



# VACCINE-PREVENTABLE DISEASE EPIDEMIOLOGY DURING THE COVID-19 PANDEMIC

Adult Immunization Conference  
April 13, 2021



150 YEARS  
OF ADVANCING  
PUBLIC  
HEALTH

Adult Conference 2021

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# Disclosure

I, Marija Popstefanija, have been asked to disclose any relevant financial relationships with ACCME-defined commercial entities that are either providing financial support for this program or whose products or services are mentioned during this presentation.

I have no relevant financial 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

## Impact of Covid-19 on VPDs

- Measles, tetanus, mumps, influenza

## Covid-19: Now a VPD!

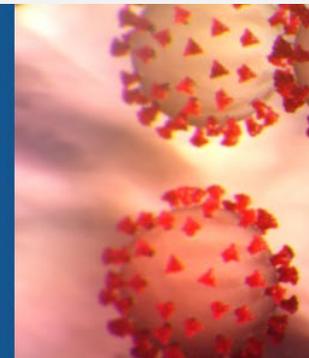
- Where we are
- Control measures



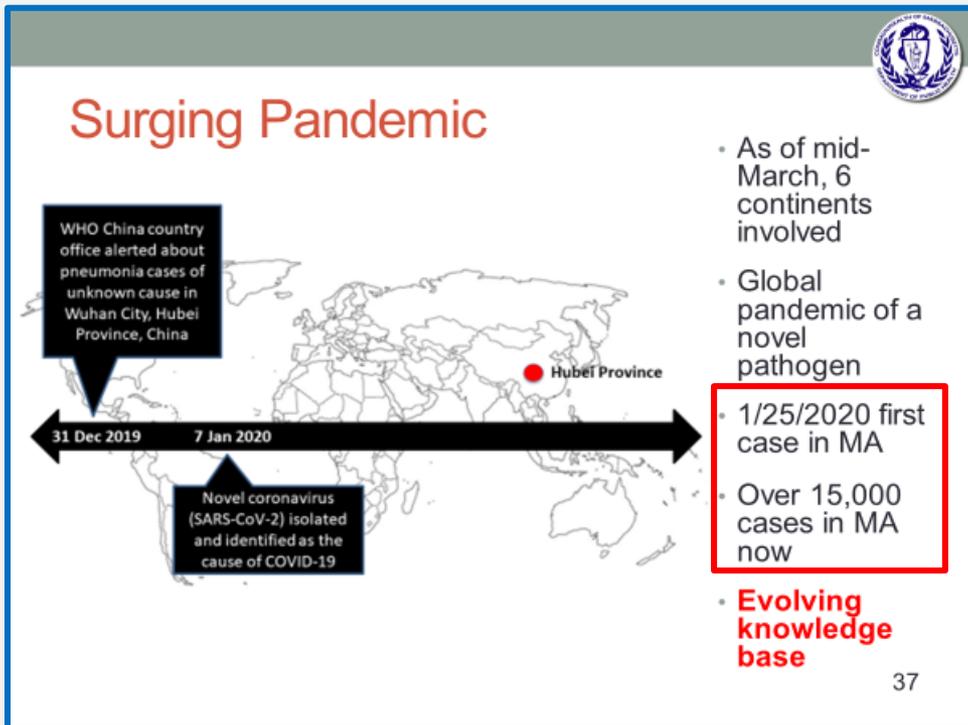
## COVID-19 Updates and Information

Everything you need to know about COVID-19 in Massachusetts.

<https://www.mass.gov/info-details/covid-19-updates-and-information>



# Thank you for the work you do!



"Thank you from the bottom of my heart for serving on the frontline of this pandemic. Nurses, physicians, cafeteria workers, respiratory therapists, and housekeepers are **the heart and soul of the war against COVID-19.**"

**One Year Ago:** Slide from 2020 Adult Conference  
4/14/2020

# Control of VPDs is a Collaboration

Local Boards of Health – School Nurses – Childcare – Hospitals – Providers – Labs – CTC\*

**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/CTC may be calling

Assist with notification and PEP

Exclude susceptible staff?



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**COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS BY HEALTHCARE PROVIDERS\***

\*Reportable infectious diseases and conditions are not limited to those designated below. The 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:  
Toll-free: (877) 885-6809 Confidential Fax: (617) 365-6813

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

- Anthrax
- 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
- Brucellosis
- Chlamydia
- Chikungunya virus
- Creutzfeldt-Jakob disease (CJD) and variant CJD
- Diphtheria
- Erythema infectiosum, any cause
- Hemolytic uremic syndrome
- Foodborne illness due to toxins (including mushroom toxins, ciguatera toxins, scombrotoxin, tetrodotoxin, paralytic shellfish toxin and amnesic shellfish toxin, ciguatera enterotoxin and others)
- Hansen's disease (leprosy)
- Hemolytic uremic syndrome
- Hepatitis A (IgM - only)
- Hepatitis B in pregnant women
- Hepatitis syndrome, acute possibly infectious
- Influenza, pediatric deaths (<18 years old)
- Infection due to novel influenza A viruses
- Jamestown Canyon virus
- Lymphocytic choriomeningitis
- Malaria
- Measles
- Meningitis, bacterial, community acquired
- Meningitis, viral (aseptic), and other infectious (non-bacterial)
- Meningococcal disease, invasive (Neisseria meningitidis)
- Mumps
- Pertussis
- Plague
- Polio
- Powassan
- Pox virus infections in humans, including variola (smallpox), monkeypox, vaccinia, and other orthopox or parapox viruses
- Rabies in humans
- Respiratory infection thought to be due to any novel coronavirus including SARS and MERS
- Reye syndrome
- Rift Valley fever
- Rocky Mountain spotted fever
- Rubella
- Tetanus
- Toxic shock syndrome
- Trichinosis
- Tuberculosis
- Evidence of tuberculosis infection
- Tularemia
- Typhoid fever
- Typhus
- Varicella (chickenpox)
- Viral hemorrhagic fevers

Animal bites should be reported immediately to the designated local authority.

Footnote: \*MDPH, its authorized agents, and local boards of health have the authority to collect pertinent information on all reportable diseases, including those not listed on this page, as part of epidemiological investigations (M.G.L. c. 111, § 7).

105 CMR 300.000 Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements, Effective January 2017 Page 1 of 2

# Vaccine-Preventable Diseases in Massachusetts\*, 2010-2020

Data are current as of 3/17/2021 and are subject to change.

Disease	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Measles	3	24	0	1	8	0	1	0	2	3	1
Mumps	9	4	6	71	5	6	258	191	46	64	19
Rubella	0	0	1	0	0	0	0	1	0	0	0
Meningococcal Disease	8	14	6	11	11	12	11	11	21	14	10
Pertussis	296	280	653	348	298	253	198	383	250	315	47
Hepatitis A	50	40	43	46	42	35	64	53	372	193	32
Hep B (acute)	41	69	61	42	36	34	32	52	48	37	16
Hib < 5	1	0	2	1	1	0	1	2	1	0	0
Tetanus	0	0	0	0	0	0	0	0	0	1	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	72	40	51	24	27	20	31	21	26	23	14
Varicella	770	606	628	475	469	356	289	383	291	299	85

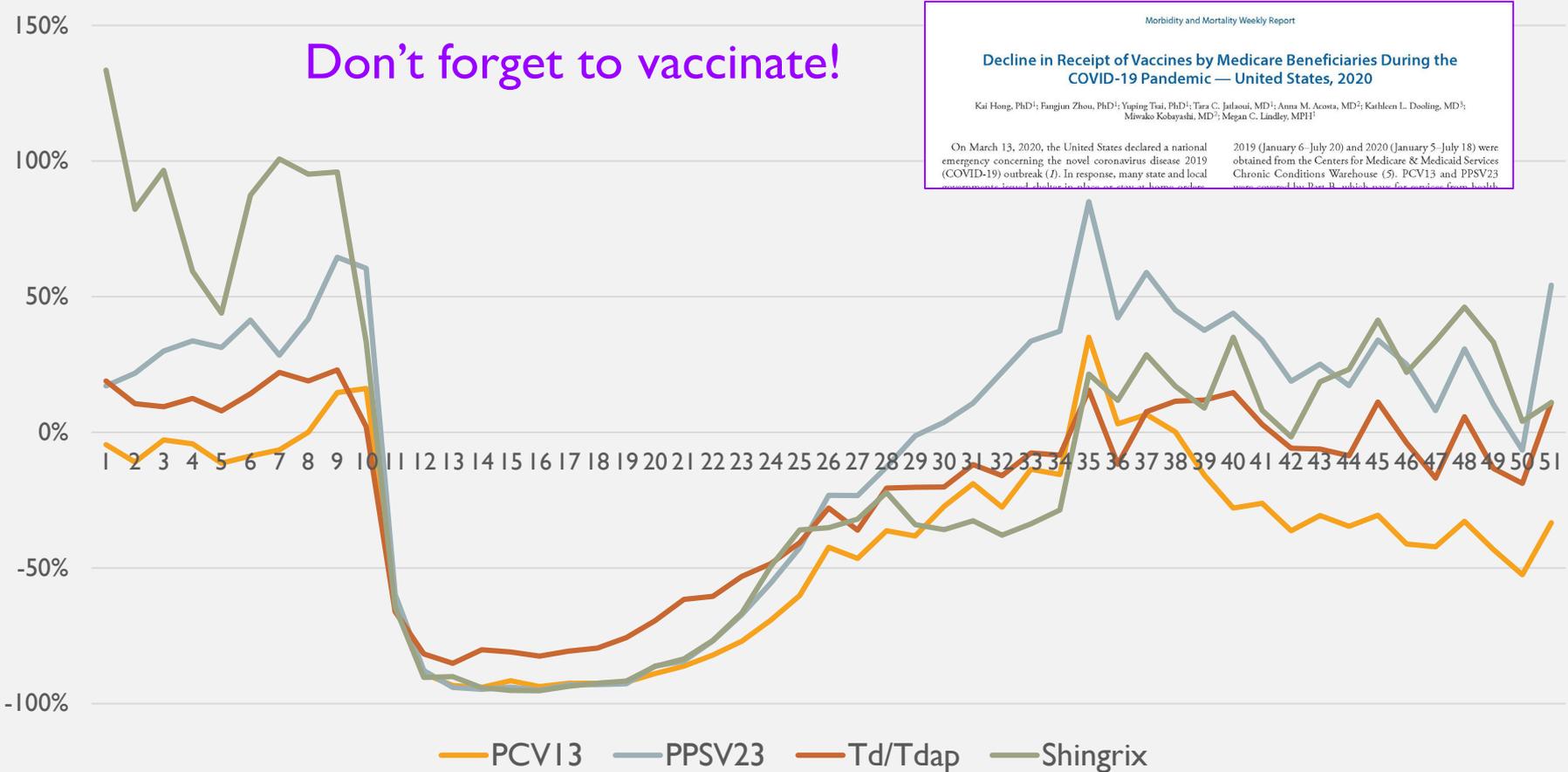
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\*Both confirmed and probable cases are reported for measles, mumps, rubella, tetanus and varicella to better reflect the true burden of disease. All other diseases include confirmed cases only. 2020 data are provisional and subject to change.

# Impact of Pandemic on Routine Adult Vaccination 65+ in Massachusetts 2019 vs. 2020

## Percent Change in Routine Vaccinations Among 65+, 2020 Compared With 2019, by MMWR Week



# Patient I: Rash and congestion after international travel



- Rash and congestion
- Recent travel
- Recent antibiotic treatment overseas
- Unvaccinated
- Possible history of measles

# COULD THIS BE MEASLES?

- Does anyone think of anything other than COVID-19 in April of 2021?
- Are there measles outbreaks anywhere in the world right now?
- What questions do you have for this patient?
- What specimens do you collect?
- If this is measles, are you, your colleagues, and your other patients protected?

# Measles in the US 2019 - 2020

From January 1 – December 31 2019, **1,282** individual cases of measles were confirmed in **31** states. Of this 128 were hospitalized and 61 reported complications including pneumonia and encephalitis. During this period there were 3 confirmed cases in MA, of 195 suspected cases that were investigated.

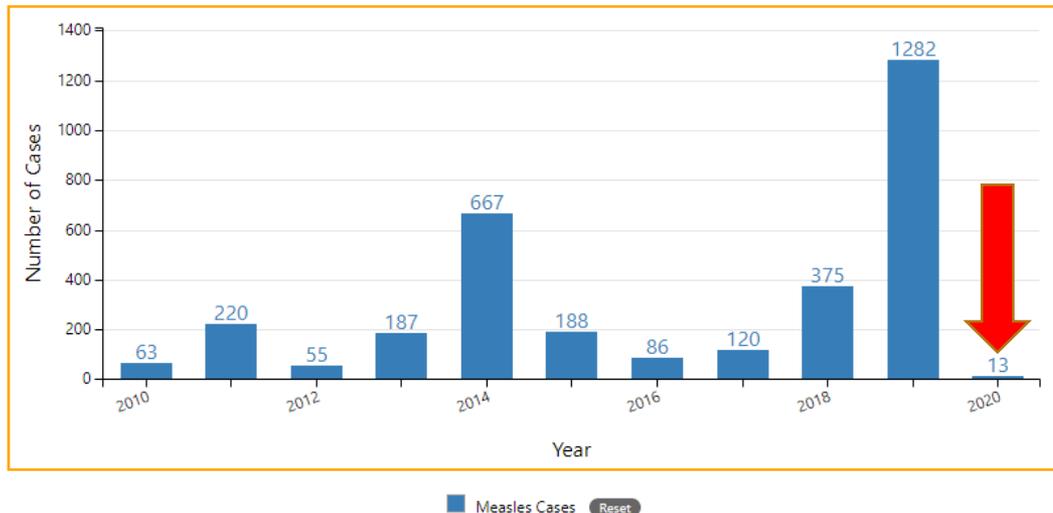
**This was the greatest number of cases reported in the U.S. since 1992.**

More than 73% of the cases were linked to outbreaks in New York. The majority of cases were among people who were not vaccinated against measles. Measles is more likely to spread and cause outbreaks in U.S. communities where groups of people are unvaccinated.

Zero cases to date in 2021.

## Number of measles cases reported by year, USA

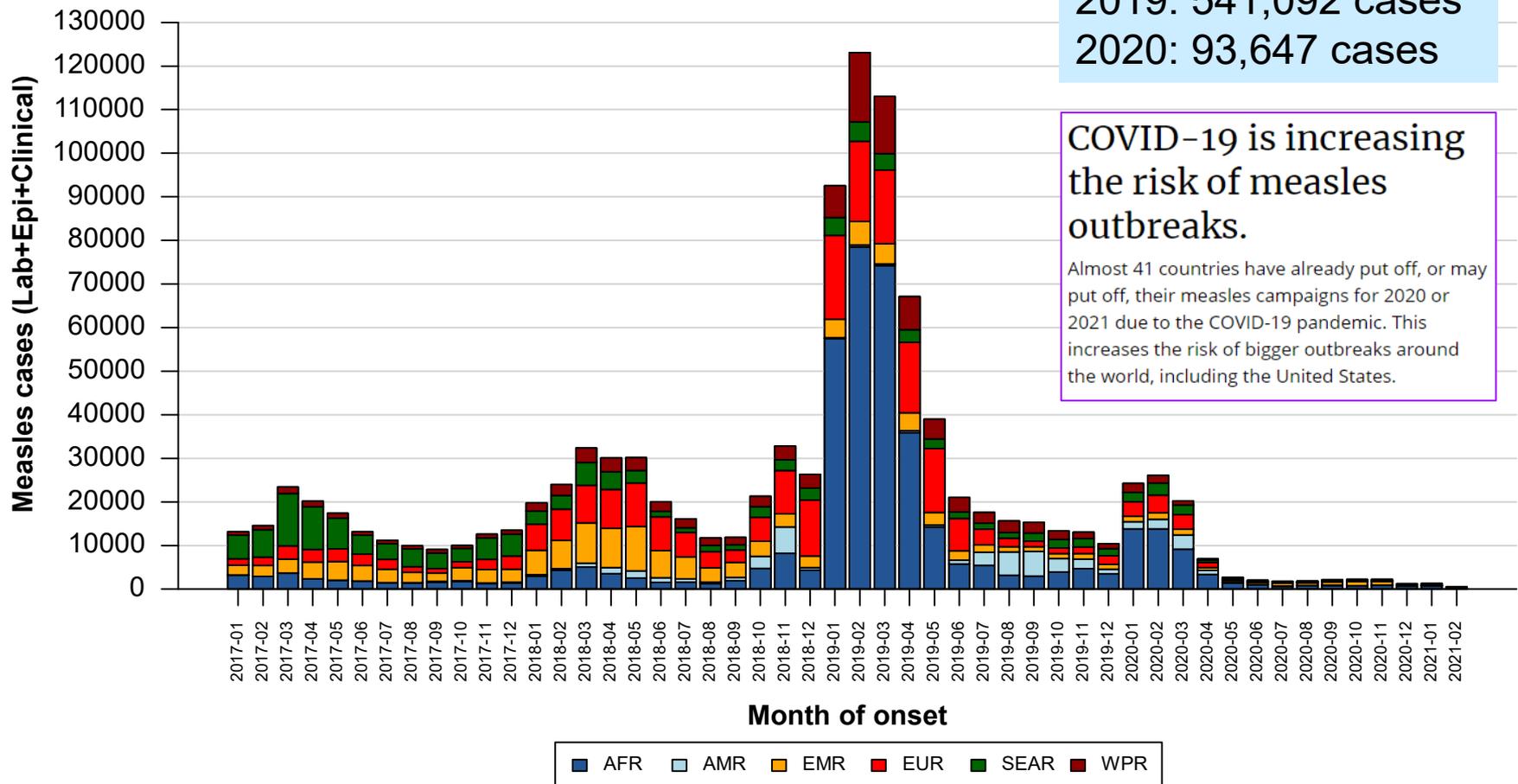
2010-2020\*(as of December 31, 2020)



As of 12/31/2020 there were **13** confirmed cases in the US in 2020, in eight jurisdictions.

04/13/2021

# Measles case distribution by month and WHO Region (2017-2021)



# Proactively Vaccinate for Travel with MMR

- **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 in non-HCWs

## Top 10 Countries with Global Measles Outbreaks

Rank	Country	Number of Cases
1	Yemen	1,513
2	India	1,339
3	Tanzania	1,135
4	Somalia	946
5	Nigeria	773
6	Pakistan	596
7	Burundi	592
8	Democratic Republic of the Congo	453
9	Brazil	451
10	China	390

*Provisional data based on monthly data reported to WHO (Geneva) as of early March 2021. Data covers August 2020 – January 2021.*

# Some Important Questions for Suspected Measles

1. Documentation of vaccination history?
2. Recent contact with those with similar symptoms?
3. Recent travel, especially international?
4. Any visitors from outside the US?
5. Where did the rash start, what does it look like, and how did it spread?
  - a. Take some pictures of the rash to share confidentially with medical directors at MDPH.
6. Did patient have cough, conjunctivitis or coryza? A fever?
7. Did your staff have close contact with the patient?
  - I. What PPE were they using?



**These specifics help us assess risk.**

Call 617-983-6800 to discuss with an epidemiologist, 24/7/365.

# Measles

## ISOLATION VS. QUARANTINE

**ISOLATION**

**QUARANTINE**

**CASES**

**CONTACTS**

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# Measles

## ISOLATION VS. QUARANTINE

### ISOLATION

Through four days after onset of rash (counting the day of rash onset as day zero).

### CASES

### QUARANTINE

Contacts born in or after 1957\*, who are not appropriately immunized or do not have laboratory evidence of immunity, will be excluded from work, classes or other public activities from the fifth through the 21st day after their exposure.

### CONTACTS

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\*year of birth cannot be used as evidence of immunity by healthcare workers

[105 CMR 300.00: Reportable diseases, surveillance, and isolation and quarantine requirements | Mass.gov](#)

# Diagnostic value of cutaneous manifestation of SARS-CoV-2 infection

January 14, 2021

A. Visconti <sup>1</sup>, V. Bataille,<sup>1,2</sup> N. Rossi <sup>1</sup>, J. Kluk,<sup>3</sup> R. Murphy,<sup>4</sup> S. Puig <sup>5,6</sup>, R. Nambi,<sup>7</sup> R. C. E. Bowyer,<sup>1</sup> B. Murray,<sup>8</sup> A. Bournot,<sup>3</sup> J. Wolf,<sup>3</sup> S. Ourselin,<sup>8</sup> C. J. Steves <sup>1</sup>, T. D. Spector<sup>1</sup> and M. Falchi <sup>1</sup>

*We used data from 336 847 UK users of the COVID Symptom Study app to assess the diagnostic value of body rash or an acral rash in SARS-CoV-2 infection, and data from an independent online survey of 11 544 respondents to investigate skin-specific symptoms and collect their photographs.*

*Results: Using data from the app, we show significant association between skin rashes and a positive swab test result (odds ratio 1:67, 95% confidence interval 1:42–1:97).*

*Strikingly, among the respondents of the independent online survey, we found that 17% of SARS-CoV-2-positive cases reported skin rashes as the first presentation, and 21% as the only clinical sign of COVID-19.*

*Together with the British Association of Dermatologists, we have compiled a catalogue of images of the most common skin manifestations of COVID-19 from 400 individuals (<https://covidskinsigns.com>), which we have made publicly available to assist clinicians in recognition of this early clinical feature of COVID-19.*

# Tetanus: Recent Probable Cases in MA Adults

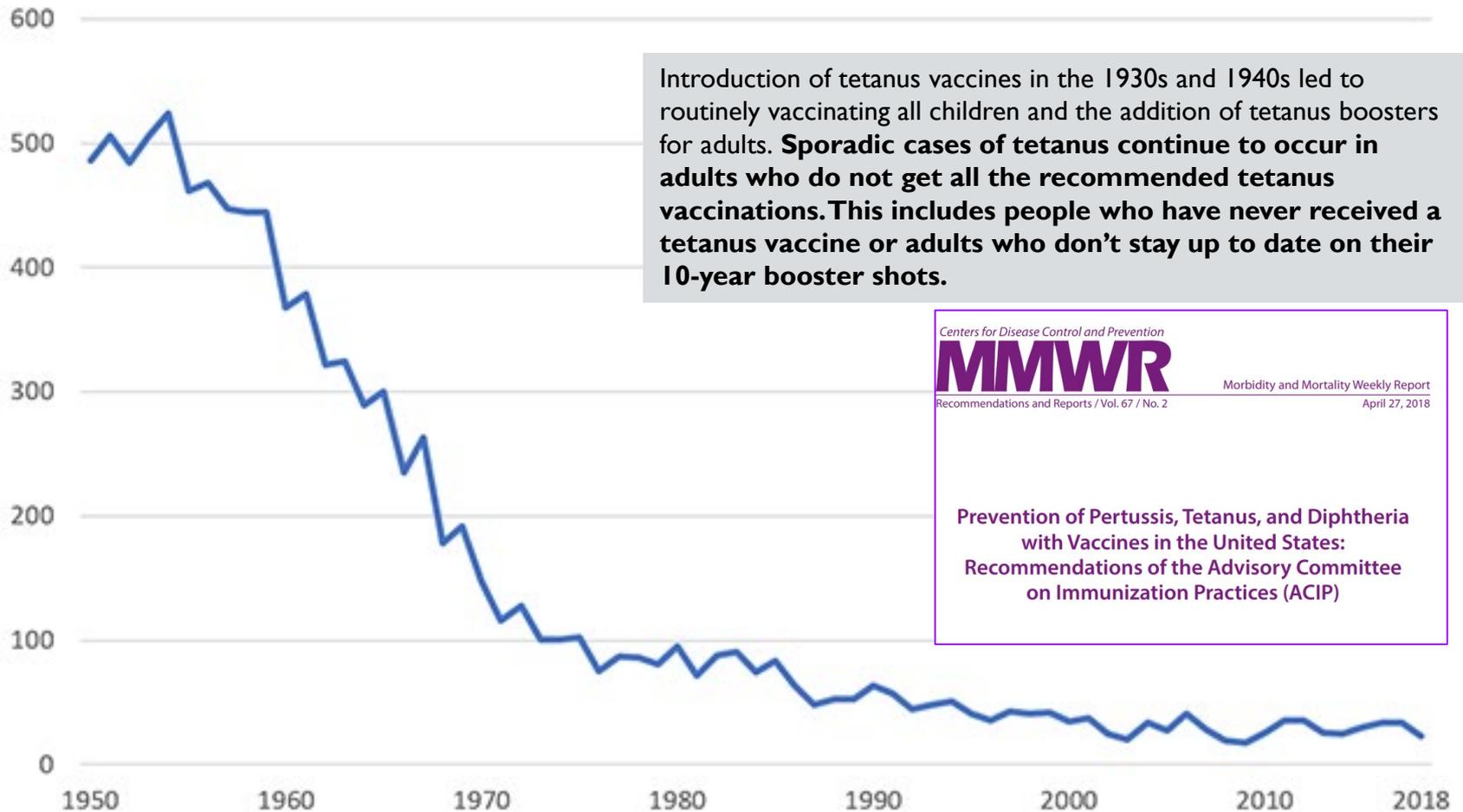
## Fatal Tetanus in an Adult

- In May 2019, MPDH received notification of an elderly adult 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 in ICU under heavy sedation.
- Last reported tetanus-containing vaccine was approximately 13 years prior. Refused vaccine a couple of months before developing illness.

## Non-fatal Tetanus in an Adult

- In July 2020, MPDH received notification of an adult hospitalized with suspected tetanus.
- The case suffered a puncture wound while camping about 4 days prior to admission which resulted in an infection.
- Presented to a hospital with neck pain, stiff neck, vomiting, severe abdominal pain, throat pain and swelling of tongue, followed by trismus (“lockjaw”) and inability to walk.
- Case was intubated and in ICU for about a week.
- Last dose of vaccine > 10 years prior.

## U.S. Reported Tetanus Cases, 1947-2018



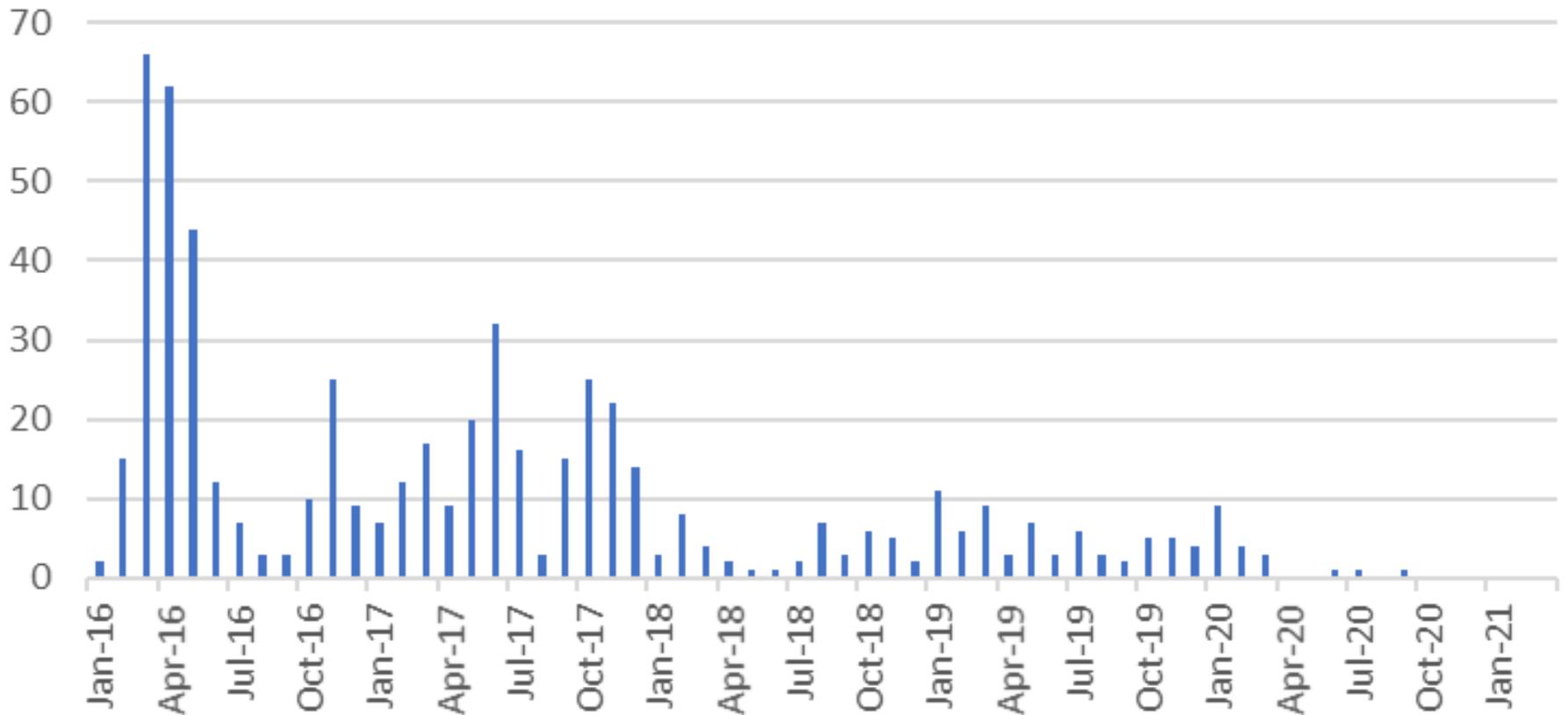
Introduction of tetanus vaccines in the 1930s and 1940s led to routinely vaccinating all children and the addition of tetanus boosters for adults. **Sporadic cases of tetanus continue to occur in adults who do not get all the recommended tetanus vaccinations. This includes people who have never received a tetanus vaccine or adults who don't stay up to date on their 10-year booster shots.**

Centers for Disease Control and Prevention  
**MMWR** Morbidity and Mortality Weekly Report  
Recommendations and Reports / Vol. 67 / No. 2 April 27, 2018

**Prevention of Pertussis, Tetanus, and Diphtheria with Vaccines in the United States: Recommendations of the Advisory Committee on Immunization Practices (ACIP)**

# Impact of COVID-19 on Mumps in MA

Confirmed and Probable Mumps in MA  
January 2016 - February 2021



# Mumps

**Reminder to try to collect a swab of the buccal region as close to onset as possible. Many providers collect serology only.**

## How common is mumps in adults in Massachusetts?

- From 2016 – 2019 6.5% of cases were in the 17 and under age group
- **Over half of cases were in the 18-24 age group**
  - Waning immunity following vaccination plays a role, in settings of intense close contact (for example in college dorms/college parties).
- **Approximately 20% of cases in each of the 25-34 and 35+ age groups**



## Mumps in Massachusetts

2016:	258 cases
2017:	192 cases
2018:	44 cases
2019:	64 cases
2020:	19 cases*
2021:	0 cases*

# Mumps

## ISOLATION VS. QUARANTINE

**ISOLATION**

**QUARANTINE**

**CASES**

**CONTACTS**

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# Mumps

## ISOLATION VS. QUARANTINE

### ISOLATION

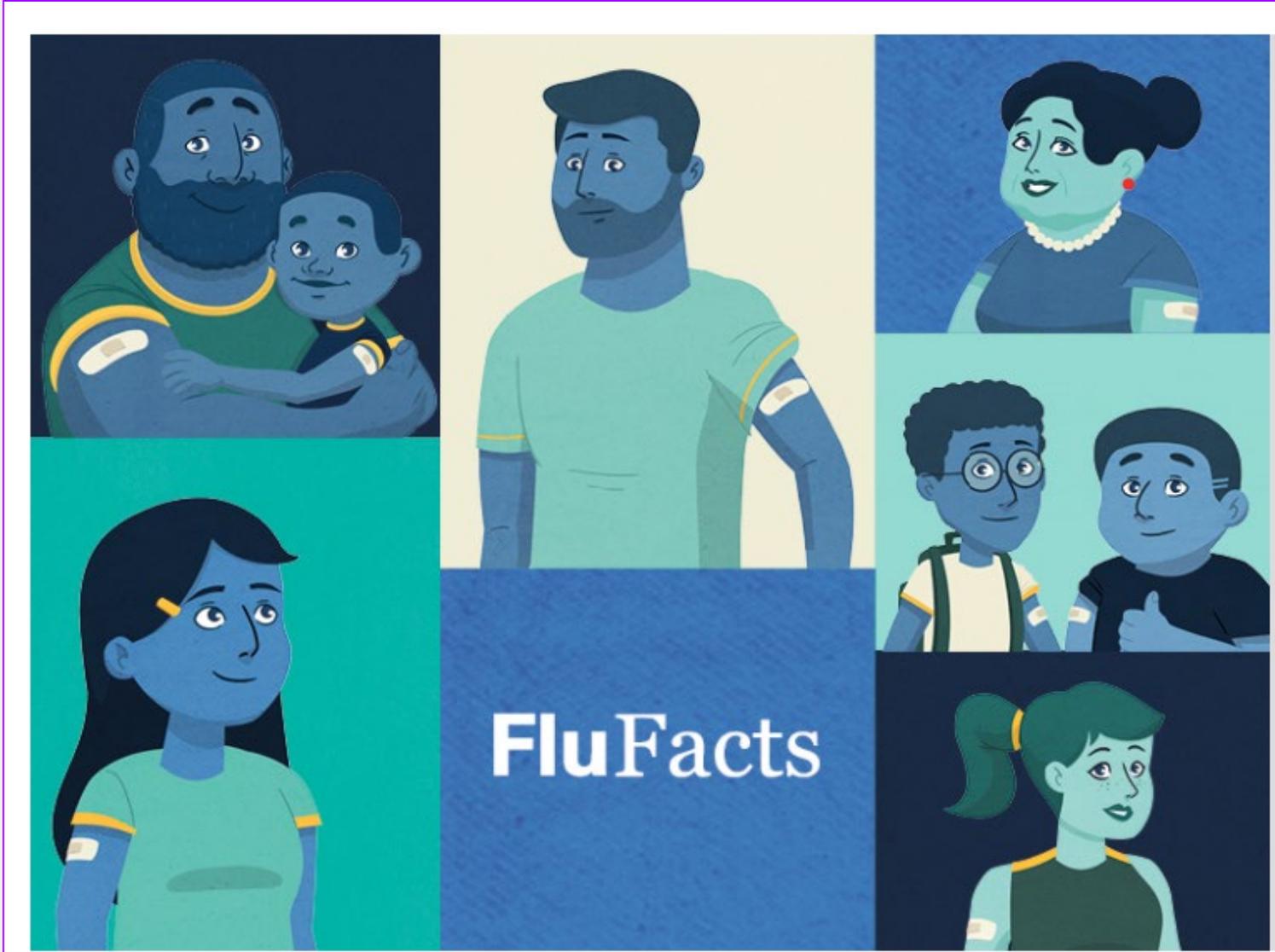
Through five days after onset of gland swelling (counting the initial day of gland swelling as day zero).

### CASES

### QUARANTINE

Contacts born in or after 1957, who are not appropriately immunized or do not have laboratory evidence of immunity, will be excluded from work, classes or other public activities from the 12th through the 25th day after their exposure.

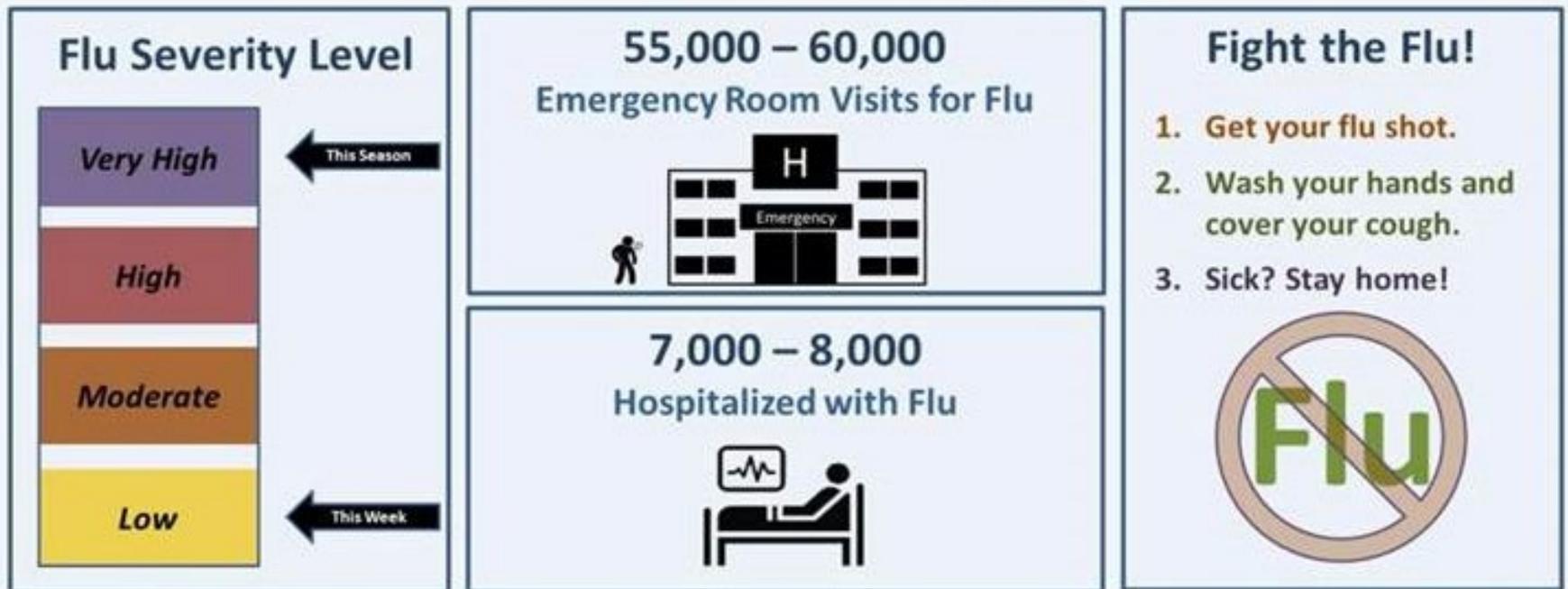
### CONTACTS



Updated “Flu Facts” campaign. See the MDPH website and Clearinghouse.

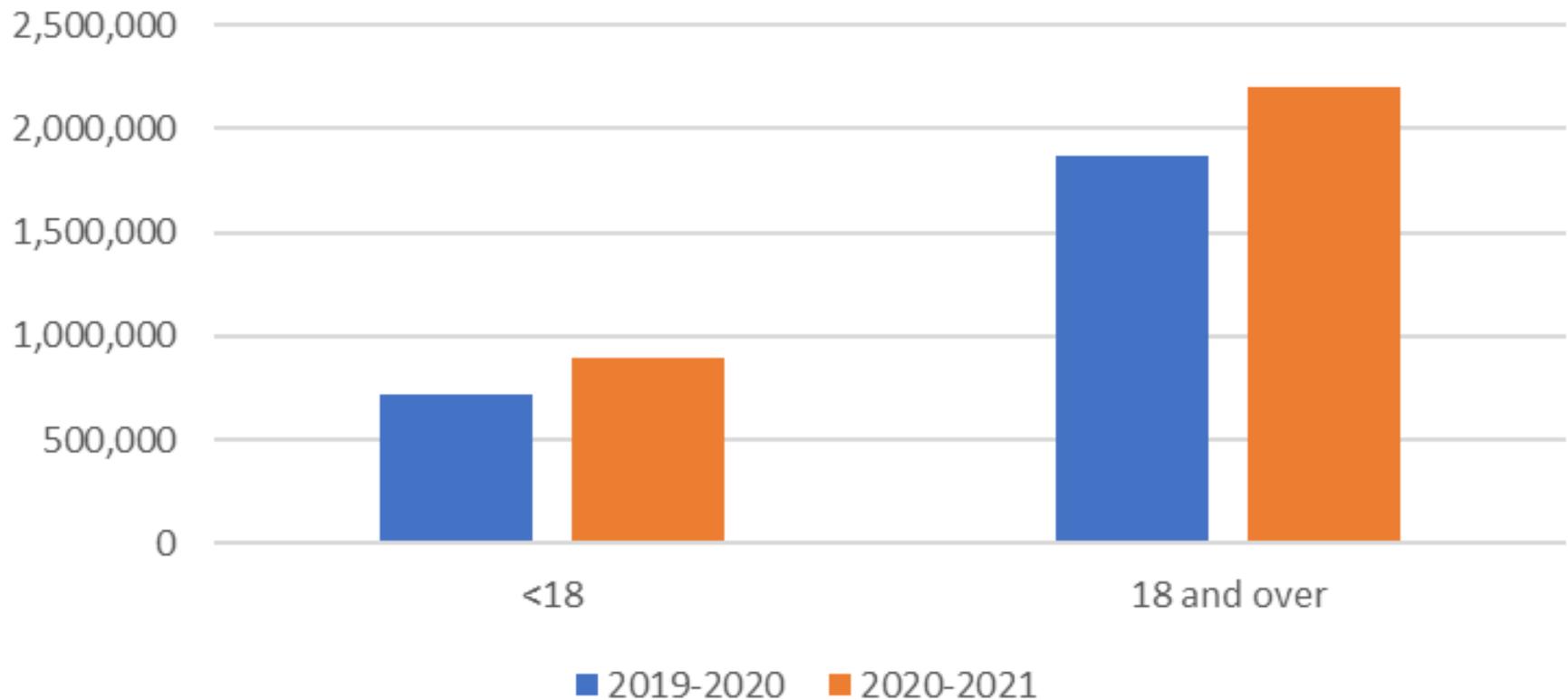
# Influenza in Massachusetts – 2019-2020

## Massachusetts Flu Season at a Glance September 29, 2019 – May 16, 2020



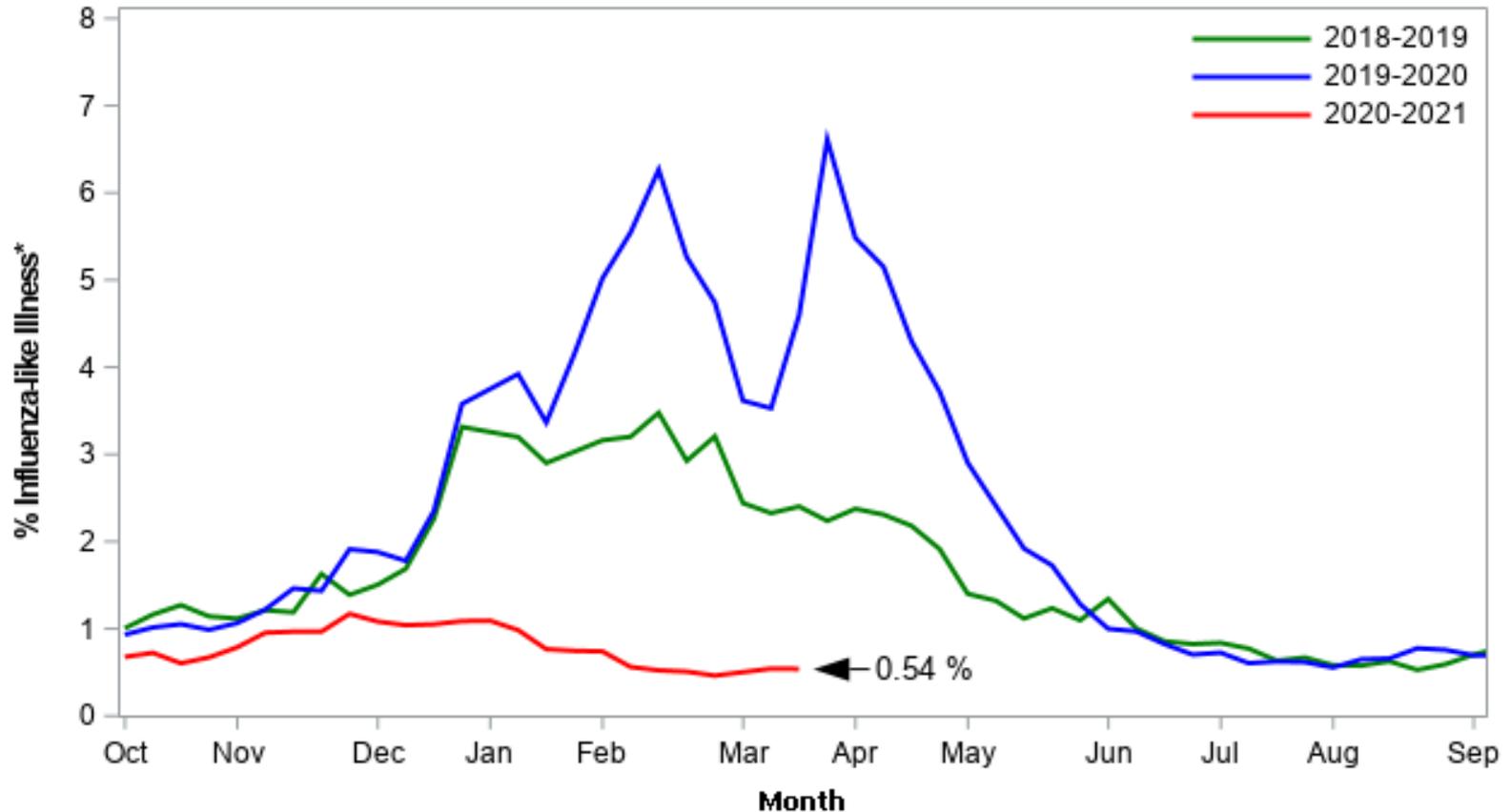
Flu severity level is based on flu tests, medical and emergency visits, and hospitalization estimates from syndromic surveillance data.

## Doses of Flu Vaccine Reported in the MIIS Current Flu Season vs. Last Season



# Influenza-like Illness in Massachusetts 2020-2021 Flu Season

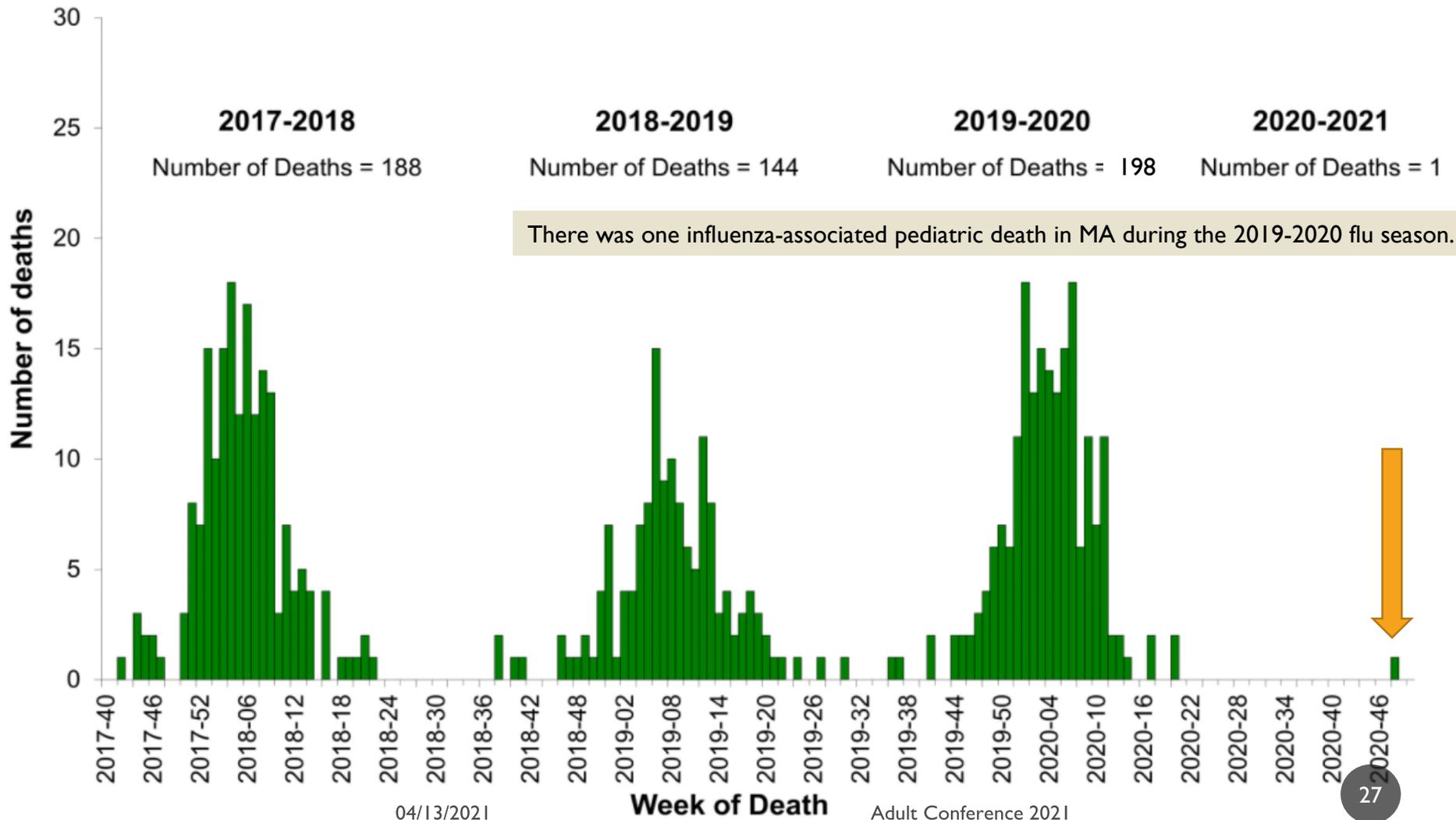
**Figure 1: Percentage of ILI visits reported by sentinel provider sites  
September 27, 2020 – March 20, 2021**



\*Influenza-like illness (ILI, defined by fever  $\geq 100^{\circ}\text{F}$  and cough and/or sore throat), as reported by Massachusetts sentinel surveillance sites. ILI reported by sentinel sites which report via ED syndromic surveillance include cases meeting the ILI definition and cases with a diagnosis indicating influenza infection.

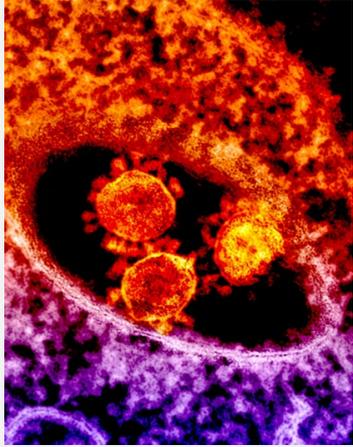
# Influenza-associated Pediatric Deaths\* – US and Massachusetts

## Influenza-Associated Pediatric Deaths by Week of Death, 2017-2018 season to 2020-2021 season



\*immediately reportable in Massachusetts

# COVID-19 – Now Vaccine Preventable!



- Coronaviruses are a large family of viruses that can cause illness in animals or humans
- In humans, several known coronaviruses can cause respiratory infections
  - Ranging from the common cold to more severe diseases such as severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and coronavirus disease 2019 (COVID-19)
- COVID-19 is caused by the virus SARS-CoV-2
- Identified in Wuhan, China in December 2019

## How COVID-19 Spreads

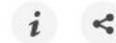
- COVID-19 spreads very easily from person to person
- COVID-19 most commonly spreads during close contact
  - People within six feet to a case or with direct contact have the greatest risk
  - Infections occur mainly through exposure to respiratory droplets when in close contact
- COVID-19 can sometimes be spread by airborne transmission
  - There is evidence that under certain conditions, people with COVID-19 seem to have infected others who were more than 6 feet away. These transmissions occurred within enclosed spaces that had inadequate ventilation. Sometimes the infected person was breathing heavily, for example while singing or exercising.
- COVID-19 spreads less commonly through contact with contaminated surfaces
- COVID-19 rarely spreads between people and animals

# COVID-19: World-wide Pandemic



Search by Country, Territory, or Area

Covid-19 Response Fund



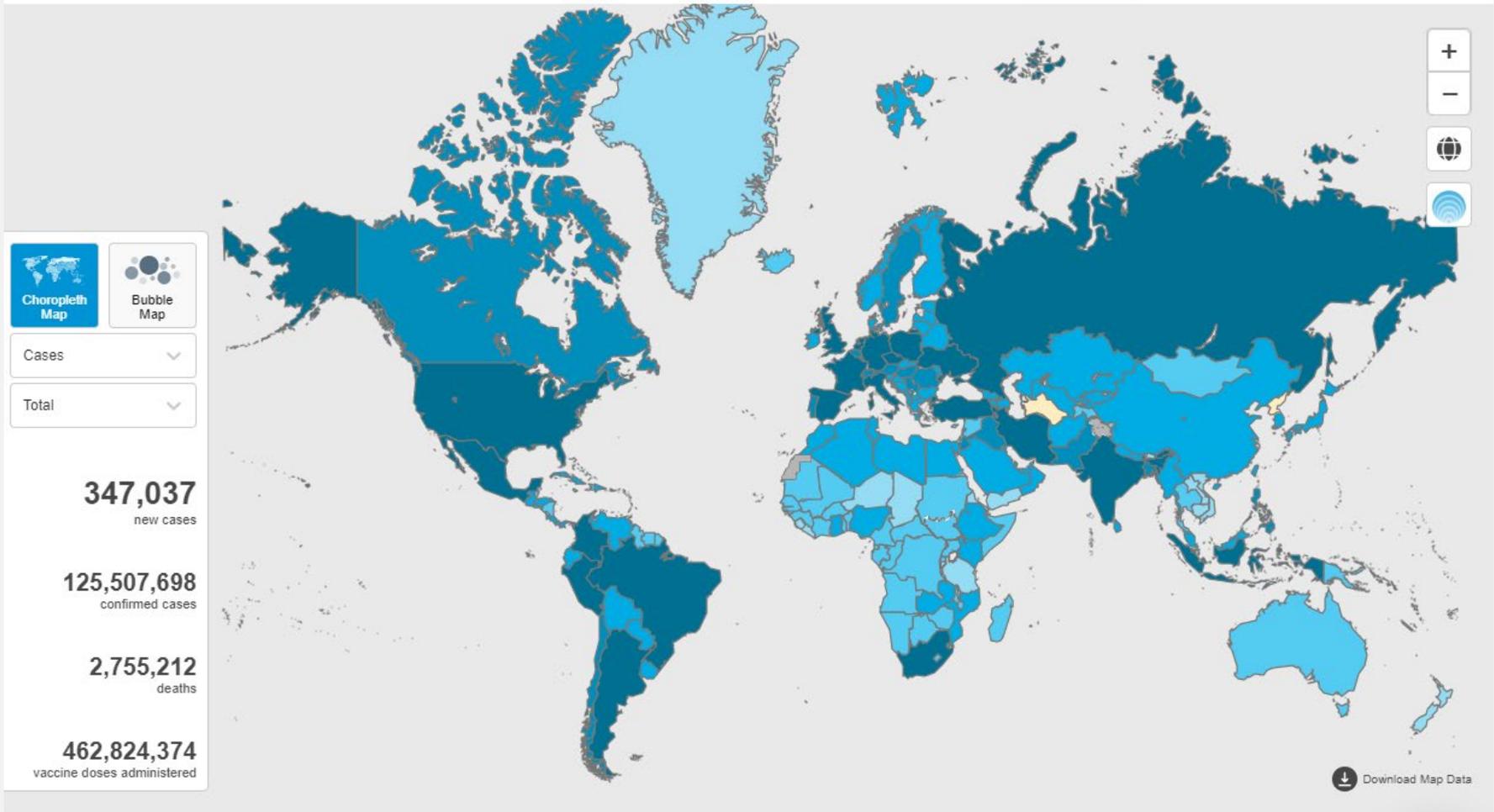
Donate

WHO Coronavirus (COVID-19) Dashboard

Overview

Data Table

Explore



Globally, as of 9:54am CET, 27 March 2021, there have been 125,507,698 confirmed cases of COVID-19, including 2,755,212 deaths, reported to WHO. As of 25 March 2021, a total of 462,824,374 vaccine doses have been administered.

# U.S. Cases: 29,903,245 as of 3/26/2021

## The Unequal Toll of the COVID-19 Pandemic

The COVID-19 pandemic continues to deepen health disparities in our country. Long-standing inequalities have increased the risk for severe COVID-19 illnesses and death for many people. This both causes and continues disparities between racial and ethnic minority groups and non-Hispanic white people. Unequal health risks are the result of different conditions where people live, work, learn, play, and age—what we call [social determinants of health](#).

By improving race and ethnicity data collection and reporting, we continue to increase our understanding of health disparities related to COVID-19. This knowledge helps us create more equitable public health policies and prevention strategies. Using multiple sources, CDC data show that the [risks](#) for COVID-19 illness, hospitalization, and death differ by race and ethnicity.

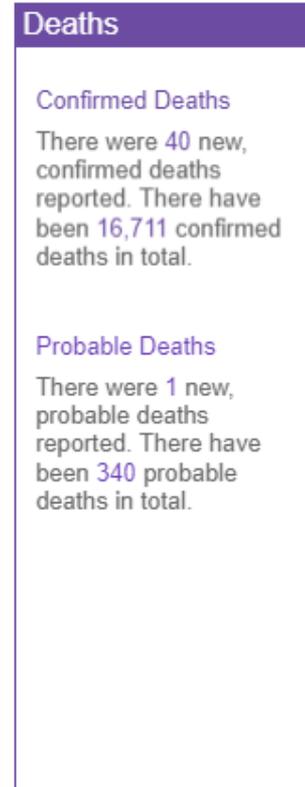
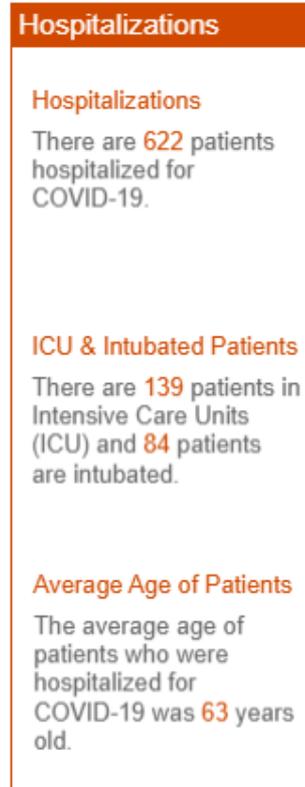
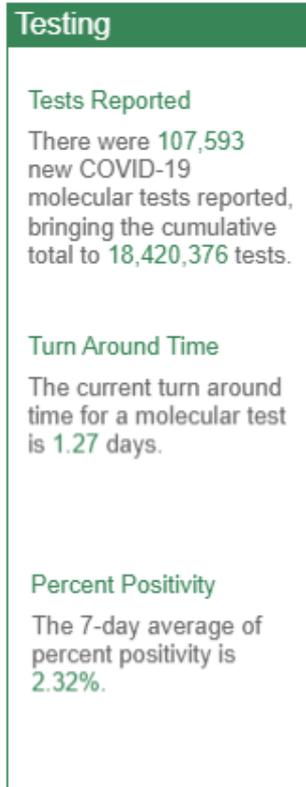
- American Indian and Alaska Native people were 3.7 times more likely than non-Hispanic white people to be hospitalized and 2.4 times more likely to die from COVID-19 infection.
- Black or African American people were 2.9 times more likely than non-Hispanic white people to be hospitalized and 1.9 times more likely to die from COVID-19 infection.
- Hispanic and Latino people were 3.1 times more likely than non-Hispanic white people to be hospitalized and 2.3 times more likely to die from COVID-19 infection.

# Massachusetts COVID-19 Impact – The Daily Dashboard



## Navigation

- Today's Overview
- Overview Trends
- COVID-19 Cases
- COVID-19 Testing
- Hospitalization
- COVID-19 Deaths
- Higher Ed & LTCF
- Patient Breakdown
- City and Town
- Resources
- Data Archive



For details on the definitions of each indicator hover over the box or graph. All data included in this dashboard are preliminary and subject to change. Data Sources: COVID-19 Data provided by the Bureau of Infectious Disease and Laboratory Sciences and the Registry of Vital Records and Statistics; COVID-19 Hospitalization Data provided by the MDPH survey of hospitals (hospital survey data are self-reported); Created by the Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services.

# The Daily Dashboard – Deaths, Hospitalizations and Confirmed Cases in MA by Average Age (as of 3/16/21)

## Confirmed Deaths

There were 44 new, confirmed deaths reported. There have been 16,399 confirmed deaths in total.

## Probable Deaths

There were 0 new, probable deaths reported. There have been 333 probable deaths in total.

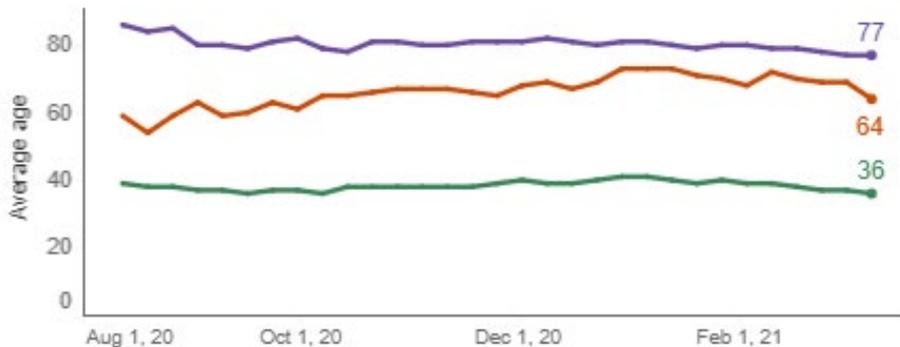
Select to switch deaths visualizations:

For the two week period prior to March 17, 2021, the average age of Massachusetts residents who:

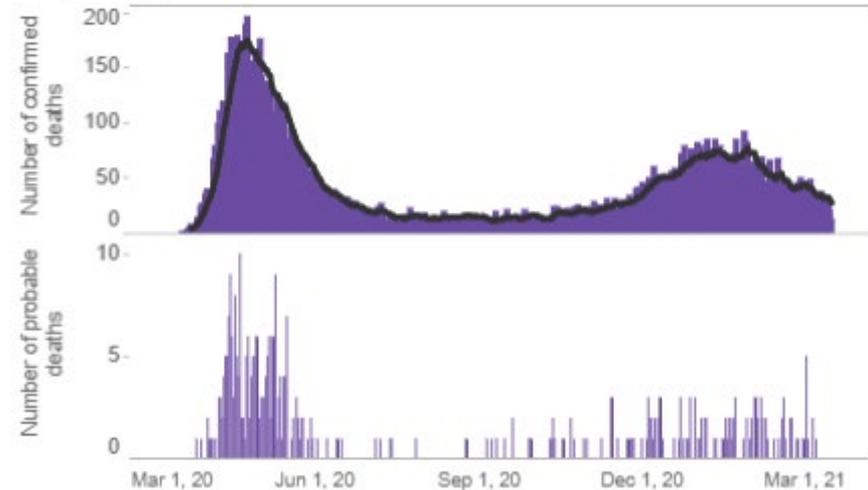
Were **confirmed positive** for COVID-19 was 36 years old

Were **hospitalized** for COVID-19 was 61 years old

Have **died** from COVID-19 was 77 years old



Number of COVID-19 confirmed deaths, probable COVID-19 deaths, and 7-day average of confirmed deaths



# Rate Ratios: Risk of COVID-19 Infection, Hospitalization and Deaths by Age Group, USA

as of 2/18/2021

## Rate ratios compared to 5-17 year olds

	0—4 years	5—17 years	18— 29 years	30— 39 years	40— 49 years	50— 64 years	65— 74 years	75— 84 years	85+ years
<b>Cases<sup>2</sup></b>	<1x	Reference group	3x	2x	2x	2x	2x	2x	2x
<b>Hospitalization<sup>3</sup></b>	2x	Reference group	7x	10x	15x	25x	35x	55x	80x
<b>Death<sup>4</sup></b>	2x	Reference group	15x	45x	130x	400x	1100x	2800x	7900x

All rates are relative to the 5—17-year age category. Sample interpretation: Compared with 5—17-year-olds, the rate of death is 45 times higher in 30—39-year-olds and 7,900 times higher in 85+-year-olds. Compared with 18—29-year-olds, the rate of hospitalization is 8 times higher in 75—84-year-olds (55 divided by 7 equals 7.9).

# MDPH Daily COVID-19 Vaccine Report

Massachusetts Department of Public Health COVID-19 Vaccine Data – Thursday, March 18, 2021

	3/12	3/13***	3/14	3/15	3/16	3/17	3/18
<b>DOSES SHIPPED</b>							
Doses Shipped to MA Providers (MIIS)*	2,091,835	2,091,835	2,091,835	2,091,835	2,236,125	2,314,865	2,396,725
Doses Shipped to Pharmacies and Directly by the Federal Government - Including FPPP Providers (Tiberius)	713,015	737,585	743,435	744,835	755,545	780,945	824,595
<b>Grand Total Shipped to MA</b>	<b>2,804,850</b>	<b>2,829,420</b>	<b>2,835,270</b>	<b>2,836,670</b>	<b>2,991,670</b>	<b>3,095,810</b>	<b>3,221,320</b>
<b>DOSES ADMINISTERED (MIIS)*</b>							
1st Moderna or Pfizer Doses Administered # of people with at least one dose	1,563,347	1,587,325	1,614,294	1,620,368	1,664,173	1,699,825	1,737,411
2nd Moderna or Pfizer Doses Administered # of people fully vaccinated	803,231	825,157	848,237	853,934	883,407	906,783	929,577
Janssen (J&J) Doses Administered (MIIS) # of people fully vaccinated	50,202	54,910	60,316	60,993	62,899	65,320	67,472
<b>Grand Total Doses Administered (MIIS)</b>	<b>2,416,780</b>	<b>2,467,392</b>	<b>2,522,847</b>	<b>2,535,295</b>	<b>2,610,479</b>	<b>2,671,928</b>	<b>2,734,460</b>
<b>Grand Total Fully Vaccinated People with Existing COVID-19 Vaccines**</b>	<b>853,433</b>	<b>880,067</b>	<b>908,553</b>	<b>914,927</b>	<b>946,306</b>	<b>972,103</b>	<b>997,049</b>
<b>% of Total Doses Shipped That Have Been Reported as Administered</b>	<b>86.2%</b>	<b>87.2%</b>	<b>89.0%</b>	<b>89.4%</b>	<b>87.3%</b>	<b>86.3%</b>	<b>84.9%</b>

\*Data from the Massachusetts Immunization Information System (MIIS) are as of midnight the night before.

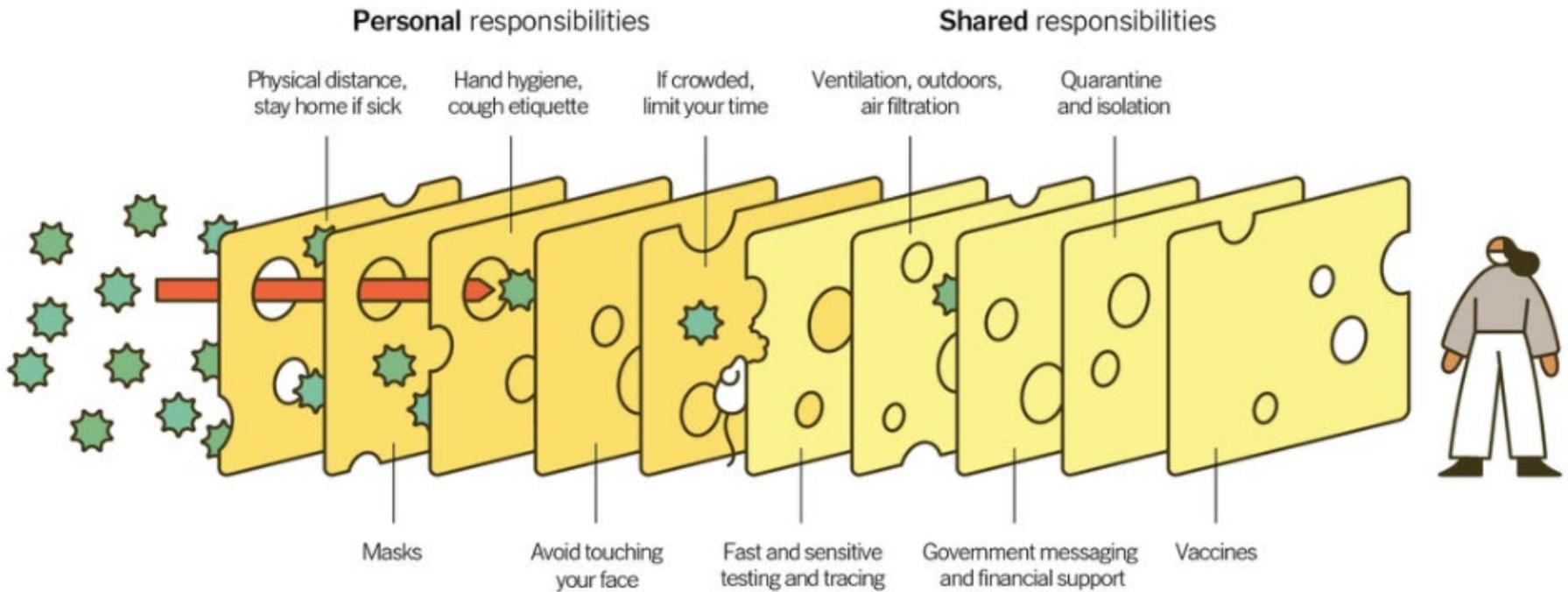
\*\*Fully vaccinated people have 2 doses of Moderna or Pfizer vaccine or 1 dose of Janssen (J&J) vaccine

\*\*\*On 3/13 only, data from the MIIS is as of 5pm the night before due to scheduled MIIS maintenance

# Preventing the Spread of COVID-19

## Multiple Layers Improve Success

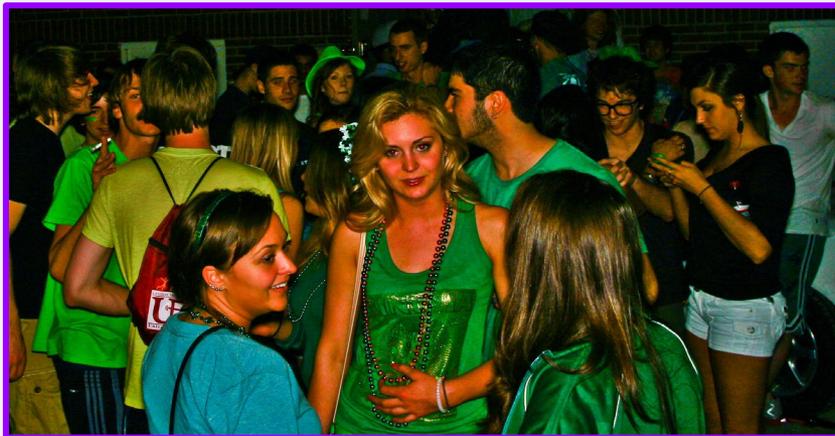
The Swiss Cheese Respiratory Pandemic Defense recognizes that no single intervention is perfect at preventing the spread of the coronavirus. Each intervention (layer) has holes.



# Headline: COVID-19 Outbreak in Massachusetts Municipality Forces High School to Go Remote

## Scenario two:

- Your patient and two teenage offspring may have been exposed to COVID-19 at a large house party last weekend.
- Following the party, it was learned that two attendees were infectious with COVID-19.
- Your patient is a healthcare worker and is fully vaccinated.
- Your patient has fatigue and stuffy nose (history of seasonal allergies).
  - Teens are asymptomatic.
- The whole party is considered exposed.



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# Patient and offspring possibly exposed to COVID-19 at large house party

- In retrospect, is a large house party during a pandemic a good idea?
- Your patient is a HCW with >14 days since their 2<sup>nd</sup> dose of vaccine
  - Do they need to isolate/quarantine?
- The two teens are asymptomatic – how quickly can they return to public activities?
- Does the parent who did not go to the party need to isolate or quarantine at this time?



# Patient and offspring possibly exposed to COVID-19 at large house party

- In retrospect, is a large house party during a pandemic a good idea?
- Your patient is a HCW with >14 days since their 2<sup>nd</sup> dose of vaccine
  - Does your patient need to quarantine?
  - **Because your patient has symptoms (stuffy nose, fatigue) COVID-19 should be ruled out before they return to work.**
- The two teens are asymptomatic – how quickly can they return to public activities?
  - **There are three options in MA. All three options involve watching for symptoms for a full 14 days after the exposure, even if permitted to go back to public activities sooner.**
  - **This may change if they have ongoing exposure at home.**
- Does the parent who did not go to the party, need to isolate or quarantine at this time?
  - **Because they are asymptomatic and have not been exposed to COVID-19 at this time, there is no recommendation for isolation or quarantine at this time.**

# CONTACTS OF CONTACTS – NO NEED TO QUARANTINE

People who are exposed directly to a case SHOULD quarantine.

People who are exposed to contacts should NOT quarantine.

- In this scenario, only one parent and two teens were potentially exposed. Because the other parent did not attend the event, they have not been exposed to date.
- It makes sense for the parent who was not exposed to avoid close contact with those in the household who are isolating and quarantining!

# COVID-19

## ISOLATION VS. QUARANTINE

**ISOLATION**

**QUARANTINE**

**CASES**

**CONTACTS**

# COVID-19

## ISOLATION VS. QUARANTINE

### ISOLATION

- For symptomatic people.
- For confirmed COVID-19 Cases.
- Prevents cases from infecting others
- LASTS UNTIL THE PERSON IS NO LONGER CONTAGIOUS
  - Use CDC Discontinuation of Isolation Guidance

**CASES**

### QUARANTINE

- For asymptomatic people who have had an exposure
- Prevents exposed 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.)
  - **NEW: Option for 7 or 10-day early release from quarantine if requirements met. Must still watch for symptoms for 14 days.**

**CONTACTS**

# The Household Gets Tested

- **Your patient gets a rapid antigen test, which is negative**
  - The same day, a respiratory specimen is collected for SARS-CoV-2 PCR, which comes back **positive**
  - How do these test results influence the patient's isolation? Can they return to work?
- The other three household members got tested by PCR only.
  - All three are negative.
  - The specimens were collected on the 5<sup>th</sup> day after the house party.
  - Can they return to school and other public activities?



# COVID-19 Diagnostic Testing

There are 2 types of COVID-19 testing: Virus Testing and Antibody Testing.

PCR: These tests are typically done using a nasal swab, oral swab, or saliva sample, and then sent to a lab. In general, PCR testing is the “gold standard.” PCR tests are high-sensitivity, high-specificity tests. PCRs detect one or more viral ribonucleic acid (RNA) genes and indicate a current infection or a recent infection but, due to prolonged viral RNA detection, are not always direct evidence for the presence of virus capable of replicating or of being transmitted to others.

Antigen tests detect the presence of a specific viral antigen. Antigen tests generally have similar specificity but are less sensitive than most PCRs. Most can be processed at the point of care with results available in minutes and thus can be used in screening programs to quickly identify those who are likely to be contagious. Because of the performance characteristics of antigen tests, it may be necessary to confirm some antigen test results (e.g., a negative test in persons with symptoms or a positive test in persons without symptoms) with a laboratory-based PCR. The BinaxNOW is an antigen test.

Antibody testing is a blood test that looks for antibodies, proteins in your blood that fight infections. At this time, most people don't need antibody tests and they should not be used to guide decisions on whether to stop isolation or return to work. Currently, there is no evidence that antibodies in your blood means that you are immune from COVID-19.

# The Household Gets Tested

- **Your patient gets a rapid antigen test, which is negative**
  - The same day, a respiratory specimen is collected for SARS-CoV-2 PCR, which comes back positive
  - How do these test results influence the patient's isolation? Can they return to work?

The two specimens were collected within 48 hours of each other. Therefore, the PCR result supersedes the antigen test result. (See link to “antigen vs. PCR table” below.)

The individual must be treated as a case of COVID-19. If they meet the definition of “breakthrough” COVID-19 (because they were >14 days since completion of vaccination) their specimen should be forwarded to MA SPHL for sequencing.

- The other three household members got tested by PCR only.
  - All three are negative.
  - The specimens were collected on the 5<sup>th</sup> day after the house party.
  - Can they return to school and other public activities?

It is good news that the results are PCR negative. Decisions about ending quarantine will need to be based on whether or not they continue to have close contact with the parent who tested positive for COVID-19 and is infectious.

# SUMMARY TABLE: RECOVERED VS. FULLY VACCINATED

	COVID – Recovered*	Fully Vaccinated*
<b>Identified as a Contact</b>	<ul style="list-style-type: none"> <li>• &lt;90 Days since symptom onset or lab date = <b>NO Quarantine</b></li> <li>• ≥90 Days since symptom onset or lab date = <b>YES Quarantine</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>NO quarantine or test required</b> unless symptoms develop</li> </ul>
<b>Travel Advisory</b>	<ul style="list-style-type: none"> <li>• &lt;90 Days since symptom onset or lab date = <b>EXEMPT from test/quarantine</b></li> <li>• ≥90 Days since symptom onset or lab date = <b>YES advised to test or quarantine</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Exempt from Advisory (NO need to quarantine or obtain negative test)</b> unless symptoms develop</li> </ul>
<b>New Positive Lab Result</b>	<ul style="list-style-type: none"> <li>• &lt;90 Days since symptom onset or lab date = <b>NO new Isolation</b></li> <li>• ≥90 Days since symptom onset or lab date = <b>YES Isolate</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>YES, a positive lab is a case and would need to isolate accordingly/contacts quarantine.</b></li> </ul>

\*This table applies to community cases in non-healthcare and non-congregate settings.

# PREVENTING HOUSEHOLD SPREAD

- **If there is a case in the household, make sure the case has a separate space to isolate.**
  - Separate bedrooms.
  - Case should not use common/shared space.
  - Separate bathrooms.
- Wear masks and practice good hand hygiene at all times.
- If there is only one bathroom, wipe it down after every use.
- Clean all common touch surfaces.
- Don't eat meals at the same time.
- All household members should minimize contact with each other to prevent further spread among those in quarantine. This is easier to do with a roommate situation versus a family with young children.

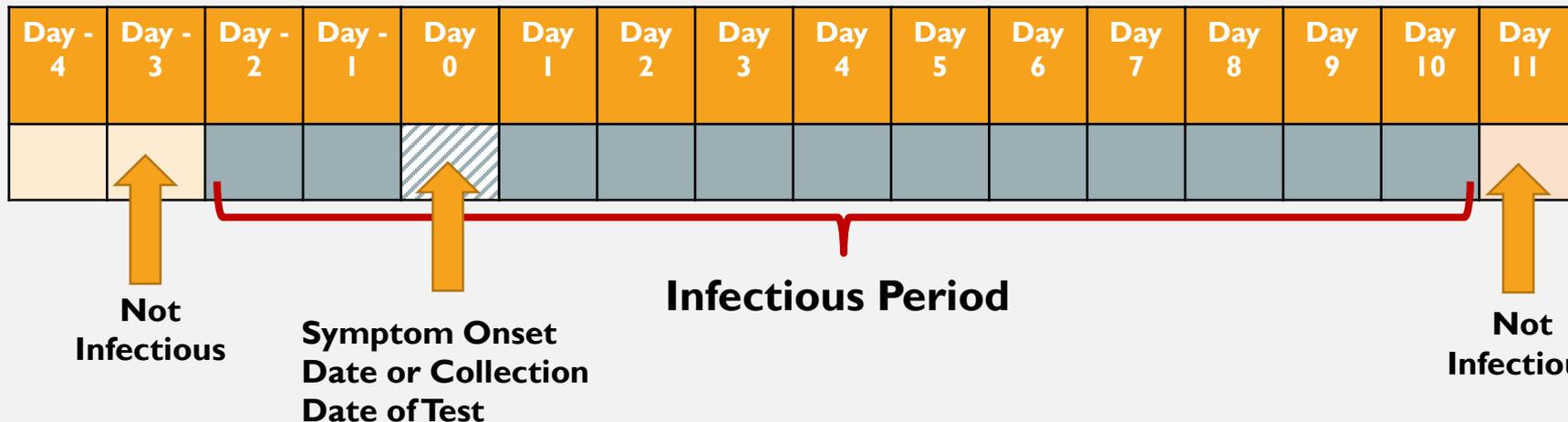
Household members must be able to **stop ongoing close contact** with case in order to begin calculating the quarantine period.

# DETERMINING INFECTIOUS PERIOD – FOR CASE

- **Obtain symptom onset date to determine infectious period:**
  - Symptom onset date should be day of first noticed symptom
    - Often sore throat, cough, aches/myalgias or fevers.
  - Consider infectious from two calendar days prior to onset until 10 days after onset.
  - Use a calendar and ask what the case did each day, counting back 2 days from the onset of the first symptom.
  - Remember – if symptoms persist at Day 10, isolation should continue.



**Symptom Onset = Day 0**  
**Infectious Period Start Date = 2 days prior to onset (or test collection)**  
**Infectious Period END date = when patient is released from isolation**



# CALCULATING QUARANTINE PERIOD

**Standard 14 Day Quarantine Period:** 14 Days from Exposure, Returning to Activities on Day 15



- Things to Note:
  - Last exposure = Day 0.
  - Quarantine is Day 1-Day 14
  - Exit Quarantine on Day 15 (Remember Day 14 is a FULL DAY IN Quarantine)
- **If contact tests positive, they SWITCH from quarantine to new isolation period** and their isolation period is calculated separately based upon symptom onset and/or date of positive test, regardless of time spent in quarantine first.

**If Contact has ANY symptoms, even if joined by a Negative Test, must complete the full 14 days in Strict Quarantine.**

# QUARANTINE OPTIONS

**14-day period of active monitoring** (symptoms and temperature) must be observed by everyone in quarantine (exposed individuals could develop COVID-19 during the 14 day period).

However two options exist for asymptomatic individuals to reduce time in strict quarantine. Leaving quarantine early includes a small risk of disease development.

- **7 days of strict quarantine and testing option:** Get a PCR or antigen test on Day 5 or later of quarantine period. As long as you have not developed symptoms and test comes back negative, can be released from strict quarantine after day 7. (Released on Day 8 – active monitoring through Day 14) Note: 5% risk of disease development.
- **10 days of strict quarantine option:** Exit strict quarantine after 10 Days of NO symptoms at all. No test required. (Released on Day 11 – active monitoring through Day 14) Note: 1% risk of disease development.

All must self-monitor symptoms for the full 14 days and if they develop symptoms, isolate, call provider and obtain testing.

# COVID-19 BREAKTHROUGH CASE DEFINITION

The CDC case definition is:

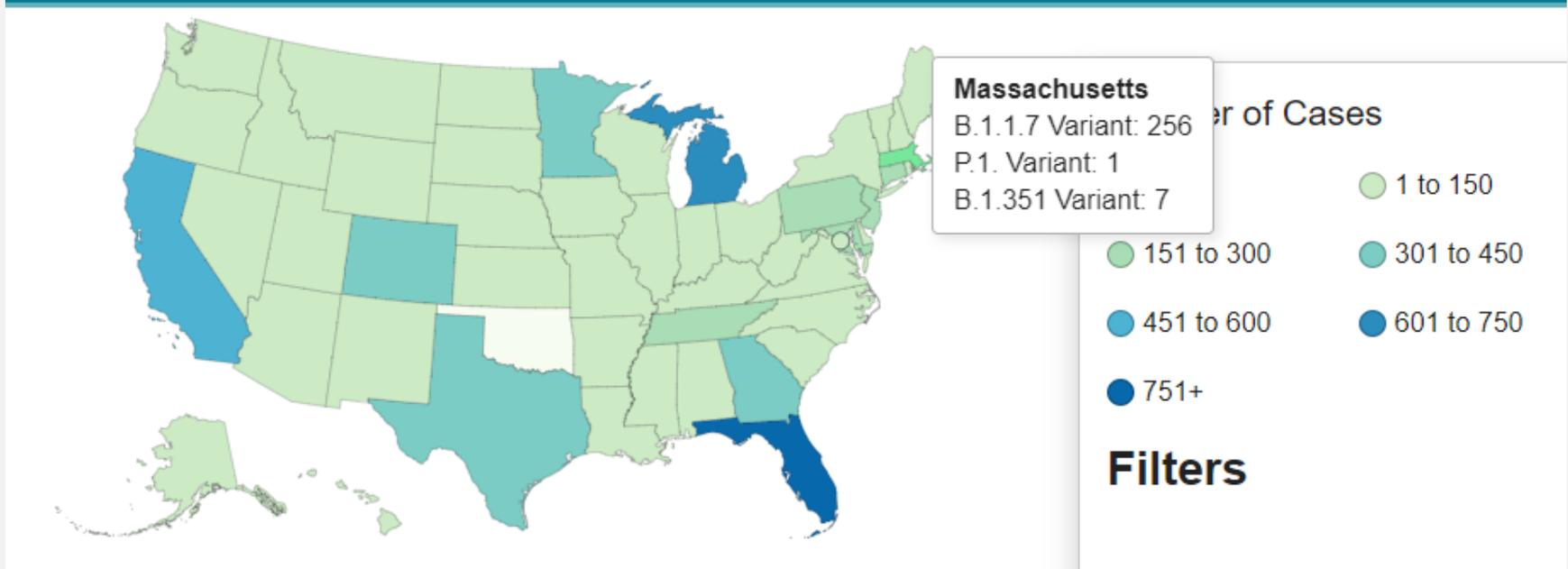
- **A U.S. resident who has SARS-CoV-2 RNA or antigen detected on a respiratory specimen collected  $\geq 14$  days after completing the primary series of an FDA-authorized COVID-19 vaccine\*.**
- If you identify at breakthrough case with a very recent specimen, we would like to obtain the specimen for Whole Genome Sequencing.
  - Call MDPH Epi program (617-983-6800) to alert us to this case so we can try and obtain the specimen.
  - Specimens are typically discarded within a few days, so timeliness is important to obtaining the specimen.

\*Cannot have been positive within the prior 90 days

# VARIANTS OF CONCERN: SURVEILLANCE DATA

- **Best realtime state data is available here:**  
<https://www.cdc.gov/coronavirus/2019-ncov/transmission/variant-cases.html>
- You can hover over each state and see their currently reported official total.

## Cases of Variants of Concern in the United States\*†



# Isolation and Quarantine Frequently-asked Questions

**Q:** If I had COVID-19 last month and am exposed again, do I need to be quarantined?

**A:** In general, no. If you have been confirmed to have COVID-19 within the past 3 months, and are asymptomatic, you do not need to quarantine.

**Q:** If I got vaccinated, and it is more than 14 days since I completed vaccination, do I need to quarantine if exposed to COVID-19?

**A:** In general, fully vaccinated individuals >14 days after completing the series do not need to quarantine if asymptomatic. Exceptions may include people who work in healthcare or congregate care settings.

**Q:** If a child is being quarantined because a parent has COVID-19, is it possible that the child will have a quarantine period that is >14 days?

**A:** Yes, that is possible because they may have ongoing exposure to the parent while the parent is infectious. To the degree possible, they should try to avoid close contact while the parent is infectious.

**Q:** What are the safest sports at this time?

**A:** Individual sports, like figure skating, singles tennis, singles rowing.

# Questions?

## Stop the Spread of COVID-19

### Wear a mask or face covering

Always wear a mask or face covering when you can't stay 6 feet away. You could have COVID-19, have no symptoms, and still infect other people. Wearing a mask can help prevent the spread of the virus. Masks protect other people from your germs.



**Wash your hands before putting your mask on and after taking it off.** Don't touch the front of the mask. Handle it only by the ear loops or ties.



**Cover your nose and mouth with the mask.** Pull the bottom down under your chin. Adjust it until it fits snugly against the sides of your face. Your mask should not cover your eyes, and it should not restrict breathing.



**Remember, your mask must cover your nose and mouth at all times.**

For more, visit: [mass.gov/MaskUp](https://www.mass.gov/MaskUp)

## VOGÊ tem o poder de prevenir a COVID-19

VOGÊ pode proteger as pessoas mais vulneráveis!

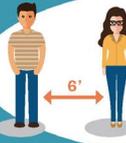
### Pratique o Distanciamento Social

**Use recursos digitais: converse com amigos e familiares online.**



**Se tiver de sair de casa:**

- Não reunir-se em grupos
- Fique a 6 pés (2 m) de distância de outras pessoas
- Não dê apertos de mão
- Não compartilhe comida e bebidas



**Enquanto estiver em casa, lave as mãos com frequência.**

[www.mass.gov/COVID19](https://www.mass.gov/COVID19) | Ligue para 2-1-1

## 2019年新型冠状病毒 (COVID-19) 家中隔离和自我监测10项提示

您如果由于可能接触COVID-19而被要求在家中隔离或自我监测,请:

- 1 呆在家里,不要去工作单位、学校或公共场所。
- 2 监测症状,每天两次测量体温。如果出现症状或发烧,立即打电话给医务人员。
- 3 休息,不要脱水,保持锻炼身体(如可能)。如果您能够锻炼,可在家中或院子里活动。避开可能与其他人接触的地方。
- 4 如果您需要看医生,请提前给医务人员打电话,告诉他们您曾经接触COVID-19。
- 5 如果出现紧急医疗状况,请拨打911电话,告诉急救电话接线员您曾经接触COVID-19。
- 6 采取日常防护措施,经常用肥皂和水洗手,以使用至少含有有效成分的酒精时,避免触摸眼睛、鼻。
- 7 尽可能呆在一个特别房间里,不接触家中其他人和宠物。如果条件,使用单独的卫生间。
- 8 避免与家中其他人共用物品,例如餐盘、毛巾。
- 9 清洁所有经常触摸的物体表面,例如台面、门把手。遵循标签使用家用清洁剂并快速擦拭这些物体的表面。
- 10 充分利用在家的时间,可远程上班,或者健身或从事您喜欢的活动。

如需了解更多信息,请访问网站 [mass.gov/COVID19](https://www.mass.gov/COVID19) 或拨打 2-1-1 电话。

## Ayude a Prevenir el COVID-19 con Distanciamiento Social

Use el teléfono, Facetime o mensajes en línea para comunicarse con sus amigos y familiares.

Quédense en su casa el mayor tiempo posible.

Si usted debe salir:

- No se reúna en grupos
- Manténgase a una distancia de 6 pies (o 2 metros) de las demás personas.
- Evite estrechar las manos o dar abrazos

Y por favor, continúe lavándose las manos con frecuencia.

[www.mass.gov/COVID19](https://www.mass.gov/COVID19) | Llame al 2-1-1

Departamento de Salud Pública de Massachusetts

Divisions of Epidemiology and Immunization: 617-983-6800

# Extra Slides

# Exactly one year after first coronavirus case was announced, Mass. now has more than a half-million

By **Martin Finucane** Globe Staff, Updated February 1, 2021, 5:22 p.m.

[✉](#) [f](#) [🐦](#) [🖨](#) [💬](#) 17



Bob Naper, 77, of Canton, was about to get a shot at the Gillette Stadium mass vaccination site. His wife, Jeanne, was up next. Monday was the first day for people 75 and older to get vaccinated. Vaccinations are a key way out of the pandemic that has been gripping the state for a year. DAVID L. RYAN/GLOBE STAFF

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# One year later, state's first confirmed case of COVID-19 by community spread gets his vaccine

By Francesca Paris, The Berkshire Eagle Mar 4, 2021



Rick Bua of Clarksburg hugs registered nurse Leslie Drager after receiving his first dose of the COVID-19 vaccine at Berkshire Community College in Pittsfield on Thursday. Drager, the public health nurse whose job it has been for the past year to perform contact tracing for cases throughout the Berkshires, insisted on being the one to vaccinate Bua, her first patient in March 2020.

STEPHANIE ZOLLSHAN — THE BERKSHIRE EAGLE

# Massachusetts officials announce first detected case of Brazil COVID-19 variant

Researchers are still learning about the P.1. variant, which has fueled a surge in cases and deaths due to COVID-19 in Brazil.



A virology lab researcher works to develop a test that will detect the P.1 variant of the new coronavirus in Sao Paulo, Brazil. —Andre Penner / AP

# Massachusetts' COVID-19 travel order will be downgraded to an advisory on Monday

By [Travis Andersen](#) Globe Staff, Updated March 18, 2021, 12:43 p.m.



Sonybel Quinones, of Chelsea, cheered as Esther McCollin, RN handed vaccination cards to her husband, Angle Del Valle, showing that they've received the Moderna COVID-19 vaccination at a Whittier Street Health Center Mobile Vaccination clinic taking place at the Lion of Judah Church in Roxbury on Thursday. JESSICA RINALDI/GLOBE STAFF

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# “Hindsight is 2020: A Year of Heartbreak and Hope”

**After a year of this pandemic, many of us are feeling tired, lonely, and impatient. Still, through it all, there is determination; there are stories of giving and hope, of stamina and perseverance. It was a hard year, but the progress we’ve made has given us hope...**

**Vaccines are available.** Today, more than 1 in 5 Americans have received at least one dose of COVID-19 vaccine. Each day millions more people are being vaccinated, providing hope that we can soon gather with our friends and family safely. On March 12, 2021, we reached 100 million vaccine doses administered in just 88 days—thanks to three safe and effective vaccines that have been distributed throughout the United States.

**Schools across the nation are reopening.** CDC released an operational strategy to help pave the way for students’ return to the classroom and childcare guidelines to ensure the safety of our children. Safer communities mean safer schools.

**Testing is widespread.** Since the beginning of the pandemic, more than 354 million RT-PCR tests to detect COVID-19 have been performed in the United States. Quickly identifying people infected with the virus that causes COVID-19 means they can get medical care and stay away from others, preventing the spread of COVID-19.

**Hospitalizations and deaths are declining.** Hospital admissions and deaths are on the decline. We have come a long way from where we were, but we still have much work to do.