



DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

Healthcare Infection Control Practices Advisory Committee
(HICPAC)

Meeting Summary Report
November 6-7, 2013
The Centers for Disease Control and Prevention
Atlanta, Georgia

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**Attachment 1: MEETING AGENDA
HEALTHCARE INFECTION CONTROL PRACTICES ADVISORY COMMITTEE**

November 6-7, 2013
Centers for Disease Control and Prevention
Tom Harkin Global Communications Center (Building 19, Aud B3)
1600 Clifton Road, NE, Atlanta, GA

Wednesday, November 6, 2013

<u>Time</u>	<u>Topic</u>	<u>Purpose</u>	<u>Presenter</u>
9:00	Welcome and Introductions	Information	Neil Fishman Jeff Hageman
9:15	DHQP HAI Updates	Information	Denise Cardo
9:45	Core Infection Prevention and Control Practices	Information Discussion	Ruth Carrico
10:30	Break		
11:00	Core Infection Prevention and Control Practices	Cont'd	Cont'd
12:00	Lunch		
1:15	Defining a Framework for Providing Interim HICPAC Guidance for "No Recommendations"	Information Discussion	Neil Fishman
2:15	CDC Guidance on Antibiotic Stewardship Programs	Information Discussion	Arjun Srinivasan Loria Pollack
3:15	Break		
3:35	Respiratory Protection for Procedures Involving Surgical Lasers and Smoke Plumes	Information Discussion	David Kuhar
4:15	Public Comment		
4:30	Liaison/Ex-officio Reports		
5:00	Adjourn		

Thursday, November 7, 2013

<u>Time</u>	<u>Topic</u>	<u>Purpose</u>	<u>Presenter</u>
9:00	Supply Considerations for Respiratory Protection During an Influenza Pandemic	Information Discussion	Stephen Redd
9:45	Re-Evaluating the Evidence for Chlorhexidine Dressings for Catheter Exit Sites	Information Discussion	Jeff Hageman
10:45	Break		
11:00	Understanding Non-Ventilator Pneumonias	Information Discussion	Isaac See
11:30	Public Comment		
11:45	Summary and Wrap-Up		
12:00	Adjourn		

Attachment 2: LIST OF PARTICIPANTS

DAY 1: Wednesday, November 6, 2013

HICPAC Members:

Neil Fishman, Chair
Dale Bratzler
Ruth Carrico
Daniel Diekema
Alexis Elward
Mary Hayden
Susan Huang
Gina Pugliese
Selwyn Rogers
Thomas Talbot
Deborah Yokoe

Designated Federal Official:

Jeff Hageman, Deputy Chief, Prevention and
Response Branch, DHQP

Ex-officio and Liaison Members:

David Anderson, NIH
Kathy Dunn, Public Health Agency of
Canada
Janet Frank, DNV Healthcare
Diana Gaviria, NACCHO
Michael Howell, Society of Critical Care
Medicine
W. Charles Huskins, IDSA
Marion Kainer, CSTE
Stephen Kralovic, VA
Michael Anne Preas, APIC
Mark Rupp, SHEA
Mark Russi, American College of
Occupational and Environmental
Medicine
Sanjay Saint, Society of Hospital Medicine
Margaret VanAmringe, The Joint

Commission

Kim Willard-Jelks, Health Resources
and Services Administration
Amber Wood, AORN

CDC Representatives:

Kathy Allen-Bridson, DHQP
Beth Bell, DHQP
Michael Bell, DHQP Deputy Director
Sandra Berrios-Torres, DHQP
Denise Cardo, DHQP Director
Scott Fridkin, DHQP
Jeffrey Hageman, DFO
Rita Helfand, DHQP
David Kuhar, DHQP
Paul Malpiedi, DHQP
Amanda Overholt, DHQP
Joe Perz, DHQP
Loria Pollack, DHQP
Jason Snow, DHQP
Arjun Srinivasan, DHQP
Monica Torres, CDC
J. Todd Weber, DHQP
Sarah Yi, DHQP

Members of the Public

Kay Argroves, American Association of
Nurse Anesthetists
Nicole Bryan, CSTE
Rosario Castioni, 3M
Megan, DiGiorgio, GOJO
Hudson Garrett, PDI
Joseph Gillis, 3M Infection
Eve Humphreys, SHEA
Jane Kirk, GOJO Industries
Bruce Lantrip, Headen Group

Meredith Lichtenstein, CSTE
Rachel Long, Carefusion Medmind
Michele Marill, Hospital Employee Health
Newsletter
Renee Odehnal, Ethicon, BioPatch
Patrick Parks, 3M Company
Michelle Stevens, 3M
Lisa Tomlinson, APIC
Chantay Walker, Ethicon Surgical Care
Thomas Weaver, APIC
Martin Weisberg, Ethicon Surgical Care
Huaguo Xi, Carefusion

Day 2: November 7, 2013

HICPAC Members:

Neil Fishman, Chair
Dale Bratzler
Ruth Carrico
Daniel Diekema
Alexis Elward
Mary Hayden
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Michael Howell, Society of Critical Care
Medicine
W. Charles Huskins, IDSA

Marion Kainer, CSTE
Stephen Kralovic, VA
Sylvia Munoz-Price, America's Essential
Hospitals
Michael Anne Preas, APIC
Mark Rupp, SHEA
Mark Russi, American College of
Occupational and Environmental
Medicine
Sanjay Saint, Society of Hospital Medicine
Margaret VanAmringe, The Joint
Commission
Kim Willard-Jelks, Health Resources
and Services Administration
Amber Wood, AORN

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Scott Fridkin, DHQP
Jeffrey Hageman, DFO
Rita Helfand, DHQP
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David Kuhar, DHQP
Paul Malpiedi, DHQP
Amanda Overholt, DHQP
Joe Perz, DHQP
Loria Pollack, DHQP
Stephen Redd, Influenza Coordination
Unit Director
Isaac See, DHQP
Jason Snow, DHQP
Arjun Srinivasan, DHQP
Monica Torres, DHQP
J. Todd Weber, DHQP
Sarah Yi, DHQP

Members of the Public

Kay Argroves, American Association of
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Eve Humphreys, SHEA
Jane Kirk, GOJO Industries
Rachel Long, Carefusion Medmind
Renee Odehnal, Ethicon, BioPatch
Patrick Parks, 3M Company
Michelle Stevens, 3M
Lisa Tomlinson, APIC
Chantay Walker, Ethicon Surgical Care
Thomas Weaver, APIC
Martin Weisberg, Ethicon Surgical Care
Huaguo Xi, Carefusion

Public Commenters:

Renee Odehnal, Ethicon, BioPatch

Attachment 3: GLOSSARY OF ACRONYMS

AACD	American Association of Clinical Directors
AAP	American Academy of Pediatrics
ABUTI	asymptomatic bacteremic UTI
ACA	(Patient Protection and) Affordable Care Act
ACIP	Advisory Committee on Immunization Practices
ACOEM	American College of Occupational and Environmental Medicine
ACOG	American Congress of Obstetricians and Gynecologists
ADE	adverse drug event
AE	adverse event
AHA	American Hospital Association
AHCA	American Health Care Association
AHRQ	Agency for Healthcare Research and Quality
anti-TNFs	anti-tumor necrosis factors
AORN	Association of periOperative Registered Nurses
APIC	Association of Professionals of Infection Control and Epidemiology, Inc.
AR	antibiotic resistance
ASHP	American Society of Health-System Pharmacists
BARDA	Biomedical Advanced Research and Development Authority
BMI	body mass index
BSI	bloodstream infection
<i>C. diff</i>	<i>Clostridium difficile</i>
CABG	coronary artery bypass graft
CAUTI	catheter-associated urinary tract infection
CBER	Center for Biologics Evaluation and Research
CCSQ	Center for Clinical Standards and Quality
CDC	Centers for Disease Control and Prevention
CDI	<i>Clostridium difficile</i> infection
CHG	chlorhexidine gluconate
CIC	certification in infection prevention and control
CLABSI	central-line-associated bloodstream infections
CMS	Centers for Medicare and Medicaid Services
CPT codes	current procedural terminology
CRE	carbapenem-resistant <i>Enterobacteriaceae</i> (examples: <i>Klebsiella</i> and <i>E. coli</i>)

CSTE	Council of State and Territorial Epidemiologists
DHQP	Division of Healthcare Quality Promotion
DMARDs	disease-modifying anti-rheumatic drugs
DRA	Deficit Reduction Act
DVT	deep venous thrombosis
EIN	Emerging Infection Network
FDA	U.S. Food and Drug Administration
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
HACO	healthcare-associated community-onset
HAI	healthcare-associated infection
HCP	healthcare personnel
HCW	healthcare worker
HEN	healthcare engagement network
HFAP	Healthcare Facilities Accreditation Program
HHS	U.S. Department of Health and Human Services
HICPAC	Healthcare Infection Control Practices Advisory Committee
HIVMA	HIV Medicine Association
HRSA	Health Resources and Services Administration
ICU	intensive care unit
IDSA	Infectious Disease Society of America
IHI	Institute for Healthcare Improvement
IRB	Institutional Review Board
ITFAR	Interagency Task Force for Antibiotic Resistance
IVAC	infection-related ventilator-associated complication
LPAD	limited population antibacterial drug approval mechanism
LTCF	long-term care facility
MBI-LCBI	mucosal barrier injury laboratory-confirmed bloodstream infection
MDRO	multi-drug resistant organism
MDS	Minimum Data Set (coding)
MERS	Middle East Respiratory Syndrome coronavirus
MRSA	methicillin-resistant <i>Staphylococcus aureus</i>
MSSA	methicillin-sensitive <i>Staphylococcus aureus</i>
NAAT	nucleic acid amplification test
NACCHO	National Association of County and City Health Officials
NAPH	National Association of Public Hospitals and Health Systems
NCEZID	National Center for Emerging and Zoonotic Infectious Diseases

NHSN	National Healthcare Safety Network
NICU	neonatal intensive care unit
NIH	National Institutes of Health
NQF	National Quality Forum
OMB	Office of Management and Budget
PAMPTA	Preservation of Antibiotics for Medical Treatment
PATOS	present at time of surgery
PCR	polymerase chain reaction
PI	povidone iodine
PIDS	Pediatric Infectious Disease Society
PJI	prosthetic joint infection
RCT	randomized controlled trial
RSV	respiratory syncytial virus
SARS	severe acute respiratory syndrome
SHEA	Society for Healthcare Epidemiology of America
SICU	surgical intensive care unit
SIR	standardized infection ratio
SSI	surgical site infections
SUTI	symptomatic UTI
TPN	total parenteral nutrition
UDI	unique device identifier
USP	United States Pharmacopeia
UTI	urinary tract infection
VAC	ventilator-associated complication
VAE	ventilator-associated event
VAP	ventilator-associated pneumonia
VTE	venous thromboembolism

Executive Summary

The Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) Division of Healthcare Quality Promotion (DHQP) convened a meeting of the Healthcare Infection Control Practices Advisory Committee (HICPAC) November 6 - 7, 2013, in Atlanta, Georgia.

The Designated Federal Official and Chair confirmed the presence of a quorum with voting members and ex officio members for HICPAC to conduct its business on both days of the meeting. The HICPAC voting members disclosed their conflicts of interest for the public record.

CDC gave an update on approaches to reduce HAIs. The collaboration between CDC and CMS was highlighted and this collaboration is being expanded to include work in antimicrobial use and resistance.

HICPAC presented an outline of proposed core infection prevention and control practices. Work will continue to refine that document.

HICPAC considered how to define a framework for providing interim HICPAC guidance when no recommendations may be made due to a lack of evidence or inconclusive evidence. HICPAC will form a work group to develop such a framework, and will return to HICPAC with recommendations. The work group will pilot their framework using the SSI guidelines.

CDC spoke on antimicrobial stewardship programs. There is not currently guidance for institutions to have some kind of antimicrobial stewardship. Options for how this may work were presented. HICPAC discussed what core components of such a program should be.

An overview of respiratory protection for procedures involving surgical lasers and smoke plumes was given. HICPAC recommended not endorsing the use of respiratory protection in this situation given the lack of evidence for this issue.

CDC presented the issue of supply considerations for respiratory protection during an influenza pandemic. One salient issue raised in this discussion: what type of respiratory protection is required in influenza, and are respirators truly required? Members suggested the basic science addressing these questions should be examined

A presentation was made to HICPAC on re-evaluating the evidence for chlorhexidine dressings for catheter exit sites. HICPAC requested additional information and recommended additional analyses.

CDC presented the issue of non-ventilator pneumonia. Most members agree that aspiration is a significant risk both outside the ICU and at the time of extubation. More investigation of the ongoing work is necessary. The role of CDC and HICPAC in preventing these events will need to be defined. To this end, the problem and preventability both need to be defined.

The Chair called for public comments at all times noted on the published agenda.

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CENTERS FOR DISEASE CONTROL AND PREVENTION
National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

Healthcare Infection Control Practices Advisory Committee (HICPAC)

November 6 and 7, 2013
Atlanta, Georgia

Minutes of the Meeting

The Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) Division of Healthcare Quality Promotion (DHQP) convened a meeting of the Healthcare Infection Control Practices Advisory Committee (HICPAC). The proceedings were held on November 6 and 7, 2013, at the Tom Harkin Global Communication Center (Building 19), Centers for Disease Control and Prevention, 1600 Clifton Road NE, Atlanta, Georgia.

Opening Session: November 6, 2013

Jeffrey Hageman, MHS
Deputy Chief, Prevention and Response, DHQP
HICPAC Designated Federal Official

The Designated Federal Official, Mr. Hageman, opened the floor for introductions of HICPAC voting members, ex officio members, and liaison representatives who were in attendance. Voting members were asked to publicly disclose any new conflicts of interest.

- Alexis Elward received research support from Sage Products to study the efficacy of chlorhexidine bathing in Pediatric Intensive Care Unit (PICU) patients.
- Sage Products provided product for facilities where Mary Hayden was doing a project, but neither she nor her institution received any of this product.

Three HICPAC members have already or will soon be rotating off the committee: Stephen Ostroff took a position at FDA returning him to federal employment, and thus left the Committee in September; Alexis Elward and Dale Bratzler were commended for their work on the Guideline to Prevent Infections in Patients of Neonatal Intensive Care Units and the Surgical Site Infection Prevention Guideline respectively.

DHQP Healthcare-Associated Infection Updates

Denise Cardo, MD, Director, DHQP, CDC
Dr. Cardo has returned to work full-time for DHQP, following a nine-month detail as Acting Deputy Director for the CDC Office of Science, Epidemiology and Laboratory Services (OSELS). Her overview focused on CDC collaboration with the Center for Medicare and Medicaid Services

(CMS). Standard ongoing collaboration activities continue: surveillance, epidemiology research, outbreak investigations, prevention research, laboratory activities and prevention implementation, as well as policy and communication activities. Concerns exist as to what outbreaks may have been missed during the recent government shutdown. The CDC-CMS collaboration was described in detail as it relates to the Deficit Reduction Act (DRA) and other debt legislation. This initial collaboration has grown into new efforts, especially with respect to the Center for Clinical Standards and Quality (CCSQ). HICPAC input to CDC helps CDC coordinate and manage new undertakings with CMS. DHQP looks forward to HICPAC input on how to refine existing measures, how to address issues around pay-for-performance and electronic reporting, and how to better utilize electronic data sources.

CDC's work with Medicaid and areas of focus right now include transitions of care and *C. difficile*. All of these efforts are premised on the idea that HAI prevention must be integrated into everything that is happening with the Affordable Care Act (ACA).

HICPAC DISCUSSION:

Facilities are concerned about validation sampling for QIO and "gaming of the system". Validation processes needs to be improved. CDC will be advancing its views in this area. CDC is also looking at how to improve use of electronic data sources in this area, but changes will not come in the next two years.

Reliable indicators need to be identified. QIOs will have other opportunities for input prior to new Statements of Work.

Data-collection systems are becoming more fragmented and multifaceted; but no one is checking to see if data-collection techniques are consistent. More effort should be spent on data validation and credibility. Without improvement here, trend analysis will be confounded over time.

Core Infection Prevention and Control Practices

Ruth Carrico, HICPAC Member

The presentation and discussion were intended to be used by both practitioners and organizations to articulate infection prevention core practices. Better monitoring of practices will help in improving patient care and outcomes,

PROCESS: Document review, including US-, Canadian- and worldwide-originated guidance, was conducted and the resulting summary table was laid out based on practice domains.

The initial list of identified core practices fell into the following areas: hand hygiene, safe injection practices, standard precautions, training and education of healthcare personnel, patient and family education, environmental cleaning and disinfection, administrative support,

as well as monitoring and feedback of performance measures. The list was revised to include: administrative support for the infection prevention and control programs; infection prevention training and education for healthcare personnel; infection prevention education for patients, families and caregivers; performance monitoring and feedback; standard precautions (hand hygiene, use of appropriate personal protective equipment, use of respiratory hygiene and cough etiquette); injection safety; environmental hygiene; aseptic technique; soiled linen (textiles) and waste disposal; and cleaning, disinfection, and sterilization of medical equipment.

Some areas of interest are not currently on the list, such as employee immunizations. Discussions continue whether this should have its own entry on the list of core practices or woven into the existing entries. Overall, the document has and will continue to evolve; the end result may look quite different from the current iteration.

The Core Practices outline as presented at the meeting included the following elements:

Administrative Support:

- Involvement in risk assessment
- Positional authority
- Provision of resources (human and material)
- Alignment of strategic goals within the organization
- Collaborative support
- Interprofessional education

Training and Education of Healthcare Personnel

- Competency-based training for role responsibilities
- Training specific for the setting
- Principles of adult learning (reading-, learning-, language-appropriate)
- Access to materials
- Periodic updates
- Intensified when circumstances warrant (e.g., outbreaks or emergence of new infection prevention and control concerns)

Education for Patients, Families and Caregivers

- Inclusive
- Specific regarding mechanisms for transmission and prevention
- Competence of those providing the education
- Geared toward education level, language, culture
- Enabling and empowering
- Supportive resources

Performance Monitoring and Feedback

- Based upon monitoring processes of programs and strategies (processes and outcomes) that enhance adherence to best practices, promoting both evidence- and experience-based practice
- Align with elements included in risk assessment
- Standardized monitoring tools and definitions that enable widespread use
- Staff (users) trained on performance monitoring concepts, data collection and practice observation skills
- Include assessment of performance monitoring processes and practices in the overall performance monitoring program
- Regular feedback (processes and outcomes) to staff responsible for performance monitoring and improvement

Standard Precautions

- Hand hygiene: Ensure performance
 - Before touching a patient
 - Before exiting the patient's care area after touching them or the environment
 - After contact with blood/body fluids
 - Prior to performing an aseptic task
 - If hands moving from contaminated to clean body site
 - After glove removal
- Use of personal protective equipment
 - PPE sufficient, appropriate and accessible
 - Education of all HCP on proper selection and use
 - Removal
 - Glove use
 - Gown use
 - Mouth, nose and eye protection
- Respiratory hygiene and cough etiquette
 - Implement measures to contain respiratory secretions
 - Provision of supplies and equipment necessary for containment
 - Educate healthcare personnel on prevention measures

Injection Safety

- Aseptic technique
- Cleansing access diaphragms of medical vials
- Never reuse syringe
- Do not use single dose vials or items for multiple patients
- Dedicate multidose vials when possible
- Dispose of syringes and needles at point of use
- Adhere to federal and state requirements for protection of healthcare personnel (HCP) from a blood-borne pathogen (BBP) exposure

Environmental Hygiene

- Establish policies and procedures for routine cleaning and disinfection
- Select EPA-registered disinfectants or disinfectants with label claims for use in special circumstances
- Assign responsibility for routine cleaning and disinfection to appropriately trained personnel
- Follow manufacturer's recommendations
- Aseptic technique
 - Clear separation of clean from soiled/dirty
 - Avoid sharing of patient care items unless cleaned and disinfected between patients
 - Store items in clean storage spaces
 - Ensure items packaged for multiple use are maintained in a manner that minimizes contamination opportunities
 - Store patient care items in areas free from compromising conditions
- Soiled Textiles and Waste Disposal
 - Handle all contaminated textiles with minimum agitation
 - Prevent leakage during transport
 - Ensure regular trash and regulated waste are disposed of in designated containers
 - Collected, handled and transported to final destination in accordance with federal, state and local regulations

Cleaning, Disinfection and Sterilization of Medical Equipment

- Single-use devices (SUDs) are reprocessed only by entities that have complied with FDA regulatory requirements
- Disposal of SUDs must be handled according to facility waste policy (and state, federal requirements)
- Reusable medical equipment must be cleaned and maintained according to the manufacturer's instruction
- Cleaning must always precede disinfection or sterilization
- Reprocessing must be performed by HCP with training and documented periodic competencies

Other core practices that may be considered for inclusion: patient placement and isolation basics; removal of invasive devices ASAP; occupational health-related practices (immunization, work restrictions, tracking of illness/reasons for absence); others that continue to emerge as review continues (supports dynamic approach); and combining some practices

Next steps include reviewing and revising the current table, adding narrative material that provides general context and depth, ensuring a useful format, and enabling ongoing review and updates.

HICPAC DISCUSSION:

Should the core practices apply to any medical facility? Yes. A list of core practices should not need to be updated or revised. Detail varies across core practice areas. CDC recognizes the need for these recommendations. The guideline will serve to help refresh practice and to compile practice guidelines in a more unified context.

Will the core practices be rated for evidence quality? No, the intent is to assemble a list of essential core practices without going into great detail for each of them. . In certain instances, randomized controlled trials will be neither feasible nor helpful.

The Core Practices document will be very helpful to accrediting bodies and surveyors to show what is accepted as foundational infection prevention practices.

Will the recommended core practices be available as the subject of public comment? That process is still being worked out. Members of the public may provide comment at meetings.

Several members suggested wording changes with respect to the document; whether using the word “core” might negatively affect facility accreditation; using positive language in identifying areas for further study or implementation.

Is there a place in the document for what facilities should be doing with respect to surveillance, also with respect to responding to outbreak scenarios? This document is not intended for infection control or epidemiology programs. Rather, the intent is to delineate what practices need to be in place for patient care. Strategically, the document should serve to elicit the support of the developers of associated training materials. Those practices which become part of the document should be so fundamental that, if one were to read them, one would not think twice about it. The list of core practices is not intended to appear complete. Preventionists are likely to view the document as intended for programmatic implementation. Based on experience gained during implementation, the document may be changed or added to. The document will be helpful in the continued collaboration of CDC and CMS.

Is “all health care facilities” the intended scope of the document? Yes.

With respect to administrative support, an organization’s leadership should be actively engaged in and supportive of the program. Perhaps change executive support to leadership support? That nomenclature has been retained because it is found in the guideline’s subheading.

Brief Guideline Update

Jeff Hageman, MHS, CDC/NCEZID/DHQP
Deputy Chief, Prevention and Response, DHQP
HICPAC DFO

DFO Hageman provided an update on the progress of the SSI and NICU guidelines. After a slight delay, the SSI guideline is nearing completion. The last date on which comments will be accepted is not yet set. The guideline will be released in late spring/early summer at the earliest CDC is pursuing a similar plan for the NICU guideline.

With respect to received public comments, CDC staff will review and group. Following this, the comments will be sent to the original writing group, who will come back with proposed changes. These comments and proposed changes will be distributed to HICPAC for their review and discussion at its next meeting.

HICPAC liaison organizations are free to endorse these guidelines as they see fit.

Defining a Framework for Providing Interim HICPAC Guidance for “No Recommendations”

Neil Fishman, HICPAC Chair

Chair Fishman outlined the need for HICPAC interim guidance for those occasions when no recommendation can be made. HICPAC could develop a framework for dealing with these situations, and then test the framework for interim guidance using the SSI guideline.

Interim guidance may be promulgated based on expert opinion and appended to the guideline. The framework could be limited to the inclusion of expert opinion, but may also include theoretic or scientific rationale using existing clinical practice guidelines. The use of observational studies could be included. This could be an opportunity to identify research gaps in need of address. Questions for discussion does this guidance expire? How often should these issues be readdressed? What information will HICPAC need? With SSI, should HICPAC focus on CORE, orthopedics or both? HICPAC will form a work group to develop and test the process, as well as compiling information necessary to proceeding.

HICPAC DISCUSSION:

Results of this effort will be considered HICPAC work product.. It would be best to release the framework at the same time as the SSI guideline but that may not be achievable. Past HICPAC guidance has been helpful though of limited usefulness due to its focus.

Which HICPAC members should comprise the work group? CDC staff may attend work group meetings and provide technical assistance during the process but the results will come from the

work group. Perhaps the process ongoing with the HICPAC NICU guidelines should be used in SSI as well to address unresolved issues.

Could no-recommendations be used to highlight areas where there is missing evidence or data? Yes. Two goals: to provide interim guidance and focus on what information is missing. As long as the guidance is explicit as to the nature of its foundations, it will be valuable.

Oftentimes, no-recommendations came about because the outcome of interest was designed for a different result. Perhaps the range of no-recommendations could be narrowed. The greatest return on investment will be realized in carefully crafting the questions to be answered.

Should HICPAC set regular review dates for the interim guidance? To the extent which risks and benefits can be quantified, they should be. The SSI guideline may be uniquely suited to the propagation of no-recommendations. Because the guidelines will be in some respect issued by the government, critical staff review may be necessary, even if it is clearly identified as expert opinion. Perhaps the GRADE process should be modified to help in the promulgation of future CDC guidelines.

CDC Guidance on Antibiotic Stewardship Programs

Arjun Srinivasan, DHQP, CDC

Loria Pollack, DHQP, CDC

Antibiotic/ antimicrobial stewardship is critical to preventing resistance. Stewardship is one of the key strategies laid out in the recent CDC Antimicrobial Resistance (AR) report. Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America have created guidance which is foundational to the CDC work of outlining guidance on stewardship programs, though the forthcoming guidance will allow more flexibility in implementation.

Goals of the Guidance

- To define “minimum expectations” for stewardship in all acute care facilities.
- To outline “beyond minimum” stewardship activities that will be useful as facilities advance stewardship work.
- To provide guidance on how facilities can implement stewardship interventions.

Key recommendation: CDC recommends that all hospitals take action to improve antibiotic use by implementing an antimicrobial stewardship program. Following this recommendation, the document will contain an introduction laying out the benefits of an effective stewardship program, the core elements of such a program, and recommendations on program structure and function.

Facilities should implement policies and interventions to improve antimicrobial use, monitor the use of antimicrobials, and educate providers on optimal antibiotic use and issues in antibiotic resistance. These fundamental tasks must be accomplished. At a structural level, all hospitals must have facility leadership support for stewardship, a designated physician who is responsible for efforts to improve antimicrobial use, a designated pharmacist who is responsible for efforts to improve antimicrobial use and ID training for both is ideal though not essential. Important structural elements are designed to be cognizant that programs are more effective if the physician and pharmacist have access to experts in and direct support from infection prevention, information technology and clinical microbiology. Good connections with staff in these areas must be maintained.

Program functions begin with an understanding of pertinent policies and procedures:

- Optimize the antibiotic formulary, given your resistance histories
- Develop local treatment recommendations for commonly encountered infections.
- Develop order-sets and clinical pathways that incorporate treatment recommendations.
- Develop plans to educate providers on antimicrobial use.
- Ensure antimicrobial courses have proper documentation of dose, duration, indication.
- Ensure all providers re-assess courses of antimicrobials after 2-3 days of treatment (“antibiotic time out”).

At an interventional level some notions to keep in mind. For general interventions, there are two main recommended strategies: 1) restriction and prior authorization for antibiotic use and 2) post-prescription external review for streamlining and de-escalation. For focused interventions can be very effective: infection-specific interventions (e.g. community acquired pneumonia, urinary tract infections etc.), agent-specific (e.g. unnecessary duplication), and review of susceptibility mismatches. Monitoring use is critical to the success of the program, and this breaks down into two main areas of measure: overall consumption and appropriate use

In the past year, CDC has released two well-received reports on antibacterial stewardship: “Antibiotic Resistance Threats” laid out four core actions to prevent resistance, while “CRE Vital Signs” recommended that healthcare providers prescribe antibiotics wisely to prevent CRE in patients. CDC has not laid out clear guidance on expectations of antibiotic stewardship. This effort aligns with action taken by the Transatlantic Task Force on Antimicrobial Resistance (TATFAR). TATFAR has promulgated 17 recommendations, the first of which reads, “Develop common structure and process indicators for hospital antimicrobial stewardship programmes.” Health authorities in the United Kingdom and France have developed stewardship guidance use in those countries.

The goals of the CDC antimicrobial stewardship assessment are to define minimum expectations for optimizing antimicrobial use and enable facilities to track stewardship

activities by tracking progress over time (GAIN Act), and understanding needs and offering support for activities. The guidance focuses on structural and process measures with the expectation that improving in these areas will positively affect outcomes.

Proposed six-question checklist:

- Does this facility have a physician leader identified to optimize antibiotic use?
- Does this facility have a pharmacist leader identified to optimize antibiotic use?
- Does facility leadership support efforts to optimize antibiotic use at this facility?
- Is there at least one intervention to optimize antibiotic use integrated into clinical care at this facility?
- Does this facility monitor antibiotic use?
- Is information on optimizing antibiotic use provided to prescribers at least annually?

Some examples of interventions to optimize antibiotic use:

- Specified antimicrobial agents need to be approved by a physician or pharmacist prior to dispensing (i.e., pre-authorization)
- A physician or pharmacist reviews incoming prescriptions for specified antimicrobial agents (i.e., prospective audit)
- Order entry system has imbedded clinical decision making support for prescribing antimicrobials
- Antimicrobial prescriptions subject to time-sensitive automatic stop orders

Standardized reporting structures will help facilities in their efforts to monitor antibiotic use. Guidelines will be flexible to accommodate varying capacities at facilities. Facilities could monitor consumption such as pharmacy purchasing data or days of therapy. Alternatively, facilities could monitor for compliance in terms of adherence to facility-specific guidelines and compliance with antimicrobial policy or protocol. Monitoring may also include assessment of appropriateness.

The goal of this antibiotic stewardship guidance is to provide specific yet adaptable guidance.

Several questions were laid out to aid in HICPAC discussion: Do these domains (Leadership and management, Practices that support appropriate use, Monitoring use and practices, Education, and Information sharing) capture core functions of effective antimicrobial stewardship? Do the proposed six “checklist” questions reflect acceptable minimum expectations for a hospital antimicrobial stewardship program? Are they relevant, feasible and valid? Does the term “program” imply a burden?

HICPAC DISCUSSION:

This is a tremendous start. Optimization may not be the most accurate term in this area; improvement (continual or otherwise) may be more fitting to the goal.

Missed doses need to be addressed and/or measured, though it is currently outside the scope of the current endeavor. Individual responsibility of key actors is embedded throughout the report. Missed doses are a much broader issue than antimicrobial stewardship.

Small facilities may view the program as burdensome. Finding physician time for this effort will be challenging. The stewardship program needs to fit within the context of the hospital. IT support is necessary in addition to management/physician support.

What does “facility leadership support” actually mean? We can go as far as we feel comfortable going. Support may be defined as providing resources in some way.

Some outcome measures will be included in the guidance (e.g. C. diff resistance). The real value of the document will be realized when facilities begin to internalize its programs and processes, as opposed to thinking of it as external advice from CDC. The guidance will be useful primarily to facilities to assess whether they have an effective stewardship program.

Developing a business case will help draw the attention of executive level workers at facilities and centers. Other types of employees (Physician assistants, Registered Nurses, etc.) should also be incorporated into the document and its plans. The document needs interpretive guidance to maintain quality.

CDC’s role is to produce effective, practicable guidance to improve practice. Perhaps HICPAC should review the underlying IDSA/SHEA documents to see if they should be changed. IDSA and SHEA have begun this review internally. Templates for a basic program may help small facilities implement their stewardship programs. Clear CDC guidance on stewardship is needed.

Respiratory Protection for Procedures Involving Surgical Lasers and Smoke Plumes

David Kuhar, DHQP, CDC

Recommendations for respiratory protection for at least some specific personnel (such as dental personnel) are addressed in different guidelines and under the purview of different CDC divisions. Organizations communicate to try to ensure there is agreement among infection control recommendations across healthcare settings.

The numbers of inpatient and outpatient treatments of HPV related lesions with laser or electrosurgical procedures is unknown. For certain lesions, such as genital warts, other treatment methods like cryotherapy may predominate, so laser or electrosurgical procedures will only account for a small portion of treated lesions. It is suspected that the majority of these smoke generating treatments are done in the outpatient setting.

HCPs may be exposed to certain types of HPV in treating disease manifestations. HPV type 6 and 11 are low risk types commonly found in genital warts, as well as in lesions of respiratory papillomatosis. Both of these manifestations may be treated with laser or electrosurgical procedures. HPV types 16 and 18 are considered “high risk” types of HPV and associated with the majority of cervical cancers, as well as oropharyngeal cancers. High risk types may also be aerosolized and pose risk to HCP. There are a few potential manifestations of disease from inhaling aerosolized HPV virus particles. Though not definitively shown to have occurred, it is important to have the possibilities in mind as we move forward and that all of these, even warts, can provide significant comfort and treatment burdens for personnel.

CDC’s “Guidelines for Environmental Infection Control in Healthcare Facilities”, 2003, states that in settings where surgical lasers are used, wear appropriate personnel protective equipment (PPE), including N95 or N100 respirators to minimize exposure to laser plumes; use central wall suction units with in-line filters to evacuate minimal laser plumes; and use a mechanical smoke evacuation system with a high efficiency filter to manage the generation of large amounts of laser plume, when ablating tissue infected with human papilloma virus or performing procedures on a patient with extrapulmonary TB. Use of electrocautery and other devices was not contemplated in the promulgation of these guidelines.

NIOSH’s website contains recommendations for control of smoke from laser/electric surgical procedures. The recommendations emphasize both ventilation and optimizing work practices. For ventilation, both general room ventilation and in particular local exhaust ventilation or really, source control, is what is emphasized and recommended. Optimal work practices are also noted as essential, such as maintaining products and using them properly (e.g., moving the tip of a smoke evacuator more than 2 inches from the smoke source increases plume escape by more than 50%.)

OSHA now has a statement on their website about Laser and electrosurgical plume generation, and that there currently are no specific OSHA standards for plume hazards. However, among the Occupational Safety and Health Standards, under Personal protective equipment, when referring to respiratory hazards, OSHA states, when effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

The Association of periOperative Registered Nurses has an existing recommendation for respiratory protection among their recommended practices for inpatient and ambulatory settings. In both electrosurgery and laser surgery sections, they state that N-95 respirators should be considered for use in conjunction with Local Exhaust Ventilation in disease-transmissible cases, such as when HPV-associated lesions are being treated.

A systematic review of the literature was conducted by the Division of STD Prevention (CDC) and 25 articles, including 2 guidelines, were identified that addressed HPV, laser or

electrosurgical procedures, and occupational risk to healthcare personnel. An informal literature review did not reveal significant additions. No randomized trials were identified. 7 studies showed HPV DNA was detected in laser plumes and 1 showing it in electrocautery plumes. In fact, intact HPV DNA genomes were demonstrated in smoke, which suggests viability. However, viability of HPV in smoke plumes cannot be demonstrated currently, due to lack of an appropriate bioassay capable of doing so. Animal models have been able to investigate viability of papillomavirus in surgical smoke. Viable Bovine Papilloma Virus has been demonstrated in Carbon Dioxide laser plumes, and in a study a decade ago, lesions containing BPV were vaporized and the smoke was collected. They showed that the plumes contained BPV DNA. Then, the collected plume material was injected into calves and 3 out of 3 developed fibropapillomas at the injection sites. This indicated live and infectious virus in the smoke plumes, though this experiment did not approximate an occupational exposure and risk. There were 4 studies that examined HPV contamination of face/nose and oral mucosa of HCP, during laser or electrosurgical procedures, and only 1 demonstrated it. There were 2 case reports of laryngeal papillomas reported in health care workers who were involved in treating anogenital warts or cervical lesions, though one of the cases may not have been occupationally derived.

3 studies identified that attempted to examine the incidence of warts among laser surgeons who treated HPV associated lesions. Only one compared the reported numbers of HPV lesions among surgeons to a community control group, with 5.4% of surgeons and 4.9% of community controls reporting warts, not a statistically significant difference. The other studies showed statistically significant differences in incidence but control groups may have been poorly defined.

In spite of the literature, it is important to remember that optimal ventilation and even implementation of local exhaust ventilation systems may not be feasible in all healthcare settings where these procedures are done. Also, maintenance of a smoke evacuator near the surgical site may not always be anatomically feasible.

Extensive CDC discussion has yielded the following recommendation: "Treatment of HPV-associated conditions including anogenital warts, oral warts, anogenital intraepithelial neoplasias (e.g. CIN) and recurrent respiratory papillomatosis with laser or electrosurgical procedures should be performed in an appropriately ventilated room using Standard Precautions and local exhaust ventilation (e.g., smoke evacuator). While evidence of inhalational transmission of HPV is limited, HCP performing such procedures should consider wearing an N-95 respirator to further reduce the risk of inhalation of potentially infectious aerosols during the procedure." This statement is not intended to become part of a guideline update, but may be posted on CDC's website or in other materials.

There are other viruses and bacteria that have been shown to be viable in surgical smoke. Most do not cause significant disease in humans, but there may be plausible risk with aerosolization

of other infectious diseases in smoke. CDC is currently reviewing the literature to see if respiratory protection should be considered for other infectious diseases that may be aerosolized in surgical smoke.

HICPAC DISCUSSION:

The recommendation is not warranted because there is not a significant risk of airborne transmission and because data quality is poor. The greater risk for contamination is to be found on gloves and hands.

Is plume considered an infectious bodily fluid and therefore surgical mask should be used? Plume is in part what is questioned in this review. Surgical or laser masks are considered standard of practice. Standard of care for electrocautery is less clear. The high-filtration surgical mask is recommended because the virus micron size is smaller than a traditional surgical mask, which may allow the virus to pass through. Fit tests are indicated because studies indicate a possible pathway to entry around poorly fitted masks. OSHA guidance requires N-95 respirators be fit tested at least once annually.

Do you wait for the evidence base to become adequate or do you intervene because you think there is a possibility of an adverse health outcome in a significant population? What is the risk to the wearer of a respirator? Anecdotal evidence indicates emotion state changes with prolonged use of a respirator, as well as disparate impacts among nurses with higher BMI. We don't have the data to show that the benefit outweighs the risk. Several members expressed concern that making a recommendation in this area would lead to excessive, unwarranted respirator use. Continued monitoring may be warranted. The ethical conduct of experiments may prevent RCTs on this subject since some subjects may be unduly exposed to infectious material.

The consensus of HICPAC is that recommendations on this subject are not warranted.

Liaison/Ex-Officio Reports

NIH Clinical Center: Nothing to report.

Veterans Affairs: Nothing to report.

APIC: APIC has been engaged in multiple revisions of their catheter-related UTI, CLABSI documents. APIC has been involved in multiple legislative and regulatory activities throughout the past quarter.

CSTE: report submitted in writing.

Society of Critical Care Medicine: The Society is focusing on deployment and implementation of guidelines. Two guidelines currently being considered which may be relevant to HICPAC: one on sepsis management, and one on management of sedative drugs. An article on VAE development may be found in Critical Care Medicine.

IDSA: Much work has been focused on antimicrobial resistance and development of new antimicrobial agents. IDSA/SHEA and the Pediatric Infectious Disease society will release a joint statement soon on mandatory immunization of healthcare personnel according to ACIP-recommended vaccine schedule.

Public Health Agency of Canada: Work continues on documents referred to at the prior meeting of HICPAC. A draft document on infected healthcare workers with blood-borne pathogen will likely be put out for comment in spring. The Canadian Chief Public Health Officer has released a report on key issues and HAI and TB were among them. There is a push within the agency to look more at public health intervention research.

NACCHO: provided input and support through conferences, meetings and calls with partners. NACCHO has promoted the role of local public health in providing education and dissemination of information. NACCHO continues education work viz. HAI. NACCHO is developing a guidance document for local health departments on HAI.

DNV: certified by CMS to provide healthcare accreditation in managing infection risk, using an innovative, proactive risk assessment methodology. Certification allows designees to participate as Centers of Excellence in information-sharing efforts.

SHEA: invited HICPAC membership to SHEA's April meeting in Denver. Online educational offerings are being reformatted. Ronald McDonald House guideline will be released soon. SHEA is working with the Cystic Fibrosis Foundation on a guideline pertaining to patients with that condition. SHEA has addressed questions pertaining to no-recommendation findings. A statement on healthcare worker attire is being finalized, as well as one on animals in the healthcare setting. Work on The Compendium on Implementation Strategies continues.

ACOEM: released five new guidance documents in the last several months. ACOM has begun work to update their guidance document for occupational health clinics in medical centers.

Society of Hospital Medicine (SHM): In 1995, there were 500 hospitalists in the US; today there are over 40,000. Toward the end of implementation, VA has been working with several organizations on two projects: 1) decreasing CAUTI in every state in the US, and effort already enjoying success, and 2) stewardship in long-term care settings, especially with regard to catheter, urine culture and antimicrobials.

AORN: Perioperative Nurse Week was observed November 11-15, 2013. HICPAC membership is invited to AORN's Surgical Conference and Expo March 28, 2014 in Chicago. AORN published the new reports: "Recommended Practices for Environmental Cleaning" and "Packaging for Sterilization". There will be an upcoming comment period for "Safe Environment of Care, Part Two".

The Joint Commission: A tool to implement hospitals' respiratory practices programs is almost done. The Joint Commission is engaged in an effort to bring the precepts of high reliability to long-term care by means of an AHRQ-funded project. This work should be completed mid-2014. Center for Transformation is working to reduce C. diff transmission and rates. The Commission has funded three antibiotic stewardship programs to examine the effectiveness of different program types. "Top Performers" was released in October; rapid progress has been made on a number of issues of interest to the Commission. A report was published on the recent Commission summit on certain overuse areas, among them inappropriate use of antibiotics for pediatric viral infections. Recommendations will be put forward as a result of this work.

Advisory Committee on Immunization Practices (ACIP): Four publications since the June HICPAC meeting, one on the use of 13 valent pneumococcal conjugate vaccines. Interim recommendations were made on quadravalent influenza vaccination. Update to recommendations on measles, mumps and rubella, with new guidance for post-exposure prophylaxis for measles: the recommendation for immunoglobulin now goes down to children aged birth to six months and the dose is doubled. ACIP published a new recommendation on varicella hyperimmune globulin. Discussion on the interval for pertussis revaccination continues among the Pertussis Work Group. The group voted in October to recommend meningococcal conjugate vaccine administration to young infants traveling to endemic areas. US levels of HPV vaccination remain very low.

America's Essential Hospitals (AEH): currently working with Center for Transforming Healthcare to improve hand hygiene compliance. AEH is working with CMS to reduce hospital-acquired infections.

Recess

With no further discussion or business brought before HICPAC, Chair Fishman recessed the meeting at 4:38 p.m.

Opening Session: November 7, 2013

Jeffrey Hageman, MHS, CDC/NCEZID/DHQP
Deputy Chief, Prevention and Response
HICPAC Designated Federal Official

The Designated Federal Official, Mr. Jeff Hageman, opened the floor for introductions of HICPAC voting members, ex officio members, and liaison representatives who were in attendance.

Voting members were asked to publicly disclose any new conflicts of interest.

- Alexis Elward received research support from Sage Products to study the efficacy of chlorhexidine bathing in Pediatric Intensive Care Unit (PICU) patients.
- Sage Products provided product for facilities where Mary Hayden was doing a project, but neither she nor her institution received any of this product.

Mr. Hageman confirmed that the voting members and ex officio members in attendance constituted a quorum sufficient for HICPAC to conduct its business. He called the meeting to order at 9:03 a.m.

Supply Considerations for Respiratory Protection during an Influenza Pandemic

Stephen Redd, Director, Influenza Coordination Unit, CDC

The process to establish guidance during the H1N1 pandemic was controversial. There were at least two big issues: the science on the predominant mode of transmission was not established, and the process to reassess and revise the guidance was untested before the pandemic.

- The expected demand for respiratory protective devices (RPDs) during a pandemic is expected to be far greater than the available supply. Supply includes stores held at the Strategic National Stockpile (SNS), commercial supply, and supply held at hospitals.
Assumptions:
- A high level of respiratory protection will initially be recommended in a future severe influenza pandemic
- Vaccine will not be available early on in pandemic
- New devices will not be available in the next 3-5 years
- RPDs used in health care facilities require NIOSH certification and FDA clearance (FDA clearance necessary when RPD used as a medical device)

There are two main strategies to narrow the gap between requirements and stores: decrease demand or increase supply. Some strategies to reduce demand: Institute extended use/reuse strategies for disposable RPDs (CDC is revising interim pH1N1 guidance that recommended extended use/reuse of disposable RPDs in the event of shortages); Utilize reusable respirators

(e.g., elastomeric, PAPRs, but these devices are not FDA-cleared); Consider alternative standards in an emergency (such as using respirators in hospitals and surgical masks in patient care settings). The first strategy has the potential to substantially decrease demand during a pandemic. Two main strategies to increase supply: increase manufacturing capacity of domestic RPD manufacturers and stockpile more RPDs.

Increasing domestic manufacturing capacity could be accomplished in a few ways: creating policy outlining preferential purchasing for domestically produced product, purchasing manufacturing lines or capacity, and increasing stockpiles of raw materials.

There are three main venues for stockpiling of RPDs: governmental (federal, state, local), at the manufacturer/vendor, or at healthcare facilities. The question of what to stockpile is difficult for governments to answer. Considerations with respect to inventory management: "use-by" dates, storage space needed, financing for stockpiled devices, distribution from SNS to facilities required. Stockpiling at manufacturers has certain advantages in terms of inventory management: Maintains ready-to-use supply within "Use by" date; New, improved RPDs can be added as older RPDs are used; Availability of storage space; Distribution from manufacturer to facility required, but uses usual methods. Stockpiling at end-user locations has advantages the advantage of stocking items that are normally used and would not need to be fit-tested or trained on. Stock would be rotated to move out the oldest products first. Inventory management considerations primarily center on storage space concerns and financing.

It would be better to implement plans before there is a need. Cases are regularly reported and there is urgency to develop plans as soon as possible.

HICPAC DISCUSSION:

Two other strategies might be considered: limit demand and restrict the number of people who need RPDs.

What are the criteria pertaining to RPD expiration dates? They are determined by the manufacturer and pertain mostly to liability in the event of failure.

Could non-healthcare respirators be authorized for use in healthcare settings? Yes, non-medical devices can be approved for medical use under an Emergency Use Authorization.

How were projection models developed? Different models have produced a wide range of results depending on what assumptions are used. Most assume that one respirator is used for each patient encounter. The concept of reuse is powerful and should be implemented prior to shortage. The infectious dose for different strains of influenza are likely different. Extended use would likely be less risky than reuse. Issues of case definition must be very carefully considered. The closer guidance during an event is to guidance prior to an event, the better it

will work. There is a lot of work going on to develop new, better RPDs. It is important to examine how influenza virus is actually spread: does it spread via an airborne route, and if so, how important is that? Do respirators really work, and which types are most effective? Should source control be emphasized for source patients? What are the implications of these issues in other settings in the present day? Why not use N-95 respirators in healthcare settings dealing with seasonal influenza? These are important considerations. The challenge is executing plans based on evolving knowledge. Source control is an important part of current response plans. We need to better understand the risks to healthcare workers resulting from the use of varying kinds of respirators. Stockpiling at vendors can create the challenge of vendors being forced to decide to whom to send their stores first in the event of a pandemic. Education and training requirements in healthcare settings are enormous. Both supply and demand must be tracked systematically. There seems to be high geographic variability in availability of respiratory protection, affecting supply and distribution strategies. HICPAC would likely encourage dialogue between CDC and OSHA prior to a pandemic to address issues in fit-testing of respirators.

Does CDC assume that surgical masks would be in full and free supply during a pandemic? No. Surgical masks as a means of source protection will likely be CDC's first priority.

Question to HICPAC: please comment on the notion of cost-sharing between public and private organizations to finance effective stockpiling of respirators. The advantages of stockpiling at hospitals are obvious, though they would likely need some support in that effort. Financing would likely be a more significant factor at smaller hospitals. How to ensure that healthcare workers are properly cleaning reusable respirators?

Re-Evaluating the Evidence for Chlorhexidine Dressings for Catheter Exit Sites

Jeff Hageman, MHS, CDC/NCEZID/DHQP
Deputy Chief, Prevention and Response
HICPAC Designated Federal Official

CDC is considering the question of how to produce more defined segmental guidance in a timely manner. Testing the segmental update piece of the process will be piloted using the draft NICU guidelines. Recommendation categorization is undergoing change.

The 2011 guidance listed two recommendations in the area of chlorhexidine dressings for catheter exit sites:

- Use a chlorhexidine-impregnated sponge dressing for temporary short-term catheters in patients older than 2 months of age if the CLABSI rate is not decreasing despite adherence to basic prevention measures, including education and training, appropriate use of chlorhexidine for skin antisepsis, and maximum sterile barrier (MSB) precaution.
- No recommendation is made for other types of chlorhexidine dressings.

Quality of evidence considerations played heavily in the formulation of these recommendations. Improvements have been made in articulating the net clinical benefits and net harms.

The key question: For patients outside of neonatal intensive care units, do chlorhexidine gluconate (CHG) dressings compared to standard dressings for temporary non-tunneled catheters affect the risk of catheter-related infections? The answer may be found in an analysis of outcomes: infection (e.g., catheter-related infection (CRI), catheter-related bloodstream infections (CRBSI), catheter-associated bloodstream infections (CABSI), and adverse events (AE). Most AE reports involve contact dermatitis but more thought should be given to AE that should be given particular attention.

The initial search strategy included all references from the 2011 guideline search. The search was expanded to include references up to June 2013. Abstract and full-text reviews were conducted internal to CDC. Studies were included if they were relevant to the key question, clinical practice guidelines, systematic review (SRs), RCTs and written in English. This would trigger a full-text review. Following full-text review, studies were excluded if no infection outcomes were reported, did not include comparison of CHG dressing, were not a primary study, or if they are the NICU studies that are currently being addressed in the NICU guideline. The search rendered six randomized trials.

The identified trials mostly dealt with adult populations; one dealt with pediatric cardiac ICU patients. Five studies used CHG sponge; one used a chlorhexidine gel. Standard dressings were fairly consistent across the board. The power of the studies varied widely. Three studies showed significant decreases in CRI. Two studies also showed decreases in CRBSI. Three studies did not show significant decreases for CRI, CRBSI or CABSI. Two studies addressed AE more systematically than the other studies, identifying some severe contact dermatitis. No systemic AE were reported in any study.

Next steps include a targeted search to ensure AE were not missed, as well as completing the draft evidence review tables. Evidence grading will then be completed.

Should catheter colonization studies also be included in consideration of this issue? What other AE should be considered in literature searches?

HICPAC DISCUSSION:

As we move to a process of continual update of recommendations, how are focus areas decided upon? The answer is twofold. First, things will occur which necessitate response and decision guidance. The majority, however, should be proactive. HICPAC can help to identify topic areas for further consideration. Critical assessment of the question for which we desire answers is important for HICPAC to perform. Defining this process will require more work.

More detail on severe reactions would help in analysis of CRI.

CLABSI has been reduced since question came under examination; does study power need to be adjusted? Adherent dressings are an important variable to consider.

Does CDC utilize FDA databases in identifying AE? That is a good idea, but not aware that CDC has in the past, especially with respect to product-related issues.

Understanding Non-Ventilator-Associated Pneumonias and other Lower Respiratory Infections

Isaac See, DHQP, CDC

Work concerning healthcare-associated pneumonia has often focused on ventilator-associated pneumonia, and a lot of work has gone into defining the paradigm of ventilator-associated conditions. This talk focused on healthcare-associated pneumonia that is not ventilator-associated. How common is non-ventilator associated pneumonia? What are the clinical correlates of events detected using current surveillance definitions for pneumonia and lower respiratory infections? What clinical syndromes do these events represent?

NHSN pneumonia definitions require radiographic evidence and a combination of clinical signs/symptoms, sometimes in conjunction with microbiologic findings.

Ventilator-associated pneumonia (VAP) is currently defined in NHSN as a pneumonia event where the patient is on mechanical ventilation for more than 2 calendar days on the date of the event, and the ventilator was in place on the date of the event or the day before. NHSN also has an HAI type simply called lower respiratory infection (LRI). LRI includes two subtypes:

- BRON, intended to represent bronchitis, tracheobronchitis, and associated syndromes, requires 2 signs or symptoms plus laboratory findings in the absence of radiographic evidence of pneumonia.
- LUNG, encompassing empyema and lung abscess, requires pleural fluid or lung tissue, or direct evidence of infection from imaging or surgery.

How common is non-ventilator associated pneumonia? Pneumonia and LRI account for 26% of all HAIs. Non-vented pneumonia is more common than VAP. Prior work has indicated that the VAP surveillance definition suffers from lack of specificity, often capturing events that represent clinical conditions other than pneumonia, such as volume overload; however no work has looked at the clinical correlates of surveillance definitions for lower respiratory infections including LRI and non-vented pneumonia.

A chart review project of cases reported to NHSN from selected hospitals in Pennsylvania was performed. A sample of adult and pediatric patients reported to have pneumonia or LRI were reviewed. For each event, the reviewing team first verified that an appropriate surveillance

definition was fulfilled and then recorded the clinical diagnosis documented by the treating physicians. Altogether, 250 events reported from 2011 to 2012 were reviewed: 101 pediatric cases, representing 40.6% of all pediatric cases reported from participating hospitals, and 149 adult cases, representing 25% of all adult cases reported in those hospitals. In 21% of pediatric LRI cases, no diagnosis was documented. Seventy percent of pneumonia cases corresponded to diagnoses of healthcare-associated pneumonia or pneumonitis. Most other pneumonia events also were attributed to other types of respiratory infections. Analysis of the adult cases yielded similar results to those found in the pediatric set.

This chart review yielded three main summary points. 1) The reviewing team found that radiographic reports needed for the case definition are very difficult to interpret, even for non-ventilated pneumonia, and are a likely source of potential variation in classification. 2) The LRI definition appears to capture a broad range of diagnoses. It's not specific for lower respiratory infections, and in both pediatric and adult patients, also seems to frequently identify events that don't correspond to a clinical syndrome. 3) In contrast, the pneumonia definition more closely aligns with clinical diagnosis of pneumonia.

These data suggest that non-vent pneumonia are common; is this consistent with people's clinical experience? What are additional surveillance needs for non-vent pneumonia? How do we approach prevention of these events in healthcare settings?

HIPCAC DISCUSSION:

How much microbiology did you collect from the review of these cases? All the LRIs had either positive culture or a positive PCR antigen test. For the pneumonia cases, whatever was documented in the chart was collected. Most case reports to NHSN on pneumonia come through a clinical pathway, meaning that no microbiologic findings are reported. Most efforts taken to prevent VAP are not applicable to non-ICU patients.

How well were the aspiration events picked up in the surveys? UHC evidence on non-ventilator-associated pneumonias is dominated by aspirations. This is really a question of documentation. An overwhelming number of pneumonias are due to micro-aspirations.

What do we need to prevent ventilator-associated pneumonias? The first step may be to better capture aspiration events or hyper-sedation. We need to understand what proportion of pneumonias lead to hospital readmission. It's likely that hospitals are already addressing these sorts of issues, though they may never be published. Understanding viral component of the phenomena will be very important, especially for pediatric practice. Better diagnostic tools are available now than in the past; this should help solve some of the issues uncovered.

Non-infectious aspiration events may be volume issues.

Definitional problems in surveillance are a real challenge. Before conducting additional surveillance, look at inter-observer variability with vignette studies. Identifying ability to swallow at the point of admission may help to reduce the phenomenon.

What additional research is needed in this area? Studies should address the need for surveillance as a function of preventability. Can we collect information from institutions which have already performed work on quality improvement in treatments? We need to better understand aspiration-associated pneumonia in infants, as well as understanding the role of rhinovirus.

Continued Discussion of Core Infection Prevention and Control Practices

Ruth Carrico, HICPAC Member

The work group continues to work on the narrative section of the report. We want to ensure that the report remains usable and not too ponderous. Is HICPAC comfortable with the current list, understanding that aseptic technique will be moved to become its own core practice? Additional work with respect to the practices on personnel health is needed, especially in immunization and when HCPs should not come to work. Should the document include a checklist for end users to enable gap identification and point out areas of focus?

HICPAC Liaison members will be instrumental to the success of this project as they think about how to apply its lessons at their organizations. Two goals: to identify core practices that should not be reconsidered in a variety of areas, and to address the lack of attention to the core practices in alternate care settings. Implementation will not be addressed in the document.

How prescriptive do the guidelines need to be? Organizations have many competing priorities; the core practices can simplify or resolve many issues for them. Adoption of the core practices would help save time and money at adopting settings. The value of the project lies in moving the conversation from precautions to expectations. Infection control is now viewed as part of the job of every healthcare professional. Strategic partners in implementation would help identify gaps and weaknesses. Changing the structure of the document might help it to be perceived as more applicable by a wider population than infection preventionists or epidemiologists.

Public Comments

Renee Odehnal, RN, of Ethicon and Biopatch, has been working on central line care and maintenance. Ethicon and Biopatch love the 2011 CDC guidelines. Thanks for the work that HICPAC does and all the difficult decisions that have to be made. The guidelines are a primary source that hospitals use to make their decisions for patient care and delivery. How to address unresolved issues and no-recommendations? Many hospitals and providers will appreciate

more clarity on these issues. An evaluation might be helpful. Perhaps more helpful would be to provide a range of options and “the expert opinion option”. Expert opinion can vary greatly, but, under the CDC letterhead, it will be used to make very important decisions in healthcare settings.

Summary and Wrap-Up

Neil Fishman, HICPAC Chair

HICPAC proposed a framework for providing interim expert guidance when there is an absence of sufficient evidence for formulating a recommendation. HICPAC also proposed a list of recommendations, culled from the existing CDC Infection Prevention Guidelines, which should be considered foundational to infection prevention despite the level of evidence available to support these recommendations. Work will continue on both of these projects.

CDC presented on proposed Guidance for Antimicrobial Stewardship programs, a possible recommendation for respiratory protection for procedures involving surgical lasers and smoke plumes, considerations for respiratory protection during an influenza outbreak, re-evaluating evidence for chlorhexidine dressings for catheter exit sites and non-ventilator pneumonias.

Closing Session

With no further discussion or business brought before HICPAC, Chair Fishman recessed the meeting at 11:38 a.m. on November 7, 2013.

I hereby certify that, to the best of my knowledge, the foregoing minutes of the proceedings are accurate and complete.

Date

Neil O. Fishman, MD,
Chair, Healthcare Infection Control
Practices Advisory Committee