

VPD Epidemiology in MA During the *Never Ending* COVID-19 Pandemic

Adult Immunization Conference
April 5, 2022

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150 YEARS
OF ADVANCING
**PUBLIC
HEALTH**

Disclosure

We, Nancy Harrington & Juliana Jacoboski, 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.

We have no relevant financial relationships to disclose.

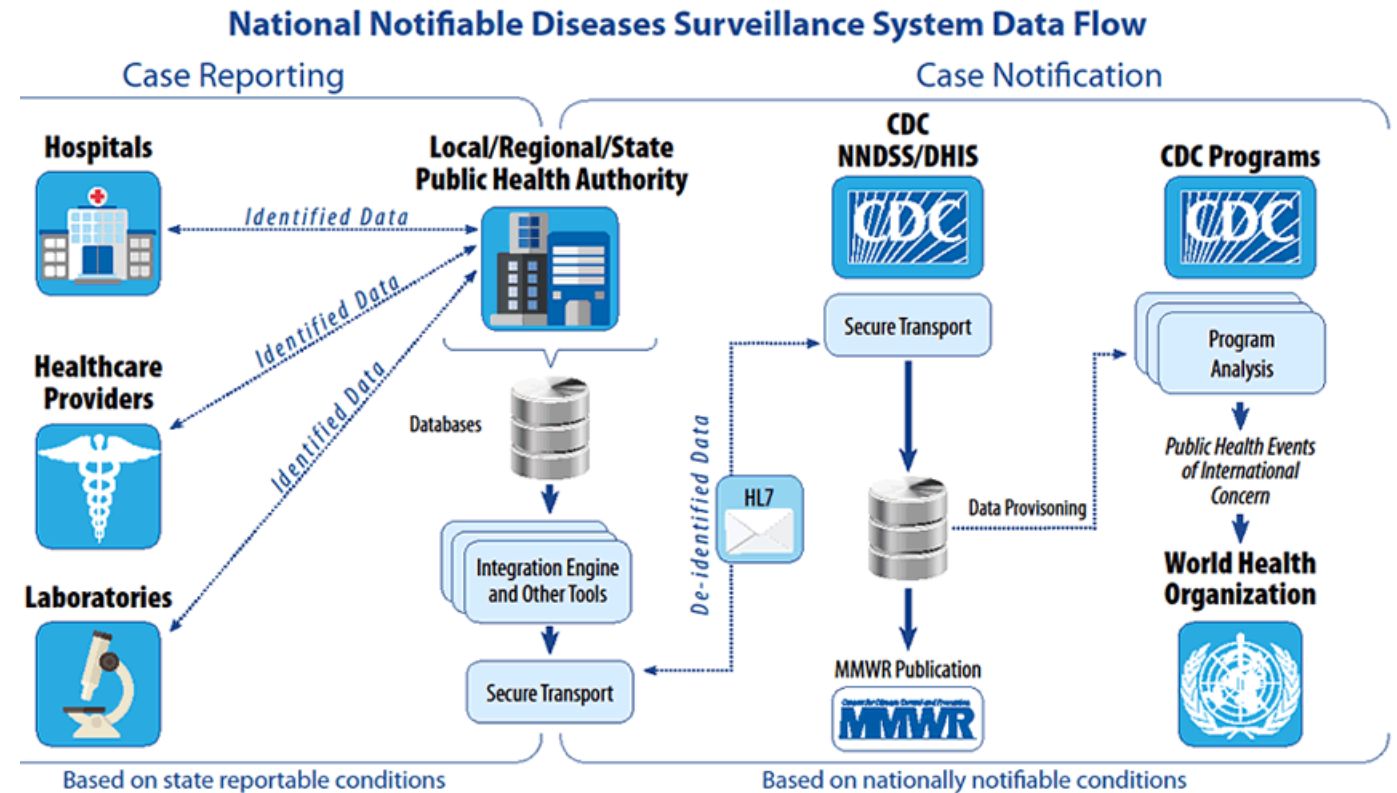
We may discuss the use of vaccines in a manner not approved by the U.S. Food and Drug Administration, but in accordance with ACIP recommendations.

Outline

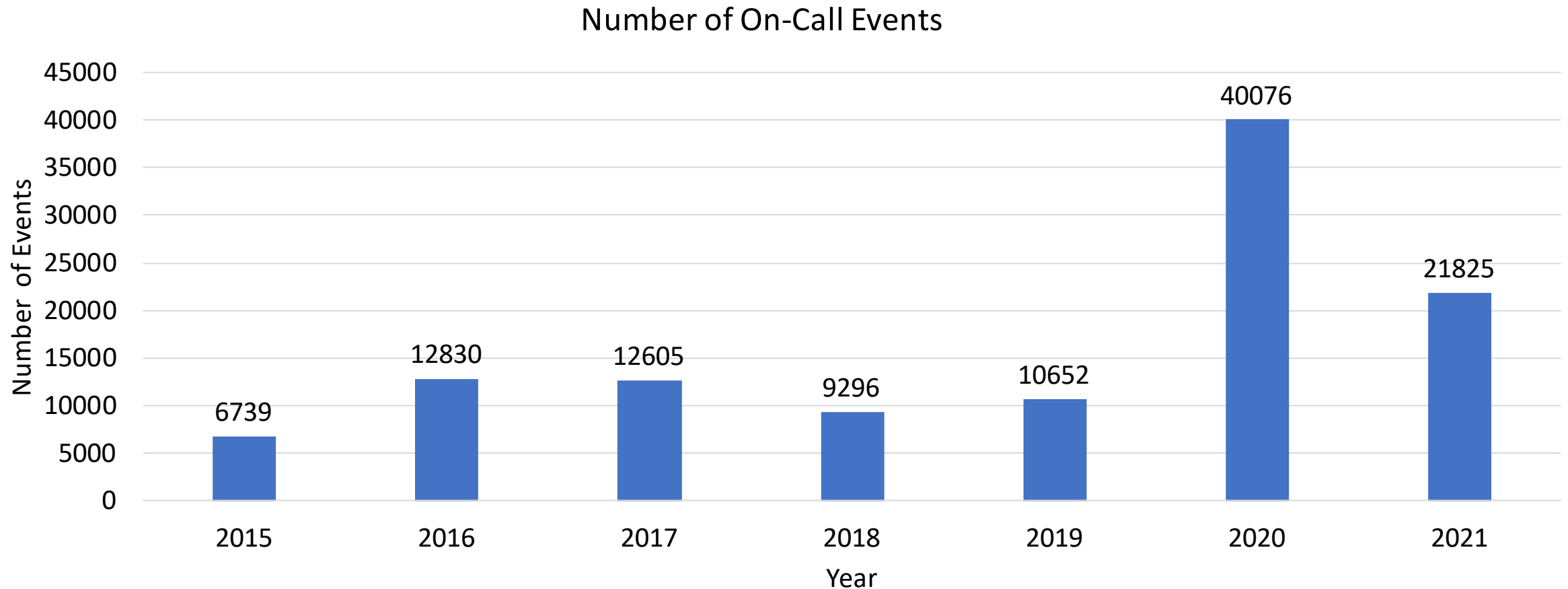
- Impact of COVID-19 on VPDs in MA
 - Measles
 - Mumps
 - Influenza
 - Tetanus
 - AFM
- COVID-19
 - Provincetown
 - Updated isolation & quarantine guidance
 - How to handle COVID-19 in the home
 - Antigen tests & 90-day immunity

Controlling VPDs

- Report suspected cases per 105 CMR 300.000
- Call epi line at **617-983-6800 24/7/365** for guidance re specimens for testing, case isolation, contact tracing, and potential quarantine and/or exclusion for susceptible contacts
- Other tools at our disposal: vaccines & immunoglobulins!



It's Been a Busy Few Years



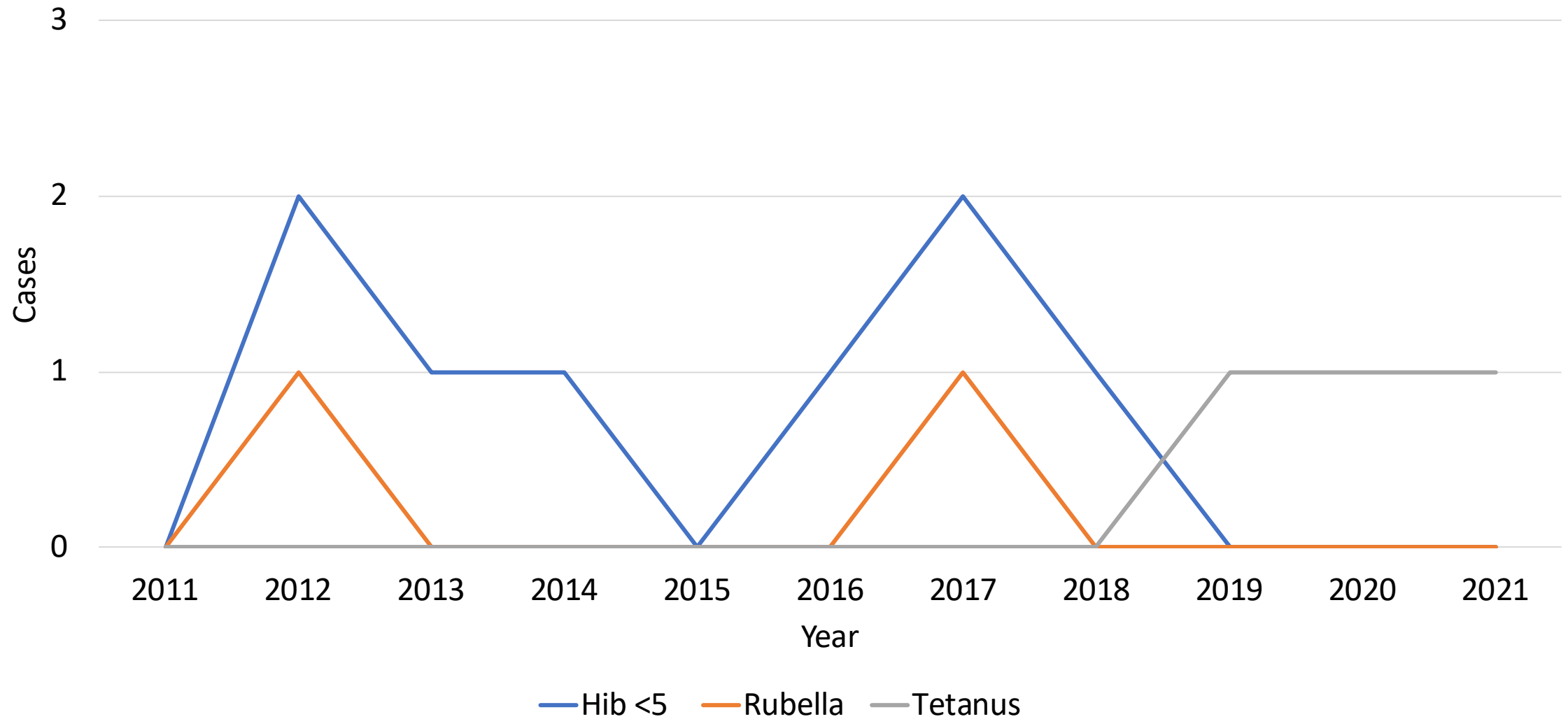
VPDs in MA 2011-2021¹

Data are current as of 3/11/2022 and are subject to change

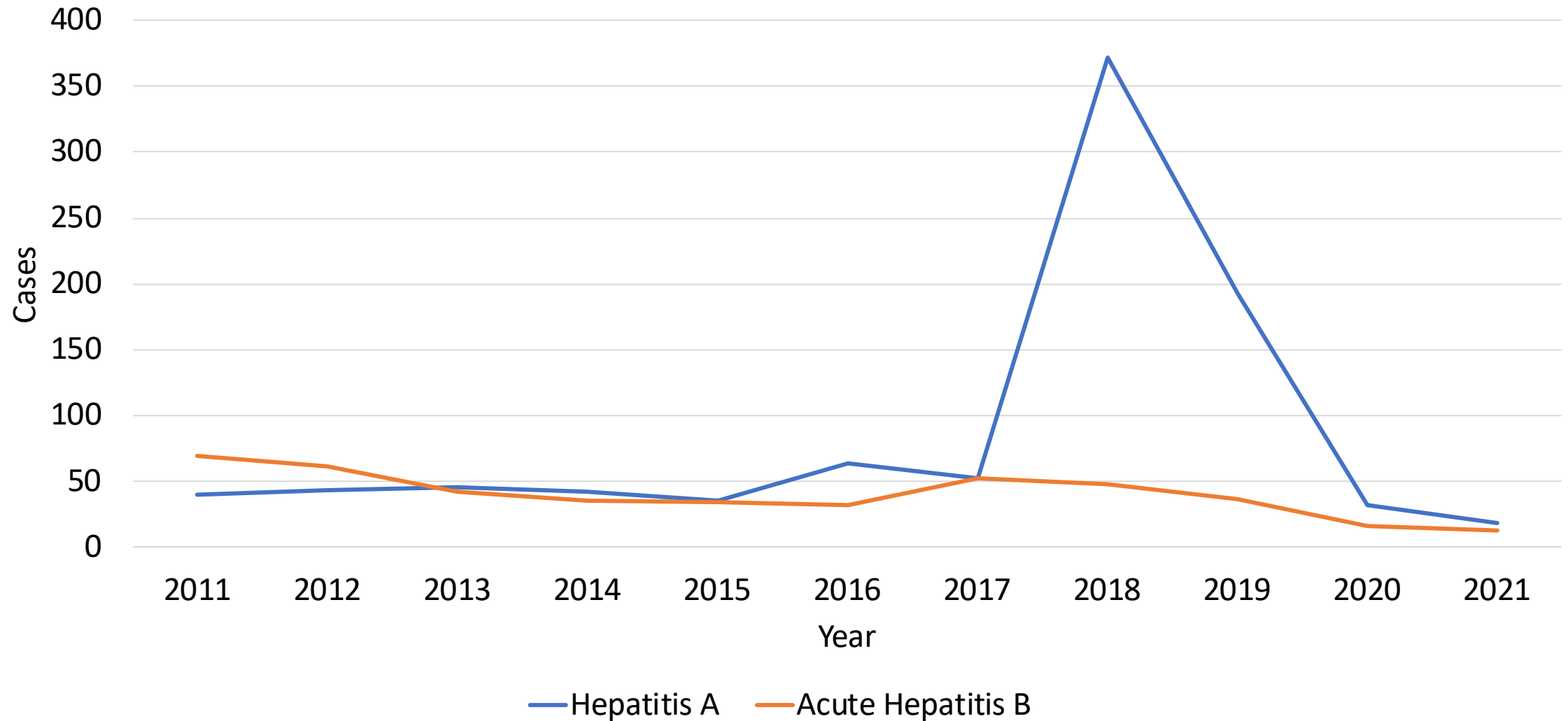
Disease	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Diphtheria	0	0	0	0	0	0	0	0	0	0	0
Hepatitis A	40	43	46	42	35	64	53	373	193	32	20
Hepatitis B (acute)	69	61	42	36	34	32	52	48	37	16	14
Hib <5	0	2	1	1	0	1	2	1	0	0	0
Measles	24	0	1	8	0	1	0	2	3	1	0
Meningococcal Disease	14	6	11	11	12	11	11	21	14	10	9
Mumps	4	6	71	5	6	258	191	46	64	19	2
Pertussis	280	653	348	298	253	198	383	250	315	54	16
Polio	0	0	0	0	0	0	0	0	0	0	0
Pneumococcal Disease <5	40	51	24	27	20	31	21	26	23	15	19
Rubella	0	1	0	0	0	0	1	0	0	0	0
Tetanus	0	0	0	0	0	0	0	0	1	1	1
Varicella	606	628	475	469	356	289	383	291	299	87	92

¹Both confirmed & probable cases are reported for measles, mumps, rubella, tetanus and varicella to better reflect the true burden of disease. All others include confirmed cases only. Data from 2021 are provisional and subject to change. Adult Immunization Conference April 5, 2022

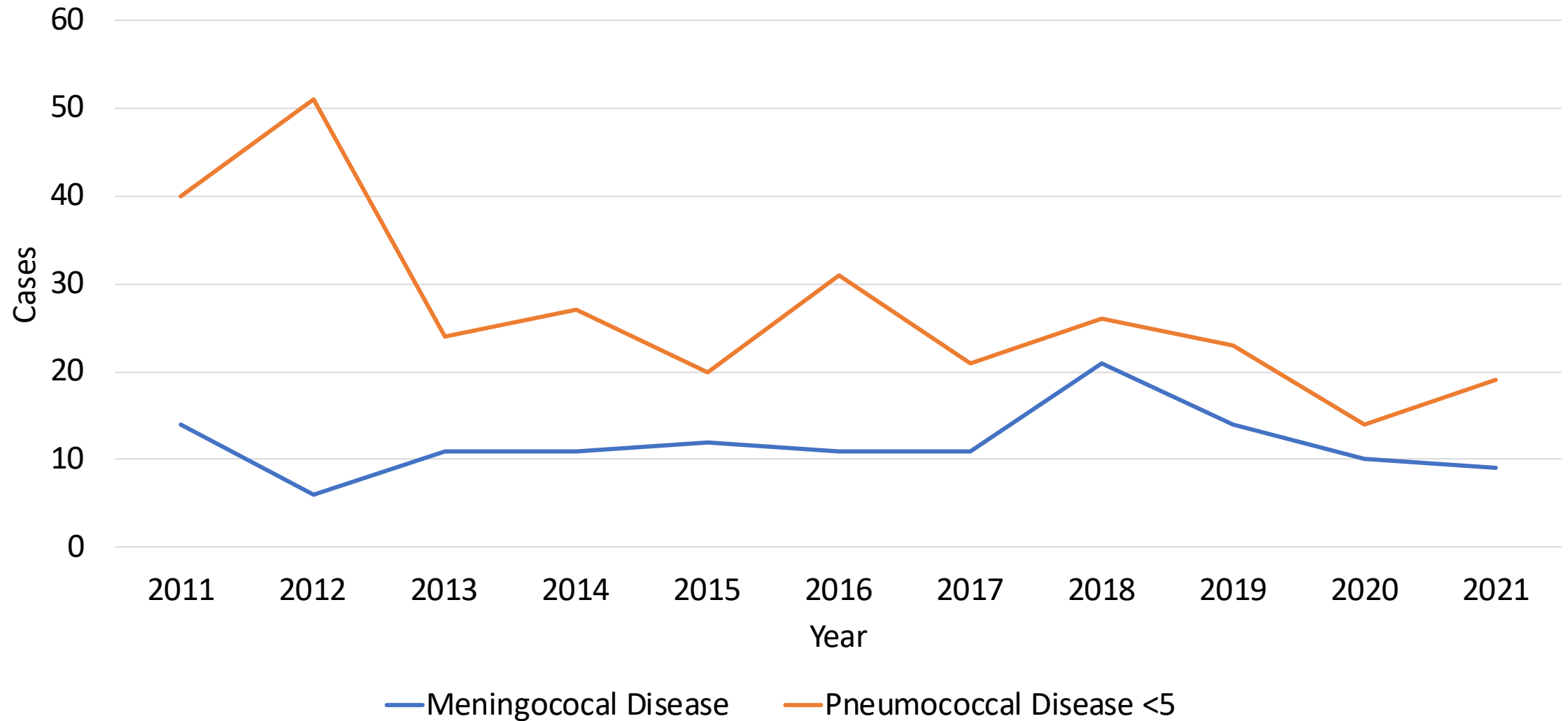
Cases of Hib <5, Rubella & Tetanus 2011-2021



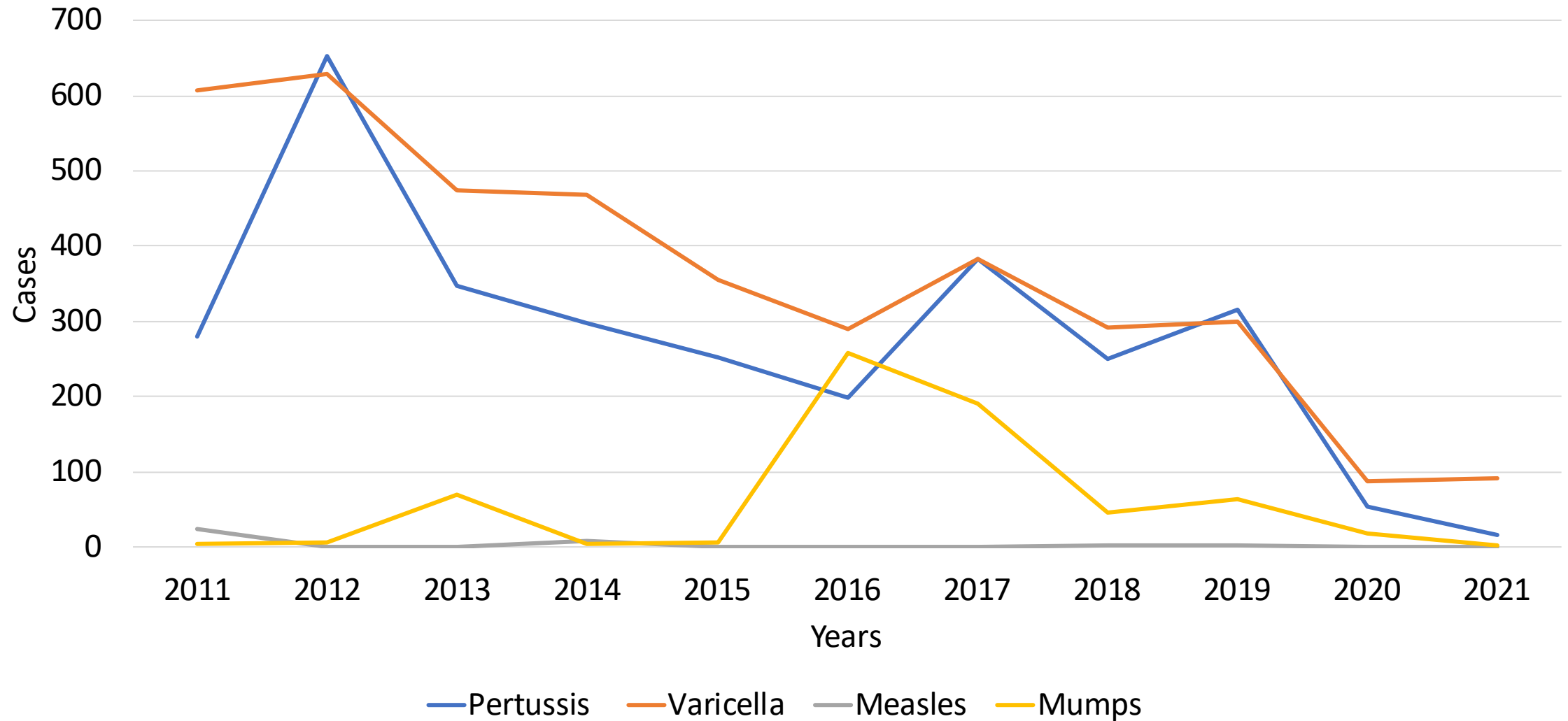
Cases of Hepatitis A & Acute Hepatitis B 2011-2021



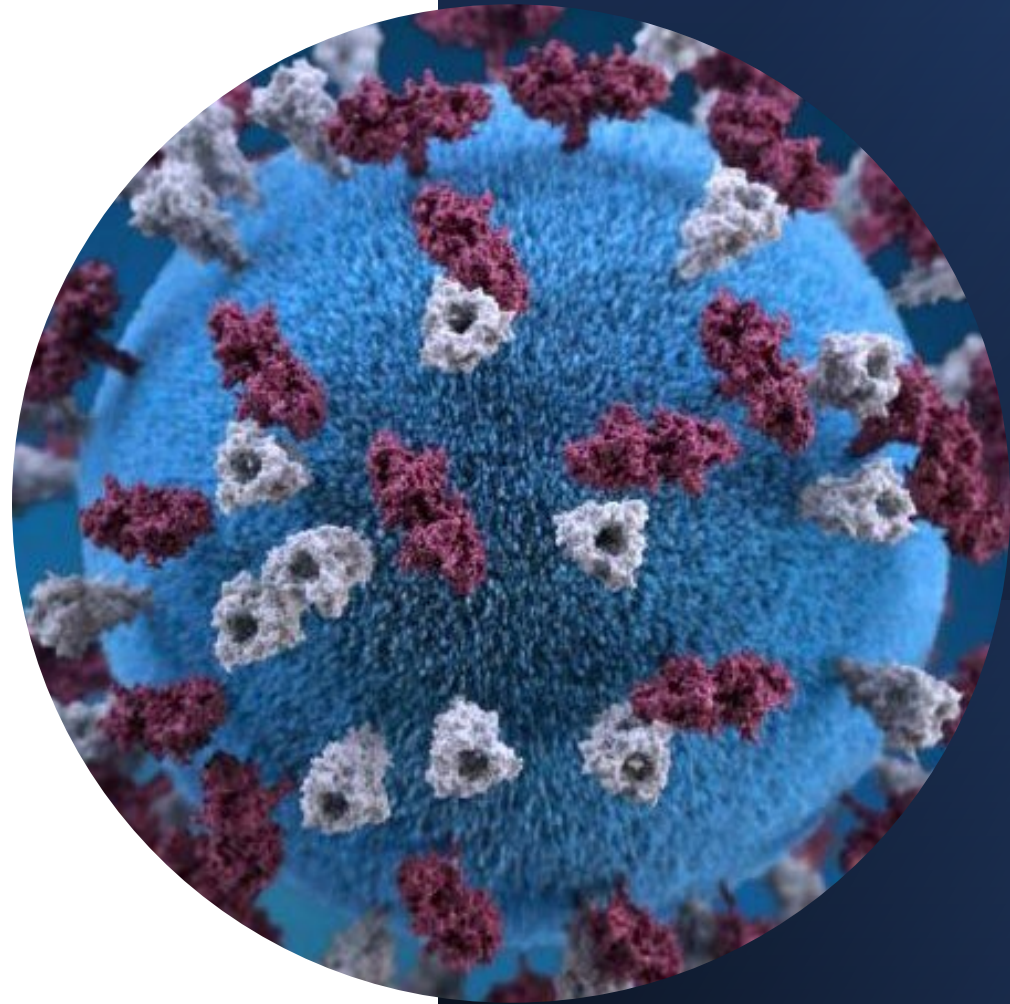
Cases of Meningococcal and Pneumococcal Disease 2011-2021



Cases of Pertussis, Varicella, Measles & Mumps 2011-2021



Measles



Patient 1

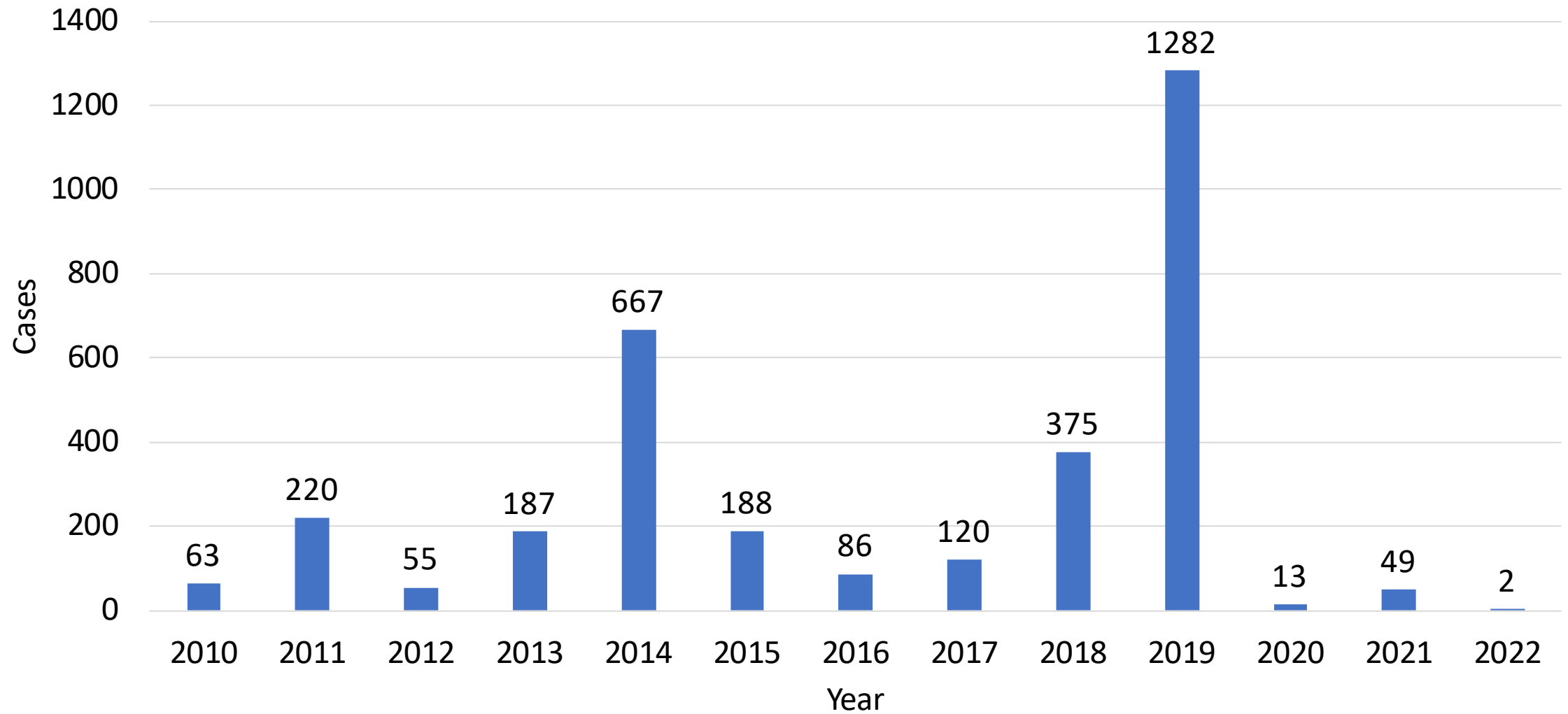
- Presents with rash and congestion
- Recent travel
- Recent antibiotic treatment overseas
- Unvaccinated
- Possible history of measles



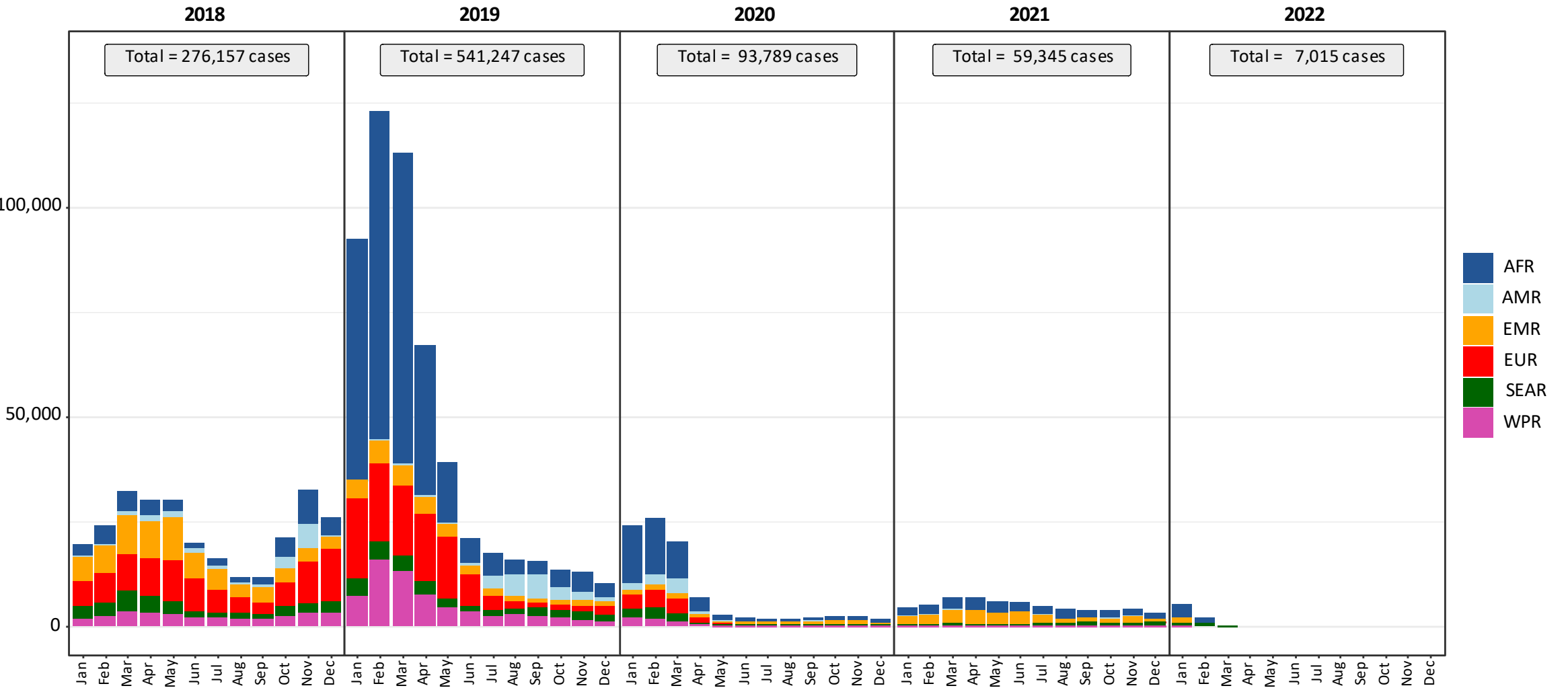
Could this be Measles?

- Does anyone think of anything other than COVID-19 in April of 2022?
- Are there measles outbreaks anywhere in the world right now?
- What questions do you have for this patient?
- What else is in your differential?
- What specimens do you collect?
- If this is measles, are you, your colleagues, and your other patients protected?
- Can you isolate this patient safely during their medical visit?

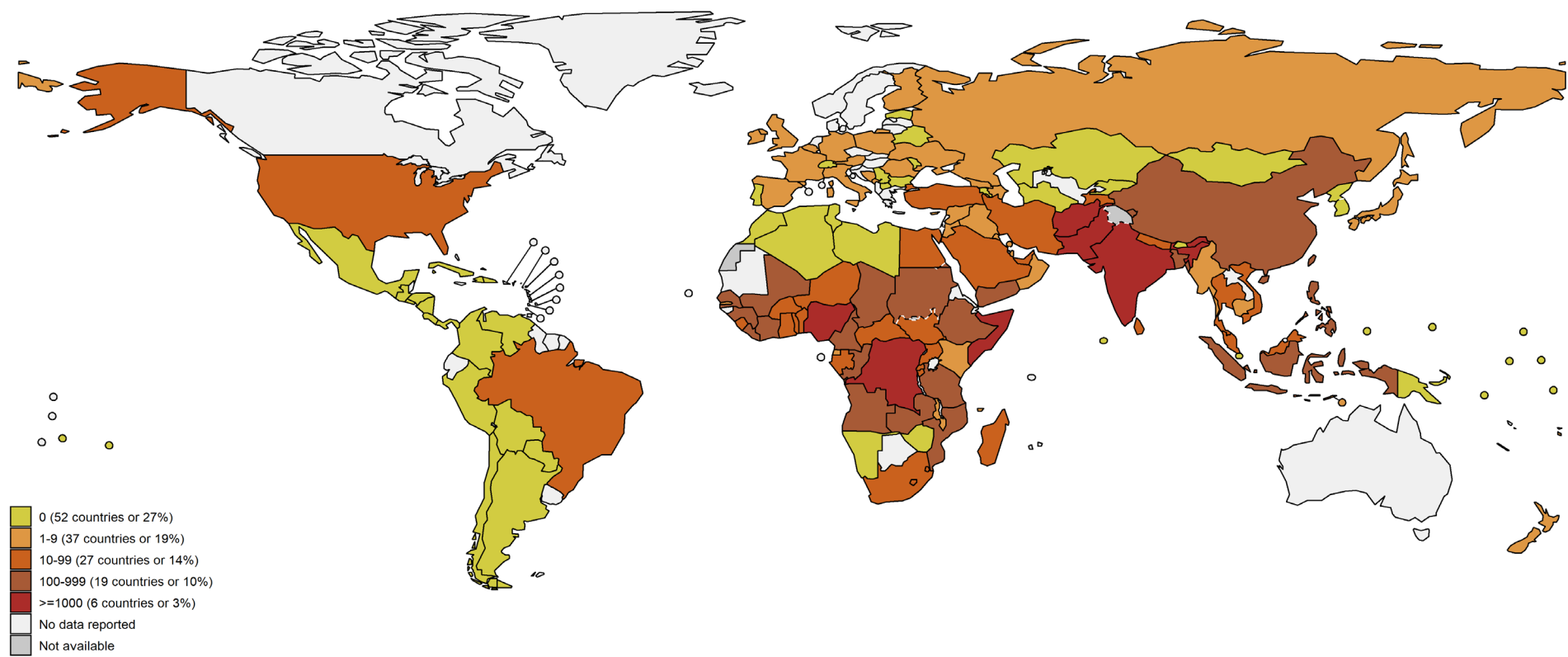
Measles Cases in the U.S 2010-2022



Measles case distribution by month and WHO Region (2018-2022)



Number of Reported Measles Cases (Last 6 months)



Country	Cases*
Nigeria	4,640
India**	4,246
Somalia	2,297
Pakistan	1,935
DR Congo***	1,765
Afghanistan	1,344
Ethiopia	983
Côte d'Ivoire	849
Yemen	638
Mali	596



Map production: World Health Organization, 2022. All rights reserved
Data source: IVB Database

Disclaimer: The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

0 875 1750 3500 Kilometers

Notes: Based on data received 2022-03 - Surveillance data from 2021-08 to 2022-01 - * Countries with highest number of cases for the period - **WHO classifies all suspected measles cases reported from India as measles clinically compatible if a specimen was not collected as per the algorithm for classification of suspected measles in the WHO VPD Surveillance Standards. Thus numbers might be different between what WHO reports and what India reports. - ** DRC typically reports more cases through IDSR

Next Steps for Suspect Measles

- **Call us at 617-983-6800 to discuss and assess risk!**
- Important questions to ask:
 - Vaccination history?
 - Any recent contact with people experiencing similar symptoms?
 - Any recent travel, especially international?
 - Any recent contact with visitors from outside the US?
 - Where did the rash start, what does it look like, and how did it spread?
 - Take some pictures of the rash to share confidentially with medical directors at MDPH.
 - Did patient have a fever, cough, conjunctivitis or coryza?
 - Did your staff have close contact with the patient? What PPE were they using?
 - What type of room was the patient evaluated in?



Next Steps for Suspect Measles Continued

Isolation (Cases)

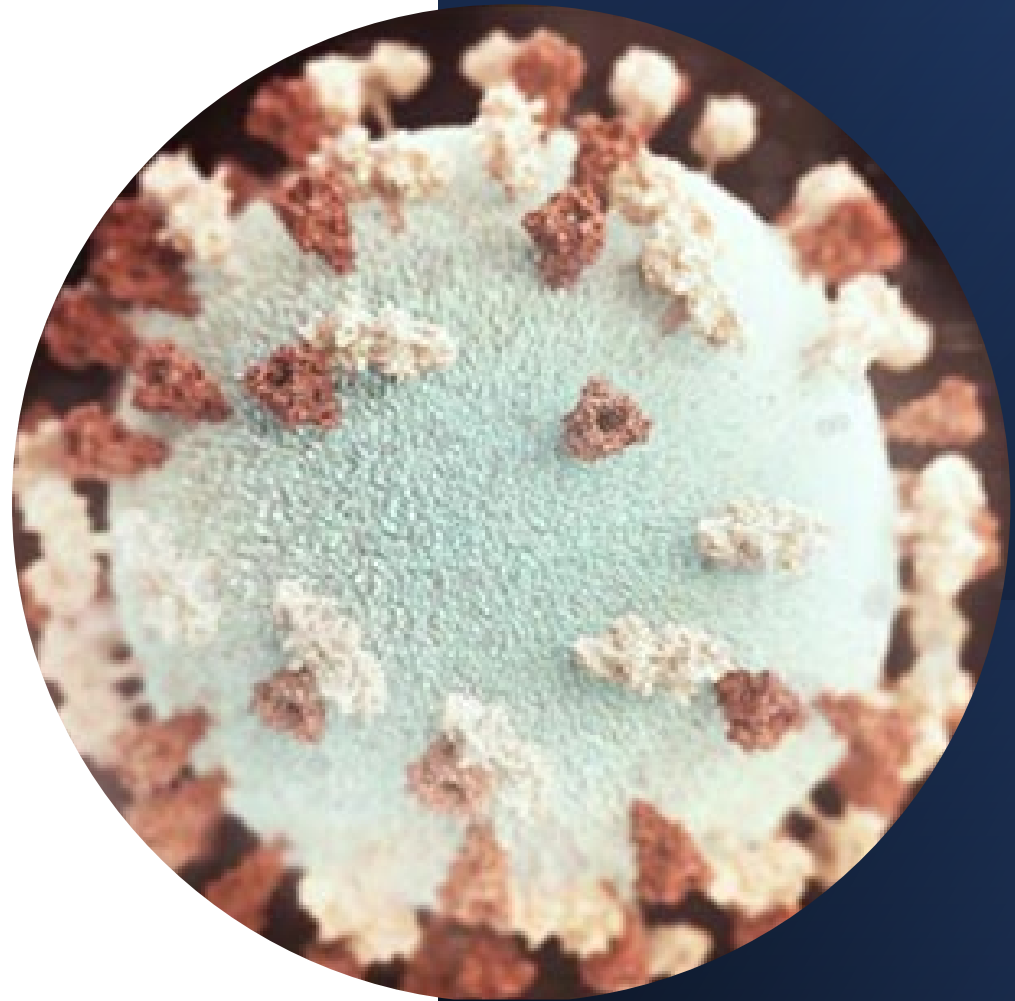
- Through 4 days after rash onset with onset of rash being day 0

Quarantine (Contacts)

- Contacts born in or after 1957¹, who are not appropriately immunized or do not have evidence of immunity, will be excluded from work, classes, or other public activities from the 5th through the 21st day after their exposure

¹Born in the United States

Mumps



Patient 2

- Presents with parotitis and testicular swelling/pain
- Previously seen at an urgent care center and was prescribed Amoxicillin but did not improve
- Born outside of the U.S
- Prior history of mumps unknown



Could this be Mumps?

- What questions do you have for this patient?
- What specimens do you collect?
- If this is mumps, are you, your colleagues, and your other patients protected?

PROTECT YOURSELF AGAINST MUMPS

**MMR VACCINATION IS THE BEST WAY TO PREVENT MUMPS!**
THERE IS NO TREATMENT FOR MUMPS IF YOU GET IT

KEEP FROM SPREADING MUMPS


Don't share things that have saliva on them


Cover your coughs and sneezes


Stay home when you are sick


Wash your hands often with soap and water


Clean and disinfect surfaces

SIGNS AND SYMPTOMS OF MUMPS


Mumps is best known for the puffy cheeks and swollen jaw that it causes.


Fever


Headache


Loss of appetite


Muscle aches


Tiredness

VACCINATION ALSO HELPS PREVENT MUMPS COMPLICATIONS


Complications can include swelling of the:

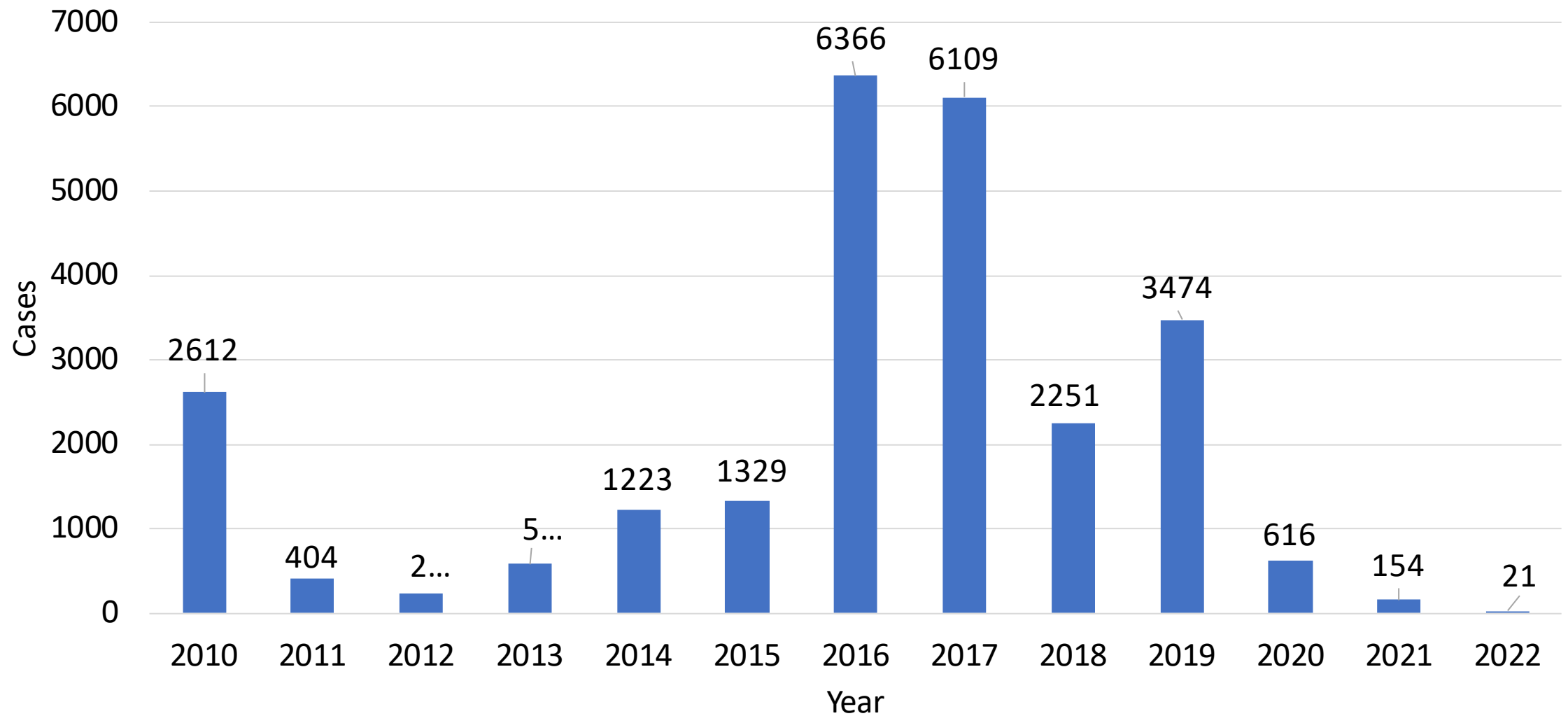
- testicles
- breasts
- brain
- ovaries
- pancreas
- spinal cord tissue

IF YOU HAVE SYMPTOMS, STAY HOME AND AWAY FROM OTHERS. CONTACT YOUR DOCTOR OR HEALTH SERVICES AT YOUR INSTITUTION.



CS302940 2019

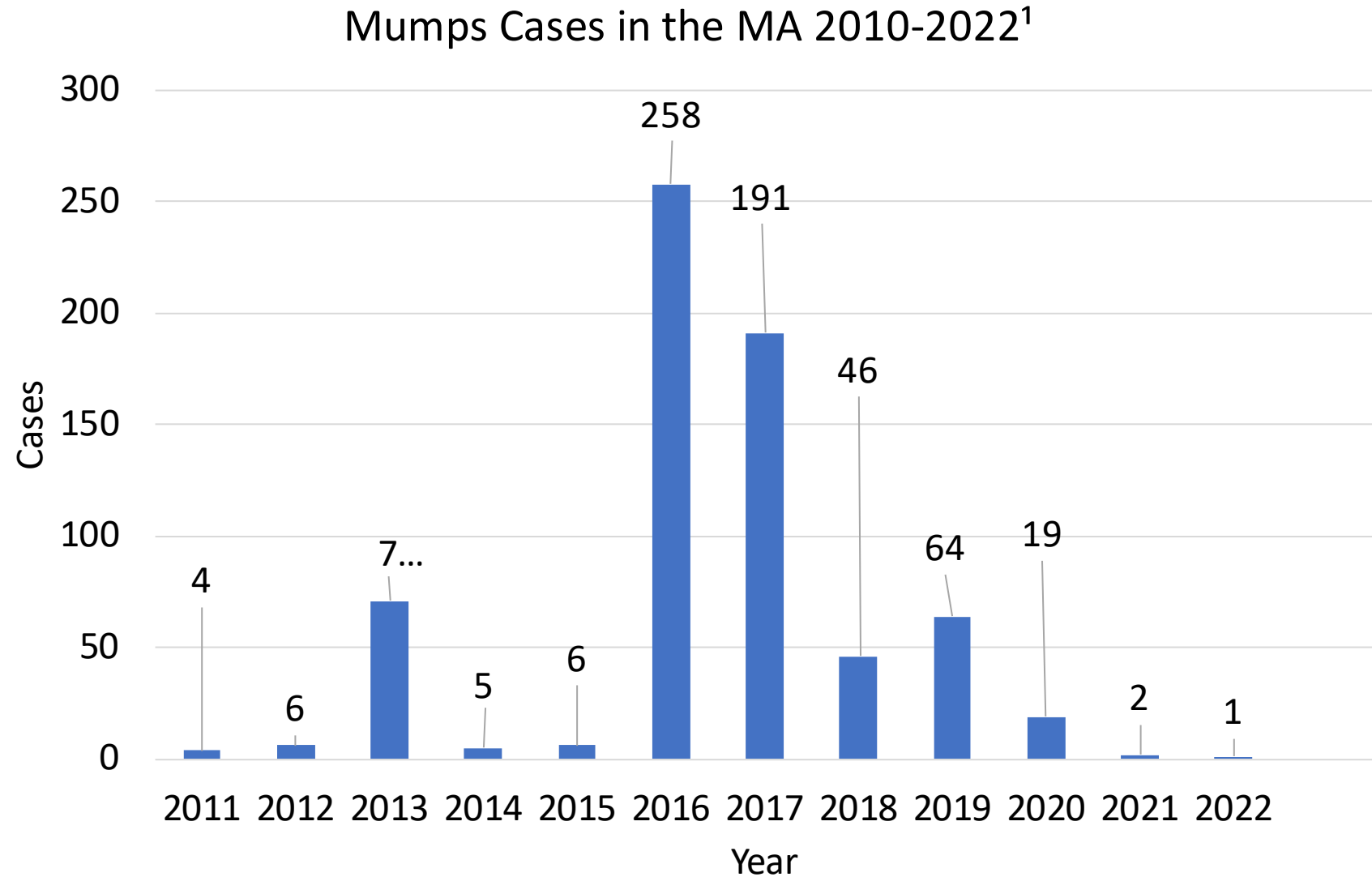
Mumps Cases in the U.S 2010-2022¹



¹As of March 3, 2022, a total of 21 mumps cases were reported by 12 jurisdictions.*

Mumps in MA

- **51%** of probable / confirmed cases of mumps in MA from 2016-2021 were among college aged adults (18-24 years old)
- **32%** of probable / confirmed cases of mumps in MA from 2016-2021 were vaccinated with their first dose of MMR between 1998-2002.



¹Data are current as of 3/11/2022 and are subject to change

Next Steps for Suspect Mumps

- **Call us at 617-983-6800 (24/7/365) to discuss!**
- Important questions to ask:
 - Vaccination history?
 - Any recent contact with people experiencing similar symptoms?
 - Any recent travel, especially international?
 - Any recent contact with visitors from outside the US?
 - Did patient have a fever or parotitis?
 - Did your staff have close contact with the patient? What PPE were they using?
- **Reminder to collect and send in a buccal swab to MA SPHL for testing!** You can also send serum too.



Next Steps for Suspect Mumps Continued

Isolation (Cases)

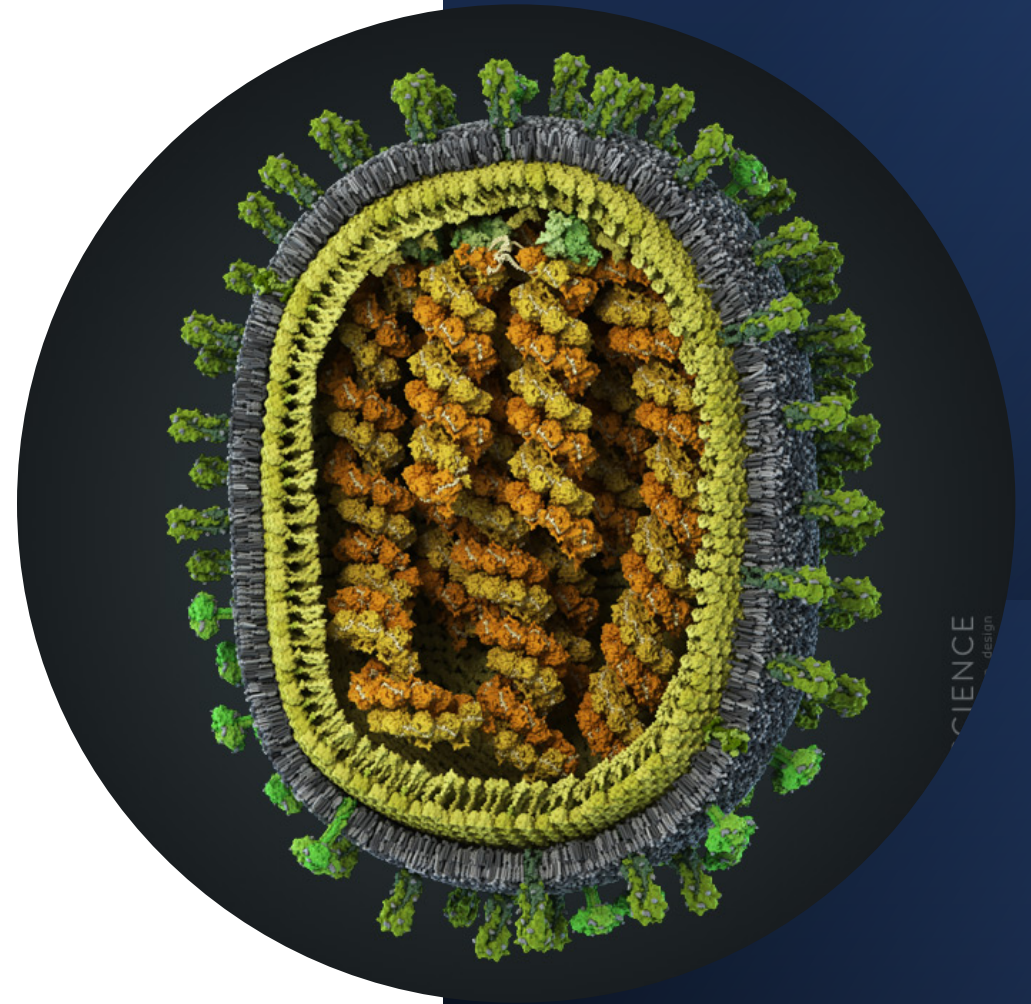
- Through 5 days after onset of gland swelling with onset of gland swelling as day 0

Quarantine (Contacts)

- Contacts born in or after 1957¹, 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

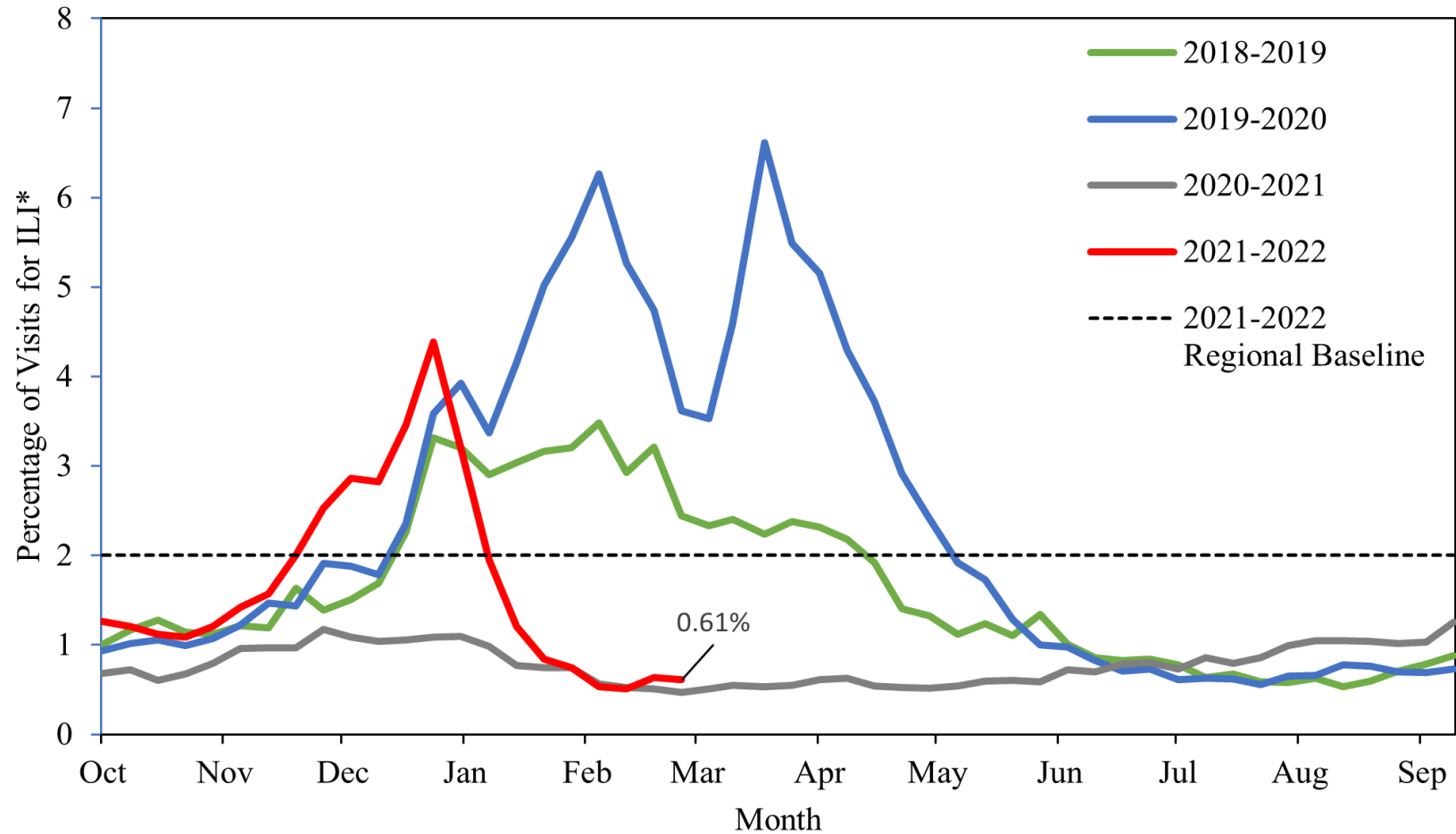
¹Born in the United States

Influenza



Influenza: ILI in MA 2021-2022

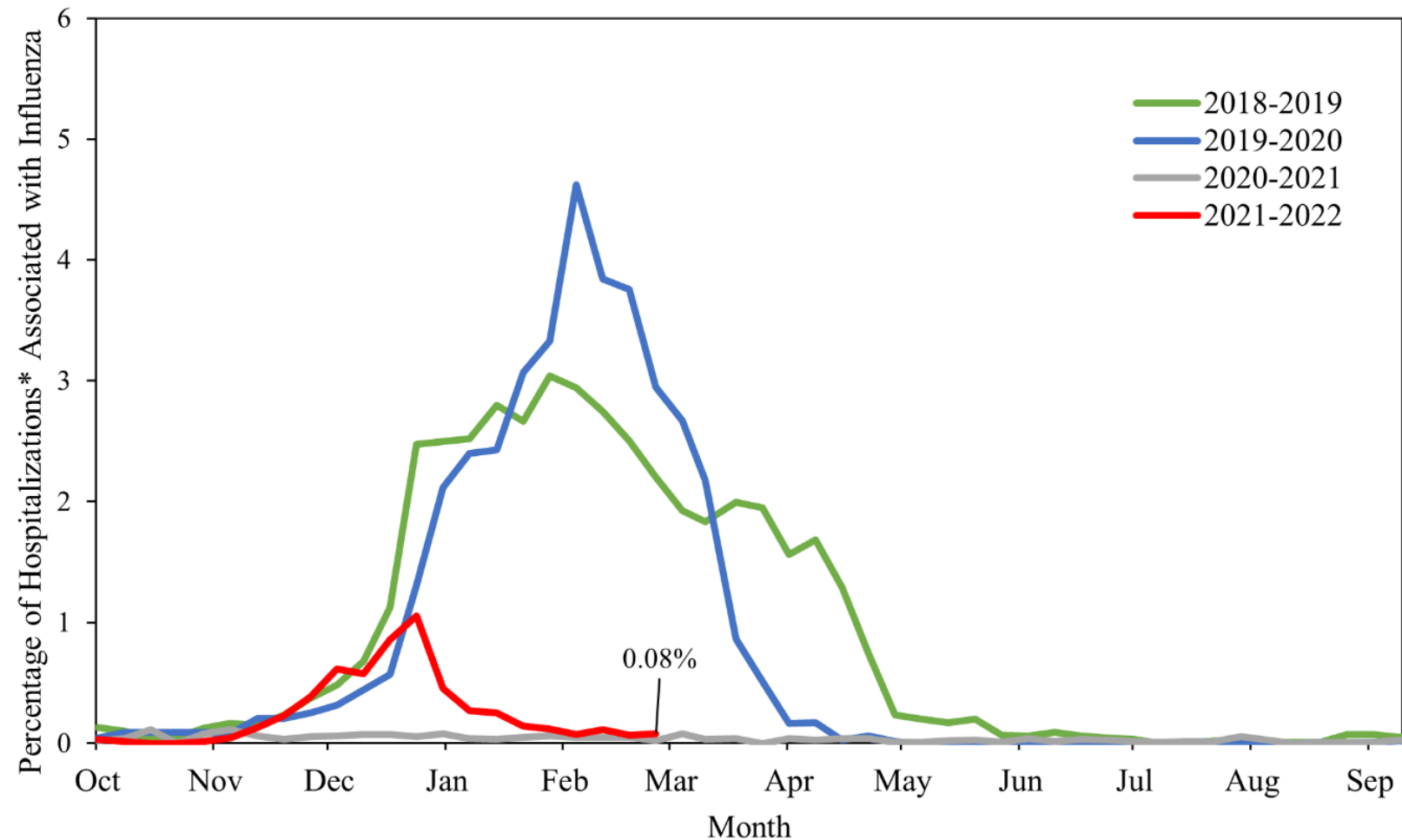
**Figure 1. Percentage of Visits for Influenza-Like Illness (ILI) Reported
by Sentinel Provider Sites in Massachusetts
October 3, 2021 - March 5, 2022**



*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. The 2021-2022 regional baseline is 2.0%, for more information on how this baseline is calculated please visit <https://www.cdc.gov/flu/weekly/overview.htm>.

Hospitalizations Associated with Influenza in MA 2021-2022

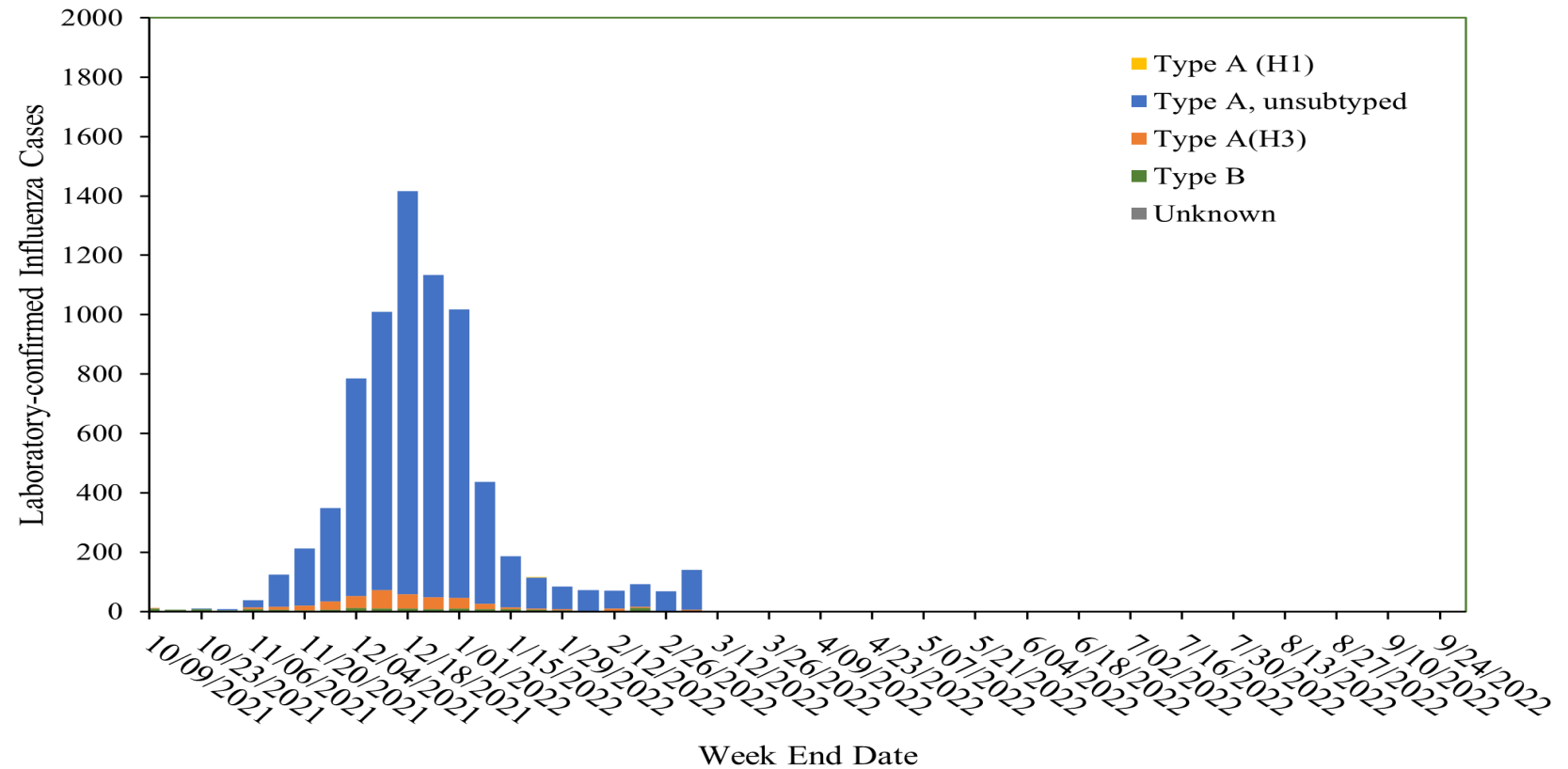
**Figure 2. Percentage of Hospitalizations Associated with Influenza in
Massachusetts
October 3, 2021 - March 5, 2022**



*All patients admitted through hospital emergency departments as captured by syndromic surveillance

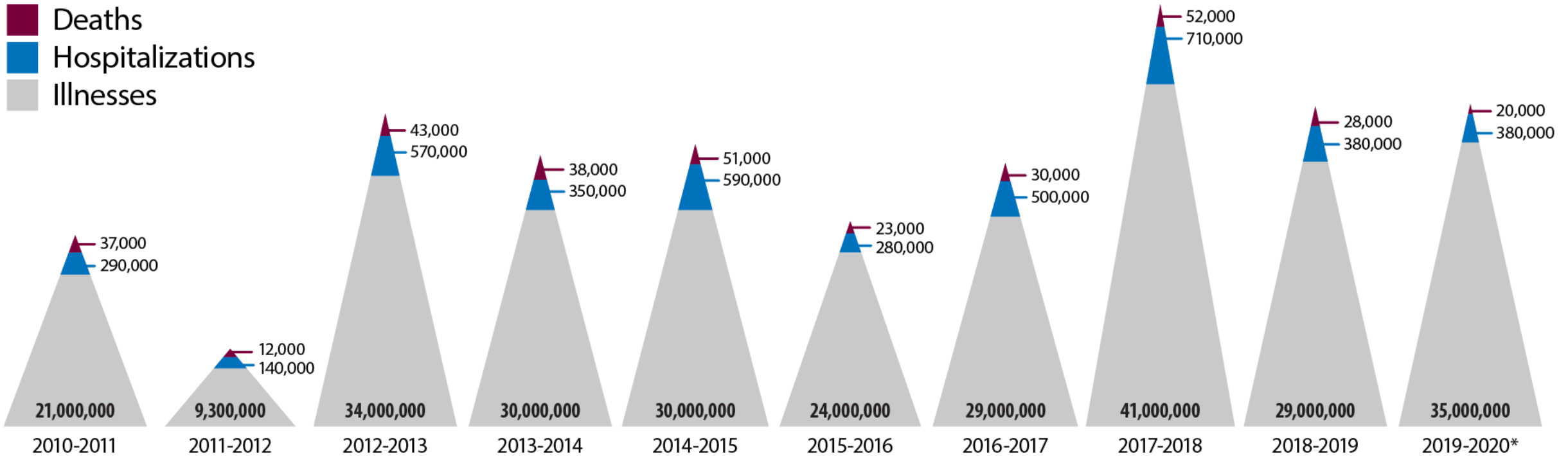
Influenza: Lab Confirmed Cases in MA 2021-2022

**Figure 5. Laboratory-confirmed Influenza Cases in Massachusetts
October 3, 2021 - March 5, 2022**



*Influenza cases confirmed via PCR or viral culture test by specimen collection date.

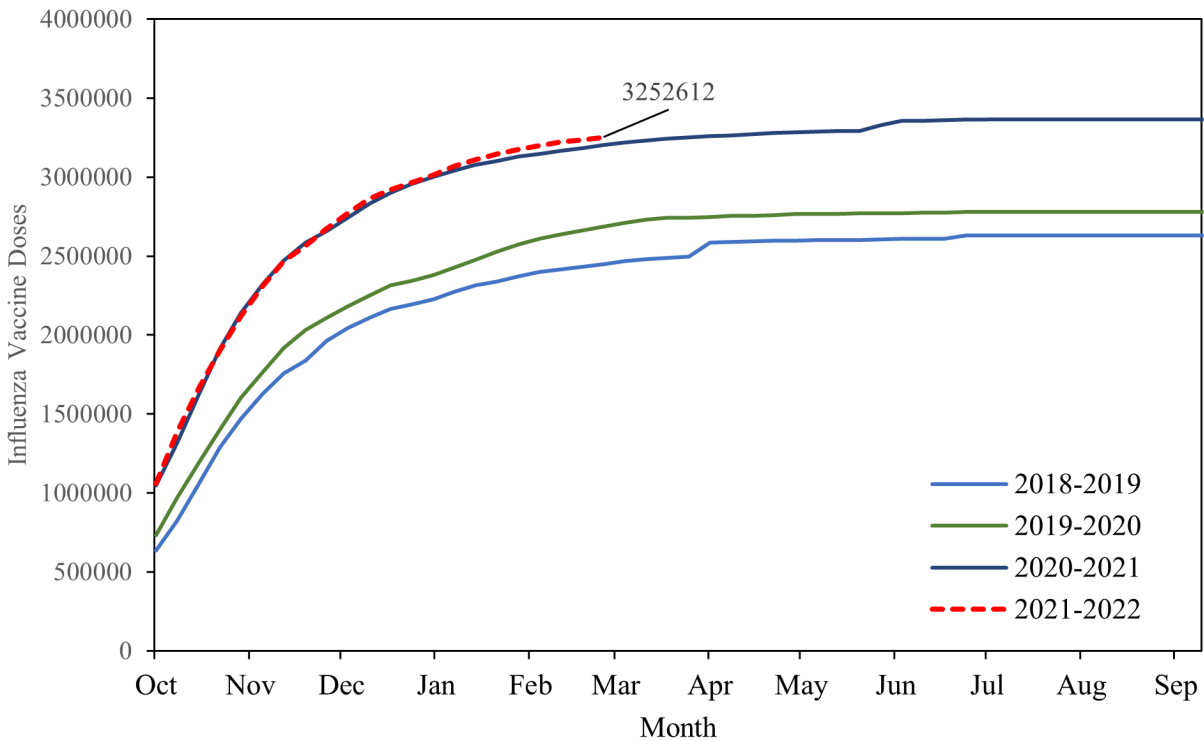
Estimated U.S. Influenza Burden, By Season (2010 - 2020)



*Estimates for the 2019-2020 flu season are preliminary and subject to change as more data are collected.

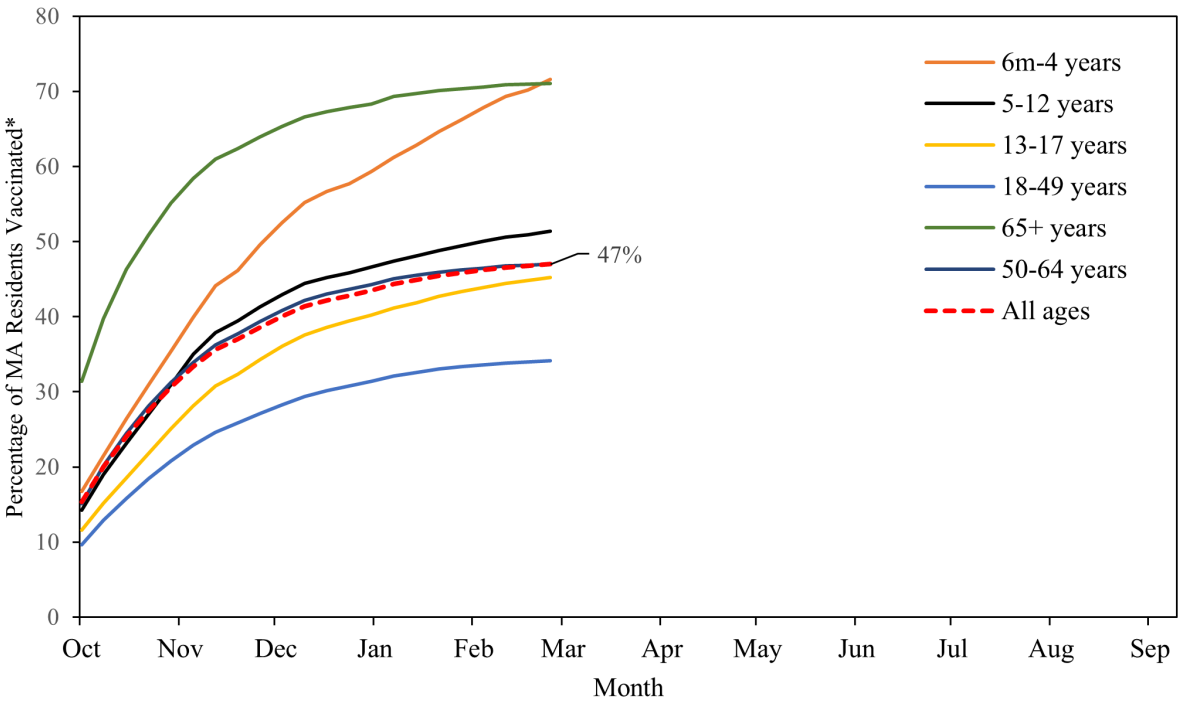
Influenza Vaccination in MA

**Influenza Vaccination Doses Administered in Massachusetts
As of March 5, 2022**



*Vaccination coverage is an estimated percentage of people who have received the influenza vaccine. Vaccination data are from MIIS, and population estimates are from the UMass Donahue Institute. For more information about the population estimates used please visit, <https://donahue.umass.edu>.

**Figure 6. Influenza Vaccination Coverage in Massachusetts,
As of March 5, 2022**

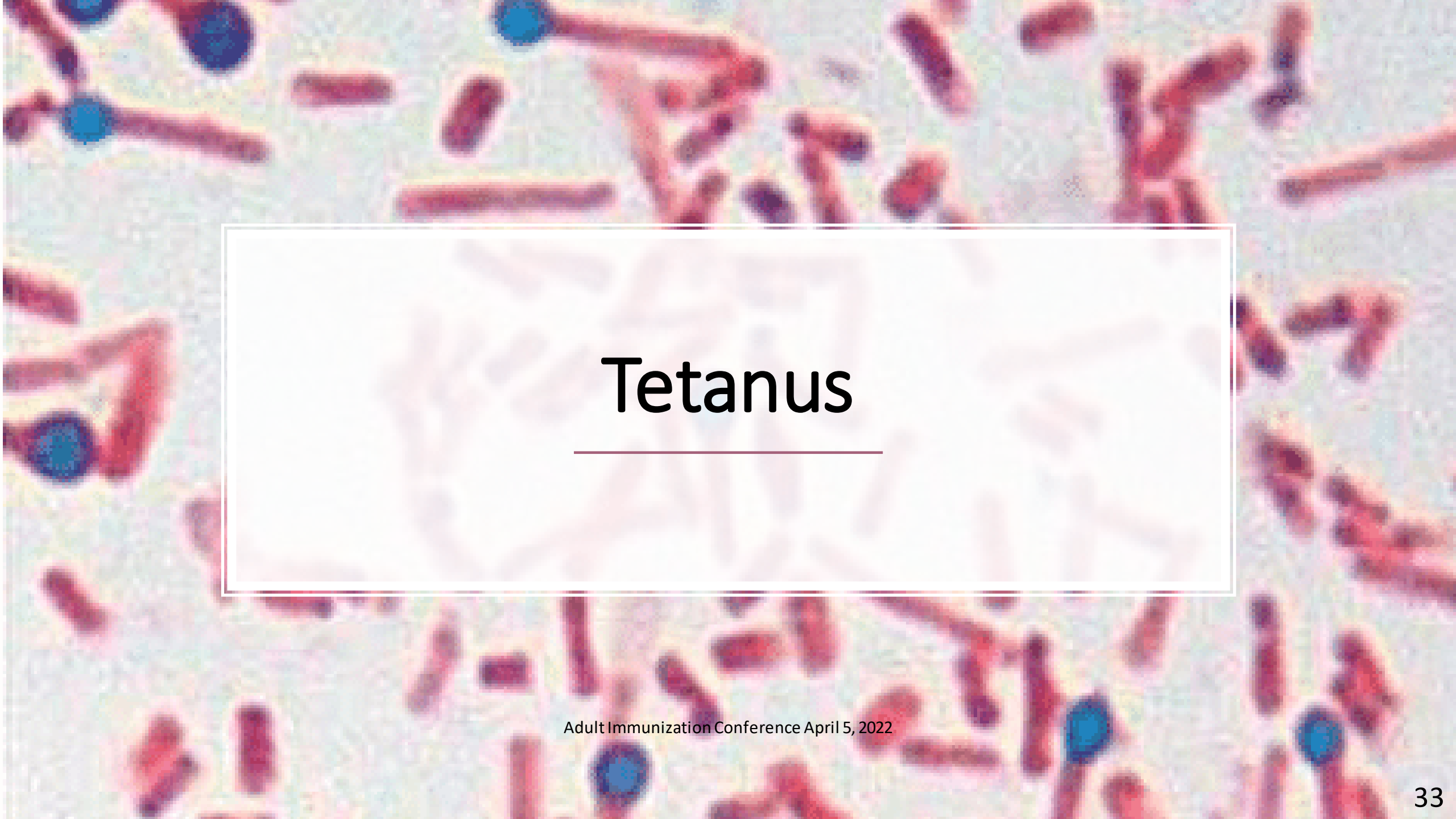


*Vaccination coverage is an estimated percentage of people who have received the influenza vaccine. Vaccination data are from MIIS, and population estimates are from the UMass Donahue Institute. For more information about the population estimates used please visit, <https://donahue.umass.edu>.

The MIIS continues to expand every year and currently has over 2,000 providers in the database. The data in MIIS is updated frequently and may not include all vaccination records of all residents of Massachusetts. Limitations of MIIS data include outdated patient addresses, duplicate records, and data entry errors.

Flu Vaccination Data Takeaways

- Influenza vaccine coverage is lowest among adults 18-49 years of age
 - Similar trend at the national level
- Use the experiences you've gained from discussing COVID-19 vaccination status with your patients for annual flu vaccination
 - As well as other vaccinations

The background of the slide is a microscopic image of Clostridium tetani bacteria. These are rod-shaped bacteria, some appearing as single rods and others in pairs. They are stained a deep red or magenta color. Several of the bacteria have a distinct, bright blue, circular structure at one end, which is the spore. The bacteria are scattered across the entire slide, with a higher concentration in the background and fewer in the central white box.

Tetanus

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Tetanus: Recent Fatal Probable Case

- In May 2019, MDPH was notified about an elderly adult hospitalized with suspected tetanus. Case suffered a fall 4 days prior to admission which led to a small wood shard lodged in the individual's arm.
- Presented to hospital with severe neck stiffness, wound drainage & hypertension.
- Sedated for 46 days in the ICU
- Last reported tetanus containing vaccine was 13 years prior. Patient refused vaccine a few months before illness.

Tetanus: Recent Non-Fatal Probable Case

- In October 2021, MDPH was notified about a young adult hospitalized with suspected tetanus. Case sustained a laceration to their hand from a metal fence a month prior.
- In October, patient presented to the hospital with jaw tightness, clenching of teeth, head tilt, and severe spasms of the neck, back and all four extremities.
- Was admitted to the ICU for short stays – left a few times AMA but returned once muscle relaxants wore off.
- Sought care for his wound in September 2021 but refused a tetanus vaccine. Last dose of vaccine was unknown. Received a tetanus containing vaccine and immunoglobulin at the hospital in October.

People of all ages need TETANUS VACCINES



DTaP for young children

- ✓ 2, 4, and 6 months
- ✓ 15 through 18 months
- ✓ 4 through 6 years

Tdap for preteens

- ✓ 11 through 12 years

Td or Tdap for adults

- ✓ Every 10 years

www.cdc.gov/tetanus



Acute Flaccid Myelitis (AFM)

What is AFM?

- Rare but serious neurologic condition that affects the grey matter of the spinal cord and causes muscle weakness, flaccid paralysis and weakens reflexes
- No known cause but >90% of patients with AFM had mild respiratory symptoms or fever consistent with viral infection before developing AFM
 - Testing at CDC has detected coxsackievirus A16, EV-A71, and EV-D68
 - Often, no pathogens are found despite rigorous testing

How to Spot Symptoms of *Acute Flaccid Myelitis* in Your Child

Acute flaccid myelitis, or AFM, is an uncommon but serious condition that affects the nervous system.

The Most Common Symptom of AFM



Sudden arm or leg weakness

Some People May Experience



Pain in the arms or legs



Difficulty moving the eyes or drooping eyelids



Pain in the neck or back



Facial droop



Difficulty swallowing or slurred speech

Seek medical care right away if your child has any of these symptoms.

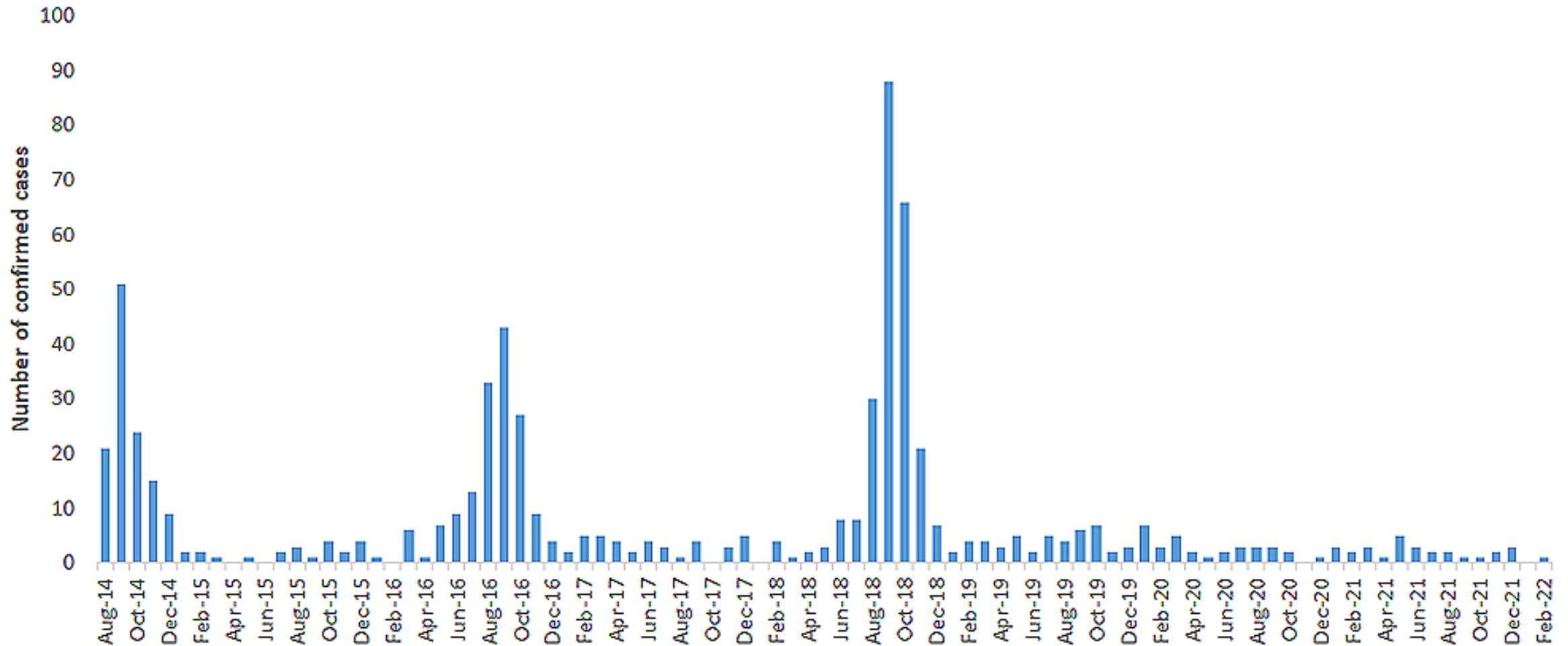


Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases



www.cdc.gov/acute-flaccid-myelitis

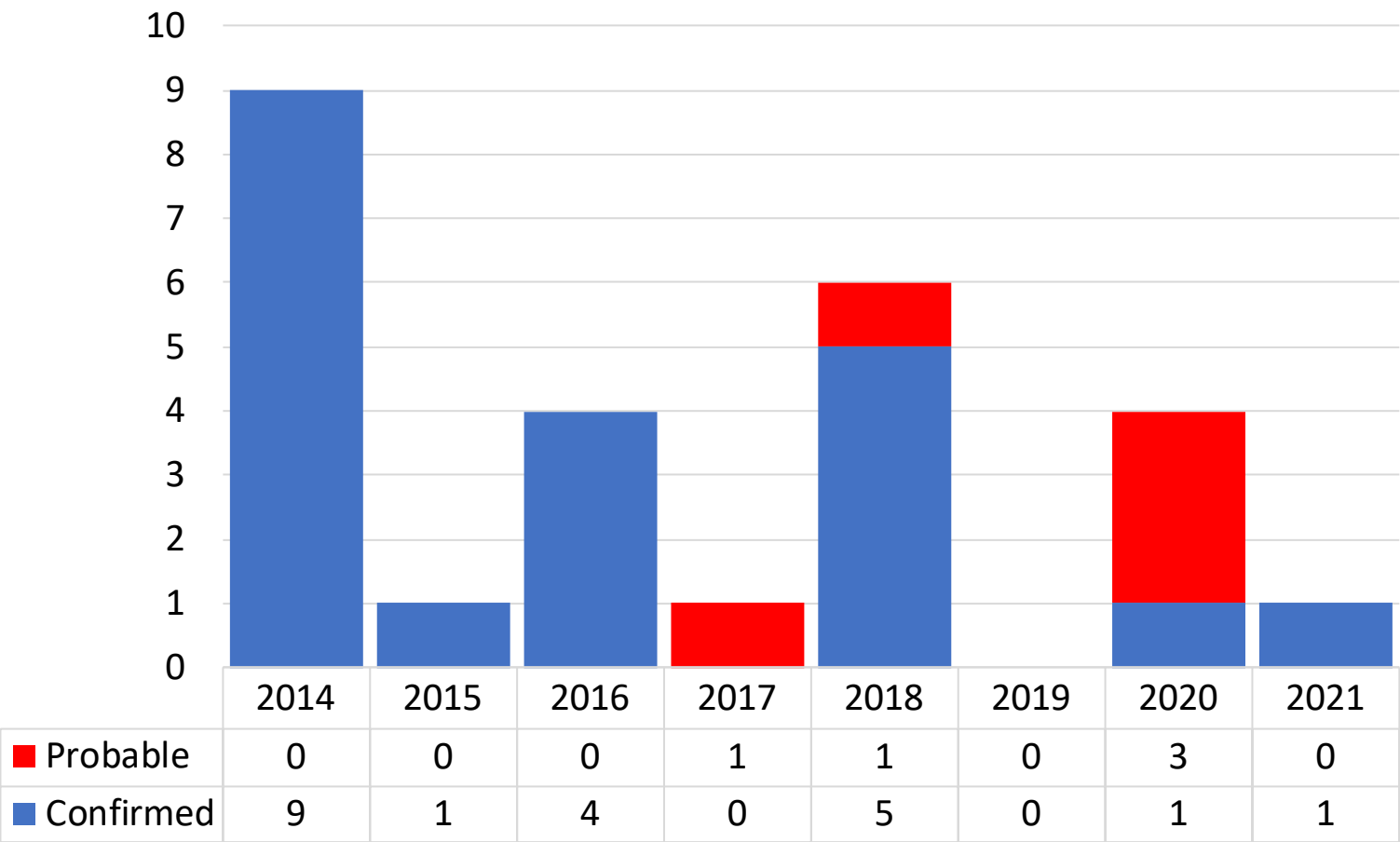
Nationwide Cases of AFM by month 2014-2022



MA Case Count

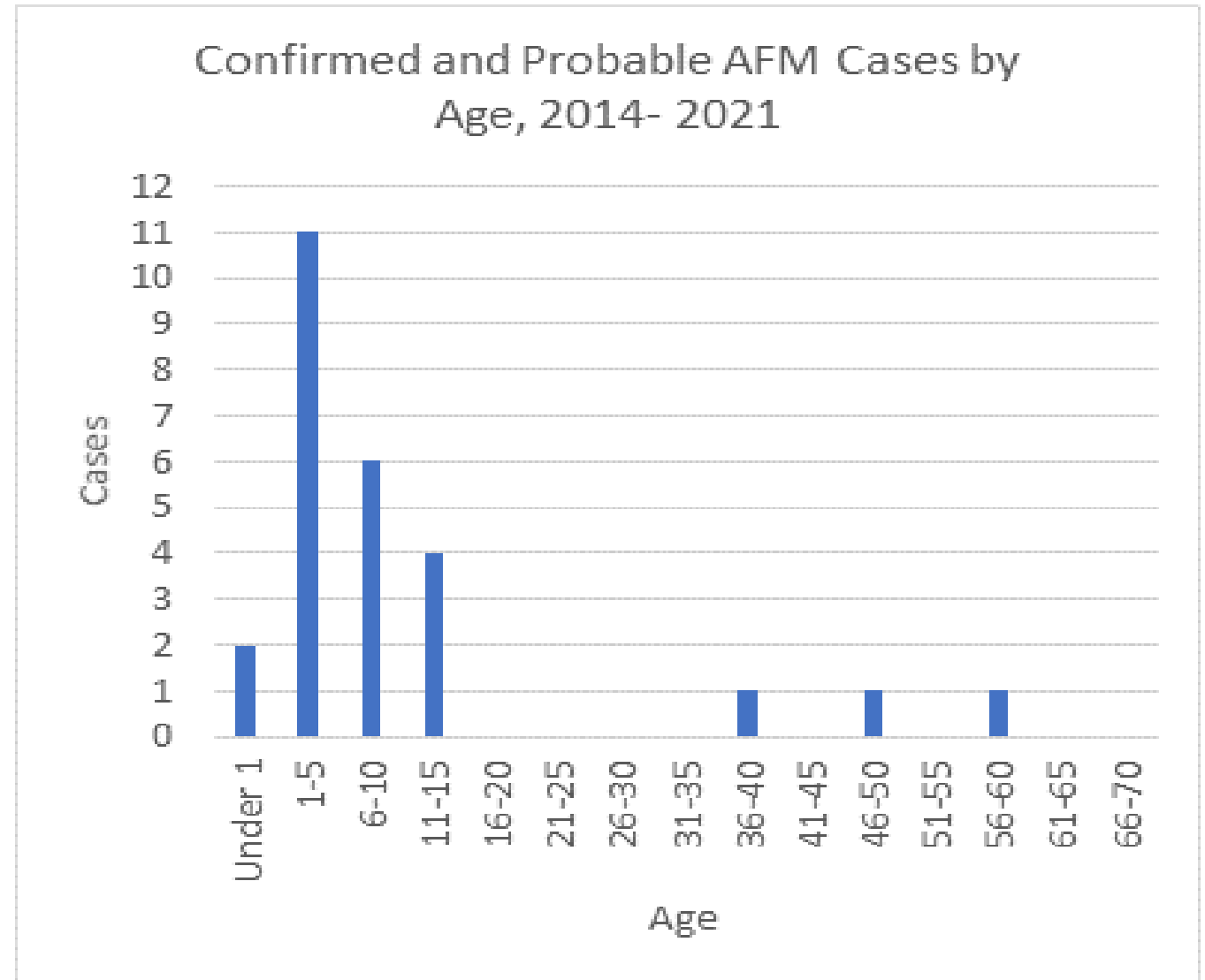
- 55 Suspect cases reported since January 2014
 - 21 Confirmed
 - 5 Probable
 - 19 Revoked (not a case)
 - 10 Non-MA residents seen in MA hospital

AFM Cases in Massachusetts
by Year, 2014-2021



Age Breakdown

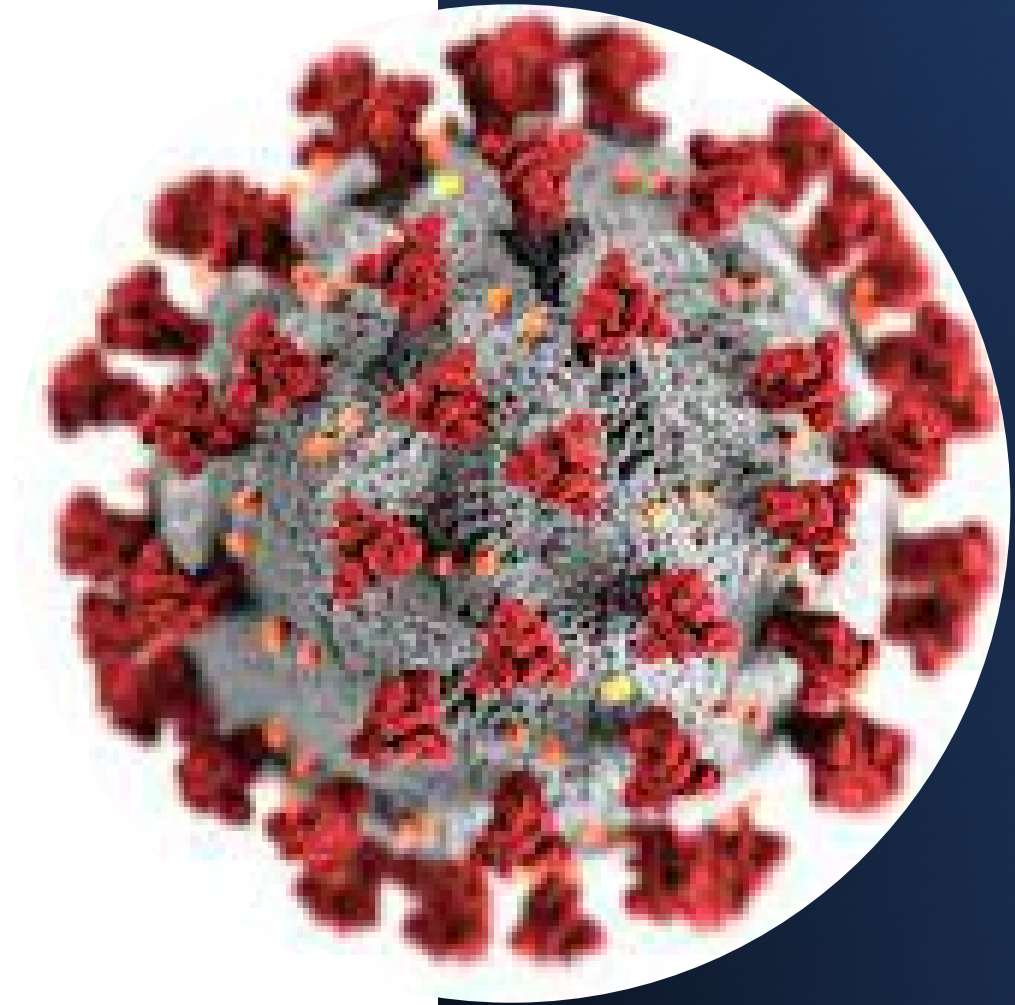
- While most cases occur in children, we have seen cases in adults
- 11.5% of confirmed and probable cases since 2014 have been in adults over age 18
 - Specifically, they were in adults over 35.



Reporting a Suspect Case of AFM

- **Call the Division of Epidemiology at 617-983-6800 (24/7/365)!**
- **You will be asked to:**
 - Fax in the completed [Patient Summary Form](#)
 - Send in specimens to the State Lab (NP/OP, stool, serum, CSF)
 - Will need the [SPHL Specimen Submission Form](#)
 - Check the [CDC AFM webpage](#) for detailed info on sample size, shipping, etc.
 - Send in MRI images, MRI report, and Neuro consult note

COVID-19



Provincetown



It's Nowhere Near Over': A Beach Town's Gust of Freedom, Then a U-turn – The New York Times

How much worse would Provincetown's COVID-19 outbreak have been without vaccines?

Provincetown may have escaped becoming a 'Biogen 2.0'
- The Boston Globe

CDC mask decision followed stunning findings from Cape Cod beach outbreak – ABC News

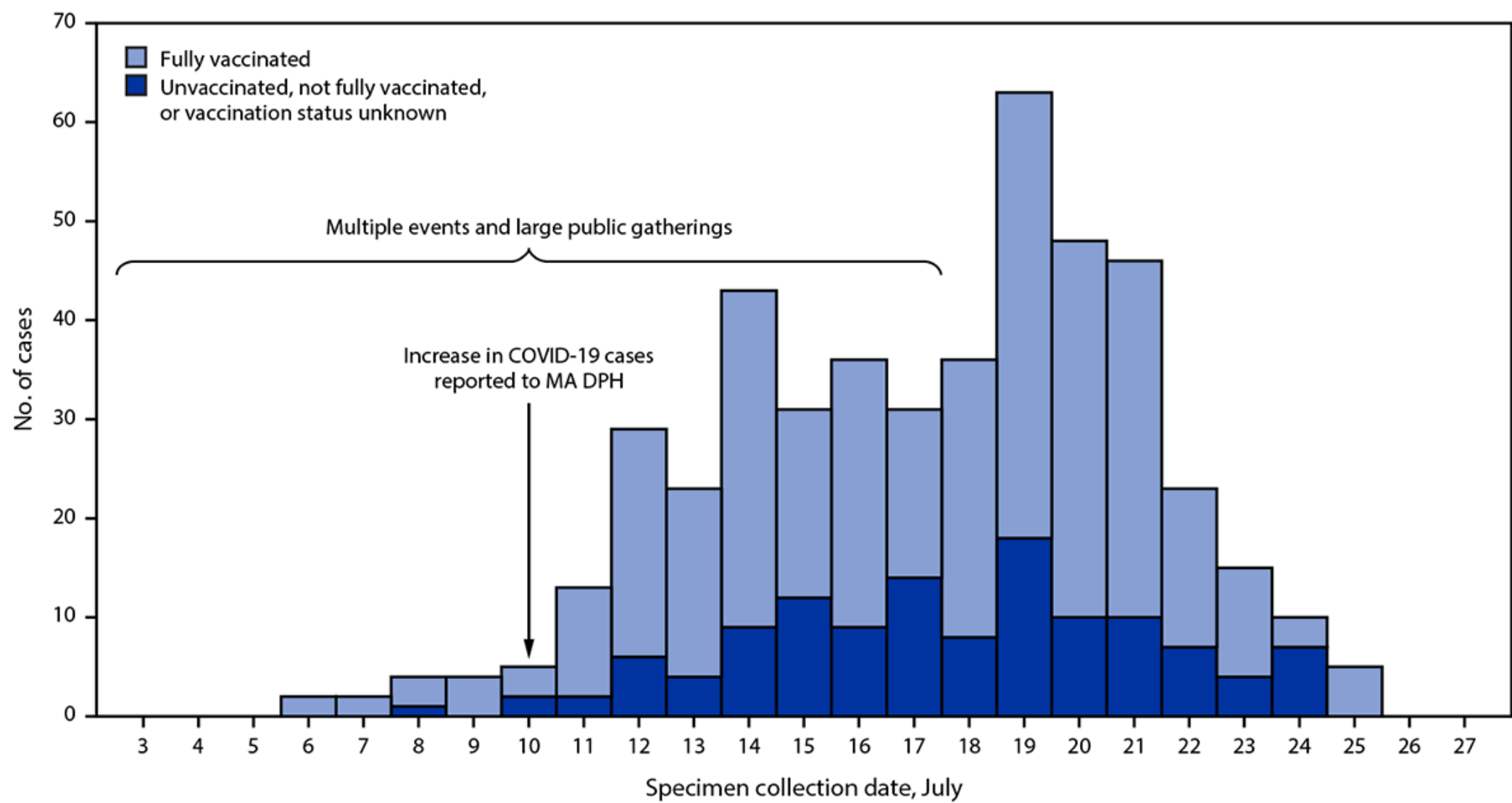
What Happened?

- During July 3–17, 2021, thousands of visitors from across the US traveled to Provincetown and participated in large, densely packed indoor and outdoor gatherings marketed to adult male participants
- A plethora of continuous events were held at venues including restaurants, bars, and guest houses
 - Local advisories at the time did not recommend mask wearing for fully vaccinated persons, and venues did not require participants to wear masks indoors
- By July 10, DPH received reports of a large cluster of COVID-19 cases among Massachusetts residents who resided in or recently visited Provincetown, including cases among **fully vaccinated persons**

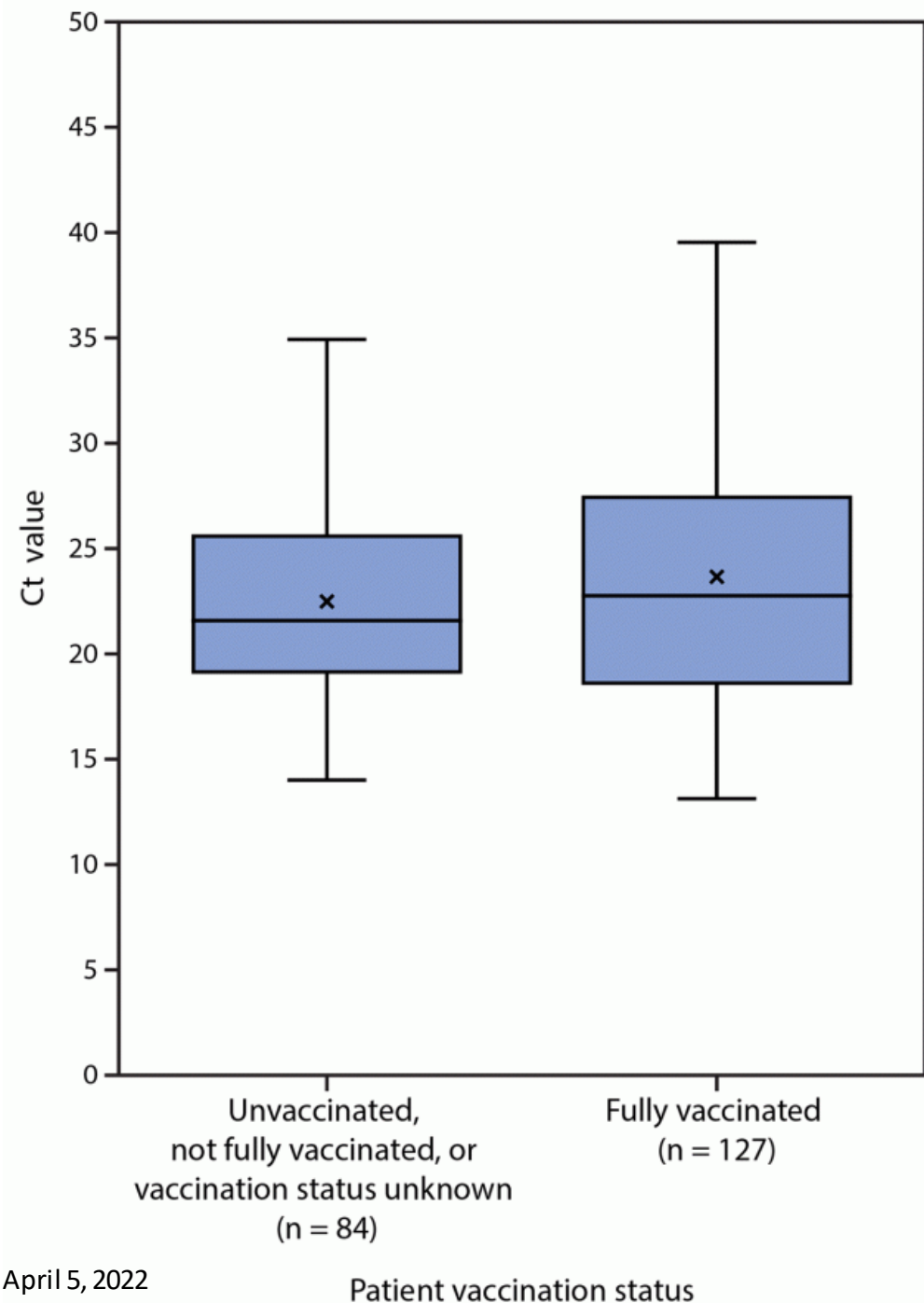
The Response

- On July 14th, 2021, DPH and the local board of health deployed mobile testing to increase access to testing
- Recommended that individuals who live or traveled to Provincetown be tested **regardless of vaccination status**
- Issued Epidemic Information Exchange notifications to identify cases among residents within other US jurisdictions
- Information provided by other jurisdictions was followed by DPH epidemiologists to obtain additional details

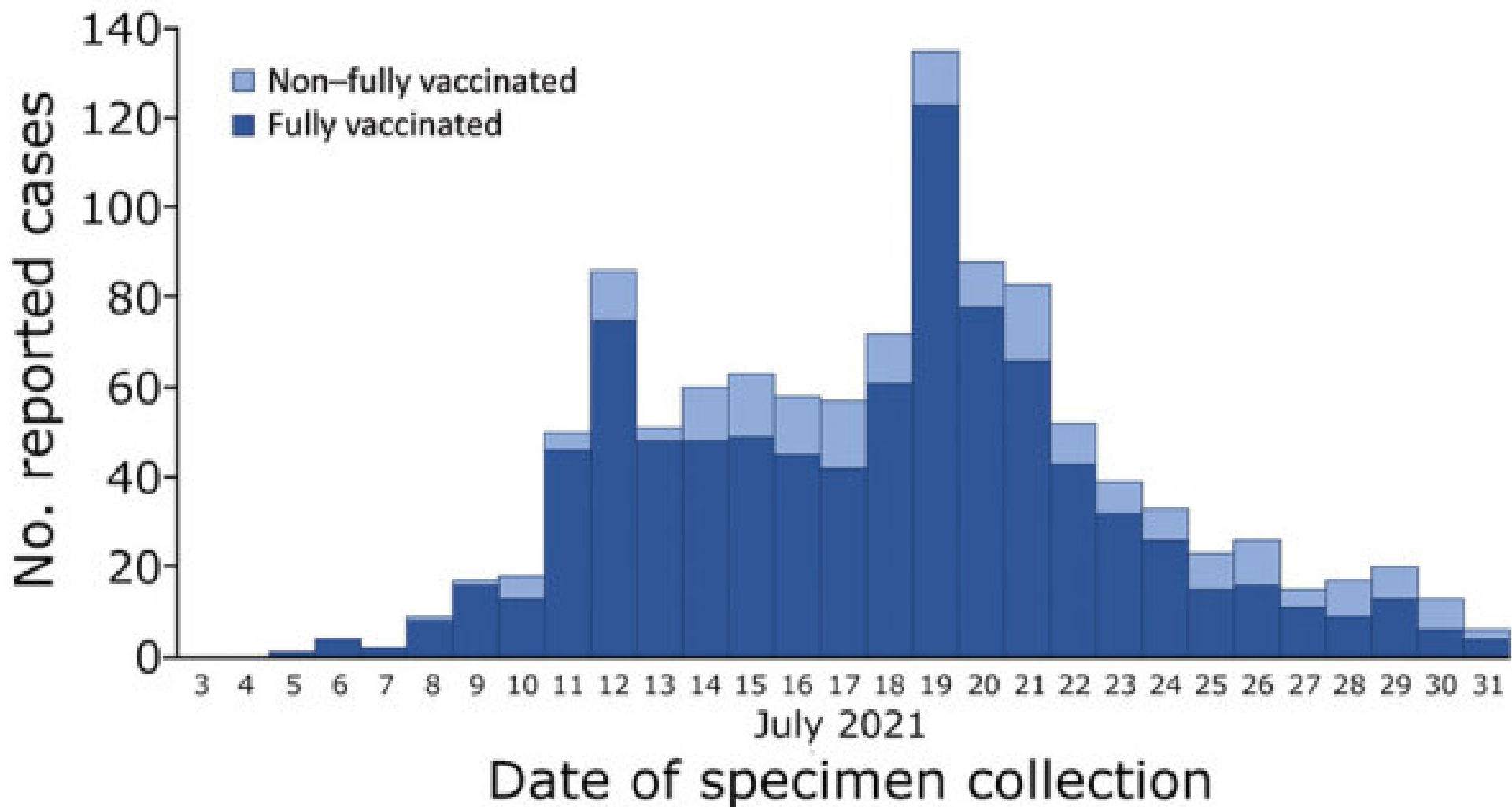
SARS-CoV-2 infections (N = 469) associated with large public gatherings, by date of specimen collection and vaccination status* — Barnstable County, Massachusetts, July 2021



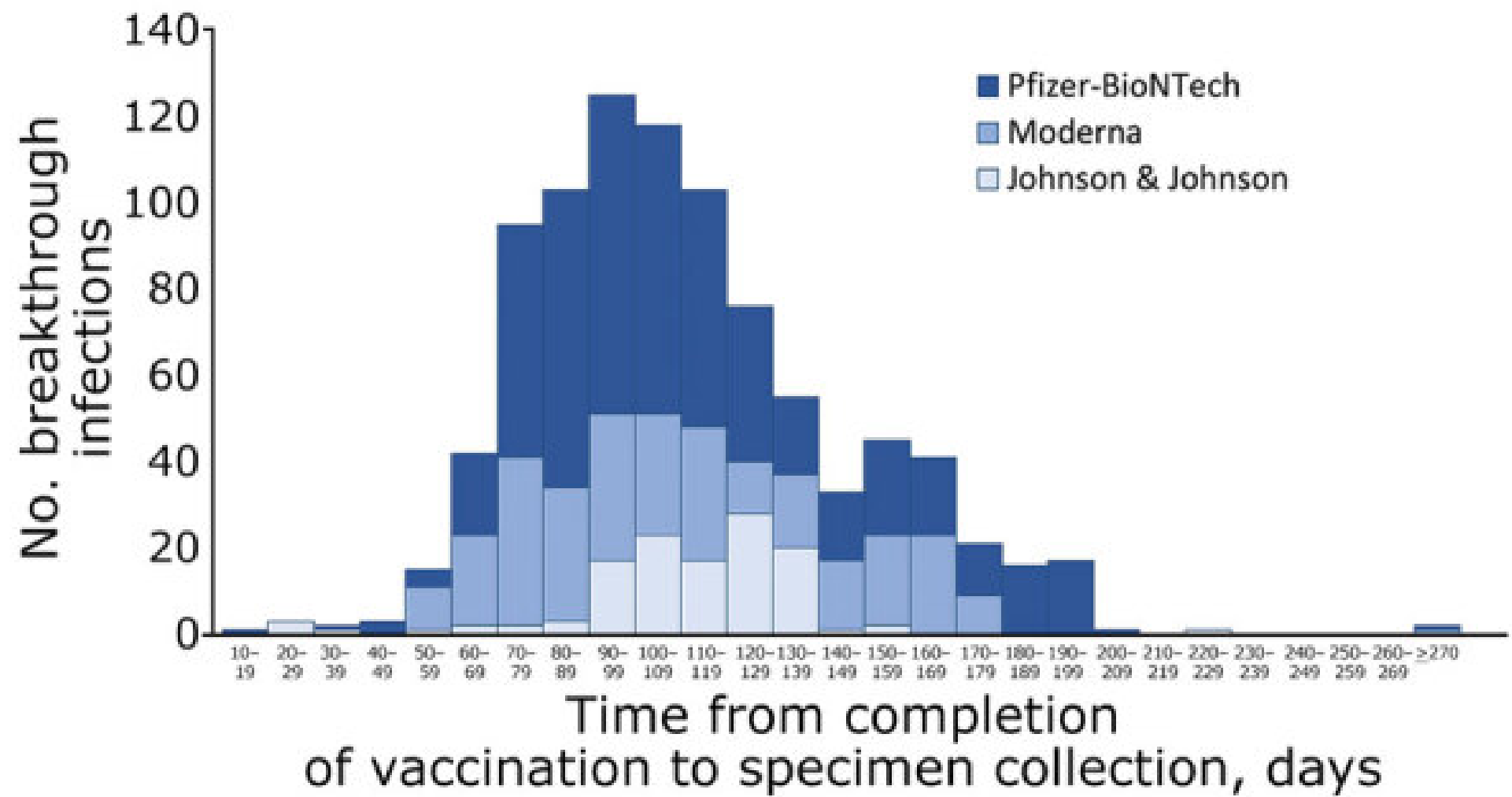
SARS-CoV-2 real-time reverse transcription–polymerase chain reaction cycle threshold values* for specimens from patients with infections associated with large public gatherings, by vaccination status[†] — Barnstable County, Massachusetts, July 2021[§]



Primary cluster-associated cases of severe acute respiratory syndrome coronavirus 2 infection (n = 1,098), by vaccination status and date of specimen collection, after large public gatherings in Provincetown, Massachusetts, USA, July 2021.



Time from completion of coronavirus disease (COVID-19) vaccination to date of specimen collection, by vaccine product, among fully vaccinated persons (n = 918) who had primary and secondary cluster-associated cases of severe acute respiratory syndrome coronavirus 2 infection after large public gatherings in Provincetown, Massachusetts, USA, July 2021.



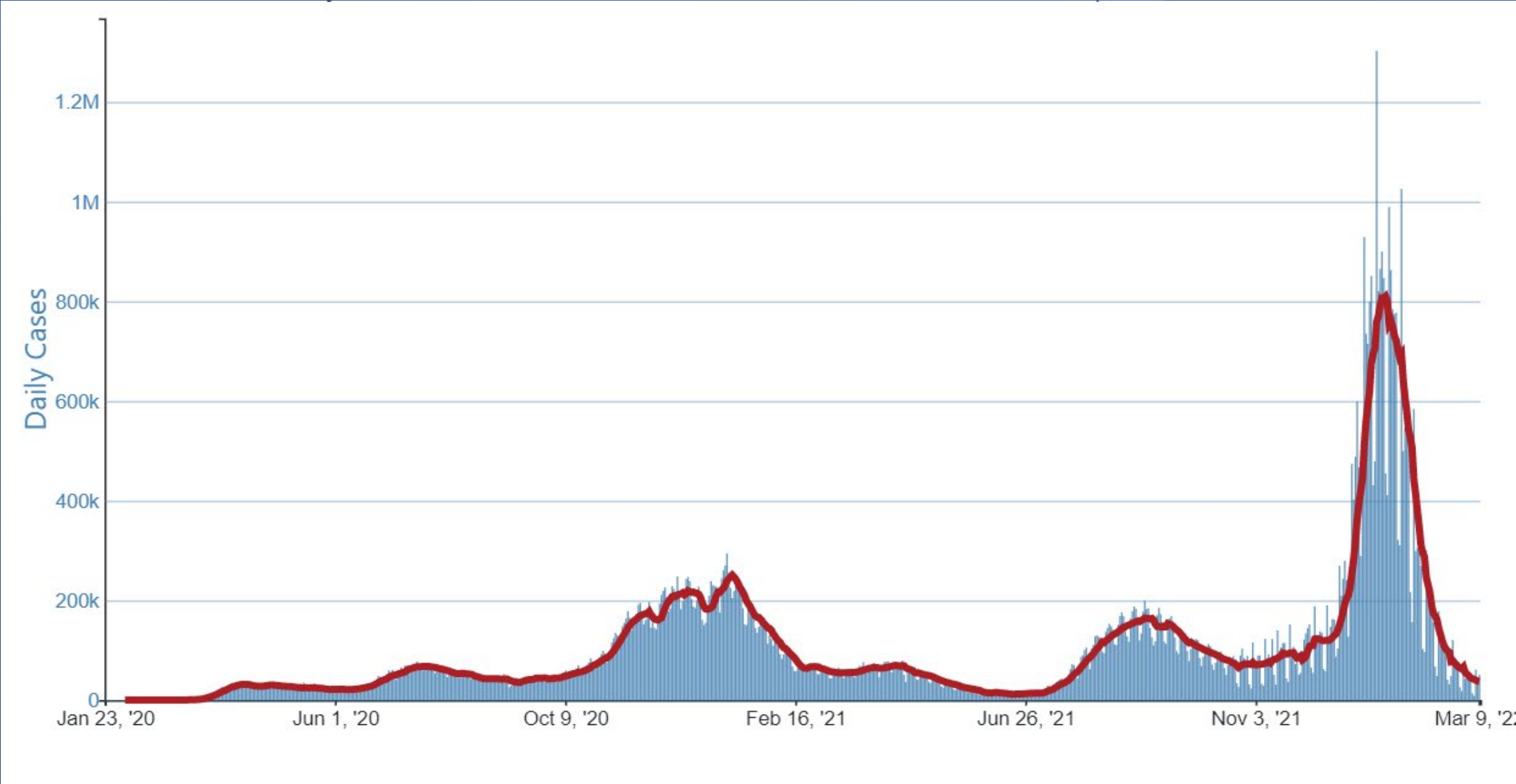
Lessons Learned from Provincetown

Cycle threshold (CT) values were similar among specimens from patients who were fully vaccinated and those who were not

The vaccines are most effective in preventing severe outcomes: death & hospitalization.
Vaccinated people are less likely to transmit but transmission is not 100% prevented by vaccination.

CDC updated its masking guidance to once again recommend masking indoors

Daily Trends in Number of COVID-19 Cases in The United States Reported to CDC





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

For data on COVID-19 variants, click here (CDC website)

Cases

Confirmed Cases
Today there were 802 new, confirmed cases reported bringing the total to 1,547,487 total confirmed cases.

Probable Cases
Today, there were 85 new, probable cases reported bringing the total to 132,434 total probable cases.

Testing

Tests Reported
There were 54,053 new COVID-19 molecular tests reported, bringing the cumulative total to 41,454,600 tests.

Percent Positivity
The 7-day average of percent positivity is 1.60%.

Hospitalizations

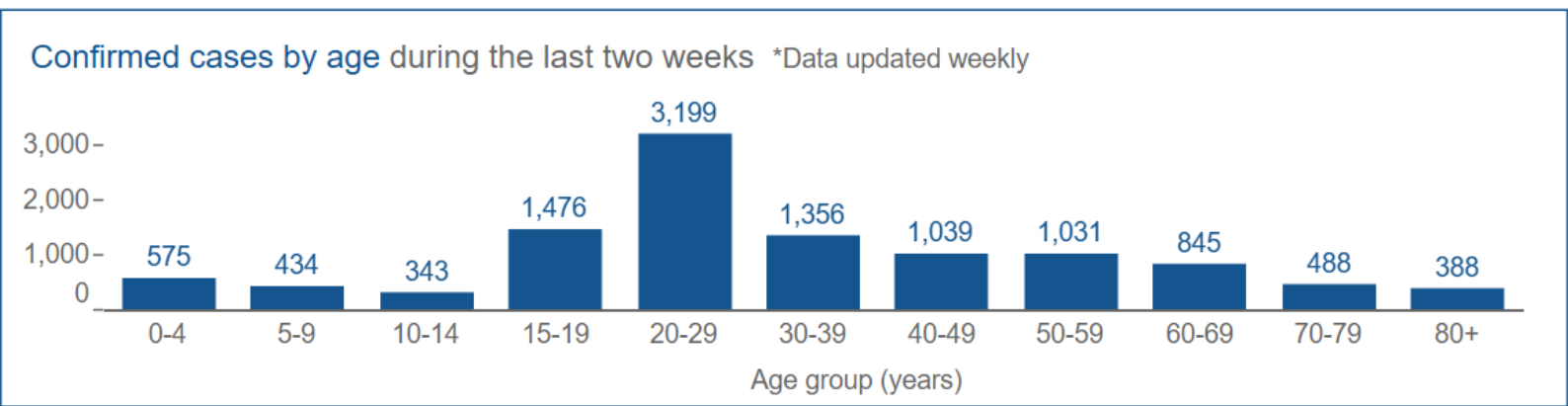
Hospitalizations
There are 290 patients hospitalized for COVID-19.

ICU & Intubated Patients
There are 40 patients in Intensive Care Units (ICU) and 19 patients are intubated.

Deaths

Confirmed Deaths
There were 22 new, confirmed deaths reported. There have been 22,966 confirmed deaths in total.

Probable Deaths
There were 2 new, probable deaths reported. There have been 766 probable deaths in total.



Average Age of Deaths
The average age of patients who died of COVID-19 was 76 years old.

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, Division of Surveillance, Analytics and Informatics.

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New Mask Advisory

- MA State Mask Advisory was updated on March 1, 2022
- DPH now advises that:
 - Fully vaccinated person should wear a mask or face covering when indoors (and not in your own home) if you have a weakened immune system, or if you are at increased risk for severe disease because of your age or an underlying medical condition, or if someone in your household has a weakened immune system, is at increased risk for severe disease or is unvaccinated
 - For individuals who are not fully vaccinated, it is important that you continue to wear a face covering or mask to help prevent you from spreading COVID-19 to other people.
- For Isolation and Quarantine, masks are required.
 - Individuals who are considered close contacts or who have tested positive must follow the isolation and quarantine guidance which includes wearing a mask in public for 5 more days after they leave isolation or quarantine on day 5, regardless of vaccination status.
- All people in Massachusetts (regardless of vaccination status) are required to continue wearing face coverings in certain settings, including some transportation and health care facilities. Please see www.mass.gov/maskrules for a complete list

New COVID-19 Death Definition

- DPH updated its COVID-19 death definition to align with the [CSTE definition](#)

Summary of differences between definitions of confirmed COVID-related deaths

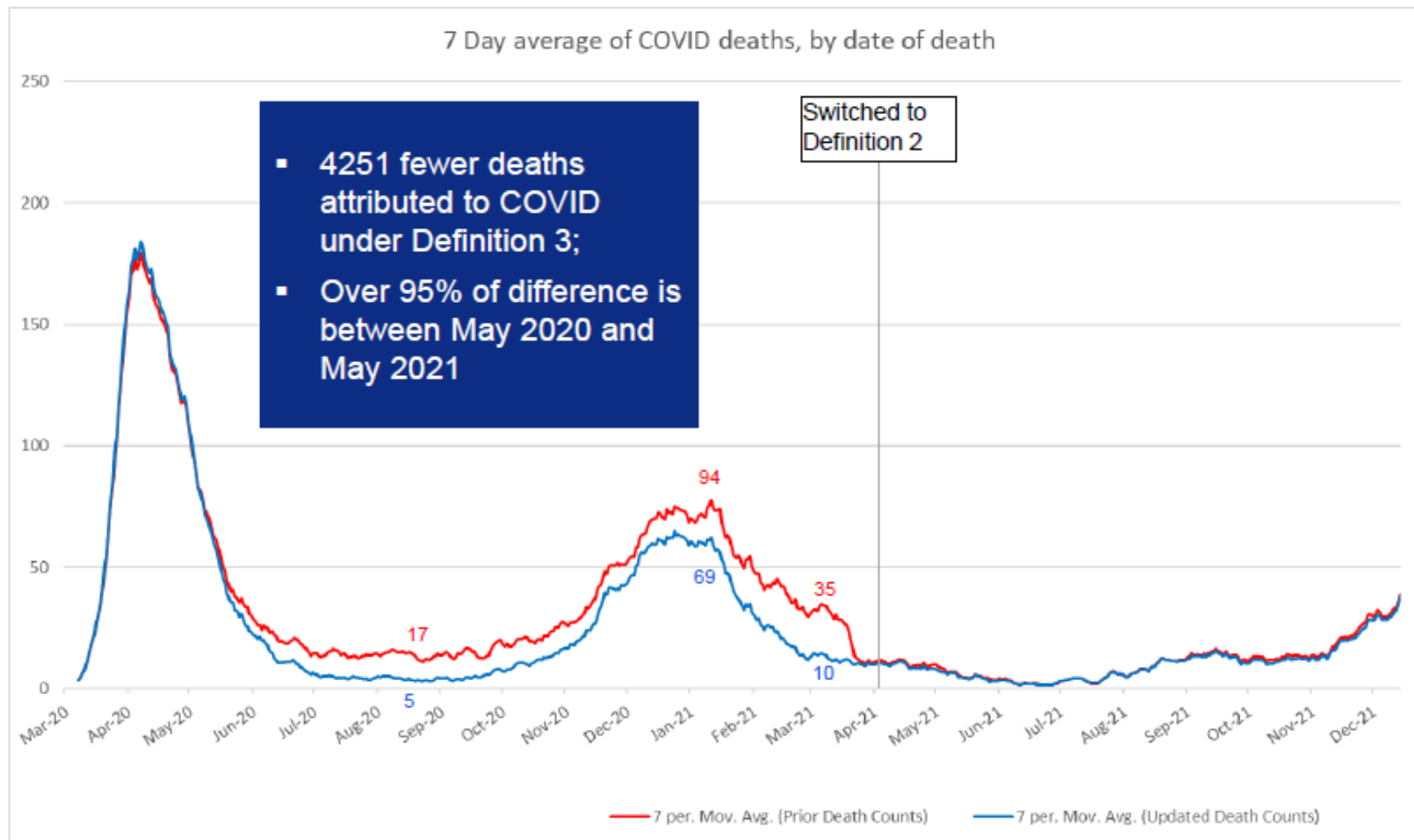
	Definition 1 March 2020-March 2021	Definition 2 April 2021-December 2021	Definition 3 (CSTE recommendation) 2022 and beyond
Criteria			
Case investigation	← Case investigation of death determined COVID "caused" or "contributed" →		
Death certificate	← COVID-19 or "equivalent term" on death certificate →		
COVID diagnosis	Any COVID diagnosis, regardless of timing	Any death within 60 days of a COVID diagnosis unless obviously due to another cause (ex. trauma)	Any death within 30 days of diagnosis and death labeled "natural causes" on death certificate

For all definitions, a death is "COVID related" if at least 1 criteria are met

Summary of Potential Changes to Previously Reported COVID Deaths

Change Description	Number
1 Report updated confirmed death totals based using CSTE Definition	- 4,251
2 Add new probable deaths identified during records review	+355
3 Add new confirmed deaths identified during records review	+117

COVID Deaths March 2020 – December 31, 2021



COVID-19 Isolation Guidance¹

Able to Mask

- Stay home for the first 5 days
- If you were asymptomatic OR symptoms are improving² you can resume most activities³ on day 6
- Wear a mask around others from days 6-10 including in the home

Unable to Mask

- Stay home for 10 days
- If you were asymptomatic OR symptoms are improving² you can resume usual activities on day 11
- Wear a mask around others for the full 10 days including in your home

¹Guidance for the general public.

²Fever free for 24hrs without using fever reducing medication

³Except for activities that do not allow mask wearing

COVID-19 Quarantine Guidance¹

UTD²

- Able to mask:
 - No quarantine required
 - Recommended to wear a mask for 10 days including in the home
 - Test recommended on day 5 and if symptoms develop
- Unable to mask:
 - Quarantine for 10 days post exposure
 - Test on or after day 5 – can exit early if negative
 - Test if symptoms develop

Not UTD or Unvaccinated

- Able to mask:
 - Quarantine for 5 days post exposure
 - Wear mask for 10 days
 - Test on day 5 and if symptoms develop
- Unable to mask:
 - Quarantine for 10 days post exposure
 - Test on or after day 5. If negative, can exit quarantine early but mask wearing must continue for the entire period
 - *If unable to mask – quarantine the entire 10 days*
 - Test if symptoms develop

¹Guidance for the general public.

²Completed primary series of either Pfizer, Moderna or J&J AND received booster, OR completed primary series of Pfizer or Moderna within the past 5 months, OR completed primary series of J&J within past 2 months

Scenario 1

- Individual who works at company X is exposed to an infectious coworker on February 16th, 2022
- They are not UTD on their vaccinations
- Individual goes home to complete their quarantine period.
 - Day 0 = 2/16/2022
- On 2/18/2022, their school aged child subsequently becomes ill with fever, cough and runny nose. They test positive for COVID-19 on 2/19/2022.
- Does the parent need to **restart** their quarantine period?

Scenario 1 Continued

- Yes, parent's quarantine needs to restart due to subsequent exposure(s).
- Individuals who are not HCWs should follow the guidance for the [general public](#)

Quarantine Timeline for Household Close Contacts

- Timeline is determined by the date of last exposure to the infectious case
- [New guidance¹](#) permits an early release from isolation on day 6 after completing a 5-day isolation period if the case's symptoms have greatly improved/resolved AND they are able to mask from days 6-10.
- If a case who meets criteria for release on day 6 *can* mask within the home
 - Close contact's day 0 of quarantine = case's day 5 of isolation
- If a case who meets criteria for release on day 6 can't mask within the home
 - Close contact's day 0 of quarantine = case's day 10 of isolation

¹Guidance for the general public.

Antigen Tests & 90 Day Immunity

Scenario 2:

- Individual tests antigen positive on 2/1/2021 via an at home test. They are asymptomatic and just had COVID in the beginning of January.
- How do you proceed?
- What questions do you ask?

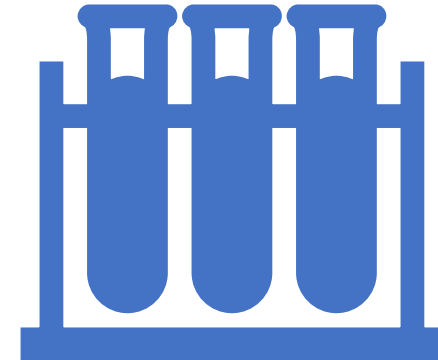


Questions to Ask

- Did they have symptoms with their January infection?
- What type of test was the January test?
 - Was it medically proctored?
- Do they have any recent known exposures?
- What prompted testing?

Remember

- Conventional wisdom suggests that cases should not persistently remain antigen positive following a diagnosis
 - This could change as data accumulates
- Testing is NOT recommended within 90 days following a COVID diagnosis
- IF retesting occurs despite this...

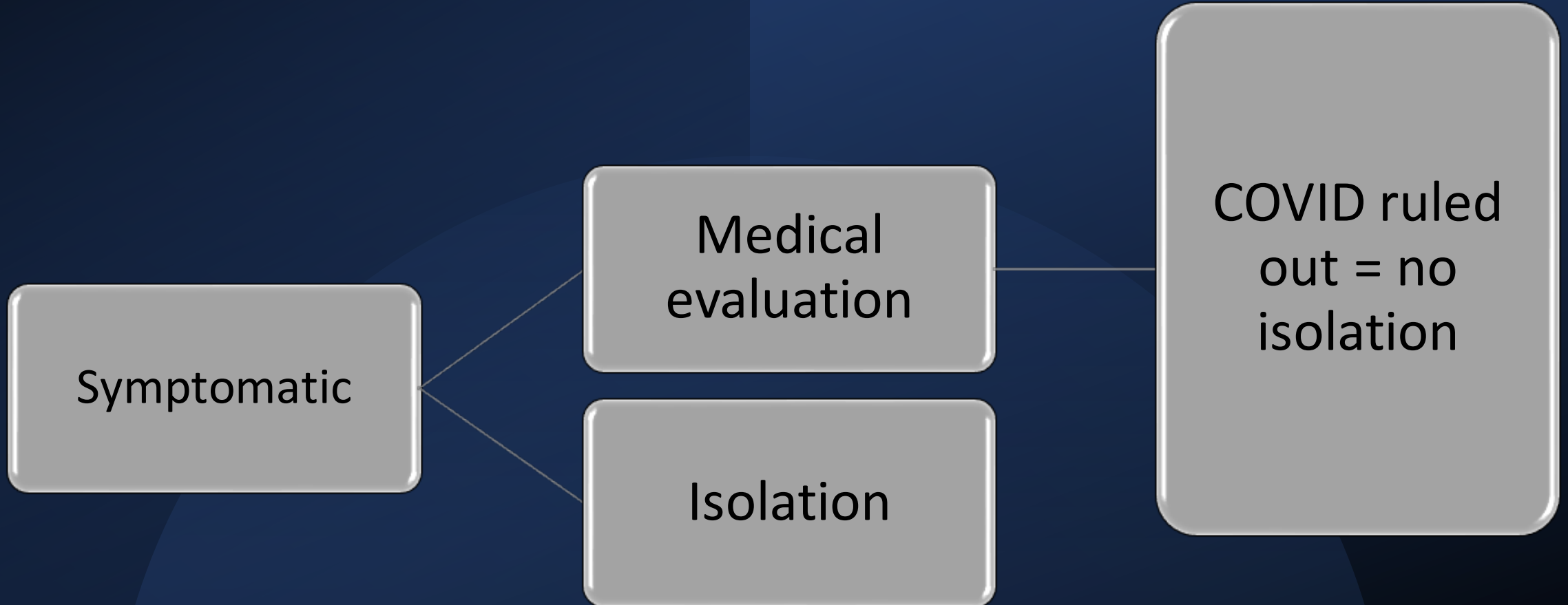


How to Proceed

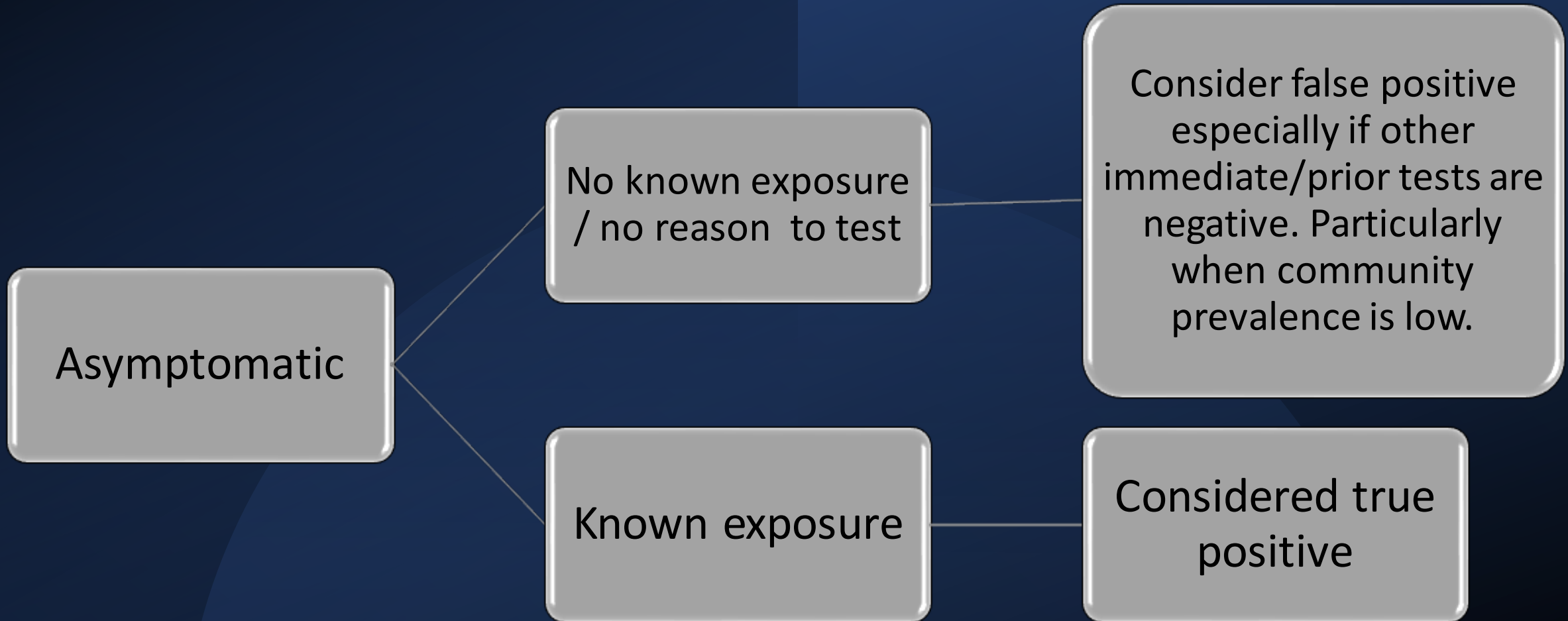
Positive within 0-14
days post diagnosis,
represents the current
COVID infection

If the positive was >14
days post diagnosis...

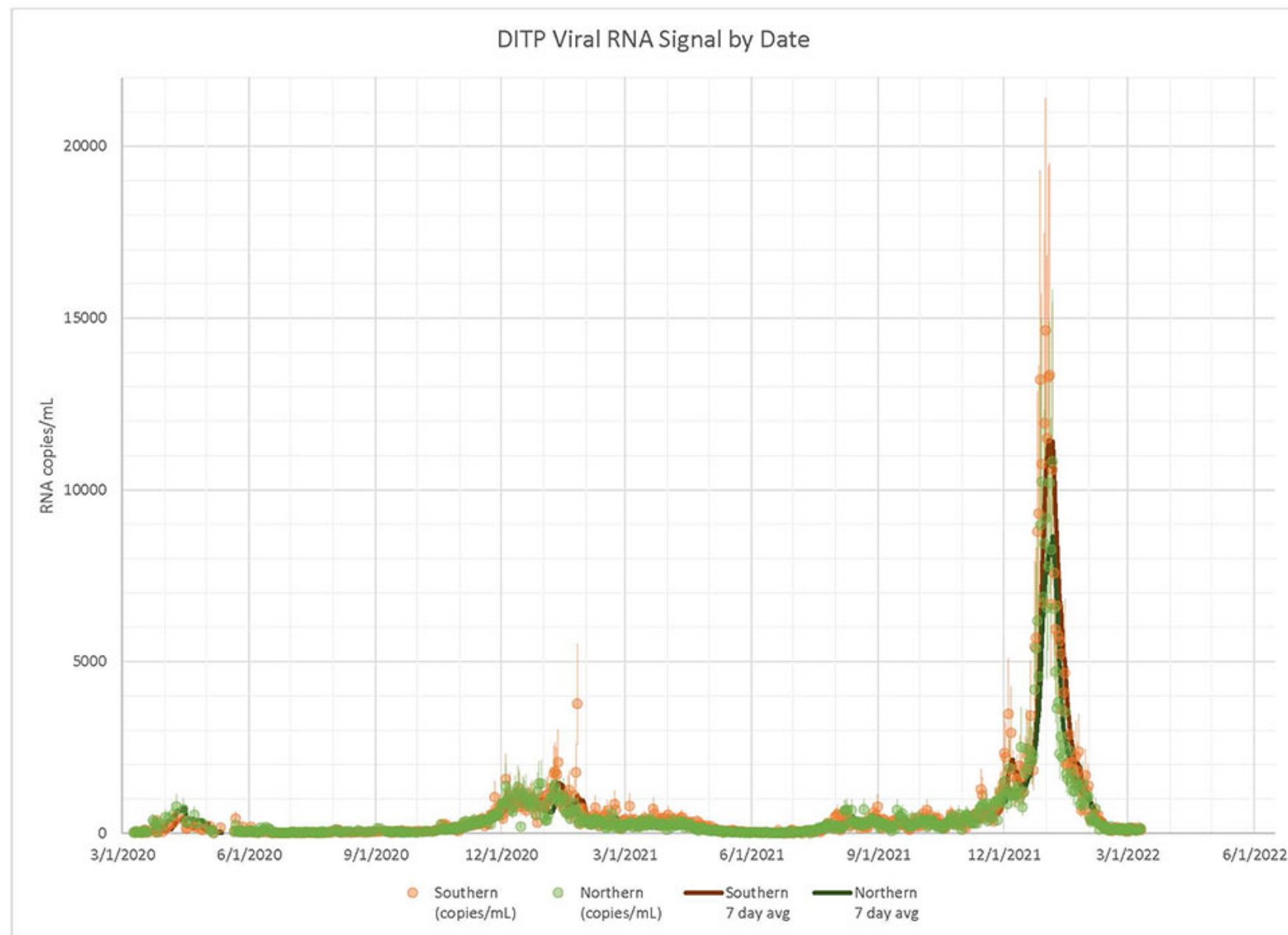
If the positive was <14 days post diagnosis...



If the positive was >14 days post diagnosis...



Wastewater Surveillance in MA – A Glimmer of Hope



Data are through 3/10/2022

Adult Immunization Conference April 5, 2022



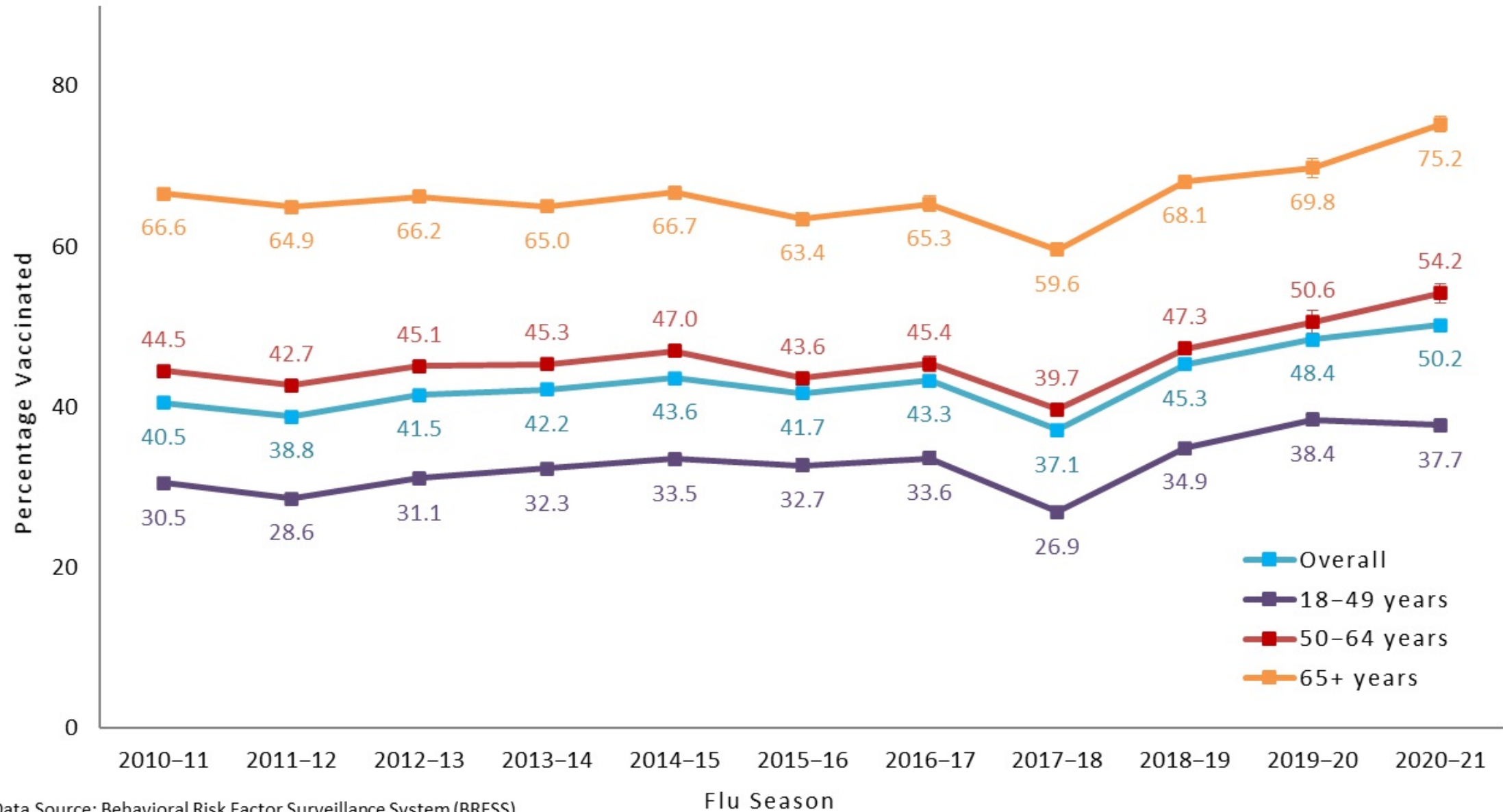
Thank you!

Questions?

Additional Slides

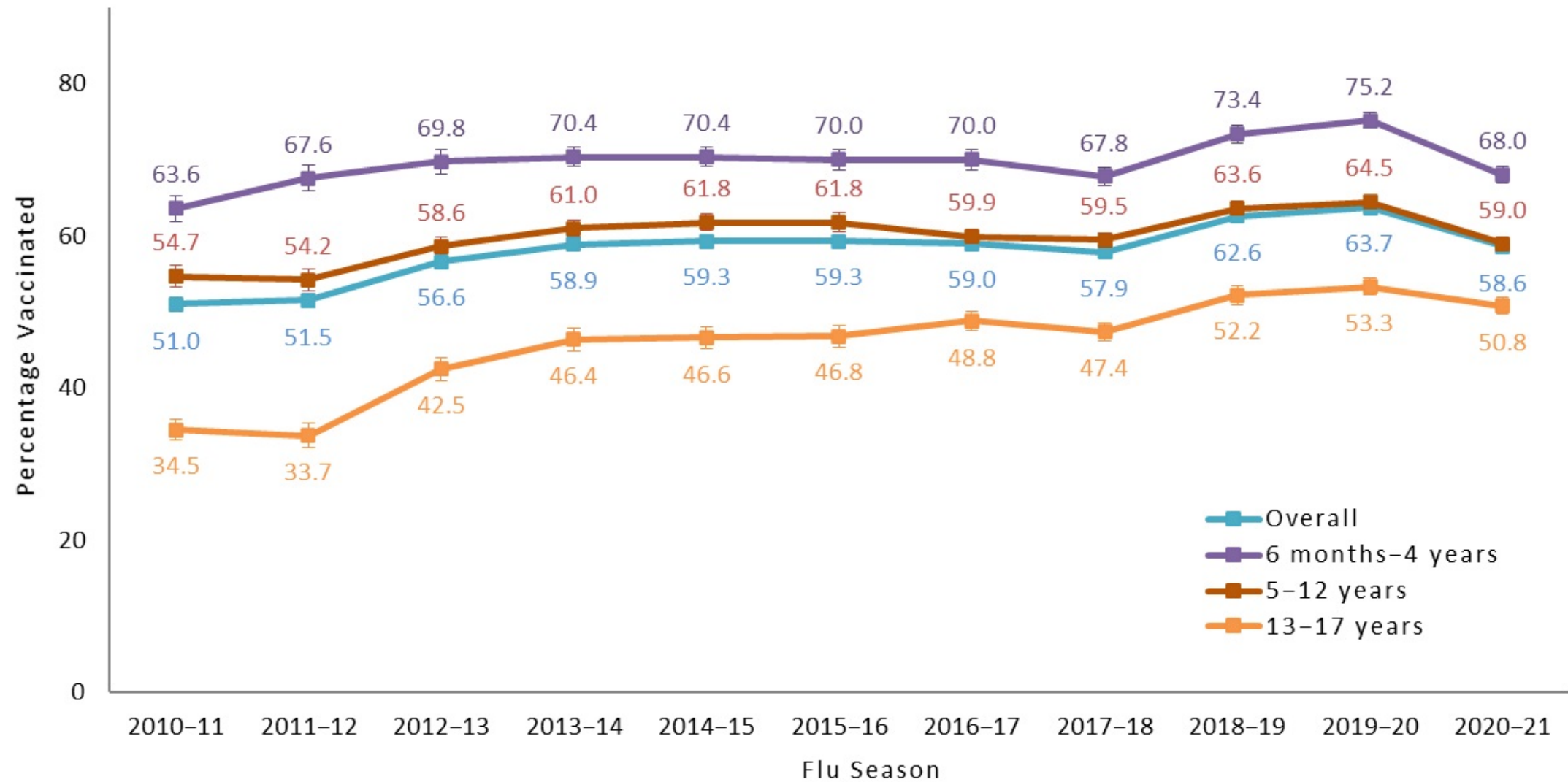
Influenza Vaccination Data for the 2020-2021 Season

**Figure 4. Flu Vaccination Coverage by Age Group,
Adults 18 years and older, United States, 2010–2021**



Data Source: Behavioral Risk Factor Surveillance System (BRFSS)
Error bars represent 95% confidence intervals around the estimates.

**Figure 1. Flu Vaccination Coverage by Age Group,
Children 6 months—17 years, United States, 2010–2021**

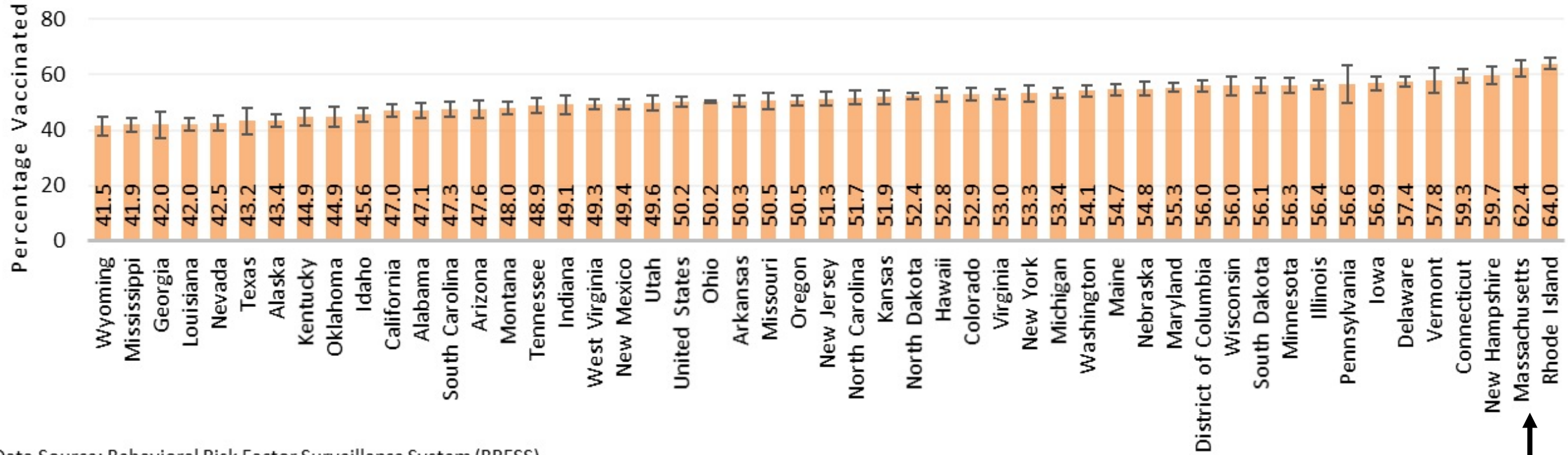


Data Source: National Immunization Survey-Flu (NIS-Flu)

Error bars represent 95% confidence intervals around the estimates.

Adult Immunization Conference April 5, 2022

**Figure 5. Flu Vaccination Coverage by State,
Adults 18 years and older, United States, 2020–21 Season**

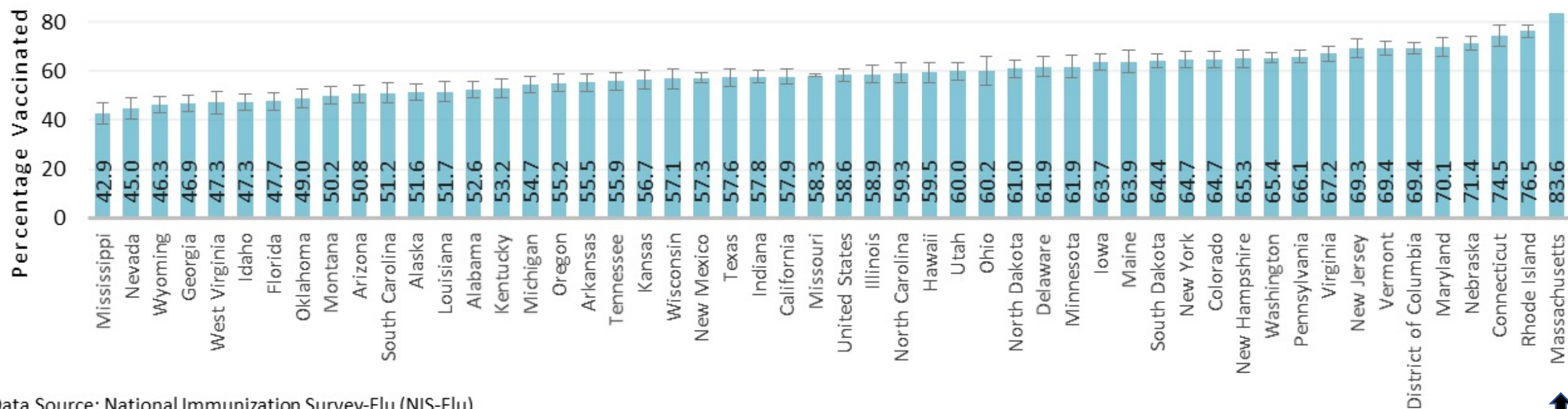


Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

Error bars represent 95% confidence intervals around the estimates.

Florida estimate was 38.4% but excluded from the figure because this estimate represents vaccinations only through November. For the 2019-20 season among adults 18+ years in Florida, coverage increased from 31.7% by end-November to 41.8% by end-May.

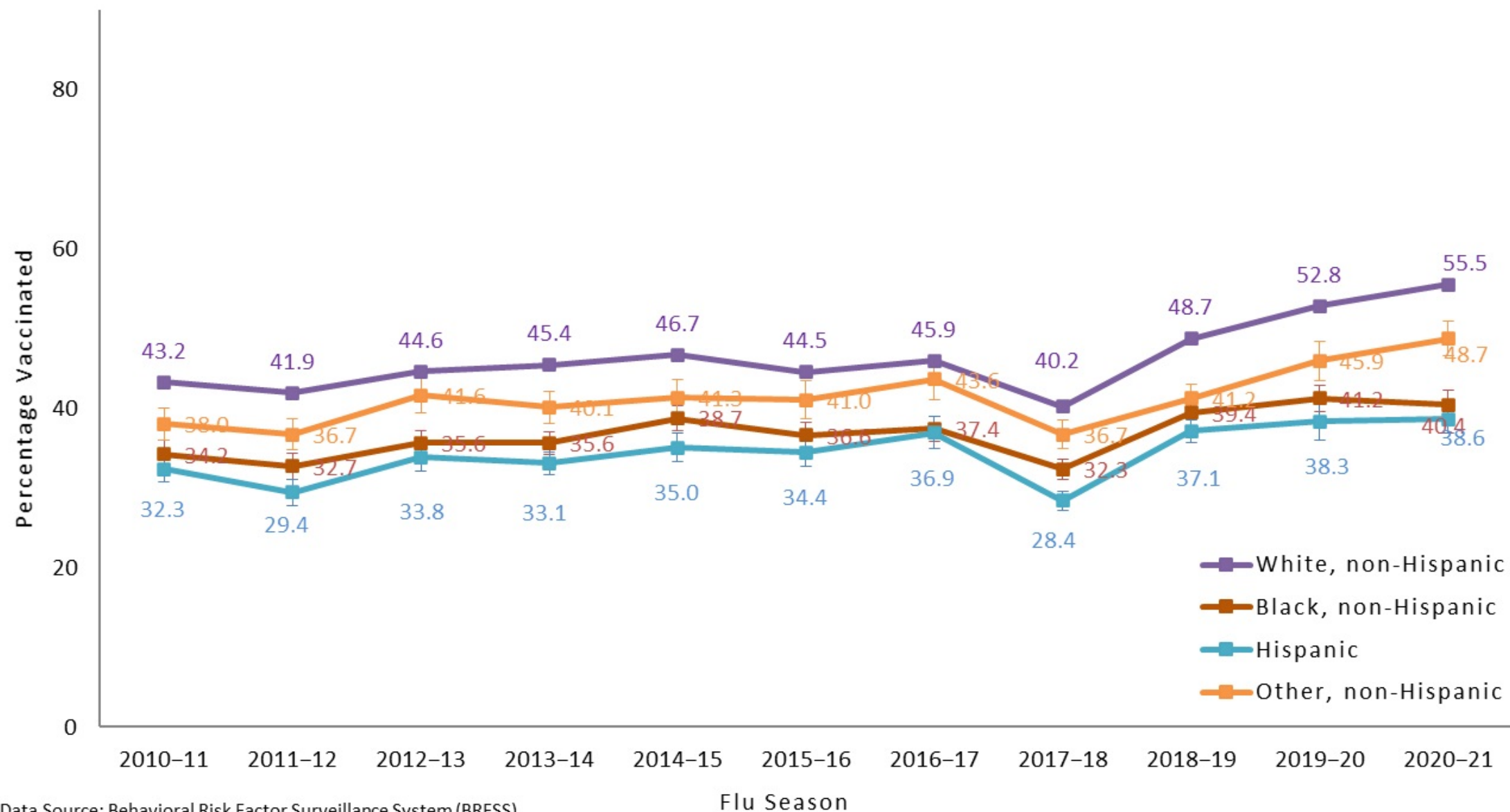
**Figure 2. Flu Vaccination Coverage by State,
Children 6 months—17 years, United States, 2020–21 Season**



Data Source: National Immunization Survey-Flu (NIS-Flu)
Error bars represent 95% confidence intervals around the estimates.

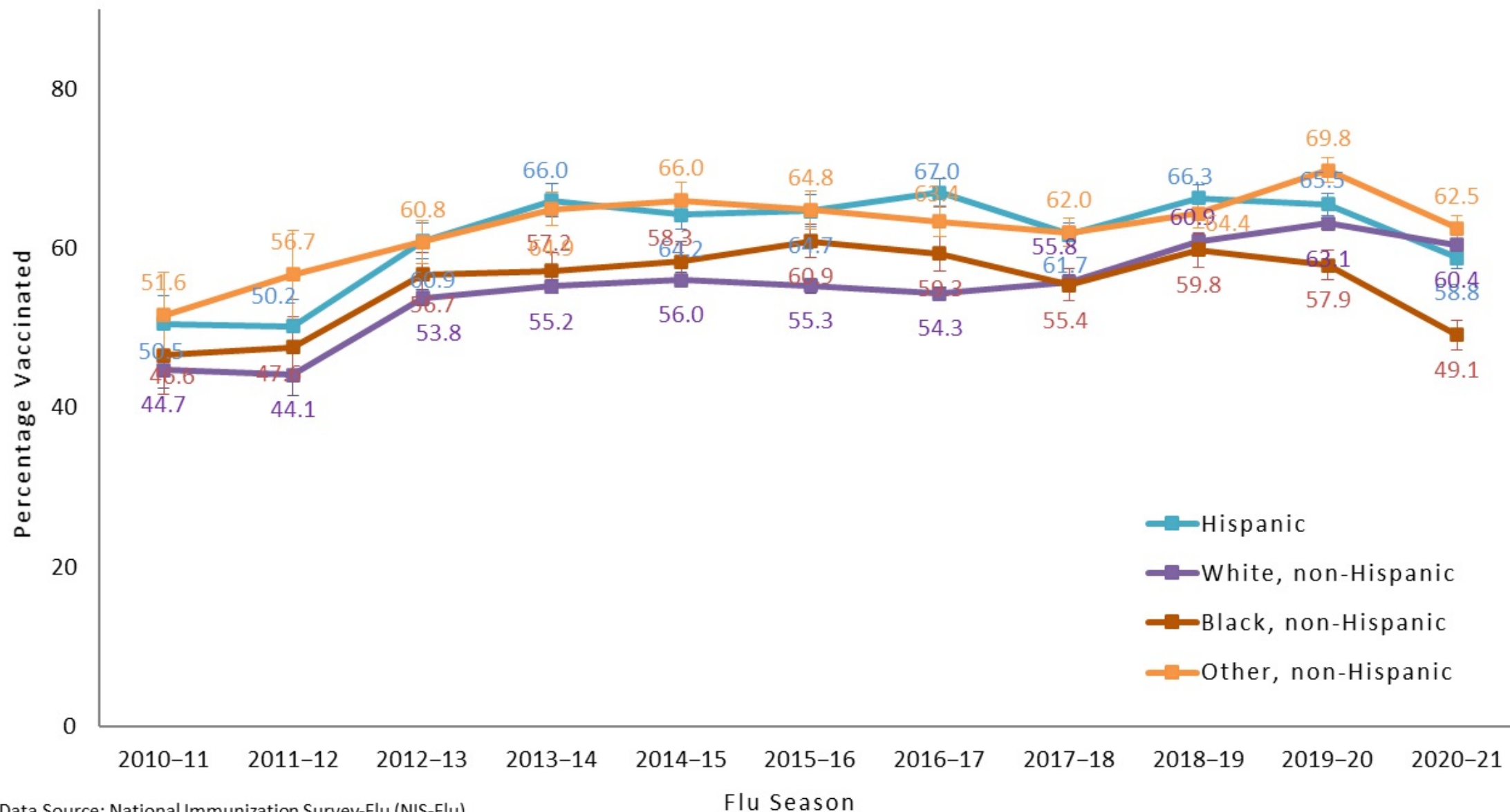


**Figure 6. Flu Vaccination Coverage by Racial/Ethnic Group,
Adults 18 years and older, United States, 2010–2021**



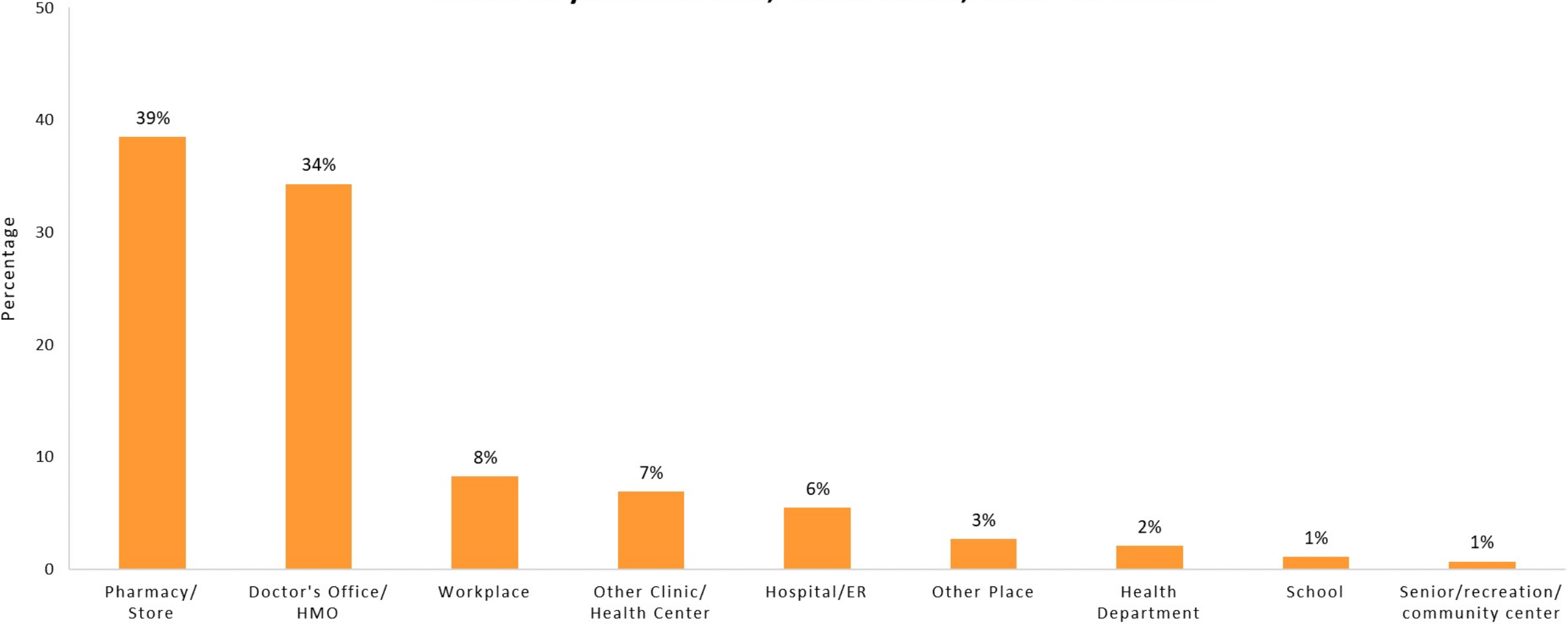
Data Source: Behavioral Risk Factor Surveillance System (BRFSS)
Error bars represent 95% confidence intervals around the estimates.

Figure 3. Flu Vaccination Coverage by Racial/Ethnic Group, Children 6 months—17 years, United States, 2010–2021

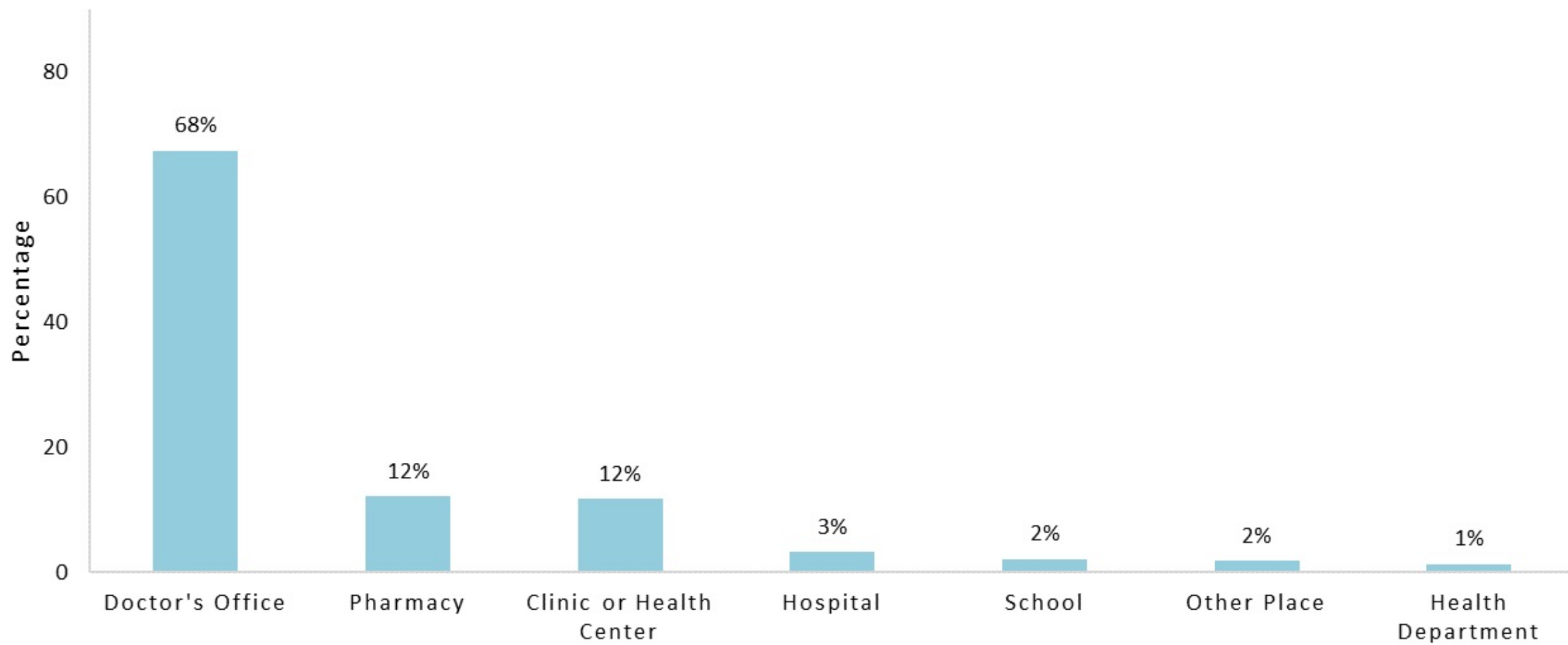


Data Source: National Immunization Survey-Flu (NIS-Flu)
Error bars represent 95% confidence intervals around the estimates.

**Figure 8. Place of Flu Vaccination,
Adults 18 years and older, United States, 2020–21 Season**



**Figure 7. Place of Flu Vaccination,
Children 6 months–17 years, United States, 2020–21 Season**



National Health Interview 2019- 2020 Survey

