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Meningitis on Campus: Getting Students Vaccinated

A webinar with Lynn Bozof, President of the
National Meningitis Association

January 21, 2013



 **NMA**
NATIONAL MENINGITIS ASSOCIATION

My Story



About NMA



Dedicated to educating families, medical professionals and others about meningococcal disease and prevention

Instill

- An understanding of disease impact and value of vaccination

Advocate

- In support of directives/mandates for meningococcal vaccination

Support

- Families and survivors who have been affected by meningococcal disease

Build

- Awareness for all adolescent vaccine-preventable diseases



About Meningitis and Its Prevention

Meningococcal Disease or Meningitis or Both?

The terms “meningococcal disease,” “bacterial meningitis” and “meningitis” often used interchangeably, but medically there are differences

Meningitis

Any inflammation of protective membranes covering the brain and spinal cord

Can be caused by different types of bacteria or viruses

Meningococcal Disease

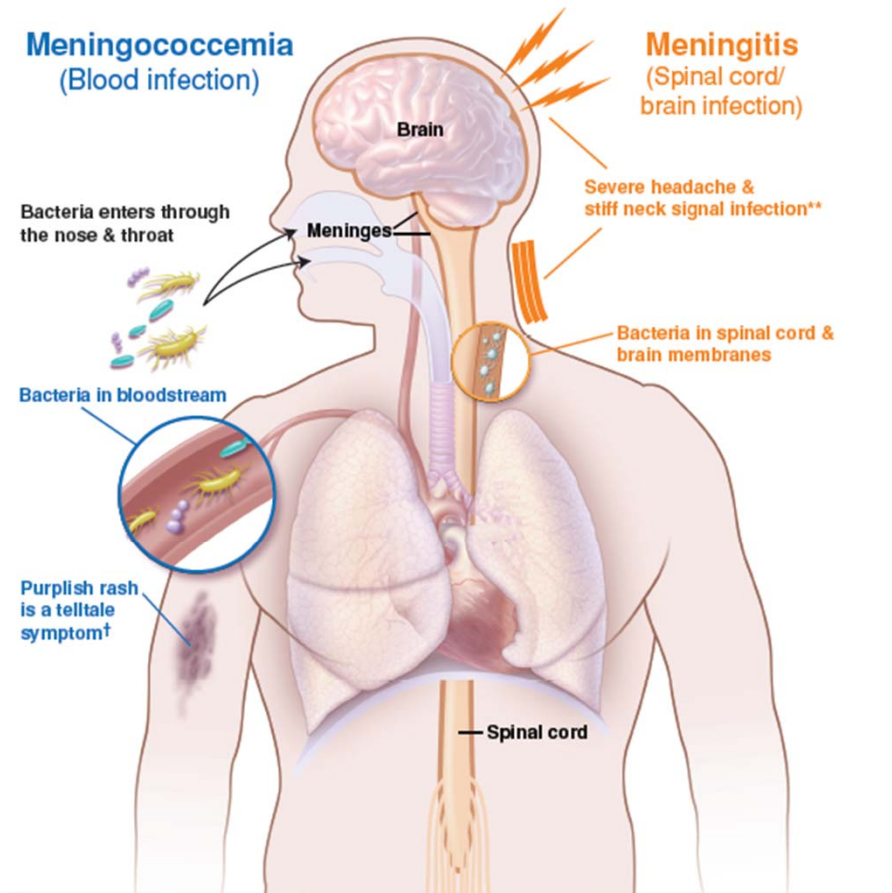
An infection that can lead to meningitis *or* sepsis (blood infection)

Caused by a specific bacteria (*Neisseria meningitidis*)

Bacterial meningitis is different than viral meningitis.

Meningococcal Disease: The Basics

- Rare, potentially deadly infection
 - Sometimes called bacterial meningitis or meningitis
- Two common forms of infection
 - Brain and spinal cord (meningitis)
 - Blood (meningococemia)
- Early symptoms can mimic flu, migraine or other common conditions*
 - Hard to diagnose
 - Infants can show different symptoms—slow or inactive, irritable, vomiting, feeding poorly
- Spread through respiratory droplets
 - E.g., coughing, kissing, etc.
- If untreated, can progress rapidly



Symptoms of Meningococemia†	Symptoms of Both	Symptoms of Meningitis**
Pale or mottled skin, purplish rash	Very sleepy & vacant	Sensitivity to bright light
Shivering & cold	High fever	Seizures
Breathing fast & breathless	Confused & delirious	Severe headaches
Limb, joint & muscle pain	Vomiting	Stiff neck

*Symptoms can vary and may come on suddenly and/or severely. Please contact your health care provider with questions.

Meningococcal Disease Risk and Impact

Risk among College Students

- Adolescents and young adults among ages most at risk
- **20 percent of** all meningococcal disease **cases occur in teens and young adults** ages 14–24
- Living in crowded settings like college dorms also a factor
 - Adolescents and young adults not living in dorms or on campus also at risk
- During outbreaks: anyone who has been exposed

Devastating Impact

- Although rare, disease can be devastating
- Of those who get meningococcal disease **10-14 percent die**¹
- Among those who survive, approximately **1 in 5 live with permanent disabilities**
 - Brain damage, hearing loss, loss of kidney function or limb amputations.

Meningococcal Vaccines



CDC Meningococcal Vaccination Recommendations

Routine primary vaccination
at 11-12 years

Booster dose at age 16
helps protect college students

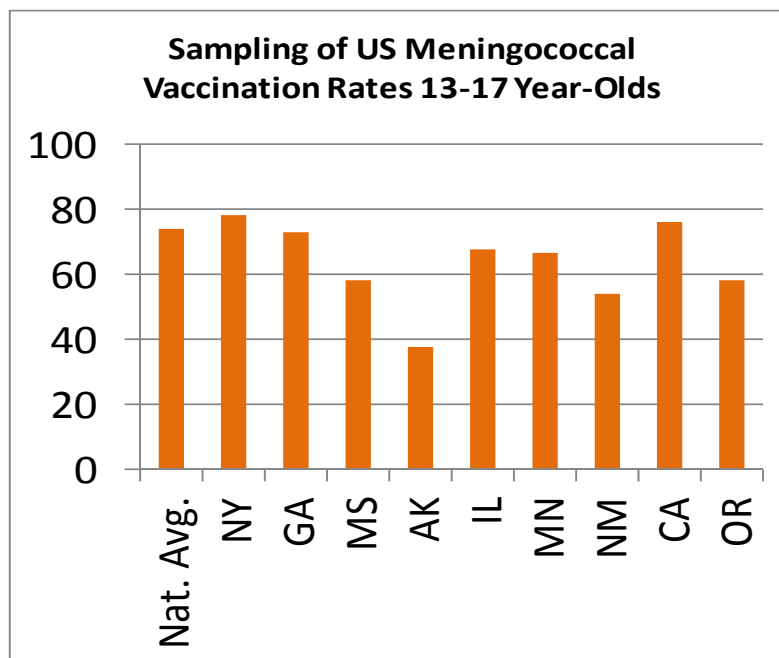
Vaccination for others with
specified risk factors

- Current routinely recommended vaccines cover serogroups: A, C, Y and W135
 - Do not prevent serogroup B disease
- Meningococcal B vaccine was made available for Princeton outbreak
 - Licensed in the EU and Australia

Visit www.cdc.gov/vaccines for more information

Meningococcal Vaccination Rates: U.S. Teens

- **National average:** 74% of US teens have received one dose of meningococcal vaccine
- **~3 in 10 U.S. teens** are unprotected
- Wide variance in state rates
 - 37.5% (AK) to 94.3% (RI)
- **Teens booster** rates unknown
 - Not yet available

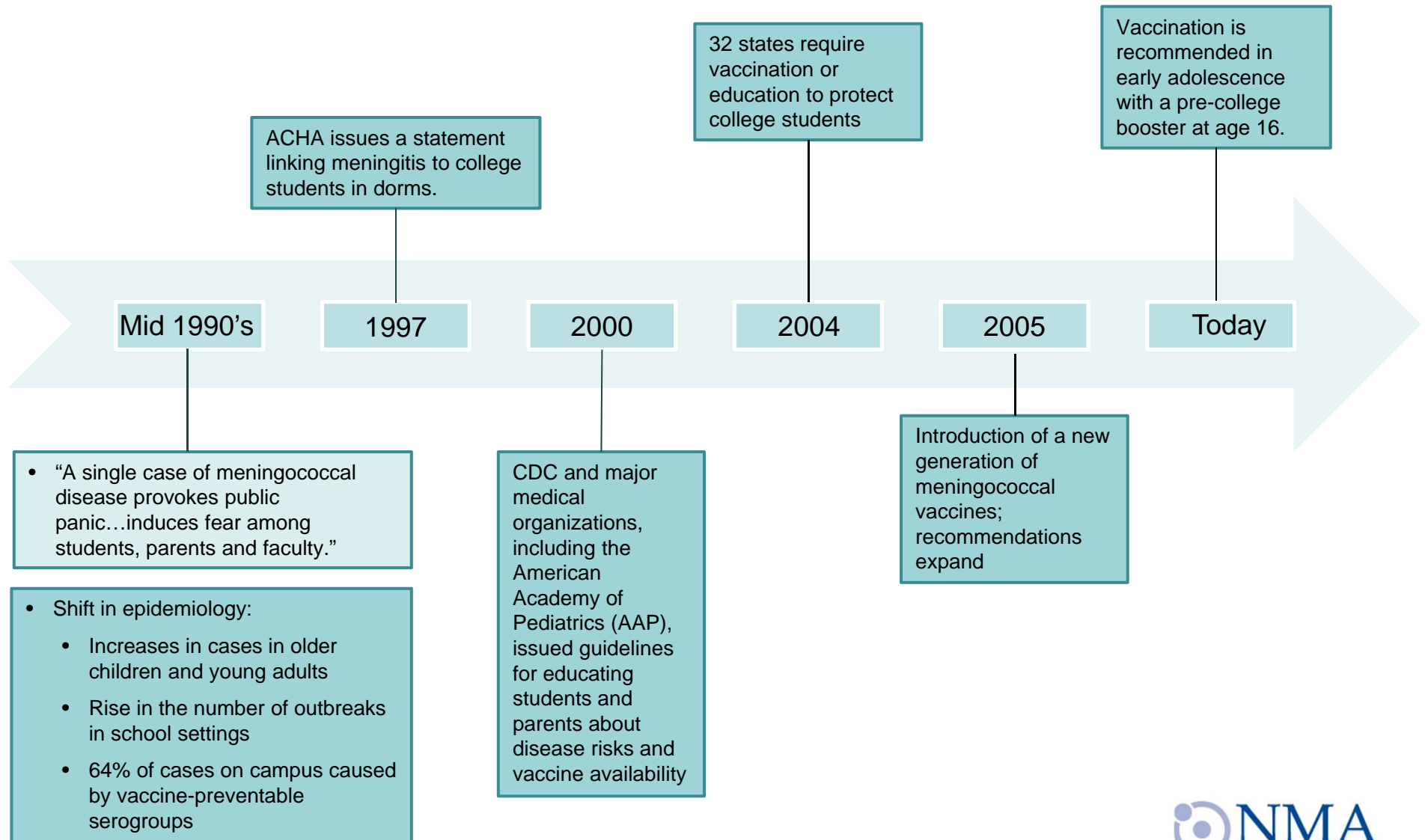


Sources: CDC. National and State Vaccination Coverage Among Adolescents Aged 13–17 Years — United States, 2011. MMWR 2012;61(34):671-677. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6134a3.htm>. Accessed February 1, 2013.

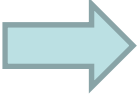


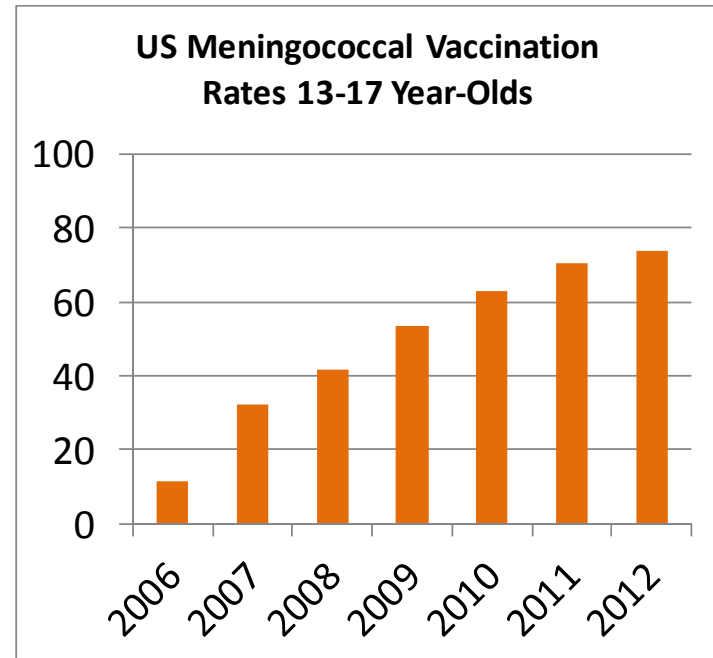
Meningitis on Campus

Evolution of Meningococcal Prevention on Campus



Evolution of Meningococcal Prevention

- Number of meningococcal disease cases has declined over time
 - More than 3,000 cases/year  1,000 cases/year
- Contributing factors
 - Vaccination recommendations
 - State vaccination mandates
 - Educational outreach by meningococcal disease advocacy organizations like NMA
- Despite success, it's critical to remain vigilant
 - Serogroup B outbreaks in 2013 (Princeton and University of California at Santa Barbara)
 - Future is unknown





State Mandates Play a Key Role

PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Middle School Vaccination Requirements and Adolescent Vaccination Coverage

Erin Bugenske, MPH, Shannon Stokley, MPH, Allison Kennedy, MPH, and Christina Dorell, MD, MPH

CONCLUSIONS: Middle school vaccination requirements are associated with higher coverage for Td/TdaP and MenACWY vaccines, whereas education-only requirements do not appear to increase coverage levels for MenACWY or HPV vaccines. The impact on coverage should continue to be monitored as more states adopt requirements.

JOURNAL OF ADOLESCENT HEALTH

Official Publication of the Society for Adolescent Health and Medicine

The Impact of State Policies on Vaccine Coverage by Age 13 in an Insured Population

Elyse Olshen, M.D., M.P.H.^{a,*}, Barbara E. Mahon, M.D., M.P.H.^b, Shuang Wang, Ph.D.^c, and Elizabeth R. Woods, M.D., M.P.H.^d

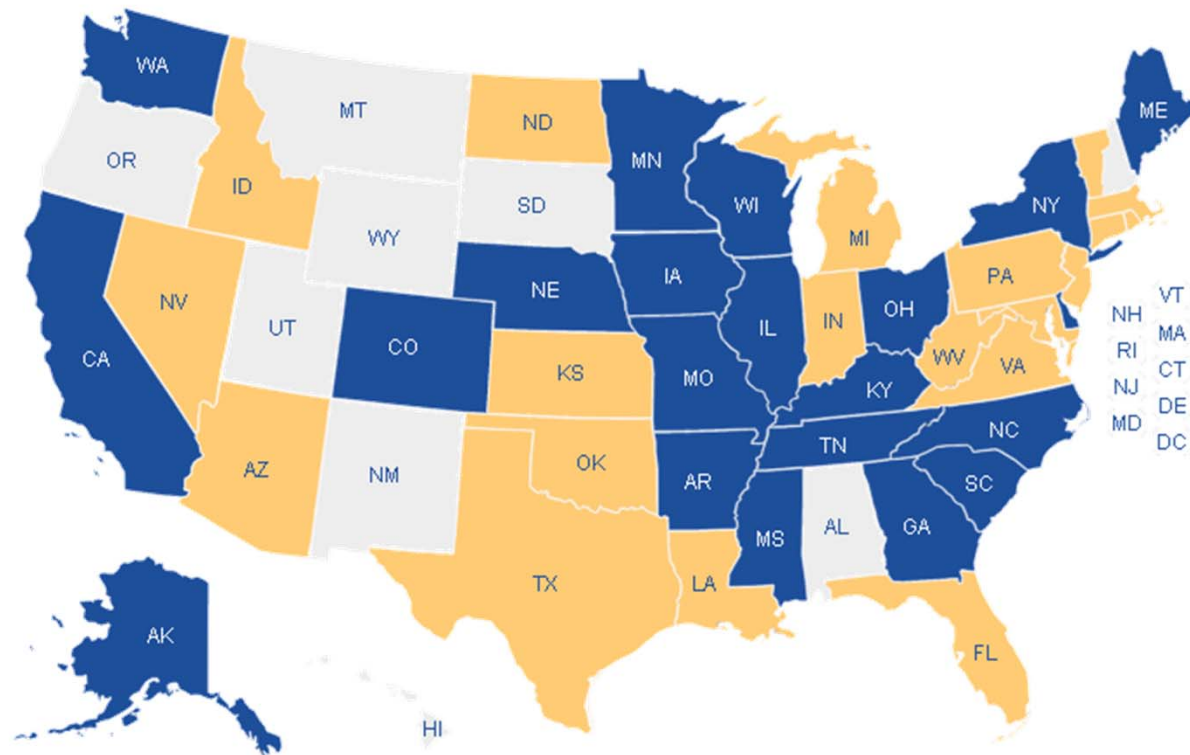
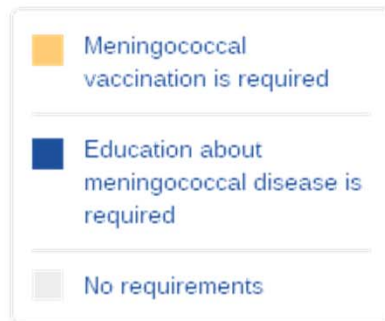
Conclusions: In this population of insured adolescents, middle school vaccine mandates were the only state policy associated with improved hepatitis B and varicella vaccine coverage. Mandates are an effective method for promoting adolescent immunization. © 2007 Society for Adolescent Medicine. All rights reserved.

	MCV4 Teen Vaccination Rate	Secondary Mandate?	College Mandate?
NATIONAL AVERAGE	74.0		
Wisconsin	74.4	N	E
Maryland	74.9	V	V
Nebraska	75.5	N	E
California	76	N	E
Delaware	78	N	E
New York	78.5	E	E
New Hampshire	83.1	N	N
Texas	84.6	V	V
Arizona	85.5	V	N
Michigan	87.5	V	N
North Dakota	88.1	V	V
Connecticut	88.8	V	V
Massachusetts	89.2	V	V
Pennsylvania	89.4	V	V
Louisiana	90.8	V	V
New Jersey	91.6	V	V
Indiana	92	V	E
Dist. of Columbia	92.1	V	E
Rhode Island	94.3	V	E

N= No Mandate V = Vaccination Mandate E = Education Mandate

Meningococcal Requirements by State

Secondary and Higher-Ed, Education and Vaccination



14 States require vaccination for college entry: CT, FL, KS, LA, MA, MD, ND, NJ, NV, OK, PA, TX, VA,* VT

*Public universities only. <http://www.nmaus.org/state-meningococcal-disease-policies/>

How Colleges Can Help Protect Students

School Activities

- **Require vaccination** for admission
- **Educate students, faculty and healthcare staff** about symptoms and prevention
- Incorporate **online communications**
 - Email
 - Social media
 - Admissions websites/blogs
- **Educate and vaccinate at orientation**
- **Involve student organizations and athletic teams** to help spread the word
 - Resident Advisors
 - Student health associations
 - Pre-Health career societies

Resources

- **Disease information**
 - Who is at risk
 - Signs and symptoms
 - What to do if you think you have meningitis
- **Prevention information**
 - CDC Vaccination Recommendations
 - Where to get vaccinated (Student Health Center contact information, if applicable)
- **Personal stories** of those affected by meningitis

Alicia Stillman
Michigan
M.D.M. of Emily (age 15 years)

Francesca Testa
Connecticut
T.E.A.M. member (survived at age 17 years)

Sources: College Students' Knowledge about Meningococcal Disease and Preferences for Health Information. *Florida Public Health Review*, 2008; 5:96-98. The Impact of Educational Efforts on First-Year University Students' Acceptance of Meningococcal Vaccine. *Journal of American College Health*, 2003; 52, 41-43

ANATOMY OF AN OUTBREAK

BY CHARLES MIN & DESI HOWRY
STAFF WRITER & STAFF DESIGNER

Since the first case of meningitis at Princeton was reported in March 2013, the University has faced seven additional cases of meningococcal disease. Following the seventh case, Princeton, working alongside the Centers for Disease Control and Prevention and the N.J. Department of Health, agreed to allow students

to receive Bexsero, a vaccine unlicensed in America. Approved earlier this year in Europe, the vaccine combats the type of bacteria that has affected Princeton's campus. This timeline outlines the precautionary actions the University has taken in relation to the eight cases reported so far.



MARCH

The first case of meningitis related to Princeton was reported March 25. Since then, the female student has fully recovered. Campus was not notified at the time.

APRIL

Sometime between April 6 and 8, a male high school student visited the University campus. On his trip back, he reported symptoms of meningitis. He has fully recovered since then. Campus was not notified at that time.

MAY

MAY 6: Peter Carruth '14 was rushed to the hospital with symptoms of meningitis. Campus was notified the next day, although the email did not acknowledge the previous two cases.

MAY 9: Campus receives a health advisory email acknowledging the March and April cases for the first time. Both cases are reported to be caused by meningococcal bacteria type B.

MAY 10: Carruth '14 confirmed to have been infected by the same type of meningococcal bacteria, type B.

MAY 20: A male student was diagnosed with meningitis in the fourth Princeton-associated case since March. Campus was notified that same day. He developed symptoms during his trip to his home state. The New Jersey Department of Health officially declared the situation at Princeton an outbreak.

JUNE

JUNE 30: While on a Princeton-sponsored academic program abroad, Michael Moorin '16 came down with symptoms of meningitis in the fifth U.-linked case. He was hospitalized on June 30 in Greece and later transferred to an American hospital in Paris. Students were notified on July 2.

SEPTEMBER

SEPT. 11: During the first day of school, the Student Health Advisory Board began the 'Red Cup Initiative.' They distributed cups labelled "Mine. Not Yours." to encourage students not to share drinks.

OCTOBER

OCT. 2: A female student was diagnosed with meningococemia, a condition in which the bacteria enter the bloodstream. Campus was notified that day, adding up to six cases. This was the first case reported after the summer break.

NOVEMBER

NOV. 2: Seventh case of meningitis occurs. The male student was discharged from the hospital on Nov. 23.

NOV. 18: U. announces it will sponsor a vaccine unlicensed in the U.S. to control the outbreak.

NOV. 20: Informal interviews conducted by The Daily Princetonian show 76 percent of the student body is interested in receiving the vaccine.

NOV. 21: The eighth case of meningitis involved a female student who was rushed to University Health Services immediately following meningitis symptoms.

NOV. 25: Vaccine consent forms released. Students retain the right to sue the University.

NOV. 26: The Centers for Disease Control and Prevention gave its final approval for the vaccination campaign.

DECEMBER

DEC. 5-6: The CDC, UHS and Environmental Health and Safety provided three separate discussion panels for students and parents to answer questions about meningitis and the vaccine.

DEC. 9-12: From noon to 8 p.m., the first dose of the vaccine Bexsero will be administered in the Multipurpose Room of Frist Campus Center. A booster dose will be provided sometime in February.

Featured Story

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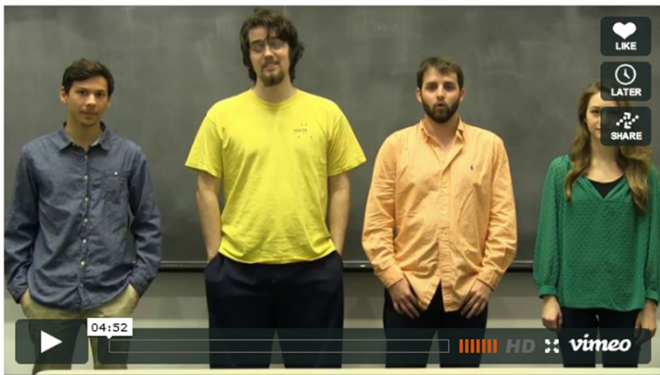
Student work: 'Princeton Against Meningitis'

Posted December 3, 2013; 12:25 p.m.

by Student Health Advisory Board

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The Student Health Advisory Board has had its first meeting and will offer the first dose of an imported vaccine aimed at students living in dormitories and other members of the Princeton community. For more information, visit the University website.

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have had their first meeting and will offer the first dose of an imported vaccine aimed at students living in dormitories and other members of the Princeton community. For more information, visit the University website.



Princeton University @Princeton

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Students, please note: Meningitis vaccinations beginning now at Frist, Level B multipurpose room. ow.ly/rARXc

Reply | Retweet | Favorite | More

3 RETWEETS | 1 FAVORITE

8:59 AM - 9 Dec 13



Princeton University @Princeton

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Our fourth and final day of meningitis vaccination clinics begins at noon and runs until 8 p.m.

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1 RETWEET

8:31 AM - 12 Dec 13

JoNel Aleccia, NBC News

8 hours ago



Princeton University

Students line up at the Princeton University student center on Monday to receive shots of an imported vaccine aimed at students living in dormitories and other members of the Princeton community. For more information, visit the University website.

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94% of students vaccinated to date

Advocacy and Case/Outbreak Response

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Emergency meningitis vaccine will be imported to halt Ivy League outbreak

HEALTH
Public surges in women's neck reveal heart condition

HEALTH
Premier births linked to phthalates

OPINION
Bioethicists: Emergency vaccine needed to stop meningitis outbreak

FUNGAL MENINGITIS
Lawmakers urge greater oversight of compounded esters

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MEET A PRESS

"My Emily was vaccinated. I felt safe," said Alicia Stillman of West Bloomfield, Mich. She lost her 19-year-old daughter on Feb. 2 after the Kalamazoo College sophomore contracted a meningitis B infection that killed her 36 hours after she walked into a hospital with a headache.

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Princeton to Offer Students Meningitis-B Vaccine After New Case

By Janet Lorn & Michelle Fay Cortez - Nov 19, 2013 12:01 AM ET

0 COMMENTS

Princeton University will offer students, pending federal approval, a meningitis vaccine not currently available in the U.S., after a seventh case was reported this year on the Ivy League campus.

The U.S. Centers for Disease Control is preparing to recommend that all undergraduate students, as well as graduate students living in dormitories, get the vaccine, the Princeton, New Jersey-based college said yesterday in a statement. Costs would be covered for students who receive the vaccine, it said.

"The University is prepared to accept these recommendations and make arrangements to provide access to this vaccine as soon as possible," Princeton said.

Enlarge image

By staff students mening sharing at close Monst

Febru school

The e Andri Oswald, head of Novartis vaccines and diagnostics, in a p new from Basel, Switzerland. Since the first patient was diagnosed in March after spring break, it's crucial to closely monitor residents through the cold months, he said.

Students shouldn't waver about getting the vaccine because even if diagnosed early, there isn't a guarantee of survival, said Lynn Bozof, president of the National Meningitis Association, a nonprofit group.

NMA @NMAtweets 16h
NMA supports the collaborative public health effort at Princeton University in response to outbreak, read more here: ow.ly/qYfWVW

NMA @NMAtweets 18h
Have questions about #Meningitis B? Please feel free to tweet at us and check out the Q&A from @CDCgov ow.ly/qYfVn

National Meningitis Association · 3,590 like this
November 14, 2013 at 1:00pm

Parents and students should be aware that meningococcal vaccination does not prevent all strains of the disease. Please take a moment to become familiar with the symptoms and to share this information with someone you love.

Meningococcal Meningitis, Long Term Effects of Meningitis
www.nmaus.org

Meningococcal Meningitis - The National Meningitis Association educates parents, students, health professionals & public policy makers about the dangers of meningococcal disease and vaccination efforts.

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17 people like this.

Missy Leonhart Yarger This the type my son had. Please vaccinate your children.
November 14, 2013 at 5:38pm · Like

National Meningitis Association · 3,590 like this
November 13, 2013 at 12:10pm

Our hearts go out to the students and families affected by the Princeton meningitis outbreak. We are here to provide emotional support to those who need it; please feel free to reach out to us.

Seventh possible meningitis case reported at Princeton
www.cbsnews.com

Vaccine required for students does not protect against strain reported in students, say school officials

Like · Comment · Share

Kayla St. Pierre and 26 others like this.

Jenny H. Guy So sad. I lost a 22 year old daughter to that. Praying for the families.
November 13, 2013 at 8:53pm · Like

Patti Quinn Wukovits Yes, very sad. 17 months ago I lost my vaccinated and healthy 17-year-old daughter to meningococemia type B - the strain the current vaccine doesn't protect against. It is so amazing to me that these students have survived. God Bless them.
November 13, 2013 at 10:59pm · Like

Write a comment...

928 people saw this post

Thank You



www.nmaus.org