



SURVEILLANCE, REPORTING, AND CONTROL OF VACCINE-PREVENTABLE DISEASES

Adult Immunization Conference
April 14, 2020

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Massachusetts Department of Public Health



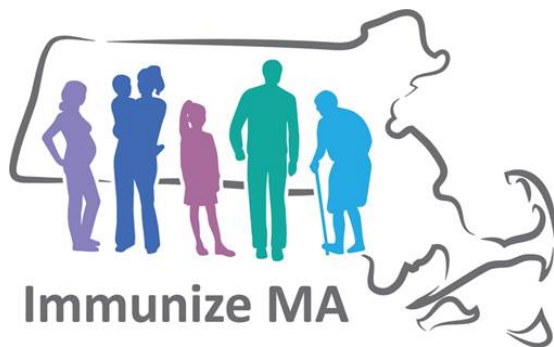


Presenter Disclosure Information

I, Elizabeth Russo, 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 our presentations.

I have no relationships to disclose.

If I discuss the use of vaccines in a manner not approved by the U.S. Food and Drug Administration, it is in accordance with ACIP recommendations.



150 YEARS
OF ADVANCING
PUBLIC
HEALTH

Vaccine-preventable Disease (VPD) Epidemiology in Massachusetts

- The 10-Year Table
- Collaboration
- Measles
- Mumps
- Invasive meningococcal disease
- Hepatitis A
- Influenza
- COVID-19



Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences - Division of Epidemiology



Vaccine-Preventable Diseases in Massachusetts*, 2009-2019

Disease	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Measles	2	3	24	0	1	8	0	1	0	2	3
Mumps	15	9	4	6	71	5	6	258	191	46	64
Rubella	1	0	0	1	0	0	0	0	1	0	0
Meningococcal Disease	14	8	14	6	11	11	12	11	11	21	15
Pertussis	362	296	280	653	348	298	253	198	383	250	271
Hepatitis A	70	50	40	43	46	43	35	64	53	367	196
Hep B (acute)	93	87	77	76	69	33	27	35	52	46	37
Hib < 5	1	1	0	2	1	1	0	1	2	1	0
Tetanus	0	0	0	0	0	0	0	0	0	0	1
Diphtheria	0	0	0	0	0	0	0	0	0	0	0
Polio	0	0	0	0	0	0	0	0	0	0	0
Pneumococcal Disease < 5	81	72	40	51	24	27	20	31	21	26	23
Varicella	1415	770	606	628	475	469	356	289	383	291	298

Data are current as of 3/27/2020 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.

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Fatal Tetanus in an Adult

- In May 2019, MPDH received notification of an adult resident hospitalized with suspected tetanus.
- The case suffered a fall 4 days prior to admission which resulted in a small shard of wood lodged in case's arm.
- Presented to a hospital with severe neck stiffness, wound drainage, and hypertension.
- Case was hospitalized for 46 days.
- Last reported tetanus-containing vaccine was approximately 13 years prior.

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Healthcare Provider Role



- **Vaccinate! Get vaccinated!**
- **Report suspected and confirmed cases of VPDs!**
- Notify patient of diagnosis/suspected diagnosis
- Provide key information to the LBOH to complete the official "Case Report" per 105 CMR 300.000

Control measures:

- Isolate patient if still infectious
- Educate patient about protecting their family and close contacts – Inform patient that the LBOH may be calling
- Assist with notification and PEP
- Exclude susceptible staff?



COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS BY HEALTHCARE PROVIDERS

*Reportable infectious diseases and conditions are not limited to those designated below. This list includes only those which are primarily reportable by clinicians. A full list of reportable diseases in Massachusetts is detailed in 105 CMR 300.100.

REPORT IMMEDIATELY BY PHONE!
This includes both suspected and confirmed cases.
All cases should be reported to your local board of health;
(if unavailable, call the Massachusetts Department of Public Health: Telephone: (617) 983-6800 Confidential Fax: (617) 983-6813)

REPORT PROMPTLY (WITHIN 24 HOURS)
This includes suspected and confirmed cases.
Isolates should be submitted to the State Public Health Laboratory

• Anthrax <C> • Any case of an unusual illness thought to have public health implications • Any cluster/outbreak of illness, including but not limited to foodborne illness • Botulism <C> • Brucellosis <C> • Chikungunya virus • Creutzfeldt-Jakob disease (CJD) and variant CJD • Diphtheria • Encephalitis, any cause • Hemolytic uremic syndrome • Foodborne illness due to toxins (including mushroom toxins, ciguatera toxin, scorpion toxin, tetrodotoxin, paralytic shellfish toxin and amnesic shellfish toxin, staphylococcus enterotoxins and others) • Hansen's disease (leprosy) • Hemolytic uremic syndrome • Hepatitis A (HepA) only • Hepatitis B in pregnant women • Hepatitis syndrome, acute possibly infectious • Influenza, pediatric (ages <18 years old) <C> • Infection due to novel influenza A viruses <C> • Jamestown Canyon virus • Lymphocytic choriomeningitis • Malaria • Measles <C> • Meningitis, bacterial, community acquired • Meningitis, viral (meningitis), and other	• Meningococcal disease, invasive (Neisseria meningitidis) <C> • Mumps <C> • Pertussis • Plague <C> • Polio • Powassan • Pox virus infections in humans, including variola (smallpox), monkeypox, vaccinia, and other orthopox • Rabies in humans • Respiratory infection thought to be due to any novel coronavirus including SARS and MERS • Rieya syndrome • Rickettsialpox • Rocky Mountain spotted fever • Rubella • Tetanus • Toxic shock syndrome • Trichinosis • Tuberculosis <C> • Evidence of tuberculosis infection • Tularemia <C> • Typhoid fever <C> • Typhus • Varicella (chickenpox) • Viral hemorrhagic fevers
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Animal bites should be reported immediately to the designated local authority.

COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS

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Reportable Diseases Primarily Detected Through Laboratory Testing

Please work with the laboratories you utilize to assure complete reporting.

• giardiasis • HIV • Leishmaniasis <C> • Lyme disease • Melioidosis <C> • Norovirus • Pneumococcal disease, invasive (Streptococcus pneumoniae) in patients <18 years old <C> • Salmonellosis <C> • Shiga toxin-producing organisms <C> • Shigellosis <C> • Staphylococcus aureus, methicillin-resistant (MRSA), invasive • Staphylococcus aureus, vancomycin-intermediate (VISA), and vancomycin-resistant (VRSA) <C> • Syphilis • Toxoplasmosis • Typhoid fever • Typhus • Varicella <C> • West Nile <C> • Yellow fever • Yersiniosis <C> • Zika	• Legionellosis <C> • Listeriosis <C> • Lyme disease • Melioidosis <C> • Norovirus • Pneumococcal disease, invasive (Streptococcus pneumoniae) in patients <18 years old <C> • Salmonellosis <C> • Shiga toxin-producing organisms <C> • Shigellosis <C> • Staphylococcus aureus, methicillin-resistant (MRSA), invasive • Staphylococcus aureus, vancomycin-intermediate (VISA), and vancomycin-resistant (VRSA) <C> • Syphilis • Toxoplasmosis • Typhoid fever • Typhus • Varicella <C> • West Nile <C> • Yellow fever • Yersiniosis <C> • Zika
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Report **Directly** to the Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences
305 South Street, Boston, MA 02130
Tel: (617) 983-6801 Confidential Fax: (617) 983-6813

Isolates should be submitted to the State Public Health Laboratory

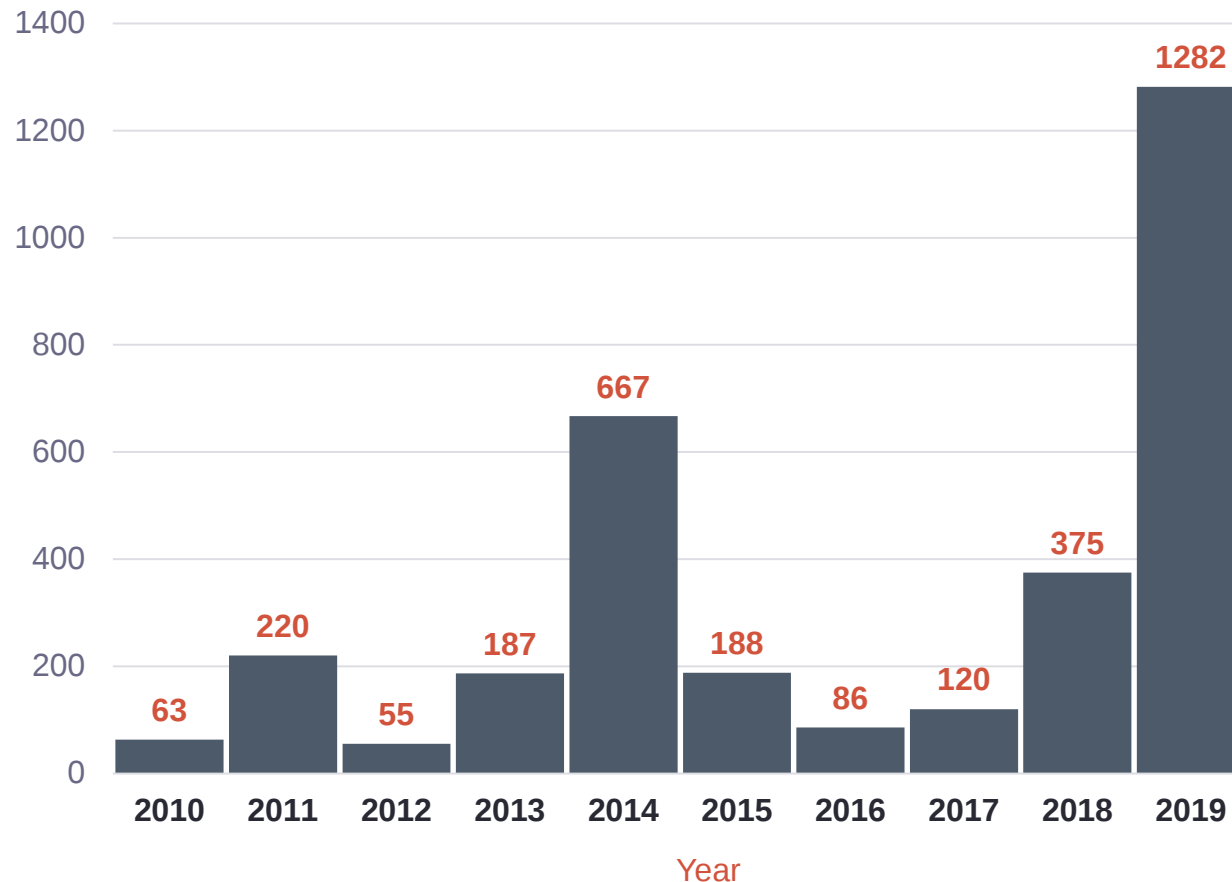
Measles



Measles in the USA



Number of Measles Cases Reported by Year 2010-2019* (as of Jan 31, 2020)



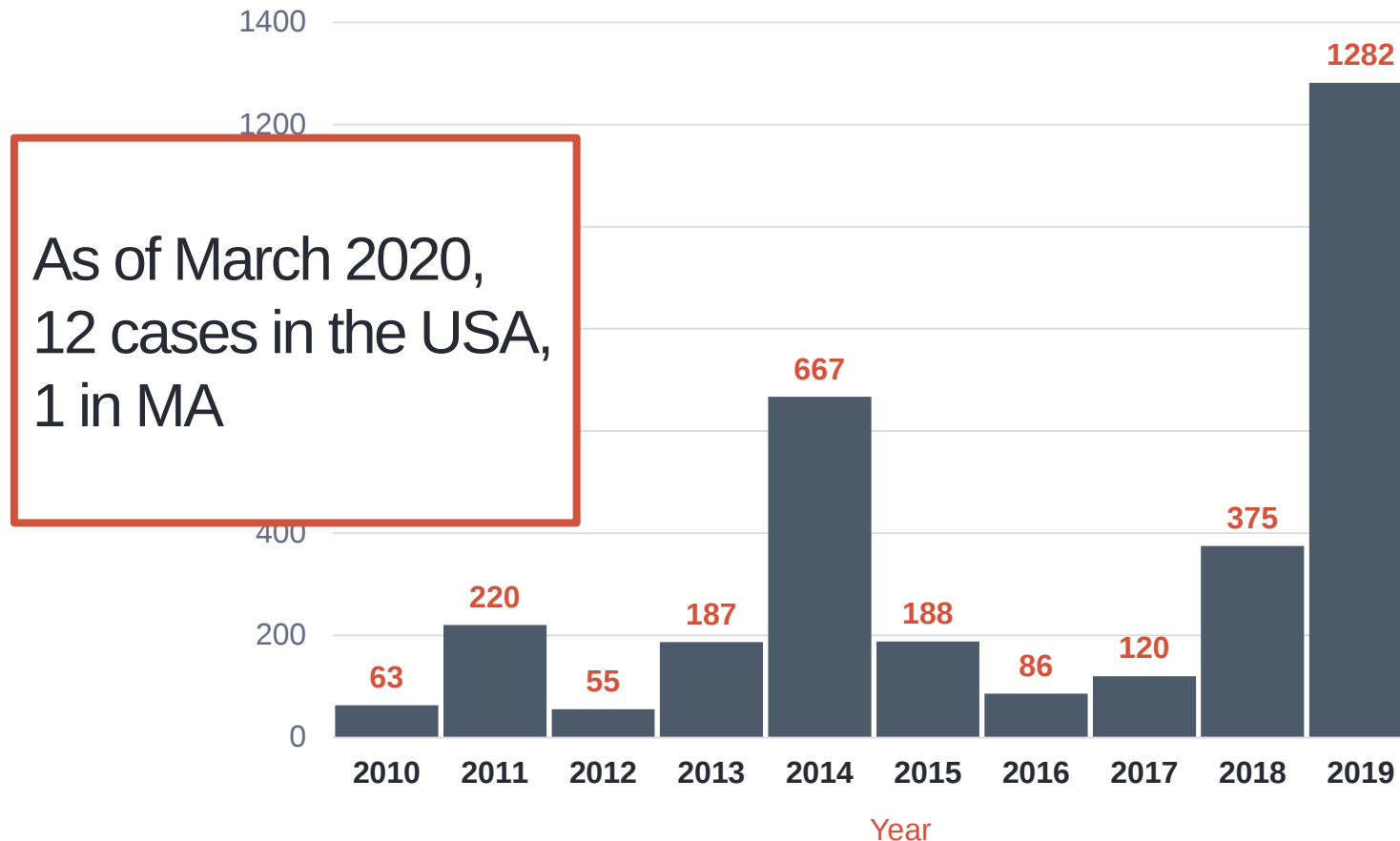
*Reporting for 2019 began Dec 30, 2018. Case count is preliminary and subject to change.

<https://www.cdc.gov/measles/cases-outbreaks.html>

Measles in the USA



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The Costliness of Measles Outbreaks



- **Long-term immunologic sequelae**
 - Post-infection immunosuppression
 - Increased chances of secondary viral and bacterial infections
 - Increased all-cause mortality 2-3 years post-infection
- **Financial costs**
 - Responding to a single case may cost as much as \$142,000
- **Strain on healthcare system**
 - Diverting human resources disrupts routine healthcare and healthcare systems

Sundaram ME, Guterman LB, Omer SB. The True Cost of Measles Outbreaks During the Postelimination Era. *JAMA*. Published online March 07, 2019. doi:10.1001/jama.2019.1506

Proactively Vaccinate for Travel



- **Infants 6-11 months**
 - 1 dose of MMR vaccine
 - 2 more doses – (12-15 months & 28+ days later)
- **Children 12 months and older**
 - 2 doses of MMR vaccine (separated by 28+ days)
- **Teenagers and adults without evidence of immunity* against measles**
 - 2 doses of MMR vaccine (separated by 28+ days)

*Evidence of immunity:

- Written record of vaccination
- Laboratory evidence of immunity
- Laboratory confirmation of measles
- Birth in the US before 1957

Key Take Homes about Measles



**Please
vaccinate!**

- Most people who get measles are unvaccinated
- Measles is still common in many parts of the world
- Travelers import disease to the US
- Measles spreads easily when it reaches relatively unvaccinated subpopulations in the US

Mumps

- Non-specific prodrome
- Sx may present as URI, parotid gland enlargement is typical
- Rare, but serious, complications may occur
- Consider in college students regardless of vaccination status d/t “force of infection” and waning immunity
- Consider when vaccination record is uncertain





A college student with parotitis comes in for an evaluation. You know that the big mumps outbreak of 2016 among college students is over.

- 1. Should the patient be isolated for five days after onset?**
- 2. Are there other causes of parotitis?**
- 3. How effective are two doses of MMR in preventing mumps?**
- 4. What is the most important clinical specimen to collect?**



A college student with parotitis comes in for an evaluation. You know that the big mumps outbreak of 2016 among college students is over.

1. Should the patient be isolated for five days after onset?

Yes, if you suspect mumps, please ask the patient to isolate for 5 days after onset.

2. Are there other causes of parotitis?

There are many causes of parotitis, including other viruses and bacterial infections.

3. How effective are two doses of MMR in preventing mumps?

Two doses are 88% (range 31-95%) protective; protection may wane after 12+ years.

4. What is the most important clinical specimen to collect?

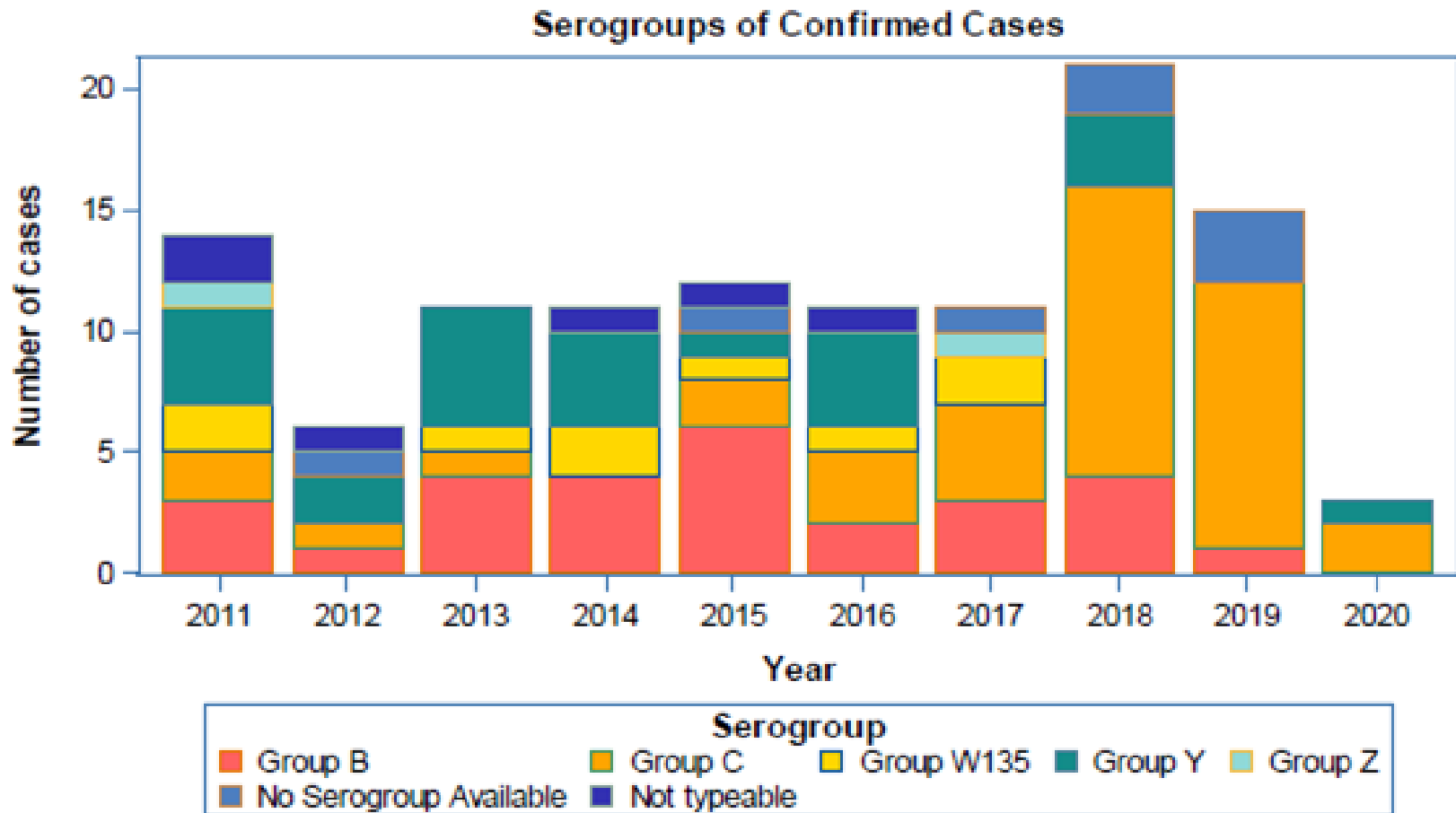
A swab of the buccal region for mumps PCR testing.

Invasive Meningococcal Disease



Source of photo: <https://www.meningitisnow.org/support-us/news-centre/meningitis-stories/?tag=meningococcal>

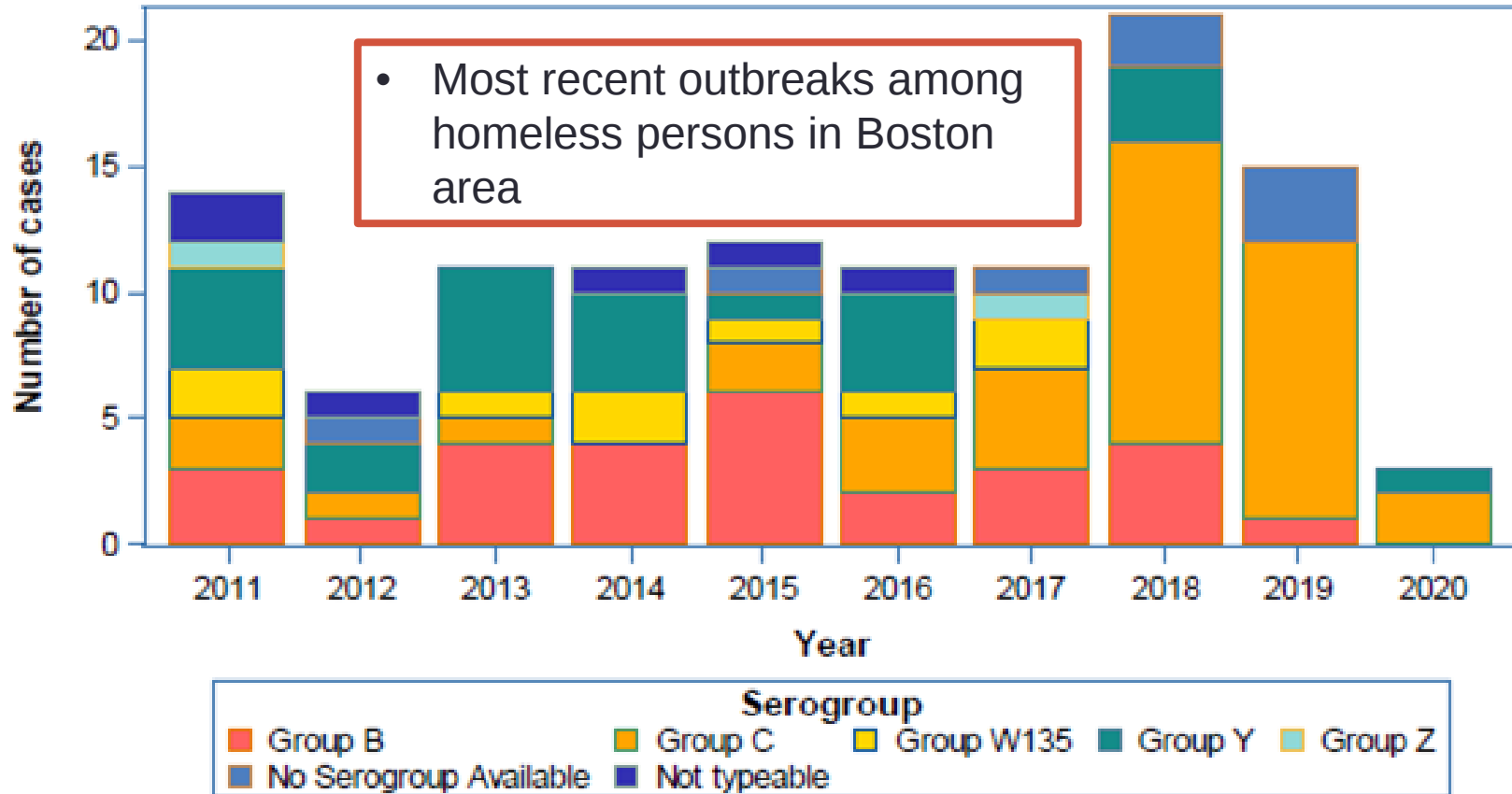
Invasive Meningococcal Disease in MA



*Data as of 14FEB2020 and are subject to change.

Invasive Meningococcal Disease in MA

Serogroups of Confirmed Cases



*Data as of 14FEB2020 and are subject to change.

Groups at Increased Risk for *N. meningitidis*

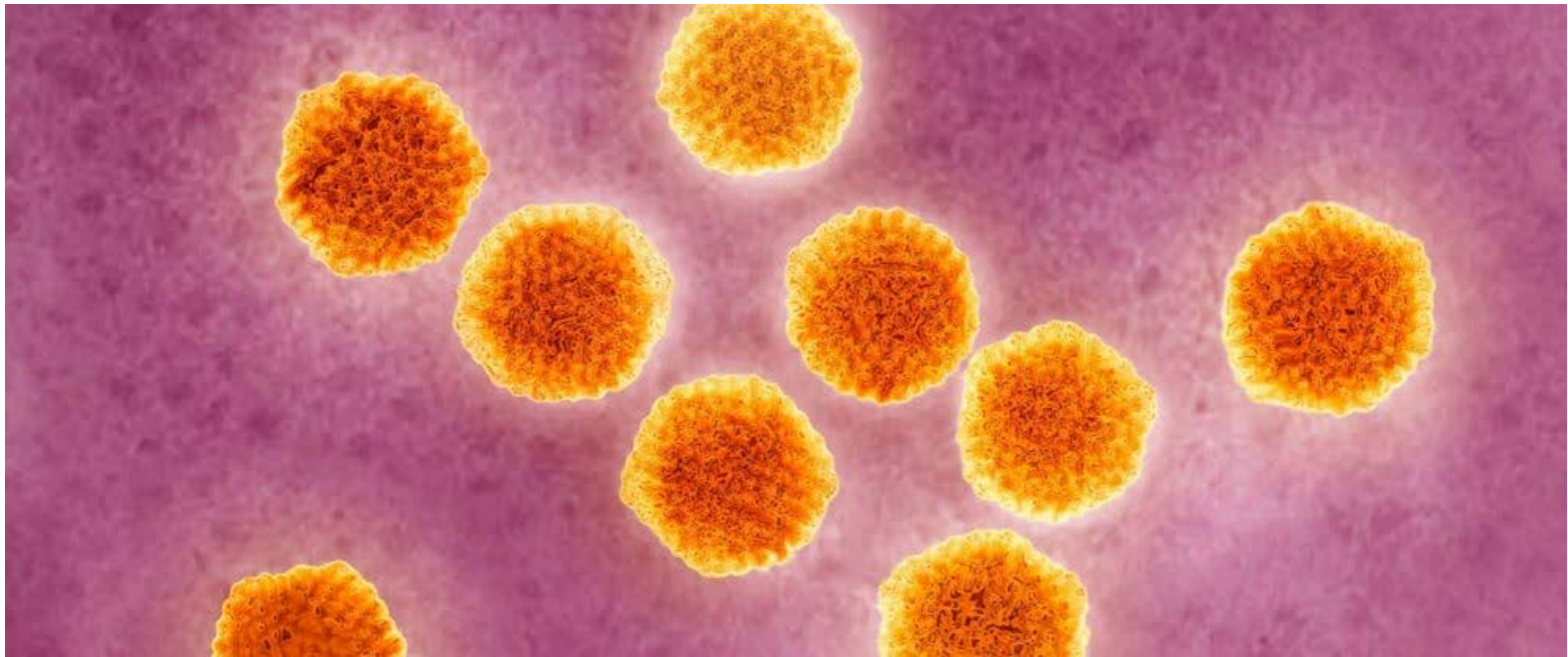


MenACWY*	MenB
Complement deficiency, or taking eculizumab (Soliris)	Complement deficiency, or taking eculizumab (Soliris)
Anatomic/Functional asplenia	Anatomic/Functional asplenia
Outbreak setting	Outbreak setting
Microbiologist	Microbiologist
Living with HIV	
Traveler to hyperendemic area	
First-year college student	
Military Recruit	

*MDPH now requires MenACWY vaccination for school entry at Grades 7 and 11 (with the stipulation that one dose be administered on or after the 16th birthday).

(Category B) MMWR October 23, 2015/64(41);1171-1176. MMWR May 19, 2017/66(19);509-513.

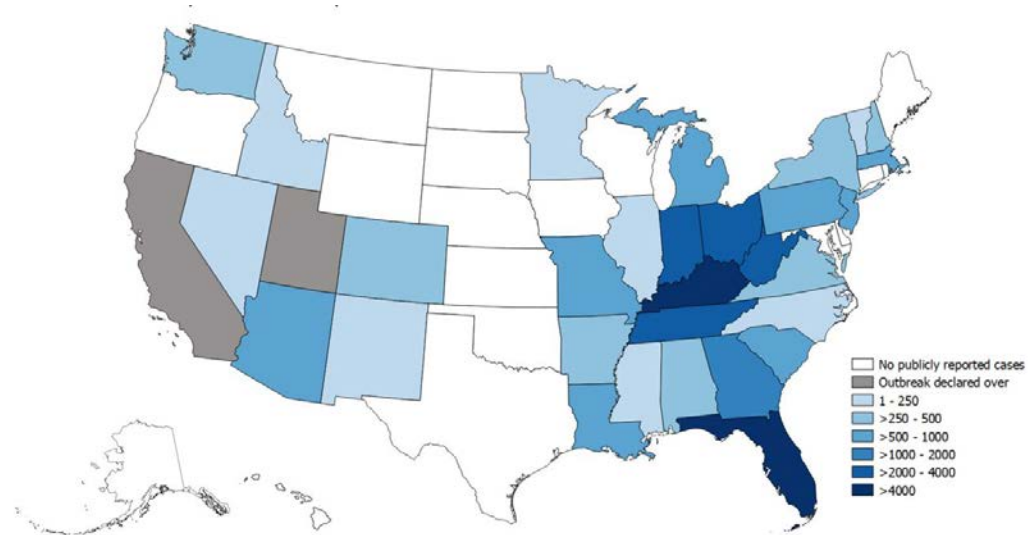
Hepatitis A



National Hepatitis A Outbreaks

- Since 2017, CDC has been tracking outbreaks of Hepatitis A infection across the US

- Affecting people who use drugs and/or people who are homeless
- Person-to-person spread



<https://www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm>

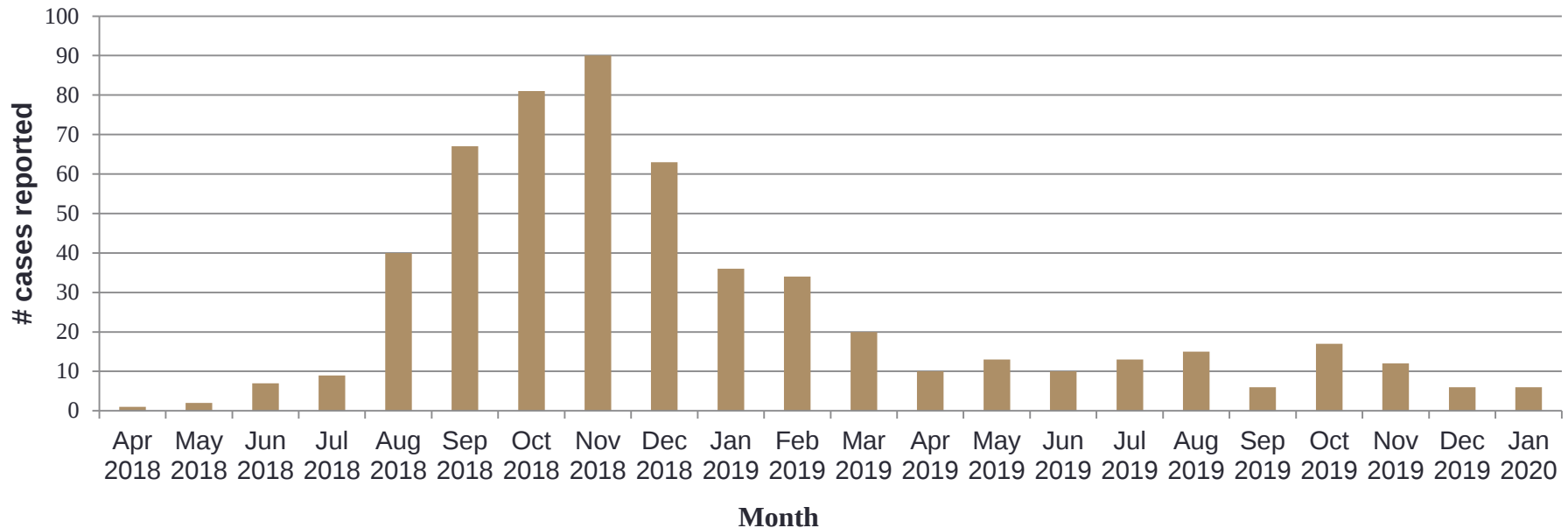
- As of March 7, 2020: 31,801 cases reported from 32 states



Massachusetts Hepatitis A Outbreak

- Since April 2018: 558 cases, 437 hospitalizations (78%), and 9 deaths (2%)

Hepatitis A cases, by event date, Massachusetts, April 2018 - January 2020



Data for more recent weeks may be incomplete due to diagnosis and reporting delays. Data source: MDPH Bureau of Infectious Disease and Laboratory Sciences. Data as of 3/6/2020 and subject to change.

Hep A Vaccination Recommendations

- Vaccinate persons at high risk:
 - Persons experiencing homelessness
 - Persons who use injection or non-injection drugs and/or have chronic liver disease (including chronic hepatitis B or C infection or chronic alcohol use)
 - Persons recently or currently incarcerated
 - Men who have sex with men
- At least one dose of single-antigen hepatitis A vaccine
 - One dose has been shown to control outbreaks of hepatitis A and provides up to 95% protection in healthy individuals for up to 11 years.

Influenza in the US



CDC estimates* that, from October 1, 2019, through March 21, 2020, there have been:

38,000,000 – 54,000,000
flu **illnesses**



18,000,000 – 26,000,000
flu **medical visits**



400,000 – 730,000
flu **hospitalizations**

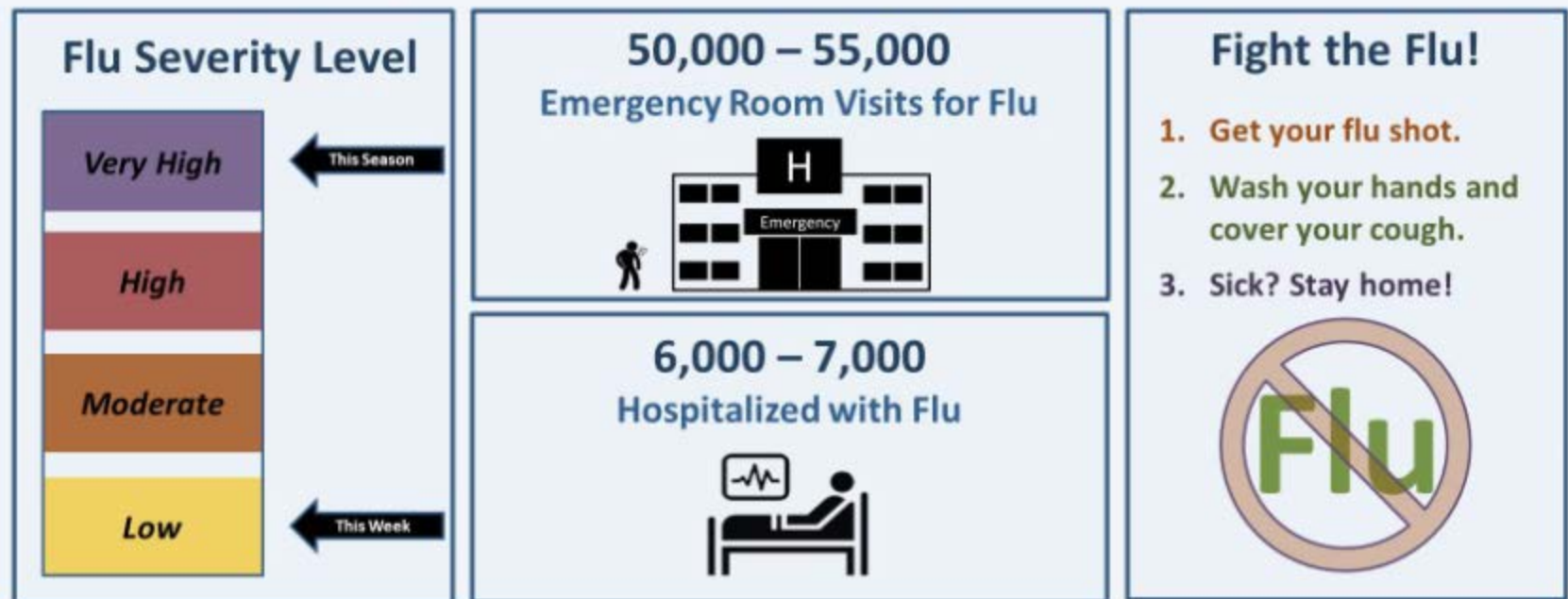


24,000 – 62,000
flu **deaths**



Influenza in Massachusetts

Massachusetts Flu Season at a Glance September 29, 2019 – March 21, 2020

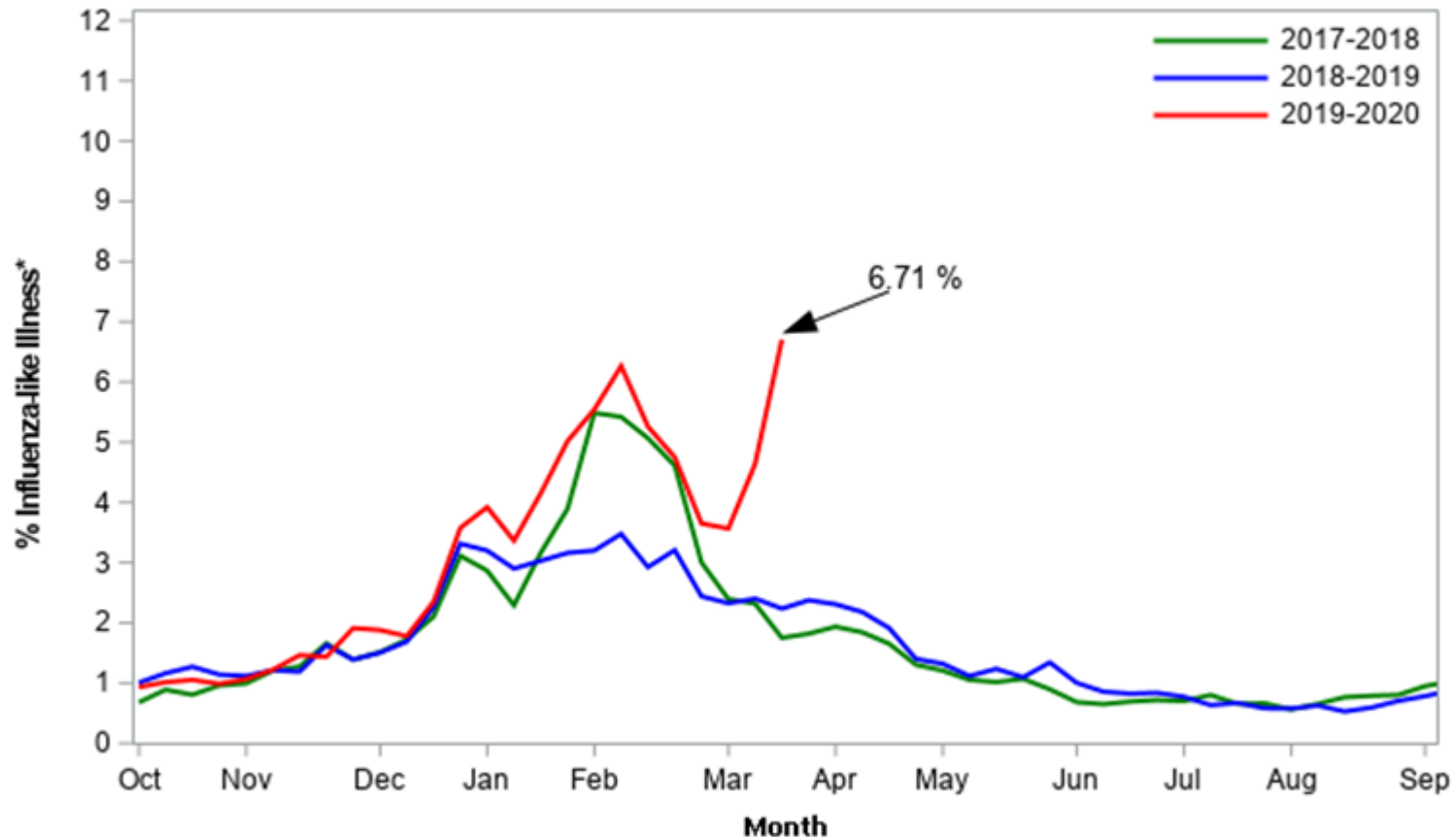


Flu severity level is based on flu tests, medical and emergency visits, and hospitalization estimates from syndromic surveillance data.

Massachusetts Influenza-like Illness



**Figure 1: Percentage of ILI visits reported by sentinel provider sites
September 29, 2019 – March 21, 2020**



*Influenza-like illness (ILI, defined by fever >100F and cough and/or sore throat), as reported by Massachusetts sentinel surveillance sites

Laboratory-Confirmed Influenza Hospitalizations

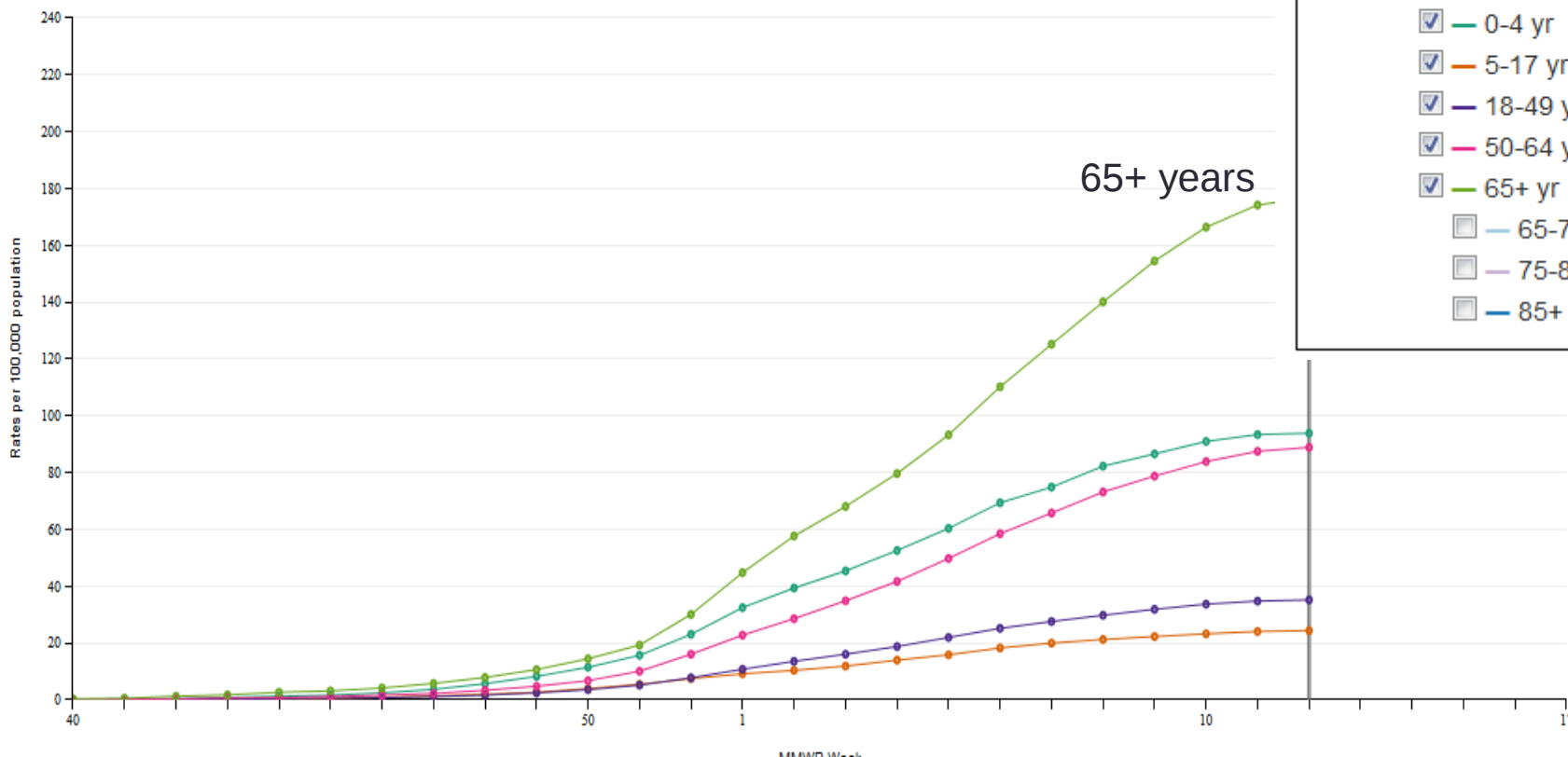
Preliminary cumulative rates as of Mar 21, 2020

FluSurv-NET :: Entire Network :: 2019-20 Season :: Cumulative Rate

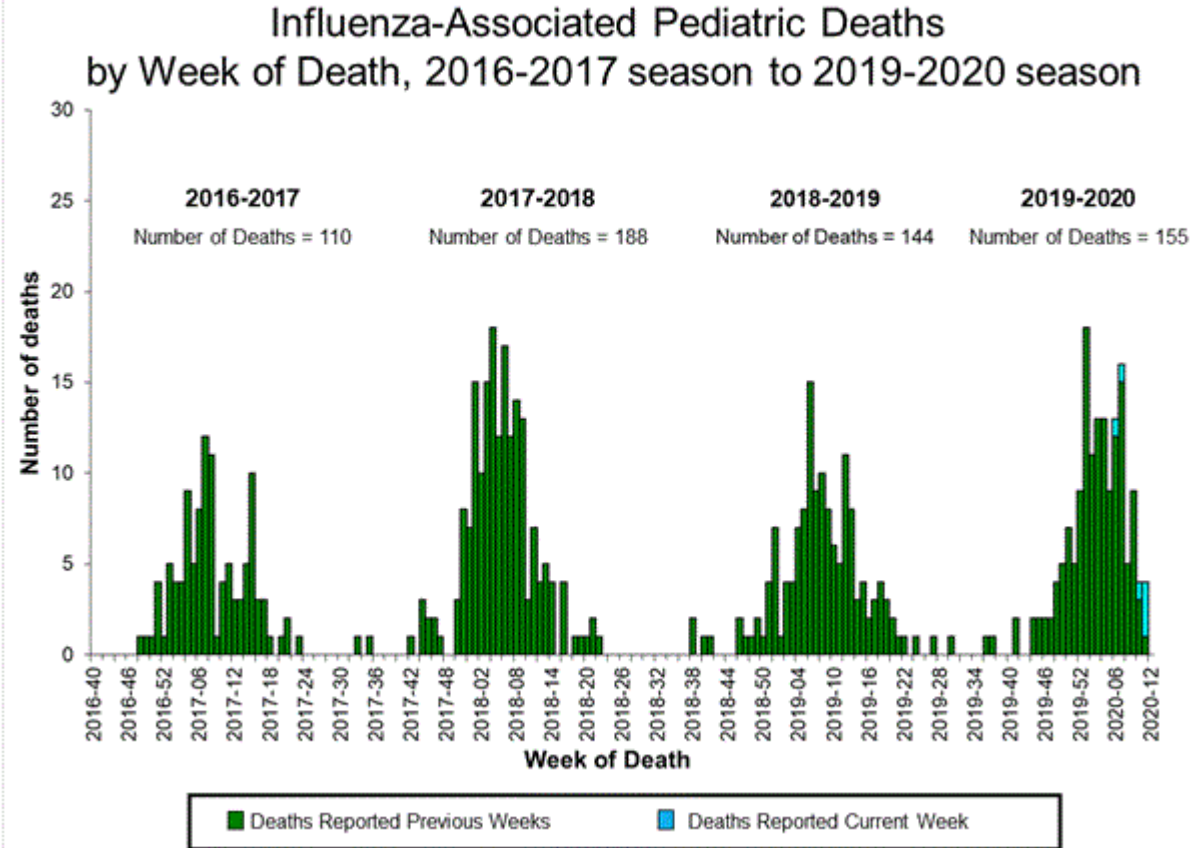
Alt key + Click and drag to create rectangle to zoom/Double Clicks to reset zoom

Age Selection

- ☐ Overall
- ☒ All Age Groups
 - ☒ 0-4 yr
 - ☒ 5-17 yr
 - ☒ 18-49 yr
 - ☒ 50-64 yr
 - ☒ 65+ yr
 - ☐ 65-74 yr
 - ☐ 75-84 yr
 - ☐ 85+



Pediatric Influenza-related Deaths: US



CDC 2020 data as of 3/21/2020; - Only 1 pediatric Flu death in MA as of 3/30/2020

Massachusetts Pediatric Influenza Deaths

2019-2020	1
2018-2019	4
2017-2018	1
2016-2017	2
2015-2016	2
2014-2015	1



Interim Estimates of 2019–20 Seasonal Influenza Vaccine Effectiveness Overall

- Overall, vaccine effectiveness (VE) against any influenza virus associated with medically attended ARI was 45% (95%CI: 36–53)

Influenza A & B	Influenza B (Victoria)	Influenza A (H1N1)pdm09)
45% 95%CI: 36-53	50% 95%CI: 39-59	37% 95%CI: 19-52

- Vaccine has reduced medical visits associated with influenza so far this season

Two Massachusetts child flu deaths raise concern

State Department of Public Health labels flu season severe and widespread



A patient calls your office with a question about flu vaccine. The patient had laboratory-confirmed influenza two weeks ago. Should they still get the vaccine?

- 1. Should the patient get flu vaccine?**
- 2. Is there still flu in MA?**
- 3. Is influenza a risk to healthy young people?**

Two Massachusetts child flu deaths raise concern

State Department of Public Health labels flu season severe and widespread



A patient calls your office with a question about flu vaccine. The patient had laboratory-confirmed influenza two weeks ago. Should they still get the vaccine?

1. **Should the patient get flu vaccine?** Yes, flu vaccine is recommended throughout the season, and protects against multiple strains of the flu.
2. **Is there still flu in MA?** Yes, flu is seen throughout the year in MA, although it peaks during the winter and early spring, usually.
3. **Is influenza a risk to healthy young people?**

Yes. Although people with pre-existing health conditions may be more likely to develop severe disease, every year there are pediatric flu-related deaths among otherwise healthy, usually unvaccinated, young people.

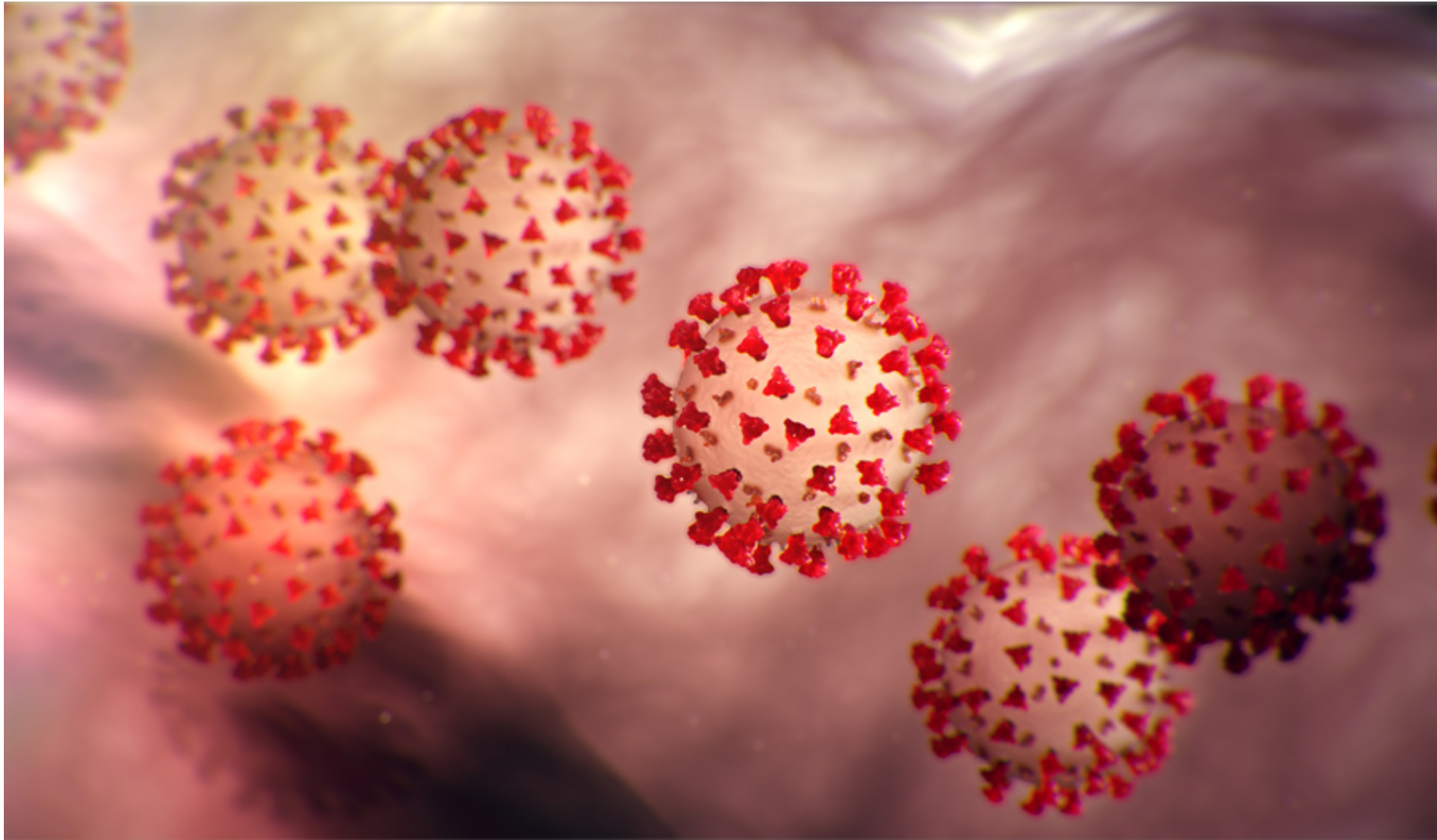
What vaccines do you recommend (if any)?

Brian is 47, and has recently found a home after living on the street and struggling with mental health and substance use issues. He acknowledges that his stability feels fragile. He has been diagnosed with HCV infection in the past. What vaccinations should he get before he leaves your office?

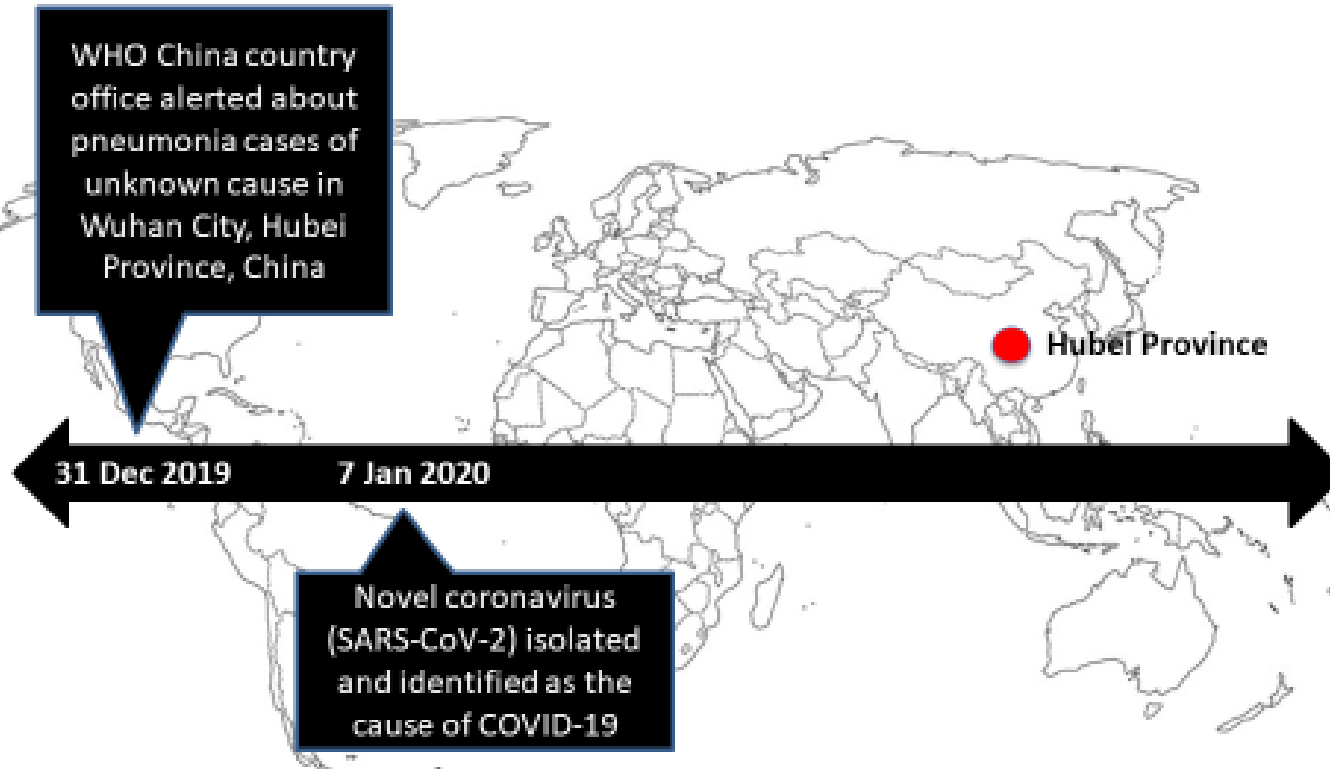


1. MMR
2. MenACWY
3. HAV
4. HBV
5. Influenza
6. All of the above

COVID-19 Epidemiology



Surging Pandemic



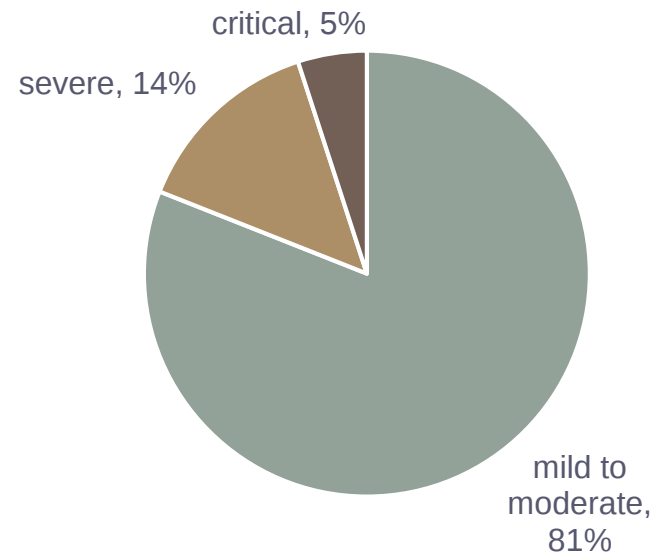
- As of mid-March, 6 continents involved
- Global pandemic of a novel pathogen
- 1/25/2020 first case in MA
- Over 15,000 cases in MA now
- **Evolving knowledge base**

Characteristics of Transmission

- Rapidly evolving knowledge base
- Transmission primarily by respiratory droplets
 - And primarily among close contacts (<6ft for >10-15min)
 - Touching contaminated surfaces and small respirable particles are not considered **main** pathways
- Asymptomatic and pre-symptomatic transmission is possible; calculate exposure to COVID+ person 48h prior to symptom onset
- Incubation period: 2-14d (median 4-5d)

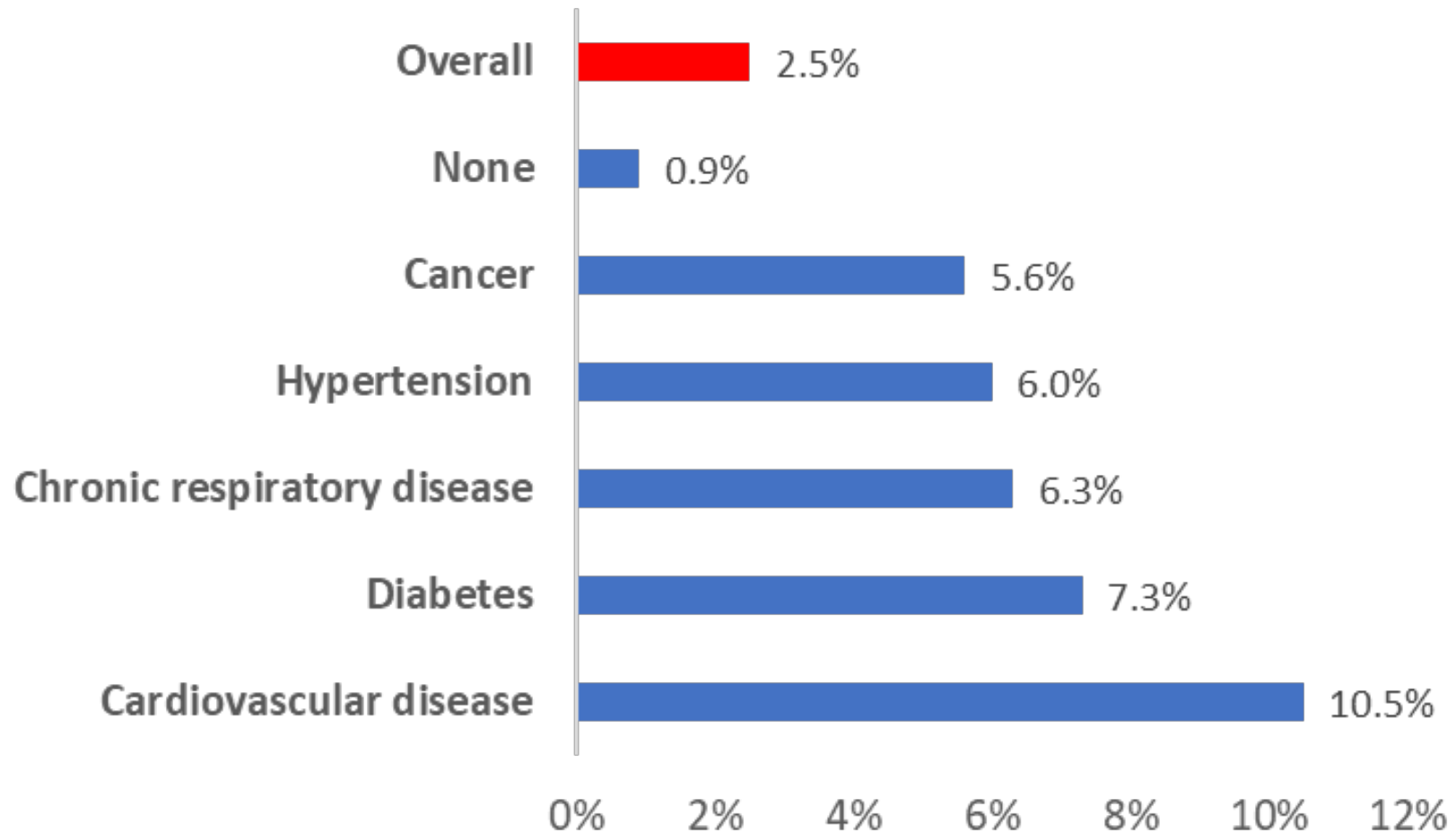
Clinical Presentation and Illness Severity

- Fever, cough, shortness of breath, fatigue, myalgias
- Atypical presentation more common among older adults, those w/ comorbidities
- 6% of US cases enter ICU
 - ~around days 10-12
 - mortality among these 39-72%





Case Fatality Rates



<https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>

Novel Coronavirus Pneumonia Emergency Response Epidemiology T. [The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China]. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020;41(2):145-151.

Case Fatality Rates

Overall 2.5%

High Risk Conditions

- Age 65+
- Chronic lung disease, mod. to severe asthma
- Heart disease w/ complications
- Immunocompromised, incl. cancer treatment
- BMI ≥ 40
- Uncontrolled diabetes, renal failure, liver disease

0% 2% 4% 6% 8% 10% 12%

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>

Novel Coronavirus Pneumonia Emergency Response Epidemiology T. [The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China]. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020;41(2):145-151.

R_0 and Fatality Rate Comparisons

Disease	R_0 value	Estimated Fatality Rate
COVID-19	2.6 (1.5 - 3.5)	~ 2.3%
Measles	12 - 15	0.2%
SARS	2 - 4	14 - 15%
Flu	1 - 2	0.1 - 2.5%
MERS	< 1	35-40%

R_0 value: The estimated number of people infected by one case.

- <https://www.who.int/emergencies/mers-cov/mers-summary-2016.pdf?ua=1>
- <https://www.who.int/csr/sars/en/WHOconsensus.pdf>
- <https://www.cdc.gov/vaccines/pubs/pinkbook/meas.html>
- <https://www.ncbi.nlm.nih.gov/pubmed/19545404>
- <http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51>



Public Health Response: Age-old Guidance

- Wash hands
- Avoid touching mucus membranes
- Cover coughs/sneezes
- Engage in social distancing

- Isolate cases for duration of illness
- Quarantine exposed contacts of cases

Isolation vs. Quarantine

ISOLATION

- For **symptomatic** people
- For Confirmed COVID-19 Cases
- Prevents people from infecting others
- LASTS UNTIL THE PERSON IS NO LONGER CONTAGIOUS

CASES

QUARANTINE

- For **asymptomatic** people who have had an exposure (i.e. travelers from high risk areas, close contacts of confirmed cases, etc.)
- Prevent people from infecting others in the event they develop symptoms
- LASTS FOR 14 DAYS FROM LAST EXPOSURE. (If you don't develop illness, you are then released)

CONTACTS

Social Distancing vs. Quarantine

Social Distancing:

- Avoid crowds or crowded spaces
- Working from home instead of at the office
- Closing schools or switching to online classes
- Visiting loved ones by electronic devices instead of in person
- Cancelling or postponing conferences and large meetings

EVERYBODY

Quarantining:

- Staying at home – NO GOING OUT.
- Using standard hygiene and washing hands frequently
- Not sharing things like towels and utensils
- Not having visitors
- Staying at least 6 feet away from other people in your household

CONTACTS

When Is Isolation Over? – Using Symptoms

- Symptomatic persons (lab-confirmed or clinically diagnosed) who are in home isolation may discontinue home isolation under the following conditions:
 - At least 3 days (72 hours) have passed *since recovery* (i.e., resolution of fever w/o use of fever-reducing medications **AND** improvement in respiratory symptoms – e.g., cough, shortness of breath) **AND**
 - At least 7 days have passed since symptoms first appeared (illness onset). Onset date of symptoms would be considered “day zero.”

When Is Isolation Over? – Asymptomatic Cases

- Asymptomatic persons with lab-confirmed COVID-19 infection may discontinue home isolation when at least 7 days have passed since the date of positive diagnostic test and they have had no subsequent illness.
 - For 3 days following discontinuation of isolation, these persons should continue to limit contact (stay 6ft away from others) and wear a mask to limit potential dispersal of respiratory secretions whenever they are in shared spaces.



Quarantine & Isolation FAQs

- **What about the children of people in isolation?**
 -
 -
- **What about the contacts of contacts?**
 -
- **What if a contact develops symptoms?**
 -
- **What if the test comes back negative?**
 -

Quarantine & Isolation FAQs

- **What about the children of people in isolation?**
 - Children should remain quarantined away from the case to prevent exposure
 - If this is not possible, then the quarantine period of child will restart every time the child is exposed to the case
- **What about the contacts of contacts?**
 - You do not need to investigate the contacts of asymptomatic contacts
- **What if a contact develops symptoms?**
 - Their clinician should consider testing them, and they should isolate while awaiting results
- **What if the test comes back negative?**
 - If a person under quarantine tests negative, they still need to complete their quarantine in the event that COVID-19 infection occurs after the testing is done



Guidance on Healthcare Workers

After returning to work, HCW should:

- **Wear a facemask at all times**
- **Be restricted from contact with severely immunocompromised patients** (e.g., transplant, hematology-oncology) until 14 days after illness onset
- **Adhere to hand hygiene, respiratory hygiene, and cough etiquette** in [CDC's interim infection control guidance](https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html) (e.g., cover nose and mouth when coughing or sneezing, dispose of tissues in waste receptacles)
- **Self-monitor for symptoms** and seek re-evaluation from occupational health if respiratory symptoms recur or worsen

Long-term Care Settings

- Restrict visitors, avoid group activities/dining
- Private room/bathroom for symptomatic residents if possible
- Special droplet/contact precautions
- Dedicated staff for COVID-19 patients
- Cohort confirmed cases
- Put masks on coughing patients
- Terminally clean room by environmental service staff wearing PPE (glove, gown)



SPECIAL DROPLET/CONTACT PRECAUTIONS

In addition to Standard Precautions
Only essential personnel should enter this room
If you have questions ask nursing staff
Everyone Must: including visitors, doctors, and staff



Clean hands when entering and leaving the room



Wear mask
(Fit tested N-95 or higher required when performing aerosol-generating procedures)



Wear eye protection
(face shield or goggles)



Gown and glove at the door



KEEP DOOR CLOSED



Use patient dedicated or disposable equipment.
Clean and disinfect shared equipment.

Contact Infection Control prior to discontinuing Precautions



MDPH COVID-19: <https://www.mass.gov/info-details/covid-19-guidance-and-directives#health-care-professionals-&-organizations-https://www.mass.gov/doc/special-dropletcontact-precautions/download>

CDC COVID-19: https://www.cdc.gov/coronavirus/2019-ncov/hcp/long-term-care.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhealthcare-facilities%2Fprevent-spread-in-long-term-care-facilities.html

Burning Questions

- Things we hope to know after the fact:
 - Sustained immunity post-infection?
 - Sensitivity and specificity of varying tests?
 - R_0 (current estimates ~ 2.5)
 - True case fatality rate (current estimate 2.5%, increases w/ age of patient and underlying diseases)
 - Relative role of asymptomatic people in transmitting disease?

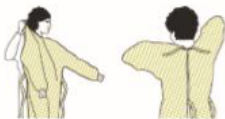
Questions?

- MDPH Epidemiology Division: 617-983-6800

Personal Protective Equipment:

Put **ON** in this order:

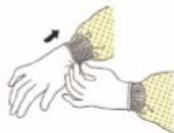
- 1. WASH OR GEL HANDS (even if gloves used)**
- Gown



- Mask and eye cover



- Gloves



Take **OFF** & dispose in this order:

- Gloves



- Gown



- 3. WASH or GEL HANDS**

- Mask and eye cover: Remove from earpiece or ties to discard - do not grab from front of mask.



- 5. WASH or GEL HANDS (even if gloves used)**