January 2012

Volume 1, Issue 3

NACMID NEWS—January 2012

Northeast Association for Clinical Microbiology and Infectious Disease

ANNUAL MEETING 2012—BOXBOROUGH MASSACHUSETTS

Special points of interest:

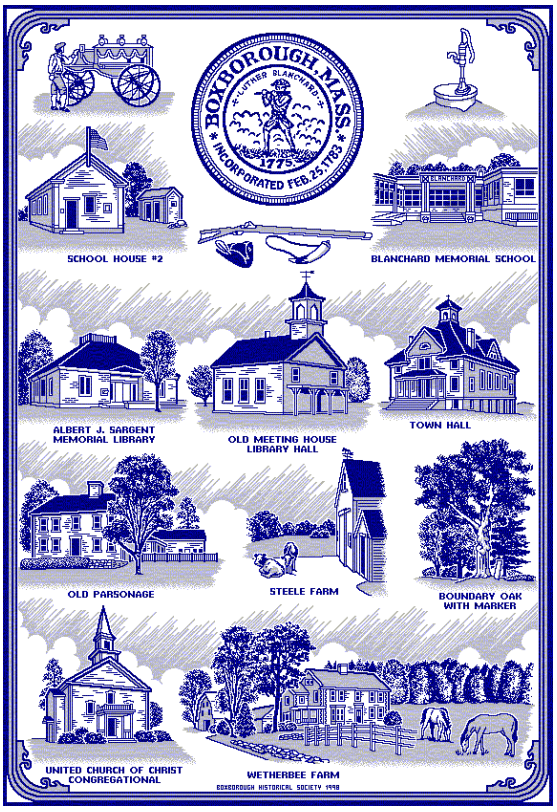
* Annual Meeting 2012
* Highlights of 2011
* NACMID recruiting
* State Meetings

Inside this issue:

MARK YOUR CALENDARS!!

THE 28th ANNUAL MEETING OF NACMID will be held on May 21, 22, 23, 2012 in Boxborough Massachusetts. This year's meeting promises to be a busy roster of workshops on Monday, followed by General Sessions on Tuesday and Wednesday packed with up-to-date information concerning current technologies in the Microbiology World.

Topics were selected by your suggestions at last Junes' meeting and will include Mass Spectophotometry identification method: Maldi-TOF, Antimicrobial Susceptibility Testing and Antibiograms, Blood Parasites, *K pneumoniae* carbapenamase (KPC's) and Extended Spectrum Beta-Lactamase (ESBL) producing organisms and Biofilms just for starters.



We will once again hold an evening with the Vendors with a Wine & Cheese reception, followed by our Keynote Speaker.

Also by popular demand we will hold an off-site evening dinner lecture for your entertainment and educational enhancement.

Be looking for your Annual Meeting Program Booklet to arrive after the New Year.

NOW RECRUITING!

NACMID seeks thinking minds—people who would like to dedicate some time to the enhancement of Microbiology by serving on the Board of Directors or one of the various committees which keep the cogs of the organization moving.

Fresh ideas are always a plus. Are you a new grad with clinical experience that can add a great dimension to an organization such as ours? The State of Maine is currently seeking a Junior Director, whose task it is to mentor with the Senior Director and promote Microbiology education. There are lots of benefits associated with a position on the Board. Feel free to inquire. All committees welcome trainees. Are you interested in helping with Membership, Finance, Registration, Publications, or Program Planning?

For information contact Kim Loeschner at:
kimberly.loeschner@mainegeneral.org

NEW FACES OF NACMID

WELCOME TO OUR NEW PRESIDENT: Kim Loeschner

Kim received her BA in Biology, MT (ASCP) from North Adams State College, and her MPH from Boston University and has been a Clinical Microbiologist for more than 20 years. She is currently employed as Microbiology Supervisor at Maine General Medical Center in Waterville and Augusta, Maine and an adjunct faculty member and Clinical Microbiology instructor for the MLT program at the University of Maine at Augusta. Kim has been very active in NACMID as Secretary for the past 2 years and previously served as Publications Chair and Massachusetts State Director.

State Directors for Rhode Island

SENIOR DIRECTOR:Fongman Wu

Fongman is a Microbiologist at Rhode Island Hospital. He graduated Cum Laude from the University of Rhode Island with a BS in Microbiology, BS in CLS/MT, and a minor in Chemistry. Currently he performs testing in all phases of Microbiology as well as Molecular Diagnostics.

JUNIOR DIRECTOR: Vongsisomphone (Vong) Phanlak

Vong is a Microbiologist at Rhode Island Hospital. He graduated from the University of Rhode Island with a BS in the Clinical Laboratory Science Program. His work involves routine bacteriology and he is a member of the hospital's AFB and Mycology Team. He is licensed with NCA and ASCP.

Excerpts from NACMID's 2011 Annual Meeting:

"Antibiotic Stewardship involves the optimal selection, dose, and duration of an antibiotic resulting in the cure or prevention of infection, with minimal unintended consequences to the patient, including emergence of resistance, adverse drug events, and cost."

Ken Lawrence, See article page 9

How to convince your hospital to acquire molecular testing?

- ***Save money by spending money***
- ***Accurate method, strict specimen requirements = decrease in test volume***
- ***Correct diagnosis = proper treatment = patients go home early***

Steve Brecher, See article p 10

Members:

If you have a change in contact information be sure to let us know so we can stay in touch with you!!

A GLANCE AT OUR 2011 ANNUAL MEETING

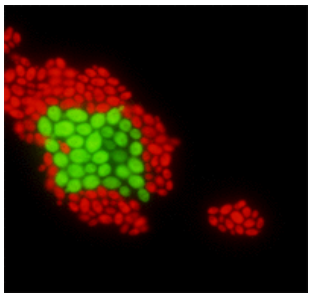
Yeast Identification and Susceptibility Testing - Linda Binns, MS, MT(ASCP)

Infections due to susceptible strains respond to therapy in about 90% of cases. Those due to resistant strains respond in about 60% of cases.

In an enlightening talk, Linda outlined test methods and instruments used to identify common yeast pathogens from culture describing the pros and cons of each. She also discussed in depth, the four methods of susceptibility testing and four classes of appropriate antifungal agents:

Susceptibility methods include:

- Disk diffusion
- E test
- Vitek
- Sensititre



There are 4 groups of anti-fungal agents:

- Amphotericin B
- Flucytosine
- Azoles (fluconazole, itraconazole, voriconazole, posaconazole, keto conazole)
- Echinocandins (caspofungin, micafungin, anidulafungin)

Testing at 35ºC is critical to accuracy in yeast susceptibility testing.

Pearls:

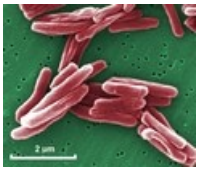
- *C albicans* and *C dubliensis* are germ tube positive. Growth on corn meal agar can help to differentiate the two.
- *C krusei* is innately resistant to Fluconazole.
- *C glabrata* has an unpredictable sensitivity.
- *Cryptococcus neoformans* is resistant to the Echinocandins
- *Cryptococcus gatti* was once a variant of *C neoformans*. Both react positively with the Cryptococcal antigen test but are differentiated by PCR.

Chromogenic agars are useful to isolate yeast directly from a specimen or from a positive-smear blood culture. The media can help to speciate Candida. PNA FISH is a more elaborate system for doing the same but is a quick and easy 30 minute probe.

FYI: Infections due to susceptible strains respond to therapy in about 90% of cases. Those due to resistant strains respond in about 60% of cases.

This session was chock full of knowledge and inspirational to any who wanted to expand their Mycology capabilities.

Submitted by Martha Wilson



Tuberculosis: History, Epidemiology, Biology, Clinical and Laboratory Correlates – Bruce Hanna, PhD

Dr. Hanna gave an historical presentation and updated us on TB. He included current detection, growth, and the "state of the art" identification and susceptibility testing. Highlights included the importance of inoculating both solid media and broth media for automated systems. He deduced that from a review of studies that most automated mycobacterial detection systems on the market are relatively equivalent in result and recovery. He discussed the updated CDC guidelines for TB Labs on the use of Nucleic Acid Amplification tests. In addition Dr. Hanna stressed the importance of adequate decontamination of specimens, prior to the inoculation of broth media, in order to decrease the number of false Positives.

Submitted by Irene Girard

A Climate for Infections? - Aaron Bernstein, MD, MPH

Dr. Bernstein shared his wealth of research information during our **Keynote Address** on Monday evening. He explained the science behind the theory of global climate change and put many issues in perspective.

Greenhouse gasses are escaping into our not-so-big atmosphere and are affecting first-and-foremost our oceans and their inhabitants, then chain-reacting to redistribute flora, fauna, and even humans, on land.

One example cited is that the oceans are warming faster than the land. In some areas the coral reefs are dying off and millions of aquatic species that are dependent on the coral are at risk of extinction. This ecological imbalance will have huge repercussions if it is not stopped in its tracks.

The take-home message was that alternative energies must be pursued and pursued TODAY if we are to have an impact to change in this progression. The relocation of species because of climate change will have localized and global effects. Health calamities and epidemics will certainly be another result.

Dr. Bernstein's address was fascinating, ominous, and full of wonderful information. This topic needs to be aired widely and frequently.

Submitted by Martha Wilson

Greenhouse gasses are escaping into our not-so-big atmosphere and are affecting first-and-foremost our oceans and their inhabitants, then chain-reacting to redistribute flora, fauna, and even humans, on land.

The Excitement and Impact of Molecular Infectious Disease Testing in the 21st Century – Richard Hodinka, PhD

Molecular diagnostics (MDX) is said to be the most rapidly growing area in Clinical Microbiology. This ever-evolving field offers rapid and accurate methods for identification and characterization of microbes to the extent that traditional methods for such are succumbing to MDX at a fast pace.

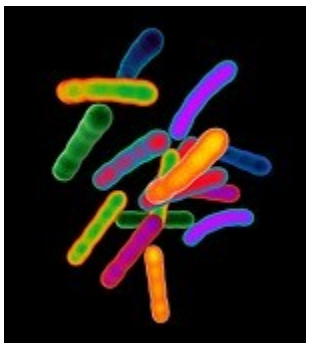
Dr. Hodinka reviewed semi- and fully automated testing systems. He highlighted their applications, most appropriate utility and feasibility depending on the clinical setting.

This was a well organized and very informative talk.

Submitted by Sue Hyatt

So You Think You Know Microbiology? - Peter Gilligan, PhD

This session contained six case studies of not commonly seen organisms. The audience was split into 2 teams and competed to identify the causative disease agent and answer follow-up questions for each case.
We reviewed not commonly seen organisms (Listeria, Leishmania, Echinococcus, etc.) and discussed case histories and why we may suspect the organism in the lab.



An important point from the talk was why it is important to know the case history and that you must to be able to recognize ALL pathogens, even those that are rare.
GREAT SESSION! The interaction was needed at the end of the day and it was fun to compete and think critically. Excellent!!

Submitted by Rebecca Zaffini

Diagnostic Medical Parasitology – Lynne S. Garcia, MS, CLS

Lynne Garcia presented updates on the handling of Ova & Parasite testing, including immunoassays and special stains for Coccidia, Microsporidia, Plasmodium sp., Cyclospora, Naegleria, amoebic infections, helminths etc. She detailed the special issues of risk management and the pitfalls of misdiagnosis. She also presented key highlights and guidelines for accurate diagnostic methods. Lynne also presented a very good review of Cyclospora cayetanensis outbreaks.

Key points to consider:

- The use of Total Fix single vial (non-PVA transport media) was encouraged
- Binax Rapid Kit for Parasite identification is considered very good for POSITIVES. If NEGATIVE it's not diagnostic and other tests are needed.
- Educate physicians and staff with result reporting: Be specific and utilize comments; e.g."considered non-pathogenic"
- Educate staff: On ordering guidelines
- Good Resource: Clinical Microbiology Procedure Handbook
- For Blood Parasite Stains: Giemsa is not needed, nor mandatory by CAP. Lynne prefers the Wright's Dip Stat Stain Set which gives good results
- Differential Clue: For Babesia species – one can find "free" merozoites in blood film. This is not the case with Plasmodium where merozoites are intracellular only.

Overall this was an outstanding presentation containing many humorous and amazing anecdotes while displaying extensive parasitology knowledge and experience. There was much applied data, beautiful slides and thorough handout – a wealth of information!

Submitted by Irene Girard

HAVE YOU BEEN CAPPED??

ANECDOTE ON A CAP INSPECTION:

"I remember one particular citation having to do with dating and initialing decontamination sheets for the TB lab which is only open Monday through Friday. Dates that fell on Saturday and Sunday were left blank, and the inspector cited us because we didn't indicate whether the lab was closed or if someone forgot to decontaminate the area.."

Chains & Changes— Roberta Carey, PhD, D(ABMM)

Dr. Carey's presentation consisted of six sections specifically created for NACMID which took place during an all day workshop. The sixth segment was a superb summary of the 11 Best Practices to Identify Streptococci and Enterococci.

Key Points:

- Establish criteria you will use in your lab to identify organisms and perform susceptibility testing.
- Your lab procedures should reflect clinical importance, resources, work flow and demonstrate what customers want and need.
- Don't worry about identifying an unusual organism unless you isolate it multiple times from patient.
- When working up throat cultures report S. *pyogenes* in all patients.
- Report Group C and G Streptococci in teenagers, college age, and adults.
- Do not report Group B Streptococci or small colony beta hemolytic streptococci (A, C, F, G or non-groupable) which are all normal oral flora.
- Distinguish large colony beta from small colony beta isolated from sterile body sites and from wounds.
- Identify enterococci to species level if isolated from sterile body sites. Identify to the species level if Vancomycin resistant or it has an unusual susceptibility pattern.
- Report as *Enterococcus species* from urine, mixed wound cultures, superficial wounds. Enterococci are not usually pathogenic in the respiratory tract. Enterococci are normal flora in the oral cavity and GI tract.
- Screen for Vancomycin resistant gram positive cocci in mixed cultures.
- Routine susceptibility testing is not necessary for beta hemolytic strep.
- When identifying viridans streptococci go to species level when isolated more than once from sterile body site.
- Add an Optochin disk and a 30 ug Vancomycin disk to the subculture plate of positive blood cultures with gram positive cocci for quick rule out.
- When gram positive cocci do not grow on a BAP, think nutritionally variant strep or anaerobic cocci.
- The new species are increasingly more difficult to identify with phenotypic traits so send your "mystery bug" to someone equipped to perform DNA sequencing or a battery of biochemicals.

Dr. Carey gave specific instructions on ways to incorporate these new tools into various small or large microbiology departments. A great question and answer session occurred following the series of lectures.

Submitted by Andrea Harper

Dr. Carey gave specific instructions on ways to incorporate these new tools into various small or large microbiology departments.

CPT CODING – Joy Rose, MSA

This was an overview of CPT coding in which there were examples of codes, codes that are not compatible, and modifiers that allow previously conflicting codes. Joy explained the process for looking up lab entries to obtain appropriate CPT codes. She gave examples of new, modified and deleted codes. Case studies were presented and coding problems from the audience were addressed .

Also presented were specifics particular to individual insurance companies and access to online tools. Joy stressed that we may write to the provider for edits so that the codes will allow for appropriate reimbursement. She explained the use of the CPT code book and how the CPT guidelines can lead one to the correct code. Joy offered good handouts, was a knowledgeable speaker and made for a very interactive session.

Submitted by Deb St George

Practical issues in Diagnostic Virology: Testing Strategies in Today's Virology Lab— Richard Hodinka, PhD

Dr. Hodinka presented five cases from Children's Hospital of Philadelphia that included patient presentation, symptoms, lab results, and possible etiologic agents. Attendees were queried as to opinions on the cause of disease and how they'd arrive at the diagnosis.

"If you're not doing PCR for detection of Enterovirus and HSV you're not doing a good job."

- Overall PCR is emerging as the method of choice for diagnosis.
- There are 2 new groups of enteric virus: Astrovirus ands Sapovirus
- 4th Generation HIV Ag/Ab Chemiluminescent Microparticle Immunoasay (CMIA) detects HIV earlier than the 3rd generation immunoassay or serology which detects Ag and not Ab. Ab may not be present for several weeks.
- If you're not doing PCR for detection of Enterovirus and HSV you're not doing a good job.
- Human Paraechovirus (a picornavirus) presents as Enterovirus in neonatal sepsis and meningitis and is indistinguishable from it without testing.

Richard is a very knowledgeable speaker who presents comfortably and is engaging to listen to.

Submitted by Martha Wilson

Beyond Enterobacteriaceae – Peter Gilligan, PhD

Peter Gilligan highlighted non-glucose fermenting and fastidious gram negative bacilli (HACEK)* Among his high points:

- MALDI-TOF MS** is the Future of identifications.
- The importance of reporting "mucoid Pseudomonas" especially in CF patients.
- The nuances of *B cepacia* complex and reporting strategies of related species.
- The clinical significance of organisms in transplant patients and how colonization with *B cepacia* will prevent a patient from being transplanted
- The importance of safety when working with this group of organisms.

Peter is a great speaker. His real-life stories bring perspective to the importance of our work in the lab. He is knowledgeable, but readily discloses his own short comings with a down-to-earth sense of humor about his own experiences in the laboratory.

Submitted by Sue Hyatt

*HACEK: *H parainfluenzae, Aggregatibacter, Cardiobacterium hominis, Eikenella corrodens, Kingella kingae*
**Matrix-assisted laser desorption/ionization time-of-flight
mass spectrophotometer = MALDI-TOF

Rapid Identification of Gram Negative Bacilli – Peter Gilligan, PhD

This session covered rapid phenotypic methods for identification of Gram negative bacilli (GNBs), use of antigen detection methods for Campylobacter and Enterohemorrhagic E coli (EHEC), problems with screening for Multi-drug-resistant GNBs (MDR-GNB), and the MALDI-TOF method for identifying GNB.

The most useful information from this session was hearing how Dr. Gilligan's lab at the University of North Carolina identify commonly encountered gram negative bacilli, and the testing that some labs do that is not necessary or best practice. (i.e., incubating Campy plates at 35ºC, not 42ºC, because some species cannot grow at 42ºC).

Rapid methods can be utilized to identify common GNB.

Antigen detection methods for diarrheal pathogens are as good as PCR.

MDR-GNB are becoming an increasing problem but there are no clear recommendations on how to screen for them.

MALDI-TOF is the next big thing.

This was a great overview of common GNB seen in the lab. Although Dr. Gilligan gave a lot of basics I think it is important to hear general overview, as labs handle things differently and as microbiologists we need to discuss different methodologies.

Dr. Gilligan was fantastic – knowledgeable, funny and engaging!!

Submitted by Rebecca Zaffini

Cryptosporidium: A Cryptic Rise in Positive Reports

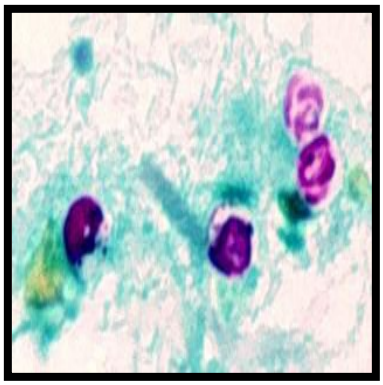
The Maine Micro-Net group is made up of bench microbiologists, supervisors and epidemiologists who keep in contact to share ideas and discuss microbiology issues across the state. The Maine Health and Environmental Testing Laboratory (HETL) recently hosted a conference call with the group to discuss increases in reported cases of cryptosporidiosis in Maine.

Cryptosporidiosis is a nationally notifiable illness. Most of the clinical labs in Maine use an immunochromatographic lateral-flow immunoassay. Also, not all labs confirm positive results with a non-rapid method. During the call an article from the Acute Disease Investigation and Control Section and Public Health Laboratory Division in the Minnesota Department of Health was cited stating the positive predictive value (PPV) of rapid assays used by clinical laboratories in Minnesota was 56%. The low PPV and the possibility of false positives is a concern. The more frequent use of rapid assays could artificially inflate reported cases of cryptosporidiosis.

Maine health officials recommend clinical labs confirm positive results from rapid assays by a non-rapid method (DFA or modified Ziehl-Neelson stain) or send samples to HETL for confirmation. Also, clinical labs are encouraged to send confirmed positive samples. HETL has a PCR method and is working with federal CDC to determine the cause of the increase in reported cases of cryptosporidiosis in Maine.

The increasing use of non-culture or rapid assay based diagnostic methods is concerning for a couple of reasons.

- Infections diagnosed in this manner do not meet the current laboratory criteria for public health surveillance.
- National-level efforts to monitor pathogens in order to identify and respond to multi-state outbreaks will be handicapped.



With the increased use of these rapid assays and the subsequent increase of pathogens they detect, HETL hopes that the work on cryptosporidium will further identify ways for clinical labs and public health officials to continue their collaboration in public health surveillance.

Submitted by Rick Danforth

Antibiotic Stewardship – Getting Smart About Antimicrobial Use – Kenneth Lawrence, BS, PharmD

GOALS of ANTIBIOTIC STEWARDSHIP:
- Promoting adherence to appropriate prescribing guidelines
- Decreasing demand for inappropriate antibiotics

There is a national campaign promoted by the Centers for Disease Control (CDC) to target five conditions that account for >75% of all office based antibiotic prescribing
- Otitis media
- Sinusitis
- Pharyngitis
- Bronchitis
- Common cold

Currently 2 million patients develop **bacterial** Hospital Acquired Infections and 90,000 people die. More than 70% of these infections are resistant to at least once class of antibiotics.

Antibiotic resistance is associated with an increased risk of:
- Hospitalization
- Length of stay
- Hospital costs
- ICU transfer
- Mortality

Decreasing inappropriate antibiotic use is the best way to control resistance:
1. To begin, **choose the appropriate empiric regimen**. This regimen may not be necessary for the full treatment course.
2. **Get cultures** and use the data to target therapy: Once the identification of the bacteria and its sensitivity are known, target the bug with a narrow spectrum, appropriate antibiotic. Reassess after 48-72 hours and stop the antibiotic as early as possible.
3. **Do not treat colonization.**

To summarize:

Antibiotic Stewardship involves the optimal selection, dose, and duration of an antibiotic resulting in the cure or prevention of infection with minimal unintended consequences to the patient including emergence of resistance, adverse drug events, and cost.

When possible, **PO drugs are a great option.** They are less expensive, allow for earlier removal of lines, and decreased length of stay. When need for hospital stay is clearly documented patients on oral meds are not at risk for claims rejection by payers.

Points to consider: Reduce the number of patients that inappropriately get broad spectrum therapy
Reduce inappropriate use of Quinolones and carbapenams.

Antibiotic resistance is a patient safety and patient care issue where lives are at stake.
Health care providers are morally obligated to ensure that today's antibiotics as well as those to come, remain powerful tools. Stewardship strategies are the best way to achieve this goal.

Tips
- Do not report 3rd generation cephalosporins for Enterobacter; 4th generation are acceptable
- C difficile drugs: the cure rate for Deficid is the same as older drugs but the ***recurrence rate is lower***

Visit CDC.gov/getsmart

Ashp.org has a complete site dedicated to this topic. Query ***antibiotic stewardship*** on the home page,

Overview of Clostridium difficile: Stephen M. Brecher, PhD

Dr. Brecher presented an information-packed overview of *C difficile* infections along with case studies and emphasis on methodology, best treatment options and pathogenesis of the disease.

Highlights include:

- The updated Practical Guidance Document (American Society for Microbiology) for Lab Detection of toxic *C difficile* is available online.
- Newer, more accurate testing assays (i.e. Gene X-pert, , and Illumigene assay Protocol)
- New drug: Fidaxomycin vs. Vancomycin, with less relapse rates.
- Treat the patient based on symptoms, history, and risk factors vs. the strain found

Be alert to the markers of severe disease:

- Diarrhea goes from mild to moderate to severe
- Abdominal pain and distention
- Fever
- Pseudomembranous colitis
- Toxic mega colon
- Perforated colon – sepsis – death

Summary of recommendations for optimal test results:

- Test by molecular method
- Only unformed stool in symptomatic at-risk patients
- 1 stool/patient/week
- Do not perform a test of cure
- Correlate test results with patient data and clinical observations

This was an excellent presentation with a good mix of practical lab information as well a patient-centered correlation of disease and cure rates.

Submitted by Irene Girard

Massachusetts Dinner Meeting: The Setting for Exploration of a Link Between EBV and Multiple Sclerosis

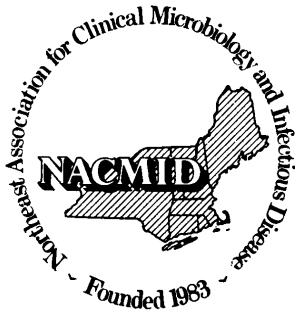
The Massachusetts State Directors held a Dinner Meeting on October 4th at Buca di Beppo Italian Restaurant in Dedham, MA. The speaker, Kelly Claire Simon, ScD, is an epidemiologist from the Harvard School of Public Health in Boston. Her presentation, titled "Evidence for an Association Between Epstein-Barr Virus (EBV) and Multiple Sclerosis (MS)", focused on the correlation between these two diseases and epidemiologic data that led to the association.

There are multiple risk factors associated with MS, including genetics and environmental factors. Interestingly, migration studies led to an infectious hypothesis as EBV is common in areas with a high incidence of multiple sclerosis. Supporting the EBV hypothesis are multiple studies suggesting that the relative risk of developing MS in EBV negative subjects is very small. The presentation concluded with some key take-home messages:

1) Epidemiologic evidence strongly supports the hypothesis that MS is a rare complication of a common infection – EBV.
2) Further study is necessary to determine why some individuals and not others are susceptible to MS.
3) Identifying a biological mechanism of action would provide further support and inform potential preventative therapeutic strategies.

NACMID thanks Kelly Claire Simon for donating her time with a highly informative and interesting presentation!

Submitted by Rebecca Zaffini



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___ One year $20.00

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___ Life-time membership $200.00

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EXHIBITOR REGISTRATION


EXHIBITOR REGISTRATION


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Chelsea ME 04330

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