Meningitis on Campus
Reaching students during a Meningitis-B outbreak
23,300 Undergraduate Students,
6,900 Graduate Students,
1,300 Faculty, and 5,000 Staff

13,000 students reside on campus
(Southwest Residential Area houses approximately 6,000 of those students)
Meningococcal Disease

• Meningococcal disease is a rare bacterial infection that typically manifests as meningitis (infection of the membranes surrounding the brain and spinal cord) and/or septicemia (bloodstream infection).

  – The bacteria Neisseria meningitidis are the cause of meningococcal disease – most disease are caused by strains: A, B, C, W, Y.
  – Carrier State: 10% - 40% of 16 to 24 year olds carry the bacteria (increases in close living situations)
  – It is a very rare disease but can progress rapidly
## University Based Serogroup B Clusters/Outbreaks†, 2008–2017

<table>
<thead>
<tr>
<th>State of University</th>
<th>Cases (deaths)</th>
<th>Outbreak Period</th>
<th># Undergraduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio</td>
<td>13 (1)</td>
<td>Jan 2008 – Nov 2010</td>
<td>24,000</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>4</td>
<td>Feb – Mar 2009</td>
<td>10,000</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>2</td>
<td>Nov 2011</td>
<td>5,000</td>
</tr>
<tr>
<td>New Jersey</td>
<td>9 (1)</td>
<td>Mar 2013 – Mar 2014</td>
<td>5,000</td>
</tr>
<tr>
<td>California</td>
<td>4*</td>
<td>Nov 2013</td>
<td>18,000</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>2</td>
<td>Jan – Feb 2015</td>
<td>4,000</td>
</tr>
<tr>
<td>Oregon</td>
<td>7 (1)</td>
<td>Jan – May 2015</td>
<td>20,000</td>
</tr>
<tr>
<td>California</td>
<td>2**</td>
<td>Jan – Feb 2016</td>
<td>5,000</td>
</tr>
<tr>
<td>New Jersey</td>
<td>2</td>
<td>Mar – Apr 2016</td>
<td>35,000</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>3</td>
<td>Oct 2016</td>
<td>30,000</td>
</tr>
<tr>
<td>Oregon</td>
<td>5</td>
<td>Nov 2016 – Nov 2017</td>
<td>25,000</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2</td>
<td>Oct – Nov 2017</td>
<td>20,000</td>
</tr>
</tbody>
</table>

*Where CDC consulted; **1 additional associated case identified after retrospective case review; *1 additional patient with inconclusive laboratory results
Prevention-Mitigation

Preparedness

Recovery

Response
Men B Risks on college campus

- In Massachusetts Meningitis B vaccine is not required prior to entry into schools – very few students at UMass had been vaccinated – prior to this past fall
- Close-contact – residential students at a higher risk
- Lifestyle and social choices –
  - stress
  - poor sleep
  - Spread through direct contact with secretions - sharing of secretions can be routine – large parties, e-cigarettes, sharing food/drinks
Fall semester at UMass

• First Case:
  – Student presented at University Health Services on October 24, with flu-like symptoms and difficulty walking. – purpuric rash noted to lower extremities
  – Determined to have possible meningococcal disease:
    • IV started – blood cultures drawn
    • administered 2 grams ceftriaxone and transferred to closest hospital
  – Local hospital did CT scan & labs – the patient was in DIC and was transferred to level 3 trauma center where he was intubated in the ED
  – MDPH notified immediately of case

*Clinical Pearl: UHS had drilled on emergency procedures for Meningitis
Public Health Response: Case #1

- Identified “close contacts” of the patient through interviews with roommate & close friends – same day
- Met with campus emergency operations committee EOC – next morning
- Targeted risk communications (email, word of mouth, attended a meeting) to fraternity who hosted party – within 24 hours – All campus community email followed shortly afterwards
- 105 individuals received PEP – liberal administration due to unknown contact at party
- Initiated an educational campaign on campus: healthy living habits, symptoms
- Environmental Health cleaned residence hall/room
Second Case: 3 weeks later

- Was brought to an emergency room near home by family on November 12th
- His mother had recognized symptoms from the emails that went to parents from campus
- Outreach was done for prophylaxis for close contacts and further campus education - ~55 people received PEP

- No correlation or social connections existed between the two cases

- **Practice Pearl: All campus communications alerted family of symptoms and need to go to hospital ASAP**
Initial campus response

• Planning Team
  – Representatives of the EOC Team for clinical support.
    • UHS, EHS, EM, News and Media, External Relations, Chancellor’s Office, A&F, Provost Office
  – Decision was made to begin offering “scheduled” vaccines at UHS for Meningitis-B
    • Consulted with MDPH early on and throughout and received support for the current plan, under the current circumstances
**Initial Campus Response**

- Response and campus support
- Emergency call center – staffed by RN’s from UHS
- Staffing for initial internal clinics – UMass MRC students from the College of Nursing
- Vaccine supply and storage
- Logistical support

*Planning Pearl: Well established relationships as well as training & drills allowed for rapid response in terms of logistics, staffing, vaccine management*
Thanksgiving Break

- Parental direction
  - With Thanksgiving break at hand, information about the two cases was shared with Healthcare providers around the state and that UMass students were told one option for the vaccine is while at home.

- CDC Testing
  - CDC had done further testing and determined that the two cases were identical at the genome level. Isolates identified as serogroup B. Whole genome sequencing (WGS):
    - Isolates closely related and belong to a hyper-invasive lineage
  - MDPH & CDC agreed that even with only two cases they consider this an outbreak
Announcement of Outbreak

• Preparations before announcement
  – JIC/JIS Plan – scheduled space for media arrival
  – Staffing estimates for clinic
  – Logistics and supplies
  – Vaccine quantities and storage
  – Information technology
  – Planning outreach efforts

Dear Campus Community,

Following additional, extensive testing of the two student cases of meningococcal disease on campus, University Health Services (UHS), in concert with the Massachusetts Department of Public Health and the federal Centers for Disease Control and Prevention (CDC), has determined that because the two cases originated from a single strain of genetically identical organisms, this meningococcal disease should be considered an outbreak. The CDC conducted the testing.

As a result, University Health Services is recommending that students at the highest risk receive serogroup B vaccinations at a series of four walk-in clinics during the next two weeks. Those at the highest risk include: all undergraduates, graduate students living in undergraduate housing, and all students with conditions such as asplenia, a complement deficiency, sickle cell anemia, or those taking the medication Soliris. This includes both on-campus and off-campus students.

CDC protocols do not consider faculty and staff to be within this risk group, except for those with the conditions listed above. Faculty and staff who are concerned about exposure to meningitis or are interested in being vaccinated are encouraged to contact their primary care provider.

Updates, frequently asked questions and details about insurance will be posted at www.umass.edu/meningitis.

These further measures to protect the campus community reinforce decisions made by the university to begin vaccinating over the past two weeks. Meningococcal B vaccine has been administered by appointment to more than 1,400 students so far, but additional action to reduce risk is best accomplished through large walk-in clinics. We will need your utmost cooperation and attendance to protect you from this preventable, serious illness.

Meanwhile, the campus will safely maintain regular operations. There are no plans to interrupt any classes, attendance or housing at UMass due to Meningococcus B.
Communication

- Students and Campus
- Parents
- Outside media interest

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- *Healthy Living information* as well as information on vaccines
Reaching Students: Challenges & Opportunities
Reaching Students in 2018

• Opportunities:
  – UMass All Student/Staff/Faculty/Parent* Emails
  – Social Media
  – Digital Display Signs in Campus Buildings

• Challenges:
  – Competing Priorities
  – Competing messaging
  – Risk Perception
  – Rapid News Cycle
  – Vaccine side effects via word of mouth from those who had many side effects
Communications

• Social Media and E-Mail
• Web Resources
• Dedicated meningitis webpage
• Dedicated stripe on umass.edu
• Parents
• Low Tech / Face-to-Face
• “Out-of-the-Box” (Party Registration)
November 30, 2017

TO: Healthcare Providers in Massachusetts

FROM: Alfred DeMaria, Jr., MD
Medical Director and State Epidemiologist
Bureau of Infectious Disease and Laboratory Sciences

RE: Update: Invasive Meningococcal Cases at the University of Massachusetts (UMass) Amherst

Two students at UMass Amherst have been diagnosed with invasive meningococcal disease serogroup B within the past several weeks. An update describing planned vaccination clinics at UMass Amherst was issued on 11/28/2017. This is an update to the MDPH advisory of November 16, 2017. There have been no additional cases to date.

Following discussions with UMass and the CDC, and informed by the results of whole genome sequencing which demonstrated that the isolates from the two patients are indistinguishable, the cases at UMass are now considered an outbreak. At the current time, serogroup B meningococcal vaccine (MenB) is now highly recommended for the following groups at UMass Amherst:

- All undergraduate students;
- Students living in undergraduate housing;
- Persons with medical conditions that place them at high risk for invasive disease (asplenia, sickle cell disease, complement deficiencies, microbiologists routinely working with isolates, and those taking the medication eculizumab [Soliris]).

State-supplied MenB vaccine may be used for students under the age of 19.

ACTIONS REQUESTED OF ALL CLINICIANS:

1. Be alert for cases compatible with meningococcal disease (see below) in UMass Amherst students and their close contacts. Prompt recognition and antibiotic treatment of meningococcal disease is critical.

2. Immediately report all suspected cases of meningococcal disease to the MDPH at (617) 983-6880. (Suspect cases in Boston should be reported to the Boston Public Health Commission at 617-334-8611. Do not wait for laboratory confirmation to report a clinically suspected case.

3. Obtain blood and CSF cultures prior to administration of antibiotics, if possible, to enhance detection of N. meningitidis.

MDPH Meningitis Advisory Update November 30, 2017

4. Consider vaccinating the UMass Amherst students with meningococcal B vaccines (MenB) for short-term protection against group B meningococcal disease.

MDPH Meningitis Alert November 16, 2017
Final day to get your Meningitis-B vaccine in the Student Union! Happening from 12-6pm today and your longest wait time is filling out the form. And you get to see these friendly UMEMS faces!!

Be on the lookout for followup clinics at UHS after break for the second dose of the vaccination.

Medical personnel briefing by UHS public health nurse Ann Becker just before doors open at noon today for Walk-in Meningitis Vaccine Clinic. Meningococcal serogroup B vaccinations are strongly recommended for all UMass undergrads and others at risk. umass.edu/meningitis
Approx. 1,500 UMass Amherst students received meningitis B vaccinations at today’s walk-in clinic. Didn’t get yours? Come to the Student Union tomorrow noon to 6pm. Info: umass.edu/meningitis
Decreasing Barriers to Vaccination

• University agreed to cover all co-pays & deductibles so there were no out-of-pocket costs to students (expensive vaccine)
• Clinics were located in the center of campus
• All Walk-In
• All were 12pm – 6pm
• Scheduled on 4 consecutive days to accommodate varying students class schedules

*College Practice Pearl: No Classes were cancelled and clinics were held to accommodate Tue/Thur or Mon/Wed class schedules
Emergency Dispensing Site

- Pre-Registration
- Registration
- Screening / Consultation
Clinic

- Vaccine Room
- Post-vaccine
- Daily Fine-tuning
Clinic

• Through-put
  – Planned for 600 per hour, 3,600 per day.
  – Reached 1,500 per day with a peak of 400 per hour
  – At opening experienced longest wait-time (20 minutes)
  – Average wait time from entry to exit was 10 minutes (Shortest sample was 6 minutes)
Clinic Operation Partners

- Health Services
- EH&S
- Emergency Management
- Information Technology
- Telecommunications
- MRC - College of Nursing
- Medical Reserve Corps RSO
- UMass EMS
- Auxiliary Services
- Facilities
Off campus support

- MDPH
- WRHSAC
- Hampshire Public Health Coalition
- Hampshire MRC
- MEMA
Clinic Staff

• Briefings
  – Daily for Clinic staff
  – End-day for EOC Team

• Students
  – Nursing Students, EMTs, Interns, MRC, other student volunteers

• Staff
  – UHS, College of Nursing, EHS, IT, Facilities, Telecom, Catering, Hazwaste Contractor (sharps disposal)
It takes a *prepared* village
Third Case @ Smith College

- February 25th – 3 months later…
- Determined to be Men B
- Some social connections – unclear if definitively tied to UMass but possible..
- More Communications, message fatigue? Direct messaging to dose #1
- Five College Outbreak…
How Many - Where do we stand now?

- Over 11,300 doses of vaccine administered by UHS
- 3,016 students who received 2 doses (6,032) from University Health Services
- 4,834 we have record of dose #1 from UHS

Challenge:
- Unknowns: How many received doses at home (either one or both)
“We know there are known unknowns; that is to say we know there are some things we do not know. …”

• Who got the vaccine at home

• What percentage will receive the second vaccine

• What does the future hold for Men B vaccine regulations

• Future Cases?
Continuing

- UHS-based walk-up clinics
- Appointments for second series
- See your primary care at home
- Dedicated homepage
- Continuing to prepare in the event of additional cases
It worked because:

- Plans and collaboration
- Full senior leadership support on anything we needed
- Table Tops
- Exercises
- MRC/College of Nursing

*Planning Pearl: Make and sustain relationships with response partners—now—before you need them*
Questions?

SWAMY SAYS:

GET VACCINATED!

UMASS.EDU/MENINGITIS