend ambitious aims.

Dr. McGann said that the PFP program wants to reduce the following 10 priority areas of focus (also called hospital-acquired conditions, or HACs):

1. Adverse drug events (ADEs)
2. CAUTIs
3. CLABSIs
4. Injuries from falls and immobility
5. Obstetrical adverse events, including early elective deliveries
6. Pressure ulcers
7. SSIs
8. Venous thromboembolism
9. Ventilator-associated pneumonia (VAP)
10. Reducing readmissions

In addition to the HACs listed above, PfP hopes to address other conditions. T

PfP currently has 26 contractors that have recruited 3,711 hospitals to participate in their project. The program is 21 months into a 36-month long test to improve quality in health care.. PfP's program is designed as a full court press, pulling as many private and federal levers as they can to achieve their aims with the \$500 million investment by CMS's Innovation Center.

Mr. Wagner acknowledged those in the room who are part of the program: Paul Moore with Health Resources and Services Administration, Mimi Toomey with the Administration for Community Living, Dr. Carol with the Indian Health Service (IHS), Don Wright and Yael Harris with the Office of the Assistant Secretary for Health and Noel Eldridge with AHRQ. These are the people PfP works with to pull federal levers.

Mr. Wagner also acknowledged the hospital engagement network (HEN) leaders that were present: Dignity Health, Ascension Health, Washington Hospital Association, Michigan Hospital Association, Hospital Association of Greater New York and New York City, Tennessee Hospital Association, and the largest one, American Hospital Association.

The National Support and Management System for Reducing HACs and Readmissions is in place to support about 3,711 hospitals. There is progress on 30-day readmissions. For 2011, there were modest improvements across the board on HAIs, and, based on preliminary data, these are accelerating in 2012. The HENs and hospitals are learning how to deal with ADEs; thanks to work done by CDC, they now know where the greatest harms are for these events. There is improvement in patient and family engagement efforts. Engaging patients and families creates urgency, relevance, and action; it helps the hospitals break through barriers. When someone like Ms. Brennan-Taylor tells their story in a hospital environment that is working to improve safety, barriers start to melt. A measurement system is in place to count patient and family involvement across the 3,700 hospitals, and that work is increasing.

This country has 5,196 short stay acute care hospitals, of which 3,711 align with PfP. Of these, 3,193 are at benchmark status on one or more of the 10 priorities. More than 3,550 hospitals are working on six or more priorities.

The percentage of the hospitals reporting on five or more HACs to PfP has grown quickly since September 2012 to 94%, or 3,433 hospitals. Sixty-one percent, or 2,265 hospitals, are improving on five or more HACs, and 1,140 (31%) are showing benchmark status on five or more HACs.

The challenge for Pfp is when hospitals come to them wanting to work on two of the 10 HACs, but Pfp's HENs encourage them to work on all 10.

Dr. McGann reiterated that Pfp is 21 months into the 36-month long test. His slide depicted a decline in Medicare fee-for-service 30-day all-cause readmission rates to about 17.8%, and this is the first decline seen in 10 years.

AHRQ's national scorecard showed a modest improvement in overall harm. For this, calendar year 2010 is the baseline; between 2010 and 2011, there were 131,000 fewer Pfp-measured HACs. This harm reduction translates preliminarily to \$870 million in cost savings, and 3,215 averted deaths. For *C. difficile* alone, there are 14,000 deaths per year; Pfp would eventually like to prevent all of these deaths, but this is a start. After analyzing the 2012 data, AHRQ will release the latest figures to the public.

Mr. Wagner pointed out that some hospitals have already figured out how to achieve the results that Pfp seeks. The challenge Pfp faces is how to spread the successful practices, with system and method, across the entire group of hospitals. Dignity Health and Ascension Health have shown how to reduce CAUTI; Sam Watson of the Michigan Health & Hospital Association has had success with CLABSI reductions, as has the Tennessee Hospital Association with SSI reduction. This was due to the leadership of some of those attending the conference. These systems set ambitious goals because they knew how to reduce HAIs; however, it has to be done everywhere, all the time.

Dr. McGann showed leading indicator line graphs that depicted the standard infection ratio (SIR) data for CLABSI, SSI, VAP, and CAUTI. All had decreased except for CAUTI. The graphs also showed rate decreases in patients' falls, pressure ulcers, and 30-day readmissions. This was national-level data, but there are some contractors that are not seeing these decreases.

In closing, Dr. McGann said that Pfp's goals are not just numbers-- they also represent active leadership decisions to pursue excellence. Goals have the power to impact the results. Pfp has good evidence that contractors who set ambitious goals realize better results. Mr. Wagner and Dr. McGann called on those in attendance to set ambitious goals because patients are depending on this. They implored those attending to remember Ms. Brennan-Taylor's mother and the countless others who have experienced unnecessary deaths.

Dr. McGann introduced and lauded his former co-worker, Mr. Poyer, for developing one of the best systems to track HAIs.

Surgical Care Improvement Project & the Hospital Value-based Purchasing Program

James (Jim) Poyer, M.S., M.B.A., Director, Centers for Medicare & Medicaid Services

Mr. Poyer thanked Dr. McGann for his kind words.

Mr. Poyer planned to review briefly the national progress of the Surgical Care Improvement Project (SCIP) and the inclusion of HAIs and other measures in the Hospital Value-based Purchasing Program (HVBP) for acute care hospitals. The Affordable Care Act mandated the HVBP in fiscal year (FY) 2013, whereby 1% of base Medicare inpatient payments are tied to performance on quality measures.

SCIP has a nearly topped-out performance of 96% to 99% in measures 1 through 4. These measures generally promote effective, efficient use and discontinuance of antibiotics. The HVBP links payment to SCIP Infection 1, 2, 3, and 4's performances.

QIOs have also worked for the last decade to assist hospitals to reach this topped-out performance. They assist hospitals to meet these performance measurements, as well as assisting with aspects like patient experience of care. This entails making sure that a hospital provides discharge care understandable by patients and their caregivers.

Mr. Poyer mentioned Dr. David Hunt and Dr. Dale Bratzler, who worked with CMS at the Oklahoma Foundation for Medical Quality. They helped set up SCIP and had key roles in its improvements.

At Johns Hopkins Hospital, Mr. Poyer has seen a laminated card that outlines the SCIP measures for the frontline workers.

SCIP Infection 6, the appropriate hair removal measure, was suspended on January 1, 2012, because it topped out at the vast majority of hospitals.

Also due to topped-out status, SCIP Infection 10, surgery patients with perioperative temperature management, was removed for discharges beginning January 1, 2014.

SCIP Infection 9, urinary catheter removal on postoperative day one or two, was added for all discharges starting January 1, 2010.

The HVBP plans to implement performance pay for the following fiscal years and measures:

FY 2013 program – includes SCIP Infection 1, 2, 3, and 4

FY 2014 program – adds SCIP Infection 9

FY 2015 program – adds 2013 CLABSI data

FY 2016 program – adds 2014 CLABSI, SSI, and CAUTI

FY 2017 program and future years – considering inclusion of MRSA and *C. difficile*

These measures are gradually added over time because before CMS can include a measure in the HVBP, it has to be in the CMS Inpatient Quality Reporting Program and be posted on its Hospital Compare website for 12 months.

CMS recently finalized their HAC Reduction Program, which imparts a 1% payment reduction for the lowest performing quartile of eligible hospitals beginning in FY 2015.

HAIs constitute 65% of the performance measurements and include CAUTI and CLABSI. The other 35% includes sepsis and others issues that Dr. McGann mentioned, which are closely linked to HAIs. CMS is moving the dial on quality improvement systems through HENs, QIOs, transparency with public reporting, and links between Medicare payment and HAI performance.

Mr. Poyer introduced Cathy Maffry, director of CMS's National Coordinating Center, which works with QIPs to reduce HAIs.

Quality Improvement Organizations Work to Reduce HAIs: Progress and Success
Cathy Maffry, M.B.A., Director of Patient Safety, National Coordinating Center, Centers for Medicare & Medicaid Services

Ms. Maffry was happy to be at the conference to present an update on what QIOs are doing to reduce HAIs in their communities.

There are 53 QIOs across the states and territories. They are working with recruited hospital units for CLABSI (240 units), CAUTI (1,192 units), and *C. difficile* (352 hospitals) in intensive care unit (ICU) and non-ICU settings. The discrepancy in the number of recruited units is due to working where the need is greatest. Just 17 QIOs are working on CLABSI to meet the CMS threshold, while there are 51 QIOs working on CAUTI and *C. difficile*.

QIO goals include:

- CLABSI: relative improvement rate (RIR) of $\geq 50\%$ or standardized infection rate (SIR) ≤ 1.0
- CAUTI: RIR of $\geq 25\%$ or SIR ≤ 1.0
- Catheter Utilization: RIR of $\geq 10\%$ or standardized device utilization rate (SDUR) ≤ 1.0

QIOs' stretch goals:

- Encouraged to reach stretch goals for CLABSI (SIR of 0.50)
- CAUTI (SIR of 0.75) found in the current HAI Action Plan

Data is reported via CDC National Healthcare Safety Network (NHSN) and final reporting is due within two months.

There has been some progress. CLABSI QIO cases for the national pool have dropped the rate to 1.14 per 1,000 central line days, with an RIR of 50.6% through May 2013. Recruitment was limited to facilities with a rate of ≥ 1.5 per 1,000 central line days.

CAUTI does not have as much progress. One state's aggregated incident rate began at 3.94 CAUTI/catheter days, but QIOs have reduced the national rate to 1.98 CAUTI/catheter days, with a standardized infection rate of 1.1% and an RIR of 3.3% through May 2013.

QIOs are also working on the catheter utilization progress. As of May 2013, the national recruited rate was down from 43.69 catheter days/patient days to 39.83, almost a 20% reduction.

However, ICUs are having a tougher time with the utilization measure compared to non-ICUs, which have a national RIR of 19.5% and SDUR of 0.9%.

For CLASBI, 37.5% of QIOs have met or exceeded the SIR stretch goals of 0.50, while 20% of QIOs have met the SIR stretch goal of 0.75 or 25% reduction for CAUTI.

Learning and Action Networks (LANs) that have had this success by working with departments of health, Association for Practitioners in Infection Control chapters, and state hospital associations. They have also sat on steering committees to bring many leaders to the table to share how to achieve these rates.

For instance, one QIO printed an NHSN “Survival Guide” so that when an Infection Control Practitioner was replaced, the QIO was able to update them quickly and no data was missed.

Agency for Healthcare Research and Quality Updates

***Clostridium difficile* Hospitalizations**

Claudia A. Steiner, M.D., M.P.H., Senior Research Physician, Agency for Healthcare Research and Quality

Dr. Steiner introduced herself, stating that she has worked on AHRQ’s Healthcare Cost and Utilization Project (HCUP) for a long time.

Dr. Steiner wanted to distinguish what HCUP measures compared to CDC’s NHSN measures. AHRQ’s measurement is the HCUP State Inpatient Databases. It is an all-payer inpatient care database that measures from discharge abstract or billing data. The numerator is any discharge that lists *C. difficile* coded as ICD-9-CD 008.45 for an inpatient and ICD-9 or CPT for an outpatient; the denominator is any adult, non-maternal discharge that is treated in community hospitals (with the exception of Department of Defense, Department of Veterans Affairs, and the Indian Health Services hospitals because they have their own data collection systems). For this presentation, only the inpatient data will be used.

Forty-seven states volunteer to submit data to an entity within their state and HCUP collaborates with those entities. The data has no identification information and provides a rich source of population-based data for all patients that come in.

The baseline year is 2008 with a *C. difficile* rate of 11.6 per 1000 hospitalizations. From there, the rates are:

Current (CY 2011): Rate = 12.7 per 1000 hospitalizations

Projected (CY 2012): Rate = 13.6 per 1000 hospitalizations (for early data from 23 states)

Projected (CY 2013): Rate = 14.2 per 1000 hospitalizations

HCUP is seeing a steady increase in *C. difficile* rates, and this will vary from NHSN.

There is variation across states. The mid-Atlantic region has had a *C. difficile* rate increase, starting at about seven cases per 1,000 discharges in 2001 and going up to 15 cases per 1,000

discharges in 2011. New York is within this region and they saw some plateauing, but now it is increasing—HCUP would like to know why. Is it a difference in how *C. difficile* is measured or if there is a larger prevalence of burden entering the hospital?

The West South Central data shows a shallower climb between 2001 and 2011, going from five to 10 *C. difficile* cases per 1,000 discharges. Arkansas is within this region and it had a decreasing rate from 10 down to about nine cases per 1,000 discharges in 2011. Some of these patients have developed *C. difficile* in the hospital, while others have developed it in the community or in LTC. One wonders if those hospitals have put extra effort into decreasing their *C. difficile* admissions.

On the Pacific side, there has been a steady *C. difficile* rate increase from five to about 15 cases per 1,000 discharges, but Hawaii started under five cases per 1,000 discharges and plateaued there. This variation is important because this data allows a look at community-level rates and hospitals' impacts.

Dr. Steiner reminded the audience that HCUP is a discharge database, so if a patient comes in more than once, they are recorded in the hospital data more than once.

Dr. Steiner showed a table for 2009 encrypted data for readmissions following hospital stays associated with a *C. difficile* infection (CDI). The base was 280,700 patients (from January to November), and about 30 days later:

- 4.8% were readmitted with CDI as the principal diagnosis
- 12.8% were readmitted if CDI was anywhere on a patient's diagnosis field
- 29.1% were readmitted for any diagnosis

Looking 90 days (from January to September) out:

- 6.8% were readmitted for a CDI principal diagnosis
- 17.2% were readmitted if CDI was anywhere on a patient's diagnosis field
- 44.8% were readmitted for any diagnosis

These readmissions could explain the prevalence of *C. difficile* in the HCUP database.

The HCUP database can also look at hospital stays associated with CDI for patients discharged to LTC institutions. In 2009, 116,600 (January to November) patients had index stays with CDI who were discharged to LTC. Thirty days later, 31.5% of these patients returned with any diagnosis and 90 days later 49% returned with any diagnosis. This indicates that a fair amount of the *C. difficile* prevalence is probably due to readmissions, and some of it is due to patients coming in and out of LTC.

The HCUP data can now discern if a patient comes in with *C. difficile* or develops it in the hospital. This is closer to what NHSN is measuring. Data shows that 73.1% of patients are coming in with *C. difficile* (present admission), while 21.9% develop it in the hospital. For those

who developed it in the hospital in 2011, most were 65 years and older and this was also reflected in the number of patients whose primary expected payer was Medicare.

In summary, Dr. Steiner mentioned that HCUP is measuring prevalence of CDI, not just incidence in the hospital. The prevalence is probably due to readmission because it is hard to cure patients of *C. difficile* and they have to be treated more than once. Some of the *C. difficile* is being developed in the hospital, but some is coming from the community, so it raises larger issues of what AHRQ would like to measure, going forward.

Centers for Disease Control and Prevention Updates

CDC Metrics in the HAI Action Plan

Paul Malpiedi, M.P.H., Health Scientist, Centers for Disease Control and Prevention

Mr. Malpiedi planned to present a large brick of measures that come from CDC’s surveillance systems. Most of the data is collected with NHSN.

The CDC Metric in the HAI Action Plan is:

Metric	Baseline	Five-year Target	Metric	Target SIR or Rate
CLABSI	2006–08	50% reduction	SIR	0.50
CAUTI	2009	25% reduction	SIR	0.75
SSI	2006–08	25% reduction	SIR	0.75
MRSA bacteremia (hospital)	2010–11	25% reduction	SIR	0.75
Invasive MRSA infections (population)	2007–08	50% reduction	Rate	13.5 per 100,000
CDI	2010–11	30% reduction	SIR	0.70

The SIR is a measure that compares the number of infections reported to NHSN to the number of infections that would be predicted based on national baseline data.

$SIR = \text{Observed number of HAIs} / \text{Predicted number of HAIs}$

To interpret these numbers, the following guidelines should be used:

- An **SIR of one** indicates that the same number of infections was reported as would be predicted given the baseline data (no change from baseline).
- An **SIR greater than one** means that there were more infections reported than would be predicted given the baseline data (an increase from baseline).

- An **SIR less than one** indicates that there were fewer infections reported than would be predicted given the baseline data (a reduction from baseline).

An SIR below one is the target.

Central Line–associated Bloodstream Infections (CLABSIs)

CLABSI has been tracked in NHSN for four years. The SIR target of 0.50 includes patients in both ICUs and wards. In 2011, all facilities participating in the CMS Inpatient Prospective Payment System (IPPS) Hospital Inpatient Quality Reporting (Hospital IQR) Program were required to report CLABSI data from all ICUs, so there was a jump in the number of reporting facilities.

In 2012, there were more than 13,000 locations reporting their data; about 44% of these are ICUs, 56% wards. The SIR was 0.56, or a 44% reduction from baseline. Looking at wards versus ICUs, wards had an SIR of 0.60 compared to ICUs' SIR of 0.54.

CLABSI data can also be evaluated at the state and facility level. The upcoming report will show that 47 states and Washington, D.C., have had significant CLABSI reductions. Facility-level analysis shows that a large number of CLABSIs occur in a small number of facilities, so prevention should be targeted to these facilities.

The CLABSI opportunities for improvement are to do more prevention in ICUs and explore the best practices outside of ICUs. More research is needed to assess the current proportion of CLABSIs that are not preventable per the current NHSN definition.

Catheter-associated Urinary Tract Infections (CAUTIs)

CAUTI has a 25% reduction goal (SIR = 0.75) and 2009 is the baseline year for its data.

A jump in the number of facilities reporting their CAUTI data was seen in 2012, up to 3,601 and 11,415 locations with a 50/50 split between ICUs and wards. There was a small reduction in CAUTI from baseline to 2011, but the SIR has gone up to 1.02 in 2012.

When comparing ICUs to wards, the SIRs are flipped compared to CLABSI. In 2012, wards had an SIR of 0.87 and ICUs had 1.09, so there is better CAUTI prevention in wards than in ICUs.

The next public report coming in 2014 will show that 16 states have seen significant CAUTI increases in 2012, and 14 states have seen significant CAUTI reductions. Facility-level analysis shows that certain facilities have better results, so it would be good to look at how they have been able to achieved these reductions.

Potential explanations for the lack of progress in reducing CAUTIs are that the 2012 newly reporting facilities may not have looked at their data before, and thus may not have implemented prevention efforts compared to other facilities who had reported the data all along. The data was more accurate in 2012 due to better training by the CDC and a definitional clarification of when a fever is an appropriate symptom for identifying a CAUTI. There was also a slight decrease in

the number of catheter days, and when this smaller number was used as the denominator, it could have artificially inflated the SIR. However, a similar trend was seen if the denominator was replaced with the number of patient days. Finally, there may be less prevention success, in general. It is difficult to assess the impact of each factor.

The CAUTI opportunities for improvement are to reduce catheter use, broaden the implementation of best practices for catheter insertion, increase the focus on catheter maintenance, and educate providers on the appropriateness of diagnostic testing, particularly for sending out urine cultures.

Surgical Site Infections (SSIs)

The SSI goal is an SIR of 0.75, or a 25% reduction. The SSI metric in the HAI Action Plan follows the 10 surgical procedures that align most closely with SCIP. These severe infections are identified at admission and during readmission.

In 2012, CMS added two procedures to the IPPS Hospital IQR Program, abdominal hysterectomy and colon surgery. Following this, there was a jump in number of facilities reporting from 2011 to 2012. In 2012, more than 1.3 million procedures were reported and the SIR was 0.80, but this is preliminarily. This is near the 25% goal.

The data by surgical procedure volume showed that the two highest surgeries performed, knee replacements and hip replacements, each had SIR decreases to 0.76 and 0.84, respectively. Abdominal hysterectomy had an increase in SIR from 0.83 in 2011 to 0.89 in 2012. Colon surgery had no SIR change (0.80) between 2011 and 2012. The lower volume procedures, like other cardiac, had an SIR of 0.68 in 2012. Mr. Malpiedi suggested that there be discussions about the continuity of tracking lower volume procedures in the next iteration of the HAI Action Plan.

The SSI opportunities for improvement are to implement updated recommendations that will be issued by the Healthcare Infection Control Practices Advisory Committee or HICPAC, and to collaborate with external partners to produce procedure-specific recommendations for surveillance and prevention.

Invasive Methicillin-resistant *Staphylococcus aureus* (MRSA) Infections

There are two CDC MRSA metrics in the HAI Action Plan. The first one is invasive MRSA and its data comes from the Emerging Infections Program (EIP) Active Bacterial Core Surveillance (ABCs) System. This measure is population-based with incidence rate per 100,000 population. The five-year target is 50% reduction.

The ABCs surveillance has been ongoing since 2005; it covers 33 counties in nine states (19.6 million people) and is adjusted for age, race, sex, and use of dialysis. The CDC has trained surveillance officers in each state who review microbiology lab results and then check medical records to determine if an MRSA case is associated with health care. The cultures they review come from sterile sources like blood, central spinal fluid, and joint fluid, not skin or soft tissue, so these MRSA infections are severe.

The definition of a positive MRSA culture is one that comes from a normally sterile site in a surveillance area resident ≥ 30 days from any prior MRSA culture. There are two categories of MRSA infection, health care–associated and community-associated. The health care–associated cases are reported and available in the HAI Action Plan.

There are two MRSA health care–associated sub-categories:

Hospital-onset (HO), where a culture was collected more than three calendar days after hospital admission, day one)

Health care–associated community-onset (HACO), where an outpatient culture or culture was collected three or fewer calendar days after hospital admission, and a central venous catheter is in place at any time in the two days prior to initial culture, or a patient has had surgery, hospitalization, dialysis, or has been in a LTCF in the prior 12 months.

The estimated incidence of health care–associated invasive MRSA went from 82,000 cases in the baseline period (2007–2008) to 58,300 cases in 2012, or a 31% decrease. From baseline to 2012, there was a 48% reduction for HO MRSA cases, and a 23% reduction for HACO cases.

Methicillin-resistant *Staphylococcus aureus* (MRSA) Bacteremia Infections

The MRSA bacteremia metric uses the same definitions as *C. difficile*. These definitions are:

Laboratory-Identified (LabID) Event—a specimen collected for clinical decision-making purposes from a patient having no previous positive culture in the previous 14 days. CDC only includes MRSA bacteremia that comes only from blood specimens and *C. difficile* specimens from stool specimens.

Facility-Wide Inpatient —this data is reported at the facility-wide inpatient level, so the denominators CDC reports are a single count, collected as the sums of all inpatient locations, number of patient days, and admissions for the month. For *C. difficile*, they remove the neonatal intensive care nursery and the well-baby nursery patient days and admissions.

The HAI Action Plan’s metric only looks at hospital-onset events. This is defined as a LabID Event specimen collected more than three days after admission to the facility where admission is day one. Facilities must report both HO and community-onset LabID Events.

The MRSA bacteremia data is collected by NHSN and the five-year target is 25% reduction. The baseline is from 2010 to 2011.

NHSN adjusts for important factors to calculate a predicted number of HO MRSA cases. These factors are facility size (more than 400 beds and under 400 beds), teaching hospitals versus all others, and those hospitals that had a continuously high prevalence of MRSA bacteremia on admission.

In 2012, 1,172 facilities reported. More facilities are expected to report in 2013 because MRSA bacteremia was added to the CMS IPPS Hospital IQR Program. More than 42 million patient days and 10 million admissions have been reported thus far. The SIR was 0.97 or 3.0% reduction.

The MRSA opportunity for improvement is to expand the prevention efforts to the HACO cases.

***Clostridium difficile* Infections (CDIs)**

CDI data is reported to NHSN and the five-year target is a 30% reduction. The baseline period is from 2010 to 2011.

To calculate a predicted number of HO CDI, NHSN adjusts for facility bed size (100 and fewer, 101–245, and more than 245); teaching type (major, graduate, limited and non); CDI test type (nucleic acid amplification, enzyme immunoassay, and all others); and *C. difficile* prevalence on admission.

In 2012, 1,679 facilities (49 states plus Washington, D.C., and Puerto Rico) reported more than 55 million facility-wide patient days and more than 12.5 million facility-wide admissions. The SIR for *C. difficile* in 2012 was 0.98, which is different from the increase HCUP has seen in CDIs.

There are differences between the HCUP and NHSN data. HCUP data measures both HO and community-onset CDI, whereas NHSN measures only hospital-onset CDI. The NHSN measure adjusts for the aforementioned risks. The HCUP measure reflects trend in burden, while the NHSN measure reflects trend in hospital performances. Perhaps due to these different measures, NHSN saw a reduction in CDI while HCUP saw an increase. NHSN requires the reporting of community-onset cases, but a future project could be tracking these results.

The CDC looked at crude, unadjusted rates and it still saw the *C. difficile* rate go down by 0.5%. There was a 15% increase in the *C. difficile* prevalence on admission in the NHSN data.

The HCUP increase likely reflects the more sensitive diagnostic testing, but NHSN data suggests that the *C. difficile* in non-hospital settings may be more important.

The *C. difficile* opportunities for improvement include improving antimicrobial use in the inpatient settings and improving environmental decontamination.

Electronic Reporting to the National Healthcare Safety Network (NHSN)

In an effort to simplify reporting to NHSN, it can now receive data directly from a facility's electronic health records (EHR) or infection control surveillance system. The file format is called "Clinical Document Architecture" (CDA) and more than 1,000 facilities in all 50 states have reported more than 928,000 records.

Infection event data can be reported via CDA, with the most prevalent reports being LabID events for MRSA and CDI. CLASBI and CAUTI are also reported. Denominator data for

surgical procedures, CLABSI/CAUTI, and LabID events can be reported with the CDA. Antimicrobial use data was recently added for electronic reporting, and more than 7,000 of these records have been reported thus far. An antimicrobial resistance reporting option will be coming out soon.

Improvements to NHSN

There are major improvements coming to NHSN as it moves forward with the revised HAI Action Plan.

In 2013, NHSN introduced CAUTI clarifications about infection present upon admission and fever changes. A new type of bloodstream infection, a MBI, was added to determine its clinical relevance and if it is attributable to a CLABSI. For SSIs, the one-year follow-up period changed to 30 or 90 days, depending on the procedures.

In 2014, NHSN will collect data for more SSI procedures that are not currently reported and there will be definitional changes.

In 2015, CMS IPPS reporting for CLABSI and CAUTI will include medical, medical/surgical, and surgical wards; SSI will capture infections present at the time of surgery.

Due to these significant changes that should be implemented by 2015, CDC recommends that 2015 be the new baseline year for all HAI Action Plan acute care hospital metrics supported by NHSN. This would mean all SIRs would be reset to 1.0. CDC would calculate new rates to serve as baseline rates for 2015, and then project out from 2016 to 2020 to evaluate progress back to the new 2015 baseline. CDC would still present information using the original baseline.

CDC also thinks that the new 2020 targets should take into account the recent reductions. CDC will continue to monitor and report on progress in interim years before measurement with a new baseline begins in 2016.

These changes tie into the next presentation by Dr. Jonathan Edwards.

Discussion Highlights

The two main aims for PfP are a 40% reduction in preventable HACs that entails 1.8 million fewer injuries and 60,000 saved lives, and a 20% reduction in 30-day readmissions that entails 1.6 million patients recovering without readmission. The program to do this is 21 months into a 36-month long test, and PfP would like to achieve them by December 2014.

This country has 5,196 short-stay acute care hospitals, of which 3,711 are aligned with PfP. Of these, 3,193 are benchmark status on one or more of the 10 priorities. Six or more priorities are being worked on by 3,552 hospitals.

AHRQ's national scorecard showed a modest improvement in overall harm. Between 2010 and 2011, there were 131,000 fewer PfP-measured HACs when compared to the 2010 baseline. This harm reduction translates preliminarily to \$870 million in cost savings, and 3,215 averted deaths.

SCIP has a nearly topped-out performance of 96% to 99% in measures 1 through 4.

SCIP Infection 6, appropriate hair removal measure, and SCIP Infection 10 have been discontinued due to their topped-out status.

The HVBP plans to implement performance pay for the following fiscal years and measures:

- FY 2013 program – includes SCIP Infection 1, 2, 3, and 4
- FY 2014 program – adds SCIP Infection 9
- FY 2015 program – adds 2013 CLABSI data
- FY 2016 program – adds 2014 CLABSI, SSI, and CAUTI
- FY 2017 program and future years – considering inclusion of MRSA and *C. difficile*

There are 53 QIOs across the states and territories. They are working with recruited hospital units for CLABSI (240 units), CAUTI (1,192 units), and *C. difficile* (352 hospitals) in ICUs and non-ICU settings.

For CLASBI, 37.5% of QIOs have met or exceeded the SIR stretch goals of 0.50%, while 20% of QIOs have met the SIR stretch goal of 0.75% for CAUTI.

LANs that have had this success have worked with departments of health, Association for Professionals in Infection Control and Epidemiology chapters, and state hospital associations, and they have sat on steering committees to bring many leaders to table. By doing so, LANs feel they are able to disseminate best practices quickly.

ARHQ's HCUP is an all-payer inpatient care database that measures from discharge abstract or billing data. The baseline year is 2008 with a *C. difficile* rate of 11.6 per 1000 hospitalizations.

From there, the rates are:

Current (CY 2011): Rate = 12.7 per 1000 hospitalizations

Projected (CY 2012): Rate = 13.6 per 1000 hospitalizations (for early data from 23 states)

Projected (CY 2013): Rate = 14.2 per 1000 hospitalizations

HCUP is seeing a steady increase in *C. difficile* rates, and this will vary from NHSN. There is also variation across states.

The increased *C. difficile* prevalence is probably due to readmission because it is hard to cure patients of *C. difficile* and they have to be treated more than once. Some of the *C. difficile* is acquired in the hospital, but some is coming from the community, so it raises larger issues of what AHRQ would like to measure, going forward.

The CDC Metric in the HAI Action Plan is:

Metric	Baseline	Five-year Target	Metric	Target SIR or Rate
CLABSI	2006–08	50% reduction	SIR	0.50
CAUTI	2009	25% reduction	SIR	0.75
SSI	2006–08	25% reduction	SIR	0.75
MRSA bacteremia (hospital)	2010–11	25% reduction	SIR	0.75
Invasive MRSA infections (population)	2007–08	50% reduction	Rate	13.5 per 100,000
CDI	2010–11	30% reduction	SIR	0.70

The SIR is a measure that compares the number of infections reported to NHSN to the number of infections that would be predicted based on national baseline data.

$SIR = \text{Observed number of HAIs} / \text{Predicted number of HAIs}$

To interpret these numbers, use this guide:

- An **SIR of one** indicates that the same number of infections was reported as would be predicted given the baseline data (no change from baseline).
- An **SIR greater than one** means that there were more infections reported than would be predicted given the baseline data (an increase from baseline).
- An **SIR less than one** indicates that there were fewer infections reported than would be predicted given the baseline data (a reduction from baseline).

The target is an SIR below 1.0.

The CLABSI SIR in 2012 was 0.56, or a 44% reduction from baseline. Looking at wards versus ICUs in 2012, wards had an SIR of 0.60 compared to ICUs' SIR of 0.54. The CLABSI opportunities for improvement are to do more prevention in ICUs, explore the best practices outside of ICUs, and to do more research to assess the current proportion of CLABSIs that are not preventable per the current NHSN definition.

There was a small reduction in CAUTI from baseline to 2011, but the SIR has gone up to 1.02 in 2012. Wards had an SIR of 0.87 and ICUs had 1.09. The CAUTI opportunities for improvement are to reduce catheter use, broaden the implementation of best practices for catheter insertion, increase the focus on catheter maintenance, and educate providers on the appropriateness of diagnostic testing, particularly for sending out urine cultures.

In 2012, more than 1.3 million SSI procedures were reported – a 20% reduction or an SIR equal to 0.80. The SSI opportunities for improvement are to implement updated recommendations that will be issued by the Healthcare Infection Control Practices Advisory Committee referred to as HICPAC, and to collaborate with external partners to produce procedure-specific recommendations for surveillance and prevention.

The estimated incidence of health care–associated invasive MRSA went from 82,000 cases in the baseline period (2007–2008) to 58,300 cases in 2012, or a 31% decrease. From baseline to 2012, there was a 48% reduction for hospital-onset MRSA cases, and a 23% reduction for health care–associated community-onset cases.

For MRSA bacteremia, 1,172 facilities reported in 2012. More than 42 million patient days and 10 million admissions were reported and the SIR was 0.97. The MRSA opportunity for improvement is to expand the prevention efforts to the health care–associated community-onset cases.

For *C. difficile*, 1,679 facilities (49 states plus Washington, D.C., and Puerto Rico) reported more than 55 million facility-wide patient days and more than 12.5 million facility-wide admissions in 2012. The SIR was 0.98, which is different from the increase HCUP has seen in CDIs. The *C. difficile* opportunities for improvement include improving antimicrobial use in the inpatient settings and improving environmental decontamination.

NHSN can automatically receive data from facilities’ electronic health records (EHR) or infection control surveillance system. The file format is called “Clinical Document Architecture” (CDA).

CDC recommends that 2015 be the new baseline year for all HAI Action Plan metrics supported by NHSN.

PLENARY II: UPDATES TO HAI ACTION PLAN METRICS AND TARGETS

Introduction

Yael Harris, Ph.D., Director, Division of Health Care Quality, Office of Disease Prevention and Health Promotion

Dr. Harris thanked all of the Plenary I speakers and introduced Dr. Edwards, who serves as the lead statistician for NHSN at CDC’s Division of Healthcare Quality Promotion. He also serves on CDC’s Statistical Advisory Board and is an adjunct faculty member in the Department of Epidemiology at Emory University’s Rollins School of Public Health.

Additional NHSN HAI Metrics

Jonathan Edwards, Ph.D., Research Mathematical Statistician, Centers for Disease Control and Prevention

Dr. Edwards planned to speak about additional metrics that can be used to address the measurement priorities, specifically focusing on measuring prevention success that identifies opportunities and health care quality performance. He introduced and discussed the cumulative attributable difference (CAD) and the adjusted ranking metric (ARM).

A targeted assessment for prevention is needed. This would include how to prioritize hospitals to meet prevention goals. The SIR can measure progress over time, but is there a more efficient metric? There is also a need to improve fair rankings of hospital performance that includes better accounting for the differences in HAI exposure or opportunity, and promotes prevention through reliability adjustment. The CAD metric can address these needs.

CAD = observed – predicted rates

For instance, a hospital with 7.0 observed infections and 3.7 predicted infections would have a CAD of 3.3. The CAD is flexible in that the predicted value can be changed, reducing by not just the baseline predicted number, but also by multiplying by whatever goal is wanted. For instance, if a goal is a 50% reduction, the predicted number could be multiplied by 0.5 to make a greater gap.

Another example could look like this:

<u>Hospital #1</u>	<u>Hospital #2</u>
40,000 urinary catheter days (UCDs)	2,000 UCDs
$SIR_1 = 122 \text{ observed infections} / 96.7 \text{ predicted infections} = 1.26$	$SIR_2 = 7 / 1.7 = 4.12$
$CAD_1 = 122 - 96.7 = 25.3$	$CAD_2 = 7 - 1.7 = 5.3$

If one looks at SIR alone, it appears that Hospital #2 would be the most prioritized hospital because it has the higher SIR, but by looking at the CAD measurement (the infections prevented if the hospital’s SIR = 1.0), Hospital #1 is five times higher than hospital #2 and this helps prioritize facilities (or locations) where the greatest prevention impact could be achieved.

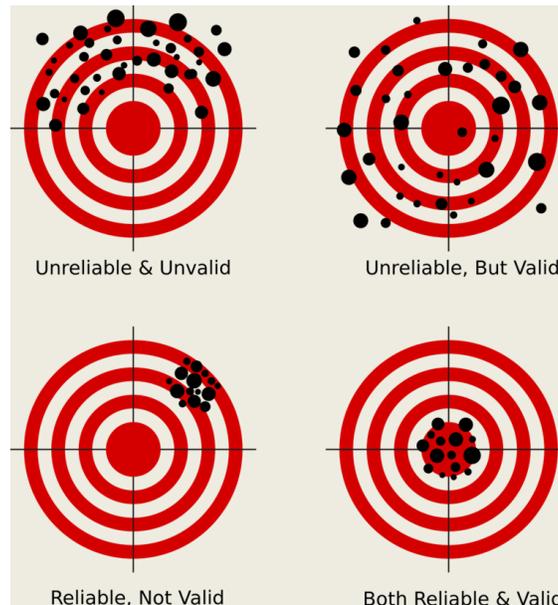
The SIR target for CAUTI is 0.75, or a 25% reduction. If the hospitals targeted for prevention had an SIR significantly greater than 1, and if there were 165 of them, the goal would never be reached. Targeting hospitals by highest device days will require 600 hospitals to reach the goal. Targeting hospitals by highest CAD will require 154 hospitals to reach the goal.

The second metric is ARM. The ARM is adjusted for reliability, and it can be referred to as the reliability adjusted standardized infection ratio (RA-SIR).

Reliability is a measure of precision and is a function of both hospital exposure volume (i.e., sample size, like device days, patient days, or number of procedures, which determines “noise” variation) and the amount of true variation across hospitals (“signal”).

$$\text{Reliability} = \frac{X^2_{\text{signal}}}{X^2_{\text{signal}} + X^2_{\text{noise}}} = \frac{X^2_{\text{between-hospital}}}{X^2_{\text{between-hospital}} + X^2_{\text{within-hospital}}}$$

For example, hospitals with low exposure volume will have lower reliability and need to be weighted towards the mean, whereas hospitals with high exposure volume are more reliable and require less weighting towards the mean. Graphically, it looks like this:



The lower two targets show more precision and greater reliability with their tighter clustering, but the focus should be on if the cluster is near the target (valid) or not.

In 2011, nearly 40% of the hospitals had an SIR of zero for CLABSIs, or no reported infections. But not all of the zeros were equal because it is hard to believe that all of the opportunities for prevention were equal among all of those hospitals. This needs to be addressed in the future.

For example:

Hospital #1	Hospital #2
100 central line days (CLDs)	1,500 CLDs
$SIR_1 = 0 \text{ observed infections} / 0.10 \text{ predicted infections} = 0$	$SIR_2 = 0 / 1.42 = 0$
Upper 95% confidence intervals bound = 26.96	2.11

The upper 95% confidence intervals bound for Hospital #1 is nearly 15 times more than for Hospital #2, thus Hospital #1 has an unreliable and invalid target (see the above target figure) while Hospital #2 has both a valid and reliable target spread. The SIR is much less reliable when a facility has much less exposure compared to a hospital with more exposure. There are different opportunities for HAIs the more exposures there are in a facility; therefore, a metric is needed to take into account reliability.

This table is another example of this:

Hospital	#1	#2	#3	#4
Device days	24,000	4,000	1,400	300
SIR	$39 / 29.3 = 1.33$	$7 / 1.8 = 3.89$	$0 / 2.1 = 0$	$1 / 0.3 = 3.33$
CAD	$39 - 29.3 = 9.7$	$7 - 1.8 = 5.2$	$0 - 1.1 = -1.1$	$1 - 0.3 = 0.7$
ARM	1.22	1.31	0.96	1.01

These four hospitals have a decreasing number of exposures, or opportunity for HAI. Focusing in on high SIRs does not necessarily mean that there is the same impact on the number of infections compared to looking at the CAD to gauge this. If a facility has a high SIR with little chance of exposure, it makes sense to take into account other measurements.

Dr. Edwards concluded his presentation and welcomed questions.

Discussion Highlights

Dr. Edwards spoke about additional metrics that can be used to address the measurement priorities, specifically focusing on measuring prevention success that identifies opportunities and health care quality performance. This can be done with two additional metrics beyond the SIR, and they are CAD and ARM.

CAD = observed – predicted rates

The SIR target for CAUTI of 0.75, or a 25% reduction, would never be reached if the hospitals targeted for prevention had an SIR significantly greater than 1 and if there were 165 of them. Targeting hospitals by highest device days will require 600 hospitals to reach the goal. Targeting hospitals by highest CAD will require 154 hospitals to reach the goal.

Hospitals with low exposure volume will have lower reliability and need to be weighted towards the mean, whereas hospitals with high exposure volume are more reliable and require less weighting towards the mean.

Focusing in on high SIRs does not necessarily mean that there is the same impact on the number of infections compared to looking at the CAD to gauge this. If a facility has a high SIR with little chance of exposure, it makes sense to take into account other measurements.

The second metric is ARM. The ARM is adjusted for reliability, and it can also be referred to as the reliability adjusted standardized infection ratio (RA-SIR).

Reliability is a measure of precision and is a function of both hospital exposure volume (i.e., sample size, like device days, patient days, or number of procedures, which determines “noise” variation) and the amount of true variation across hospitals (“signal”).

Other Discussion Points (Question and Answers)

Rates are much more understandable, so if an R^2 is greater than 90%, should this metric be reported?

Response: Dr. Edwards still thinks there is a role for SIR because it allows the combination of incidence measures across locations. A rate would be obscured if a pooled rate were made for all locations because it would not be as adjusted as the SIR. A rate needs some context because it is hard to know if it is high or not when it is not zero. There is a use for rates, but also for the SIR, and more education is needed about this. Other measures are needed to discriminate the infection experience.

There seems to be too much focus on the SCIP measures that have topped out around 96% because it does not allow for individual customization for surgical prophylactics for unique patients.

Response: Mr. Poyer said that the CMS weighs topped-out criteria to assess variability in hospitals’ performances and solicits comments annually through the rule making process. Two SCIP measures have been retired. The original evidence was demonstrated to clinical outcomes on an aggregate level, not on a hospital level.

Validation needs to be discussed because some attendees have concerns about the quality of the data. In addition, if the purpose is to meet the HAI Action Plan goals, like an SIR of 0.75, then using the CAD or ARM to target those facilities that contribute the most to infections, like higher volume hospitals, may shift resources away from smaller facilities with a low volume and high infection rate. How can this be avoided?

Response: Dr. Edwards agreed that validation is important. Promoting the CAD does not mean that any facility should reduce its efforts to prevent HAIs, but CAD helps determine where to put resources if there are not enough to cover all facilities. The CAD is meant to complement the SIR. There are few cases of facilities with small exposure volumes but a high number of infections, and if this were the case, it should already receive attention to fix the problem.

The CAD measurement can be valuable in the ambulatory surgical settings due to their low volumes.

ARM is understandable, but it has been hard to grasp. Perhaps it would help to use reliability 1 / reliability 2 or signal-to-noise versus reliability.

Response: Dr. Edwards is open to hearing the input and reading the references.

With family members being given complex wound care duties, should this be looked at with regard to its impacts on patients returning to the hospital with HAIs?

Response: Dr. Edwards agreed that this should be done, to the extent that CDC has the data to do so.

The new definitions and baselines in 2015 could make quality improvement difficult “in the trenches” because there is a loss of judging issues over time. Can these changes be modeled to help providers understand what the previous rates under the old definitions would look like under the new definitions, instead of waiting three or four years to understand where the data falls?

Response: NHSN allows old rates to be determined and it may maintain “old” SIRs with the initial baselines so that the data can be seen over time. In these interim years, CDC will try to keep both.

Dr. Dan Pollock, the Surveillance Branch Chief at CDC, mentioned that NHSN’s definitional changes are in response to feedback from frontline practitioners. It is understood that change adds complexity when looking at trends, but the tradeoff is that the communities need to see and have confidence in the measures to drive change.

Dr. Pollock agreed completely about the comment on validation and that its stake increases when it is tied to payment, but validation is expensive. Expansion of NHSN is not cheap; NHSN is glad to provide data for PFP, HENs, QIOs, Hospital IQR, and states, but it requires resources for NHSN to support a system that is expanding exponentially. NHSN has a dedicated team in Atlanta and wonderful hospital partners. Electronic reporting should be emphasized because NHSN wants to reduce the burden of reporting, but this requires investments and engagements. Ambitious goals should be set, but part of these goals should be support for NHSN.

CLASBI has better improvements than CAUTI even though the same individuals work on them in the ICU. Are the process or outcome measures correctly measuring what is being done? Is the definition of CAUTI valid for the improvement process? Should the outcome for CAUTI measure patient harm related to ureter catheter rather than just the infection part?

Response: Dr. Edwards said that, if there can be a collective agreement that it is worth the burden to change the data collection, then it should be done.

A consumer advocate who personally survived multiple HAIs and has had, for the last seven years, three doctor appointments per week, mentioned that she was happy with the progress and changes taking place. A recurring theme she has heard today has been change and the challenge of spread, but change is a specialty unto itself and a challenge for all. Should there be discussion about a “change management toolkit” to be available on a national level?

Response: All presenters agreed it is a great idea.

A consumer advocate who was a nurse and is a survivor of a MRSA victim mentioned that acronyms are hard for consumers to understand and asked for more sensitivity to this. As a patient, rates are more important to her than SIR or other measurements, and she would like to keep these available for consumers so that they can choose wisely.

Response: Dr. Harris mentioned that the hospital-compare website provides rates and is geared toward consumers. It is hard to convey to consumers how rates depend on hospital size, so consumers could suggest ways to convey this more clearly. Dr. Edwards pointed out that SIR does include the number of infections. Rates are good within a context, but if an entire facility's rate is pooled, a consumer cannot distinguish which unit within the hospital has the exposure risk.

As the attendees begin to discuss new goals and consider how the metrics are changing, how much does ICD-10 affect the ability to trend data over time and affect the measures that are based on ICD-9?

Response: Mr. Malpiedi said NHSN's surgical procedure denominators use ICD-9 codes and they are working through options to cross walk to ICD-10 or CPT for surgical procedure codes. Dr. Steiner said that it will have a tremendous effect; HCUP is thinking about the impact and how to do the trending. There will probably be some overlap for a quarter or two, or maybe double coding, but a huge line will be drawn between old and new coding, and how this affects patient care versus data.

INTRODUCTION TO BREAKOUT GROUP SESSIONS AND CHARGE TO THE PARTICIPANTS

Yael Harris, Ph.D., Director, Division of Health Care Quality, Office of Disease Prevention and Health Promotion

Dr. Harris outlined the goals of breakout sessions as follows:

- Discuss the range of targets to consider for 2020. This requires looking at progress to date and considering the issues presented by CDC. How should the bar be moved for feasible and ambitious goals?
- Consider evidence-based strategies to achieve the targets. Listen to the HENs and QIOs for ideas of how they have made progress. How can their efforts be spread across the nation?
- Discuss how surveillance can be used to identify and target special populations. Where are the opportunities within a health care unit, as well as within states and the nation?

Each table will have approximately 10 participants, including a facilitator to capture the major discussion points. Flip charts are provided to capture the major discussions points. At the end, the facilitator will fill out a template to consolidate the main points. These will be used to inform the the Federal Steering Committee for the Prevention of Health Care-Associated Infections.

Tips for discussion:

- Become acquainted with one another
- Take initiative to participate

- Give all participants an equal opportunity to speak
- Be a good and patient listener
- Capture key themes or messages

KEYNOTE ADDRESS: SLOW IDEAS—HOW CAN WE ACCELERATE CHANGE IN PATIENT SAFETY?

Introduction

Don Wright, M.D., M.P.H., Deputy Assistant Secretary for Health, HHS Office of the Assistant Secretary for Health

Dr. Wright welcomed and introduced the keynote speaker, Dr. Atul Gawande. Dr. Gawande knows what it is like to be in the trenches of health care delivery as a general and endocrine surgeon in Boston at Brigham and Women’s Hospital. He is also a strong academician, appointed as associate professor in the Department of Surgery at Harvard Medical School and in the Department of Health Policy and Management at Harvard School of Public Health. On the world stage, Dr. Gawande has served as director of the World Health Organization’s global campaign to reduce surgery deaths. Dr. Gawande has contributed to *The New Yorker* and has had three bestselling books.

Slow Ideas—How Can We Accelerate Change in Patient Safety?

Atul Gawande, M.D., Professor and Surgeon, Harvard Medical School, Brigham and Women’s Hospital, Dana Farber Cancer Institute; Executive Director for the Safe Surgery 2015 Initiative

Dr. Gawande thanked the attendees for having him. He stated his interest in this puzzle on targets and how to achieve them on such a large population basis. One tension seems to be if there are interventions that can achieve any improvements, and another tension seems to be how to scale up changes on a broader basis. Medicine is struggling with having no system at all to standing up systems that provide for levels of safety. It feels less like science and more like guesswork.

Dr. Gawande wanted to talk about how powerful mechanisms of improvement can be slow. To research this, Dr. Gawande looked at how a well-known set of practices were implemented on a large scale to prevent airplane crashes and death.

The moment that aviation began to consider practices was on October 30, 1935, when the Boeing Flying Fortress was to be tested. Boeing and McDonald Douglas were asked to make prototypes for a new long-range bomber and to display them at a flight competition in Washington, D.C. Boeing’s plane was bigger, had four propellers, and flew higher, farther, faster. As it took off to attend the competition, it climbed high, but then crashed. An investigation revealed no mechanical problem, but instead pilot error due to the complexity of the four engines; the pilot forgot to unlock the elevator controls.

Dr. Gawande was interested in what was done and not done about this situation. The aviation community did not apply a set of regulations, did not create a two-year subspecialty fellowship in flying a plane, nor make a pay for performance program, but they did make a checklist.

Dr. Gawande described three types of process improvement. First, the primitive version being to admonish people and say, “You should do X.” Second, the medieval version that says, “You must do X,” with targets, guidelines, incentives, and standards; this works, but it is weak and has a hard time with spread. Then there is the modern version, and this is what the pilots did. By designing a checklist to make sure that nothing was forgotten, pilots started a “new norm,” much like this conference’s attendees are trying to start across medicine.

Dr. Gawande began to look at how aviation implemented this change when the World Health Organization asked his group to look into the reduction of worldwide deaths from surgery. More operations were taking place in the world than childbirth, and many led to complications, infections, or death.

Dr. Gawande’s group talked to the head safety engineer for Boeing and he helped the group understand that inserting a practice into a complex process with many priorities requires thinking of all the priorities. In surgery, one has to think about what is on the mind of the surgical team when a patient is being brought in; issues of infection may pale in comparison to issues of bleeding or an open airway.

Dr. Gawande’s team had to take a systems view when creating interventions. They made “pause points” in surgery when checks are made to catch a mistake before an incision is made. Key elements were embedded into the checklist, like if the team had discussed the surgery, familiarized themselves with each other, and the plan [of care]. This discussion must take place before a surgery and again after the surgery to discuss the patient’s recovery. The checklist has three columns and each column takes 60 seconds to minimize issues in a tight amount of time.

Deciding what to include on the list was not easy; additional steps could have been put into the checklist, like how to prevent fires, but it would have added so much time that it could have hindered the checklist’s adoption.

The checklist was tested on 8,000 patients in eight cities, rich and poor, around the world. The expected reduction in complications was 10%, about half of which were infections. Instead, there was a 35% reduction in complications, 47% reduction in deaths, and about a 50% reduction in SSIs. This showed that a team’s ability to think in a systematic way about what they were doing was as important as if the antibiotic was administered in time.

This study was replicated by a Dutch group who saw similar results while their control group had no improvements. The VA also saw positive results by using the checklist. Dr. Gawande pointed out that “no drug or device has reduced deaths in surgery like this checklist—it has been extraordinary.”

The checklist has since been implemented widely. About 10% to 15% of hospitals in the U.S. were early adopters, but this was semi-wide and not too deep. A company put the checklist on a screen, calling it a “wall of data,” but it was too easy to skip over.

Next, financial incentives to implement the checklist were started by the Washington Hospital Association. All hospitals in the state used the list, but three out of five still did not follow it.

Everett Rogers studied how innovations get adopted. He made an innovation curve that showed innovators, early adopters, middle adopters, and laggards who were late to the game. Media incentives can get people to consider ideas they have not heard of or considered, but whether they adopt it or not depends on if they know others who are doing it. Early adopters have wider networks and are more likely to meet others who have tried an idea. Middle adopters tend to know the early adopters. Later adopters tend to believe that a problem only affects others.

The South Carolina Hospital Association created a collaborative that started to bring people together to accomplish a shared set of goals. Forming implementation teams has been the most effective way to have the checklist adopted in the state.

A team needs to be prepared and have a defined goal of driving adoption. In the case of the surgery checklist, every hospital’s Chief Executive Officer (CEO) would designate a team to drive adoption. The team would make changes where they were needed to fit their facility, identify local champions, and visit doctors one-on-one to say, “Will you help us?” Afterwards, there were feedback loops to determine how well the team performed.

The key aspects that affected a team’s ability to accelerate change were:

- If they had one-on-one contacts
- If they had senior support and Board expectations that aligned with them
- If they had readiness to improve, like previous experience with adoptions processes, or salaried physicians who could spend time on these problems
- If there were supportive processes within the hospital

There is currently an ongoing study with the American Hospital Association to bring the same capabilities into ASCs. In these settings, supportive processes are absent; there is no senior management support at a significant level; they have never done quality improvement before; and, they do not have salaried doctors to do outside work, provide training, etc. There will need to be a backbone built for these structures.

It is not atypical for change to take 14 to 17 years to be adopted. After about 20% adoption, change can become a self-driven process through the critical elements of spreading the word with campaigns or one-on-one interaction.

There has not been enough investment in how to achieve targets. Less investment has been made in how to make the changes implementable in a speedy manner.

Dr. Gawande was grateful to Dr. Wright for asking him to make this presentation. He felt that the attendees are doing important work, looking at how to care about the population and not assume that clinicians are just doing what they need to do. It is often not for lack of will by clinicians, but instead for lack of structure, support, and understanding of how to get where they are going. These are fundamental components of a system that will be more caring, generate better quality for people, and avoid bankrupting the country. The fact that there has been progress over the past five years is why Dr. Gawande was delighted to be presenting.

After the presentation, Dr. Wright opened the floor for questions.

Discussion Highlights

Dr. Gawande learned that inserting a practice, like a step to reduce HAIs, into a complex process with many priorities requires thinking of all the priorities.

Dr. Gawande's team used this theory when they developed a surgical checklist to reduce complications due to surgery. The checklist was tested on 8,000 patients in eight cities, rich and poor, around the world. The expected reduction in complications was 10%, about half of which were infections. Instead there was a 35% reduction in complications, 47% reduction in deaths, and about a 50% reduction in SSIs. This showed that a team's ability to think in a systematic way about what they were doing was as important as if the antibiotic was administered in time.

Forming implementation teams has been the most effective way to have the surgical checklist adopted in South Carolina.

The key aspects that affected a team's ability to accelerate change were:

- If they had one-on-one contacts
- If they had senior support and Board expectations that aligned with them
- If they had readiness to improve, like previous experience with adoptions processes, or a salaried doctor who could spend time on these problems
- If there were supportive processes within the hospital

After about 20% adoption, change can become a self-driven process through the critical elements of spreading the word with campaigns or one-on-one interaction.

Other Discussion Points (Questions and Answers for Dr. Gawande)

What are your thoughts of how the perceived scope of a problem affects the adoption of change? In the ASC setting, the perceived risk for infection seems low—does this have an impact on the adoption curve to reduce HAIs?

Response: Yes, the perception drives how much people are willing to sacrifice for the goal. It is important to think of the whole system so that the aim is not just the infection goal, but making a system that works. A small amount of time invested by ASC teams does not set them back too much, and there have been marked improvements in issues like mandatory overtime and less nurse turnover. If the change is about a rare infection rate, it is not likely to be effective, but if it

is about the overall rate of complications, like patient transfers, changes appear to be more accepted.

Influential peers can provide backbone to a process. ASCs have state associations, surveyors for accreditation, and other thought leaders. Can we think in these terms?

Response: Yes, peers and professional societies can be a component of change implementation, but they are modestly effective and cannot be relied upon alone. It is difficult for facilities to view auditors and regulators as trying to help with improvements. One-on-one interaction has been very effective in the farming community. Hospital associations, ambulatory associations, and surgical center organizations can start to reach out and interact on the ground.

There was a lack of financial incentives on the pilot's checklist, but the outcome measure of the airplane crashing had transparency and financial incentives for Boeing.

Response: It took a long time for pilots to adopt the change due to its culture of invincibility, similar to medicine. Even in the 1980s, some pilots would not use the checklist, but finally enough crashes, particularly a huge one where two planes collided and killed more than 500 people, caused a change in the norm. Pilots had to realize that their own colleagues followed the checklist and that it was not a wimpy thing to do.

The ASC industry has begged for years for CMS to implement a quality-reporting program, which started last October, and for the inclusion of a value-based purchasing program. ASCs have led the way instead of followed in terms of providing good patient care and the data will prove that. The flipside of the lack of a supportive structure around ASCs is that change can occur rapidly because it is a small group.

Response: There is no question that there has been a tremendous amount of innovation in the ASC setting. Many of the outcomes discussed are invisible to everyday ASC life and cannot be perceived—that is why it is difficult to make changes in these centers. Because they are smaller, ASCs can probably be faster.

Can you comment more on simplicity for innovations, and how a plethora of literature can be synthesized into a simple tool?

Response: Rogers discussed the idea that, where perception of value is low, the insertion of complexity slows down adoption even more. Safety and prevention has a low perception value because of its delayed gratification. Yes, there is value to attacking an issue with four or five items that can be successfully implemented versus trying to change everything. How difficult something is to pull off also depends on the supportive structure. Simplicity is fundamental and that depends on if people instantly perceive the value or not.

Have you found senior leadership to be a roadblock to change? What is your experience for implementing the soft and the hard parts of checklist?

Response: The results showed a linear relationship between a facility's change in safety culture and their change in complications. It is challenging to foster teamwork—do two people stop and talk, can a nurse feel safe to speak up about concerns? That safety culture component is a huge part, but there has been a culture shift and the team environment is bigger. Senior leadership in France did not think introductions among employees were needed, but we encouraged it—it was a hard sell. Soft parts of change are difficult to engage with those who are just thinking of trying to push goals through and to get X and Y done.

Dr. Wright thanked Dr. Gawande for his presentation. Dr. Wright stated that Day Two will move from acute care hospitals to ASCs, ESRD facilities, and LTCF.

**Department of Health & Human Services
Office of the Assistant Secretary for Health**

**Road Map to Eliminate HAI:
2013 Action Plan Conference**

**U.S. Institute of Peace
Washington, D.C.
September 26, 2013**

DAY TWO: WELCOME

Carter Blakey, Deputy Director, Office of Disease Prevention and Health Promotion

Ms. Carter Blakey welcomed everyone back for the second day of the conference.

On Day One, the focus was on the acute care setting. Numerous federal agencies presented progress to date and explored the use of surveillance data to measure progress and trend outcomes.

Day Two's focus was on ambulatory and long-term care settings. Federal representatives from CDC, CMS, AHRQ, the Office of the National Coordinator for Health Information Technology (ONC), and the Office for Disease Prevention and Health Promotions presented information.

The conference coordinators wanted to hear the attendees' input to move forward, especially for how to address the new measures that were proposed in the revised HAI Action Plan.

The day would end with a presentation by Lisa McGiffert, Director of the Consumers Union Patient Safety Project.

Dr. Harris followed with a brief overview of Day One's breakout sessions.

DAY ONE BREAKOUT SESSION RECAP

New 2020 HAI Goals and Target Setting Methodology: Phase One Acute Care Hospitals

Yael Harris, Ph.D., Director, Division of Health Care Quality, Office of Disease Prevention and Health Promotion

Dr. Harris described Day One as “quite productive.”

Summaries and discrepancies of the breakout groups were as follows:

CAUTI

There was a range of targets from 10% to 75% reduction, with the majority between 10% and 25%.

There was a suggestion to add a ureter catheterization ratio, broken down by ICU and non-ICU. The group also considered how the definition for CAUTI can be standardized and if the NHSN definition should include yeast.

Key opportunities to reduce CAUTI were:

- Applying systematic approaches across all units
- Creating culture change and teamwork
- Decreasing unnecessary placement
- Stopping standing orders to catheterize
- Educating patients who ask for a catheter
- Reducing time of catheterization
- Increasing awareness of the problem during transition of care
- Returning results of surveillance back to the health care team so that an accurate comparison among hospital types can take place
- Focusing more on CAUTI in older adults and those with spinal cord injuries

CLABSI

There was agreement that the measure should be stratified by ICU and ward. The reduction should be 50% from baseline. There can still be gains by spreading improvement procedures, but only so much can be done. Mucosal barrier injuries (MBI) should be reviewed.

Key opportunities to reduce CLABSI were:

- Reducing the use of central lines
- Removing lines early, when possible
- Increasing training on maintenance bundles
- Identifying an accountable person for percutaneous inserted central catheter lines or for patients being submitted with a line
- Increasing infection prevention staffing

CDIs

The groups decided to bring CDI hospitalizations and infections together. The target varied from 30% to 50% reduction from baseline.

Key opportunities to reduce C. difficile were:

- Clarifying the effectiveness of prevention strategies
- Developing methods to better assess antibiotic use
- Understanding *C. difficile* across the continuum of health care
- Improving prevention efforts in the non-acute setting

Invasive MRSA

This category was broken down into three topics:

The health care–associated MRSA reduction consensus was 35% in the morning session and 75% reduction in the afternoon session.

The hospital-onset MRSA reduction consensus was 65% to 100%.

The health care–associated community-onset reduction consensus was 50 to 60%.

The breakout groups suggested that a new measure is needed for community-based MRSA and stratification of the topics could allow for more ambitious target setting.

Key opportunities to reduce MRSA were:

- Focusing on hygiene decolonization
- Increasing staff training
- Getting a better understanding as to how and where MRSA is acquired outside of the hospital
- Increasing engagement of outside agencies like faith-based organizations
- Enhancing training to prevent MRSA in nursing homes

MRSA Bacteremia

The reduction target ranged from 10% to 75%, with the majority selecting 30% to 50%. The strategies for this were similar to invasive MRSA.

SCIP

There was strong support for retiring these measures. Another suggestion was to revise, expand, and adopt new measures like new case types, outcome measures, or process measures. Another suggestion was to take all of the SCIP resources and redirect them to data validation.

SSI

Half of the attendees suggested a 50% reduction and half suggested a 75% reduction.

Key opportunities to reduce SSIs were:

- Using oral antibiotics
- Cleansing the bowel prior to colorectal surgery
- Decolonizing before implantation
- Tiering target ranges based on a facility's performance

- Partnering with professional organizations to develop more refined surveillance definitions
- Using checklists and bundles
- Supporting culture change by sharing patients’ stories to motivate best practices

KEYNOTE ADDRESS: HEALTH CARE SYSTEMS APPROACH FOR REDUCING HAIs—THE HCA JOURNEY, VERTICAL to HORIZONTAL

Introduction

Yael Harris, Ph.D., Director, Division of Health Care Quality, Office of Disease Prevention and Health Promotion

Dr. Harris introduced Dr. Edward Septimus who would next speak about how the Hospital Corporation of America (HCA) moved from a vertical to a horizontal system by redesigning their health care systems.

Dr. Septimus has a wide range of experience; he is the Director of Infection Prevention and Epidemiology Clinical Services with the HCA, a faculty member at Texas A&M Medical School, and a distinguished Senior Fellow at George Mason University’s School of Public Health. Dr. Septimus served on the Board of Directors of the Infectious Diseases Society of America and is on their Quality Improvement Task Force Antimicrobial Resistance Work Group.

Health Care Systems Approach for Reducing HAIs—The HCA Journey, Vertical to Horizontal

Edward Septimus, M.D., Medical Director, Infection Prevention and Epidemiology, Hospital Corporation of America

Dr. Septimus dedicated this presentation to the many men and women with whom he has worked over the last five years. HCA, where he has worked since 2008, has taken a systems approach to reduce HAIs, going from a vertical to a horizontal approach.

HCA is the largest private health care organization in the world. It has about 170 hospitals in 20 states, accounts for about 5% of hospital visits, employs 45,000 affiliated physicians, and has about 40,000 licensed beds.

There are two types of infection prevention approaches:

1. *Vertical*: Substantially reduces a specific pathogen and entails active surveillance, contact precautions, decolonization, and vaccination.
2. *Horizontal*: Substantially reduces all infections and is not pathogen specific. This entails standard precautions like cough etiquette, environmental cleaning, antimicrobial stewardship, bundles of care, chlorhexidine gluconate (CHG) bathing, and behavior modification.

The ABCs for HCA's MRSA solution were:

- Active surveillance of high risk patients
- Barrier precautions
- Compulsive hand hygiene
- Disinfections/environmental cleaning
- Executive championship where CEOs were held accountable for the implementation of projects

From the ABCs program, there were significant decreases in MRSA, CLABSIs, and pneumonias.

The same ABCs acronym was used for the *C. difficile* programs, except the A stood for "antimicrobial stewardship." This resulted in a decrease in CDIs.

Influenza vaccinations were next, including Dr. Septimus's vaccination. In 2007 and 2008, HCA had a 58% employee vaccination compliance rate when they decided to institute a mandatory patient safety program. Employees could opt out, but if they did, they had to wear a mask when they were within six feet of patients. The main reason employees opted out was for philosophical reasons, but the clinical frontline workers have had a vaccination rate of more than 90% for the past three years.

In 2010, HCA instituted "Aim for Zero" to reduce CLABSIs:

A = antimicrobial stewardship

I = insertion bundles

M = maintenance bundle practices including timely removal

They wanted a zero tolerance culture for CLABSIs, emphasizing maintenance bundles and insertion bundles in all parts of the hospital. They also ensured that there was competency among physicians and non-physician staff. This received pushback, but strong leadership was needed. The EHR that nurses use highlights maintenance and removal elements, including the "scrub the hub" issue. Nurses have to document line maintenance and explain why a line is still needed.

In 2010, Dr. Septimus realized that there was a steep drop in all HAIs because the ABCs were horizontal interventions instead of vertical interventions. Just emphasizing the importance of basic infection prevention practices improved infections for all pathogens.

HCA hospitals are involved in multiple clinical studies. In June 2013, the *New England Journal of Medicine* published the article "Targeted versus universal decolonization to prevent ICU infection" by Susan S. Huang, et al. This article reported a three-arm randomized cluster trial: Arm 1 was routine care (ABCs and screen and isolate), Arm 2 was targeted decolonization (screened all patients; isolated patients with MRSA), and Arm 3 was universal decolonization (no screening; isolated patients with MRSA). This 18-month intervention involved 43 hospitals,

42 of which were community hospitals. The result was that Arm 3, a horizontal approach, was superior to Arm 2, a vertical approach.

Another clinical study is the STOP SSIs Project, the Study to Optimally Prevent SSIs in select cardiac and orthopedic procedures. The focus is on MRSA and methicillin-susceptible *Staphylococcus aureus*. Twenty HCA facilities are still in this trial. An interim analysis has been done, and if the good results hold, it will show the value of doing a best practice algorithm of bundle practices.

The ABATE Infection Trial is starting soon. ABATE stands for Active Bathing to Eliminate Infection, and it is being done with non-critical care patient wards. The lessons learned from the universal decolonization in the ICU study will be applied to non-ICU settings. This will be complex to implement because non-ICUs are not as structured as ICUs. This will be a two-arm cluster randomized trial with 55 HCA hospitals. The intervention units include daily CHG showers and Mupirocin to treat patients with MRSA. The control group will be routine showering or bathing.

Dr. Septimus discussed how HCA has reduced HAIs. Corporate departments and elements working on this include quality and risk management staff, an infection prevention team, an information technology (IT) interface, pharmacy and laboratory departments, and a clinical excellence team with physicians and Chief Nursing Officers working in concert with the supply chain.

HCA uses standardization with their IT system. A theradoc [clinical intelligence] platform is used for infection prevention, Lawson captures immunizations, and evidence-based order sets and computerized physician order entry are used to match the best level of science. HCA also has systems for Meditech reporting and compliance, and systems for computer-based training and querying. Finally, there is a requirement to use products that HCA approves.

Each year HCA revises its strategic visions to decide which campaigns to pursue. They look at evidence, urgency, impact, and public reporting. Senior leadership weighs the current project and looks at capacity and resources that cannot be spread too thin. The team's philosophy is that there is no business case without quality; improving quality can decrease costs.

HCA has a strong accountability structure from the CEOs to the Chief Medical Officers. The Board looks carefully at quality, patient safety, and public reporting.

Implementation is key. It involves the frontline health care workers; do not design something for them without understanding their workflow. HCA engages senior executives who meet with teams regularly, and it uses toolkits and resources on Atlas to standardize best practices while allowing for local culture and resources. Gap analyses are done before projects to identify competences, resources, and leadership. Leadership includes physicians who are respected, can communicate well, and who know the evidence. The executive champion sets the hospital's vision and goals. HCA prioritizes action plans with a timetable signed by a local CEO. Pilot tests are done before a kickoff, at which time there are webcasts, workshops, continuing medical

education, and other communication plans. Coaching calls address the needs of the local facility, and there are follow-up division and site visits.

When HCA selects an academic or public partner, they look for a shared vision and priorities, mutual respect, complementary strengths, teamwork, and communication.

It is imperative to understand culture before prevention measures can be implemented. Understanding culture improves teamwork, effectiveness, and sustainability. Culture is independent of resources. An indicator of culture is the turnover rate; if it is high and workers are unhappy, sustainment is hard.

Dr. Septimus has found that a contextual journey works well to implement change. This entails first observing the frontline to gain an understanding from the inside out. A problem can be fixed by observing for understanding more than observing for compliance. If someone is not complying, ask why. Make it easier for everyone to do the right thing. Insiders can provide their own solutions; when they own their policy, they are more likely to comply with it. This is similar to positive deviance.

A survey found that infection preventionists were indeed paying greater attention to HAIs due to the CMS's program, but at the cost of less focus on non-targeted HAIs. For this reason, Dr. Septimus believes a horizontal approach is better than a vertical one.

Dr. Septimus considered the following to be key strategies for success:

- Clinical care and patient safety has to be a core competency that is relentlessly pursued.
- Clinical care and patient safety needs to be nurtured by executive leadership across the continuum of care.
- Patient safety is everyone's responsibility; everyone needs to speak up when they see violations.
- Implementation of evidence-based strategies is a must.
- Do not rely too much on technology; let it be an enabler, not a driver.
- Improvement of the safety and teamwork culture is critical. Collaboration and teamwork at all levels should generate light, not heat.
- Share learning, be a good listener, and involve the frontline health care workers.
- Do small tests of change.
- Celebrate success that is defined, measured, and rewarded.
- Use reliable data to assess impact and to provide feedback to clinicians.

Dr. Septimus thanked numerous colleagues with whom he has worked on many projects.

In closing, Dr. Septimus quoted Goran Henriks, stating that people change because of love for something and a deep emotional involvement. The best incentive for employees is being the best. The burning platform is always inside people. Motivation to improve comes from knowledge and inspiration, not from orders.

Discussion Highlights

The HCA, where Dr. Septimus has worked since 2008, has taken a systems approach to reduce HAIs, going from a vertical to a horizontal approach.

Vertical approach substantially reduces a specific pathogen and entails active surveillance, contact precautions, decolonization, and vaccination. In contrast, a horizontal approach substantially reduces all infections and is not pathogen specific. This entails standard precautions like cough etiquette, environmental cleaning, antimicrobial stewardship, bundles of care, CHG bathing, and behavior modification.

After implementing multiple basic infection prevention practice campaigns, in 2010 Dr. Septimus realized that there was a steep drop in all HAIs because the ABCs were horizontal interventions instead of vertical interventions. Just emphasizing the importance of basic infection prevention improved infections for all pathogens.

HCA hospitals are involved multiple clinical studies and very good results from one were published in June 2013 in the *New England Journal of Medicine* article “Targeted versus universal decolonization to prevent ICU infection” by Susan S. Huang, et al.

Dr. Septimus discussed how HCA has reduced HAIs. Corporate departments and elements working on this include quality and risk management staff, an infection prevention team, an IT interface, pharmacy and laboratory departments, and a clinical excellence team with physicians and Chief Nursing Officers working in concert with the supply chain.

Implementation is key. It involves the frontline health care workers; do not design something for them without understanding their workflow. It is imperative to understand culture before prevention measures can be implemented. This entails first observing the frontline to gain an understanding from the inside out. A problem can be fixed by observing for understanding more than observing for compliance.

Dr. Septimus considered the following to be key strategies for success:

- Clinical care and patient safety has to be a core competency that is relentlessly pursued.
- Clinical care and patient safety needs to be nurtured by executive leadership across the continuum of care.
- Patient safety is everyone’s responsibility; everyone needs to speak up when they see violations.
- Implementation of evidence-based strategies is a must.
- Do not rely too much on technology; let it be an enabler, not a driver.
- Improvement of the safety and teamwork culture is critical. Collaboration and teamwork at all levels should generate light, not heat.
- Share learning, be a good listener, and involve the frontline health care workers.

- Do small tests of change.
- Celebrate success that is defined, measured, and rewarded.
- Use reliable data to assess impact and to provide feedback to clinicians.

Other Discussion Points (Questions and Answers for Dr. Septimus)

Did the study look at certain resistance and other infection issues?

Response: Dr. Septimus stated that there will be additional papers coming out from one of his studies. One paper will report on blood culture contamination rates and another paper will look at CHG and mupirocin resistance. A third paper will report on UTIs, and a fourth will report on cost effectiveness.

What do you tell executives is a reasonable amount of resources for quality and improvements?

Response: A guidance document describes minimum infection prevention standards and staffing levels.

There needs to be enough bedside caregivers to follow recommendations, and they need to be used to their highest capabilities and not for other jobs, like cleaning. Someone who has just cleaned a toilet should not change a person’s dressing. This seems like a misuse of talent. Also, there does not seem to be much attention given to patients’ suggestions to fix HAI problems.

Response: Some HCA facilities have patients on their safety committees. I agree with not using nurses for cleaning. It is called “nurse creep” where nurses do more than they should; their time should be for patient care.

A state health department official stated that they take a strategic, evidence-based, value-add approach to their role, but there is concern about laws. What has HCA done to address legal issues when working with partners?

Response: It is important to work with the health departments as an umbrella to tackle community issues and tasks, and not to duplicate efforts.

Do you have the staffing guidance document available publicly?

Response: It is not public, but I am happy to share it with you.

The vertical approach showed a decline in MRSA—can the same vertical approach be used to screen all bacteria in a hospital? Would it cost too much?

Response: Vertical versus horizontal applies to day-to-day operations, not to outbreaks. In our ICU trial, the arm that stopped screening all together was better than the other arms. CHG may be the backbone of this because it reduces bio-burden on patients, the environment, and personnel, and it affects all pathogens (horizontal), not just one in particular. Active surveillance for all organisms, except in outbreaks, is probably not indicated.

PLENARY III: 2012 AMBULATORY SURGICAL CENTERS DATA UPDATES FOR PHASE TWO HAI ACTION PLAN GOALS

Introduction

Joe Perz, Dr.P.H., M.A., Ambulatory Surgical Centers Working Group of Federal Steering Committee for the Prevention of HAIs Co-chair, Centers for Disease Control and Prevention

Dr. Perz welcomed the attendees and said that he would provide updates for the ASC Chapter of the HAI Action Plan.

There are two fundamental truths about ASCs. First, ASCs are dealing with a diverse and heterogeneous setting where a variety of procedures do not have clear surveillance definitions. Secondly, ASC patients are transient in nature and are normally seen once, like for a colonoscopy. If an infection develops weeks later due to an ASC procedure, it is difficult to link it to the ASC. A 2009 Government Accountability Office article mentioned these two truths.

ASCs are CMS-certified centers that provide surgical services to patients who do not require hospitalization and who are not expected to stay in the surgical facility more than 24 hours. There are more than 5,300 ASCs in the U.S., and they are under a CMS construct that relates to payment.

Accreditation for ASCs is separate from CMS certification, and it is not a baseline. In 2007, there were more than 6 million procedures performed at ASCs and taxpayers paid for most of them. Seventy percent of ASC claims are for endoscopies, eye procedures, and spinal/lower back injections. SSI definitions do not apply to many of the procedures done at ASCs, and ASCs have less support for EHRs.

ASCs were selected as part of Phase Two of the HAI Action Plan. An interagency group was formed that included CMS, CDC, AHRQ, and IHS. The group has listened to stakeholders. Its remaining HAI prevention needs are to sustain and expand improvements in oversight and monitoring, develop a proactive culture for prevention at the clinic level, and develop meaningful HAI surveillance and reporting procedures.

ASCs are surveyed with Conditions for Coverage to measure compliance. They have to maintain an infection control program that is based on guidelines and entails designating infection control preventionists and actively preventing HAIs. ASCs are surveyed every three or four years and this has resulted in a four-fold increase in the number of surveys identifying deficient practices.

Dr. Perz introduced Dr. Battles who discussed the ASC Chapter's next steps.

HAI Prevention

Jim Battles, Ph.D., Social Science Analyst for Patient Safety, Agency for Healthcare Research Quality

Dr. Battles welcomed the group and introduced himself.

The next steps outlined for the ASC Chapter are to concentrate on prevention activities and reporting activities that include process measures, quality measures, and outcome measures. The fundamental principles to proactively prevent HAIs include:

- Disseminating evidence-based guidelines and training materials
- Identifying opportunities for HAI risk reduction through improvements in process of care
- Developing and promoting a patient-centered culture of safety
- Adapting the AHRQ Medical Office Survey on Patient Safety Culture for ASCs

The chapter wants to develop an action program called “AHRQ’s Safety Program for Ambulatory Surgery.” The motto is, “Our aim is zero.”

Analysis was conducted on SSIs following ambulatory surgery. Eight states and eight surgeries were chosen, and the analysis included 264,901 surgeries. Readmissions 14 and 30 days after ASC surgery were studied, and it was found that the overall rate of SSI post-ambulatory surgery was 4.79 per 1,000 surgeries at 14 days, and 7.22 at 30 days. All-cause revisit rates were 49.99 per 1,000 surgeries at 14 days, and 77.30 at 30 days.

The chapter’s safety program will use the fundamental principles from CUSP, but modify them for ASC. They plan to create a new survey to measure the patient safety culture in ASCs, and CMS will develop a patient experience of care instrument; both of these surveys will be tested in spring 2014. Dr. Battles is interested to see the patient’s experience of care in ASCs because patients are ASC’s only link to continuity of care.

The recruitment for this study is being phased in and engages with HENs and QIOs. Two cohorts have been recruited, resource materials have been developed, and new standard operating procedures are being developed. Dr. Gawande is the surgical champion and content leader on this project.

Process and Quality Measures

James (Jim) Poyer, M.S., M.B.A., Director, Centers for Medicare & Medicaid Services

Mr. Poyer planned to discuss the ASC Chapter’s reporting activities for process and quality measures in the Action Plan.

By December 31, 2013, the chapter is due to develop a plan for analysis of process measure data that was collected through the ASC inspections care worksheets, and disseminate the findings. The data from FY 2010 and 2011 has been collected and analysis has begun. Data collection from FY 2013 is nearly complete, and FY 2015 is the next anticipated round.

The quality measures will be identified by December 31, 2013. These will include serious reportable events and SCIP measures that have not been National Quality Forum-endorsed. New

measures, an established timeline, and methods for adoption and implementation will also be identified by the end of the year.

Six ASC quality collaboration-sponsored measures have been identified, five of which are already reported to CMS. Two percent of applicable payment is linked to quality reporting. Most ASCs have reported the data and the first payment determination will come out soon. The data should be posted on CMS website in late 2014 or 2015.

ASCs will also participate in the CDC-sponsored Influenza Vaccination Coverage among Health Care Personnel. Data collection will begin October 1, 2014.

The ASC Chapter plans to improve and expand quality measures with potentially reporting ASC infection control worksheet measures or metrics based on a facility's self-audit. They may also adapt, when applicable, CMS SCIP for procedures; this would be challenging due to the nature of ASC surgeries.

There is also the potential for additional measures like reprocessing endoscope and other equipment, educating staff and/or patients, and creating a safety culture. CMS can ask patients about their care. Stakeholder involvement and working with Ambulatory Surgical Center Quality Reporting and the National Quality Form are also ways that ASCs may improve and expand their quality measures.

Outcome Measures

Dan Pollock, M.D., Surveillance Branch Chief, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention

Dr. Pollock planned to talk about NHSN's plans to expand reporting.

This new component should be introduced in 2015, but along the way, NHSN is introducing a measure of health care worker vaccination coverage in ASCs beginning in the 2014 influenza season. CDC is working with CMS to recruit up to 6,000 ASCs in time to begin the influenza reporting.

The component NHSN is developing will include three parts: same-day events, SSIs, and early returns to health care following outpatient procedures. NHSN is to enable reporting for all patients regardless of their payer status. It will be a Web-based interface for manual input, as well as an electronic reporting solution.

NHSN is collaborating with Dr. David Shapiro and the ASC Quality Collaborative.

Concerns exist that some patients return to early health care following ASC procedures, but the exact number is not known. It could be that ASCs are leaders in quality of care, but more surveillance data is needed to substantiate that.

A new NHSN component is being developed by an epidemiologist who is also the lead to develop training efforts and to analyze the data. Dr. Ryan Fagan is leading the ASC component and he has reached out to ASCs and state health departments.

About 280 ASCs currently report to NHSN. It may be generalizing to state this, but the seven states that mandate SSI surveillance have seen a low yield for some of their investment because the HAIs have a low infection rate and due to the challenge of follow-up with ASC patients.

NHSN will add to the new component “returns to health care” for all ASC procedures. This may be done with insurance claims data to avoid the manual process of tracking down patients. This will be an ambitious effort for NHSN, but Dr. Pollock thinks it will be feasible with the Medicare population.

NHSN’s new component will initially be limited to ASCs, but it may extend to hospital outpatient departments in the future.

Outcome Measure

Joe Perz, Ambulatory Surgical Centers Working Group of Federal Steering Committee for the Prevention of HAIs Co-chair, Centers for Disease Control and Prevention

A third part of the outcomes measure was in the HAI Action Plan. It relates to reporting of notifiable diseases and identifying potential outbreaks. This issue came back repeatedly in stakeholder comments. This effort depends on individual state health departments to reach out to their own ASCs.

Dr. Perz looked forward to the breakout sessions to discuss more methods and measures for the ASC patient population.

Discussion Highlights

There are two fundamental truths about ASCs. First, ASCs are dealing with a diverse and heterogeneous setting where a variety of procedures do not have clear surveillance definitions. Second, ASC patients are transient in nature and are normally seen once, like for a colonoscopy. If an infection develops weeks later due to an ASC procedure, it is difficult to link it to the ASC.

ASCs were selected for Phase Two of the HAI Action Plan. An interagency group was formed that included CMS, CDC, AHRQ, and IHS.

The next steps outlined for the ASC Chapter are to concentrate on prevention activities and reporting activities that include process measures, quality measures, and outcome measures.

The chapter’s safety program will use the fundamental principles from CUSP, but modify them for ASC. They plan to create a new survey to measure the patient safety culture in ASCs, and CMS will develop a patient experience-of-care instrument; both of these surveys will be tested in spring 2014.

By December 31, 2013, the chapter is due to develop a plan for analysis of process measure data that was collected through the ASC inspections care worksheets, and disseminate the findings. The quality measures will be identified by December 31, 2013.

Six ASC quality collaboration-sponsored measures have been identified, five of which are already reported to CMS. Two percent of applicable payment is linked to quality reporting. The data should be posted on CMS website in late 2014 or 2015.

The CDC will develop a new NHSN component that should be introduced in 2015, and it will have three parts: same-day events, SSIs, and early returns to health care following outpatient procedures.

NHSN is introducing a measure of health care worker vaccination coverage in ASCs beginning in the 2014 influenza season.

A third part of the outcomes measure relates to reporting of notifiable diseases and identifying potential outbreaks.

Other Discussion Points (Questions and Answers)

Nice data was presented about the volume of procedures in ASCs. Is there a sense of the volume, like for endoscopies and injections that are paid for by Medicare in non-certified facilities?

Response: Dr. Perz has not seen analysis about this, but it should be considered. Equal concern should be put on a procedure despite it being done in a hospital or an ASC. One of the next steps is to consider how to bring similar attention to HAI prevention in other offices. Mr. Poyer said that CDC recognizes the applicability to other settings. The challenge is how to operationalize a measure applicable to the documentation in a physician's office, an ASC, and a hospital outpatient department, but CDC is trying to get there.

CMS has the data to see where the procedures are being performed based on billing. For the attendees trying to set targets, CMS also has the data to create a longitudinal file by patient as was done at the New York State Department of Health. That same data should be provided for ASC patients to more efficiently target efforts in the future.

Response: There was no response from the panel.

ASCs began reporting in August 2013 two other elements to Quality Net and one of these relates to volume. Although the statistics report Medicare payment, relatively few of these make up ASC patients. ASCs are paid from Medicare about \$0.50 on the dollar; all of the same work done in a hospital outpatient department is paid double what ASCs get paid. ASCs are also constrained in terms of what they can do with Medicare patients due to an approved Medicare list. More complicated procedures are being done outside of Medicare patients and reporting of all patient volume, not just CMS Medicare patients, will generate this data. Please keep this in mind during the breakout sessions. The use of a surgical checklist will also be reported by ASCs.

Response: Dr. Perz thanked the speaker for his good points.

Much of the data some providers would like to see could be captured efficiently through electronic reporting. Why is it taking years for this obvious fact?

Response: Mr. Poyer stated that Congress mandated incentives for eligible hospitals and professionals, not for ASCs. Essentially, CMS can only implement what is statutorily required. Dr. Pollock pointed out that the same situation extends to ESRD and LTC facilities.

Dr. Wright thanked the panel for their presentation.

PLENARY IV: 2012 END-STAGE RENAL UPDATES FOR PHASE TWO HAI ACTION PLAN GOALS

Introduction

Indira Jevaji, M.D., End-Stage Renal Disease Working Group of Federal Steering Committee for Prevention of HAIs Co-chair, Centers for Medicare & Medicaid Services

Dr. Jevaji welcomed everyone and introduced herself. She thanked her ESRD panel and her CMS colleagues for their outstanding work. She said that the plenary will start with Dr. David Hunt, who will discuss his vision for interoperability. Next, Dr. Priti Patel of the CDC discussed measures, and Dr. Jevaji finished the plenary discussing metrics.

Dr. Jevaji introduced Dr. Hunt, Medical Director of Patient Safety in the Office of the National Coordinator for Health Information Technology (ONC). Dr. Hunt works to ensure that the policies, programs, and priorities remain relevant to practicing providers while the promises of health IT are equitably maintained. He combines years as a practicing surgeon and leader in surgical quality and patient safety with hands-on experience at all levels of IT from programmer to systems analyst and software developer. From 2002 to 2007, Dr. Hunt led patient safety and surgical quality programs at CMS. He is certified by the American Board of Surgery and has been a Fellow of the American College of Surgeons since 1993.

Vision for ESRD Program on Data Interoperability

David Hunt, M.D., Medical Director of Patient Safety in the Office of the National Coordinator for Health Information Technology, U.S. Department of Health and Human Services

Dr. Hunt mentioned that he was asked to provide context for the role of health information exchange in the larger discussion of ESRD and HAIs.

He thanked Mr. Poyer for pointing out to a previous questioner who asked with regards to electronic reporting, “Why can the obvious not be done?”, that HHS is bound by the limitations of the statutes that authorize incentives, and incentives are the drivers for so much. That question can be applied to many legislative activities.

Dr. Hunt felt that ONC’s work is foundational and that it will take time to mature, but it is important to the transformation of care and hopefully marked by the fluidity of information.

Sophisticated IT can collect, collate, and exchange the thousands of data points that are needed for that transformation. HHS has to keep up with policies, measures, and targets. The tools to meet these demands are beginning to keep pace.

The eHealth webpage on CMS's website is a good example of one of the principal strategies for information exchange and interoperability. It should leverage government as a platform to create the conditions for interoperability, but not everything can be done and one size does not fit all.

Interoperability needs in ESRD, or any clinical area, require well-defined values that can be coded and formatted to move seamlessly in and out of information systems. ONC will need services to locate, transport, and secure information.

The clinical community can no longer ask if, but when, they will need to adopt EHR. Attendees need to understand that, as they discuss how standards will meet a particular data point, they will not get everything they want because no one has thus far. The idea is for all clinical entities to use the information they can to make point-of-care decisions.

Hippocrates of Kos said, "As to diseases make a habit of two things—to help, or at least, to do no harm." Dr. Hunt said that this is the fundamental principle that has guided the development of ONC's measures and almost all of HHS's work.

Dr. Hunt introduced Dr. Patel, a medical officer who serves as the dialysis activity leader within the Division of Healthcare Quality & Promotion at CDC. She completed her internal medicine residency at the Hospital of the University of Pennsylvania, and then served as an Epidemic Intelligence Service officer at CDC. She subsequently completed a preventive medicine residency at CDC and the Maryland Department of Health and Mental Hygiene. In her 11 years at CDC, Dr. Patel has supervised multiple outbreaks of health care-related infections and other adverse events in dialysis centers, and has authored more than 50 peer-reviewed journal articles, book chapters, and other scientific publications. Dr. Patel is also a co-founder of CDC's Dialysis Bloodstream Infection Prevention Collaborative.

ESRD Measures: NHSN

Priti Patel, M.D., Dialysis Activity Leader, Division of Healthcare Quality and Promotion, Centers for Disease Control and Prevention

Dr. Patel planned to discuss the measures in the HAI Action Plan for ESRD for which NHSN has been designated the data source. The NHSN measures include facilities reporting to NHSN; all BSIs, stratified by vascular access type; access-related BSI, stratified by access type; and screening for hepatitis C virus (HCV) antibody (although NHSN was not designated the data source for this). The HAI Action Plan's start date was 2010 and the five-year target is 2015.

In 1999, CDC began the Dialysis Surveillance Network, the precursor to NHSN that started in 2006. In October 2011, about 250 dialysis centers were enrolled in NHSN and about 180 were actively reporting. Dialysis centers are in a different place for HAI surveillance compared to acute care centers, and they do not know as much about the preventability of some infections.

In November 2011, the CMS ESRD QIP was released, and this incentivized facilities to enroll in NHSN. Dedicated staff pushed enrollment in NHSN, conducted numerous in-person trainings, and worked closely with large dialysis organizations and networks. CDC hosted a train-the-trainer meeting, and they have a division-wide working group that addresses policy issues, communications, NHSN infrastructure, development, and more. This has been no small undertaking.

The five-year target is to have $\geq 90\%$ of ESRD facilities reporting to NHSN. In early 2013, about 5,400 facilities (91%) met CMS enrollment and reporting requirements, so the target has been met. There was a dramatic rise in enrollment when the QIP rule was released in November 2011.

NHSN is using 2013 data for baseline because data prior to 2012 lacks representativeness due to a small number of reporting facilities. However, there are concerns about the 2013 data because most facilities reporting were new to NHSN, new to applying NHSN definitions, or even new to using a system. Also, about two-thirds of facilities reported their 2012 data in 2013. Establishing new data collection takes time, as does assuring the quality of the data being reported.

The first baseline year for BSI measures is expected to be 2014. Prevention is likely taking place now and CDC plans to use a reliability-adjusted SIR, not crude rates, and this is different from the HAI Action Plan.

The additional measure is the number of facilities following CDC-recommended HCV screening of hemodialysis patients; its target is $\geq 70\%$. Of the 5,666 in-center hemodialysis facilities NHSN surveyed in 2012, only 16% perform HCV antibody screening every six months, so CDC will continue to work with CMS on this issue.

ESRD Measures: CROWNWeb

Indira Jevaji, M.D., End-stage Renal Disease Working Group of Federal Steering Committee for Prevention of HAIs Co-chair, Centers for Medicare & Medicaid Services

Dr. Jevaji presented the remaining metric of the HAI Action Plan, CROWNWeb (CW). CW serves as a Web-based patient registry for the ESRD community. It allows CMS and ESRD Networks and dialysis facilities to implement data-driven quality improvement programs.

CW supports the collection of:

- Demographic and epidemiologic data on ESRD patients
- Data to monitor patient access by tracking patient improvement
- Patient-level clinical data, prescription data, and lab results
- Data for oversight of ESRD programs

CW achievements since 2012 include having more than 25,000 registered users, 85% of whom submit data electronically. There is a high level of compliance with mandatory clinical submissions and three large dialysis organizations submit data weekly. CW data is the first source being used for the Fistula First/Catheter Last Initiative, and the Department of Veterans

Affairs has shown interest in submitting data to CW. CW even identified missing and transient patients after Hurricane Sandy.

CW supports the HAI Action Plan as the data collection source for central venous catheter (CVC) use, vaccinations, and viral hepatitis screening tests.

The target to decrease CVC use in ESRD patients is 20%. CW can collect and analyze the numerator and denominator data, and this reporting is mandatory.

Another target is to increase influenza immunizations in ESRD patients to more than 90%. The CW computer interface requires a response to this data collection of the numerator and the denominator.

The Hepatitis C metric target is to screen more than 75% of ESRD patients. Dr. Patel presented this data. With proper precautions, infection of Hepatitis C in these patients is totally preventable.

The target for Hepatitis B vaccination is more than 90% of ESRD patients.

CW also collects information on BSIs. It includes culture results, organisms identified, and signs or symptoms of infection.

The next steps for CW include, in collaboration with CDC, planning to establish baselines for the metrics and implementing data driven quality improvement activities.

Dr. Jevaji thanked all CW users, and those who prepared the slides.

ESRD Networks: Implementing the HAI Action Plan

**Indira Jevaji, M.D., End-stage Renal Disease Federal Steering Committee for Prevention of HAIs
Co-chair, Centers for Medicare & Medicaid Services**

Dr. Jevaji substituted presenting this information for Ms. Melissa Dorsey, who is expecting a child soon. Ms. Dorsey prepared the slides.

CMS implements the HAI Action Plan through QIOs, ESRD Networks, and other projects like the Innovation Center. The goal is better health that leads to better care and lower costs.

There are 18 ESRD Networks in the U.S., Puerto Rico, the Virgin Islands, Guam, and American Samoa. They function as change agents with a focus on improving safety and quality of care. ESRD Network stakeholders range from patients and families to vascular surgeons, clinicians, academics, and more.

CMS has the ESRD Network Statement of Work that requires Networks to:

- Establish and support an HAI LAN that does the following:
- Use change methodologies for large-scale improvements

- Manage knowledge as a valuable source
- Engage leaders around an action-based agenda
- Create opportunities for learning and problem solving
- Harness skills from community subject matter experts
- Develop and spread best practices to reduce HAIs in dialysis facilities
- Work in collaboration with CMS and CDC to increase NHSN enrollment
- Develop and implement quality improvements based on infection data obtained from NHSN
- Work with dialysis facilities to reduce Dialysis Facility Event (DFE) rates

Currently all Networks have convened their LAN.

The first aim is better care for the individual through beneficiary and family-centered care. This involves having $\geq 90\%$ of all facilities enrolled in NHSN and 80% of facilities reporting DFE data for six consecutive months.

The ESRD Network 3, which includes New Jersey, Puerto Rico, and the Virgin Islands, is a good example of HAI success. There was a four-time higher vascular infection rate in Puerto Rico than New Jersey, so the Puerto Rico Kidney Foundation reorganized a program and changed the focus to infection prevention with key LAN principles.

ESRD Networks 17 and 18 collaborated to develop HAI LAN activities to leverage resources and develop relationships with state agencies.

Going forward, Networks are focusing on educating stakeholders on LAN principles, assisting facilities in implementing CDC infection control practices, and maximizing enrollment and use of NHSN, including a full reporting of DFEs.

Dr. Jevaji thanked those she worked with and those who made the slides.

Discussion Highlights

ONC's work is foundational and will take time to mature, but it is important to the transformation of care and hopefully marked by the fluidity of information. The clinical community can no longer ask if, but when, they will need to adopt EHR.

The NHSN measurements include facilities reporting to NHSN; all BSIs, stratified by vascular access type; access-related BSI, stratified by access type; and screening for HCV antibody, although NHSN was not designated the data source for this.

In November 2011, the CMS ESRD QIP was released and this incentivized facilities to enroll in NHSN.

The five-year target is to have $\geq 90\%$ of ESRD facilities reporting to NHSN and this target has been met. The first baseline year for BSI measures is expected to be 2014. The target for the

number of facilities following CDC-recommended HCV screening of hemodialysis patients is $\geq 70\%$.

CROWNWeb (CW) serves as a Web-based patient registry for the ESRD community. It allows CMS and ESRD Networks and dialysis facilities to implement data-driven quality improvement programs.

The CW target to decrease CVC use in ESRD patients is 20%. The target to increase influenza immunizations in ESRD patients is at least 90%. The Hepatitis C metric target is to screen more than 75% of ESRD patients. The target for Hepatitis B vaccination is more than 90% of ESRD patients.

CMS implements the HAI Action Plan through QIOs, ESRD Networks, and other projects like the Innovation Center. There are 18 ESRD Networks; they function as change agents with a focus on improving safety and quality of care. ESRD Network stakeholders range from patients and families to vascular surgeons, clinicians, academics, and more.

Other Discussion Points (Questions and Answers)

Why was there a lack of 2012 data reported?

Response: Dr. Patel said that there were few facilities reporting at the beginning of 2012 compared to the end of the year, but the majority of facilities reported only for about three months. This does not tell enough about the rates throughout the year.

Would the Division of Health Care Quality & Promotion want to collaborate with large dialysis organizations and other independent providers before the final decision is made regarding which metrics will be used?

Response: Dr. Pollock said CDC would be happy to hear the input.

Dr. Wright thanked the ESRD panel for their presentation.

PLENARY V: LONG-TERM CARE FACILITIES DATA UPDATES FOR PHASE TWO HAI ACTION PLAN GOALS

Introduction

Deb Nichols, M.D., M.P.H., Public Health Advisor, HHS Office of the Assistant Secretary for Health

Dr. Nichols welcomed the attendees to the LTCF portion of the conference.

At this conference, Dr. Nichols had seen a recurring theme that nursing homes need to be included in the discussion of hospitals because LTCFs transfer patients to and from them. As a society, nursing homes are not thought of as part of a community. People are starting to realize that nursing homes have to be included in the planning process, measures, and partnerships. Nursing homes have evolved differently, but that does not mean that they cannot make progress.

Dr. Nichols stated that the LTCF breakout sessions will have speakers delivering important information.

Dr. Nichols said that this plenary will look at what HAI metrics have been applied thus far in nursing homes, and take stock to make sure that they are on track. The two plenary speakers were Mr. Ian Kramer from CMS, who provided an overview of nursing home characteristics, and Dr. Nimalie Stone, who presented metrics.

Mr. Kramer is a social science research analyst within the Division of Nursing Homes in the Survey and Certification Group at CMS. He serves on the data team, which is responsible for providing analysis of survey and certification data to assist in policy development, and he maintains the Nursing Home Compare website and Five-Star Quality Rating System. Prior to his work at CMS, Mr. Kramer was a Fellow in the Office of Health Care Quality in the Office of the Assistant Secretary for Health, where he worked to develop and maintain the Long-Term Care Facilities Chapter of the HAI Action Plan. Mr. Kramer holds a B.A. from New York University and an M.S. from the University at Albany, and is a member of the Delta Omega Honorary Society in Public Health.

Dr. Stone is the medical epidemiologist for LTC in the Division of Healthcare Quality & Promotion at CDC. Prior to joining CDC, she was an assistant professor of medicine in the Division of Infectious Diseases at Emory University, where she served as the Health Care Epidemiologist for Emory's geriatric hospital and LTCF at Wesley Woods Center. Her clinical and research efforts focused on managing infections and antibiotic resistant pathogens in the elderly LTC population. In her role at the Division of Healthcare Quality & Promotion, Dr. Stone coordinates the development of infection prevention and surveillance programs for the LTCF setting. She supports state and federal programs that increase awareness and provide resources for infection prevention and control in skilled nursing facilities and nursing homes. She also collaborates with the many partners who are engaged in reducing HAIs in the LTCF setting, including the Society for Healthcare Epidemiology of America, the Association for Professionals in Infection Control and Epidemiology, the National Association of Directors of Nursing Administration in Long-Term Care, and the American Medical Directors Association.

Overview of Nursing Home Characteristics

Ian Kramer, M.S., Social Science Research Analyst, Centers for Medicare & Medicaid Services

Mr. Kramer mentioned that much of the data he will present is in the annual CMS *Nursing Home Data Compendium*.

Nursing homes encompass a spectrum ranging from assisted living to hospice and home care. Skilled nursing homes were chosen as the place to start the HAI Action Plan because they have the best infrastructure and could receive the most impact. CMC plans to eventually expand infection surveillance outside of these homes.

The number of nursing homes has slowly declined from 16,560 in 2002 to 15,683 in 2011. There has been an increase in large nursing homes (100 to 199 beds) and a decrease in small nursing

homes (fewer than 50 beds). For-profit ownership of nursing homes has increased and there are fewer government-owned homes. Most nursing homes are dual-certified, which means they are paid by both Medicaid and Medicare. The occupancy rate of nursing homes has slowly decreased to 83.2% in 2011, probably due to assisted living homes. There seems to have been a shift in nursing home populations over the last 15 years from those who lived in nursing homes now living in assisted living, and those who lived in hospitals now living in nursing homes.

As of August 15, 2013, there were 15,668 certified nursing homes. The mean size was 106 beds, 69% were for-profit owned, 25% were non-profit owned, and 6% were government owned. Most (92%) were dual-certified, and 55% were part of large chains. Six percent of nursing homes resided in hospitals (most of which were Medicare-only paid), and 9% were part of a Continuing Care Retirement Community.

There are about 1.4 million U.S. residents in certified nursing home on any given day. In 2011, 85% were older than 65; 43% were older than 85; 67% were female; and 79% were white, non-Hispanic.

There are two groups of nursing home patients: short-stay and long-stay. Short-stay residents are in a nursing home for less than 150 days, long-stay residents are there for more than 150 days. CMS splits these groups because there are different requirements for each group, like rehabilitation (short-stay) versus assistance with daily living (long-stay). The episodes of short-stay residents outpace long-stay residents by about 200,000 per quarter.

Federal requirements for nursing homes mandate at least one registered nurse to be at a facility for a minimum of eight consecutive hours each day. The national staffing mean of full-time employees is 12.6 registered nurses and 43.1 certified nurse aides. This averages to 0.79 hours per resident day for nurses and 2.46 hours per resident day for aides. These workers wear multiple hats and are very busy. This relates to HAIs in that the idea of a designated infection preventionist is a foreign concept in the nursing home setting.

CMS requires nursing homes to maintain an infection prevention and control program. Their annual surveys cite F-Tag 0441 (also called F0441) that covers items of surveillance, antibiotic review, transmission prevention, laundry, and more. More than one-third of homes are cited for F0441 where they have an issue, most often at a D or E rating. These ratings mean there is no actual harm with potential for more than minimal harm that is not an immediate jeopardy, and is either isolated or there is a pattern.

Mr. Kramer's colleagues in the Nursing Home Quality Improvement Group gave him some notes to relay. In February 2013, the National Nursing Home Quality Collaborative, led by CMS and QIOs, enrolled and visited about 5,000 nursing homes. They visited 10 top nursing homes to glean best practices that lead to high performance, like HAI prevention, and shared them with other homes in the form of a change package. The group seeks to rapidly spread best practices with the aim to ensure that every resident receives the highest quality of care. The HAI preventions are horizontal and include handwashing, environmental cleaning, laundry, contact precautions, leadership involvement, and more.

HAI Action Plan Metrics—Long-Term Care Facility Update

Nimalie Stone, M.D., Medical Epidemiologist for Long-term Care, Centers for Disease Control and Prevention

Dr. Stone planned to review briefly the five priority areas that were outlined for nursing home providers in the HAI Action Plan, the current status, and future plans.

The five Priority Areas for HAI prevention in LTCFs include:

- Promoting enrollment and reporting into the NHSN LTCF component
- Reporting CDIs in NHSN
- Reporting UTIs in NHSN
- Increasing health care provider influenza vaccination coverage during each annual flu season
- Increasing resident influenza and pneumococcal vaccination coverage reported in the CMS Minimum Data Set 3.0

Priority Area 1 for the working group is NHSN enrollment; this provides an opportunity to promote a standardized HAI surveillance and obtain national data on incidence of HAIs in LTCFs. The challenges are that nursing homes have not had the same amount of time or resources for surveillance compared to acute care hospitals. The working group acknowledged this, so the NHSN LTCF target was set to 5% enrollment, and this component launched in September 2012.

In the past 12 months, 130 skilled and regular nursing homes enrolled in NHSN. This is 0.8% of eligible enrollees, so the target is on track. Twenty-four states are using NHSN for LTC. State programs encourage more uptake, particularly in New York.

Of the 130 nursing homes enrolled, 114 have provided annual facility survey data for 2012. More of the enrollees were non-profit (55.3%) and government-owned (12.3%) than their respective national distribution. Likewise, 30% of the enrollees were hospital-based, which exceeds the national distribution. Ninety-four percent of enrollees were dual-certified.

For the 114 LTCFs with 2012 annual facility survey data, the median facility bed size was 122, but this ranged from 10 to 815 beds, and the average occupancy was 91.4%. The percentage of some services provided were 81% long-term general nursing and 72% skilled nursing, but there were slightly higher proportions of more specialty services, like 25% providing ventilator service.

The NHSN data tracks staff time per week. The average hours spent on infection prevention and control activities among all facilities was 17.8 hours. The proportion of this time spent specifically on infection surveillance was 8.9 hours. As bed size increased, hours spent on infection prevention increased, with some variation among affiliation types.

Priority Area 2 is CDI reporting to NHSN. Currently there is an insufficient amount of data available to set a baseline. The initial five-year goal is to evaluate the user experience and the quality of the submitted data on CDIs before benchmarks and targets are set.

Priority Area 3 is UTI reporting to NHSN. UTIs are one of the most frequent infections in nursing homes and include all UTIs, not just catheter-associated UTIs. The initial five-year goal is to evaluate the user experience and the quality of the submitted data on UTIs before benchmarks and targets are set.

Priority Area 4 is 75% influenza vaccination coverage in nursing home health care personnel by 2015. LTCF vaccinations are declining, and this is concerning. To understand the issues around vaccination, HHS hosted a stakeholder workshop and found that barriers were a lack of business-based incentives, cultural issues, and deeply held misperceptions of influenza. Web-based education and resources have been created to target LTC employers in an effort to promote vaccine coverage. It gives employers information on the risk of influenza and other ideas. This toolkit is due to be released during the 2013 to 2014 influenza season.

Priority Area 5 is 85% influenza and pneumococcal vaccination coverage in eligible nursing home residents. This metric is already established and the data is actively being gathered through the CMS Minimum Data Set 3.0. The data show a fairly stable rate hovering around 70% for both vaccines, but when the coverage rates are stratified by length of stay, there is a large gap between long-stay (about 80%) and short-stay (about 60%) vaccination rates for both diseases. The growing short-stay group really needs to be targeted in campaigns.

It is fair to say that LTCFs are making progress in implementing the LTCF Chapter of the HAI Action Plan.

Discussion Highlights

A recurring theme at this conference has been that nursing homes need to be included in the discussion of hospitals because LTCFs transfer patients to and from them.

Nursing homes encompass a spectrum ranging from assisted living to hospice and home care. Skilled nursing homes were chosen as the place to start the HAI Action Plan because they have the best infrastructure and could receive the most impact.

As of August 15, 2013, there were 15,668 certified nursing homes. The mean size was 106 beds, 69% were for-profit owned, 25% were non-profit owned, and 6% were government owned. Most (92%) were dual-certified, and 55% were part of large chains. Six percent of nursing homes resided in hospitals (most of which were Medicare-only paid), and 9% were part of a Continuing Care Retirement Community.

There are about 1.4 million U.S. residents in certified nursing home on any given day and in 2011, 85% were older than 65; 43% were older than 85; 67% were female; and 79% were white, non-Hispanic.

There are two groups of nursing home patients: short-stay and long-stay. Short-stay residents are in a nursing home for less than 150 days, long-stay residents are there over 150 days.

The national staffing mean of full-time employees is 12.6 registered nurses and 43.1 certified nurse aides. This averages to 0.79 hours per resident day for nurses and 2.46 hours per resident day for aides. These workers wear multiple hats and are very busy. This relates to HAIs in that the idea of a designated infection preventionist is a foreign concept in the nursing home setting.

The five Priority Areas and targets for HAI prevention in LTCFs include:

- Promoting enrollment and reporting into the NHSN LTCF component: The target is 5%.
- Reporting CDIs in NHSN: The initial five-year goal is to evaluate the user experience and the quality of the submitted data on CDIs before benchmarks and targets are set.
- Reporting UTIs in NHSN: This is the same as Priority Area 2.
- Increasing health care provider influenza vaccination coverage during each annual flu season: The target is 75% by 2015.
- Increasing resident influenza and pneumococcal vaccination coverage reported in the CMS Minimum Data Set 3.0: The target is 85%.

Other Discussion Points (Questions and Answers)

How can the star ratings on the nursing home compare website impact HAI prevention?

Response: Mr. Kramer explained that the five-star rating system is based on the annual survey outcomes, 11 quality measures, and staff time. It is complicated, but a nursing home's star rating base starts with the survey outcomes and then it can either go up or down a star based on the quality measures and staff time. For HAI prevention, non-catheter related UTIs are part of one quality measure. HAIs are not primary drivers of the star rating. NHSN data may be considered in the ratings in the future.

Is there a consideration to monitor a urine pH that indicates the need for hydration? Certified nurse assistants are so busy and cannot always toilet patients, so they may provide the residents with less hydration. It may help to correlate the number of aides and the UTI rates. Secondly, is CMS tracking the vitamin D levels in nursing home residents? This affects the flu rates.

Response: Mr. Kramer said that all LTCF CMS data comes from the Minimum Data Set and those two items are not tracked in it. It could be hard to add them to the lengthy Minimum Data Set. Dr. Stone stated the questioner had important observations. The goal of promoting reporting and surveillance is to increase awareness of how these events are being managed. It is a concern that there are no standard approaches to the management of UTIs and prevention strategies, so the first step is exploring what comes from reporting.

Dr. Wright thanked the LTC panel and the attendees for their participation in this process.

INTRODUCTION TO BREAKOUT GROUP DISCUSSIONS

Don Wright, M.D., M.P.H., Deputy Assistant Secretary for Health, HHS Office of the Assistant Secretary for Health

In Day One's breakout groups, Dr. Wright was pleased to see the diverse group of stakeholders discussing solutions to HAIs. Participants' information will be very useful to the Department.

Dr. Wright thanked Daniel Bones Gallardo, Project Lead of the Road Map to Eliminate HAI Conference, and others for their work putting on this conference.

Yael Harris, Ph.D., Director, Division of Health Care Quality, Office of Disease Prevention and Health Promotion

Dr. Harris thanked the conference planners.

Dr. Harris reminded the attendees that the purpose of the breakout sessions is to identify if the targets are appropriate and, if not, how they should be revised. Attendees should discuss the strategies that can be used to get to the goals. If the goals have been achieved, they should discuss what the affective strategies were, what the barriers were, and how efforts can be expanded.

Each table had a facilitator and note taker. Everyone was to fill out a sheet that summarizes the key content and Dr. Harris's office will review those sheets. Use the same etiquette tips for successful small group discussions that were presented on Day One. Especially listen to the consumers and HENs at the table.

WHAT HAPPENS NEXT?

Don Wright, M.D., M.P.H., Deputy Assistant Secretary for Health, HHS Office of the Assistant Secretary for Health

Dr. Wright stated that his office cannot take verbatim targets from an external group, but his office can take them as to inform the Federal Steering For the Prevention of HAIs.

After this, the Senior Level Steering Committee for the Prevention of HAIs will be meeting to propose new 2020 targets. These targets will be published in draft form on the Federal Registry, where the public can comment on targets before they are finalized.

Dr. Wright thanked all of the attendees for sharing their views. He appreciated the collaboration at the breakout session tables.

PLENARY VI: THROUGH THE LENSES OF CONSUMER ADVOCATES: MAPPING THE FEDERAL HAI PREVENTION EFFORTS TO DATE

Introduction

Yael Harris, Ph.D., Director, Division of Health Care Quality, Office of Disease Prevention and Health Promotion

Dr. Harris introduced Ms. McGiffert. Ms. McGiffert is a senior policy analyst on health issues and the project director for www.safepatientproject.org, a project of Consumers Union, the nonprofit publisher of Consumer Reports. She currently directs the multi-state campaign to reduce HAIs by raising public awareness and seeking publication of hospital infection rates. This campaign has initiated infection-reporting legislation in 43 states, 15 of which now have been passed into law. Ms. McGiffert routinely speaks as the consumer voice on the HAI issue at conferences and with the media. She was appointed to serve as a consumer representative on the National Quality Forum Healthcare-Associated Infections Steering Committee, the Texas Health Care Associated Infections Advisory Panel, and the California Department of Health Services Healthcare-Associated Infections Advisory Working Group.

Dr. Harris thanked Ms. McGiffert for being here.

Mapping the Federal HAI Prevention Efforts to Date

Lisa McGiffert, Director, Safe Patient Project, Consumers Union

Ms. McGiffert welcomed the attendees and those listening on the webinar.

This gathering is an important landmark for many stakeholders. It was an important step when the project put the word “eliminate” in its name. All attendees should be proud as they look back at the past five years. The past years’ efforts will save a life someday, but the attendees cannot become complacent, or let leaders claim that the HAI problem is under control. Nearly 2 million people suffer from HAIs each year and close to 100,000 of them die. The effort to eliminate HAIs should go broad and at a faster pace.

When Ms. McGiffert saw the 17-year adoption rate that Dr. Gawande showed, her heart sank. Seventeen years would be 1.7 million unnecessary deaths. She was encouraged when saw that uptake of change is faster after 20% of participants have adopted the change, and this is about the rate that the HAI effort is at now.

Ms. McGiffert had not heard the word “urgency” much during this conference. Progress has been made, but it needs to be stepped up with urgency. Advocates tell her that there seems to be a lack of urgency. The scope of the problem demands urgent action, but that is not clearly happening. Ms. McGiffert could not imagine any other problem that would kill 100,000 people per year and not sound off alarms of urgency. The U.S. Institute of Peace’s mission is “We stop fights!”, and this effort needs a similar mission like “We stop infections!” or “We stop deaths!”

Back when the HAI Action Plan was drafted, Consumers Union was critical of it and had several concerns about it: too low targets, lack of bold recommendations, too much volunteerism, etc. They were concerned about the metrics, but this was resolved when CMS added HAIs to their quality-reporting program and enlisted CDC to help collect the data. It helped when the Affordable Care Act connected requirements with payment. Consumers Union will continue to push for aggressive topics. Consumer advocates are looking at what needs to be done next, but they also appreciate the progress.

Ms. McGiffert looked back over the past 10 years when Consumers Union began their campaign to get hospitals to report publically their infections. In 2003, Consumers Union drafted a model bill and took it on the road; 30 states now have state laws about reporting. The states are where the action is, and Consumers Union sees this as a bubble up movement that should not only be a federal program.

In the early years, doctors and experts accepted infections as inevitable. Now many say that zero is the goal and others say that as much as 70% of HAIs are preventable. Early on, only a small number of hospitals reported their statistics. When Consumers Union started their project, they thought hospitals knew their infection rates, but in fact, they did not. There were heated debates about whether states should be given guidance for public reporting; many did not think it should be done, but eventually states were given this guidance. Consumers Union engaged tens of thousands of consumers to ask their legislators to file the model bill. Many legislators were heroes to push these bills against opposition.

Consumers Union asked people to share their stories, and they built an army of advocates. These people had survived HAIs or had lost a loved one to HAIs. The advocates were committed to changing the system; they lobbied, talked to the media, testified at hearings, served on committees, and educated the public and medical and nursing students about the senseless deaths from HAIs. The advocates are committed to being stakeholders in the fight against HAIs for the long run.

She hoped that the attendees had met the advocates present at the conference. At the first HAI Action Plan meeting, Ms. McGiffert was the only consumer representative invited, but she was able to bring more with her at the last minute. The consumers contributed to the first brainstorm meeting. Dr. Wright and his team have supported bringing these folks to the team, and it has made a big difference.

Transparency is essential to preventing infections; without it, there would not be public reporting, measurements, targets, and a HAI Action Plan. Public reporting is so important because it raises awareness, helps policy makers and others make informed choices, and informs policy makers of the cost of this problem. Public reporting is a dynamic process, it has been a key part of cultural change, and rich discussion has occurred because of it. Consumers and experts pushed for public reporting, CDC made the new reporting system, and now the SCIP project has almost 100% compliance.

There has been a harmonic convergence for change. The Institute of Healthcare Improvement launched the “100,000 Lives Campaign” that gave hospitals more tools to stop infections. Dr. Gawande’s publications and the checklist helped stop infections, and early innovators had a big impact. Ms. McGiffert would attend meetings and one person would stand up and evangelize about how their facility’s prevention efforts worked.

There was a real coming together and sharing information worked. Many state health departments ran with new laws so that the public would have reliable and accurate information; this has been critical. Hundreds of hospitals have become leaders. So many things, including the HAI Action Plan, state laws, and federal requirements, have driven this progress.

CDC upgraded their system by creating the free-to-use NHSN, and this was so important. Their open minds helped health care facilities use the system. At meetings Ms. McGiffert attended, CDC would be on the phone or be present to talk about NHSN. The system was met with skepticism, but CDC listened to feedback and was flexible to improve NHSN.

Then there was that fateful day when Dr. Wright was invited to a congressional hearing that led to this Road Map to Eliminate HAIs. Now programs like the Partnership for Patients are enlisting thousands of hospitals to participate in the effort. Finally, these annual meetings bring the stakeholders together so that they can all learn from each other.

Ms. McGiffert thanked Dr. Harris for using the word “disgrace” on Day One because death from an HAI is a disgrace. She asked the attendees to celebrate the cultural changes, but also to consider the urgent action that is needed to save lives. Please “keep on” and think about Ms. Alice Brennan, Ms. Alicia Cole, Mr. Lewis Blackman, Ms. Hope Casper, Ms. Peggy Lillis, Mr. John McClearey, and the people in the attendees’ lives who have been affected by HAIs.

Ms. McGiffert thanked the attendees.

Dr. Wright thanked Ms. McGiffert for her comprehensive review of the last five years.

He said that the attendees will be informed when the new targets are put into the Federal Registry and thanked all participants for attending the meeting.

Discussion Highlights

After this conference, the Senior Level Steering Committee will be meeting to decide what the targets should be for 2020. These targets will be published in draft form on the Federal Registry, where the public can comment on targets before they are finalized.

This gathering is an important landmark for many stakeholders. Ms. McGiffert had not heard the word “urgency” much during this conference. Progress has been made, but it needs to be stepped up with urgency.

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