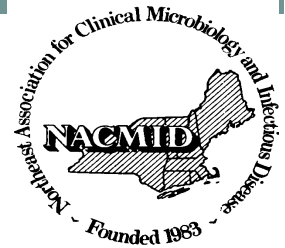


NACMID NEWS—MAY 2011



May 2011

Volume 1, Issue 2

Northeast Association for Clinical Microbiology and Infectious Disease

2011 Annual Meeting Preview

Special points of interest:

- * President's Address
- * 2010 Points of Interest

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This year's annual meeting will be held in Springfield MA at the Sheraton Monarch Place Hotel on June 13, 14, and 14. An exciting program offers a number of different topics, beginning with our Monday All-Day **Workshops**. Parasitology expert Lynne Garcia, of Santa Monica, CA will address New Options, Risk Management, and Clinical Relevance of **Diagnostic Medical Parasitology**. Peter Gilligan from the University of North Carolina will go "Beyond Enterobacteriaceae" and cover the Isolation, Identification and AST of **Non-fermenters and Fastidious Gram negative bacilli**. Roberta Carey of CDC will hold a workshop on the "Chains and Changes, of **Streptococci and other gram positive cocci**. We offer a fourth workshop this year during which Joy Rose of Bristol Community College will present a full day on **CPT coding**.

Our traditional **Wine & Cheese Reception** will be held on Monday afternoon from 4:30 to 6:00 PM. This is a free event and allows participants to meet with exhibitors and discuss state of the art methods, devices, test kits, and instrumentation available today.

Following the Reception will be the **Keynote Address** featuring Aaron Bernstein, MD, Physician and Faculty Member of the Center for Health and the Global Environment at Harvard Medical School. Dr. Bernstein will speak on **Climate Change as it**

relates to Infectious Disease.

Tuesday and Wednesday are filled with **General Sessions**. On Tuesday two of our workshop speakers are joining others for a day touching on many topics. In addition Ken Lawrence, PharmD will present **Antibiotic Stewardship**. Richard Hodinka of Children's Hospital of Philadelphia will highlight **molecular testing** in the 21st century, and Peter Gilligan will host an **interactive session**: "So You Think You Know Microbiology!"

Tuesday evening we offer an off-site **dinner lecture** at the 350 Grill, within walking distance to the Sheraton Monarch. Pat Kludt of the Massachusetts Department of Health will talk about **food-borne illness** while we enjoy our dinner!

On Wednesday General Sessions begin with Steve Brecher of VA Boston Health Care Center discussing "**Difficile**

Changes", Richard Hodinka will offer a strategic look at **virology** testing. Bruce Hanna of NYU School of Medicine speaks on **TB**: its evolution up to present day, including detection, growth, and state of the art identification. Lastly Linda Binns of Rhode Island Hospital will highlight methods available for **yeast identification and susceptibility**.

We hope to see you all this year! **Institution passes** are available to ease the economic and staffing burden which we realize is problematic everywhere today. For more information see our website at www.nacmid.org.



Reflections From the Outgoing President

I cannot believe my year as President is coming to an end. I look forward to next year as Past-President.

When I was in lab school back in the late 70's, we only read about anthrax, Brucella, and plague. These were organisms our instructors told us "we would never see". How times have changed.

September 11th changed everything. All of a sudden we all became educated on anthrax. We now know what it look likes, we know its characteristics, we know how to handle the organism and we know that others know how to use it with deadly consequences.

New England is not a hot bed of anthrax outbreaks. But last year we saw gastrointestinal anthrax in New Hampshire; a rare occurrence. The spores were thought to have been ingested during a community drumming circle. Traces of anthrax were found on two drums.

Maine is not typically known for Brucella cases. During 2010 there was a lab exposure. Luckily, the Microbiology lab was separate from all other lab sections and only two technical staff members were exposed. For anyone who is looking at building a new lab, my strong suggestion is not to have a Microbiology lab open to other lab areas. No one knows from day to day what will be found on a culture plate. Containment to a small area will save your staff from unnecessary exposures.

Our community has a large presence of Somali immigrants. The Somali diet consists of goat meat and camel milk. Our patient had recently traveled to Africa where she consumed unpasteurized camel milk. She presented to the Emergency room with flu-like symptoms. Blood cultures were drawn and after 48 hours were positive via the Bactec. The exposure came as a result of handling the media plates in an open area not under the biological hood. Two individuals were put on antibiotic therapy for 6 weeks and had a series of Brucella titers. Neither person seroconverted.

What was learned? Function changes were made to eliminate the possibility of another exposure. Education was provided to all.

Competency testing also had questions related to BT organisms.

Travel has allowed people to be on one continent in the morning and another by evening. Microbiologists today need to be aware of the organisms that during my training "we would never see".

During 2010, two NACMID evening meetings were held to educate Microbiologist on Brucella and anthrax.

NACMID's mission is to provide low cost, high quality continuing education for Microbiologists and Infectious Disease persons. We need all of you who are working on the bench to let us know what you need for continuing education.

- What do you need to know more about?
 - In what form would you like the information presented: annual meeting, evening meeting, day long meeting?
 - Where is the best location for these meetings to be held?
- Are you willing to travel to attend meetings after work? If so, how far?

I along with numerous other Clinical Lab Scientists will be retiring in 10-15 years. Look around your labs and I bet the majority of your lab staff is in the same boat. We have a vast amount of knowledge that needs to be given to a new generation of Scientists and NACMID wants to be part of that education.

I would ask everyone to think about the questions posed above and contact me either by email or calling to let me know what you want for education. If anyone is interested in joining NACMID, would like to become a State Director, or would like to just get involved, NACMID would love to hear from you.

Sincerely,
Karen Hobson, outgoing President
khobson@stmarysmaine.com
207-753-5483

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What We Learned Last Year: General Sessions 2010

Updates on CLSI AST Guidelines: What is a Lab to Do?

Gerri S. Hall, PhD., D (ABMM)

If a laboratory uses a commercial system for AST, it cannot change the breakpoints until the FDA makes changes to coincide with CLSI.

Gerri summarized the CLSI changes for Staph and gram negative rods with background on what is happening to justify these changes and how the lab should deal with the changes.

Points:

- Set a time interval for retesting of *Staph aureus* isolates: not more frequently than every 5-7 days.
- There are changes for S, I, R, values for *Staph aureus*.
- If a laboratory uses a commercial system for AST, it cannot change the breakpoints until the FDA makes changes to coin-

cide with CLSI.

- There are new lower carbapenam breakpoints.
- Cephalosporins may not be the best choice for *Enterobacter* species.
- Breakpoints for 3rd generation cephalosporins have been lowered.

Gerri did a marvelous job incorporating so much information into a one-hour session.

Clinical Mycology Cases from the Lahey Clinic

Sarah K. Zimmerman, M.Ed., MT (ASCP) SM

This was a great reminder to understand the importance of selecting growth media according to the specimen source and likely pathogen.

Sarah presented three actual cases from the Lahey Clinic which served as a great backdrop for a review and update in Benchtop Mycology today.

Points:

- *Fusarium* doesn't grow on inhibitory agar so Sab or Potato agar is a great choice. This was a great reminder to understand the importance of selecting growth media according to the specimen source and likely pathogen. *Fusarium* is an emerging pathogen with poor outcome for the immune deficient patient.

- *Sepedonia* can look like *Histoplasma* but does not grow at 37C.
- *Histoplasma* must be confirmed with DNA probe.
- Presumed Ocular Histoplasmosis Syndrome (POHS) is an inflammatory disorder involving the eye, can lead to blindness, and results from systemic infection with *H. capsulatum*.

Sarah was an excellent speaker presenting a very timely topic, well received by the audience.

Molecular Diagnostics

Dan Wiedbrauk

Danny presented an overview of the state of molecular testing and explained where to start. He highlighted the availability of Realtime-PCR to labs with miniaturization of the technology. PCR has the potential to significantly impact laboratory services as we know them.

The QA/QC structure is more

comprehensive in many respects as containment of the DNA/RNA is essential to successful resulting.

Molecular technology is spreading to other areas of the laboratory as well. Dan gave tips on selling molecular to administration and utilizing reagent rental to absorb costs.

Intestinal Protozoa

Judy Heelan

This was an excellent review of parasites found in stool specimens. Definitive characteristics for different species were discussed and demonstrated in power point. Judy stressed the necessity for every microscope to have a micrometer, as measurement is critical to final judgment.

Brucella Cases in the Laboratory

Phil Lee

Phil reviewed the history of Brucella, its epidemiology, signs and symptoms, use as an agent of bioterrorism, process of identification, and global distribution.

- Brucella's natural reservoirs are feral pigs and Eurasian boars.
- It is considered a Category B weapon of bioterrorism which could significantly stress the health care system.
- Automated systems do not identify this organism well.
- Laboratory Safety cannot be stressed enough when working with specimen isolates.

Laboratory Safety cannot be stressed enough when working with [Brucella] specimen isolates.

When is Coag Negative Staph Important

John Branda

Dr Branda summarized the clinical syndromes and epidemiology of coagulase-negative staphylococci and gave hints as to its detection and identification. He elaborated on its clinical significance and likely sensitivity patterns.

Dr. Branda highlighted the association of certain species of Staph to particular sites. He described screening methods that provide utility at the

bench level. A true CNS infection was defined.

CNS other than *S lugdinensis* and *S saprophyticus* really do not need speciation. The importance of using the right drugs for detection of the *mecA* gene was stressed.

This was a well-organized and informative talk which was also an excellent review.

General Session Review, 2010

Current Status of Lyme Disease and Co-Infections

Sam Donta

The emphasis on diagnosis is that it must be a clinical one, as laboratory testing falls short of dependability as a diagnostic tool

Dr. Donta gave a brief history of the discovery of Lyme Disease, its stages, and many symptoms.

- One problem in diagnosis: “where are the bacteria?” as there is no way to culture the bacteria after the first few weeks of infection, and where they reside is often a mystery.
- In addition to arthritis-like complaints, or cardiac manifestations, symptoms may be varied and have similarity to such illnesses as

Gulf War Syndrome, Chronic Fatigue, and Multiple Sclerosis.

- The Ixodes tick (a.k.a. deer tick, black legged tick) is host to not just *Borrelia burgdorferi*, but Babesia, Bartonella, and Anaplasma as well. An individual can be infected with one, or more of these organisms from a tick bite.
- The emphasis on diagnosis is that it must be a clinical one, as laboratory testing falls short of dependability as a diagnostic tool.

Laboratory Testing for Tick-borne Illness/Values of Performing These Tests

Sheldon Campbell

Dr. Campbell introduced *Ixodes scapularis* and differentiated hard vs. soft ticks. He outlined the geographic distribution of Ixodes and explained the stages in its life cycle:

- The larval tick bites only once, does not transmit disease and prefers small mammals.
- The nymph bites more than once, and prefers the white footed mouse (humans are incidental) and is the primary vector
- The adult prefers the white-tailed deer (humans are incidental)

Testing/Diagnosis:

No need to blood test patients with Erythema migrans. Early disease is a *clinical* diagnosis. The IgM response will not appear until after 4-6 weeks

- Culture is difficult and insensitive.

- Lyme antibody tests can be performed after 4-6 weeks.
- Recombinant C6 peptide assay is more sensitive in early disease but still needs Western Blot confirmation.

Dr. Campbell gave equal time to Babesia and Anaplasma which can coexist in the same Ixodes tick.

- Babesia can be diagnosed with blood smears (much like malaria), serology, and PCR, which, although not FDA cleared yet, is used when there are negative slides of a patient in whom suspicion is high.
- Anaplasma is diagnosed with blood smears or PCR. Serology is not recommended.

Dr Campbell closed with a sing-along featuring his rendition of “When the Ticks Come Marching In”. Great Talk – Highly Informative – Very Fun!

No need to blood test patients with Erythema migrans. Early disease is a *clinical* diagnosis. The IgM response will not appear until after 4-6 weeks

General Session Review, 2010

Case Studies

Rick Danforth, Sam Donta, Sheldon Campbell, Judy Heelan

It was great to review the life cycles of some organisms as well as tech tips for identification and likely sources.

This was a great teaching tool and we had great interaction between the audience and speakers who gave cases from personal experience on:

- Babesia & Lyme Disease
- Anaplasmosis

- *Vibrio vulnificus*
- *Schistosoma haematobium*
- *Strongyloides*

It was great to review the life cycles of some organisms as well as tech tips for identification and likely sources.

Tech Talk

Judy Heelan

Judy led an interactive discussion with the technical minds in the audience on such topics as:

- Processing of IUD's
- Multiple Specimens from the OR – same site
- Third shift – critical values, e.g., blood cultures and gram stains
- Giardia/Cryptosporidia screen vs. a full Ova & Parasite exam

- Shiga toxin testing
- MRSA/VISA

Discussion ensued with regards to quality, cost, clinical relevance and how to juggle the workload with a staff whose proficiency is variable. It was suggested to compare various lab protocols and regional standards of care and to attempt to update one another.

The Bugs We Thought We Would Never See

Rick Danforth

Rick gave a very humorous yet candid and sober review of “older bugs” that are now considered potential agents of bioterrorism. He highlighted recent outbreaks and stressed the importance of biosecurity and Biosafety stating that it's needed now more than ever. Cited were the cases of Anthrax, Brucella, and Francisella which we all once learned about in academia, but thought we'd never have to worry about in real life.

Summary of Workshops 2010

Updated and Practical Approach to Clinical Mycology

Presented by Sarah K. Zimmerman, M.Ed., MT (ASCP) SM

Sarah presented a comprehensive overview of the identification of pathogenic fungi, including molds and yeasts, with attention to microscopic and macroscopic detail and most likely clinical source.

Some pearls to keep in mind:

Fungal cultures are an important tool for even smaller microbiology labs as fungi are the 4th leading cause of nosocomial infections in the US.

- Candida albicans is an unlikely cause of pneumonia. It is wise NOT to report this organism if cultured from Upper or Lower Respiratory sources unless it is seen in tissue. This practice prevents the unnecessary use of fluconazole (and resistance to it).
- In respiratory sources it is only necessary to rule out Cryptococcus.
- Labs should perform AST for yeasts.
- Cryptococcal Antigen testing may obviate the need for fungal cultures of spinal fluid.
- Media for fungal cultures should be selected according to source, and organisms likely to be recovered from that source.
- Fungal cultures are an important tool for even smaller microbiology labs as fungi are the 4th leading cause of nosocomial infections in the US.

This was an enlightening day-long lecture with excellent slides, beautiful handout, and great interaction during the session. Sarah was a terrific speaker and her presentation focused much on the Lahey Clinic setting and its findings, which made it relevant to our New England audience.

Nucleic Acid Detection for Microbiologists

Presented by Danny L. Wiedbrauk, PhD

Danny provided a timely review of nucleic acids, transcription, translation, and amplification and contamination control. Nucleic acid extraction, amplification and detection were discussed.

We were enlightened with a review of products, equipment and procedures available in today's market. The advantages, disadvantages and expense of each were detailed to aid in making choices. Danny made analogies to methods in microbiology, e.g., blood cultures so that today's microbiologists could better relate to the technology.

Important points:

- Danny provided background theory on how the process works.
- He discussed work-flow techniques, real-time PCR, and how to generate results in time to make a difference for the patient.
- He gave specifics about the reporting process.

This was a very timely and informative session.

Summary of Workshops 2010
Susceptibility Updates Emphasizing Emergent Resistant Pathogens
Presented by Gerri S. Hall

Gerri gave a review of the MDRO's (multiply-drug-resistant organisms): MRSA, VRE, Amp-C, KPC, including updated CLSI guidelines, methods of detection of these resistances, and importance of development of an Antibiogram.

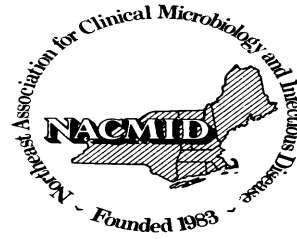
High points to consider:

- It is important to report MDRO's and identify them as such in the report instead of simply identifying the organism with its resistance pattern. This heightens awareness for Clinicians and Infection Control.
- Be aware of variations of antibiotic breakpoints between automated systems (FDA regulated) and CLSI when interpreting test results to communicate to the team of Infectious Disease, Infection Control, and Pharmacy.
- CLSI 2010 reveals some unusually resistant bacteria to report with new charts/interpretations.
- Gerri discussed carbapenamases: how to detect and confirm a KPC. She recommends the Manual system and use of the Hodge Test over the automated choice.
- Gerri referenced "selected antimicrobial activity" vs. KPC, (Hirsch, JAC 2010), which demonstrates good activity of Tigecycline and Polymixin B and other combinations to treat these organisms.

"Gerri shared her extensive experience and literature references. She welcomed questions, encouraged interaction and gave a great review with updated 2010 data coupled with an in-depth, well referenced handout. Captivating!"

Gerri shared her extensive experience and literature references. She welcomed questions, encouraged interaction and gave a great review with updated 2010 data coupled with an in-depth, well referenced handout. Captivating!

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