

National Center for Immunization & Respiratory Diseases



Preliminary Estimates of 2021–22 Seasonal Influenza Vaccine Effectiveness against Medically Attended Influenza

For the US Flu VE Network

June 22, 2022

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices, United States, 2021–22 Influenza Season

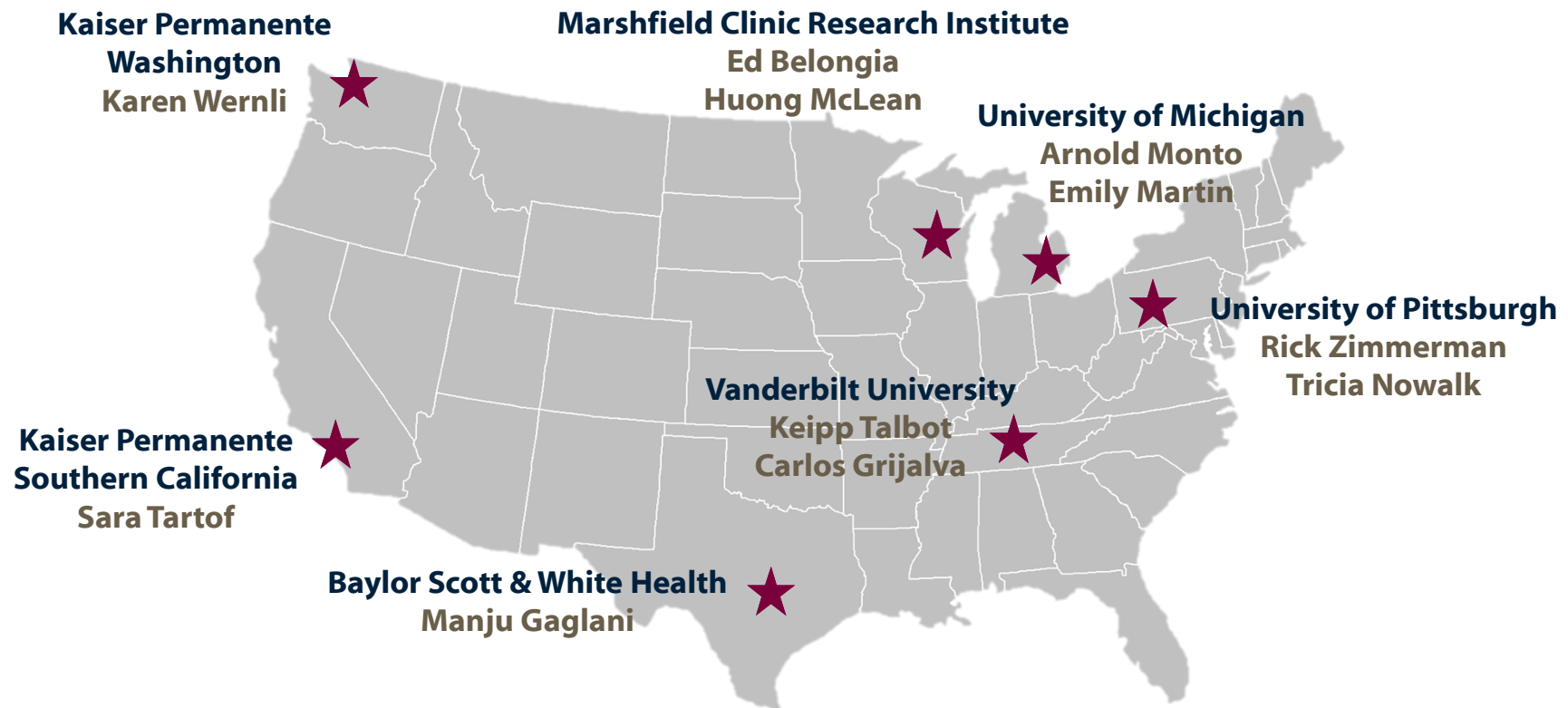
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2021–22 Northern Hemisphere influenza vaccine components

A(H1N1)pdm09	A/Victoria/2570/2019
A(H3N2)	A/Cambodia/e0826360/2020*
B Victoria	B/Washington/02/2019
B Yamagata	B/Phuket/3073/2013

*Reference virus from A(H3N2) genetic clade 3C.2a1b, subclade 2a.1.

US Flu VE Network sites and principal investigators



US Flu VE Network Methods

Enrollees: Ambulatory patients aged ≥ 6 months with acute respiratory illness with fever or cough ≤ 7 days duration

Dates of enrollment: October 4, 2021–April 30, 2022

Design: Test-negative design

- Comparing vaccination odds among influenza RT-PCR positive cases and influenza RT-PCR negative controls, **excluding persons testing positive for SARS-CoV-2**
- Vaccination status: receipt of at least one dose of any 2021–22 seasonal flu vaccine according to medical records, immunization registries, and/or self-report

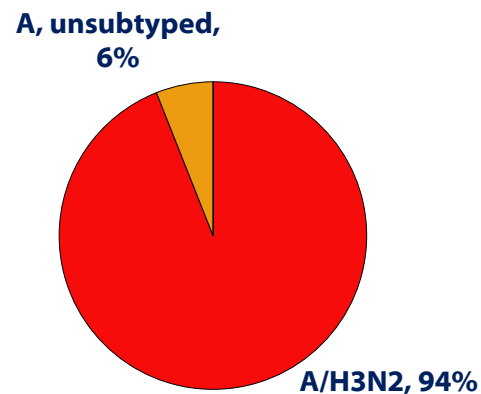
Analysis: $VE = (1 - \text{adjusted OR}) \times 100\%$

- Adjustment for study site, age, self-rated general health status, race/ethnicity, and month of onset
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Preliminary Results

- 6,782 enrolled at 7 sites between Oct 4, 2021–Apr 30, 2022
- 502 (7%) influenza RT-PCR positive
- 6,280 (93%) influenza RT-PCR negative
- 2,046 (30%) SARS-CoV-2 positive

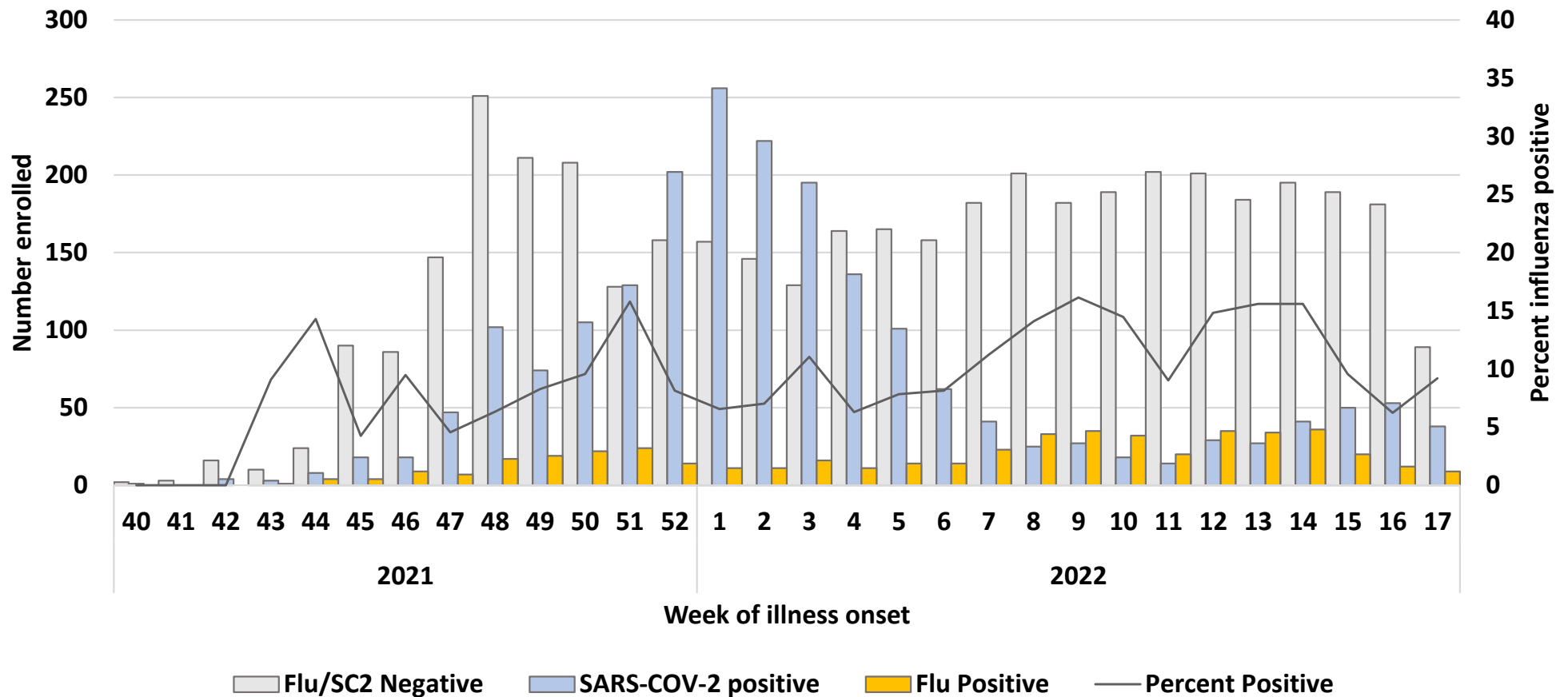
Influenza cases enrolled by (sub)type, N=487



- A/H3N2 (456)
- A, unsubtyped (29)
- A(H1N1)pdm09 (2)

*All genetically characterized A/H3N2 viruses belonged to clade 3C.2a1b, subclade 2a.2

Number of enrolled participants by influenza RT-PCR result and percent positivity by week of onset



Preliminary vaccine effectiveness against medically attended influenza A and A/H3N2, 2021–22

	Influenza positive		Influenza negative ¹		Vaccine Effectiveness			
	N vaccinated /Total	(%)	N vaccinated /Total	(%)	Unadjusted		Adjusted ²	
					VE %	95% CI	VE %	95% CI
Any influenza A								
All ages ≥6 mos	210/487	43	2501/4249	59	47	(36 to 56)	34	(19 to 46)
Influenza A/H3N2								
All ages ≥6 mos	191/456	42	2501/4249	59	50	(39 to 59)	35	(19 to 47)

¹ Persons testing negative for both influenza and SARS-CoV-2 using molecular assays.

² Multivariable logistic regression models adjusted for site, age, month of onset, self-rated general health status, and race/ethnicity.


Preliminary vaccine effectiveness against medically attended influenza A/H3N2 by age group, 2021–22

	Influenza positive		Influenza negative ¹		Vaccine Effectiveness			
	N vaccinated /Total	(%)	N vaccinated /Total	(%)	Unadjusted		Adjusted ²	
					VE %	95% CI	VE %	95% CI
Influenza A/H3N2								
All ages ≥6 mos	191/456	42	2501/4249	59	50	(39 to 59)	35	(19 to 47)
6 mos – 17 years	76/221	34	650/1266	51	50	(33 to 63)	44	(22 to 60)
18 – 49 years	71/168	42	998/1815	55	40	(17 to 56)	27	(-3 to 48)
≥ 50 years	44/67	66	853/1168	73	29	(-19 to 58)	--	--

¹ Persons testing negative for both influenza and SARS-CoV-2 using molecular assays.


² Multivariable logistic regression models adjusted for site, age, month of onset, self-rated general health status, and race/ethnicity.

Summary

- Preliminary results for 2021–22 season indicate vaccination reduced acute respiratory illness due to influenza A(H3N2) virus by 35% (95% CI: 19–47) based on enrollment through April 30, 2022
 - >99% of sequenced A(H3N2) viruses nationally were clade 3C.2a1b, subclade 2a.2
 - Lowest influenza prevalence (7%) observed in US Flu VE Network
 - 2022–23 Northern Hemisphere influenza vaccines will include updated reference viruses for A(H3N2) (clade 3C.2a1b, subclade 2a.2) and B/Victoria (B/Austria/1359417/2021)
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US Flu VE Network

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

