THE SECTION ON

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INFECTIOUS DISEASES

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NEWSLETTER

Chair's Letter

Greetings SOID members! I hope everyone had a relaxing summer and enjoyed watching the incredible athletes participating in the Olympic Games. It is hard to believe how fast the summer has flown by, that a new school year has started and that fall is just around the corner.

There has been several changes to the membership of the SOID Executive Committee that I would like to mention. First, we would like to welcome Dr. Adeline Koay, a second year pediatric infectious diseases fellow at Johns Hopkins Medical Center, as a training fellow liaison to the Executive Committee. I would also like to take this opportunity to thank our graduating training fellow liaisons, Dr. Rana Hamdy from Children's Hospital of Philadelphia and Dr. Zachary Willis from Vanderbilt University Medical Center, for their outstanding service, contributions, and innovative and valuable suggestions while on the SOID Executive Committee and Education Subcommittee, respectively. We wish them the best of luck in their new jobs. Finally, Dr. Leonard Krilov will complete his term on the Executive Committee and I would to extend our appreciation for his participation over these past six years. Dr. Lilly Immergluck has participated as the SOID Website Editor, Education Subcommittee member and Co-Chair of the PREP ID course. This past spring, she was elected to the open Executive Committee position and we are looking forward to her future contributions.

I am proud and excited to report that the first S. Michael Marcy visiting professorship, which took place in June at the University of South Dakota Sanford School of Medicine/Sanford Children's Hospital with Dr. Meg Fisher as the inaugural

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visiting professor, was a smashing success. Feedback about the program was extremely positive and complementary. The program was felt to "embody the spirit of Dr. S. Michael Marcy" which is truly a compliment of the highest caliber. You can view photos from some of the presentations on the SOID website. The second visiting professorship program has been awarded to Crozer Chester Medical Center in Chester, Pennsylvania and the visiting professor will be Dr. Sarah Long. As a reminder, the S. Michael Marcy visiting professorship program has been designed to bring nationally and internationally known pediatric infectious diseases (PID) specialists to pediatric and family practice programs around the country that may not have or who have limited access to a PID specialist. The professorship gives these programs an educational opportunity to have the visiting professor address infectious diseases issues that the program may be dealing with and allows for ample interaction between the visiting professor and members of the program and community physicians where the program is located.

I would also like to announce that Dr. Anne Gershon has been chosen as the recipient of the 2016 SOID Award for Lifetime Contribution in Infectious Diseases Education. Dr. Gershon is Professor of Pediatrics at Columbia University College of Physicians & Surgeons, the Director of the Pediatric Infectious Diseases Division, and an attending pediatrician at Presbyterian Hospital. Dr. Gershon's groundbreaking work on the impact of varicella virus infections in children has greatly contributed to our current understanding of varicella zoster virus, and she was instrumental in the licensure of varicella zoster vaccine. For nearly 50 years, Dr. Gershon has been a driving force in educating pediatricians on infectious diseases and she is truly a worthy recipient of this award. There is more information about Dr. Gershon's contributions and the date of the presentation at the NCE on page 4.

One of the major goals of the SOID is to strengthen our relationship with the Pediatric Infectious Diseases Society (PIDS) in order to expand the educational and networking venues available to our membership. The SOID continues to work with PIDS on the PREP ID Board Review course and is collaborating with the COID and PIDS on an Antibiotic Resistance and Antimicrobial Stewardship Working Group to develop educational programs, policy and clinical guidance, a research agenda, and a toolkit regarding pediatric antimicrobial stewardship both for the inpatient and outpatient settings. As a result of discussions from the working group, there will be a section program, "You be the Judge: Why and How to be Smart with Antibiotic Prescribing in Primary Care" that will be offered at the 2017 AAP National Conference and Exhibition (NCE) meeting. We also continue to work with other AAP sections to develop joint educational programs for the AAP NCE. This is becoming an important way to provide infectious diseases education on a variety of topics to a larger group of both general and subspecialty healthcare providers.

The next course in the ID Challenging cases series on vaccine hesitancy launched on August 29, 2016 in conjunction with the related clinical report. Three additional topics have been approved for development as ID challenging case courses: 1) Emerging Infections: Zika, Dengue and Chikungunya; 2) Antibiotics 101; and 3) Tickborne Illnesses - so stay tuned for more information.

As you all are aware, the Centers for Disease Control and Prevention (CDC), released the recommendation that quadrivalent live attenuated influenza vaccine (LAIV4) not be used in any setting during the 2016-2017 influenza season. The recommendation is supported by the AAP. The recommendation was made in light of observational data from the U.S. Flu Vaccine Effectiveness network that documented poor vaccine effectiveness (VE) of LAIV4 during each of the past three influenza seasons, especially against influenza A (H1N1) and pandemic (H1N1pdm09) viruses. For the 2015-2016 season, LAIV4 had an overall adjusted VE of 3% against any influenza. In all pediatric age groups for all three seasons, LAIV did not have any statistically significant benefit in the prevention of influenza, and children who received LAIV had greater than a 2.5 times higher odds of developing influenza due to any virus type compared to children vaccinated with inactivated influenza vaccine (IIV). For H1N1pdm09, LAIV4 had an adjusted VE of -21% compared with IIV of 65%. The adjusted odds ratio was 3.67 indicating that children who received LAIV4 were almost 4 times more likely to get influenza than those who received IIV. Reasons for LAIV4's poor vaccine effectiveness over the last several influenza seasons remain unclear at this time. To address pre-booked LAIV doses, the AAP is working with the CDC and IIV manufacturers to ensure that pediatricians and families have access to appropriate inactivated influenza vaccines to protect them against influenza. For those interested in cancelling orders, the AAP had developed a resource that may be helpful.

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Finally, whether you are a general pediatrician with a specific interest in infectious diseases or a PID sub-specialist, I encourage you to take advantage of the many educational opportunities in which the SOID is involved. Whether it is specific ID programs at the NCE (2016 NCE in San Francisco, CA), attendance at the PREP ID Board Review Course, or through the AAP SOID Website with new PediaLink courses, the SOID is strongly focused on the education of our members. New programs are in the works, so please stay tuned, especially with the launch of new ID Challenging Cases. Our general pediatrician members play a vital role in the section and we are currently recruiting two addition general pediatricians to participate on the Education Subcommittee (see page 30. In addition, I encourage you to spread the word to your colleagues who may have an interest in the SOID and its activities to join the Section. I would also like to encourage all members who are interested in serving the SOID on educational issues or who have suggestions for educational topics, website issues or the newsletter subcommittees to please contact us or complete the 8-question expertise and interest survey.

I very much look forward to receiving your ideas and suggestions as we go forth and thank you for your continuing interest and membership in the SOID. Please don't hesitate to contact Suzanne Kirkwood, the SOID manager and staff liaison at the AAP (SKirkwood@aap.org) or myself (ttan@northwestern.edu) to let us know how we can best serve your needs. Best wishes for a great fall and winter.

Tina Q. Tan, M.D., FAAP, FPIDS, FIDSA

Policy Highlights from the Committee on Infectious Diseases (COID)

AAP statements under development or revision

1. Infection Prevention and Control in Pediatric Ambulatory Setting
2. Adolescent Immunizations
3. Prevention and Treatment of Congenital Toxoplasmosis
4. Infection Control in Organized Sports
5. Antimicrobial Stewardship in Hospitals
6. Chemical-Biological Terrorism and Its Impact on Children
7. The Use of Systemic and Topical Fluoroquinolones in Children
8. Management of Neonates with Suspected or Proven Early-Onset Bacterial Sepsis

The following AAP clinical practice guidelines are in the process of development:

1. Fever in Infants Under 3 Months of Age

Guidelines in Progress with External Organizations

1. HICPAC is working on a guideline for prevention of infections among patients in neonatal intensive care units (NICU)
2. Kawasaki Disease and Endocarditis with Committee on Cardiovascular Disease in the Young (*AHA*)
3. Diagnosis and Management of Bone and Joint Infections (IDSA/PIDS)
4. Clinical Guidelines for Diagnosis and Antiviral Management of Seasonal and Pandemic Influenza in Adults and Children (IDSA)
5. Infectious Diseases Society of America (IDSA), the American Academy of Neurology Institute (AANI) and the American College of Rheumatology (ACR) clinical practice guideline on Lyme Disease
6. Subcommittee on Babesiosis
7. Clinical Practice Guidelines Practice Guidelines for Outpatient Parenteral Antimicrobial Therapy (IDSA)

Section on Infectious Diseases Award for Lifetime Contribution In Infectious Diseases Education

This award is given annually to an Academy member who has made outstanding contributions to education in infectious diseases. The candidate's contribution is indicative of a substantial long-term dedication to the highest ideals of education. This year we are pleased to present the award to Dr. Anne A. Gershon.

Dr. Gershon is presently a Professor of Pediatrics at Columbia University College of Physicians & Surgeons, the Director for the Division of Pediatric Infectious Diseases and an Attending Pediatrician at Presbyterian Hospital.

Dr. Gerson has been a member of the AAP since 1977 and participates in both the Section on Infectious Diseases and New York Chapter 3. She has served on many committees including the AAP Committee on Infectious Diseases, the American Board of Pediatrics, and the Advisory Council for Immunization Practices.

Dr. Gershon has made important contributions for nearly 50 years through education of pediatricians regarding infectious diseases. She has delivered over 30 invited named lectures at the leading medical centers in the U. S. Dr. Gershon has lectured nationally and has traveled the world to speak on the impact of varicella virus infections in children. Dr. Gershon's groundbreaking work has contributed greatly to the understanding of varicella zoster virus and was instrumental in the licensure of varicella vaccine. She also played a critical role in educating pediatricians about the importance of universal acceptance of this vaccine. In addition, Dr. Gershon was one of the first pediatricians to highlight the impact of *Herpes simplex* infections on neonates. Her educational efforts on this pathogen also have been noteworthy.

Dr. Gershon has been a frequent and highly sought after contributor to the pediatric and infectious diseases literature, teaching many about the pathogenesis of disease. She is an excellent mentor and has trained many investigators who have gone on to productive academic careers. Her work has been expanded through the contributions of her many trainees.

Please join us at the award presentation for Dr. Gershon to be held at the **Meet the Red Book Committee session (session S3016) on Monday, October 24, 2016 at 8:00 am at the AAP National Conference and Exhibition in Moscone Center South, Room 102.**

Welcome to Our New Training Fellow Liaison

Soon after completing a Masters in Bacteriology, Dr. Adeline Koay, MBBS, MSc, pursued a medical degree at the University of Melbourne in Australia. She devoted much of her spare time in medical school to encouraging the growth of general practice in Australia, focusing largely on creating a bridge between medical students and medical professionals. Dr. Koay later moved to Galveston, Texas to complete pediatric residency training at the University of Texas Medical Branch, where she wrote some of her first case reports in infectious diseases. Currently, Dr. Koay is a second year pediatric infectious diseases fellow at Johns Hopkins University. She is involved in the hospital's antimicrobial stewardship program and writing infectious diseases management guidelines. Her current research looks at the microbiome and its impact on disease processes such as human immunodeficiency virus (HIV) infection and necrotizing enterocolitis (NEC). Dr. Koay will serve on the SOID Executive Committee through June, 2018.

ID Training Fellows Column: Infection Prevention in the Era of Mobile Communication Devices

Ishminder Kaur, MD, FAAP and Emily Souder, MD, FAAP
St. Christopher's Hospital for Children, Philadelphia, PA

Are mobile communication devices (MCDs) the newest fomite?

"87% of physicians use a smartphone or tablet device in the workplace". "90% of physicians use mobile device apps to access drug information".[1] In the current digital era, MCD use has become commonplace in the field of medicine. MCDs can expedite and streamline communication and documentation among the multitude of providers involved in an individual patient's care. These high-touch devices include cell phones, notebooks/ tablets, laptops, pagers, handheld dictation devices, and computers/workstations on wheels (COW). MCDs may be considered an extension of the existing environmental surface milieu in a healthcare facility, are prone to microbial contamination, and may facilitate dissemination of nosocomial pathogens. Consideration of the proper handling and/or disinfection of these devices should be integral to the infection prevention plans of healthcare facilities.

Prevalence of and Risk Factors for Microbial Contamination of MCDs

There are several studies highlighting the microbial contamination of MCDs held by healthcare workers (HCWs). An estimated 70-100% of HCW MCDs sampled in varying study settings are contaminated with microbes.[2-3] This number is alarming, but does not necessarily represent contamination with pathogens causing healthcare associated infections (HAIs). A review article published in 2009 concluded that an estimated 9-25% of MCDs sampled across different settings were contaminated with pathogens known to cause HAIs.[4] The most common nosocomial pathogens on MCDs include *Staphylococcus aureus*, *Acinetobacter* spp, and *Pseudomonas* spp. Recovery of multidrug-resistant pathogens from MCDs often mirrors local epidemiology. Fungal (*Candida* spp)[5] and viral[6] contamination of MCDs has also been documented.

Limited studies have analyzed risk factors for contamination of MCDs. About 50% of HCWs admit to using their cell phones during physical contact with patients, a behavior that is associated with increasing contamination of cell phones.[7] There are conflicting data on contamination rates between keypad mobile phones (or non-smart cell phone) vs touch screen phones (or smart cell phones).[8-9]

Role of MCDs in Transmission of Healthcare-Associated Infections

MCDs have become an integral part of the toolkit HCWs use to provide optimal patient cares. Over 50% of HCWs carry these devices in and out of patient rooms[7], thus potentially transporting nosocomial pathogens from one patient area to another. In one study, up to 70% of HCWs surveyed at unannounced sampling periods were carrying an MCD into the operating room.[2]

Contaminated environmental surfaces have been shown to play an important role in the epidemic and endemic transmission of health care-associated pathogens.[10] Similar pathogens have been detected on MCDs and HCW hands, suggesting a transmission pathway.[5] The use of molecular analysis to establish the role of MCDs in transmission of HAIs has received limited study. In Turkey, investigators used pulse-field gel electrophoresis to document transmission of genotypically identical *Acinetobacter* spp isolates between HCWs' hands, between cell phones and hands, and between an intensive care unit (ICU) HCW and an ICU patient that resulted in colonization.[11]

Disinfection of Mobile Communication Devices

While most HCWs use an MCD in the hospital setting, a significant proportion of surveyed HCWs do not routinely clean or disinfect their devices. A survey of physicians in a Michigan hospital revealed that 17% never cleaned their mobile devices, while 46% cleaned their devices monthly or yearly.[3] Another survey in the United Kingdom reported that only 8% of physicians cleaned their mobile phones.[12] Hand hygiene is not commonly performed around usage of MCDs. A study of HCWs in Barbados reported that 97% of mobile phone owners did not wash their hands before or after phone usage.[13] Poor hygiene behaviors by HCWs surrounding the use of MCDs continue to exist, despite evidence that many physicians believe electronic devices pose a risk to patients due to their potential role in transmitting pathogens[14]

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ID Training Fellows Column: Infection Prevention . . . *Continued from Page 5*

The effectiveness of various substances in the disinfection of MCDs is similar to that seen with routine disinfection of other environmental surfaces in the hospital setting. Several studies have shown chlorhexidine-based disinfectants to be the most effective in reducing colony counts of bacteria such as methicillin-resistant *Staphylococcus aureus* (MRSA) or vancomycin-resistant enterococci (VRE) on device surfaces. Other cleaning agents such as alcohol wipes, Clorox® and bleach were also effective in disinfection of MCDs.[15-17] Chlorhexidine was also shown to have a residual antimicrobial effect, preventing subsequent contamination several hours after use.[15] In the same study, devices contaminated with *Clostridium difficile* were effectively disinfected only with the use of bleach products. None of these studies evaluated the effectiveness of disinfection products on multidrug-resistant Gram-negative organisms or a direct impact on HAI acquisition.

HCWs may be hesitant to clean their MCDs as manufacturers of these devices often recommend the use of a dry cloth only and suggest that other cleaning agents may damage the device. A study that evaluated disinfection of iPads with Sani-cloth CHG 2% showed that functionality and appearance were maintained despite repeated cleaning with this product.[15] Single use plastic covers for tablets were associated with reduced microbial contamination of the MCDs in the hospital setting, while minimizing device damage and interference with user satisfaction and functionality.[18]

The clear need for and approach to disinfection of MCDs is complicated and should not be done in isolation of other infection prevention strategies. Based on the Centers for Disease Control and Prevention 'Guidelines for Disinfection and Sterilization in Healthcare Facilities (2008)', the authors of a recent study suggested an infection prevention bundle for electronic devices. This bundle included the use of a waterproof or water-resistant barrier for the electronic device, disinfection of the device before and after patient interaction with an approved disinfectant, automatic reminders to perform disinfection, and hand hygiene before and after the use of the electronic device.[14]

The use of ultraviolet radiation for microbial inactivation is being increasingly utilized in the healthcare environment. The adaption of this technology to a smaller scale for disinfection of MCDs may be a potential future strategy. Antimicrobial glass has also been developed recently and may be an important component of infection prevention of MCDs going forward.

Summary

MCDs have been likened to a "Trojan Horse" because of their ability to transport nosocomial pathogens to previously non-colonized areas in the healthcare facilities. As such, contaminated MCDs have the potential to facilitate pathogen transmission to patients, indirectly through contaminated hands of HCWs or directly through contact with devices used in patient rooms. Further work is needed to establish the role of MCDs in transmission of nosocomial pathogens and subsequent HAIs, along with the development of standard procedures and guidelines for disinfection of MCDs across healthcare facilities.

References

1. Ventola CL. Mobile devices and apps for health care professionals: uses and benefits. *PT*. 2014;39(5):356-64.
2. Brady RR, Fraser SF, Dunlop MG, et al. Bacterial contamination of mobile communication devices in the operative environment. *J Hosp Infect*. 2007;66:397-8.
3. Khan A, Rao A, Reyes-Sacin C, et al. Use of portable electronic devices in a hospital setting and their potential for bacterial colonization. *Am J Infect Control*. 2015;43:286-8.
4. Brady RR, Verran J, Damani NN, et al. Review of mobile communication devices as potential reservoirs of nosocomial pathogens. *J Hosp Infect*. 2009 ;71:295-300
5. Kordecka A, Krajewska-Kulak E, Lukaszuk C, et al. Isolation frequency of Candida present on the surfaces of mobile phones and hands. *BMC Infect Dis*. 2016;16:238.
6. Pillet S, Berthelot P, Gagneux-Brunon A, et al. Contamination of healthcare workers' mobile phones by epidemic viruses. *Clin Microbiol Infect*. 2016;22:456.e1-6.

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ID Training Fellows Column: Infection Prevention . . . *Continued from Page 6*

7. Goldblatt JG, Krief I, Klonsky T, et al. Use of cellular telephones and transmission of pathogens by medical staff in New York and Israel. *Infect Control Hosp Epidemiol*. 2007;28:500-3.
8. Lee YJ, Yoo CG, Lee CT, et al. Contamination rates between smart cell phones and non-smart cell phones of healthcare workers. *J Hosp Med*. 2013;8:144-7
9. Pal P, Roy A, Moore G, et al. Keypad mobile phones are associated with a significant increased risk of microbial contamination compared to touch screen phones. *J Infection Prevention*. 2013;14:65-69.
10. Otter JA, Yezli S, French GL. The role played by contaminated surfaces in the transmission of nosocomial pathogens. *Infect Control Hosp Epidemiol*. 2011;32:687-99.
11. Borer A, Gilad J, Smolyakov R, et al. Cell phones and *Acinetobacter* transmission. *Emerg Infect Dis*. 2005 Jul;11:1160-1.
12. Brady RR, Chitnis S, Stewart RW, et al. NHS connecting for health: healthcare professionals, mobile technology, and infection control. *Telemed J E Health*. 2012;18:289-291.
13. Ramesh J, Carter AO, Campbell, MH, et al. Use of mobile phones by medical staff at Queen Elizabeth Hospital, Barbados: evidence for both benefit and harm. *J Hosp Infect*. 2008;70:160-165.
14. Manning ML, Davis J, Sparnon E, et al. iPads, droids, and bugs: Infection prevention for mobile handheld devices at the point of care. *Am J Infect Control*. 2013;41:1073-1076.
15. Howell V, Thoppil A, Mariyaselvam M, et al. Disinfecting the iPad: evaluating effective methods. *J Hosp Infect*. 2014;87:77-83.
16. Kiedrowski LM, Perisetti A, Loock MH, et al. Disinfection of iPad to reduce contamination with Clostridium difficile and methicillin-resistant Staphylococcus aureus. *Am J Infect Control*. 2013;41:1136-1146.
17. Beer D, Vandermeer B, Brosnikoff, C, et al. Bacterial contamination of health care workers' pagers and the efficacy of various disinfecting agents. *Pediatr Infect Dis J*. 2006;25:1074-5.
18. Hammon M, Kunz B, Dinzl V, et al. Practicability of Hygienic Wrapping of Touchscreen Operated Mobile Devices in a Clinical Setting. *PLoS One*. 2014,9:e106445

From the ACIP Meeting of June, 2016

The slide sets and minutes of the June 22-23, 2016 meeting are now available. The next ACIP meeting is scheduled for October 19-20, 2016.

WELCOME TO OUR New SOID Members

If you know of others who might be interested in joining the Academy and the Section please have them call 1-800-433-9016 ext 5885 or go to www.aap.org. The "Become A Member" link will take them to an application. Current Academy members may join the Section here (member ID and login required). You may also call AAP Customer Services at: 866-843-2271.

Review of the Recent Infectious Disease Literature

These summaries and commentaries are completed by volunteer Contributing Editors from the SOID. Each is responsible for reviewing the current infectious disease literature for several journals. They select an interesting article and present it for your review to help keep you current on various issues.

Basta NE, Mahmoud AAF, Wolfson J, et al. Immunogenicity of a meningococcal B vaccine during a university outbreak. *N Engl J Med* 2016;375:220-8.

Reviewed by: *Sherman J. Alter, MD. Division of infectious Disease, Dayton Children's Hospital, Department of Pediatrics, Wright State University Boonshoft School of Medicine, Dayton, OH.*

An ongoing outbreak of serogroup B meningococcal (MenB) disease at a New Jersey university afforded the opportunity to study the immunogenicity of a multicomponent MenB vaccine (4CMenB - Bexsero, GlaxoSmithKline). The recombinant vaccine contained factor H-binding protein (fHBP), neisserial adhesin A, neisserial heparin-binding antigen (NHBA, a fusion protein), and an outer-membrane vesicle from an outbreak strain. The New Jersey outbreak resulted in nine cases of disease, including 1 death. The Food and Drug Administration (FDA) approved the use of 4CMenB before licensure because of the sustained transmission of MenB over two academic years. This vaccine was previously licensed in other countries.

This seroprevalence survey among students assessed vaccination status and quantified titers of serum bactericidal antibodies with an assay that included human complement (hSBA), a standard correlate of protection for the evaluation and licensing of meningococcal vaccines. The analysis compared the proportion of vaccinated and unvaccinated students who were seropositive for the outbreak strain (M2613), and for a closely related reference strain (44/76-SL) and a mismatched reference strain (5/99). Both of these latter strains were utilized in the 4CMenB development. Although the specific MenB outbreak strain was not included in the vaccine, two vaccine antigens, fHBP and NHBA, were expressed in the outbreak strain. An hSBA titer of ≥4 defined seropositivity. Vaccine was offered on a voluntary basis to enrolled undergraduate and graduate students living on campus. Clinics offered 4CMenB beginning in December 2013 with a second dose 10 weeks later. Immune responses were assessed two months after the second dose.

Among 499 participants who received two 4CMenB doses, 66.1% (95% CI, 61.8-70.3) had serum bactericidal titers against the outbreak strain. The geometric mean titer was low, 7.6 (95% CI, 6.7-8.5). Participants who received one dose or two doses were more likely than those who were unvaccinated to be seropositive (P=0.03 and P=0.001, respectively). Among vaccinees who did not possess antibodies against the MenB outbreak strain (N=61), putatively protective hSBA titers for the reference 44/76-L and 5/99 strains were present in 87-100% and 97-100% of students, respectively. While 23.6% of students reported that they had met at least one person who received the diagnosis of MenB infection, only 2.5% received antibiotic prophylaxis. The overall safety profile of 4CMenB was good. No further cases of MenB infection occurred in either vaccine recipients or nonrecipients.

Reviewer's Commentary:

The incidence of disease caused by *Neisseria meningitidis* has been declining in the United States, in part due to the use of meningococcal A, C, W, and Y vaccines among adolescents. Because of the antigenic similarity of the MenB polysaccharide capsule to human glycoproteins, however, the development of a MenB vaccine has been difficult. The composition of the 4CMenB vaccine contains alternative meningococcal antigens. Moreover, while the incidence of meningococcal disease is at an historical low (0.18 cases per 100,000 person-years in 2013, including serogroups A, C, W, Y, and b), from 2009 through 2015 there were seven MenB outbreaks at U.S. universities resulting in 43 cases and three deaths.[1] FDA approval for this vaccine and another MenB vaccine (MenB-FHbp, Trumenba, Pfizer) was granted through an accelerated approval program. MenB vaccine approval in persons aged 10 to 25 years was based on both vaccine safety and hSBA responses thought to be reasonably predictive of clinical benefit.

In this study, 66.1% of fully-vaccinated students mounted a putatively-protective antibody response. This level of

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Review of the Recent Infectious Disease Literature *Continued from Page 8*

seropositivity was lower than expected, given the antigenic similarity between the outbreak strain and some components of the vaccine. As noted by the authors, "knowledge of immunity against vaccine reference strains is not sufficient to prevent individual-level immunity against an outbreak strain, even when the strain expresses one or more antigens that are closely related to the vaccine antigens". A commentary in the same issue of the Journal further advises that given the vagaries of MenB outbreaks, it could be difficult to conclude whether the vaccinations provided in this study truly had a positive effect on the course of the outbreak.[2] This investigation along with additional postmarketing studies are necessary steps in further describing the effectiveness of vaccines against MenB strains within the U.S.

References:

1. MacNeil JR, Rubin L, Folaranmi T, et al. Use of serogroup B meningococcal vaccines in adolescents and young adults: recommendations of the Advisory Committee on Immunization Practices, 2015. *MMWR Morb Mortal Wkly Rep 2015*;64:1171-6.
2. Kim JH. A challenge in vaccine development – Neisseria meningitidis Serogroup B. N Engl J Med 2016;375:275-7.

Abzug MJ, Michaels MG, Wald E et al. A randomized, double-blind, placebo-controlled trial of pleconaril for the treatment of neonates with enterovirus sepsis. *Journal of Pediatric Infectious Diseases Society*, 2016; 5(1):53-62.

Editorial Commentary: Modlin JF. Treatment of neonatal enterovirus infections. *Journal of Pediatric Infectious Diseases Society*, 2016; 5(1):53-62.

Reviewed by: J*ane Gould, MD, FAAP, Associate Professor of Pediatrics, Drexel University College of Medicine, Hospital Epidemiologist, Attending Physician, Section of Infectious Diseases, St. Christopher's Hospital for Children, Philadelphia, PA.*

Neonatal enteroviral infections, although often sporadic, have a high mortality rate and survivors often have long term morbidity due to persistent hepatic and cardiac dysfunction as well as neurologic sequelae. There is no commercially available effective antiviral. Some previous studies have suggested potential benefit of intravenous immune globulin (IVIG), but this has not been proven. Pleconaril is an oral viral capsid inhibitor with activity against picornaviruses. In the study by Abzug et al, pleconaril was shown to be efficacious and safe which is very hopeful, but will require confirmatory studies.

This study, conducted by the NIH-sponsored Collaborative Antiviral Study Group (CASG), was a randomized, double blind placebo-controlled study designed to determine the safety and efficacy of pleconaril to treat neonates (≤ 15 days of life, gestational age ≥32 weeks, birth weight ≥1500 grams) with suspected enterovirus sepsis defined as hepatitis, coagulopathy, and /or myocarditis. Patients with bacterial or non-enterovirus infections, cyanotic heart disease, gastrointestinal (GI) tract abnormalities that might interfere with medication absorption, or maternal HIV infection were excluded, as were those who were near death. Specimens for enteroviral culture and PCR from multiple anatomic sites were obtained along with clinical, pharmacokinetic and safety data. Patients were followed for 24 months. 43 patients with confirmed enterovirus were analyzed (31 treatment vs.12 placebo). Maternal and neonatal characteristics were similar between the two groups. For enterovirus positive patients, the median age of illness onset was 5.0 days (range of 1-15 days) and the median duration of illness prior to treatment was 6.0 days (range of 2-15 days); one day shorter than placebo group. Those treated with pleconaril were less likely to remain PCR-positive from the oropharynx when last sampled (23% vs.58%, p=.02, median 14 days). In the intent-to-treat analysis, those treated with pleconaril were less likely to die (23% treatment vs. 44% placebo, p=.02 for 2 month survival). All treatment recipients attained drug concentrations >IC^{90} after the first day of treatment. However, 38% were < IC90 during the first treatment day. Greater survival was seen among enterovirus-confirmed patients with pleconaril levels ≥ 70 ng/ml in the first 24 hours. Only one patient in the treatment group had adverse events possibly or probably related to treatment vs. 3 in the placebo group. The limits of the study were discussed by the authors and included: the small sample size, low yield of enteroviral cultures and brief duration of shedding, delays from illness onset to start of treatment and use of an oral agent when GI absorption could be reduced in some patients, and lack of both enteroviral typing and enteroviral antibody concentration in IVIG that some patients received.

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Review of the Recent Infectious Disease Literature *Continued from Page 9*

Reviewer's Commentary:

The accompanying editorial highlights nicely both the pharmaceutical history of pleconaril testing and the difficulty in studying the drug as a treatment for neonatal enteroviral disease. The study was begun in 1999 and discontinued in 2010 with the expiration of available drug supply and just shy of reaching the target number of patients with laboratory-confirmed disease due to difficulties in patient recruitment and in obtaining parental consent for a placebo controlled study. At this time the drug is no longer available and a new oral drug pocapavir is being developed for potential use in chronic enteroviral infections in immunocompromised patients.

Claim MOC Credit for QI Work You're Already Doing

Contributed by the American Board of Pediatrics

Pediatricians are committed to providing the best care for their patients and to making that care better every day. Thousands of physicians have used online tools, like American Board of Pediatrics (ABP) Performance Improvement Modules (PIMs) and AAP EQIPP modules to help with improvement and to meet Maintenance of Certification (MOC) requirements. The AAP's PediaLink QI system can also be used to build and manage small-group QI projects for MOC credit. These online tools and modules can be great ways to learn the QI process, but many pediatricians are already doing important QI work, including those projects facilitated by the AAP, in their practices. How can pediatricians claim credit for the quality improvement work they're already doing?

In addition to the numerous ways in which pediatricians can earn credit through the AAP (see sidebar) and in an effort to continue to offer a wider range of meaningful and practical ways to meet MOC requirements for Improving Professional Practice (Part 4), the ABP has developed simple online applications for pediatricians to report the QI work that they originate where they practice. For more information visit https://www.abp.org/content/how-to-earn-credit and see a summary below.

For Small Groups

The application – called the **Small Group QI Project Application** -- is designed specifically for QI teams involving 1-10 pediatricians. Once a QI project is complete, the diplomate leading the project submits a Small Group QI Project Application on behalf of the group. When the project is approved, each participating physician then earns 25 Part 4 points. There is a fee of $75 per project (not per person). Now you can finish your QI project, submit your Small Group QI Project Application and claim your credit!

For the Larger Groups

For those QI teams that include more than 10 pediatricians, the ABP offers a slightly altered version of the Small Group application. The **QI Project Application**, which is appropriate for long term, ongoing QI projects, is designed for organizations whose QI teams include 11 or more pediatricians. This application costs $250 for the entire team and earns each participant (no maximum) 25 Part 4 points.

Credit can be awarded each time a member of the QI team can attest to meaningful participation -- meaning one project can result in multiple opportunities for its participants to claim MOC credit for their work!

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Claim MOC Credit for QI Work You're Already Doing *Continued from Page 10*

Begin QI Project Application (11 or More Physicians)

For Those Who've Earned NCQA Recognition

MOC Part 4 credit can also be claimed if a practice has earned National Committee for Quality Assurance (NCQA) recognition for either Patient-Centered Medical Home (PCMH) or Patient-Centered Specialty Practice (PCSP).

The ABP recognizes the rigorous QI efforts necessary to obtain such recognition. Individual physicians, at no additional charge, can claim 40 Part 4 points if they have meaningfully participated in earning NCQA-PCMH or NCQA-PCSP recognition based on either 2011 or 2014 standards.

NCQA Patient-Centered Medical Home/Specialty Practice

For Those Leading Institutions in QI Work

Those individuals with expertise in quality improvement science who are in positions to lead institutional quality improvement initiatives – such as Vice President of Quality/Safety, or a Chief Quality Officer – can claim 40 Part 4 points for their leadership activities. The QI Program Development application is designed specifically for those developing and leading macro-level QI programs (not necessarily projects) within an organization.

QI Program Development

For Organizations Sponsoring QI Projects

Organizations that are sponsoring three or more QI projects within a two-year period may apply to become a Portfolio Sponsor. This role as sponsor allows the organization to oversee multiple, simultaneously-running QI projects and approve qualifying projects for 25 Part 4 points. The Portfolio Sponsor is responsible for submitting a progress report to the ABP for each approved project.

Did you know the AAP is a Portfolio Sponsor? The AAP reviews and approves its own QI Projects, based on ABP MOC standards, and then awards credit for participation.

AAP Portfolio Program

Connect with AAP for MOC Success

The American Academy of Pediatrics (AAP) continues to expand its offerings for members to fulfill requirements for Maintenance of Certification (MOC).

The Academy provides solutions for individuals from online QI courses to PREP self-assessments to live CME events. The AAP MOC Portfolio also provides guidance for members interested in developing or providing MOC activities through nationally-affiliated AAP groups (e.g., Sections and Councils).

Discover which MOC solution is right for you, and keep up with developing news at the newly revised http://www.aap.org/mocinfo.

Call for General Pediatrician Volunteers: 2 Open Positions on the Section on Infectious Diseases (SOID) Education Subcommittee

The mission of the SOID is to improve the care of children with infectious diseases through professional education. Are you a general pediatrician interested in infectious diseases and education? The SOID Education Subcommittee is comprised of 14 members and would like to add two additional general pediatricians to assist in a wide variety of education related activities.

The SOID Education Subcommittee assists the Program Chair in the development of educational programming regarding infectious diseases for general pediatricians and infectious diseases physicians. View some recent activities on the SOID website under the Education tab. Send your biosketch to Suzanne Kirkwood at skirkwood@aap.org by **October 10, 2016**.

Responsibilities:

- Annually work with the Program Chair to identify topics for the general ID sessions at the National Conference and Exhibition (NCE).
- Periodically assess the satisfaction of SOID members with the current educational programming available.
- Develop educational programming that addresses educational needs/gaps of AAP and SOID members
- Review existing and develop new content/articles for the AAP parent website, HealthyChildren.org
- Participate in conference calls, as necessary.

Eligibility:

- Member of the American Academy of Pediatrics
- Member of the Section on Infectious Diseases

Term: 3 years; renewable subject to Executive Committee approval

Appointment Criteria for Consideration by Executive Committee:

- Letter/email of Interest from the SOID Member
- Curriculum vitae

Status: Members appointed by the SOID Executive Committee

Hepatitis C virus testing in infants born to HIV-HCV co-infected mothers: Easier said than done?

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The ongoing twin epidemics of opioid abuse and hepatitis C virus (HCV) transmission among young people in the United States have resulted in an increase in the number of children born to HCV-infected mothers[1,2]. About 5% of these children will acquire HCV from their mothers in *utero* or peripartum[3]. The risk of HCV vertical transmission may be 2 - 4 times higher when the mother is co-infected with HIV and HCV[3,4], though that increased risk of HCV transmission may be mitigated when the maternal HIV infection is controlled with combination antiretroviral therapy[5]. Vertically-acquired HCV infections sometimes resolve spontaneously, but in most cases they persist indefinitely, predisposing to progressive liver disease.

All children born to HCV-infected mothers should be tested for HCV. However, recent studies suggest that the vast majority of vertically-exposed children go untested and most infected children remain undiagnosed[6-8]. Part of the problems lies in the failure to identify HCV-infected mothers. Current guidelines do not recommend universal prenatal screening for HCV. Rather, they advocate testing women with CDC risk factors for HCV, including a history of injection drug use, HIV infection, or receipt of blood products or organ transplant prior to routine HCV screening. In practice this risk factor-based approach often fails: practitioners may not ask about risk factors, mothers may be hesitant to disclose risk factors, risk factors alone do not identify all HCV-infected patients in any scenario, and some women are infected by routes not listed in current CDC criteria[9,10]. Although not clearly stated in most guidelines, HIV-infected mothers should be screened for HCV infection with each pregnancy.

Even when maternal HCV infection is recognized, HCV-exposed children often do not receive appropriate testing for HCV[7,8]. The reasons for this appear multifactorial, including breakdown in the communication chain between obstetricians, nursery providers, and outpatient primary care doctors; difficulty maintaining follow-up with families; switches in parental custody; and low awareness of HCV among pediatric providers. Whether the failure to ascertain pediatric HCV infection affects children born to HIV-HCV co-infected mothers as severely as it does for children born to HCV-monoinfected mothers is not known.

One could envision that more systematic testing of mothers and follow up of infants would be facilitated if HCV screening in pregnancy were linked to institution of therapy with direct acting antivirals to cure the mothers and prevent vertical transmission to the infants. While there are discussions of treating HCV-infected women during pregnancy, there is not yet enough data to support this practice.

The ideal algorithm for diagnosis of HCV vertical transmission has not been established, as reflected in the varying approaches recommended by the 2015 AAP Red Book, NASPGHAN, and for children born to HCV/HIV co-infected mothers, the AID*Sinfo* body. Vertical transmission can be diagnosed by detection of HCV nucleic acid in the peripheral blood after the first 1-2 months of age (testing before age 1 month has very low sensitivity) or by detection of anti-HCV antibody after age 18 months, by which time transplacentally-acquired maternal antibodies should be absent. HCV differs from HIV in that there is generally no urgent medical need to diagnose vertically-acquired HCV in infancy and there is a window of spontaneous resolution in the first 2-3 years of life. However, given the apparent difficulties following these children, it may be prudent to test them during infancy when they present for well-child checks or for HIV testing. For children born to HIV-HCV co-infected mothers, we currently recommend the AID*Sinfo* (https://aidsinfo.nih.gov) standards which are:

1. For children presenting at age 2-18 months, HCV infection may be ruled out with 2 negative HCV-RNA PCRs, one of which is collected after age 12 months. Any positive PCR should be followed-up with a second PCR to confirm the diagnosis of HCV infection.
2. For children presenting after age 18 months, HCV should be screened for with an HCV antibody test. If positive, follow-up HCV RNA PCR testing should be conducted to determine whether the child has persistent infection.

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Hepatitis C virus testing in infants born to HIV-HCV . . . *Continued from Page 13*

Any child who tests positive for HCV should be referred to a pediatric infectious disease or hepatology specialist experienced with monitoring and treating HCV infected children. Combinations of the new direct-acting antiviral agents for HCV are highly effective and well tolerated in adults. Several of these combinations are in clinical trials in children who are 3-18 years of age.

References:

1. Koneru A, Nelson N, Hariri S, et al. Increased Hepatitis C Virus (HCV) Detection in Women of Childbearing Age and Potential Risk for Vertical Transmission - United States and Kentucky, 2011-2014. *MMWR*. 2016;65(28):705-710.
2. Centers for Disease Control and Prevention. Increases in Hepatitis C Threaten Young Women and Babies. Available at: http://www.cdc.gov/nchhstp/newsroom/2016/hcv-perinatal-press-release.html. Accessed August 13, 2016.
3. Benova L, Mohamoud YA, Calvert C, Abu-Raddad LJ. Vertical transmission of hepatitis C virus: systematic review and meta-analysis. *Clinical Infectious Diseases*. Sep 15 2014;59(6):765-773.
4. Yeung LT, King SM, Roberts EA. Mother-to-infant transmission of hepatitis C virus. *Hepatology*. Aug 2001;34(2):223-229.
5. Checa Cabot CA, Stoszek SK, Quarleri J, et al. Mother-to-Child Transmission of Hepatitis C Virus (HCV) Among HIV/HCV-Coinfected Women. *Journal of the Pediatric Infectious Diseases Society*. Jun 2013;2(2):126-135.
6. Delgado-Borrego A, Smith L, Jonas MM, et al. Expected and actual case ascertainment and treatment rates for children infected with hepatitis C in Florida and the United States: epidemiologic evidence from statewide and nationwide surveys. *The Journal of Pediatrics*. Nov 2012;161(5):915-921.
7. Abughali N, Maxwell JR, Kamath AS, Nwankwo U, Mhanna MJ. Interventions using electronic medical records improve follow up of infants born to hepatitis C virus infected mothers. *The Journal of the Pediatric Infectious Disease Society*. Apr 2014;33(4):376-380.
8. Kuncio DE, Newbern EC, Johnson CC, Viner KM. Failure to Test and Identify Perinatally Infected Children Born to Hepatitis C Virus-Infected Women. *Clinical Infectious Diseases*. Apr 15 2016;62(8):980-985.
9. Smith BD, Morgan RL, Beckett GA, et al. Recommendations for the identification of chronic hepatitis C virus infection among persons born during 1945-1965. *MMWR*. Aug 17 2012;61(RR-4):1-32.
10. Fernandez N, Towers CV, Wolfe L, Hennessy MD, Weitz B, Porter S. Sharing of Snorting Straws and Hepatitis C Virus Infection in Pregnant Women. *Obstetrics and gynecology*. Aug 2016;128(2):234-237.

Member Perspective - Epic Fail: HPV Vaccination

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A couple of years ago, "epic fail" was the phrase my teenage son used as I unsuccessfully attempted to beat him in a game we were playing. At the time, I thought to myself it was a harsh but accurate assessment of my performance. And I was certainly motivated to practice on my own so that the next time, things would be different.

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Member Perspective - Epic Fail: HPV Vaccination *Continued from Page 14*

That same phrase came to mind as I read through an October 2015 article published in *Cancer Epidemiology, Biomarkers & Prevention* titled, "Quality of Physician Communication about Human Papillomavirus Vaccine: Findings from a National Survey." The article describes well the poor performance of the medical community (primarily pediatricians and family physicians) in providing this vaccine. Another source, the most recent National Immunization Survey-Teen 2015, reports another alarming trend: HPV vaccine series initiation and completion continues to lag far behind what it should be despite some incremental gains from last year.

It came as no surprise to me that the *Cancer Epidemiology, Biomarkers & Prevention* article clearly showed what I have suspected for some time and what has been hinted at by previous studies. The epic failure in providing what is essentially a cancer prevention vaccine to the recommended population of 11- and 12-year-old boys and girls lies not at the feet of the antivaccine movement or hesitant parents. Rather, the failure belongs to us.

The article describes findings from an online survey sent to 2,368 pediatricians and family physicians in 2014. Respondents (n = 776) self-reported their own performance on strength of endorsement (saying the vaccine is important), timeliness (recommending it at ages 11 and 12), consistency (recommending it routinely vs. using a risk-based approach), and urgency (recommending same-day vaccination).

More than one-quarter stated they did not strongly endorse the HPV vaccine, and a similar number reported they did not recommend it be given at 11 to 12 years of age. Amazingly, 59% stated they used a risk-based approach vs. a routine approach to recommending the HPV vaccine, and only half of the respondents recommended giving the vaccine at the current encounter when discussing the HPV vaccine. And because this are self-reported data, these results represent a best-case scenario because respondents would be unlikely to paint an unflattering picture of their own performance.

Clearly, we have a major problem with physicians struggling with their own discomfort in discussing the HPV vaccine and who erroneously believe that parents do not value it. The physicians' lack of competency in communicating effectively and overtly leads to a lack of an affirmative recommendation that is so important in any preventive intervention. The narrative must remain consistent and effective for the successes of preventive interventions to endure.

Another factor that likely contributes to pediatricians' underperformance on providing the HPV vaccine is one that we should be quite acquainted with: pediatricians' lack of experience and familiarity with the diseases that the HPV vaccine prevents.

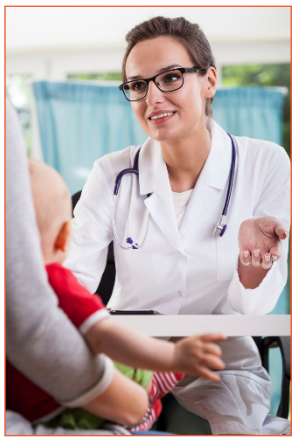
It is human nature to consider those things we have a direct experience with to be more important. That is why the public's acceptance of vaccines in general has waxed and waned as the public's experiences with the diseases they prevent has waxed and waned. So it is with the HPV vaccine: It is the first routinely recommended vaccine that is given to the pediatric patient to prevent diseases that appear later in adulthood. Since HPV-associated cervical dysplasia/cancers, genital cancers and oropharyngeal cancers are not diseases that pediatricians treat or have a professional experience with, we unconsciously feel less of an imperative to perform with the vaccine that prevents these diseases. We will not likely be witnesses to our personal failures in our patients who do not get the HPV vaccine.

In fact, we are at risk for being the generation of pediatricians and family physicians who collectively failed to protect our patients from a preventable cause of cancer. The cohort of patients who we have cared for, who should have received the HPV vaccine but did not, are left vulnerable to cancers that cause incredible suffering and disfigurement. Only we can fix what it wrong with us. Only we can turn around this epic failure.

Physicians and other providers of medical care to adolescents can access resources to help themselves improve their provision of the HPV vaccine to their patients. One of the best collections of resources can be found online at the AAP's Champion Toolkit. This includes material from the CDC and AAP as well as some illuminating video vignettes that illustrate the do's and don'ts of communicating with families about HPV vaccination. This must become part of our mission!

PediaLink
The AAP Online Learning Center

New PediaLink Course on Vaccine Hesitancy can help pediatricians address common parental concerns



Most parents with questions or hesitancy about vaccines are not opposed to vaccinating their children, but rather are simply confused and unsure. Health care providers have found to be the "preferred and trusted source of vaccine information"1 for parents. Parents most frequently listed "a child's doctor or nurse (81.7%)"[1] as their most important sources of information. ***Yet 87% of physicians[2] have encountered parents who have refused a vaccine for their child.***

Pediatricians facing concerned parents need to be prepared to address the specific questions that are causing the parental concerns, emphasize the safety of vaccines, discuss the science behind the current vaccine schedule and why it should be adhered to, and clearly articulate the message that "vaccines are safe and effective, and serious disease can occur if your child and family are not immunized."[3].

The PediaLink ***Challenging Cases: Vaccine Hesitancy*** course includes the latest recommendations from the AAP Clinical Report, Countering Vaccine Hesitancy. This course provides strategies to promote vaccine confidence in vaccine-hesitant parents in a time efficient but effective manner, including case studies on infant vaccinations and MMR vaccination.

References:

1. Kennedy A, Basket M, Sheedy K. Vaccine Attitudes, Concerns, and Information Sources Reported by Parents of Young Children: Results From the 2009 HealthStyles Survey. Pediatrics. 2011;127(Supplement 1):S92-S99.
2. Hough-Telford C, Kimberlin DW, Aban I, et al. Vaccine delays, refusals, and patient dismissals: a survey of pediatricians. *Pediatrics*. August 29 2016.
3. Edwards, KE, Hackell JM.; Committee on Infectious Diseases and Committee and Practice and Ambulatory Medicine. Countering Vaccine Hesitancy. *Pediatrics*. August 29, 2016.

This course is **FREE** and part of the PediaLink Challenging Cases Course Series. To register or get more information about this course, Vaccine Hesitancy, click here. For other courses in this series, click here.

This course, PediaLink: Challenging Cases - Vaccine Hesitancy was supported by the Cooperative Agreement Number, 5U38OT000167-02, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

Additional Resources:

Healthy Children – Immunizations - Child Immunization Schedule: Why is the Schedule Like That?

AAP Health Initiatives - Immunization - Communicating with Parents

CDC - Provider Resources for Vaccine Conversations with Parents

ID Pearls and Other Gems: When sinusitis goes from acute to chronic, is non-antibiotic management a key?

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Case: A fully immunized six-year-old white male with mild seasonal/environmental allergies presents with his fourth episode of persisting rhinorrhea, cough, fatigue and disturbed sleep in the past three months. He takes loratidine daily for his allergies. He used intermittent nasal fluticasone during each of the three 10-day antibiotic courses for prior episodes; each was diagnosed as acute bacterial sinusitis because of prolonged rhinorrhea with cough for more than 10 days. Transient improvement occurred with each antibiotic/ fluticasone course but the rhinorrhea and cough never completely resolved.

Physical examination is normal except for allergic shiners, thick profuse opaque rhinorrhea fully obstructing the view of the right nasal passage and adherent in mucous globs on the turbinates and septum of the left nasal passage. A smear of nasal secretions reveals many neutrophils but only occasional eosinophils. After cleansing the nose with saline, the mucosa has crusting, is hyperemic with several visible small erosions and has modestly enlarged lower and middle turbinates on the right. No foreign body is present.

The question posed by his parents is why this keeps recurring with the symptoms that affect his quality of life and apparently his performance at school. Why aren't the antibiotics working? Cases such as this are not everyday occurrences, but they can be quite frustrating to both families and clinicians. And the children themselves seem miserable. Each individual episode that this child experienced qualified under current acute bacterial sinusitis guidelines as acute bacterial sinusitis due to prolonged symptoms and perhaps even the "double sickening" phenomena.

But is this a child with chronic rhinosinusitis (CRS)?

Rhinosinusitis is traditionally classified by duration as acute (<4 weeks), subacute (4–12 weeks), or chronic (≥12 weeks with/without exacerbations).[1] CRS is defined in adults as inflammation documented by physical examination, plus persistent symptoms that include at least two of the following: nasal obstruction (81–95%), facial congestion/ pressure/ fullness (70–85%), discolored nasal discharge (51–83%), and hyposmia (61–69%)[2,3]. In children, CRS is less well defined: ≥90 uninterrupted days of respiratory symptoms, such as cough, nasal discharge, or nasal obstruction.[4] We know that the bacteriology of pediatric CRS differs somewhat from the acute bacterial rhinosinusitis (ABRS) pathogen mix.[4,5] However, even when the choice of antibiotic accounts for such differences, success in treating CRS with antibiotics is often disappointing (40-50% cure rate).

In adults, CRS occurs in up to 5% of the population and is more frequent both in females and in those with a number of co-morbidities. Table 1 lists the co-morbidities for chronic rhinosinusitis. CRS is functionally a "plumbing problem" after the course of antibiotics is completed, not necessarily a chronic active infection. However, acute exacerbations of bacterial sinusitis often complicate CRS and further aggravate the plumbing problem.

So, is there a way to improve symptom relief for CRS in children when we make this diagnosis? First, we need to understand the pathophysiology and why the "plumbing problem" seems at least as important as the microbiology/infection aspect.

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Table 1. Co-morbidities for chronic rhinosinusitis (CRS)

- Allergies/Asthma
- Recurrent respiratory infections
- Long term (>5 days) use of topical decongestant
- Cigarette smoke or environmental particulate exposure
- Congenital ciliary dysfunction
- Nasal polyp / foreign body
- Post facial/nasal trauma
- Cystic fibrosis
- Immune dysfunction
- Aspirin–exacerbated respiratory disease

ID Pearls and Other Gems: . . . *Continued from Page 17*

Sinusitis is a lot like otitis media. There are acute bacterial versions (AOM and ABRS) but there are also chronic inflammatory fluid versions (OME and CRS). Both chronic inflammatory versions can be accompanied by acute exacerbations (ABRS and AOM). But there are differences. The drainage system for the multiple anatomically diverse sinuses differs from the eustachian tube. This system for sinuses has been dubbed the mucociliary-ostiomeatal complex. Mucociliary clearance has several components which must work correctly. If any component (Table 2.) is not working correctly, the whole system may fail.

Table 2. The Cause of chronic rhinosinusitis: Chronically defective mucociliary clearance

1. Overproduction or unsuitable consistency of mucous
2. Lack of critical mass of functioning cilia
3. Outflow (ostia) obstruction
4. Biofilm production

The mucose of each sinus is lined with a complicated mix of respiratory epithelium composed of columnar ciliated epithelium mixed with mucous producing goblet cells. The mucous from the goblet cells is present in two phases – the layer lying juxtaposed to the top of the cilia is a liquid fluid phase that the cilia whip through (back-and-forth) to propel the top sticky mucous layer (this layer traps bacteria, particulates and pollen) toward the ostium of each sinus. The ciliary function is CRITICAL to healthy sinuses. If the mucous liquid phase gets too thick (infection, allergy, cystic fibrosis), even a full supply of cilia cannot cleanse the sinuses. If the cilia are congenitally abnormal or are damaged by inflammation or infection, or are sloughed during a viral or bacterial infection (e.g. RSV or pertussis), the cleansing process becomes disorderly and incomplete. In those instances, the poor anatomical sinus structure becomes a more important factor because the cilia normally compensate for the ostia of the maxillary sinus being at the sinus' top which does not facilitate maxillary drainage when we are walking upright. (Figure 1)

Note also, that in the younger child, the ethmoids are prominent and each ethmoid single cell has its own drainage tube which must pass through the "Rice Krispy treat-like" collection of ethmoid cells making up the ethmoid sinuses. The aggregate of these drainage tubes, only millimeters in diameter, look akin to jelly fish tentacles as they enter the upper meatus, just above the upper turbinate. It is easy to understand why these small diameter drains are easily obstructed and thus, ethmoid sinuses are most often affected in younger children. Their maxillary sinuses are more like ledges (relatively large drainage opening into the middle meatus between upper and lower turbinate) than the thin-necked "caves" with cleft-like ostia found in school-age and older children/teens. (Figure 1)

So, instead of the cilia producing a "field of waving wheat stalks" effect and efficiently cleansing the sinuses of the daily incursions from nasopharyngeal flora, the dysfunctional ciliary system moves the thicker-than-usual mucous only intermittently and the globs of mucous often fall prey to gravity – dropping away from the ostia and causing more sinus stagnation – which increases inflammation which increases goblet cell activity further – which increases …..– well, you get the picture – the vicious cycle is underway.

This leads to chronic inflammation and, to make matters worse, the turbinates contain tissue that expands when irritated, narrowing the passageways even further and worsening the inflammatory/mucous cycle. Hence, it is now at least as much a plumbing problem as an infection problem.

At this point, antibiotics can lower the bacterial load and likely reduce symptoms temporarily. However, with the ongoing plumbing problem, the inflammatory products are not cleared, stimulating ongoing inflammation and continued excess production of thick mucous and debris. Symptomatically, this means continued nasal obstruction, facial discomfort at times, and also potential sleep disturbances due to the posterior drainage and nasal obstruction.

What is a possible solution?

Facilitate drainage and debris clearance at a time when bacterial load is minimized with a short antibiotic course and ongoing support for the drainage/ cleansing action until normal ciliary function can return – often 6-12 weeks. So consider

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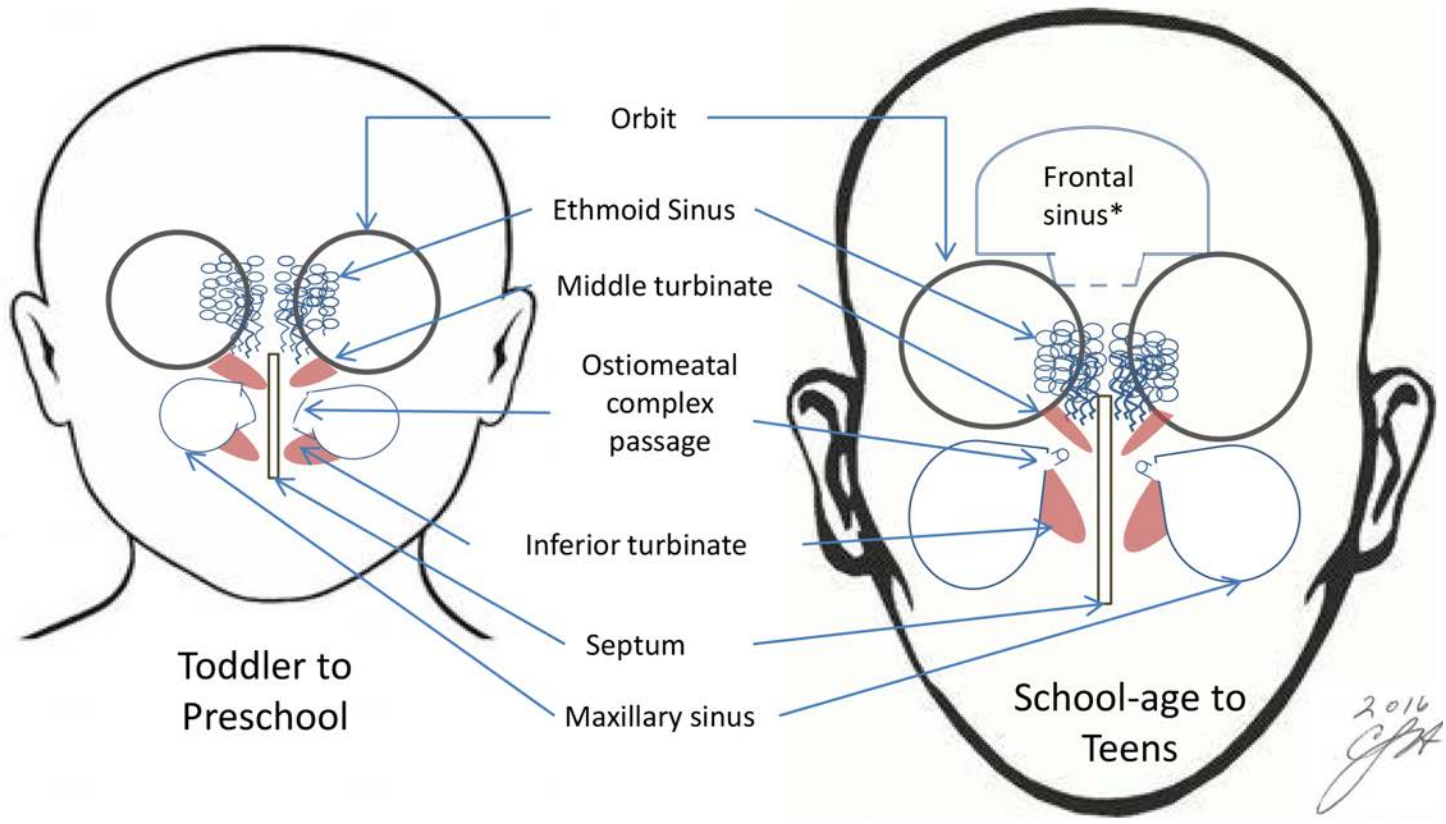
ID Pearls and Other Gems: . . . *Continued from Page 18*

Figure 1. Comparative anatomic portrayals of sinus system

(Developed by C.J. Harrison, 2016))



* Frontal sinus develops in preteen to teen years. Sphenoid sinuses develop off back of ethmoids in preteen years

adapting to children what is recommended for adult CRS in their guidelines and consensus statements[1, 6], blended with what is in the pediatric ABRS Guideline.[4]

This adaptation/blending of recommendations from reasonable sources could include:

1. Another course of an antimicrobial for the current exacerbation with coverage for pneumococcus, nontypeable *Haemophilus influenzae*, *Moraxella catarrhalis*, and common oral anaerobes (high dose amoxicillin-clavulanate, or clindamycin plus cefixime for the penicillin allergic) for 10 days.
2. In this seasonally allergic child, continue the loratidine. It is not likely to affect the acute bacterial process, but it could potentially reduce histamine effects toward the goal of reducing intranasal swelling and obstruction. And it could also improve allergy symptoms in any case.
3. This time, have the parent help the child use nasal saline irrigation of the nose bilaterally 2-3 times per day and particularly just before using intranasal fluticasone. A Cochrane Review suggests high volume irrigation in adults with hypertonic saline, but it is unclear if that is important compared to saline spray in children. Potential benefits of saline irrigation: removal of thick mucous to enhance ciliary beat activity, removal of antigens, breakdown biofilm, or remove inflammatory mediators, and help heal sinonasal mucosa. These multiple daily saline irrigations, with one each day followed by fluticasone, should be continued for a minimum of 6 and hopefully 12 weeks to allow as much return of normal mucociliary function as possible.

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Some experts suggest three days of topical decongestants, e.g. oxymetazoline, initially at bedtime but this can be a double-edged sword. More than three days of use likely damages cilia and respiratory mucosa due to its potent vasoconstrictor effect. Topical decongestants should not be used for longer than three days also to avoid rebound nasal congestion and secondary rhinitis medicamentosa.

What is the success rate of these regimens? Of those with recurrence after multiple antibiotic regimens, half of those who can hang in there for 12 weeks of irrigation/fluticasone will have a notable reduction in symptoms. The other half will likely have some, but not a complete response. Consider an otolaryngology referral for those with little or no response. A CT scan and endoscopy may be needed to decide if the anatomy is so compromised that endoscopic surgery may need to be considered. In fact, a Canadian consensus statement on pediatric CRS requires endoscopic changes or CT scan as criterion for diagnosing CRS in children.[6]

So, the next time you see a child/teen with the recurring or chronic symptoms of CRS, remember to try to get the family to help you fix the plumbing in addition to treating the possible bacterial sinusitis exacerbation. Treating with antibiotics alone may gain a short-term respite but too many CRS patients treated only with antibiotics relapse fairly quickly. Keeping the plumbing clear should reduce the need for future antibiotics so we are not only providing the best options for results for our patients, but we are also being good stewards of our antibiotics. As one mother put it. "If that gross stuff had been on his hand, I would clean it off right away. Why not do the same when it's in his nose?"

A recipe for making a buffered saline mixture with inexpensive home ingredients is found at the American Academy of Allergy Asthma and Immunology website.[7]

References

1. Suh JD and Kennedy DW. Treatment Options for Chronic Rhinosinusitis. *Proc Am Thorac Soc* Vol 8. pp 132–140, 2011. DOI: 10.1513/pats.201003-028RN
2. Desrosiers M, Evans GA, Keith PK, Wright ED, Kaplan A, Bouchard J, et al. Canadian clinical practice guidelines for acute and chronic rhinosinusitis. *Allergy Asthma Clin Immunol* 2011;7(1):2.
3. Rosenfeld RM, Andes D, Bhattacharyya N, Cheung D, Eisenberg S,Ganiats TG, Gelzer A, Hamilos D, Haydon RC 3rd, Hudgins PA,et al. Clinical practice guidelines on adult sinusitis. *Otolaryngol Head Neck Surg* 2007;137:375–377.
4. Ellen R. Wald, Kimberly E. Applegate, Clay Bordley, David H. Darrow, Mary P.Glode, S. Michael Marcy, Carrie E. Nelson, Richard M. Rosenfeld, Nader Shaikh, Michael J. Smith, Paul V. Williams and Stuart T. Weinberg. Clinical Practice Guideline for the Diagnosis and Management of Acute Bacterial Sinusitis in Children Aged 1 to 18 Years. Pediatrics 2013;132:e262–e280. www.pediatrics.org/cgi/doi/10.1542/peds.2013-1071. doi:10.1542/peds.2013-1071
5. Wald ER. Microbiology of acute and chronic sinusitis in children. *J Allergy Clin Immunol.* 1992;90(3 pt 2):452–456.
6. Brietzke SE, Shin JJ, Choi S, Lee JT, Parikh SR, Pena M, Prager JD, Ramadan H, Veling M, Corrigan M, Rosenfeld RM. Clinical consensus statement: pediatric chronic rhinosinusitis. *Otolaryngol Head Neck Surg.* 2014 Oct;151(4):542-53. doi: 10.1177/0194599814549302.
7. American Academy of Allergy, Asthma & Immunology. Saline Sinus Rinse Recipe. https://www.aaaai.org/conditions-and-treatments/treatments/saline-sinus-rinse-recipe Accessed on 8/1/16.

Dengue: a world crisis

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Dengue is a mosquito-borne viral disease which is currently an expanding global problem. Successful treatment, which is mainly supportive, depends on early recognition of the disease and careful monitoring for shock. A severity-based revised dengue classification for medical interventions has been developed by the World Health Organization and was adopted in most countries[1]. Dengue is one disease entity with different clinical manifestations; often with unpredictable clinical evolutions and outcomes. Four closely related dengue serotypes cause the disease, which ranges from asymptomatic infection to undifferentiated fever, dengue fever (DF), and dengue hemorrhagic fever (DHF). The severity of DF manifestations increases with age. DF causes fever, rash, muscle or joint pain, headache, and eye pain but is rarely fatal. DHF is considered a distinct disease characterized by fever, bleeding diathesis, and increased vascular permeability leading to leakage of plasma with a tendency to develop potentially fatal dengue shock syndrome (DSS). Although shock and plasma leakage seem to be more prevalent as age decreases, the frequency of internal hemorrhage rises as age increases. Elevations in liver enzymes found in both children and adults indicates liver involvement during dengue infections. Pre-existing liver diseases, which are more common in adults, such as chronic hepatitis, alcoholic cirrhosis, and hemoglobinopathies can aggravate the liver impairment in dengue patients. Dengue with organ impairment mainly involves the liver and the central nervous system. Consistent hematological findings include vasculopathy, coagulopathy, and thrombocytopenia. Laboratory diagnosis includes virus isolation, serology, and detection of dengue ribonucleic acid. In several countries, the age of individuals with dengue has been increasing (previously in children, more recently in adolescents and adults).[1]

There is no specific treatment for dengue and successful treatment, which is mainly supportive, depends on early recognition of the disease, bleeding tendency and careful monitoring for signs of circulatory failure. Adults have a higher prevalence of underlying diseases, e.g. coronary artery disease, peptic ulcer, hypertension, diabetes mellitus, cirrhosis, or chronic kidney diseases, which should be considered in dengue management. A severity-based revised dengue classification for medical interventions has been developed and adopted in many countries[2].

The world's first, large-scale dengue vaccine efficacy study demonstrated the efficacy of the dengue vaccine and a reduction of dengue disease severity in a study of more than 30,000 volunteers from Asia and Latin America with a good safety profile[3,4]. Dengue poses a heavy economic cost to the health system and society. Potential economic benefits are associated with promising dengue prevention interventions, such as dengue vaccine and vector control innovations[5].

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Dengue: a world crisis *Continued from Page 21*

On 13-14 January 2016, the Asia Dengue Summit (ADS) was held in Bangkok, Thailand, co-organized by the Asia Dengue Vaccination Advocacy (ADVA), the Dengue Vaccine Initiative (DVI), the Southest Asian Ministers of Education Organization Tropical Medicine and Public Health Network (SEAMEO TROPMED) and the Fondation Mérieux (FMx) focused on an improving strategies for dengue prevention and Control[6].

On behalf of Asian Society for Pediatric Infectious Diseases and Pediatric Infectious Diseases Society of Thailand, we would like to take this opportunity to invite everyone to the 8thAsian Congress of Pediatric Infectious Diseases (8thACPID2016) on 8-10, November, 2016 in Bangkok, Thailand under the theme "Working together to safeguard children". This is a great opportunity to come and share your recent informative data and also for networking with your colleagues in pediatric infectious diseases around the world. For more information, please visit our website at www.acpid2016.com

References

1. Thisyakorn U, Thisyakorn C. Dengue: global threat. Southeast *Asian J Trop Med Public Health 2015*; 46 (Suppl1): 3-10.
2. Tantawichien T. Dengue fever and dengue haemorrhagic fever in adults. Southeast *Asian J Trop Med Public Health 2015*; 16 (Suppl 1): 79-98.
3. Capeding MR, Tran NH, Hadinegoro SRS, et al. Clinical efficacy and safety of a novel tetravalent dengue vaccine in healthy children aged 2 to 14 years in Asia: a phase III randomized observer-masked, placebo-controlled trial. *Lancet 2014*; 384: 1358-65.
4. Villar L, Dayan GH, Arredondo-Garcia JL, et al. Efficacy of a tetravalent dengue vaccine in children in Latin America. *N Engl J Med 2015*; 372: 113-23.
5. World Health Organization. Global strategy for dengue prevention and control 2012- 2020. http://reliefweb.int/sites/reliefweb.int/files/resources/9789241504034_eng.pdf. Accessed on 6/20/16.
6. Asia Dengue Summit 2016. Available at: http://www.adva.asia. Accessed on 6/20/16.

SOID Travel Grant Awards

One of the roles of the SOID is to promote the education of those physicians interested in infectious diseases. We are pleased to be able to offer NCE travel grants to AAP members who are residents with an interest in infectious diseases and ID fellows in training. The following recipients were selected by lottery and will receive/have received $1,000 to defer the costs of airfare, registration, hotel, meals, and incidentals to attend the NCE.

Ibukun Akinboyo, MD, FAAP Johns Hopkins University School of Medicine Baltimore, Maryland	**William Otto, MD** Children's Mercy Hospital Kansas, Missouri
Emily Obringer, MD, FAAP University of Chicago Children's Hospital Chicago, Illinois	

Chapter Corner: Ohio Chapter Partners with State Health Department to Offer New Immunization Mobile App and Other Resources

Rebecca Brady, MD, FAAP
Medical Director, Maximizing Office Based Immunization (MOBI) Program
Director, Adult Clinical Services, Cincinnati Children's Hospital Medical Center
Associate Professor, University of Cincinnati Department of Pediatrics

Improving immunization rates in children has been a long standing focus of the Ohio Chapter, American Academy of Pediatrics. Initial efforts targeted immunization rates in younger children through a program entitled "Maximizing Office Based Immunizations" or MOBI. MOBI began in 1996 as an in-office, peer-to-peer immunization education program and has grown to more than 500 programs per year and is now available in every Ohio county.

Recently, we have expanded our efforts by adding a program promoting the "adolescent vaccine platform" called Teen Immunization Education Sessions or TIES. Both MOBI and TIES have been successful in improving immunization rates and providing resources for the medical offices in Ohio. However, we were not satisfied with our reach through printed materials.

Thus, the Ohio Chapter of the AAP worked with the Ohio Department of Health (ODH) and was awarded a $445,000 grant for immunization work. The Chapter worked with a number of physicians to develop and launch an immunization information mobile app that we have named "Fast VAX Facts." The "app" has been available for a few months and we already have had hundreds of downloads. The most exciting finding is that people throughout the US are downloading the "app." Fast VAX Facts is free for download in the Apple App Store and on Google Play. To reach the largest possible audience; Fast VAX Facts was designed with portals for health care professionals as well as parents and caregivers. Highlights of the app for each group are listed below and include:

For Providers:

A. Information on immunization safety concerns to share with parents on a tablet in your office
B. The ability to share facts and resources directly from the app screen
C. Conversation tactics to combat refusal

For Parents:

- A series of short videos recorded by a pediatrician on targeted topics that address the most common immunization questions and concerns.
- An interactive immunization schedule customized by child's age
- Trusted answers to frequently asked questions
- Breaking news alerts on outbreaks, new research and other important immunization headlines
- Pediatrician-approved links and resources
- Ability to share reliable facts and resources with friends and family at the push of a button

In addition to creating Fast VAX Facts, the grant allowed the Ohio Chapter of the AAP to host a webinar with Kristen Feemster, MD, MPH, MSHP, FAAP, entitled "Human Papillomavirus Vaccines: Opportunities and Challenges." This webinar is available on-demand to interested physicians at http://ohioaap.org/hpv-odl. In addition, resources were available to develop and present an MOC Part II Self-Assessment on Adolescent Immunizations via webinar. This webinar, presented by Robert Frenck, Jr., MD, FAAP, a member of the Ohio Chapter as well as SOID, also is available on-demand at http://ohioaap.org/MOCPartII/AdolescentImmunizations.

The funding also allowed the Chapter to develop informational brochures about human papilloma virus (HPV), as well as HPV reminder postcards and DTaP reminder postcards. These items are all free of charge to Ohio providers.

If you have questions about any of these resources or programs, contact Melanie Farkas at mfarkas@ohioaap.org.

ID Sessions at The AAP's National Conference and Exhibition (NCE) October 22-25, 2016, San Francisco, California

The descriptions of the ID sessions sponsored by the SOID are on the Section website and the complete conference program can be accessed on the NCE website.

H3095 - Joint Program: Section on Gastroenterology, Hepatology & Nutrition and Section on Infectious Diseases

Clostridium Difficile: Changes in Epidemiology, Diagnosis and Treatment

Date: Monday, 10/24/16

Start/End Time: 1:00 PM-3:00 PM

Hours of CME: 2

Description:

This Joint SOGHN/SOID Program will review recent changes in the epidemiology of *C. difficile*, diagnostic approaches and new treatments such as probiotics and fecal microbial transplant. This session will review emerging practices for treating this severe, recurrent and refractory disease.

Faculty: Robert Frenck, MD, FAAP; Daniel Mallon, MD, FAAP

Agenda:

- Introduction
- The Changing Epidemiology of *C. difficile*
- Testing in High Risk Populations
- Probiotics for the Prevention of Antibiotic-associated diarrhea and *C. difficile* associated Diarrhea
- Fecal Transplant in the Treatment of *C. difficile* Infection
- Q & A: Panel Discussion

New Policy/Guidelines

Andrea Sperduto, MD FAAP, Cleveland Clinic Foundation

Besides the individual web sites listed below, links to the AAP ID policies, IDSA policies and the CDC ID Recommendations and Reports are all available at the SOID website: http://www2.aap.org/sections/infectdis/policy.cfm

I. AAP

A. Infectious Complications With the Use of Biologic Response Modifiers in Infants and Children, 2016. *Pediatrics* 2016; 132:e20161209.
   a. Clinical report written by Committee on Infectious Diseases.
   b. Summarizes usage of biologic response modifiers (BRMs) in patients with autoimmune/inflammatory conditions (e.g. juvenile idiopathic arthritis and inflammatory bowel disease).
   c. Infectious considerations discussed before starting and while treating with BRMs (including immunizations, TB screening, screening for fungi and specific viral infections).
   d. Data for children mostly extrapolated from adult studies.

B. Recommendations for Serogroup B Meningococcal Vaccine for Persons 10 Years and Older. *Pediatrics* 2016; 138: e20161890.
   a. Makes recommendations on the use of two recently licensed meningococcal B (MenB) vaccines. MenB-FHbp (Trumenba) and MenB-4C (Bexsero) are approved for use in individuals 10 through 25 years of age.

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New Policy/Guidelines *Continued from Page 24*

C. Countering Vaccine Hesitancy. *Pediatrics* 2016; 138: e20162146.

D. Medical Versus Nonmedical Immunization Exemptions for Child Care and School Attendance. *Pediatrics* 2016; 138: e20162145.

Vaccine Hesitancy & Exemption Resources:

- Free PediaLink course: *Challenging Cases: Vaccine Hesitancy*
- News release: American Academy of Pediatrics Publishes New Policies to Boost Child Immunization Rates
- AAP News article: Eliminate nonmedical immunization exemptions for school entry, says AAP, http://www.aappublications.org/news/2016/08/29/VaccineExemptions082916
- AAP News article: How to address vaccine hesitancy: New AAP report says dismissal a last resort, http://www.aappublications.org/news/2016/08/29/VaccineHesitancy082916
- AAP News article: Facing the dilemma of dismissing vaccine refusers, http://www.aappublications.org/news/2016/08/29/VaccineHesitancySide082916
- Talking points for AAP members on vaccine hesitancy and exemptions (login and password required)

G. Recommendations for Prevention and Control of Influenza in Children, 2016–2017. *Pediatrics* 2016; 138: e20162527. (See the additional influenza resources on page 27.

II. MMWR

A. Use of Vaccinia Virus Smallpox Vaccine in Laboratory and Health Care Personnel at Risk for Occupational Exposure to Orthopoxviruses- Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2015. *MMWR* March 18, 2016/65(10);257-262.
   a. Updates 2001 recommendations.
   b. ACAM2000 vaccine has replaced Dryvax as the only smallpox vaccine available in the United States.
   c. New recommendations include evidence supporting vaccination of lab personnel who directly handle cultures or animals with replication-competent vaccinia virus and health care providers who treat or anticipate treating patients with vaccinia virus infections.

B. Update: Interim Guidance for Health Care Providers Caring for Women of Reproductive Age with Possible Zika Virus Exposure- United States, 2016. *MMWR* April 1, 2016/65(12);315-322.
   a. Different preconception counseling recommendations for women and men with possible Zika virus exposure who do not and who do reside in areas of Zika virus transmission.
   b. Specific testing recommendations.

C. Update: Interim Guidance for Prevention of Sexual Transmission of Zika Virus- United States, 2016. *MMWR* April 1, 2016/65(12);323-325.
   a. Specific to men who have traveled to or reside in areas with active Zika virus transmission and their female or male partners.
   b. Updates February 5, 2016 recommendations.

D. Interim Guidance for Zika Virus Testing of Urine- United States, 2016. *MMWR* May 13, 2016/65(18);474.
   a. Zika virus RNA can be detected in urine for at least 2 weeks after onset of symptoms. RNA in serum may be present after the 1st week of illness.
   b. Zika virus rRT-PCR should be performed on urine collected <14 days after onset of symptoms and serum tested in specimens collected <7 days after symptom onset.

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New Policy/Guidelines *Continued from Page 25*

E. Diagnosis and Management of Tickborne Rickettsial Diseases: Rocky Mountain Spotted Fever and Other Spotted Fever Group Rickettsioses, Ehrlichioses, and Anaplasmosis- United States. *MMWR*. May 13, 2016/65(2);1-44.
   a. Updates 2006 CDC recommendations.
   b. Describes key epidemiologic features and clinical manifestations of tickborne rickettsial diseases.
   c. Doxycycline is treatment of choice for both adults and children. Its early empiric use can prevent severe disease and death.
   d. Describes appropriate confirmatory diagnostic tests and their limitations.

F. Update: Interim Guidance for the Evaluation and Management of Infants with Possible Congenital Zika Virus Infection — United States. *MMWR*. August 19, 2016/ 65(33);870–878.
   a. The revised guidance updates recommendations for the initial evaluation and testing of infants born to mothers with laboratory evidence of Zika virus infection during pregnancy and establishes recommendations for the outpatient management and follow up of infants with laboratory evidence of congenital Zika virus infection, with or without apparent abnormalities consistent with congenital Zika syndrome (e.g., microcephaly, intracranial calcifications, or other brain or eye abnormalities). Families and caregivers will need ongoing psychosocial support and assistance with coordination of care.

G. Prevention and Control of Seasonal Influenza with Vaccines – Recommendations of the Advisory Committee on Immunization Practices – United States, 2016-17 Influenza Season. *MMWR*. August 25, 2016/65(5);1–54.

III. IDSA

A. Implementing an Antibiotic Stewardship Program. *Clin Inf Dis* 2016;62:1-27.

B. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. *Clin Inf Dis* 2016;62:1-60.
   a. Replaces 2008 guidelines.
   b. Reviewed and endorsed by the Pediatric Infectious Diseases Society.

IV. HIV Guidelines

Complete guidelines and information can be found at: http://aidsinfo.nih.gov/guidelines and are updated periodically.

A. Guidelines for the Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents.
   a. Updated May 2, 2016.
   b. Focused update on bacterial enteric infections and information on antibiotic resistance.

B. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection.
   a. Updated March 1, 2016.
   b. Based on data from START and PENPACT1 trials, it is now recommended that antiretroviral treatment be initiated for all HIV-infected children regardless of clinical symptoms, viral load or CD4 count.
   c. Specific treatment regimens are discussed.
   d. Updated information on medication dosing in preterm infants.
   e. Medication toxicity recommendations updated.

AAP 2016-17 Influenza Resources

Policy

A new policy statement from the AAP updates recommendations for the prevention and treatment of influenza in children. "Recommendations for Prevention and Control of Influenza in Children, 2016-2017" is available online and will be published in the October issue of *Pediatrics*. Highlights for the upcoming 2016-2017 season include:

These recommendations update the information in the Influenza chapter in the 2015 edition of *Red Book* (p 476-493) and provide guidance on the prevention and treatment of influenza for the 2016-2017 season.

Also refer to the updated Vaccine Status Table and Influenza Resource page on *Red Book Online*, which have been updated to reflect the 2016-2017 influenza policy statement. Please see the recent *AAP News* article for more information and a summary regarding the changes to the policy.

AAP & CDC Webinar

The CDC, in collaboration with the AAP, hosted a one-hour webinar, "What's New for the 2016-2017 Flu Season: Recommendations for Children" on October 27, 2016. The goals of the webinar were to:

- Describe strategies to prepare for the 2016-2017 influenza season.
- Identify key recommendations in the AAP influenza policy statement.
- Discuss vaccine effectiveness.
- Clarify recommendations related to live attenuated influenza vaccine.
- Explain the importance of antiviral medications in the control of influenza.
- Discuss flu vaccine and egg allergic children.

The call information will be posted on this page: http://emergency.cdc.gov/coca/calls/index.asp. If you are interested in participating in the call/webinar, and they would like to receive a calendar appointment, they can email DisasterReady@aap.org.

Child Care Programs

Consider ways to increase influenza preparedness in child care programs. Share the AAP/CDC online PediaLink course "Influenza Prevention and Control: Strategies for Early Education and Child Care Programs" with local child care programs. This free course educates staff who work in Head Start and other early education and child care programs about influenza policies and strategies that help keep children healthy.

Parent Education

Articles:

- The Flu
- 10 Things for Parents to Know About the 2016-2017 Flu Vaccine
- Preventing the Flu: Resources for Parents & Child Care Providers
- Flu: A Guide for Parents of Children or Adolescents with Chronic Health Conditions

Ask the Pediatrician questions:

- Is it safe for a baby to get the flu vaccine in March and April, and then get the next season's flu vaccine in August?
- Why should my son get the flu shot at the pediatrician's office vs. a retail-based pharmacy?

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