Public Health Issues of 2017: The Good, the Bad and the Ugly

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October 8, 2017
Declarations and Disclosures

- I have no relevant financial interests to disclose.
- While I have many interests and am conflicted about some issues, for this presentation, I have no conflicts of interest.
Objectives

By the end of this presentation, the participant will be able to

– List the emerging tick borne diseases in the United States
– Describe the extent of the 2017 Minnesota measles outbreak
– Explain the global concern for increasing *Neisseria gonorrhoeae* resistance
– Discuss the findings in the recent report about opiate use in Ohio
– List countries with current yellow fever outbreaks and impact of yellow fever vaccine shortage
– Discuss the current status of Zika virus infection in the United States in 2017
The Good
Coffee!!

- Two large studies published in the Annals of Internal Medicine in July 2017 reported that coffee drinking is linked to a significantly lower risk of death from all causes
  - Hazard ratio for 1 cup a day = .88
  - 3 or 4 cups per day = .82
- Other studies have shown that coffee has no effect on atrial or ventricular contractions, may decrease risk for stroke, reducing risk of DM, associated with reduced risk of some cancers and depression
- Counter effects: increased blood pressure, worsen anxiety, insomnia, and potentially increase glaucoma risk.

Ah, but it’s coffee!
Zika

• US reported cases (as of 9/27/2017)
  – 278 symptomatic Zika virus disease cases reported
    • 274 cases in travelers returning from affected areas
    • 1 cases acquired through presumed local mosquito-borne transmission
    • 3 cases acquired through sexual transmission
  – In 2016, there were 5,102 symptomatic Zika virus disease cases reported including 224 cases acquired by presumed local mosquito-borne transmission (FL and TX)
  – More locally acquired cases in the US territories
  – 2,155 pregnant women with lab evidence of Zika virus infection reported in the US Zika Pregnancy Registry (as of 8/22/2017)
US Zika Pregnancy Registry Outcomes

• Review of registry pregnancy outcomes 1/15 to 12/27, 2016
• 1297 pregnancies, 972 completed
  – 895 live born and 77 pregnancy losses
  – 43 had brain defects and/or microcephaly
  – 8 has NTDs and early brain malformations, eye abnormalities, or consequences of CNS dysfunction without brain abnormalities or microcephaly
  – Birth defects were reported in similar proportions of fetuses/infants whose mothers did and did not report symptoms of Zika virus disease during pregnancy
• About 1 in 10 pregnancies with lab confirmed Zika virus infection ended in a fetus or infant with Zika virus–associated birth defects.
• The proportion of fetuses and infants with Zika virus–associated birth defects was highest among those with first trimester Zika virus infections.
• Take-Home Point: Keep screening and keep testing pregnant women who may have been at risk of Zika Virus exposure

MMWR April 7, 2017 / 66(13);366-373
Key Recommendations of Updated Pregnancy Testing Guidance

All pregnant women in the United States and U.S. territories should be asked about possible Zika virus exposure before and during the current pregnancy, at every prenatal care visit.

Pregnant women with recent possible Zika virus exposure and symptoms of Zika virus disease should be tested to diagnose the cause of their symptoms.

Asymptomatic pregnant women with ongoing possible Zika virus exposure should be offered Zika virus NAT testing three times during pregnancy.

Asymptomatic pregnant women who have recent possible Zika virus exposure (i.e., through travel or sexual exposure) but without ongoing possible exposure are not routinely recommended to have Zika virus testing.
Pregnant women who have recent possible Zika virus exposure and who have a fetus with prenatal ultrasound findings consistent with congenital Zika virus syndrome should receive Zika virus testing to assist in establishing the etiology of the birth defects.

The comprehensive approach to testing placental and fetal tissues has been updated.

Zika virus IgM testing as part of preconception counseling to establish baseline IgM results for nonpregnant women with ongoing possible Zika virus exposure is not warranted because Zika virus IgM testing is no longer routinely recommended for asymptomatic pregnant women with ongoing possible Zika virus exposure.

Harmful Algal Blooms

• Harmful algal blooms (HABs) are the rapid growth of algae that can cause harm to animals, people, or the local ecology.
• A HAB can look like foam, scum, or mats on the surface of water and can be different colors.
• HABs can produce toxins that have caused a variety of illnesses in people and animals.
• HABs can occur in warm fresh, marine, or brackish waters with abundant nutrients and are becoming more frequent with climate change.
2017 Ohio

• In Ohio Lake Erie was not really affected until September
  – Fueled by ideal conditions: calm winds, sun, hot temperatures and plenty of phosphorous - mostly spring fertilizer runoff from farm fields in Northwest Ohio

• Not as bad as in previously years
  – 2017 ranked as 7.5 on a 10 point scale
  – 2014 ranked as 10.5 on a 10 point scale

• Drinking water is not in danger although it can impact recreational use

• Some Ohio inland lakes (e.g., Grand St. Mary’s in Auglaize County) has also been affected in 2017
Fewer Teen Pregnancies

• Report by National Center for Health Statistics stated that more than half of American teens have had sex by age 18\(^1\).
• However 80\% of teenagers reported using a contraceptive measure during first sexual encounter.
• Almost 90\% of sexually active female teenagers used a contraceptive method at the last sexual encounter.
• There has also been a continued decline in teenage abortion rates\(^2\)

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NCHS Data Brief No. 259 September 2016
The Bad
San Diego Homeless Hepatitis A Outbreak

• Began in early 2017 identified in homeless persons (index case November 2016)
• San Diego has the 4th largest homeless population in the US
• Local public health emergency declared 9/1/2017
• No food vehicle identified
  – Appears to be spread through person-to-person contact and illicit drug use
  – MSM practices do not appear to be a factor
San Diego Outbreak Info

• Around 20 new cases per week
• As of September 26, cumulative outbreak counts
  – Cases: 461
  – Deaths: 17 (4%)
  – Hospitalizations: 315 (68%)
• Control measures include vaccination programs, hygiene kits, installing temporary restrooms and handwashing stations, public information
  – Trying to close homeless encampments
Other Current Hepatitis A Outbreaks

• These outbreaks are smaller but are also affecting the homeless population
  – Orange County, CA
  – Santa Cruz County, CA
  – Salt Lake, County, UT

• Southeast Michigan
  – More in IDU population; only 15% of cases homeless

Hepatitis A strain related to the San Diego outbreak strain
Increasing STDs

- Recent report from the CDC showed that more than 2 million cases of STDs in 2016.
  - Chlamydia: 1,598,354 (rate 497.3/100,000 pop)
  - Gonorrhea: 468,514 (rate 145.8/100,000 pop)
  - Syphilis: 27,814 (rate 8.7/100,000 pop)

All the following graphs are from the CDC’s 2016 Sexually Transmitted Diseases Surveillance, [https://www.cdc.gov/std/stats16/toc.htm](https://www.cdc.gov/std/stats16/toc.htm)
Chlamydia — Rates of Reported Cases by Sex, United States, 2000–2016

![Graph showing the rates of Chlamydia reported cases per 100,000 population by sex from 2000 to 2016. The rates increase over time, with a notable rise around 2010 for both men and women. The total rate (dotted line) is consistently higher than the rate for women (solid line) and similar to the rate for men (dashed line).]
Gonorrhea — Rates of Reported Cases by Sex, United States, 2007–2016
Primary and Secondary Syphilis — Rates of Reported Cases by Region, United States, 2007–2016
Increasing Gonorrhea Antibiotic Resistance

- World Health Organization’s Gonococcal Antimicrobial Surveillance Programme showed continued widespread resistance to penicillin, tetracycline, and ciprofloxacin; increasing resistance to azithromycin; and emergence of decreased susceptibility and resistance to extended spectrum cephalosporins.
- In 2016, Hawaii had a cluster of 4 cases that were resistant to both azithromycin and gonorrhea.
Tick Borne Diseases

- Blacklegged Tick
- Lone Star Tick
- American Dog Tick
Tickborne Diseases

- Anaplasmosis
- Babesiosis
- Bourbon
- Ehrlichiosis
- Heartland
- Lyme Disease
- Powassan
- Rocky Mountain Spotted Fever
Tickborne Diseases

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### Number of Cases

<table>
<thead>
<tr>
<th>Disease</th>
<th>2017 to date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powassan virus disease</td>
<td>22</td>
</tr>
<tr>
<td>Lyme Disease</td>
<td>38,069</td>
</tr>
<tr>
<td>Anaplasmosis</td>
<td>3,159</td>
</tr>
<tr>
<td>Babesiosis</td>
<td>1,333</td>
</tr>
<tr>
<td>Ehrlichiosis</td>
<td>1,109</td>
</tr>
<tr>
<td>Spotted Fever Rickettsiosis</td>
<td>151 (4,114 probable)</td>
</tr>
</tbody>
</table>


Powassan virus neuroinvasive disease cases reported by state, 2006–2015
ANAPLASMA PHAGOCYTOPHILUM. Number of reported cases, by county — United States, 2015
EHRlichia CHAFFEEnsis. Number of reported cases, by county — United States, 2015
Reported Cases of Lyme Disease by Year, United States, 1995-2015
Expiration of CHIP

• On September 30, Congress let the funding expire for the Children’s Health Insurance Program (CHIP).
  – This program historically had bipartisan support
  – Reduced the uninsured rate in children from 14% to 5 %

• 9 million children and pregnant women will potentially lose health insurance for
  – Immunizations
  – Doctor visits
  – Prescriptions
  – Inpatient and outpatient hospital care
  – Laboratory and X-ray services
  – Emergency services
  – Dental and vision care

• Some states have enough funds to last through March 2018; many will run out by the end of the year.
Yellow Fever Vaccine Shortage

- There has been a shortage of the only US approved yellow fever vaccine (YF-VAX).
  - Began in 2015 because a manufacturing problem resulted in the loss of large amounts of vaccine.
  - Shortage estimated to last until mid 2018
  - Became completely depleted July 2017
- Stamaril used in Europe and other countries has received FDA approval as an investigational new drug (IND).
  - It is available in limited amounts in certain clinics
- In Northeast Ohio only available at Passport Health in Fairlawn and Universities Hospitals in Cleveland
The Ugly
Opiates in Ohio

• Report released in showed overdose deaths in 2016 increased by 1000 deaths from 2015
  – Fentanyl and related drugs found in 58.9% of all unintentional drug deaths
    • Carfentanil, a large animal tranquilizer caused 340 deaths; large outbreak of overdoses and deaths in summer
  – 80.2% of all cocaine related deaths also involved an opiate
• Good news is that opiate prescribing in Ohio decreased for the fourth consecutive year
  – While OH is not in the top 10 highest prescribing states, it does still prescribe more than many other states
  – However, AMA reported that OH leads the nation in prescription drug monitoring
Figure 8. Number of Deaths and Annual Age-Adjusted Death Rate* per 100,000 Population from Unintentional Drug Overdose by Year, Ohio Residents, 2000-2016


*The death rate is presented as age-adjusted which allows a comparison of death rates between populations (e.g. counties and states). The rates are adjusted to the U.S. 2000 standard population to allow a comparison of the overall risk of dying between different populations.
Figure 1. Number of Fentanyl and Related Drug Deaths and Percentage of Unintentional Overdose Deaths, by Year, Ohio, 2012-2016

Figure 7. Number of Unintentional Drug Overdose Deaths Involving Selected Drugs, by Year, Ohio, 2000-2016

Source: Ohio Department of Health, Bureau of Vital Statistics; analysis conducted by ODH Violence and Injury Prevention Program. Multiple drugs are usually involved in overdose deaths. Individual deaths may be reported in more than one category. Includes Ohio residents who died due to unintentional drug poisoning (underlying cause of death ICD-10 codes X40-X44).

* Excludes deaths involving fentanyl and related drugs.
Measles Outbreak in Minnesota

• First reported case (April 10, 2017), 25 month old child without history of MMR vaccine, no travel history, no known measles exposure
• Second case reported on April 11; younger sibling had a rash illness on March 30
• These three cases attended same child care center
• Last case reported July 13
  – Outbreak declared over August 25
2017 Outbreak Numbers

- There were 79 confirmed cases
- More than 8,000 people exposed to measles
- More than 500 people asked to stay home from school, child care or work because they were potentially infectious (unvaccinated and exposed to someone infectious)
- 64 of 79 cases were in the Somali community
- 22 people hospitalized
  - No deaths
- 73 cases under 10 years old
- 71 of the cases unvaccinated for measles
- 70 cases in Hennepin County, but also three in Ramsey County, four in Crow Wing and two in Le Sueur counties.
Number of measles cases (N = 65) by date of rash onset — Minnesota, March 30–May 27, 2017

MMWR, July 14, 2017 / 66(27);713–71
Percentage of children receiving measles-mumps-rubella vaccine at age 24 months among children of Somali and non-Somali descent, by birth year — Hennepin County, Minnesota, 2004–2014
Why Outbreak Occurred

• At time of outbreak, MMR coverage in Somali community estimated to be 42%.

• Crude measles vaccination herd immunity threshold -92-94% of the population

• Source of Index Case not identified
Countries with Measles Travel Alerts 2016-2017

- Belgium
- Democratic Republic of the Congo
- France
- Germany
- Guinea
- Italy
- Indonesia
- Romania
Outbreak Response Costs

• The Minnesota Department of Health (MDH) estimated its costs for the outbreak response were more than $900,000.
• Hennepin County estimated its costs at about $400,000.
Public Health Funding

- Public Health funding in the United States has been inconsistent
  - Tends to be reactionary
  - Tends to be issue related
- Of 3 trillion dollars in health spending in the US public health received (maybe) 3%.
- Both the president’s proposed FY18 and the House’s proposed FY18 cut public health funding again.
- The Affordable Care Act established the Prevention and Public Health Fund (PPHF), providing almost $900 million in prevention grants from the CDC to states, counties and cities, non-profit health-oriented groups and tribal organizations throughout the USA.
Prevention and Public Health Act

Focus

- The Affordable Care Act established the Prevention and Public Health Fund, providing almost $900 million in prevention grants from the CDC to states, counties and cities, non-profit health-oriented groups and tribal organizations throughout the USA.
- Supports the prevention of chronic diseases by promoting programs that target physical activity, tobacco cessation, better nutrition (target conditions: heart disease and stroke, diabetes)
- Expanding mental health and injury prevention programs
- Immunization Grant Program
- Supports epidemiology and laboratory capacity
Results of Decreased Funding

• Public Health Workforce has declined from 190,000 local health department workers in 2008 to 147,000 in 2016

• Decrease in the percent of local health departments providing screening programs
  – May be strategic
  – May be budget driven
The Future

Who Knows?
QUESTIONS?