Marija PopStefanija, MPH, Epidemiologist
Division of Epidemiology & Immunization, MDPH
I, Marija PopStefanija, have been asked to disclose any significant relationships with commercial entities that are either providing financial support for this program or whose products or services are mentioned during my presentations.

- I have no relationships to disclose.

- I may discuss the use of vaccines in a manner not approved by the U.S. Food and Drug Administration.
  - But in accordance with ACIP recommendations.
Today’s Topics

- **Collaboration**
  - Initial steps and key concepts to prevent spread

- **Vaccine-preventable disease (VPD) epidemiology in Massachusetts**
  - Overall trends
  - Mumps
  - Pertussis
  - Congenital Rubella Syndrome (CRS)
  - Influenza
  - Chickenpox

MIAP Conference, 2017
Why Vaccinate? It Prevents Disease!

Vaccines for Children
20 years of protecting America’s children

The Vaccines for Children program was established in 1994 to make vaccines available to uninsured children. VFC has helped prevent disease and save lives...big time!

CDC estimates that vaccination of children born between 1994 and 2013 will:

- prevent 322 million illnesses
- help avoid 732,000 deaths
- save nearly $1.4 trillion in total societal costs (that includes direct medical costs)

www.cdc.gov/features/vfcprogram


MIAP Conference, 2017
Rates of Kindergarten Students with an Exemption, By County, 2016

State Average: 1.3%

Source: Massachusetts School Immunization Surveys 2016
religious and medical exemptions combined
Get Vaccinated! Yes, you!

Adult Occupational Immunizations
Massachusetts Recommendations and Requirements for 2016 - 2017

Recommended Immunizations For Health Care Personnel (HCP)

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Recommendations in Brief</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>1 dose of flu vaccine every flu season.</td>
</tr>
<tr>
<td>Tdap/Td (Tetanus, diphtheria, pertussis)</td>
<td>1 dose of Tdap as soon as possible, then Td boosters every 10 years.</td>
</tr>
<tr>
<td>MMR (Measles, mumps, rubella)</td>
<td>2 doses of MMR; ≥ 28 days apart or documented laboratory-confirmed immunity to measles and mumps and rubella.</td>
</tr>
<tr>
<td>Varicella</td>
<td>2 doses of varicella vaccine, or serologic evidence of immunity, or laboratory confirmation of disease, or reliable history of varicella disease.</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>3-dose series (see footnote).</td>
</tr>
<tr>
<td>Meningococcal Vaccines</td>
<td>1 dose of quadrivalent meningococcal vaccine and a meningococcal B vaccine series (2 doses of Bexsero or 3 doses of Trumenba, see below) for microbiologists who are routinely exposed to N. meningitidis isolates.</td>
</tr>
</tbody>
</table>

**Health care personnel (HCP) include full- and part-time staff with or without direct patient contact, including physicians, students, and volunteers who work in inpatient, outpatient and home-care settings. See Immunization of Health-Care Personnel - Recommendations of the ACIP. [www.cdc.gov/influenza/travel/travel2017.pdf](http://www.cdc.gov/influenza/travel/travel2017.pdf)**

**Influenza:** All HCP should receive annual flu vaccine.

**Tetanus/Diphtheria/Pertussis (Tdap):** All HCP, regardless of age, should receive a single dose of Tdap as soon as feasible if they have not previously received Tdap, and regardless of the interval since last Td dose.

**Measles, Mumps, Rubella (MMR):** All HCP should be immune to measles, mumps, and rubella. Documentation of immunity is required for HCP entering the state of Massachusetts, for HCP entering the state of Massachusetts who have not previously been documented as immune to measles, mumps, and rubella, and for HCP who have been documented as immune to measles, mumps, and rubella but who have not previously been documented as immune to rubella.

**Hepatitis B:** HCP should receive 3 doses hepatitis B vaccine on a 0, 1, and 6 month schedule. Test for hepatitis B surface antibody (anti-HBs) 1–2 months after 3rd dose to document immunity. HCP and trainees in certain populations at high risk for chronic hepatitis B (e.g., those born in countries with high and moderate endemicity, behavioral risk factors, immunosuppression, liver disease of unknown etiology) should be tested for HBsAg and anti-HBs/anti-HBc to determine infection status prior to vaccination. See CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management [www.cdc.gov/mmwr/COVID:mmw210.pdf](http://www.cdc.gov/mmwr/COVID:mmw210.pdf)

**Meningococcal:** Quadrivalent meningococcal conjugate vaccine.
Collaborations in Disease Surveillance and Control

LBOH 1

MDPH

LBOH 2

Sports Team

MIAP Conference, 2017

Healthcare Provider

School

10/10/2017
HEALTHCARE PROVIDER ROLE

- Notify patient of diagnosis
- Notify the LBOH or MDPH of an infectious reportable disease
- Inform patient that the LBOH may be calling
- Educate patient about protecting their family and close contacts
- Provide key information to the LBOH to complete the official “Case Report”*
- Assist with notification and PEP
- Exclude susceptible staff?

*per 105 CMR 300.000
Public Health – Initial Steps

- Confirming a case (may not be necessary)
  - Isolation of case while infectious
- Determining the infectious period
- Based on the mode of transmission, identifying those who were exposed
- Facilitating notification of those who were exposed
- Identification of susceptibles
- Identification of high-risk susceptibles
- Post-exposure vaccination or chemoprophylaxis
- Exclusion from all public activities (quarantine)
105 CMR 300.000

- Reportable Diseases Lists:
  - Healthcare providers
  - Clinical laboratories

- Diseases in red are “immediate” diseases.

- Diseases in black are reportable within 1-2 business days.

### Vaccine-Preventable Diseases in Massachusetts*, 2007-2016

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Measles</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>24</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>2**</td>
</tr>
<tr>
<td>Mumps</td>
<td>6</td>
<td>7</td>
<td>15</td>
<td>9</td>
<td>4</td>
<td>6</td>
<td>71</td>
<td>5</td>
<td>6</td>
<td>258</td>
</tr>
<tr>
<td>Rubella</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CRS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Meningococcal Disease</td>
<td>21</td>
<td>22</td>
<td>14</td>
<td>8</td>
<td>14</td>
<td>6</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Pertussis</td>
<td>1197</td>
<td>761</td>
<td>362</td>
<td>296</td>
<td>280</td>
<td>653</td>
<td>348</td>
<td>298</td>
<td>253</td>
<td>197</td>
</tr>
<tr>
<td>Hib &lt; 5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Tetanus</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Diphtheria</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Polio</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pneumococcal Disease &lt; 5</td>
<td>89</td>
<td>83</td>
<td>81</td>
<td>72</td>
<td>40</td>
<td>51</td>
<td>24</td>
<td>27</td>
<td>20</td>
<td>31</td>
</tr>
<tr>
<td>Varicella</td>
<td>2094</td>
<td>1584</td>
<td>1415</td>
<td>770</td>
<td>606</td>
<td>628</td>
<td>475</td>
<td>469</td>
<td>356</td>
<td>290</td>
</tr>
</tbody>
</table>

*Data are current as of 8/24/2017 and are subject to change.*

*Both confirmed and probable cases are reported for measles, mumps, rubella, and varicella to better reflect the true burden of disease. All other diseases include confirmed cases only. **Includes one case in a visitor from Europe.
# Investigations vs. Confirmed* Cases

<table>
<thead>
<tr>
<th>Disease</th>
<th>2015 Investigations</th>
<th>2015 Confirmed Cases</th>
<th>2016 Investigations</th>
<th>2016 Confirmed Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria</td>
<td>5</td>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Measles*</td>
<td>267</td>
<td>0</td>
<td>272</td>
<td>2</td>
</tr>
<tr>
<td>Mumps*</td>
<td>154</td>
<td>6</td>
<td>789</td>
<td>258</td>
</tr>
<tr>
<td>Polio</td>
<td>28</td>
<td>0</td>
<td>37</td>
<td>0</td>
</tr>
<tr>
<td>Rubella*</td>
<td>23</td>
<td>0</td>
<td>65</td>
<td>0</td>
</tr>
<tr>
<td>Pertussis</td>
<td>345</td>
<td>253</td>
<td>338</td>
<td>197</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>822</strong></td>
<td><strong>259</strong></td>
<td><strong>1513</strong></td>
<td><strong>457</strong></td>
</tr>
</tbody>
</table>

*Includes probable cases to more accurately reflect true burden of disease.
Mumps Million Dollar Question

Your clinical staff have had unprotected close contact to a confirmed case of mumps. Fortunately all are vaccinated. How protective is two doses of MMR in preventing mumps?

- 100% effective
- 75% effective
- 85% effective
- 88% effective

MIAP Conference, 2017
Your clinical staff have had unprotected close contact to a confirmed case of mumps. Fortunately all are vaccinated. How protective is two doses of MMR in preventing mumps?

- 100% effective
- 75% effective
- 85% effective
- 88% effective
Your lifeline?

- Call MDPH epidemiologists at 617-983-6800
Mumps

A systemic disease characterized by:

- Non-specific prodrome consisting of myalgia, loss of appetite, malaise, headache, low-grade fever
- Swelling of one or more salivary glands, usually the parotid glands, often tender or painful, with orchitis commonly reported in males after puberty
- 1/3 of infections may be asymptomatic or manifest as respiratory illness
- Rare complications include arthritis, encephalitis, thyroiditis, mastitis, ataxia, oophoritis, hearing loss, and others
- Infectious 2 days before onset of swelling, and five days after

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In 2016, over 6,000 cases reported to CDC, most cases in 10 years.

From January 1 to August 12, 2017, 47 states and the District of Columbia in the U.S. reported mumps infections in 4,240 people to CDC.

In recent years outbreaks largely confined to universities and other close contact settings, including teams, schools, prisons and the Marshallese community.

Large number have 2 doses of MMR

**Preliminary data reported to CDC.**

(Adapted from M. Marin ACIP Meeting 2-13-17 and C. Bridges, CDC Burden Dis Adults webinar 4-12-17)
Largest mumps outbreak in MA in 30+ years
- 789 total investigations from January – December 2016
- 253 confirmed or probable cases
- Age range 1-69 years (median 21 years)

Largely contained within university settings, with little spread into surrounding communities

Transmission interrupted due to:
- Enforcement of existing school requirements for immunization
- Implementation of control measures, including social distancing
- End of school year (summer 2016) and school vacations

Data are preliminary and subject to change.

MIAP Conference, 2017
2017 Mumps to Date

- **546** mumps investigations from 1/1/17 – 10/10/17
  - **87** confirmed cases
  - Age range 15 - 50 years (median **25 years**)
  - **51** (59%) among Latinos in Greater Boston
- **58** (67%) no clear connection to colleges and universities

Data are preliminary as of 10/10/17 and subject to change.

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Mumps - What Should Providers Do?

- Ensure all patients and staff are UTD with MMRs
- If mumps is suspected, isolate patient for 5 days, even if test results come back negative
- Encourage good infection control practices
- Remember, there are many causes of parotitis! Consider testing for other etiologies
  - (e.g., influenza, blocked salivary ducts, etc.)
- Testing – “rule out testing” does not exist
  - Buccal swabs for PCR testing are best, but not perfect
  - IgM testing of limited value in vaccinated population
- 2 doses of MMR is 88% effective
Pertussis Million Dollar Question

Your clinical staff have had unprotected close contact to a confirmed case of pertussis, who made four office visits while infectious. How long is the pertussis infectious period if untreated?

- Three weeks before cough onset
- Two weeks after cough onset
- About 21 days
- Two weeks before and three weeks after cough onset

MIAP Conference, 2017
Your clinical staff have had unprotected close contact to a confirmed case of pertussis, who made four office visits while infectious. How long is the pertussis infectious period if untreated?

- Three weeks before cough onset
- Two weeks after cough onset
- About 21 days
- Two weeks before and three weeks after cough onset, if untreated

MIAP Conference, 2017
Phone a friend

- Call MDPH epidemiologists at 617-983-6800
Pertussis

Make sure all healthcare staff are up to date with Tdap. 12/197 confirmed cases in 2016 were in infants < 1 year.

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Pertussis - Whooping Cough

- Can start like a common cold – runny nose, low-grade fever, and coughing – some people might not know they have it.
- Infants suffer the most serious consequences.
  - Infants younger than 1 year old who get whooping cough, ½ are hospitalized.
  - Of those hospitalized, 1 out of 4 get pneumonia.
  - Of those hospitalized, 1 to 2 out of 100 dies.
- Peak in 2012 in US:
  - More than 48,000 cases of whooping cough reported.
  - 15 infants younger than 3 months died.

Baby Brady, Massachusetts 2012
http://shotbyshot.org/pertussis/bradys-story/

Epidemiology and Prevention of Vaccine-Preventable Diseases 13th Edition, Pertussis Chapter &

MIAP Conference, 2017
Pregnant women should receive 1 dose of Tdap during each pregnancy, preferably during the early part of gestational weeks 27–36, regardless of prior history of receiving Tdap.

- Infants of Tdap vaccinated mothers were born with significantly higher anti-pertussis antibodies compared to infants of unvaccinated mothers.

- Within the 27-36 weeks administration “window”
  - Concentration of anti-pertussis antibodies in infant cord blood were higher when mothers were vaccinated earlier
  - Longer exposure to vaccine allows for higher vaccine induced antibody levels produced by other and transferred to infant
## PERTUSSIS TESTING

- **Acceptable diagnostic tests include:**
  - Culture at HSLI or any commercial lab
  - PCR from any commercial lab
  - Serology performed at MA SPHL *(Serology from commercial labs are not acceptable due to inability to interpret results)*

<table>
<thead>
<tr>
<th>DURATION OF COUGH</th>
<th>CHILDREN (&lt;11yrs)</th>
<th>ADULTS (≥11yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;14 DAYS</td>
<td>NP Swab(s) (for Culture &amp; PCR Testing)</td>
<td>NP Swab(s) (for Culture &amp; PCR Testing)</td>
</tr>
<tr>
<td>14-28 DAYS</td>
<td>Serology* at HSLI - OR - Serology* at HSLI &amp; Consider NP Swab(s) (for Culture &amp; PCR Testing)</td>
<td>Serology* at HSLI</td>
</tr>
<tr>
<td>29-56 DAYS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**MIAP Conference, 2017**
Pertussis Notifications

Massachusetts Department of Public Health
Division of Epidemiology and Immunization

Pertussis Advisory

This is to advise you that there has been a confirmed case of whooping cough (pertussis) at School. We have identified your child as a close contact of the case, and we are recommending that close contacts receive antibiotics, regardless of whether or not they are symptomatic, in order to prevent the contacts from contracting and/or transmitting the disease. Below is basic information for parents and guardians on the signs and symptoms of pertussis, and what you should do.

Schools/teams/camps may send out notifications when there has been an exposure.

Read the advisory closely to determine if this is a general notification, or if the patient has been identified as a close contact.

Pertussis Control in Medical Settings – Initial Steps

Classically, pertussis begins with the gradual onset of mild upper respiratory tract symptoms, such as cough (runny nose), sneezing, low-grade fever, and a mild cough (paroxysmal stage lasting 1-2 weeks). This can progress to severe paroxysms (fits of cough) (paroxysmal stage lasting 3-6 weeks), apparently due to the difficulty of expelling thick mucus from the upper respiratory tract. Tachypnea (rapid breathing), characteristic of pertussis, may be misdiagnosed as asthma. During the paroxysms, the cough gradually decreases in frequency and intensity, and other symptoms also resolve gradually (remission stage, lasting weeks to months). Patients with pertussis are infectious from two weeks before onset of cough and three weeks after, unless treated.

1. Document staff vaccination: All healthcare workers should have evidence of Tdap.
2. Encourage patient vaccination: Patients should be up-to-date with Tdap and Tdap-Adacel. A healthcare provider recommendation is the single most important determinant of patient vaccination.
3. Assess, screen, and mask all patients with cough illness immediately on arrival, and have staff use masks. Masked staff who attend to patients with pertussis will not need chemoprophylaxis.
4. Isolate and consolidate care: Isolate patients with cough illness or suspect pertussis in a separate waiting area or private room, if available.
5. Interview the patient to elicit key information such as onset of cough, history of recent whooping cough and/or other upper respiratory illness, recent travel, and current symptoms. This information will be requested by state and local health officials in order to confirm the case.
6. Test: Obtain appropriate specimens for pertussis testing, depending on duration of cough and age of patient.

Culture and serologic testing are available at no charge at the Massachusetts State Public Health Laboratory (MA SPHL). PCR testing is not currently available at the MA SPHL, but is widely available at commercial and hospital clinical laboratories. The appropriate pertussis diagnostic test and specimen type is based on patient age and cough duration, as described in the table below. The reliability of each test depends on age and stage of disease.

Diagnostic Test Recommendations for Testing for Pertussis

<table>
<thead>
<tr>
<th>Time Since Cough Onset</th>
<th>Patients &lt;11 Years of Age</th>
<th>Patients &gt;11 Years of Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 - 28 days</td>
<td>NP swab for culture and PCR</td>
<td>NP swab for culture and PCR</td>
</tr>
<tr>
<td>1 - 14 days</td>
<td>NP swab for culture and PCR</td>
<td>Serology at MA SPHL, 48 serology at MA SPHL</td>
</tr>
</tbody>
</table>

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A baby with congenital rubella syndrome (CRS) is born in your community. This is an unusual event in the U.S. How long could this baby be infectious with rubella?

- Until treated with antiviral medication
- For seven days before and seven days after rash onset
- Virus usually cleared by three months
- Until two negative PCR results 30 days apart (up to a year or more)
A baby with congenital rubella syndrome (CRS) is born in your community. This is an unusual event in the U.S. How long could this baby be infectious with rubella?

- Until treated with antiviral medication
- For seven days before and seven days after rash onset
- Virus usually cleared by three months
- Until two negative PCR results 30 days apart (up to a year or more)
Who you gonna call?

- Call MDPH epidemiologists at 617-983-6800
Congenital Rubella Syndrome (CRS)

Source of photo: CDC

MIAP Conference, 2017
Congenital Rubella Syndrome (CRS)

- Maternal rubella infection, especially during the first trimester can cause multiple serious birth defects in the fetus. Baby can remain infectious for one year or longer.

- **2017: First Massachusetts case in over 20 years.**
  - Born in February in an outlying hospital.
  - Mother from Africa: one US prenatal visit prior to delivery.
  - Came to MA for delivery.
  - Born with many serious health effects.
  - Mother was tested for rubella immunity and had a very high positive IgG. Most likely had rubella in first trimester.
  - Baby had positive PCR results for five months; first negative PCR result occurred at six months.

MIAP Conference, 2017
More than 100,000 children are born every year with CRS, mainly in Africa, South-East Asia, and the Western Pacific.

There were 41 cases of CRS reported in the US from 1998 – 2016 (18 year period). 88% of mothers were born outside the US.
CRS Recommendations

- Immunity to rubella should be documented in ALL pregnant women.
- If not immune, or status unknown, vaccinate.
  - Before pregnancy
  - Or before discharge after delivery
  - Or at the first post-partum visit
- High index of suspicion with recent arrivals to US who were born outside of US.
  - Ask about exposure to rash illness during pregnancy
- Consider CRS in infants with symptoms consistent with CRS, especially in foreign-born or recently-arrived mothers, and place on contact precautions.
- **Infection Control is Critical:** Infants can shed the virus for prolonged periods (up to 1 year of age or longer)
- Presumptive evidence of immunity for HCW: 1 dose of MMR, or serologic evidence of immunity to rubella, or lab evidence of disease
A 9 month old baby with no previous history of flu vaccine needs two doses this season. What are the possible acceptable scenarios?

- Two 0.25mL doses of Fluzone
- Two 0.5mL doses of FluLaval
- A correct dose volume of one formulation, followed by the correct dose volume of another formulation
- All three scenarios are correct
A 9 month old baby with no previous history of flu vaccine needs two doses this season. What are the possible acceptable scenarios?

- Two 0.25mL doses of Fluzone
- Two 0.5mL doses of FluLaval
- A correct dose volume of one formulation, followed by the correct dose volume of another formulation
- All three scenarios are correct
One key resource

- Call MDPH epidemiologists at 617-983-6800

MIAP Conference, 2017
Influenza
2016-2017 Influenza Season

- Moderate season – Influenza A (H3N2) predominated this season.
- Circulating strains were a good match with the vaccine. Overall vaccine effectiveness (VE) against influenza A and influenza B virus infection associated with medically attended acute respiratory illness (ARI) was 42%.
- Influenza activity in Massachusetts peaked in February.
- Two pediatric flu-related deaths in Massachusetts.
What to Report to MDPH

- Labs report results of flu testing
- Teleform reports of rapid test results no longer necessary
- **Please report any pediatric flu-related deaths immediately**
- Please report any unusual clusters of influenza-like illness
- Please report any suspected cases of novel flu, avian flu, or flu associated with contact with swine

MIAP Conference, 2017
Varicella Million Dollar Question

A 9 month old baby comes to your office and is diagnosed with varicella. Which of your staff who had close contact will need to be excluded?

- A has two doses of varicella vaccine
- B has a positive titer
- C was born in the US before 1980
- D had shingles last year
- E none of these staff need be excluded
Varicella Million Dollar Question

A 9 month old baby comes to your office and is diagnosed with varicella. Which of your staff who had close contact will need to be excluded?

- A has two doses of varicella vaccine
- B has a positive titer
- **C was born in the US before 1980**
- D had shingles last year
- E none of these staff need be excluded

MIAP Conference, 2017
Varicella
Varicella Outbreak, 2016

- Elementary school with very high exemption rates.
- Many unvaccinated siblings in various grades.
- Unvaccinated kids who travel in the same “social circles” outside of school.
- Children who attended school and social events while infectious.
- Reluctance of parents to seek medical care for mildly ill children.
- Reluctance of providers to see and diagnose mildly ill children.
Varicella Control Measures

- Identify sites of exposure:
  - Classrooms
  - Buses
  - Within families/households
- Identify susceptible children
- Exclude susceptible children
  - Because of this, there were no additional exposures at school
- Remember to Report
  - Use the MDPH Varicella Teleform
  - MDPH is particularly interested in clusters of 3 or more related/connected cases.

MIAP Conference, 2017
Resources

Massachusetts Immunization Program
- 1-617-983-6800
- 1-888-658-2850
- Website http://www.mass.gov/dph/imm

CDC/NIP
- English and Spanish
- 1-800-232-INFO
- 1-800-232-4636
- TTY 888-232-6348
- Website http://www.cdc.gov/vaccines

MIAP Conference, 2017
Questions?