

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
August 20, 2019
Atlanta, Georgia

Record of the Proceedings

Table of Contents

Record of the Proceedings..... 1

 Meeting Agenda 3

 Executive Summary 6

 Meeting Transcript 7

 Welcome and Roll Call 7

 Healthcare Personnel Guideline Workgroup Update 9

 NICU Guideline Workgroup Update 17

 Public Comment..... 32

 Vote and Call Summary..... 33

 Adjourn 39

Certification 41

Attachment #1: Abbreviations and Acronyms..... 42

Meeting Agenda

Healthcare Infection Control Practices Advisory Committee (HICPAC)

August 20, 2019
Centers for Disease Control and Prevention
Atlanta, Georgia
Teleconference

Tuesday, August 20, 2019

<i>Time</i>	<i>Topic</i>	<i>Purpose</i>	<i>Presider/Presenter (s)</i>
2:00pm	Welcome and Roll Call	Information	Hilary Babcock (HICPAC Co-Chair) Lisa Maragakis (HICPAC Co-Chair) Mike Bell (DFO, HICPAC; CDC)
2:10	Healthcare Personnel Guideline Workgroup Update	Information/ Discussion	Hilary Babcock (HICPAC Co-Chair)
2:55	NICU Guideline Workgroup Update	Information/ Discussion	Kristina Bryant (HICPAC)
3:40	Public Comment	-	-
3:50	Vote and Call Summary	Discussion/Vote	Hilary Babcock (HICPAC Co-Chair) Lisa Maragakis (HICPAC Co-Chair)
4:00	Adjourn	-	-

List of Attendees

HICPAC Members

Dr. Hilary Babcock, Co-Chair
Dr. Lisa Maragakis, Co-Chair
Dr. Deverick Anderson
Dr. Kristina Bryant
Dr. Vineet Chopra
Ms. Elaine Dekker
Dr. Mohamad Fakih
Dr. Judy Guzman-Cottrill
Dr. Michael Lin
Dr. Jan Patterson
Ms. Michael Anne Preas
Dr. JoAnne Reifsnyder

ex officio Members

Ms. Elizabeth Claverie-Williams, Food and Drug Administration (FDA)
Dr. David Henderson, National Institutes of Health (NIH)
Dr. Melissa Miller, Agency for Healthcare Research and Quality (AHRQ)
Dr. Daniel Schwartz, Centers for Medicare and Medicaid Services (CMS)
Ms. Judy Trawick, Health Resources and Service Administration (HRSA)

Liaison Representatives

Ms. Darlene Carey, Association of Professionals of Infection Control and Epidemiology (APIC)
Ms. Holly Carpenter, American Nurses Association (ANA)
Mr. Paul T. Conway, American Association of Kidney Patients (AAKP)
Karen deKay, Association of periOperative Registered Nurses (AORN)
Dr. Louise Demby, Society for Healthcare Epidemiology of America (SHEA)
Ms. Kathleen Dunn, Public Health Agency of Canada (PHAC)
Dr. Alan Klinger, American Society of Nephrology (ASN)
Dr. Chris Lombardozi, America's Essential Hospitals (AEH)
Ms. Dana Nguyen, National Association of County and City Health Officials (NACCHO)
Dr. Jennifer Meddings, Society of Hospital Medicine (SHM)
Dr. Mark Russi, American College of Occupational and Environmental Medicine (ACOEM)
Dr. Robert Sawyer, Surgical Infection Society (SIS)
Dr. Christa Schorr, Society for Critical Care Medicine (SCCM)
Dr. Andrea Shane, Pediatric Infectious Disease Society (PIDS)
Ms. Margaret VanAmringe, The Joint Commission

CDC Representatives

Kristina Baister, DHQP
Michael Bell, DHQP
Andrea Benin, DHQP
Destani Bizune, DHQP
Brittany Booker, DHQP
Cedric Brown, DHQP
Koo Chung, DHQP
Angela Coulliette-Salmond, DHQP
Kendra Cox, DHQP

Janet Glowicz, DHQP
Rita Helfand, DHQP
Jamesa Hogges, DHQP
Leann Jackson, DHQP
Nalini Singh, DHQP
David Kuhar, DHQP
Preeti Kutty, DHQP
Kent Lemoine, DHQP
L. Clifford McDonald, DHQP
Tara Millson, DHQP

Latisha Powell, DHQP
Kristin Roberts, DHQP
Christina Sancken, DHQP
Devon Schmucker, DHQP
Srila Sen, DHQP
Erin Stone, DHQP

Members of the Public

Jacqueline Abel, Scarborough Health Network
William Archbold, DF Technical and Consulting Services INC
Anne Augustin, Public Health Ontario
Lynne Batshon, Society for Healthcare Epidemiology of America
Yin Chan, Advance Sterilization Products
Jill Culaner, DED
Melissa Delazier
Patty Dorton, Buchanan General Hospital
Sylvie Dwyer, North Bay Perry Sound Health Care District
Jeremy Edwards, American Council of Accredited Certification
Brittany Fisher, Essentia Health
Catherine Florence, NOVO Designs
Sara Gallinger, Alberta Health Services
Sylvia Garcia Houchins, The Joint Commission
Susan Garramone, Oxford Immunotec
Maryellen Guinan, Americas Essential Hospitals
Sheryl Harper, Alberta Health Services
Kim Houde, Alberta Health Services
Ami Hughes, Shirley Ryan Ability Lab

Sheri Chernetsky Tejedor, DHQP
Lauren Wattenmaker, DHQP
Todd Weber, DHQP
Katie White, DHQP
Cheryl Williams, DHQP

Bennett Jones
Doe Kley, The Clorox Company
Jill Kumasaka, University of Washington
Caroline Matilly, Cardinal Health
Scott Mccloud, NBC Medical
Mary McGoldrick, Home Health Systems Inc.
Melissa Miller, Public Health, Ontario
Aaron Milstone, Johns Hopkins University
Ronell Myburgh, DNV-GL
Janet Prust, 3M Company
Silvia Quevedo, APIC
David Rausch, Phoenix Controls
Jennifer Regier, Thompson General Hospital
Christi Robbins, County San Diego Public Health Nurse
Maria Rodriguez, Xenex
Christine Sherren, IWK Health Center
Sandra Sieck, Sieck Health Care
Linda Spaulding, INCO & Associates.com
Catherine Thorin, Novo Designs
Kristy Weinschel, SHEA
Nancy Wilde, Iowa Department of Public Health
Sandra Witek-Eames, Walter Reed
Emily Wunsch, Center for Family Health

Executive Summary

The US 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 teleconference meeting of the Healthcare Infection Control Practices Advisory Committee (HICPAC) on August 20, 2018. The Designated Federal Official (DFO) and co-Chairs confirmed the presence of a quorum of HICPAC voting members and *ex officio* members, which was maintained throughout the meeting.

Dr. Hilary Babcock updated HICPAC on the Healthcare Personnel Guideline Workgroup. HICPAC unanimously voted to approve the draft recommendations and accompanying text for the Varicella section of the Healthcare Personnel Guideline, Section 2.

Dr. Kristina Bryant described the work of the Neonatal Intensive Care Unit (NICU) Guideline Workgroup, including updates on the *Staphylococcus aureus* (*S. aureus*) and Respiratory Illness sections, and draft recommendations for the Central Line-Associated Bloodstream Infection (CLABSI) section. HICPAC unanimously voted to approve the draft recommendations and accompanying text for the following CLABSI prevention topics: optimal catheter type and insertion site; optimal dwell time for umbilical catheters; optimal dwell time for percutaneously inserted central catheters (PICCs); optimal number of catheter lumens; prophylactic anticoagulant infusion; and prophylactic antimicrobial infusion.

HICPAC stood in recess at 4:10pm on August 20, 2019.

**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**

August 20, 2019

Teleconference

Meeting Transcript

The United States 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) on August 20, 2019, via teleconference.

Welcome and Roll Call

Coordinator: Welcome and thank you for standing by. At this time all participants are in a listen-only mode until the question-and-answer session of today's conference. At that time you may press Star 1 on your phone to ask a question. I would like to inform all parties that today's call is being recorded. If you have any objections you may disconnect at this time. I would now like to turn the conference over to Michael Bell, thank you, you may begin.

Michael Bell: Hi everybody this is Mike Bell at CDC. I'm here with the rest of the HICPAC crew. Thank you for joining today's virtual meeting. We have quorum as was established by roll call and so with that I'm going to start by introducing informally some of our new members. I will look forward to a proper introduction in person at our November meeting.

But just going through very quickly in alphabetical order, Dr. Mohammed Fakhri, he's the Vice President of Quality and Clinical Integration at Ascension in Gross Pointe in Illinois. Dr. Judy Guzman-Cottrill, she's a Professor of Pediatrics in the Division of Infectious Diseases, Oregon Health Sciences University in Portland.

Dr. Michael Lin, Associate Professor and Division of Infectious Disease Faculty Member at Rush University Medical Center in Chicago. And Dr. Joanne Reifsnnyder, Executive Vice President of Clinical Operations Chief Nursing Officer at Genesis Healthcare in Kennett Square, Pennsylvania. To each of you thank you for joining us today. We're extremely excited to have you on board.

One thing that I'll clarify before I turn it over to our chairs, at the end it's not a Q&A session but there will be an opportunity for public comment so we'll open that at the end. And with that I will hand it over to Doctors Babcock and Maragakis.

Lisa Maragakis: Thank you Mike, this is Lisa Maragakis. I would like to add my welcome to our new members. We're also very excited to meet you in person at the next meeting.

Mike, I know that we have done a roll call and as you said we have quorum. Do we need to start off, however, going around for public roll call and/or conflicts of interest?

Dr. Bell: Not a roll call but the declaration of any new conflicts of interest should be done for the members.

Dr. Maragakis: Okay that's terrific. Koo, could Hilary and I ask you to, because you have the list of attendees, to call on us so that we can state our conflicts of interest or any updates.

Mr. Chung: Absolutely, thanks Lisa. We'll go ahead and start off with our co-chairs, Hilary Babcock?

Hilary Babcock: Hi, Hilary Babcock, Washington University in St. Louis, no new conflicts of interest.

Mr. Chung: Thanks, Hilary. Lisa Maragakis?

Dr. Maragakis: Lisa Maragakis, Johns Hopkins University, no new conflicts of interest.

Mr. Chung: Thank you. I'm going to see if Dev Anderson was able to join the call, Dev, are you there?

Deverick Anderson: Yes, I'm here.

Mr. Chung: Thank you, Dev.

Dr. Anderson: Dev Anderson, Duke University, no new conflicts.

Koo Chung: Kris Bryant?

Kristina Bryant: Kris Bryant, University of Louisville, I've been an investigator on vaccine trials funded by Pfizer and I've received honoraria from MedStudy for work on an educational product.

Mr. Chung: Vineet Chopra?

Vineet Chopra: Vineet Chopra, University of Michigan, no new conflicts.

Mr. Chung: Elaine Dekker?

Elaine Dekker: Elaine Dekker, Zuckerberg Campuses for General Hospital, no conflicts.

Mr. Chung: Mohammed Fakih?

Mohammed Fakih: Mohammed Fakih at Ascension Health, no conflicts.

Mr. Chung: Judy Guzman-Cottrill?

Judy Guzman-Cottrill: Judy Guzman-Cottrill, Oregon Health and Science University, no new conflicts of interest.

Mr. Chung: Michael Lin?

Michael Lin: Michael Lin, Rush University Medical Center, no conflicts of interest.

Mr. Chung: Michael Anne Preas?

Michael Anne Preas: Michael Anne Preas, the University of Maryland Medical Center, no conflicts.

Mr. Chung: Joanne Reifsnyder?

Joanne Reifsnyder: Joanne Reifsnyder, Genesis Healthcare, no new conflicts.

Mr. Chung: Great, is there any HICPAC member that I missed that's on the call?

Jan Patterson: This is Jan Patterson.

Mr. Chung: Thanks Jan, yes.

Dr. Patterson: And so my only new disclosure is that a spouse has a grant from Cidara for antifungal work.

Mr. Chung: Thanks, Jan. Hilary, Lisa, that's everybody and their disclosures.

Dr. Maragakis: Great, thank you Koo, and thank you to everyone for that. And with that I think we can start with our meeting agenda, any updates or announcements.

The first agenda item I would turn over to Hilary to lead the discussion of the Healthcare Personnel Guideline Workgroup update, Hilary?

Healthcare Personnel Guideline Workgroup Update

Dr. Babcock: Thanks Lisa, and I'll just take this opportunity to also extend the welcome to our new members as well as our returning members. Again, we're pleased to have you all with us here today and look forward to seeing all of you in person in November.

So I'll go ahead and get started with the update for *the Guideline for Infection Control in Healthcare Personnel*. These slides were sent out in advance with the pre-meeting material so you can follow along with those slides.

As always, there's a disclaimer that these are all draft findings and conclusions. On Slide 3, the goal for our Workgroup is to provide updated information on infection control for healthcare personnel, and we're focusing today on "Section 2."

The charge to the Workgroup is to focus on pathogen-specific issues for infection control in healthcare personnel, and where information is out of date, the Workgroup will make updates using evidence-based methods where evidence is available.

On Slide 4, you can see a quick status report. I'll just pause to mention that my office, while it is 15 floors above, is above our emergency room, so you may hear sirens in the background. It's not an emergency that affects us, it's just that we're over the emergency room, don't panic.

Okay, so the status report for Section 2, first to just to mention that "Section 1" on the establishment and work of an occupational health program has been put through CDC clearance and we hope to have that posted on the infection control guidelines Web site soon, so that's very exciting.

Section 2 is the section that focuses on specific infections that can be transmitted among healthcare personnel and patients. Previously, the committee has approved several sections, including Pertussis, Mumps, Rubella, Measles, Meningococcal Disease, Diphtheria, and Group A strep.

At our May meeting, we had some spirited discussion around the Varicella recommendations, and we presented draft recommendations for Parvovirus and CMV [cytomegalovirus] and had some brief discussion around conjunctivitis and polio as well.

We have some work going on around Viral Respiratory Pathogens and *S. aureus* [*Staphylococcus aureus*] and ongoing discussions around Parvovirus and CMV content development. And next up, Rabies, Scabies, Pediculosis, Hep[atitis] A, B, C,

Herpes, HIV, and Tuberculosis, just in case you worry that we didn't have enough to do.

Our methodology update - because we have several new members, I will just review the methodology of this Workgroup, which is a little different than for some of our other guideline Workgroups. So, different from prior guideline updates, what we are doing is, for each pathogen we're reviewing the 1998 pathogen recommendations for elements that can be deleted or updated, and those that need to be pulled forward.

And specifically, we look for outdated recommendations that have already been updated elsewhere, most commonly in ACIP [Advisory Committee on Immunization Practices], but sometimes by specific sections within CDC. We look for areas with significant gaps between the 1998 recommendations and current practices, areas with new data or literature that can inform updated recommendations, and areas of need where the '98 guideline does not address a common issue or an area of concern as identified by Workgroup members.

We work closely with the CDC pathogen-specific subject matter experts, who provide feedback on gaps, on needed updates, and on available literature that we should consider. And depending on that review process, either a systematic review or an informal review is conducted, and any new literature, when found, is incorporated.

What this means practically for our guideline is that for pathogens with a full formal literature review, the Key Questions will inform that literature review, and the literature review will inform the recommendation - but there may be some broader discussion, and we purposely pick more open-ended Key Questions.

And for pathogens with little to no new information or data in the literature, which is often many of these, when we're trying to look specifically at the risk in a healthcare setting of transmission among healthcare workers and patients, most of the recommendations will therefore be based on less-formal reviews, on expert opinion, other relevant guidelines, and harmonizing with existing recommendations. Our goal is to provide practical and thoughtful guidance where there is little directly applicable literature.

As a reminder, HICPAC did publish a Core Practices document a couple of years ago, and several elements within the Core Practices document also address occupational health systems and policies, such as ensuring that they have appropriate immunizations or evidence of immunity, that there are appropriate sick leave policies that discourage presenteeism, that there are systems for healthcare personnel to report potentially infectious illnesses, and a reminder to adhere to state and federal standards and directives. These things are therefore not necessarily restated in each section of the pathogen-specific guidance, as we can refer to this guidance for that information.

This slide summarizes the pathogen sections that will eventually be included. In green are the ones that are in progress or up for discussion today. In red are upcoming and ongoing pathogens, and in blue are the ones that have already been approved by HICPAC.

The first group of pathogens are being submitted to CDC clearance along with an Executive Summary and Introduction, and Methods section, and then will be posted for public comment. And that first grouping includes Diphtheria, Meningococcal Disease, Group A Strep, and Pertussis.

The workflow of deciding amongst these pathogens, what order we do them, and how we group them, is really guided by the need for an update in terms of urgency, logical clustering such as keeping together Measles, Mumps and Rubella, and efficiency in working with the CDC subject matter experts and the clearance process to try and group things together that go through the same section.

So on Slide 9 is the start of our discussion around Varicella, which will be most of the focus today. We are bringing this section back again and we are hoping for a vote at the end of the meeting today.

For the development of the Varicella section, we reviewed the '98 recommendations, we reviewed the ACIP 2011 recommendations, we reached out to the CDC subject matter experts, and then we've presented initial "draft" draft recommendations and a narrative text to HICPAC in August of 2018.

We took the feedback from the full committee and revised and edited in consultation with the subject matter experts, and then brought back a draft section to HICPAC in May [2019]. We had some additional discussion then, and the section was brought back to the Workgroup for additional refinement and a little more discussion with our subject matter experts. We clarified some of the recommendations and the language to align them with Isolation Precautions recommendations as well.

So starting on Slide 11, we'll present the original recommendations from the 1998 guidance and how we have changed those or updated them. The old recommendations started with details about administration of the varicella vaccine, which, as noted before, will be deleted with a reference to the ACIP guidance as shown here, and to the HICPAC Core Practices document.

Note that I'm presenting the 1998 recommendations a little bit out of order, beginning with the ones that are not carried forward because they are addressed elsewhere, and because we've framed these recommendations a little bit differently. So these Sections E and F will also be deleted, as these relate to overarching program management in terms of guidance for managing exposed personnel and people who have received the vaccine, and what kind of precautions are needed.

Recommendations L and M will also be deleted, as these are again related to serologic screening and vaccination and will be referred to the ACIP recommendations. The draft updated recommendations for work exclusion and exposure management are framed a little bit differently, so this is just a summary on the next couple of slides of the old recommendations. There was no recommendation for postexposure varicella vaccination. There was a recommendation to exclude from work people with varicella and exposed people, depending on their susceptibility.

On Slide 15, again more about the work restrictions and how those should be managed. And these are framed a little differently in the updated guidance. Slide 16 refers to the use of varicella zoster immune globulin. And again this will be referred to the ACIP 2011 and the 2013 update document on administration of immune globulin. But the - our guidance will include appropriate work restriction guidance for those that do receive the varicella immune globulin.

So now that you have all of that firmly in your head from the prior guidance, on Slide 17 starts new draft recommendations, which again are being presented for a vote today.

Just a quick note that varicella, unlike MMR, measles, mumps and rubella, does not refer to “presumptive immunity.” For varicella, a vaccine or serology meets the definition for immunity, so it’s just evidence of immunity, not presumptive evidence of immunity.

So Recommendation 1 says, “For healthcare personnel with evidence of immunity to varicella who have an exposure to varicella or disseminated or localized herpes zoster, postexposure prophylaxis is not necessary, work restrictions are not necessary, and daily monitoring for signs and symptoms starting days 8 through 21 after the last exposure should be implemented.”

Recommendation 2 on Slide 18 says, “For healthcare personnel without evidence of immunity to varicella who have an exposure to varicella or to disseminated or localized herpes zoster, administer post-exposure prophylaxis in accordance with CDC and ACIP recommendations.” B says to, “Exclude from work from the 8th day after the first exposure through the 21st day after the last exposure.”

And sub-bullets 1 and 2 note that work restrictions are not necessary for healthcare personnel who have previously received a single dose of the varicella vaccine and will receive the second dose of vaccine within 5 days after exposure. And if varicella zoster immune globulin is administered, that the work exclusion should be extended through the 28th day after the last exposure.

On Slide 19, Recommendation 3 is, “For healthcare personnel with varicella, exclude from work until all lesions have dried and crusted, or, for those with only non-vesicular lesions that do not crust, exclude from work until no new lesions appear within a 24-hour period.”

Recommendation 4, “For healthcare personnel with disseminated herpes zoster or for immunocompromised healthcare personnel with localized zoster until disseminated disease has been ruled out, exclude from work until all lesions have dried and crusted.” This Recommendation 4, we noted at the prior in-person meeting, was updated to align with the isolation recommendations from the Isolation Precautions guideline.

Recommendation 5 is, “For healthcare personnel with localized herpes zoster, including vaccine-strain herpes zoster, and for immunocompromised healthcare personnel with localized zoster who have had disseminated disease ruled out, cover all lesions and exclude from direct care of patients at increased risk for complications from varicella disease until all lesions are dried and crusted. If lesions

cannot be covered, for example on the hands or face, exclude from work until all lesions are dried and crusted.”

This is the recommendation that sparked a great deal of discussion at our May 2019 HICPAC meeting. There was a fair amount of discussion around current practice and the role or benefit and the amount of protection that was provided by covering when providing care for higher-risk patients. The Workgroup requested a literature review and consulted with the Varicella subject matter experts.

There was some discussion at the last meeting, I should note, among committee members that suggested some variability in current practices. Several Workgroup members, after the meeting, informally canvassed larger groups of people working in this area through various listservs, who reported more consistency in mostly following the recommendation as it was.

This recommendation, of note, is not different from the 1998 recommendation. We did ask the evidence review team if there was any evidence that would support a change in this recommendation, and they did not find any. And the subject matter experts group was also not aware of any new data that would drive a change in this recommendation.

So as noted, we did look for information about covering lesions and whether that could prevent nosocomial transmission of zoster from personnel to patients, but no relevant articles were found. And the summary of that literature review process was in the pre-meeting materials as an appendix.

We added a mention in the narrative about the types of covering used for localized zoster, as you can see on Slide 22. The new changes are put in red. And where we noted that varicella can spread from a person with localized active zoster to cause varicella in a susceptible person and we note how that's done, we noted that covering the lesions is thought to reduce the risk of transmission to others, and noted the duration of infectiousness of the lesion.

We added this paragraph in red about healthcare personnel with localized herpes zoster, how covering the lesions serves a twofold purpose of reducing the risk of transmission as well as protecting the compromised skin from contamination and potential secondary infection.

And we noted that data on the efficacy of one type of covering versus another for preventing virus transmission are exceedingly limited. The data that were found were also included in the appendix in your pre-meeting materials.

We did note that some facilities have policies regarding what types of dressings may be used to cover lesions in order for healthcare personnel with localized herpes zoster to report to work. We, the Workgroup, spent some time in discussion around how to handle these issues and really felt that we couldn't be more specific in the recommendation without a more solid evidence base. So we are currently comfortable with the recommendation as it is stated here on Slide 20, Recommendation 5A and B, and are hoping we can move forward with that recommendation - which again, is not a change from the prior recommendation.

So I'll just quickly go through sort of next steps here and then pause for any questions or discussion. So again as noted, we're hoping for a vote today on the

Varicella section, depending on what kinds of comments and feedback you all might have.

We are continuing work on Conjunctivitis and Adenovirus. There is a focused literature review requested to address duration of work exclusion for that syndrome. We have work ongoing on Viral Respiratory Diseases and *S. aureus*. We have meetings coming up in the next couple of weeks with the CMV and Parvovirus subject matter experts.

Polio has been put on hold, as some other CDC groups are developing some materials that might overlap with this section, so we're waiting on word from the subject matter experts at CDC about moving forward on Polio so that we can harmonize with that work.

The revised draft of Pertussis, Meningococcal Disease, Diphtheria, and Group A Strep will be reviewed based on CDC clearance and public comment, and we'll bring those back to the next HICPAC meeting. We're beginning our next pathogen sections, and then as I noted before, Section 1 has completed clearance and we hope to have that posted for everyone soon.

On Slide 24, just want to acknowledge the really great group of people that provide their expertise and knowledge and time and effort to working on this guideline, which has been ongoing for some time. So their names are all shown here.

Also just to note, David Kuhar is our expert from CDC who's done the bulk of the writing in preparation for this, with all of our input, and has been a great partner for the HICPAC members, as well as the rest of the support staff that's shown here as well.

So I will stop there and I'm happy to take any questions or comments from the committee.

Dr. Maragakis: Great, thank you Hilary, and thank you to the entire Workgroup. We know that this is a tremendous amount of work on your part, the Workgroup part, and the CDC subject matter experts, so thank you again.

Does anyone have comments or questions for Hilary?

Dr. Anderson: This is Dev, I have a question.

Dr. Babcock: Sure.

Dr. Anderson: Hey, Hilary. Back on Slide 17 and 18, I apologize if I missed it, can you clarify the definition of evidence of immunity? Are we talking about documented vaccination, documented in prior infection, or a true antibody documentation?

Dr. Babcock: Sure. So, the criteria for evidence of immunity for varicella is in the ACIP guidance, and it includes documentation of 2 doses of vaccine or a physician-documented history of disease of either varicella or varicella zoster. And then the third element is, or the third way that you could meet this definition is, with a positive antibody titer.

Dr. Anderson: Got it. And so I guess again not knowing from slides what a full document ends up looking like, even though I know that that would be referenced back to the ACIP,

that strikes me as a definition that'll be useful to have at your fingertips in this particular document as well.

Dr. Babcock: Yes, so we did send out the full text, and whether we have the complete definition of what meets criteria for immunity - I think we don't, but we do have the link included. Because - so your point is well-taken.

We do struggle with trying to repeat things that are held elsewhere in the interest of not having duplication and being sure everything is up to date, but we will ensure that that is clear in the text.

Dr. Anderson: Okay, thanks.

Dr. Maragakis: Thanks, Dev. Hilary, while we're on Slide 17, I just wanted to add a question that I had, we may have discussed this at the last meeting but can you remind me about 1C, implementing daily monitoring for signs and symptoms of varicella after the last exposure?

I just wonder, did we have any discussion of the fact that some centers consider immune healthcare workers to be immune to varicella and to be able to care for those patients without considering an exposure?

Dr. Babcock: Yes, so we have 2 things in the document text that address that, one is the - is an exposure definition to try and clarify what would count as an exposure or not. And the second is that we have differing language in some of the different pathogens around this daily monitoring point. So in this case, this would fall under sort of the general, you should let occupational health know if you have a rash or a fever. In some others, we have stronger language about the importance of active daily monitoring by occupational health for this kind of follow-up.

So this is a less stringent "implement daily monitoring" recommendation, falling into the sort of, you should let us know if you have these symptoms, as a general rule.

Dr. Maragakis: Okay, thank you, and that's spelled out elsewhere or in the text of the recommendation, is that what you're saying?

Dr. Babcock: Yes, that is more clear in the text.

Dr. Maragakis: Great, thank you. Other questions, comments?

Dr. Reifsnyder: Yes this is Joanne Reifsnyder, I've got a question on Slide 20. And I understood from the presentation that this is basically unchanged from 1998, and I appreciate the additional review that we've done regarding covering of lesions. I'm wondering, because I'm new, I'm not sure in 5A, excluding from direct care of patients at increased risk of complications from varicella disease, is that patient group defined elsewhere?

Dr. Babcock: We initially had included some examples of what that patient population might look like. We decided not to include the examples in the recommendation, but they are mentioned in the text around who is at increased risk of complications, which primarily mentions pregnant people, immunocompromised people, neonates, and they are mentioned in the text.

Dr. Reifsnyder: Okay, thank you.

Dr. Maragakis: Anyone else?

- Dr. Christa Schorr: Hi Hilary, it's Christa Schorr. I just have a quick question. I appreciate all the work that your group has done with this and I just, I'm new to group also, and my question is related to pregnant healthcare workers. Do they just fall into the same bucket as healthcare workers in general, or are there specific provisions for pregnant healthcare workers?
- Dr. Babcock: So they're - they fall into the same bucket in terms of the work exclusions and the definition of exposure are the same. Where they are different is in what kind of postexposure management they would get. So, because they can't get the vaccine, they might be considered for the varicella immune globulin. And the details of what kind of postexposure prophylaxis, for whom, are referenced, and people are referred to the ACIP guidance where they have that in much more detail.
- Dr. Schorr: Okay great, thank you so much.
- Dr. Babcock: Yes. It can seem kind of odd that we don't have more of the details in each section and it has been, I confess, a little bit of a struggle for me as well, because it's kind of nice if you can have everything all in one place. But there is a real effort to try to avoid duplication so that we don't end up with different recommendations in 2 different places with the difficulties that there can be around updating in - at the same time across different groups.
- So if ACIP made a change in their recommendation and we still had a recommendation that was very specific about the postexposure prophylaxis, then we could run into, you know, sort of conflicting recommendations. So it's a little hard to get used to at first, but I've been converted to this plan.
- Dr. Schorr: Okay, appreciate that, thank you.
- Dr. Lin: Hilary, this is Mike Lin. I think you mentioned it, but I just want to clarify, for the definition of exposure to varicella on Slide 17, did you say that was defined in the text or elsewhere, because that's what we struggle with a lot of times day to day, and when to define an exposure.
- Dr. Babcock: Yes, I agree completely that that is a struggle for all of us, and so the way all of these individual pathogen sections are structured is, the recommendation just refers to what to do to someone who had an exposure, and then in the text there is a whole section on "Occupational Exposures" and how those are defined, and what would count as an exposure from someone with varicella or disseminated zoster, or from someone with localized zoster. So that is covered in the text in a little more detail.
- Dr. Lin: Okay, great, thanks.
- Dr. Maragakis: All great questions. Any other comments or questions on this section?
- Mr. Chung: Lisa, this is Koo, I just want to ask a quick question, Mohammed, are you still on the line with us?
- Dr. Fakhri: Yes Koo, I am on, but I had to call back because I got disconnected. I sent you an email.
- Mr. Chung: Yes, great. Chelsea, this is Koo, could someone please give Dr. Fakhri a call back to the number that's registered for the meeting, please?
- Coordinator: Sure, give us one moment.

- Mr. Chung: All right, thank you. Sorry, Lisa, go ahead.
- Dr. Maragakis: No problem, thank you, Koo. Okay, any other questions or discussion of this Varicella section?
- Dr. Babcock: In the absence of other questions or comments, I am happy to cede what is left of my time back to the NICU [Neonatal Intensive Care Unit] Guideline Workgroup. If, Kris, if you'd like to move ahead with that.
- Dr. Bryant: Thanks, Hilary. Anybody have any additional questions before we jump into the NICU guideline?

NICU Guideline Workgroup Update

- Dr. Bryant: All right, so the NICU Guideline Workgroup has been very busy. And so everyone should have a slide set. I fear we may need the extra time, so Hilary, thank you for that.

Just to orient everyone, the NICU Guideline has been in progress for a number of years. It is being produced and released in sections, and the first section covered *C. difficile* [*Clostridioides difficile*]. There is a paper, a white paper on CDC.gov. The next section that we tackled was *S. aureus*, I'll have an update about that at the end.

Today we're going to be focusing on CLABSI [central line-associated bloodstream infection], and I have a number of draft recommendations to present to HICPAC. At the end I will tell you about our final topic, which is respiratory illness in the NICU, and give you a little bit of an update about our progress.

Just as a reminder about grading of the evidence, you'll see a lot of evidence today, when we talk about confidence in the evidence, randomized controlled trials start high, non-randomized trials start low, and there are a number of factors that can lower the quality of the evidence or that can increase the quality of the evidence. I will just share that we do not have a lot of randomized controlled trials to present to you today.

In the last year or so, HICPAC has updated recommendation categories, so HICPAC guidelines use the schemes noted on the next slide. We either make a recommendation when the benefits clearly exceed the harms, when the confidence in supporting evidence is high to moderate, or sometimes if the evidence is not, we don't have high confidence, but high-quality evidence is impossible to obtain or if there's federal regulation, HICPAC can also make a Conditional Recommendation. You see the ways we arrive at a Conditional Recommendation listed here. And we may also land on a No Recommendation if there is simply lack of evidence for a particular topic or if there is an unclear balance of benefits versus harms.

For each topic we address, you will see a statement with an indication whether or not this is a Recommendation, a Conditional Recommendation, or actually represents No Recommendation. And then for each draft recommendation, you will see a justification table that lists all of the elements that are listed on this slide, supporting evidence, level of confidence in the evidence, and so forth. Yes, everyone's favorite category is "intentional vagueness," and over the next 45 minutes or so, I think you'll see what that looks like.

So the question that we need to address in this section is, “*What are effective strategies to prevent central line-associated bloodstream infections in neonatal intensive care unit patients?*” Our literature search retrieved 134 studies.

Now just in terms of full disclosure, work began on this section in 2012, and 71 studies were included. From that work, we reviewed an additional 63 studies from the period 2012 to 2018.

The topics related to CLABSI that we will address today are listed on the next slide. I have updated recommendations to present to you about umbilical catheters, the optimal duration of those umbilical arterial catheters and umbilical venous catheters, and updated recommendations about the optimal central line type and insertion site.

I also have new recommendations from the Workgroup to present to you that relate to PICC [percutaneously inserted central catheter] dwell time, the number of catheter lumens, systemic anticoagulant prophylaxis, and antibiotic prophylaxis as well.

So at our last meeting, we talked about catheter type and insertion type, and we presented a draft recommendation. And the feedback from HICPAC was to merge catheter type and insertion site, streamline the recommendations. And there was a lot of discussion around the fact that catheter type is really determined by the clinical needs of a patient, while the choice of insertion site is influenced by a number of factors. And not all catheters can be inserted in every site, so sometimes site is really dictated by catheter type.

On the next slide, you will see the new draft recommendation for catheter type and insertion site, and it is a multi-part recommendation. Number 1, choose the central line type, for example umbilical venous catheter, percutaneously inserted central catheter, tunneled catheter, etc, based on the clinical needs of the NICU patient. And that is a Recommendation.

The second part is that the choice of central line type to insert in a NICU patient should not be based solely on CLABSI prevention. That, too, is a Recommendation.

Now, the evidence that supports both of these recommendations includes 9 observational studies. The level of confidence in the evidence is low because these are observational studies. And I want to point out that only 2 studies were conducted after robust implementation of insertion and maintenance bundles in 2012.

On the next slide, I want to highlight the Benefits section of the evidence table. The evidence from these observational studies did not suggest a clear benefit of one catheter type over another. But I should point out that studies evaluated different patient populations, with varying clinical indications for central venous access, and this was likely reflected in the evidence. We’ll talk a bit more about dwell time in a bit.

One study did suggest that the risk of infiltration was higher with PICCs than other catheters, but really, when we talk about balance of benefits versus harms, it was really unclear that one type of catheter was associated with greater benefits than harms.

Resource Use, Value Judgments, and Intentional Vagueness are listed on the next slide, and we do not intend for there to be any intentional vagueness in these particular recommendations.

Now Part 3 of the Recommendation is on the next slide, “choose the insertion site appropriate to the central line type to be inserted in a NICU patient based on the clinical needs of the patient.” Again, this is a Recommendation based on 7 observational studies.

I will say that this may surprise some of you. I think we all clinically understand that certain types of catheters, when inserted into particular locations on a patient, may present some logistical challenges. And you may be thinking, well, in adults we avoid the femoral site. Are there no data that suggest that there are increased harms associated with the femoral site, or perhaps with a lower extremity. And the answer is no, not in neonates.

We really had limited evidence about insertion site. The evidence did not suggest a benefit to use one insertion site over another. And when we looked at harms, there was an association between adverse events and insertion sites that was limited and inconsistent, but there were some data that suggested that adverse events were associated with upper extremities, not lower extremities and non-femoral sites.

If we go to the next slide and look at Resource Use, Balance of Benefits and Harms, Value Judgments, Intentional Vagueness, and Exceptions, I’ll point out a couple of things. In terms of Resource Use, there would theoretically be no difference in human or material cost to place a catheter in one site or another, but in 2 studies that were actually conducted in the same NICU and overlapping time period, the femoral insertion site was chosen only if insertion in other sites failed.

So if you choose an insertion site that’s technically more challenging, and multiple attempts are required, this could increase both human and material cost. And in these 2 studies the femoral site was the, really the last site chosen, so the site of last resort.

In terms of Value Judgments, we considered patient safety, economic and human resource cost, as well as some practical considerations. And as I alluded to, I think we recognize that there are logistical challenges to maintaining femoral catheters in diapered children. This is addressed in the text. But there - we retrieved no evidence to say, don’t place femoral catheters in diapered children.

So I will stop at this point and answer questions about the first draft recommendation.

Dr. Babcock: Thank you Kris, that looks great, and I really appreciate all of the work that your group has put into this. I will just say first that I think the combining of the recommendations as you have in the type and site is helpful, and I think that’s an improvement.

Are there questions from committee members for Dr. Bryant? Okay if there are - yes go ahead.

Dr. Maragakis: Hilary, hi, it’s Lisa. Kris, could I just ask, I’m looking back at Slide 10, 1 and 2, I guess when I read 2, the choice of central line type to insert should not be based solely on

CLABSI prevention, was it the Workgroup's feeling that this needed to be explicitly stated? It seems really related to the first recommendation.

I just wondered what the group's thinking was about saying that it should be based on clinical needs and then explicitly saying it shouldn't be based on CLABSI prevention.

Dr. Bryant: Yes, so we wanted to acknowledge that in choosing the central line type, that CLABSI prevention was not the driving force behind the central line type, and just acknowledging the variety of clinical needs in the NICU patient. Does the group feel like that's redundant?

Dr. Fakh: This is Mohammed, I think it's a wonderful addition because we, you know, historically we tended to silo each event and considered the risk for the event and not to look at the whole picture. And sometimes other harms may be higher or may be as important as the event that we're trying to prevent. So I, you know, I see the importance of the addition.

Dr. Chopra: Kris, it's Vineet. I'll add, I think I looked at this as well with a [...] kind of a view on it and I was thinking about the SHEA [Society for Healthcare Epidemiology of America] Compendium recommendations for adults, where there's specific verbiage with respect to PICCs in terms of not using the PICCs as a strategy to reduce the risk of CLABSI. And so I see this being kind of related to that, and so I kind of like it. I don't think it's repetitive or redundant.

Dr. Bryant: Thank you for that feedback. You know, we, as you can imagine, spent a lot of time trying to be as clear as possible and come up with a useful recommendation. We did not want to end up with a No Recommendation. So as we talked a little bit about in May, one alternative would've been to just really say that the choice of central line type for CLABSI prevention remains an unresolved issue.

And so after a lot of discussion and feedback from HICPAC, we searched for the language that would be clear and provide a positive recommendation that we hoped would be useful to providers on the frontlines, but I'm happy to hear your feedback about how to make this the most useful, based on the evidence that we have.

Dr. Guzman-Cottrill: Kris, this is Judy. I also agree, I think that mentioning the choice of the central line type to insert in NICU patients should not be solely based on the CLABSI prevention.

I had one question on, just for clarification, on Slide 9 when you're under the Level of Confidence in Evidence. When you list the different types of catheters that were included in the 6 studies comparing the various catheter types, you mentioned phlebotomy catheters. Was there more detail in that specific study of what exactly that type of catheter is, because I usually think of that as a peripheral and not a central intravenous line?

Dr. Bryant: Yes, so that's a great question. That is the language that was used in the study without a lot of additional details. So we included it here.

Dr. Guzman-Cottrill: Okay, thank you.

Dr. Maragakis: Hi Kris, this is Lisa again. Do we - did you discuss maybe having a parallel structure, then, for Recommendation 3 that would say anything about insertion site and the

fact that CLABSI prevention shouldn't drive that, or is there a reason that that doesn't parallel 1 and 2?

Dr. Bryant: That's a good thought. We could - it would be easy to add parallel construction and say that the choice of insertion site should not be based solely on CLABSI prevention. So we end up with essentially a 4-part recommendation. Thoughts about HICPAC from that - about that? Would that be the most clear?

Dr. Maragakis: I'm not sure if it's necessary, I was just asking the question because it sounds like there's a lot of support for doing it for the line type, and I'm wondering if a reader might question why it wasn't said for site, if maybe that was implying something about the quality of the data or something. I don't know, what do others think?

Dr. Babcock: This is Hilary, I agree with Lisa, but I kind of like the symmetry of having it, if there's not a compelling reason that you chose to have them different, that it does provide that same sort of level of confidence, especially, I think, around site and where people struggle with being sure they really understand you to mean that they don't have to avoid femoral sites at all costs in order to avoid CLABSI, that it might provide more clarity as noted by others for the first one. But I am not a pediatrician, so I would be happy to hear from others of them as well.

Dr. Chopra: Kris, it's Vineet, I don't feel strongly either way. I like the way it is, so I'm okay with it.

Dr. Bryant: So yes I don't - I can't tell you that we specifically rejected the parallel construction. There was a lot of discussion that some catheters can only be placed in certain sites by virtue of the kind of catheter they are.

So for example, an umbilical catheter gets placed in the umbilicus. PICC catheters go in very specific spots, in general, in most NICU patients. And so that was really the focus of our discussion around site. But I don't really see a downside to the parallel construction, if the group likes that.

Dr. Maragakis: I just want to be clear that I don't really have a preference, I was just asking the question.

Dr. Bryant: It's a good point. It could certainly be - it would be easy to amend and ...

Dr. Guzman-Cottrill: This is Judy, as I click through those 3 I do agree that the parallel, adding Number 2 site does seem to flow better. And I think that is such a specific difference between neonatal recommendations and adult recommendations that it would make sense that we do keep it just to make sure it's not missed.

Dr. Bryant: So Judy, you're advocating for adding a fourth part, do not - that the insertion site should not be based solely on CLABSI prevention.

Dr. Guzman-Cottrill: Yes, correct.

Dr. Bryant: All right, any opposed to that - to the suggestion? All right, thank you all for the great discussion. Any other questions or comments before we move on?

All right our next slide is CLABSI optimal dwell time, umbilical catheters. And we need to start by talking about the guidelines from the 2011 BSI [Bloodstream Infection] Guideline related to the - related to umbilical catheters. So I think it's worth highlighting these quickly.

The 2011 BSI Guideline said, “Remove umbilical catheters as soon as possible when no longer needed, or when any sign of vascular insufficiency to the lower extremities is observed. Optimally, umbilical artery catheters (UACs) should not be left in place for greater than 5 days.”

The next part of that recommendation was, “Umbilical venous catheters (UVCs) should be removed as soon as possible when no longer needed, but can be used up to 14 days if managed aseptically.”

And then finally, “An umbilical catheter may be replaced if it is malfunctioning and there is no other indication for catheter removal, and the total duration of catheterization has not exceeded 5 days for an umbilical artery catheter, or 14 days for an umbilical vein catheter.” So I think it will be helpful to keep those signposts in mind as we move forward, 5 days for a UAC and 14 days for a UVC.

So in May, we presented a draft recommendation to HICPAC: “Remove umbilical venous and umbilical artery catheters as soon as possible and when no longer needed due to the concern for increasing risk of CLABSI associated with increasing dwell time.”

Our initial review of the data was that risk increases over time, and so we should emphasize, “get the catheter out as soon as possible.” And the feedback that we received from HICPAC was that while an optimal dwell time or inflection point for prevention of CLABSI could not be found in the data, there was an acknowledgement that we were really urged to come up with a duration, at least for umbilical venous catheters.

And I think there was concern that simply by saying, “take it out as soon as possible,” and not giving a timeframe, we might see an unintended consequence of catheters remaining even longer. So we went back to the evidence, and I have new draft recommendations to present to you today.

We reviewed the evidence supporting umbilical artery catheter removal, and there is a single observational study about this particular topic. It analyzed more than 2000 infants, and it found that the incidence of sepsis was higher in UACs that were left in place for greater than or equal to 8 days, compared to those left in place for less than or equal to 7 days.

So where did the 5 days come from in the 2011 Guideline? I will just tell you that we could not find evidence to report to support a 5-day recommendation. We’ll talk more about that in a minute.

With regard to optimal dwell time for umbilical venous catheters, there were 3 observational studies. They’re listed on the next slide. The first, Sanderson, if you look at Days 6 and 7 of UVC dwell time compared to catheters that remained in place for 4 or 5 days, there was a 5-times higher risk of CLABSI on Day 6 to 7, but that was not statistically significant.

The second study was a fairly recent study from 2017, it involved fewer infants. They were between 1000 and 1500 grams. And when the dwell time of UVC was increased from 5 days to 7 days prior to PICC insertion, there was no increase in UVC-associated CLABSI, and there was actually a reduction in the number of PICCs

that were placed, suggesting that if you leave the UVC in just a little bit longer, perhaps you avoid PICC placement.

The third observational study that we reviewed was Bhandari from 1997. And so there was an increase in the incidence of sepsis. That was the outcome of interest for catheters left in place for 4 to 7 days compared to 1 to 3 days, but there was - the sample size was too small for a valid statistical analysis.

On the next slide, you'll see a slightly different perspective on this. We reviewed studies that didn't just focus on removal of UVCs, but rather UVC replacement with a long-term catheter, essentially a PICC. There was 1 randomized controlled trial and 3 observational studies. The first, Butler O'Hara from 2006, UVCs were left in place for 7 to 10 days and then replaced by a percutaneously inserted central venous catheter for up to 28 days. And there was a small increase in the odds of infection, but that was not statistically significant.

The Sanderson study was the second study. And there was increasing risk with increasing dwell time. In Butler O'Hara from 2012, there was an increase in the odds of developing a CLABSI for UVCs that were in situ for greater than 7 days.

And finally a fourth study, Vachharajani from 2017, there was no increase in UVC-associated CLABSI when UVCs were left in place a little bit longer. We've already talked about this. So keeping the UVC in place from 5 days to 7 days and then following with a PICC as needed.

Now adverse events were not reported in most of the studies. In the 2006 Butler O'Hara study, though, there was really no difference in adverse events, as you see on the next slide.

So our draft, new draft Recommendation, again it's multi-part. The first part of the draft Recommendation is, "Remove umbilical venous and umbilical arterial catheters as soon as possible and when no longer needed due to the concern for increasing risk of CLABSI associated with each day of increasing dwell time."

I think really on this slide I've showed you a lot of studies in a short amount of time, but as highlighted in red, the evidence reported an increasing risk of infection with increasing UVC dwell time, suggesting a benefit to removing UVCs at the earliest opportunity.

Two studies suggested the risk of CLABSI was significantly different at either 4 days or 7 days, but these are older studies that really didn't use data collected since we have widespread implementation of central line insertion and maintenance bundles. The only study conducted in this era noted no difference in CLABSI when UVC duration was extended from 5 days to 9 days as part of a QI [Quality Improvement] initiative.

If you move to the next slide, you'll see summarized Balance of Benefits and Harms, Resource Use, Value Judgments, Intentional Vagueness, and Exceptions. I think we've really covered all of this in our discussion of the evidence.

Now let's move to the Part 2 of the Recommendation, which is new, and that is a Conditional Recommendation: "Consider removal of umbilical artery catheters at or before 7 days of dwell time." Just to frame this for those of you who don't work in

the NICU setting all of the time, yes, we are suggesting that umbilical artery catheters can remain in place for up to 7 days of dwell time if necessary because we really could not find evidence to support the 5-day that was mentioned in the 2011 timeframe, or the 2011 Guidelines.

Note the text in red highlighted under Benefits, this just reinforces what I presented to you earlier. We had 1 study that suggested that the risk of sepsis was higher in UACs left in place for greater than or equal to 8 days compared with those left in situ for 7 days or less.

The next slide, again, just summarizes the rest of the justification table, including Benefits and Harms, Value Judgments. In terms of Intentional Vagueness, there is a little bit of Intentional Vagueness. Facilities can determine the need for longer-term access based on patient characteristics, and there were no exceptions.

Part 3 of this draft Recommendation on optimal dwell time of umbilical catheters addresses umbilical venous catheters. This is a Conditional Recommendation that states, "Consider removal of umbilical venous catheters at or before 7 days of dwell time in NICU patients." We believe this addresses the feedback that we received from HICPAC in May, that it would be best to suggest a particular timeframe for removal of UVCs.

And just as a reminder, the evidence I presented to you reported an increasing risk of infection with increasing UVC dwell time, suggesting that it is beneficial to remove UVCs at the earliest opportunity. There was 1 study that suggested that the risk of CLABSI was significantly different at 4 days, but this was an older study.

The only sort of contemporary study that we have, suggested that there was no difference in CLABSI when UVC duration was extended from 5 days to 7 days, and so we ultimately landed on the Conditional Recommendation to remove UVCs at 7 days.

Balance of Benefits and Harms, Resource Use, Value Judgment, those are all summarized on the next slide. And probably the most important thing to point out is that under Balance of Benefits and Harms, UVC dwell time and the risk of CLABSI is only one consideration to balance in the clinical needs of a patient.

Then finally, the fourth part of the draft Recommendation for umbilical catheters really addresses the reality that our neonatology colleagues face on a regular basis. With very premature infants, the need for central venous access is likely going to persist beyond 7 days in a very premature infant.

And so we wanted to attempt to answer the question, recognizing that some babies are going to need long-term access, "When is the optimal time to take out an umbilical venous catheter and replace it with a PICC or another long-term central venous catheter?"

And so you have Part 4 of the Recommendation, "Consider removal of an umbilical venous catheter and inserting a PICC or other long-term central venous catheter at or before 7 days of umbilical venous catheter dwell time." I believe we've really talked about the studies that support this recommendation. They're re-summarized for you on this slide.

The next slide summarizes the rest of the data. For the evidence table, I'm not going to re-present it to you. At this point I will stop and ask for comments and questions.

Dr. Andi Shane: Hi Kris, this is Andi Shane. Thank you so much for a great, really exhaustive review that you and your Workgroup did. It's amazing and very helpful.

I just had one question, you alluded a little bit to it when you mentioned that the majority of the studies were done before we had bundles, but I'm wondering if any of the studies that you cited or came across mentioned whether the UVCs or UACs were placed under sterile conditions, or if there was some discussion about original placement, as sometimes these lines are placed in less-than-ideal situations when a patient is clinically deteriorating.

Dr. Bryant: Andi, that is a really insightful question. The studies, I believe, generally alluded to a standard process, but don't include a lot of detail about the specific bundle. And in terms of, they don't really provide a lot of detail about non-sterile or emergent placement that might have contributed to infection rate, although that is a very real-world concern.

Dr. Shane: Thanks. I sort of imagined that there wouldn't be a lot of discussion about that. But, you know, based on what - we just have to make the recommendation based on the information that we have, so thanks.

Dr. Guzman-Cottrill: Kris, this is Judy. I'm wondering if your Workgroup, when you were looking at the studies that were included in the review, if any of the studies tried to stratify risk at all, not only based on the number of days that the line was - the dwell time of the line, but also on gestational age or on birth weight, like, you know, extremely premature versus premature versus full-term.

Dr. Bryant: So the study populations did vary from study to study and in terms of the population that was included, but we were not able to - there was not enough evidence for us to stratify a recommendation based on birth weight or gestational age or another factor.

Dr. Guzman-Cottrill: Okay, great, and the previous recommendations also did not include any specific guidance on subgroups within the NICU population, is that correct?

Dr. Bryant: Yes I believe that's correct.

Dr. Guzman-Cottrill: Okay, thank you.

Dr. Bryant: So for example, it might be helpful from a clinical standpoint to be able to acknowledge that more premature infants or extremely low birthweight babies, the management and the risks might be different and lead to a nuanced recommendation. But based on the studies that I've presented to you, we were unable to really make a nuanced recommendation.

Andi and Judy does that sort of summarize your questions about this?

Dr. Shane: Yes, thanks Kris.

Dr. Guzman-Cottrill: Yes, I think so, thank you.

Dr. Bryant: So I guess the question I'll ask HICPAC, what - do you have specific feedback about changing the UAC Recommendation from 5 days to 7 days, it feels counterintuitive

to do that, but we felt like that's what the evidence supported. That's my first question to you.

Dr. Maragakis: Hi Kris, it's Lisa, I'll start and I will give the disclaimer that I'm not a pediatrician. But it makes sense to me, having seen the data that you've presented, and especially because the Recommendation is coupled with the first Recommendation, which says take it out as soon as possible because each day sees an increased risk. So I like the rationale, and it seems to make sense.

Dr. Bryant: Thank you.

Dr. Chopra: Kris, it's Vineet Chopra, I agree. I love the way it's written in terms, UACs if it's at or before 7 days of dwell time, it's Conditional, it's appropriately balanced and tempered. And having sort of looked at this literature recently for a project that I'm a part of, I think that makes sense so I'm supportive.

Dr. Bryant: Thank you.

Dr. Lin: This is Mike Lin, I'm sorry if I'm new to this particular discussion, and I was just reviewing the Butler O'Hara article in 2012. And I still struggle with the idea of just 1 study really dictating this 7 days and cutoff for risks.

Just noticed that the observational study was Butler O'Hara, and basically it looked like a priori split there, according to those that had central line greater than 7 days versus less than 7 days, and so less or equal to.

And so I just wonder if we're putting too much emphasis on 7 days as a magic number when, you know, the true number for risk may be a little bit higher or lower. The study wasn't really designed to figure out what that actual day was of greatest risk.

So I'm not opposed to the idea of changing the number I just, I mean I think you can acknowledge that it's not a lot of data, but it just worries me a little bit about putting a number out there, even.

Dr. Bryant: Yes, so Mike, you raised a great point. I think what I've shown you is that we don't have a robust amount of data to pick a day, which is really why we landed on the Conditional Recommendation. We have that signpost from 2011, that 14 day, and I think we - the data do not support really us staying with a "take it out by 14 days."

The data most strongly support the recommendation that risk is increasing over time, and each day you leave it in there's increased risk, so take it out as soon as you can. But really, if you're asking us for a day, if that is the request and I think it was, 7 days is the best option, but we couch it in a Conditional Recommendation.

Dr. Lin: Yes, that makes sense.

Dr. Babcock: Hi Kris, this was a great discussion. I just want to be mindful of the time and just remind you that we have about 15 minutes before the public comment period, so I didn't know if we wanted to move on and go through your slides about the PICC dwell time.

Dr. Bryant: Okay, yes, great, I'll move really quickly. In terms of optimal dwell time in PICCs there were - this is a similar situation, right. We - as opposed to what we have for UACs, we do not have existing recommendations that say take out the PICC after a

certain amount of time. It's a practical consideration that some very premature infants are going to need PICCs for a very long time.

And one very practical question is, is there a day beyond which a PICC carries such a high risk of infection that it's better to take it out and replace it with potentially another line, because some premature babies really do need long-term access.

And so to answer this question, we reviewed 4 observational studies. They are listed on the next slide. Quickly summarizing, the Sanderson study from 2017 noted there - that an increasing dwell time was associated with an increased risk of CLABSI for PICC, and there was no clear optimal day for PICC removal or replacement.

The Greenberg study used Week 1 as the reference, and no other week compared to Week 1 was associated with an increased risk of CLABSI for PICC. And the conclusion was, no clear optimal PICC dwell time to reduce CLABSI risk.

The last 2 studies are from the group at Hopkins, Aaron Milstone, I'll just acknowledge he's a member of our Workgroup. The 2013 study looked at the risk of CLABSI after PICC insertion. The risk of CLABSI increased during the 2 weeks after PICC insertion and then remained elevated until PICC removal. I'll show you a little bit more data in a minute.

Take-home message was there was no clear inflection point beyond which their risk of infection increased and allowed one to say, "Ah-ha, this is the day that we need to take out this particular line."

The Sengupta study, again from Hopkins, a little bit older, did demonstrate an increased risk of CLABSI, 14% per day between catheter Days 1 to 18. And then after Day 35 through Day 60, the risk was 33% per day.

Just quickly, the next slide shows you the Greenberg study. You - and show again as I mentioned, if you look at Week 1 as the reference, no week was associated with an increased risk.

On the following slide is the Milstone study from 2013. You can see that the predicted risk of CLABSI increased steadily until about 2 weeks after PICC insertion, and then it remained elevated until catheter removal. But unfortunately, no clear inflection point. And then finally the Sengupta study I've already mentioned, that there was an increase in risk after Day 35.

If we look at a slightly different outcome of not CLABSI, but CRBSI [Catheter-Related Bloodstream Infection], we have 3 observational studies, 1 suggested an increased association of CRBSI with increasing dwell time, to did not.

And then finally, if we look at the outcome of catheter-related sepsis, there was 1 observational study, and the odds of developing catheter-related sepsis was higher if the catheter was left in place for greater than 9 days.

Only 2 studies were really conducted in what we're calling the era of insertion and maintenance bundles, the Greenberg study and the Rangel study, and neither of those studies suggested an optimal PICC dwell time to reduce CLABSI.

So our draft recommendations are summarized on the next couple of slides, again it's a 2-part recommendation. Remove PICC catheters, so peripherally inserted

central catheters, as soon as possible and when no longer needed due to the concern for increasing risk of CLABSI associated with increasing dwell time, acknowledging that the risk just goes up the longer you leave the catheter in.

“For neonates who have an ongoing need for central venous access, whether to remove and replace a PICC that has been in place for a prolonged period of time to reduce CLABSI remains an unresolved issue.”

I think we have, well you have the Justification Tables. I think you’ve seen the data and we’ve already talked about we could not identify a date by which - for which we would say all right take out the PICC and replace it if you need to, but this one has to go.

So I’ll stop there and ask for questions or feedback about optimal dwell time for PICCs. And Aaron Milstone, I believe is on the call and is available to answer additional questions about his study, should you have them.

Dr. Babcock: Any questions or comments for Dr. Bryant about the PICC dwell time proposed recommendations?

Dr. Bell: This is Mike Bell. I just want to thank you for what I think might feel like a thankless task you’ve engaged in. While it is not the same feeling that we get from a crisp, concrete 4-day limit or some such thing, I think we’re at a different point here.

I think the value that you’re adding is in acknowledging the harms that come from changing out a line, which might mitigate the risk of a bloodstream infection, but might create additional harms that are as substantial, if not more so.

I also think that the things that we’re attempting to achieve with recommendations like these are very much linked to robust professional capabilities to make the judgments that you’re asking facilities to undertake, and that’s somewhat different from when we’re trying to get a vast number of people to all do the same thing in as simple a way as possible. This strikes me as quite different from that.

So I think that as uncomfortable as a small increase in number of days might make some folks feel, I think it’s probably for the best, but that’s just my editorial 2 cents’ worth.

Dr. Bryant: Thanks Mike. I appreciate you pointing out that telling a clinician to take out a line and put another one in is not without risks. And we, while I don’t know that we have a lot of concrete evidence to talk from these studies about the risk of line replacement, I think we can acknowledge that, and what those risks are. And we’ve tried to come up with recommendations that will be helpful on the frontlines. So thank you for the feedback.

Dr. Guzman-Cottrill: Kris. this is Judy, I just wanted also just thanks for such great work. And I think this comprehensive review for this specific topic for PICCs in the NICU population is - was long overdue.

You know, as you know there’s more and more babies born that are younger and lower birth weight and lower in gestational age, and they’re in the NICU for longer because of that. And I think people have been in the pediatric world have been doing to (unintelligible) to know that the PICCs don’t, you know, if there is a risk for the longer that the PICCs are in.

So I think this is going to be very welcome, even though just as Mike said, there isn't any specific number of days of risk. This exercise, and being that there isn't a specific number of days for dwell time, I think is going to be very welcome for all pediatricians, so thank you.

Dr. Bryant: Thank you for that. All right, so we actually have 3 more draft Recommendations. They're a lot more straightforward. So would the group be okay with me proceeding with UVC catheter lumens?

Dr. Babcock: Yes, I think that's fine.

Dr. Bryant: All right, thank you. So I think for those who are, who care for adults, I think we say ah-ha, we know that more lumens increases risk; however, when one looks at the number of UVC catheter lumens the evidence is quite limited.

There was a single randomized controlled trial that looked at the outcome of catheter-associated sepsis in 1991 and did not find any infections in either group and really didn't find any difference in adverse events. So while acknowledging that this single study was likely underpowered to answer the question, we bring you the draft recommendation that it's really a No Recommendation.

"The choice of single lumen versus double lumen umbilical venous catheter solely for the purpose of preventing CLABSI in neonatal intensive care units remains an unresolved issue," and so there is No Recommendation.

The one benefit that was outlined in the study was a reduction in the number of additional intravenous catheters required when double lumen UVCs were used, but I've already mentioned that there was no difference in this very small study in catheter-related sepsis. Any questions about that? All right, not a lot to discuss there.

The next topic is CLABSI, so prophylactic anticoagulant therapy to prevent CLABSI. This question was addressed in 4 randomized controlled trials. They all compared heparin plus TPN [total parenteral nutrition], or dextrose versus TPN, or dextrose only. They did use somewhat different heparin preparations, though, and all 4 randomized controlled trials reported no difference in the groups related to infection-related outcome.

In terms of occlusion, 2 trials reported no difference in occlusion. Two trials reported that heparin was associated with reduced occlusion. The - primarily the adverse event that was looked at most consistently across studies was intraventricular hemorrhage. That was looked at in 3 of the randomized controlled trials, and they reported no difference, although there were relatively small numbers of patients.

So our draft Recommendation is, "Do not use prophylactic anticoagulant infusions solely for the purposes of preventing CLABSI in NICU patients," because the randomized controlled trials reported no reduction in catheter-related sepsis associated with the use of heparin, and administering any anticoagulant comes with the risk of harm, even though that harm was not well-demonstrated in the studies that I've presented to you.

We do acknowledge that there may be other reasons other than the prevention of CLABSI to use prophylactic heparin. Any questions about this recommendation?

Dr. Chopra: Kris, it's Vineet, just a wording suggestion. The word - the use of the word "solely" is sort of confusing to me. I mean, I think the recommendation is, you're not supposed to use this for preventing CLABSI in neonatal ICUs [intensive care units]. I recognize there may be other reasons, but I'm wondering whether the word "solely" is indicated there, is necessary there.

Dr. Bryant: So a suggestion just to take out the word "solely" and say don't use prophylactic anticoagulant to prevent infections for the purpose...

Dr. Chopra: To prevent - yes.

Dr. Bryant: Okay, all right I like that. Any disagreement?

Dr. Babcock: This is Hilary, just for clarity though, I just scrolled back to the beginning, and you do use the same language in your other recommendation back on Slide 10 and 11 around the central line type. It says, "The choice of central line type to insert in the NICU patient should not be based solely on CLABSI prevention."

Dr. Bryant: Yes.

Dr. Babcock: So I think you have used this framing this structure before, so I just want to be sure, do we think this is different enough that we shouldn't have the same framing, or is it a different concern?

Dr. Maragakis: It seems like you could change it to mirror that construction. So the decision to use prophylactic anticoagulation would not be solely for CLABSI, or if it's kept this way just take out solely.

Dr. Babcock: I think it currently does match the - am I reading it wrong. On Slide 10, "The choice of central line type to insert in a NICU patient should not be based solely on CLABSI prevention." So are you, Lisa are you saying maybe it should say, "The choice of using..."

Dr. Maragakis: Right, yes, the choice - rather than starting with, "Do not use" that you would start with, "The choice to use prophylactic should not" - I don't know.

Dr. Babcock: Oh right, and that would actually mirror, like, the number of catheter lumens also, it says the choice of single versus double solely for the purpose is unresolved.

Dr. Bryant: Yes, so I think the difference is, this is a Recommendation to not use this for preventing CLABSI. So I think the studies ask the question, does heparin reduce CLABSI, and the answer is no. And so it's a different situation than the - than some of the others.

I think we don't want to use the "do not use for prevention of CLABSI." I don't think we want to lose that particular idea.

Dr. Babcock: Okay, so in this one then it might be - make sense to just take out the "solely" and leave it the same, because it's a "do not use" recommendation.

Dr. Bryant: I think so. I think the others are more nuanced, and I think the intent was really to emphasize that heparin does not have value in the prevention of infections, as opposed to the sort of softer way, a lot of different factors when choosing central

line type and site, and don't choose that based strictly on CLABSI prevention. I think the data allowed us to be more direct with this.

Dr. Babcock: Okay.

Dr. Bryant: Does that make sense?

Dr. Babcock: Yes, that makes sense to me, in which case Vineet's suggestion of taking out the word "solely," but leaving it otherwise as framed, makes sense to me.

Dr. Bryant: Okay.

Dr. Maragakis: I agree, and I'm looking ahead, but it looks like it's the same as the one that you're - the last one you're about to present.

Dr. Bryant: Yes, so the last topic was prophylactic antimicrobial therapy for the prevention of CLABSI. There was 1 randomized controlled trial and 3 observational studies. They looked at a variety of infection-related outcomes, including proven or suspected septicemia, laboratory-confirmed BSI and coagulate negative *staph* catheter-related sepsis.

So here's the summary. The randomized controlled trial looked at prophylactic amoxicillin. There was no difference in proven or suspected septicemia.

One observational study that looked at lab-confirmed BSI showed no difference when prophylactic vancomycin was used. There were 2 observational studies that did report a reduction in infections in coag negative *staph* catheter-related sepsis when prophylactic vancomycin was used.

If you look at complications, prophylactic amoxicillin was associated with an increase in the incidence of thrombotic complications. And antimicrobial resistance was studied; however, the data about antimicrobial resistance was pretty limited. The observational studies reported no vancomycin-resistant strains during the study period, but 1 identified vancomycin-resistant coag negative *staph* following the study period.

While there was some evidence from these studies that suggested decreases in coag negative *staph*-related infections, the group felt like, weighing all of the evidence, that the most appropriate recommendation was, "Do not use prophylactic antimicrobial infusions routinely to decrease the rate of bacterial CLABSI," really because of the, what you see in red amongst the harms. At least with amoxicillin, there was an increase in thrombotic events, and the long-term impact of prophylaxis on the development of antimicrobial resistance and the neonatal microbiome was not adequately assessed in these studies.

In the interest of time, I will stop there.

Dr. Guzman-Cottrill: Kris, this is Judy. For the recommendation I'm wondering if the term "rates" should be changed to "risk." So, "Do not use prophylactic antimicrobial infusions where you need to decrease the risk of bacteria CLABSI."

Dr. Bryant: That's a good suggestion. Thank you for that.

Dr. Babcock: Kris, was there a discussion around the use of the word "routinely" just in terms of whether it implies that sometimes it might be fine?

Dr. Bryant: We did not have a lot of discussion around this. I think the “routinely” is perhaps a nod to the studies that did suggest some benefit.

Dr. Babcock: Yes. I’m okay with “routinely.”

Dr. Bryant: All right, thank you.

Dr. Maragakis: Well, thank you so much for going through what was a tremendous amount of work and a lot of presentation. Any final questions or comments for Dr. Bryant about these recommendations, proposed recommendations?

Public Comment

Dr. Maragakis: Okay, Koo do you have - do we have any registered public comments?

Mr. Chung: We do not have any registered public comment, but we can open up the line now for anybody that does wish to give public comment. Chelsea, could you please give instructions for how that can be done?

Coordinator: Sure, if you would like to ask a question, please press Star then 1, unmute your phone, and record your name clearly when prompted. If you would like to withdraw a question, press Star 2. One moment while we wait for our first question.

Mr. Chung: Thanks, Chelsea. I think we'll give a couple of moments while we collect some public comments. But in the meantime, I guess the question I have is, Lisa and Hilary, do you feel as though we can go ahead and vote on everything that we discussed today, or are there specific recommendations that you would like to leave off a vote today?

Dr. Babcock: It sounded to me, and I’ll let Lisa chime in as well, that there was not in the discussion that we had levels of concern that were not resolved by the discussion. So in my opinion, I think we could move ahead with voting on the Healthcare Personnel one and on the NICU recommendations as presented, with the 1 edit that we discussed in removing the word “solely” from that 1 recommendation. Lisa, what do you think?

Dr. Maragakis: Yes, I agree. And changing “rate” to “risk” in the last one, yes.

Mr. Chung: Great I have those notes as well. So when we're ready to get to the voting portion of the agenda, I’ll go ahead and read all of the recommendations, and only the recommendations, and then I’ll name call, roll-call style, for the vote. Does that sound okay with you guys?

Dr. Babcock: It does, and are we taking a roll call on each recommendation, then?

Mr. Chung: No, I’ll do it as a suite. So for example, I’ll go through all 5 of the Varicella recommendations, I’ll read them and then I’ll take a vote on that. Is that okay?

Dr. Babcock: That sounds good.

Dr. Maragakis: I think that sounds good. It’ll save some time.

Mr. Chung: Yes, agreed. Okay, Chelsea, do we have any public comments?

Coordinator: I’m showing no questions or comments at this time.

Mr. Chung: Okay, maybe we give it another minute or two and then we'll go ahead and get started with the vote. Give me one second while I collect my notes here. Chelsea, this is Koo, were you able to get Dr. Fakhri back on the line?

Dr. Fakhri: I'm back, Koo.

Mr. Chung: Oh great, great. Thanks, Mohammed. Chelsea, do we have anybody waiting in line for public comment?

Coordinator: No questions or comments at this time.

Vote and Call Summary

Mr. Chung: Okay then, in the interest of time, we have I think 7 minutes left, I'm going to go ahead and start then with the votes. The first one we'll start off with is for healthcare personnel, the Healthcare Personnel Guideline, the Varicella-Zoster Virus recommendation. Lisa, Hilary, is that okay with you?

Dr. Babcock: Yes.

Dr. Maragakis: Yes.

Mr. Chung: Okay, great. So I'm going to go ahead and read the draft recommendations but you can follow along from the presentation Slide 17, 18, 19 and 20. I'm going to read all 5 recommendations, and then I'm going to go down the roster for your vote. Please let me know if you're in favor of or against the recommendation, okay?

Dr. Babcock: Yes.

Mr. Chung: Okay, so this is a long one, so bear with me. Varicella-Zoster Virus Draft Recommendation Number 1, for healthcare personnel with evidence of immunity of varicella who have an exposure to varicella or disseminated or localized herpes zoster: A, postexposure prophylaxis is not necessary; B, work restrictions are not necessary; C, implement daily monitoring of signs and symptoms for varicella infection during Days 8 through 21 after the last exposure.

Number 2, for healthcare personnel without evidence of immunity to varicella who have an exposure to varicella or disseminated or localized herpes zoster: A, administer postexposure prophylaxis in accordance with CDC and ACIP recommendations; B, exclude from work from the 8th day after the first exposure through the 21st day after the last exposure.

Sub-bullet 1, work restrictions are not necessary for healthcare personnel who previously received one dose of the varicella vaccine and will receive the second dose of vaccine within 5 days after exposure.

Sub-bullet 2, if varicella zoster immune globulin is administered as postexposure prophylaxis, exclude from work from the 8th day after the first exposure through the 28th day after the last exposure.

Number 3, for healthcare personnel with varicella, exclude from work until all lesions have dried and crusted; or, for those who only have non-vesicular lesions that do not crust, exclude from work until no new lesions appear within a 24-hour period.

Four, for healthcare personnel with disseminated herpes zoster, or for immunocompromised healthcare personnel with localized herpes zoster until disseminated disease has been ruled out, exclude from work until all lesions have dried and crusted.

And 5, for immunocompetent healthcare personnel who have localized herpes zoster, including vaccine-strained herpes zoster, and for immunocompromised healthcare personnel who have localized herpes zoster and have disseminated disease ruled out: A, cover all lesions and exclude from direct care of patients at increased risk of complications from varicella disease until all lesions are dried and crusted; and B, if lesions cannot be covered, e.g. on the hands or face, exclude from work until all lesions are dried and crusted. End.

Okay, so we'll go down the list of HICPAC members for a vote. Again please tell me if you are in favor or against. Hilary Babcock?

Dr. Babcock: Approve.

Mr. Chung: Lisa Maragakis?

Dr. Maragakis: In favor.

Mr. Chung: Dev Anderson?

Dr. Anderson: In favor.

Mr. Chung: Kris Bryant?

Dr. Bryant: In favor.

Mr. Chung: Vineet Chopra?

Dr. Chopra: In favor.

Mr. Chung: Elaine Dekker?

Ms. Dekker: In favor.

Mr. Chung: Mohammed Fakih?

Dr. Fakih: In favor.

Mr. Chung: Judy Guzman-Cottrill?

Dr. Guzman-Cottrill: In favor.

Mr. Chung: Mike Lin?

Dr. Lin: In favor.

Mr. Chung: Michael Anne Preas?

Ms. Preas: In favor.

Mr. Chung: Joanne Reifsnyder?

Dr. Reifsnyder: In favor.

Mr. Chung: Jan Patterson?

Dr. Patterson: In favor.

Mr. Chung: Fantastic. Okay, passes unanimously, thank you. Okay next, the first one we're going to discuss is the updated draft recommendation on optimal catheter type and insertion site.

Draft Recommendation 1, choose the central line type, e.g. umbilical venous catheter, percutaneously inserted central catheter, tunnel catheter, etc, based on the clinical needs of the NICU patient, Recommendation. Number 2, the choice of central line type to insert in a NICU patient should not be based solely on CLABSI prevention, Recommendation.

Number 3, choose insertion site appropriate to the central line type to be inserted in a NICU patient, e.g. UVC, PICC, etc, based on the clinical needs of the patient. Also as noted as part of the discussion, a fourth recommendation here, insertion type should not be based solely on CLABSI prevention.

Okay going down the list, Hilary Babcock?

Dr. Babcock: Approve.

Mr. Chung: Lisa Maragakis?

Dr. Maragakis: Approve.

Mr. Chung: Dev Anderson?

Dr. Anderson: Approve.

Mr. Chung: Kris Bryant?

Dr. Bryant: Approve.

Mr. Chung: Vineet Chopra?

Dr. Chopra: Approve.

Mr. Chung: Elaine Dekker?

Ms. Dekker: Approve.

Mr. Chung: Mohammed Fakih?

Dr. Fakih: Approve.

Mr. Chung: Judy Guzman-Cottrill?

Dr. Guzman-Cottrill: Approve.

Mr. Chung: Michael Lin?

Dr. Lin: Approve.

Mr. Chung: Michael Anne Preas?

Ms. Preas: Approve.

Mr. Chung: Joanne Reifsnyder?

Dr. Reifsnyder: Approve.

Mr. Chung: Jan Patterson?

Dr. Patterson: Approve.

Mr. Chung: Great, okay. The next one is an updated recommendation on the optimal dwell time for umbilical catheters.

Number 1, remove umbilical venous and umbilical arterial catheters as soon as possible and when no longer needed due to the concern for increasing risk of CLABSI associated with each day of increasing dwell time, Recommendation.

Number 2, consider removal of umbilical artery catheters at or before seven days of dwell time in neonatal intensive care unit patients, Conditional Recommendation.

Number 3, consider removal of umbilical venous catheters at or before 7 days of dwell time in NICU patients, Conditional Recommendation.

Four, consider removal of umbilical venous catheters and inserting a PICC or other long-term central venous catheter at or before 7 days of umbilical venous catheter dwell time for NICU patients requiring long-term central venous access, Conditional Recommendation.

Okay going down the list, Hilary Babcock?

Dr. Babcock: Approve.

Mr. Chung: Lisa Maragakis?

Dr. Maragakis: Approve.

Mr. Chung: Dev Anderson?

Dr. Anderson: Approve.

Mr. Chung: Kris Bryant?

Dr. Bryant: Approve.

Mr. Chung: Vineet Chopra?

Dr. Chopra: Approve.

Mr. Chung: Elaine Dekker?

Ms. Dekker: Approve.

Mr. Chung: Mohammed Fakih?

Dr. Fakih: Approve.

Mr. Chung: Judy Guzman-Cottrill?

Dr. Guzman-Cottrill: Approve.

Mr. Chung: Michael Lin?

Dr. Lin: Approve.

Mr. Chung: Michael Anne Preas?

Ms. Preas: Approve.

Mr. Chung: Joanne Reifsnyder?

Dr. Reifsnyder: Approve.

Mr. Chung: Jan Patterson?

Dr. Patterson: Approve.

Mr. Chung: Great, next one, this is a new recommendation on optimal dwell time for PICCs. Number 1, remove peripheral inserted central catheters, PICCs as soon as possible and when no longer needed due to the concern of increasing risk of CLABSI associated with increasing dwell time, Recommendation.

Number 2, for a neonate with ongoing need for central venous access whether to remove and replace a PICC that has been in place for a prolonged period of time to reduce CLABSI in NICU patients remains an unresolved issue, No Recommendation.

Okay going down the list, Hilary Babcock?

Dr. Babcock: Approve.

Mr. Chung: Lisa Maragakis?

Dr. Maragakis: Approve.

Mr. Chung: Dev Anderson?

Dr. Anderson: Approve.

Mr. Chung: Kris Bryant?

Dr. Bryant: Approve.

Mr. Chung: Vineet Chopra?

Dr. Chopra: Approve.

Mr. Chung: Elaine Dekker?

Ms. Dekker: Approve.

Mr. Chung: Mohammed Fakih?

Dr. Fakih: Approve.

Mr. Chung: Judy Guzman-Cottrill?

Dr. Guzman-Cottrill: Approve.

Mr. Chung: Michael Lin?

Dr. Lin: Approve.

Mr. Chung: Michael Anne Preas?

Ms. Preas: Approve.

Mr. Chung: Joanne Reifsnyder?

Dr. Reifsnyder: Approve.

Mr. Chung: And Jan Patterson?

Dr. Patterson: Approve.

Mr. Chung: Great. Next one is a new recommendation on the optimal number of catheter lumens. "The choice of single versus double lumen umbilical venous catheter solely for the purpose of preventing CLABSI in neonatal intensive care unit patients remains an unresolved issue." Hilary Babcock?

Dr. Babcock: Approve.

Mr. Chung: Lisa Maragakis? Lisa? Okay we'll come back. Dev Anderson? Interesting. Chelsea, did we lose everybody?

((Crosstalk))

Coordinator: It looks like everyone is still on.

Mr. Chung: Okay.

Coordinator: Or at least still connected.

Mr. Chung: Okay so let's try again, Lisa Maragakis? Dev Anderson? No, Kris Bryant?

Dr. Bryant: Approve.

Mr. Chung: Vineet Chopra?

Dr. Chopra: Approve.

Mr. Chung: Elaine Dekker?

Ms. Dekker: Approve.

Mr. Chung: Mohammed Fakih?

Dr. Fakih: Approve.

Mr. Chung: Judy Guzman-Cottrill?

Dr. Guzman-Cottrill: Approve.

Mr. Chung: Michael Lin?

Dr. Lin: Approve.

Mr. Chung: Michael Anne Preas?

Ms. Preas: Approve.

Mr. Chung: Joanne Reifsnyder?

Dr. Reifsnyder: Approve.

Mr. Chung: Jan Patterson?

Dr. Patterson: Approve.

Mr. Chung: Okay let's try again with Lisa. Okay, Dev? Kris, we did get your approval, correct?

Dr. Bryant: Yes.

Mr. Chung: Just a note here, even though Lisa and Dev were not here for the vote, we do have the required number of votes to pass. We'll move on to the next one. This one is the efficacy of systemic anticoagulant prophylaxis.

Dr. Babcock: Hey, Koo?

Mr. Chung: Yes.

Dr. Babcock: We could do anticoagulant and antimicrobial together.

Mr. Chung: Yes, sure.

Dr. Babcock: Because you're going to lose members.

Mr. Chung: I could definitely do those 2 together.

Dr. Babcock: Okay.

Mr. Chung: So per today's discussion, these include the changes that we made to the text of the recommendation. The first one is do not use prophylactic anticoagulant infusion for the purposes of preventing CLABSI in neonatal intensive care unit patients, that's a Recommendation.

Next, do not use prophylactic antimicrobial infusions routinely to decrease the risk of bacterial CLABSI. I'm going to go down the list, Hilary Babcock?

Dr. Babcock: Approve.

Mr. Chung: Lisa Maragakis? Dev Anderson? Kris Bryant?

Dr. Bryant: Approve.

Mr. Chung: Vineet Chopra?

Dr. Chopra: Approve.

Mr. Chung: Elaine Dekker?

Ms. Dekker: Approve.

Mr. Chung: Mohammed Fakih?

Dr. Fakih: Approve.

Mr. Chung: Judy Guzman-Cottrill?

Dr. Guzman-Cottrill: Approve.

Mr. Chung: Michael Lin?

Dr. Lin: Approve.

Mr. Chung: Michael Anne Preas?

Ms. Preas: Approve.

Mr. Chung: Joanne Reifsnyder?

Dr. Reifsnyder: Approve.

Mr. Chung: Jan Patterson?

Dr. Patterson: Approve.

Mr. Chung: Yes, okay, again just to note, even though Lisa and Dev were not on to make the vote, we do have enough to pass this as well. All right, that's the full suite.

Adjourn

Mr. Chung: We are plus 4 minutes, but Lisa I think we lost her, but I think I got a text from her that we lost her. But Hilary, I think that's the end of this call. Mike Bell, do you have any comments?

Dr. Bell: No, thank you for staying for a few extra minutes. Koo, thank you for carrying us through that long list. I think we got a lot done on a fairly short call, so excellent work everybody, thank you.

Dr. Babcock: Thank you very much, everyone.

Dr. Bryant: Thank you Hilary.

Dr. Reifsnyder: You all have a good day.

((overlapping "goodbyes"))

Coordinator: This concludes today's conference. At this time all participants may disconnect.

Certification

I hereby certify that, to the best of my knowledge and ability, the foregoing transcripts of the August 20, 2019, meeting of the Healthcare Infection Control Practices Advisory Committee, CDC are accurate and complete.

Date

Lisa Maragakis, MD, MPH
Co-Chair, Healthcare Infection Control Practices
Advisory Committee, CDC

Date

Hilary Babcock, MD, MPH
Co-Chair, Healthcare Infection Control Practices
Advisory Committee, CDC

Attachment #1: Abbreviations and Acronyms

Acronym	Expansion
AAKP	American Association of Kidney Patients
ACIP	Advisory Committee on Immunization Practices
ACOEM	American College of Occupational and Environmental Medicine
AEH	America's Essential Hospitals
AHRQ	Agency for Healthcare Research and Quality
ANA	American Nurses Association
AORN	Association of periOperative Registered Nurses
APIC	Association of Professionals of Infection Control and Epidemiology
ASN	American Society of Nephrology
BSI	Bloodstream Infection
<i>C. difficile</i>	<i>Clostridioides difficile</i>
CDC	Centers for Disease Control and Prevention
CLABSI	Central Line-Associated Bloodstream Infection
CMS	Centers for Medicare and Medicaid Services
CMV	Cytomegalovirus
CRBSI	Catheter-Related Bloodstream Infection
DFO	Designated Federal Official
DHQP	Division of Healthcare Quality Promotion
FDA	(United States) Food and Drug Administration
HHS	(United States Department of) Health and Human Services
HICPAC	Healthcare Infection Control Practices Advisory Committee
HRSA	Health Resources and Services Administration
ICU	Intensive Care Unit
MMR	Measles, Mumps, Rubella
NACCHO	National Association of County and City Health Officials
NCEZID	National Center for Emerging and Zoonotic Infectious Diseases
NICU	Neonatal Intensive Care Unit
NIH	National Institutes of Health
PHAC	Public Health Agency of Canada
PICC	Percutaneously Inserted Central Catheter
PIDS	Pediatric Infectious Disease Society
QI	Quality Improvement
<i>S. aureus</i>	<i>Staphylococcus aureus</i>
SCCM	Society for Critical Care Medicine
SHEA	Society for Healthcare Epidemiology of America
SHM	Society for Hospital Medicine
SIS	Surgical Infection Society
TPN	Total Parenteral Nutrition
UAC	Umbilical Artery Catheter
UVC	Umbilical Venous Catheter