COVID CONVERSATIONS

Let's Talk COVID-19
Updates & Influenza Updates

Welcome to tonight's Conversation

- All lines are muted during program
- Question-and-Answer box can be utilized to communicate with the moderators
- Webinar will be recorded and posted to the California Immunization Coalition website (https://www.immunizeca.org/) as well as the CIC YouTube page (https://www.youtube.com/channel/UCklkZ1SZQNQLcpmNpeQpDAg)

Thank you


CALIFORNIA
IMMUNIZATION
COALITION


American
Academy of
Pediatrics
CALIFORNIA
Incorporated in California

Today's Hosts and Moderators

Dr. Jasjit Singh

- Assistant Division Chief, Infectious Diseases Children's Hospital Orange County (CHOC)
- Medical Epidemiologist for CHOC
- President, California Immunization Coalition

Dr. Eric Ball

- Primary Care Pediatrician, CHOC Primary Care Network
- Vice Chair, American Academy of Pediatrics, California
- Co-Chair, Emerging Issues Committee, California Immunization Coalition

Today’s Speakers

Pia Pannaraj, MD, MPH

Pediatric Infectious Disease Specialist
Children’s Hospital Los Angeles

Influenza Updates, 2022

Pia S. Pannaraj, MD, MPH
Associate Professor of Pediatrics
Molecular Microbiology and Immunology
University of Southern California
Division of Infectious Diseases
Children's Hospital Los Angeles

Children's Hospital LOS ANGELES®

USC University of Southern California

pialab
Pediatric Immunization Advancement
www.pialab.org

Disclosures

- AstraZeneca – Research Support
- Pfizer – Research Support

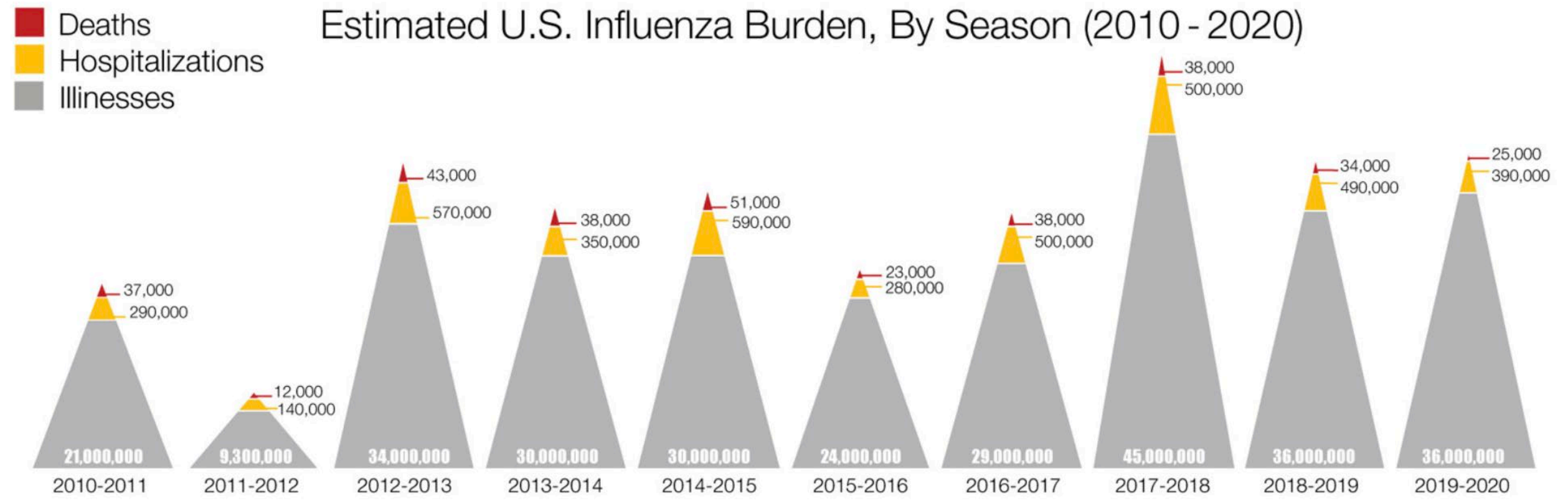
I will give a balanced presentation using the best available evidence to support my conclusions and recommendations.

I do not intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.

Objectives

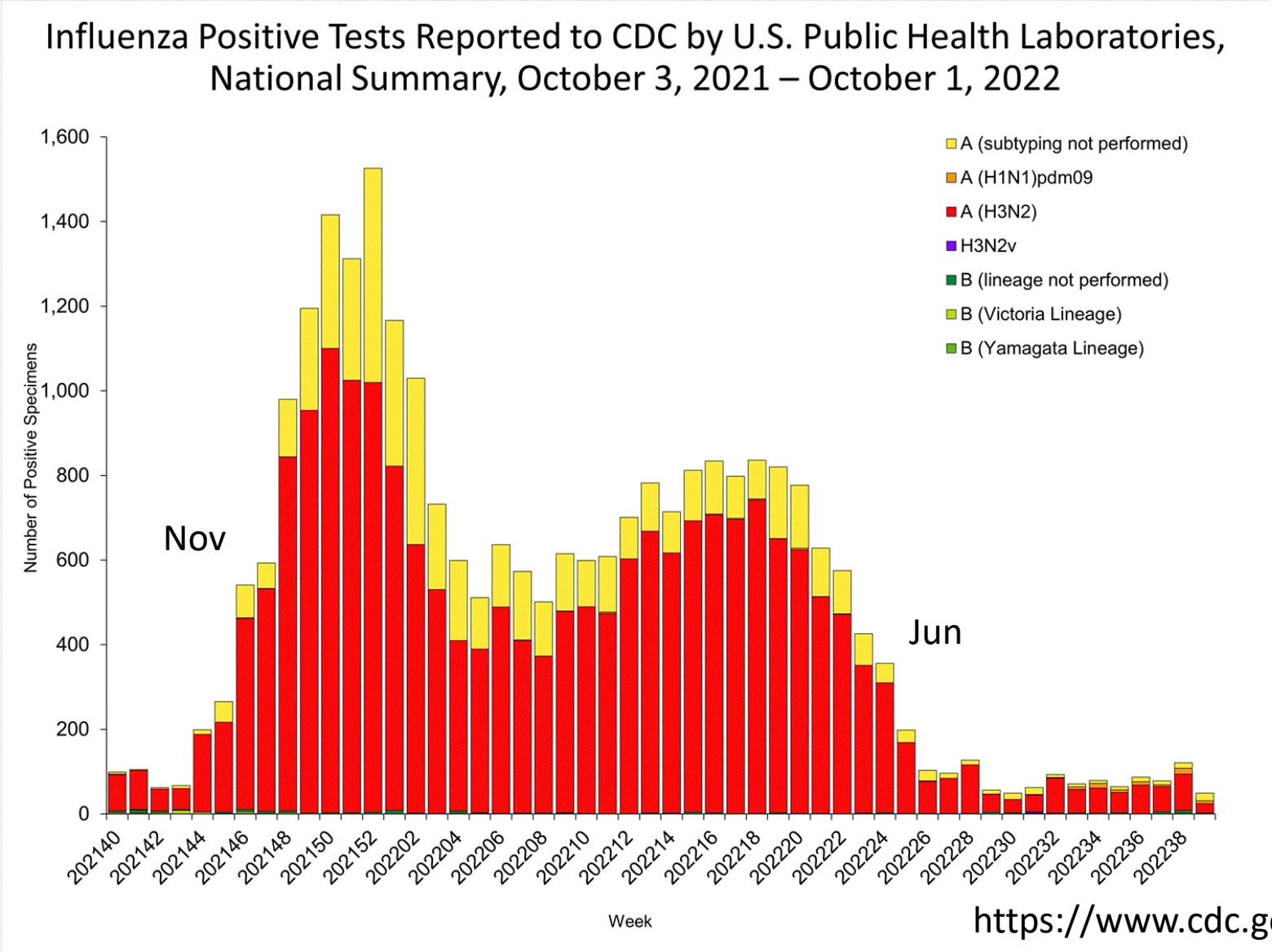
- Review burden of influenza over the last few unusual seasons
- Highlight updates and practice pearls in the recommendations for influenza vaccination
- Discuss influenza treatment recommendations

U.S. Influenza Burden



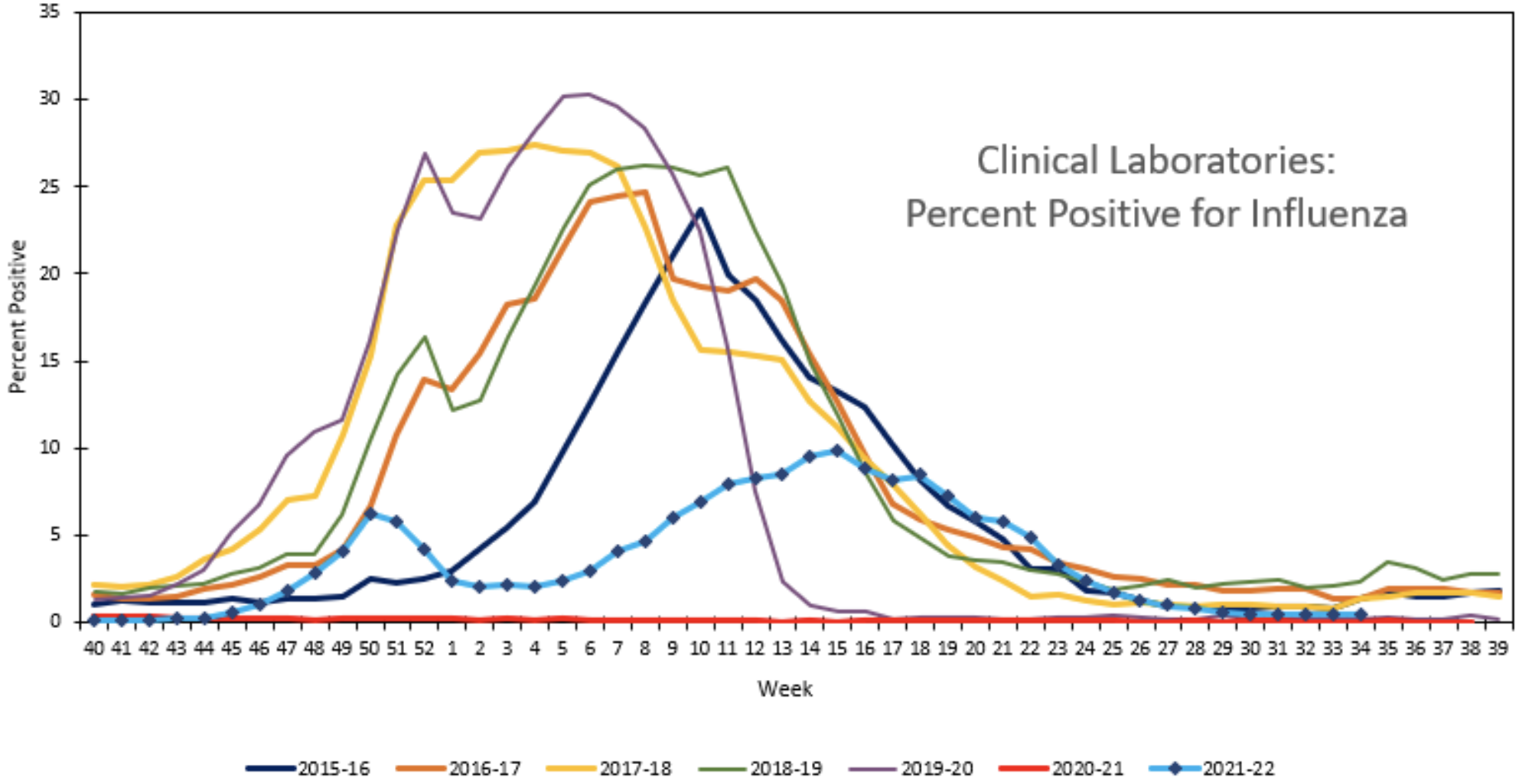
https://www.cdc.gov/flu/about/burden/index.html

What happened last season?



https://www.cdc.gov/flu/weekly/index.htm

What happened last season?



CDC.gov

U.S. Influenza Burden

	2019-2020	2020-2021	2021-2022
Severity	Moderate	Low	***
Predominant viruses	B/Victoria –early A(H1N1)pdm09 –late	A (H3N2) B (Victoria)	A (H3N2)
Hospitalization rate	138/100,000 (0–4 y) 40/100,00 (5–17 y) 54/100,000 (18-49y) 137/100,000 (50-64y) 316/100,000 (≥65y)	0.8/100,000 (0-17 y)	32/100,000 (0–4 y) 14/100,00 (5–17 y) 14/100,000 (18-49y) 25/100,000 (50-64y) 93/100,000 (≥65y)

Impact on children

- Symptomatic infection: 9.3% of all children annually
- Significant morbidity in hospitalized children
  - 20% require ICU care
  - 17% with pneumonia
  - 5% require mechanical ventilation
  - 8-10% experience neurologic complication

	2019-2020	2020-2021	2021-2022
Characteristics of hospitalized children	42.9% with ≥1 underlying condition Asthma 22.1%, Neurologic 17.5%, Obesity 12%	Not available due to low case numbers	65.6% with ≥1 underlying condition Asthma 22.1%
Deaths	199*	1	33

* 74% of those who died were vaccine-eligible, but unvaccinated

AAP COID Pediatrics 2022

Health Disparities and Influenza

Table 2. Age-Specific Rate Ratios of Hospitalization, ICU Admission, and In-Hospital Death by Race and Ethnicity

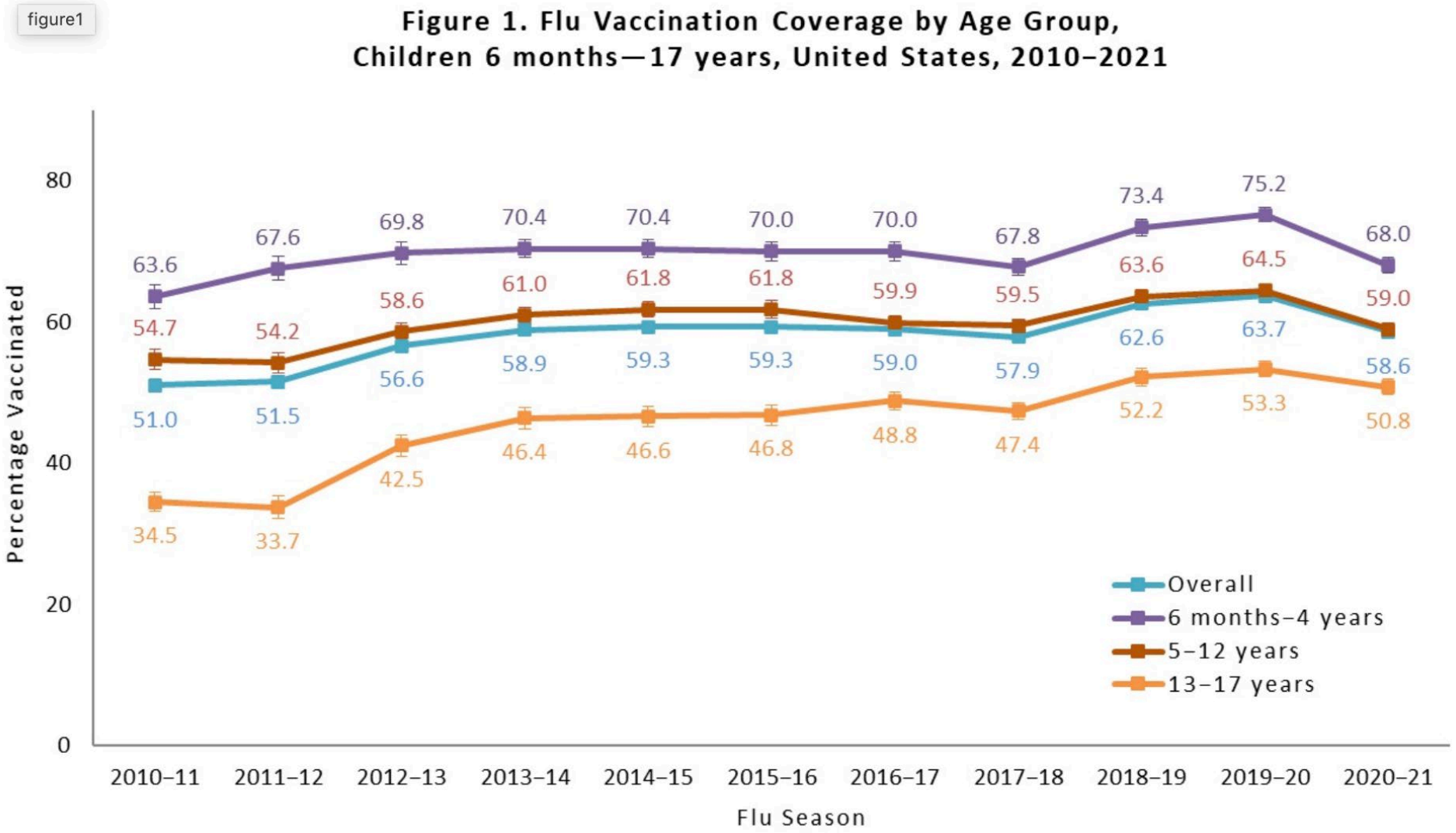
Outcome	Rate ratio (95% CI)				
	Non-Hispanic				
	White	Black	American Indian or Alaska Native	Asian or Pacific Islander	Hispanic
Hospitalization, age group, y					
≤4	1 [Reference]	2.21 (2.10-2.33)	3.00 (2.55-3.53)	1.26 (1.16-1.38)	1.87 (1.77-1.97)
5-17	1 [Reference]	1.99 (1.88-2.11)	1.48 (1.16-1.90)	0.81 (0.72-0.91)	1.28 (1.19-1.36)
18-49	1 [Reference]	2.52 (2.44-2.59)	1.72 (1.51-1.96)	0.61 (0.57-0.65)	1.29 (1.24-1.34)
50-64	1 [Reference]	2.50 (2.43-2.57)	1.54 (1.34-1.76)	0.63 (0.59-0.67)	1.25 (1.20-1.31)
65-74	1 [Reference]	1.74 (1.68-1.81)	0.96 (0.79-1.17)	0.84 (0.78-0.89)	1.18 (1.12-1.25)
≥75	1 [Reference]	1.05 (1.02-1.09)	0.79 (0.66-0.94)	1.02 (0.98-1.06)	0.93 (0.89-0.98)
ICU admission, age group, y					
≤4	1 [Reference]	2.74 (2.43-3.09)	3.51 (2.45-5.05)	1.31 (1.06-1.61)	1.96 (1.73-2.23)
5-17	1 [Reference]	2.00 (1.77-2.26)	1.88 (1.18-3.00)	0.97 (0.78-1.22)	1.16 (1.00-1.34)
18-49	1 [Reference]	1.85 (1.72-1.99)	1.84 (1.40-2.42)	0.57 (0.49-0.66)	1.14 (1.04-1.24)
50-64	1 [Reference]	2.09 (1.96-2.23)	1.17 (0.84-1.63)	0.61 (0.53-0.71)	1.04 (0.93-1.15)
65-74	1 [Reference]	1.50 (1.37-1.64)	1.34 (0.91-1.98)	0.87 (0.75-1.00)	1.11 (0.98-1.27)
≥75	1 [Reference]	1.26 (1.15-1.37)	0.72 (0.42-1.21)	1.21 (1.08-1.34)	0.88 (0.77-1.00)
In-hospital death, age group, y					
≤4	1 [Reference]	3.39 (1.40-8.18)	6.71 (0.85-52.97)	4.35 (1.55-12.22)	2.98 (1.23-7.19)
5-17	1 [Reference]	1.19 (0.62-2.28)	4.17 (1.00-17.41)	1.55 (0.68-3.51)	0.80 (0.38-1.69)
18-49	1 [Reference]	1.22 (0.94-1.57)	2.20 (1.04-4.67)	0.55 (0.35-0.87)	1.07 (0.81-1.41)
50-64	1 [Reference]	1.53 (1.28-1.83)	1.24 (0.55-2.77)	0.46 (0.31-0.70)	1.08 (0.83-1.40)
65-74	1 [Reference]	1.19 (0.94-1.51)	0.60 (0.15-2.42)	1.00 (0.72-1.39)	1.07 (0.77-1.48)
≥75	1 [Reference]	0.93 (0.79-1.10)	0.44 (0.14-1.35)	1.22 (1.02-1.46)	0.71 (0.56-0.91)

Abbreviation: ICU, intensive care unit.

O'Halloran AC et al. JAMA Netw Open 2021

Influenza vaccination rates falling

figure1



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

https://www.cdc.gov/flu/fluvaxview/coverage-2021estimates.htm

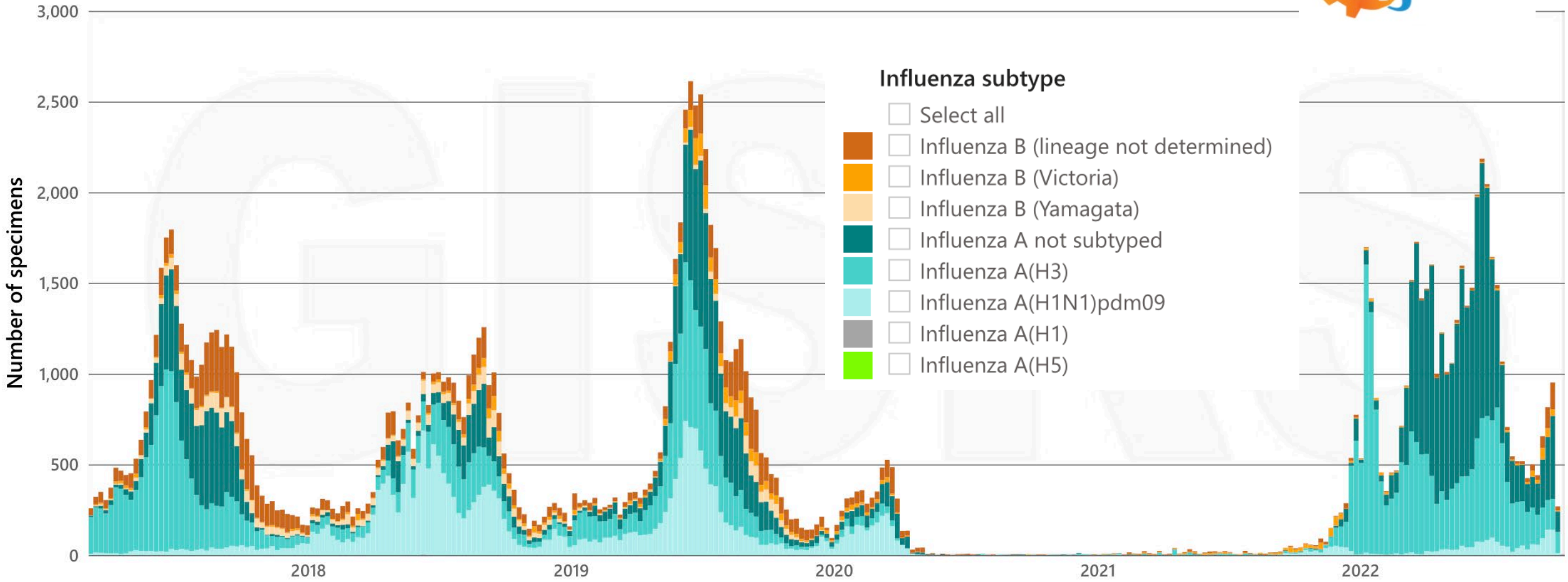
What to expect this season

Unpredictable

- Influenza and SARS-CoV-2 may co-circulate
- Co-infection with Influenza and SARS-CoV-2 in the same individual may occur
- There *may* be more influenza than the last 2 seasons
  - Reduced population immunity from fever recent infections
  - Relaxation of social distancing measures

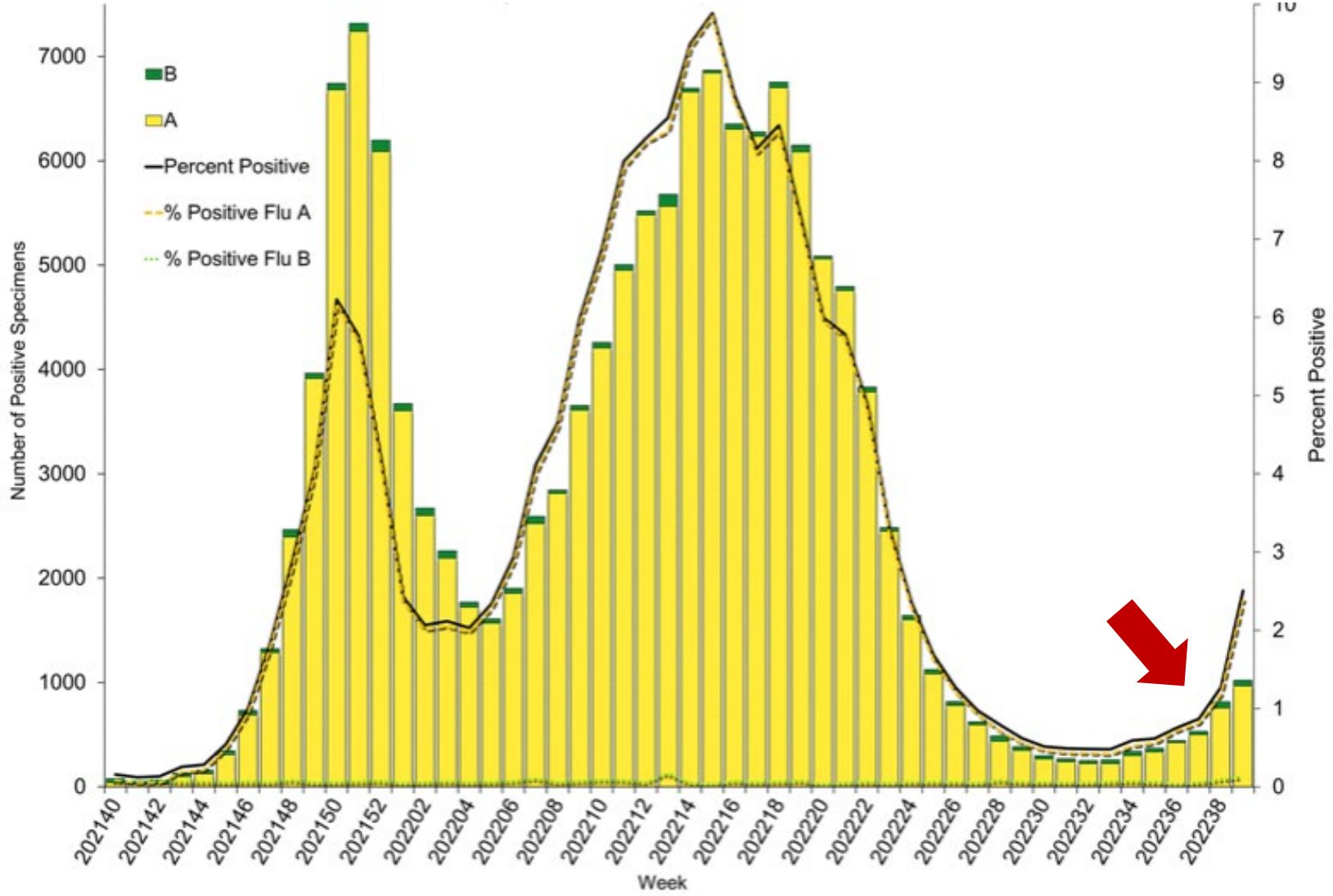
Vaccination is the most effective way to prevent influenza

Southern Hemisphere, 2017-2022



Vaccination is the most effective way to prevent influenza

United States
Oct 3, 2021-Oct 1, 2022



https://www.cdc.gov/flu/weekly/index.htm

2022-2023 Influenza Vaccination

Recommended for all persons ≥6 months of age

- If supply is limited,
  - vaccinate those at highest risk for complications
  - Contacts and caregivers of persons
    - <5 y and ≥50 years of age
    - With medical conditions that put them at higher risk for severe complications

AAP COID, Pediatrics. 2022

High-risk groups for influenza complications

- **<5y** and **≥ 50y**
- Persons with **chronic medical conditions** (pulmonary including asthma, cardiovascular, renal, hepatic, neurologic, hematologic, or metabolic)
- Persons who are **immunocompromised**
- Persons who are or will be **pregnant** during the season
- Children (6m-18y) who are receiving **aspirin or salicylate-containing medicines**
- Residents of **chronic care facilities** or nursing homes
- **American Indians / Alaska Natives**
- Persons with **extreme obesity (BMI ≥40)**

AAP COID, Pediatrics. 2022

Update: Quadrivalent influenza vaccine components

- A/Victoria/2570/2019 (H1N1)pdm09-like virus (egg-based)

  or A/Wisconsin/588/2019 (H1N1)pdm09-like virus (cell culture-based or recombinant)
- A/Darwin/9/2021 (H3N2)-like virus *(updated)*
- B/Austria/1359417/2021 (Victoria lineage)-like virus*(updated)*
- B/Phuket/3073/2013 (Yamagata lineage)-like virus.

AAP COID, Pediatrics. 2022

Update: Cell-culture based IIV (ccIIV4)

- Flucelvax Quadrivalent now approved for children ≥6m
  - Previous approval for ≥4y
  - Approval based on randomized safety and immunogenicity study of 2,402 children aged 6-47 months

AAP COID, Pediatrics. 2022

No preferential recommendation

- Recommend any licensed influenza vaccine product appropriate for age and health status
- No preferential recommendation including IIV or live attenuated influenza vaccine (LAIV)

AAP COID, Pediatrics. 2022

Contraindications / Precautions: IIV

Contraindication

- Anaphylaxis or severe allergic reaction to previous influenza vaccination

Precautions

- Moderate to severe illness
- History of Guillain-Barre syndrome within 6 weeks of previous influenza vaccination

AAP COID, Pediatrics. 2022

Contraindications / Precautions: LAIV

Contraindications

- Anaphylaxis or severe allergic reaction to previous influenza vaccination
- Allergy to gelatin
- Age 2-4y with asthma or history of wheezing in last 12 mo
- Cochlear implants
- Active CSF leak
- Immunocompromised
- Close contact of immunocompromised individual
- On aspirin or salicylate-containing medication
- Receiving influenza antiviral
- Pregnant

Precautions

- Moderate to severe illness
- History of Guillain-Barre syndrome within 6 weeks of previous influenza vaccination
- Age ≥5y with asthma
- Underlying chronic conditions at high risk of influenza complications

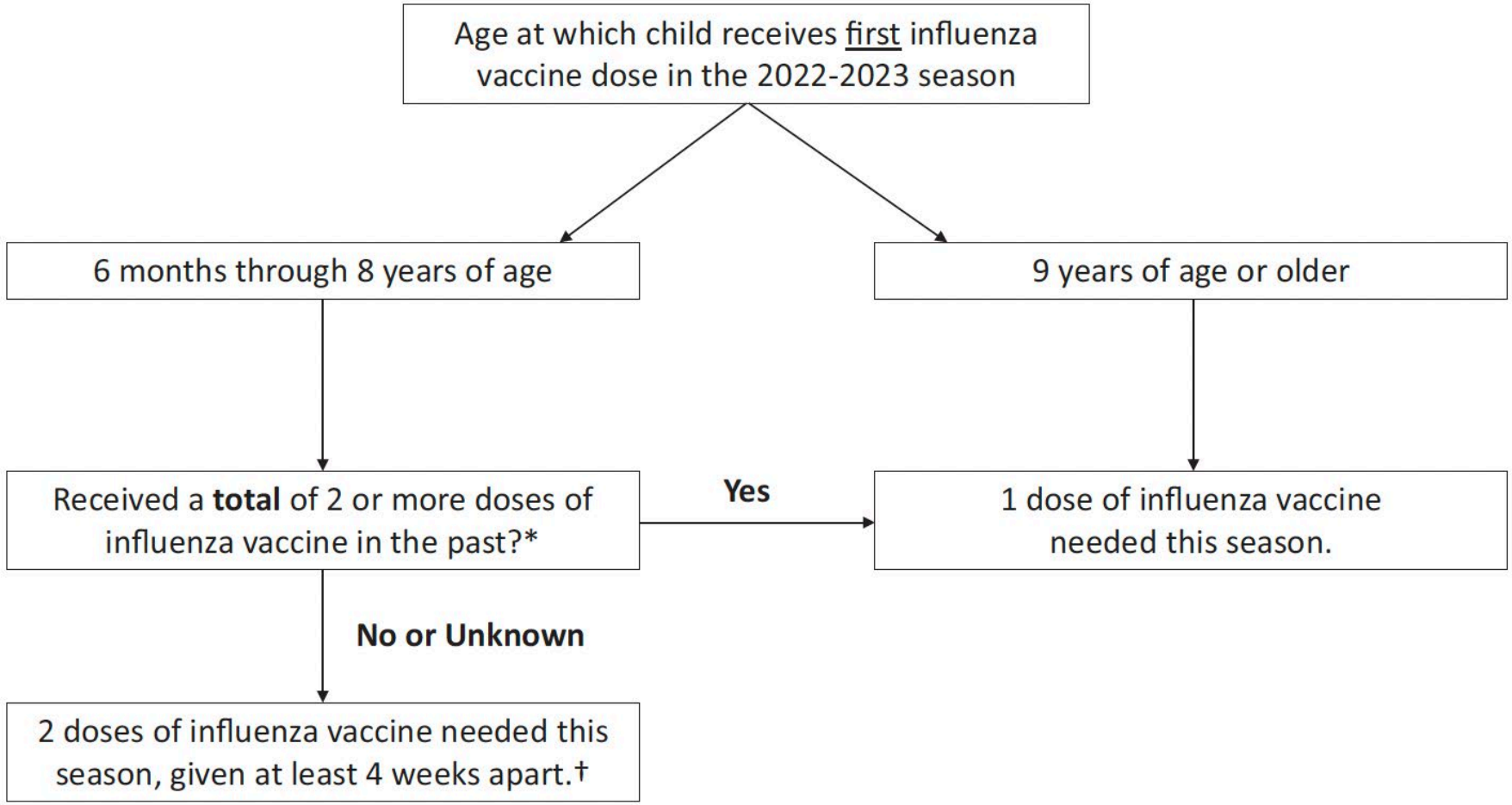
AAP COID, Pediatrics. 2022

Not Contraindication

- Minor illness, with or without fever
- Egg allergy
  - Children with egg allergies can receive any age-appropriate licensed, recommended vaccine, with no additional special precautions
  - Based on 28 studies evaluating 4,315 egg-allergic subjects (656 with severe allergies)

AAP COID, Pediatrics. 2022

Who needs 2 doses?



2 doses may be combination of any brand or type

AAP COID, Pediatrics. 2022=

When to vaccinate?

- Offer influenza vaccine as soon is it is available, especially to children who require 2 doses
- Children should be vaccinated before Halloween
- Vaccination efforts should continue through May-June

Co-administration

- Can co-administer simultaneously with routine vaccines

  (If not administered simultaneously, ≥4 weeks should pass between LAIV and other non-oral live vaccines)
- Can be administered on same day as COVID-19 vaccines in a different injection site (at least 1 inch apart)

AAP COID, Pediatrics. 2022=

Strategies to increase influenza immunization

- Review vaccination (flu, routine, and COVID-19) status at all visits
- Offer a strong, presumptive recommendation
- Bundle recommendation for influenza vaccine with recommendations for other needed vaccines
- Use consistent messaging across care team members
- Identify influenza champions
- Partner with stakeholders in the community to promote trust, encourage dialogue and increase access to preventative services

AAP COID, Pediatrics. 2022

Influenza Antiviral Treatment

- **Recommended** as early as possible for any patient with confirmed or suspected influenza who is:
  - Hospitalized
  - Has severe, complicated, or progressive illness
  - At high risk of influenza complications

  Regardless of influenza vaccination status or duration of symptoms

AAP COID, Pediatrics. 2022

Influenza Antiviral Treatment

- **Consider** for:
  - previously healthy, symptomatic outpatient not at high risk, if treatment can be initialed within 48 hours
  - Suspected or confirmed influenza in close contact of individual <6mo or at high risk for influenza complications

Influenza Antivirals

Drug	Influenza Virus	Route	Treatment age (Duration)	Chemoprophylaxis age (Duration)	Adverse effects
Oseltamivir	A, B	Oral	Any age (5 days)	≥3 months	Nausea, vomiting, headache, skin reactions, diarrhea
Zanamivir	A, B	Inhaled	≥5 years (5 days)	≥5 years (7 days)	Bronchospasms
Peramivir	A, B	IV	≥6 months (one dose)	NA	Diarrhea, skin reactions
Baloxavir	A, B	Oral	≥5 years* (one dose)	≥5 years* (one dose)	Vomiting, diarrhea

*lower age now approved

AAP COID, Pediatrics. 2022

Chemoprophylaxis after suspected influenza exposure

Consider if within 48 hours of exposure for:

- Any individual at high risk for influenza complications if:
  - Unvaccinated
  - Vaccinated in past 2 weeks (optimal immunity not yet achieved)
  - Vaccinated but may not have mounted a sufficient immune response (e.g. immunosuppression)
  - Circulating strains are not well matched with the vaccine strains

Vaccination is the most effective way to prevent influenza

Thank you

Children's Hospital LOS ANGELES®

USC University of Southern California

pialab

Pediatric Immunization Advancement

www.pialab.org

Today’s Speakers

Kenneth Zangwill, MD

Chief, Pediatric Infectious Diseases,
Harbor-UCLA Medical Center

Kids, COVID Vaccine, and Verisimilitude

Ken Zangwill, MD
Chief, Division of Pediatric Infectious Diseases
Director, Infection Prevention and Control
Harbor-UCLA Medical Center

Professor of Pediatrics
David Geffen School of Medicine at UCLA

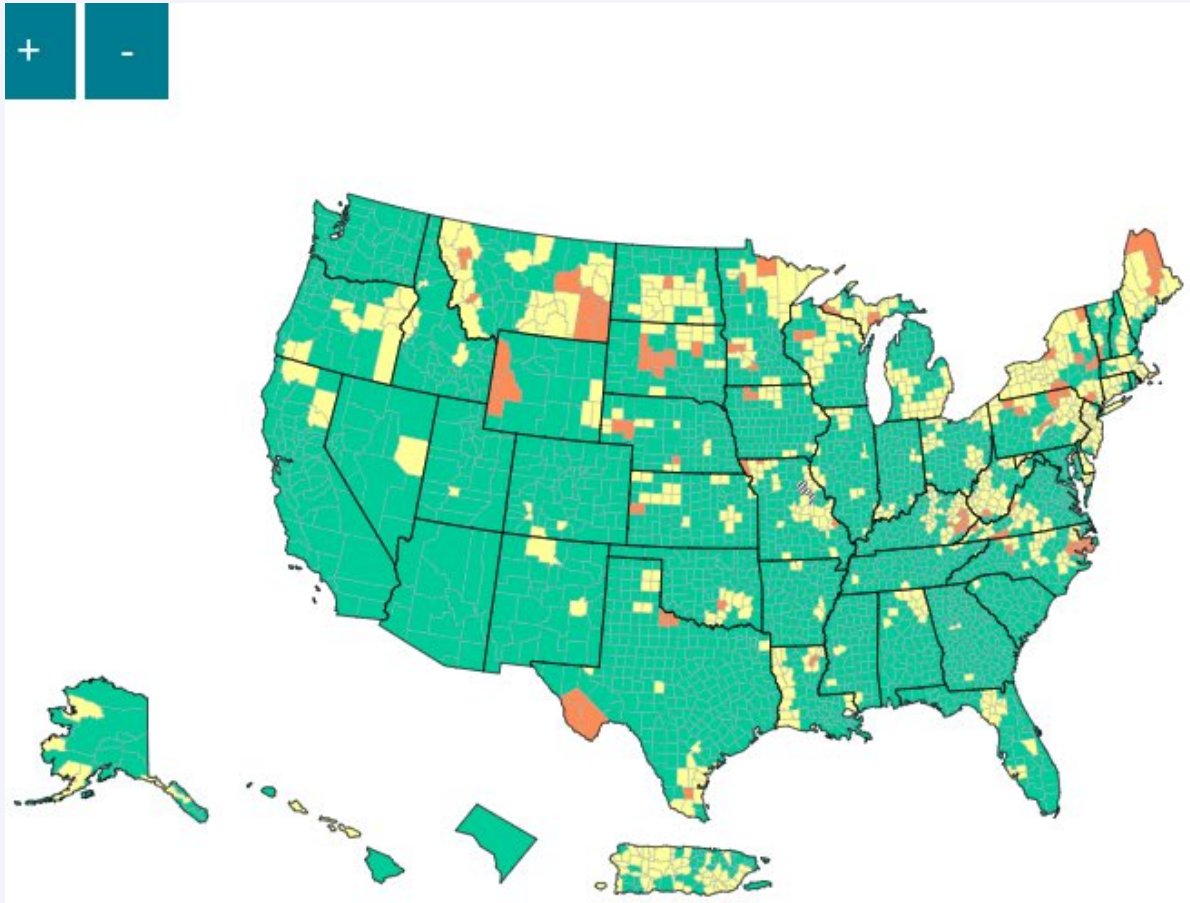
I have no financial relationships with entities producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients.

Educate!

Mitigate!

Vaccinate!

“Community Levels” of COVID



COVID-19 Community Levels in US by County

	Total	Percent	% Change
High	93	2.89%	– 0.43%
Medium	657	20.41%	– 2.48%
Low	2469	76.7%	2.91%

Considers:

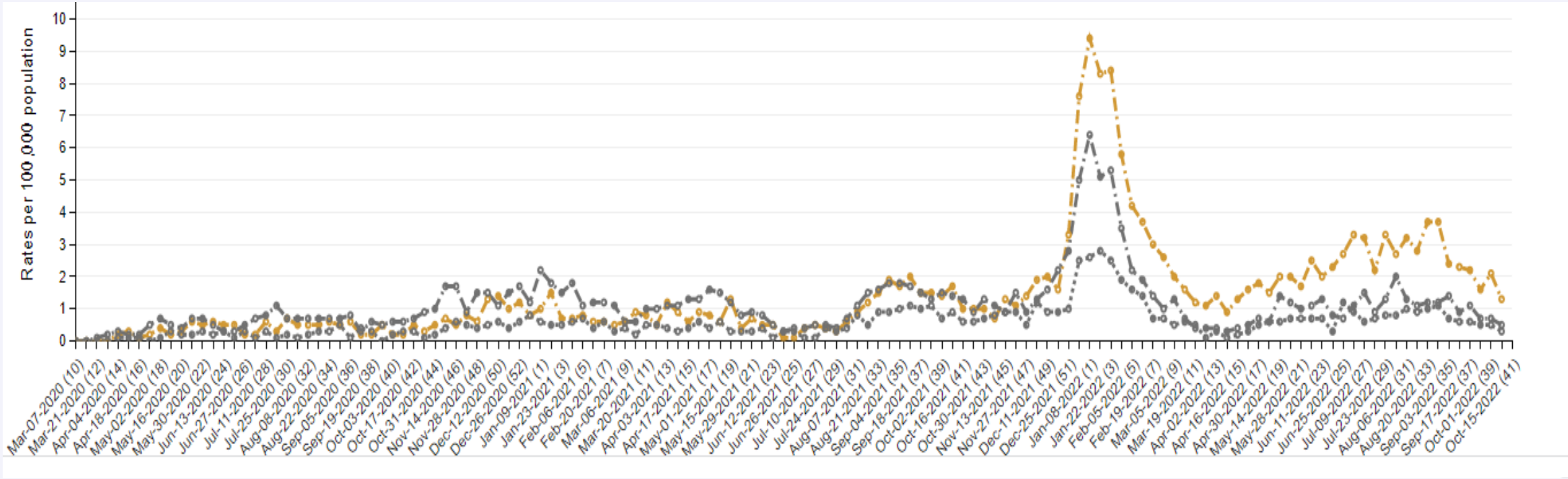
1. Case rate/100,000
2. New admits/100,000
3. % Inpt beds in use

https://covid.cdc.gov/covid-data-tracker/ - accessed 10/8/2022

How Much Disease is Out There?

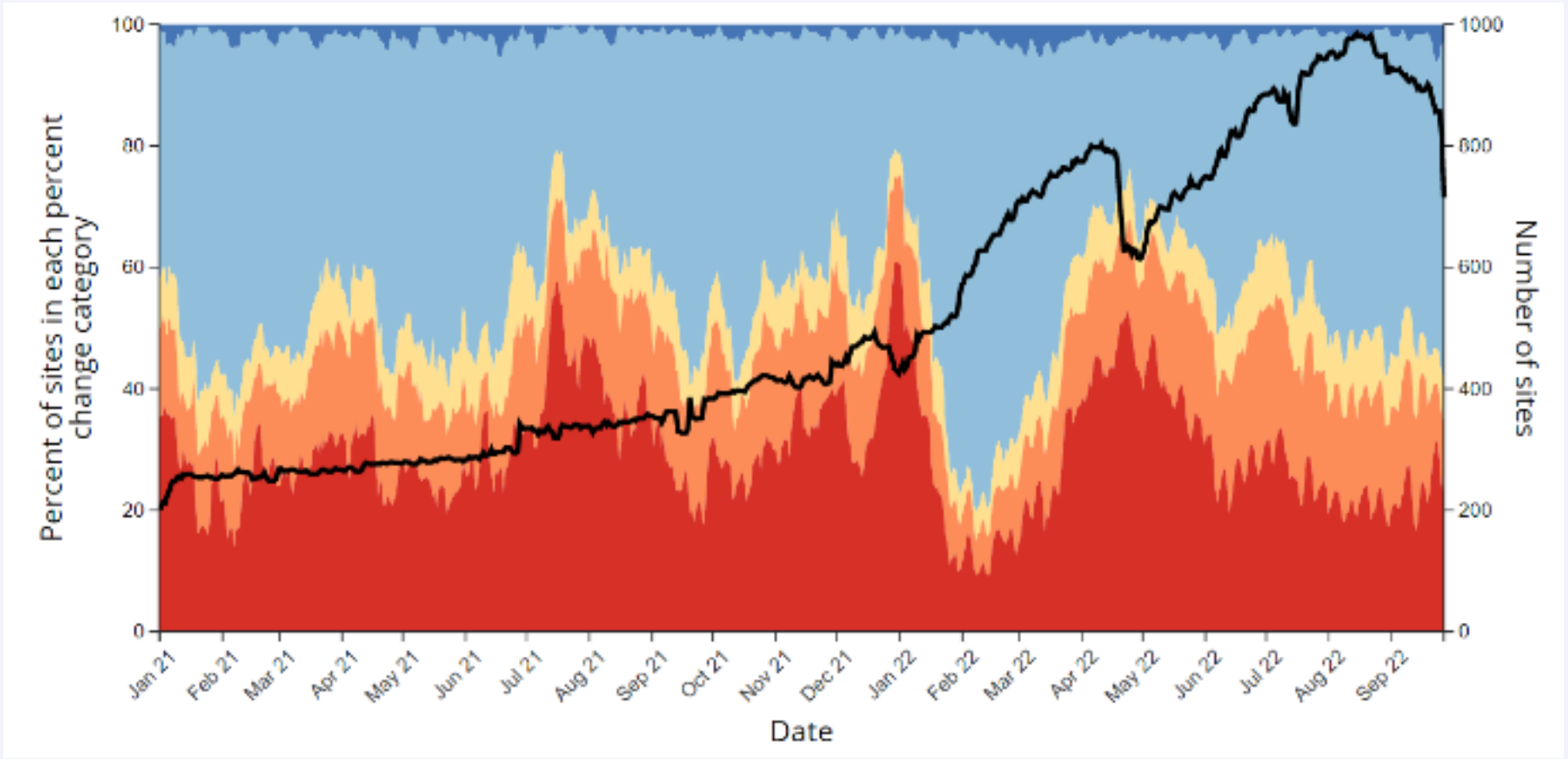
Case Counts Not Reliable
in Era of Home Testing.

Hospitalizations, <18yo, Thru Oct 8, 2022



https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalization-network; AAP/CHA

Wastewater Surveillance



covid.cdc.gov/covid-data-tracker/#wastewater-surveillance

COVID in Kids

~15,000,000 U.S. cases
(~15% of total)

~1.1% hospitalized
(~160,000)

~0.06% MIS-C
(~9000)

<0.01% fatality
(~1500)

397 5-11yo Omicron inpatients, v Delta

- 70% w/ underlying cond
  - Esp asthma, neuro
- 87% unvaxxed
  - 34% Black, 31% White, 19% Hispanic
- Unvax rate twice vaxxed
- **25% "severe" (< Delta)**
- **19% ICU (v 26% Delta)**

gis.cdc.gov/grasp/COVIDNet/COVID19_3.html

Shi DS. MMWR Apr 22 2022 (COVID-NET)

Evident Disparities

As of 9/5/22:

Rate ratios compared to White, Non-Hispanic persons	American Indian or Alaska Native, Non-Hispanic persons	Asian, Non-Hispanic persons	Black or African American, Non-Hispanic persons	Hispanic or Latino persons
Cases[1]	1.6x	0.8x	1.1x	1.5x
Hospitalization[2]	2.7x	0.8x	2.3x	2.0x
Death[3, 4]	2.1x	0.8x	1.7x	1.8x

- MIS-C: non-Whites with higher rates; no data w/ Omicron
- Pediatric vaccine coverage
  - No recent CDC data on primary series: Jan 2022 data show clear disparities
  - 1st booster: Asian population 68%; White 60%, all others 43-50%
  - 2nd booster: similar trends

cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html

A Few Focused Clinical Topics

- Long COVID
- Outpatient prevention and therapy

”Long COVID”– Matched, Controlled Only

Study	Age Group	Matching/ Method	Significant Findings
Berg S. Lancet Child Adol Health 2022;6:240	N=6630 15-18yo Denmark No Omicron	1:4 by age, sex Surveys	• Cases w/ ≥1 Sx lasting 2m (62 v 57%), more school absence (11 v 8%), better QOL and psychological symptoms
Stephenson T. Lancet Child Adol Health 2022;6:230	N=6804 11-17yo Public Health England No Omicron	1:1 by age, sex, Dx date, geography Surveys	• Cases w/ ≥3 Sx @ 3m (30 v 16%), more school absence (11 v 8%), mental health no diff
Zavala M. CID 2021;75:e191	N=859 2-16yo Public Health England No Omicron	1:1 by age, sex, week of test	• Smell, sadness, mood, anxiety (3-5% v 0-3%)
Kompaniyets L. MMWR August 5, 2022 / 71(31);993	N=781,419 0-17 yo, HealthVerity claims & lab data Minimal to no Omicron?	1:3 by age, sex, Dx date	• Highest HRs had low incidence (<140/100K) • 5 conditions with the highest incidence among cases had lower HRs (0.9-1): resp, musc/skeletal, anxiety/fear, GI, asthma

None matched for pre-existing co-morbidity or MIS-C, although some models tried to eval the former

"Long COVID" in Children

- Great need for controlled data (and Omicron)
  - Racial/ethnic demographics different than COVID?
- No consensus case def'n
- DHS National Research Action Plan on Long COVID
  - RECOVER Post-Acute Sequelae of SARS-CoV-2 Pediatric Cohort Study (N~20,000, 4 years)
  - CDC/Census Household Pulse Survey

recovercovid.org/docs/PediatricProtocol.v2.3.pdf; covid.gov/assets/files/National-Research-Action-Plan-on-Long-COVID-08012022.pdf

In Case the Vaccine Didn't Happen

Agent	Purpose/ Age	Therapy Duration	Comment
Paxlovid (nirmatrelvir/ritonavir)	Tx for high risk, ≥12 yo & ≥40 kg	3 tabs b.i.d. x 5d	≤5d of Sxs; covid19-druginteractions.org/checker; Global peds trial underway
Remdesivir	Tx for high risk, ≥28d & ≥3 kg	IV infusion x3d	≤7d of Sxs
Bebtelovimab*	Outpt high risk, ≥12 yo & ≥40 kg	1 IV injection	≤7d of Sxs
Molnupiravir*	Adults only	4 caps b.i.d. x 5d	≤5d of Sxs

* Alternate therapies only

Vaccination

AAP.org

U.S. Vaccine Coverage

December 14, 2020 – October 05, 2022

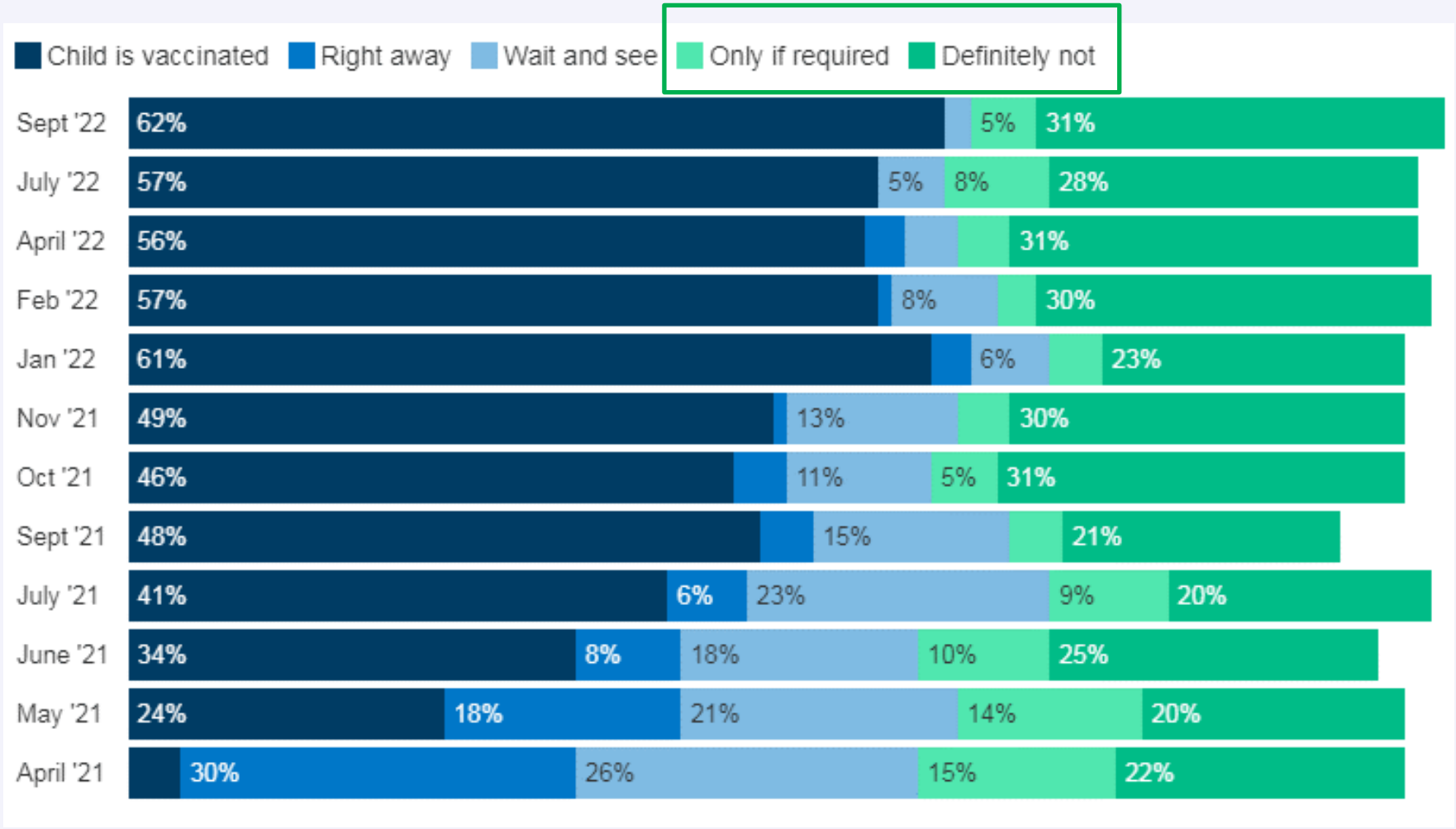
	<2 yrs	2-4 yrs	5-11 yrs	12-17 yrs	18-24 yrs	25-49 yrs	50-64 yrs	+65 yrs
At Least One Dose	5.0%	7.8%	38.6%	71.0%	80.4%	83.8%	94.4%	95.0%
Completed Primary Series	1.6%	3.0%	31.5%	60.8%	65.4%	71.0%	82.6%	92.6%

	5-11 yrs	12-17 yrs	18-24 yrs	25-49 yrs	50-64 yrs	+65 yrs
First Booster Dose	15.4%	29.2%	34.2%	41.5%	55.9%	71.3%
Second Booster Dose					28.8%	45.2%

https://covid.cdc.gov/covid-data-tracker/#vaccination-demographics-trends

Sep 15-26, 2022
N=1282:

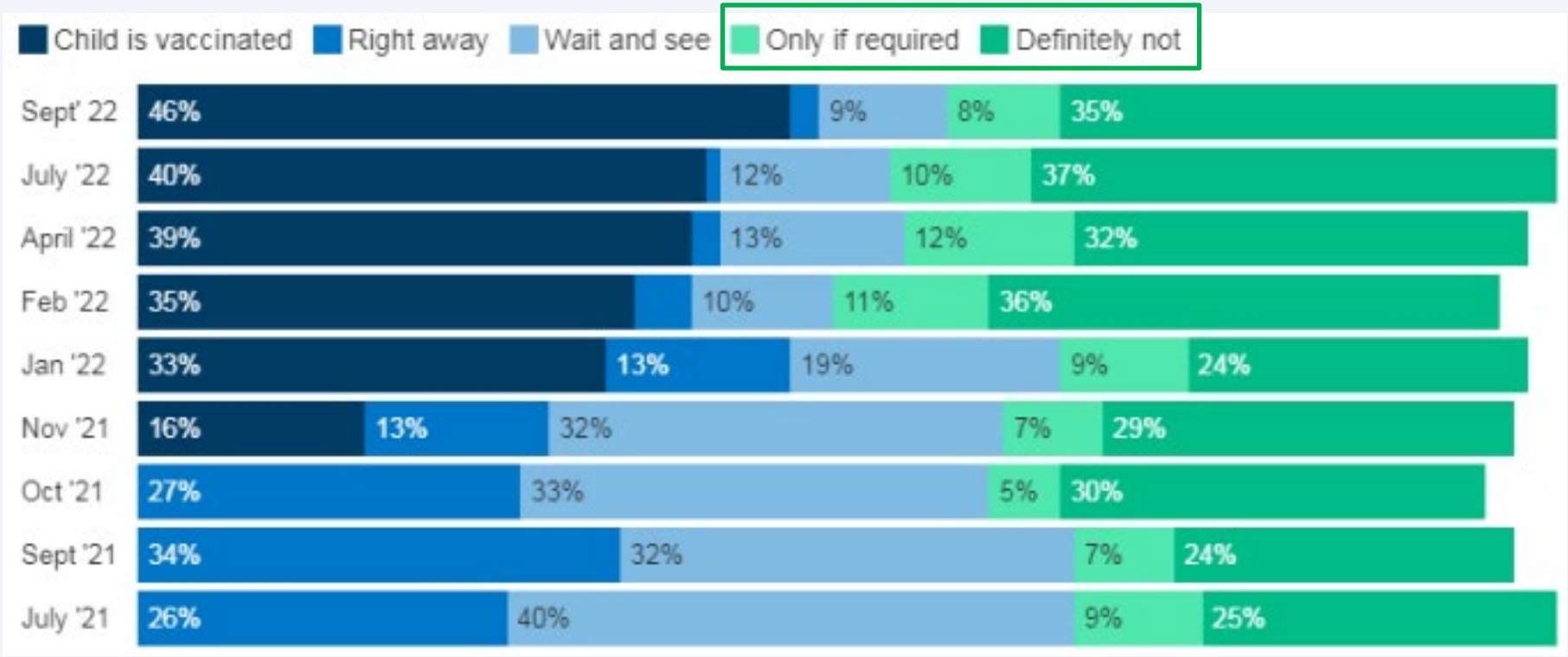
"Thinking about your child between the ages of 12-17 yrs of age, do you think you will get them vaccinated?"



https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-september-2022/

Sep 15-26, 2022
N=1282:

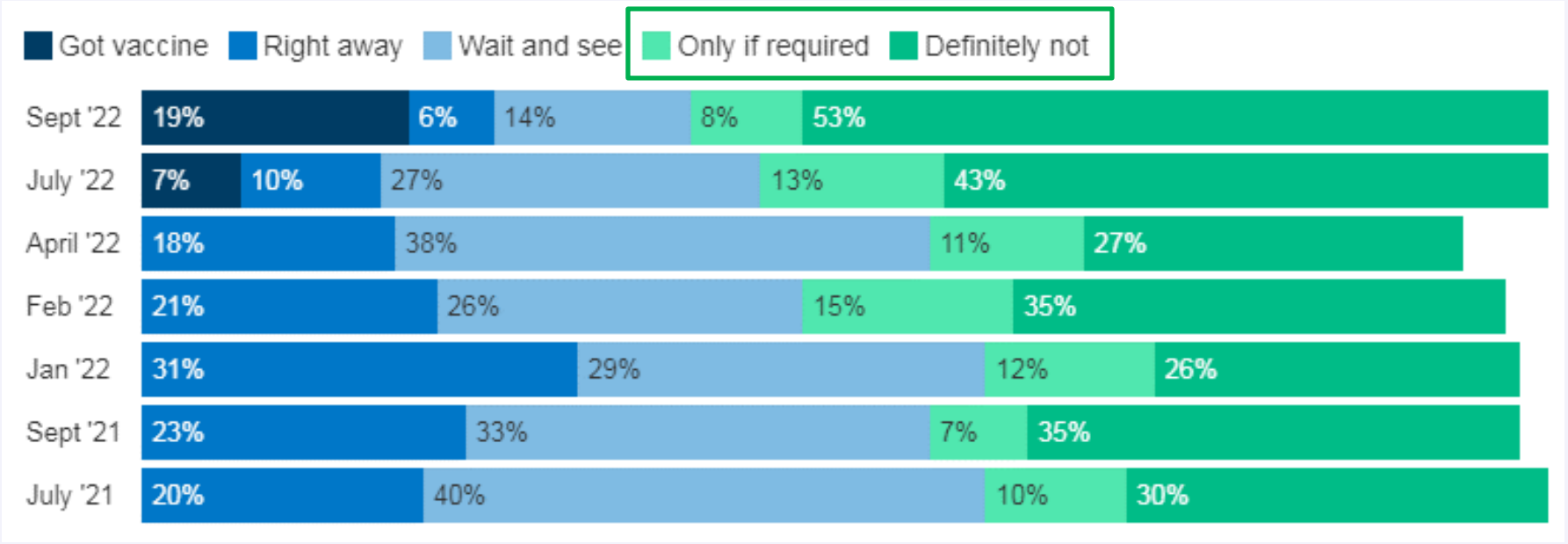
"Thinking about your child between the ages of 5 and 11…do you think you will get them vaccinated?"



https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-september-2022/

Sep 15-26, 2022
N=1282:

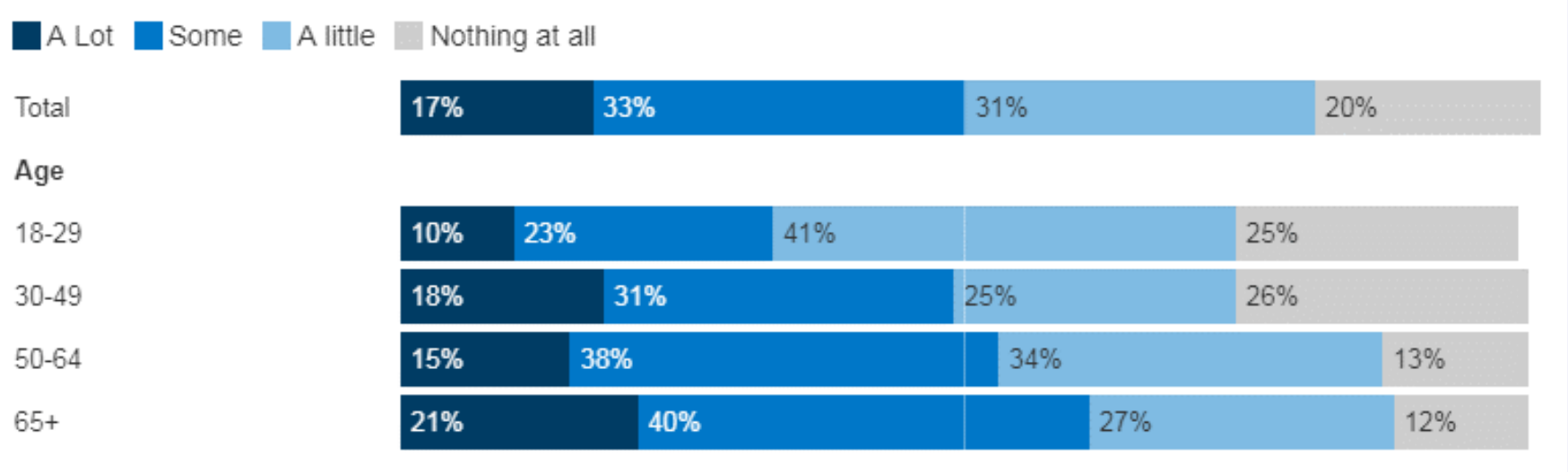
"Thinking about your child between the ages of 6m and 4 yrs, do you think you will get them vaccinated?"



https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-september-2022/

Sep 15-26, 2022
N=1282:

"How much have you heard about a new, updated COVID vaccine booster…?"



https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-september-2022/

COVID Vaccines for Children

Vaccine	Dose
Pfizer-BioNTech (mRNA)	6m-4y: 3 mcg ≥5-11y: 10 mcg ≥12y: 30 mcg Bivalent booster: **≥5y**: 15 µg/15 µg BA.4/5
Moderna (mRNA)	6m-5y: 25 mcg ≥6y-11y: 50 mcg ≥12-17y: 100 mcg Bivalent booster: **≥6y**: 15 µg/15 µg BA.4/5
Novavax (spike protein subunit)	≥12y: 0.5cc

Two Dose VE in Children vs Omicron

		Two Dose Vaccine Effectiveness	
Study	**Age Group**	**Symptomatic**	**Hospitalization**
Buchan SA. Pediatrics 2022;150(3):	Canadian, Pfizer, 12-17yrs	**51%** (7-59d post dose); **29%** (180d); 3 doses: **56%**	**85%**, no change over 6m
Powell AA. Lancet ID 2022;22:581	UK, Pfizer, 16-17yrs	**76%** (7-13d); **23%** (≥70d)	--
Klein NP. MMWR 2022;71(9):352	8 US sites, Pfizer, 5-17 yo	5-11y: **51%** (14-67d); 12-15y: **45%** (14-67d), **-2%** (>=150d); 6-17y: **34%** (14-67d), **-3%** (≥150d), 3 doses: **81%**	--
Price AM. NEJM 2022;386:1899	US, Pfizer, 5-18yrs	--	5-11y **68%** (median 34d); 12-18y: **40%**, (median 162d)

3-Dose VE versus Omicron BA.1

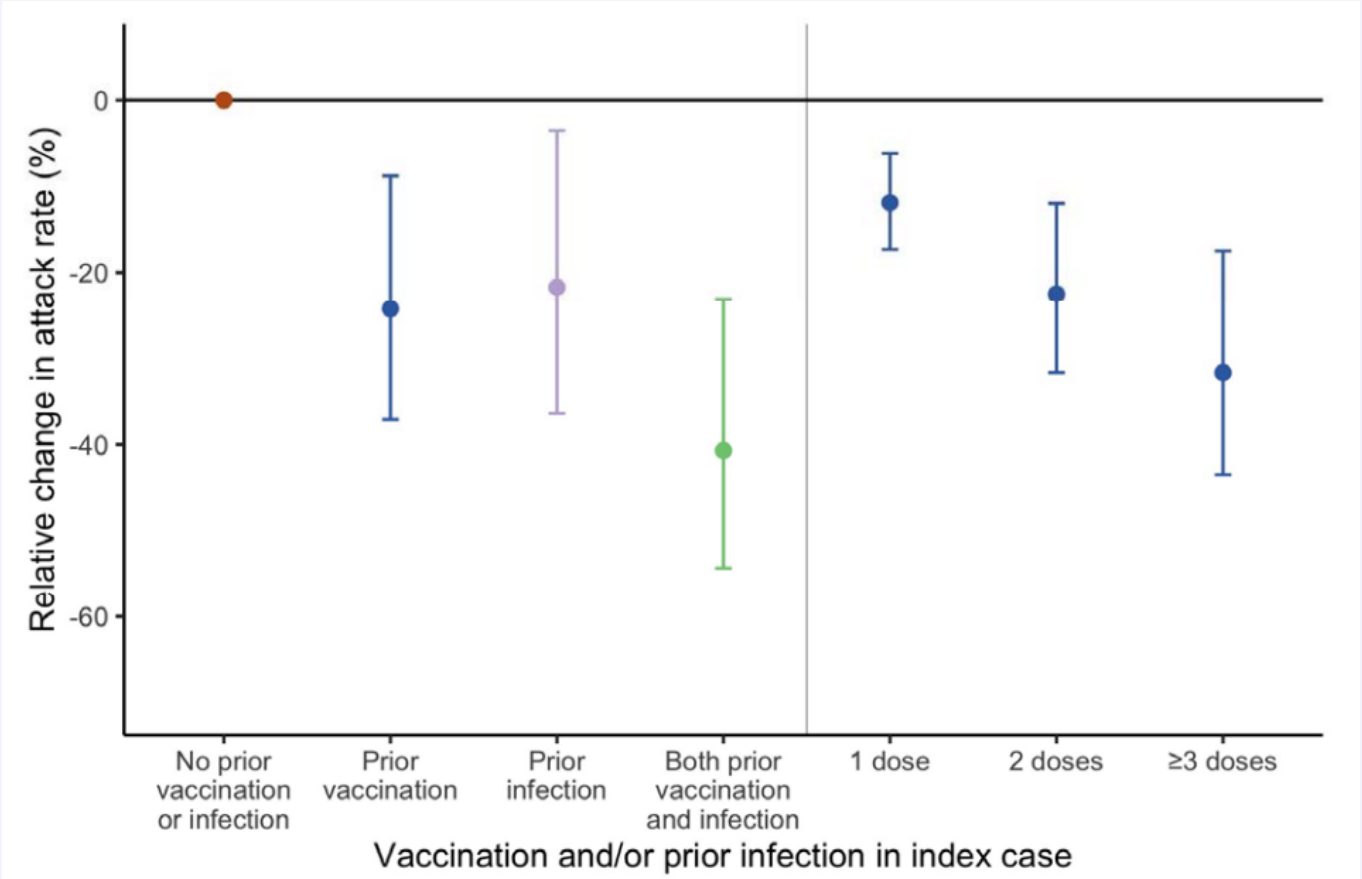
- ≥18 yo, 10 U.S. states

Outcome	Doses (F/U in days)	Omicron BA.1 VE
ED/UC	3 (7-119) 3 (≥120)	84 (95% CI 83-85) 73 (68-77)
Hospitalization	3 (7-119) 3 (≥120)	92 (91-93) 85 (81-89)

Link-Gelles R. MMWR 2022 July 22;71:931

Vaccine Effective Against Omicron Transmission

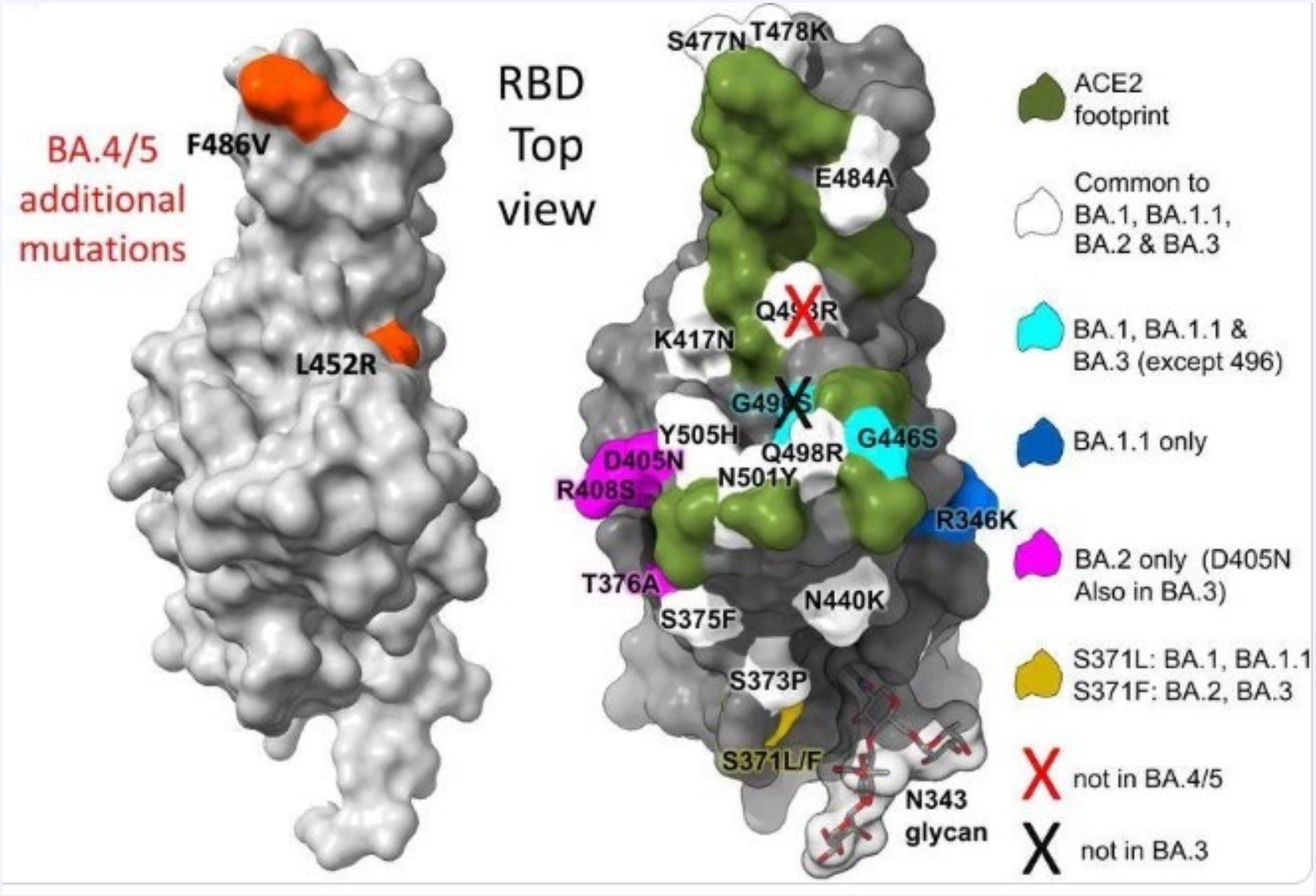
- 35 CA state prisons, index cases/cellmate contacts, 2/21-5/22



medrxiv.org/content/10.1101/2022.08.08.22278547v2.full.pdf

Bivalent Vaccine

- BA.4/5 EUA Aug 2022
  - Based on safety & immunogenicity v BA.1, mouse data for BA.4/5
  - Minimal/no safety, immunogenicity, VE human data for BA.4/5 bivalent yet
    - Approval paradigm similar to annual flu vaccine
    - Previous bivalents performed well, but became obsolete
- ≥2m after last dose, <u>not</u> for primary series
  - Use after any previous vaccine combination
- Moderna: 25 µg ancestral + 25 µg BA.4/5
- Pfizer-BioNTech: 15 µg ancestral + 15 µg BA.4/5



news-medical.net/news/20220526/SARS-CoV-2-variants-BA4-and-BA5-show-substantial-immune-escape-compared-with-BA1-and-BA2.aspx

Adult Bivalent Trials (Pfizer Vaccine)

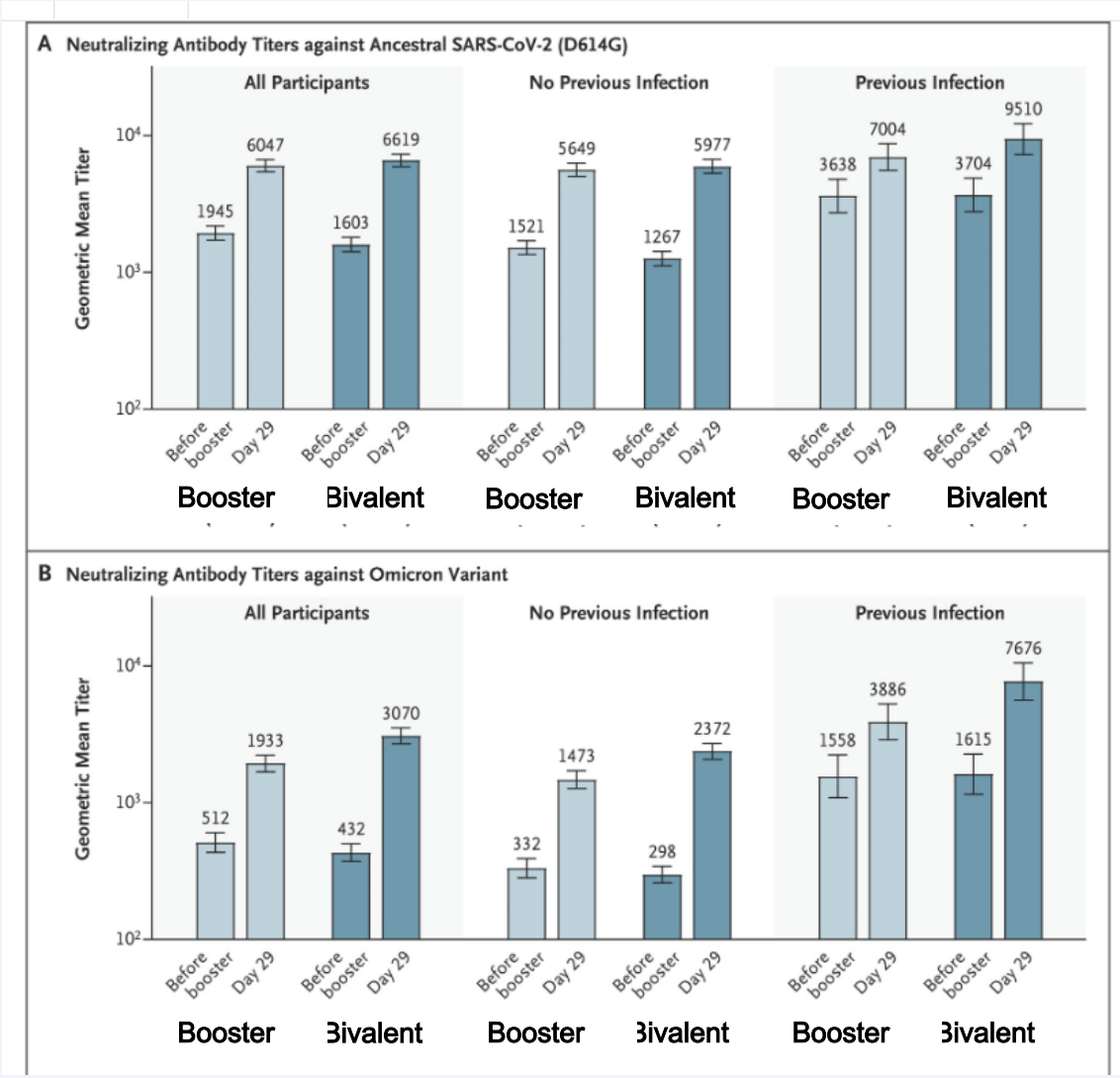
One month post-dose, in >55 yr olds, **bivalent** v (old) monovalent:

1. Superior immunogenicity against BA.1 omicron strain
2. Non-inferior immunogenicity against ancestral strain
3. Reactogenicity similar
4. Immunogenicity less robust v BA.4/5 compared to BA.1

https://www.fda.gov/media/159496/download - Pfizer presentation

Bivalent Trials (Moderna Vaccine)

- >18 yo, second booster
- Bivalent (compared to monovalent) is similar or better v ancestral and omicron variant
- No concerning AE signals, no SAEs



3.8/7.1x 4.4/8.0x 2.5/4.8x

Chalkias S. Sep 16, 2022. DOI: 10.1056/NEJMoa2208343

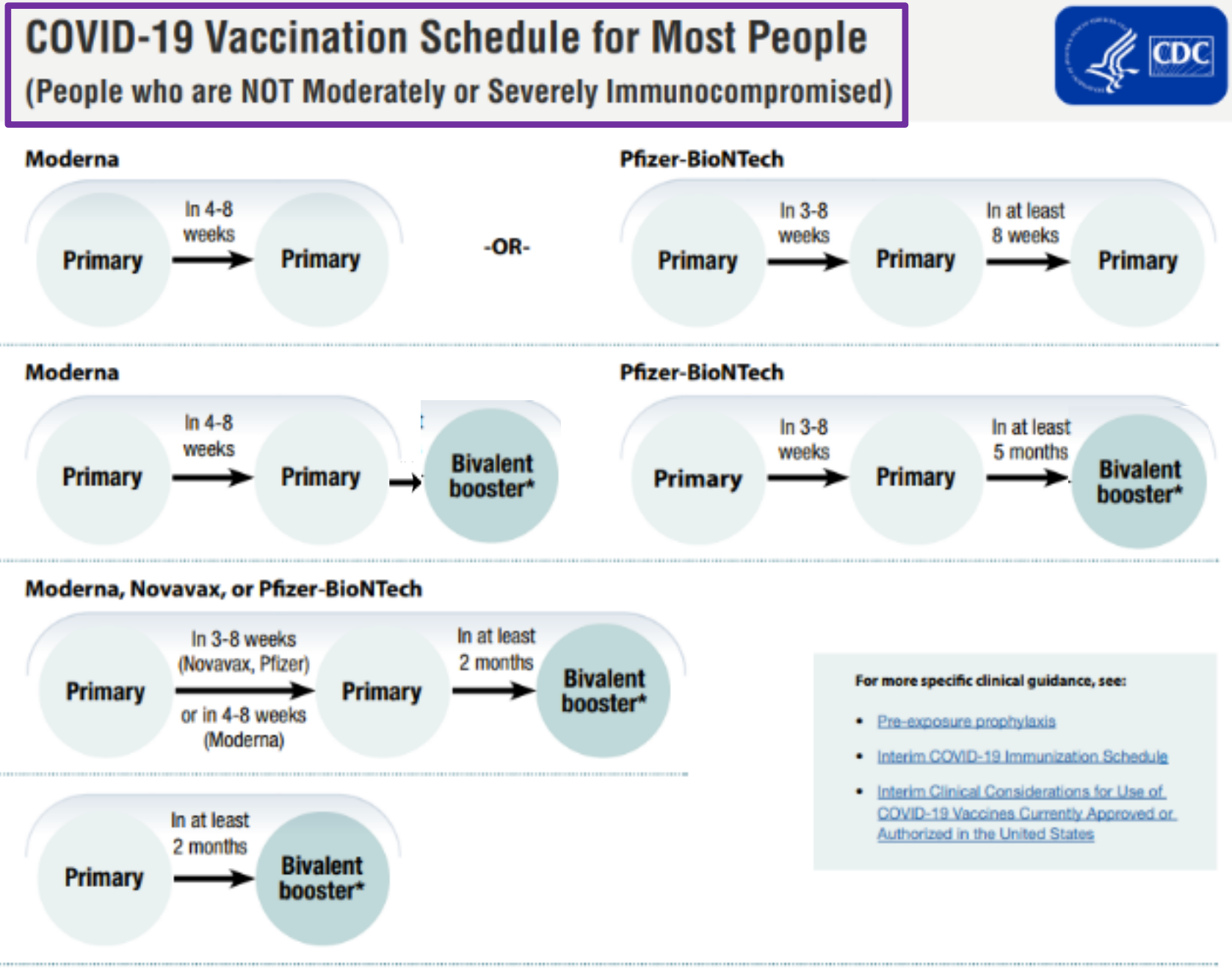
Different vaccines,
different doses,
different age groups,
different VE follow-up periods,
evolving data always happening;

Confusing.

At-a-Glance

COVID-19 Vaccination Schedule for Most People

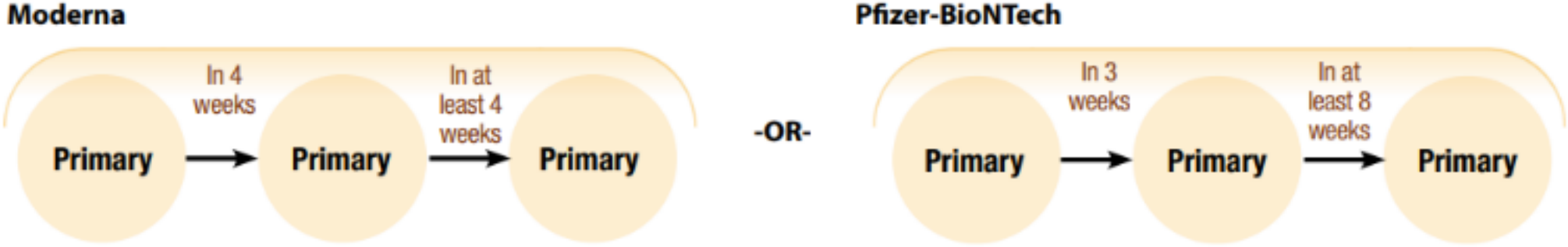
(People who are NOT Moderately or Severely Immunocompromised)



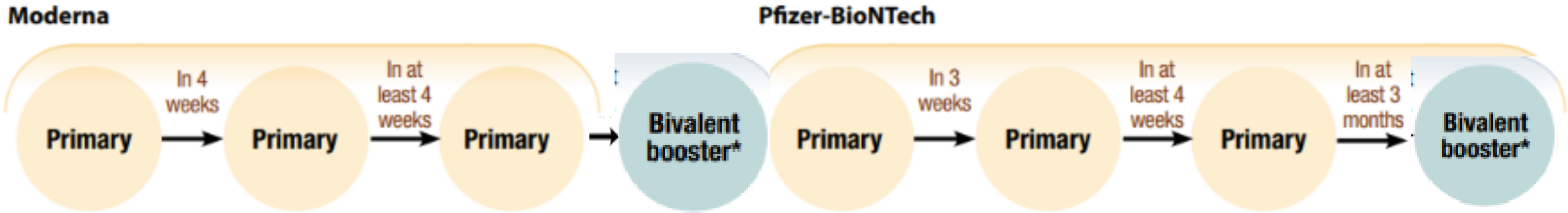
At-a-Glance

COVID-19 Vaccination Schedule for People Who Are Moderately or Severely Immunocompromised

People ages 6 months through 4 years



People ages 5 years through 11 years



At-a-Glance

COVID-19 Vaccination Schedule for People Who Are Moderately or Severely Immunocompromised

People ages 12 years and older

Moderna or Pfizer-BioNTech

Primary → (In 3-8 weeks (Pfizer) / or in 4 weeks (Moderna)) → Primary → (In at least 4 weeks) → Primary → (In at least 2 months) → Bivalent booster*

-OR-

Novavax

Primary → (In 3 weeks) → Primary → (In at least 2 months) → Bivalent booster*

People ages 18 years and older who previously received Janssen primary series dose†

Primary → (In at least 4 weeks) → Addl mRNA dose → (In at least 2 months) → Bivalent booster*

For more specific clinical guidance, see:

- Pre-exposure prophylaxis
- Interim COVID-19 Immunization Schedule
- Interim Clinical Considerations for Use of COVID-19 Vaccines Currently Approved or Authorized in the United States

Monoclonal antibodies (EVUSHELD™) for COVID-19 pre-exposure prophylaxis

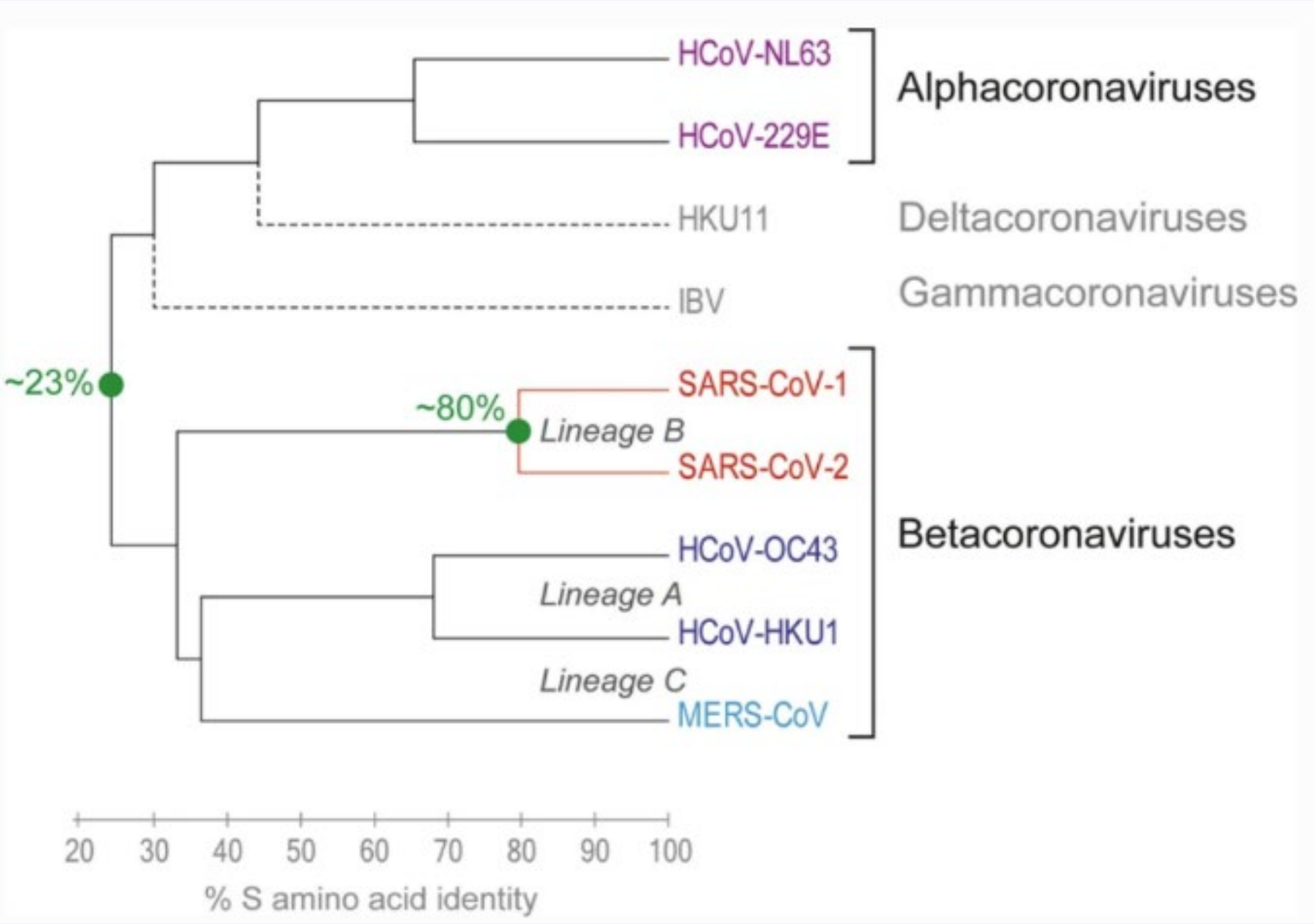
People ages 12 years and older (must weigh at least 40kg)

Any dose (primary or booster) → (In at least 2 weeks) → **EVUSHELD™** dose every 6 months → (No minimum interval from EVUSHELD™ to COVID-19 vaccine) → Any **subsequent** COVID-19 vaccine dose

(At least 2 weeks from COVID-19 vaccine to EVUSHELD™)

Why Not Just Use a Universal CoV Vaccine?

- Prevent all illness or just severe?
- Funding and test animal availability far less than Operation Warp Speed
  - Only one vaccine in clinical trial (ferritin nanoparticle)
- 4 genera; many subgenera
  - SARS-CoV-1 vs SARS-CoV-2: 80% homology
  - MERS vs SARS-CoV-2 only 35% homology



Heinz FX. *Wien Klin Wochenschr* 2020;132: 635

COVID Vaccine Questions

Question	Answer
COVID vax with flu vax?	Yes

COVID Vaccine Questions

Question	Answer
COVID vax with flu vax?	Yes
What if prior COVID?	“Consider” 3m wait

COVID Vaccine Questions

Question	Answer
COVID vax with flu vax?	Yes
What if prior COVID?	“Consider” 3m wait
“Fully vaccinated” v “up-to-date”?	Fully = primary series only UTD = received last eligible booster

COVID Vaccine Questions

Question	Answer
COVID vax with flu vax?	Yes
What if prior COVID?	“Consider” 3m wait
“Fully vaccinated” v “up-to-date”?	Dump the former (primary series only). UTD = received last eligible booster
Can I mix and match vaccines?	**Not for any primary series** (don’t repeat if done) 5-11 yo booster: Only Pfizer series adds booster ≥12-17 yo booster: Pfizer bivalent only ≥18 yo booster: any bivalent

COVID Vaccine Questions

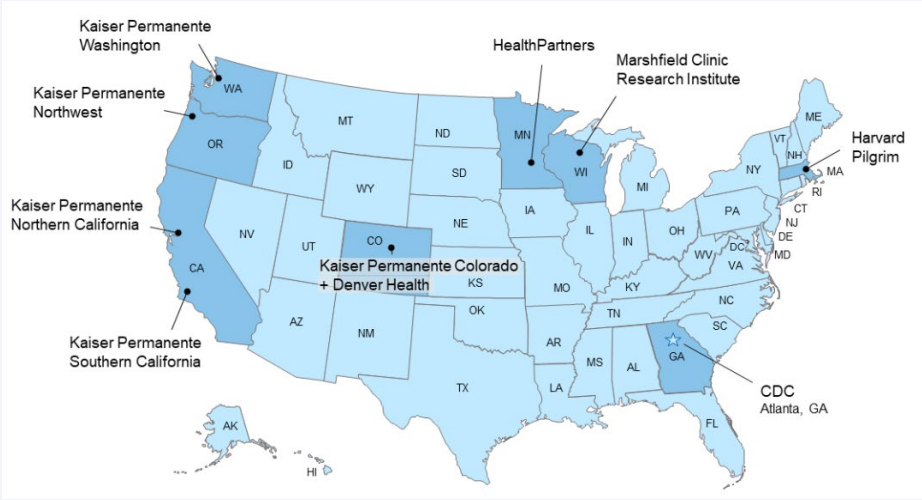
Question	Answer
COVID vax with flu vax?	Yes
What if prior COVID?	“Consider” 3m wait
“Fully vaccinated” v “up-to-date”?	Dump the former (primary series only). UTD = received last eligible booster
Can I mix and match vaccines?	**Not for any primary series**. 5-11 yo booster: Only Pfizer series adds booster ≥12-17 yo booster: Pfizer bivalent only ≥18 yo booster: any bivalent
Can I use the bivalent in the primary series?	No. Vaccinators cannot do this.

COVID Vaccine Questions

Question	Answer
COVID vax with flu vax?	Yes
What if prior COVID?	“Consider” 3m wait
“Fully vaccinated” v “up-to-date”?	Dump the former (primary series only). UTD = received last eligible booster
Can I mix and match vaccines?	**Not for any primary series**. 5-11 yo booster: Only Pfizer series adds booster ≥12-17 yo booster: Pfizer bivalent only ≥18 yo booster: any bivalent
Can I use the bivalent in the primary series?	No. Vaccinators cannot do this.
Does vaccine contain preservatives, eggs, gelatin, or latex?	No

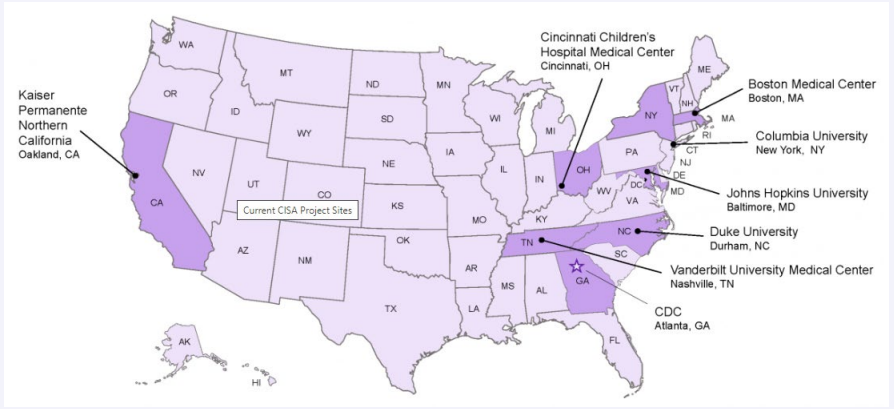
Vaccine Safety Monitoring

VAERS
Vaccine Adverse Event Reporting System



VSD

v-safe
after vaccination health checker



CISA

Also, FDA-mandated manufacturer surveillance

Vaccine-associated Myocarditis in Children

- Rates from 0-188/million doses
  - 2nd dose > booster dose >> 1st dose
  - Males >> females
  - Moderna > Pfizer (among male adults)
  - 18-24y at highest risk
- ~2/3 occur in 1st week and usually very mild
- Avoid more doses if occurs

Covid illness causes myocarditis 2-20-fold more commonly than vax

Goddard K. Ann Intern Med. 2022 Oct 4. doi: 10.7326/M22-2274

Why Continue to Vaccinate?

- COVID remains potentially serious infection
  - Hospitalization, ICU stays, MIS-C, death
  - 1/3 of hospitalized kids do NOT have underlying condition
- Vaccines effective against transmission & all of the above
  - Also against symptomatic infection albeit less than v Delta
- Vaccine after infection boosts protection
- New variants continue to emerge
  - Infection allows for mutation

Educate, Vaccinate, Mitigate!

- Need to check alternative data for disease epidemiology
- Morbidity persists, but Omicron somewhat less severe
  - More data needed to better define long COVID incidence and impact
  - Be attentive to prevention (Evusheld)
- Racial/ethnic disparities have improved, but persist
- <60% children w/ primary vaccination, booster data disappointing
  - 30-50% of parents not interested in vaccinating children
- Vaccine prevents much Omicron disease and some transmission
  - Peds schedule is confusing
  - No universal vaccine in near future
  - Vaccine safety surveillance is robust
- Get involved in local vaccine efforts if you can – pediatricians are trusted!

Thank you.

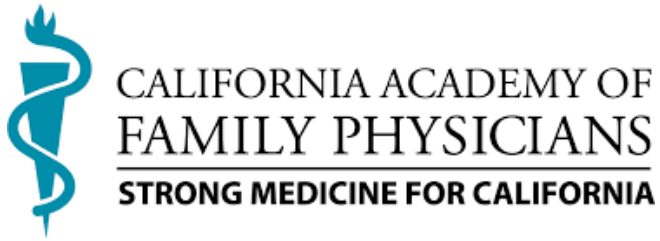
Evaluation

At the end of this webinar an Evaluation will pop up on your screen.

The evaluation should take approximately 2 minutes to complete.

CIC and AAP-CA utilize the evaluation from our Conversation Series to guide us in future programs.

Thank you for protecting California!



Stay tuned for future Conversations

Thank you for your support and your participation!

Find previous COVID Conversations on our YouTube channel

https://www.youtube.com/channel/UCklkZ1SZQNQLcpmNpeQpDAg

www.ImmunizeCA.org/Covid-19-Updates