



INFLUENZA VACCINE 2020-2021

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DISCLOSURES



LIVE WELL
SAN DIEGO

- I have no financial disclosures to make related to this presentation
- My family and I are fully immunized

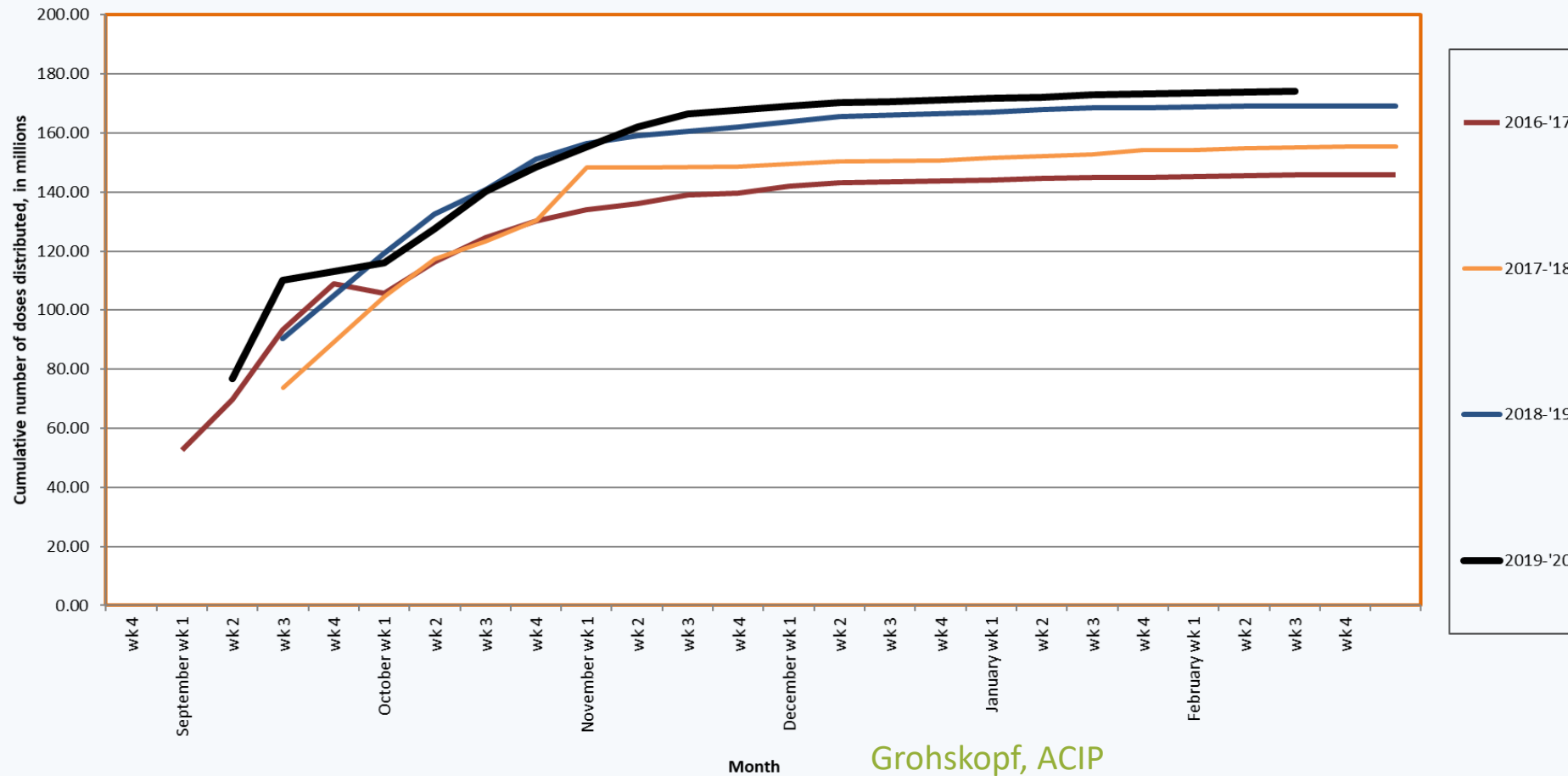


- Explain why influenza vaccine is especially important this year so that you promote it aggressively
- List the new things in this year's CDC Influenza recommendations so that you can use the vaccines correctly
- Explain who is NOT getting an influenza vaccine so that you are on the lookout for them

NOW IS THE TIME-IT'S INFLUENZA VACCINE SEASON



Cumulative doses of influenza vaccines distributed by month, by season:
2016-'17 - 2019-'20



Grohskopf, ACIP
presentation 2020



- **More important than ever**

- So we don't overburden the healthcare resources
- Because symptoms of influenza are identical with those of COVID so you will run the risk of quarantine if you get influenza
- Because co-infection with influenza and Sars-CoV-2 is possible and may be very severe

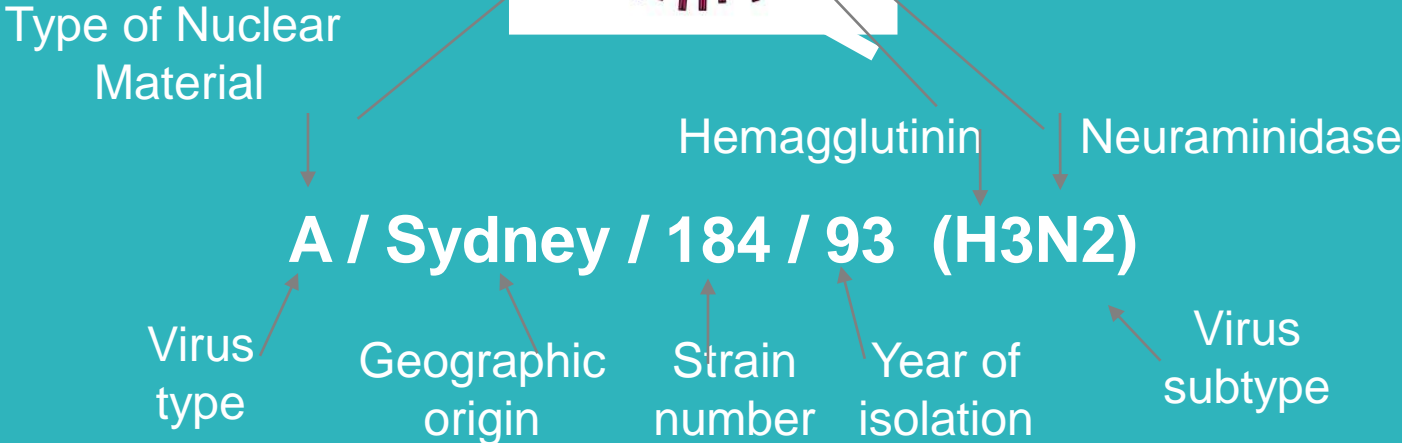
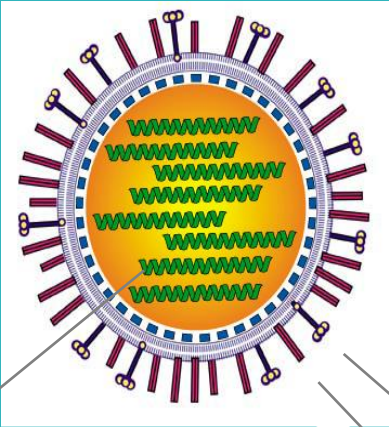
- **May be challenging to give along with COVID vaccine if we have one**

- Multiple mass vaccination events
- Tracking which vaccines have been given
- ? Limited supplies

- **Difficult to judge demand**

- Hopefully demand will be high for the reasons above
- Some people may decide their risk of getting influenza is lower than usual because "everyone" is wearing a mask

INFLUENZA VIRUS NOMENCLATURE



1. CDC. Atkinson W, et al. Chapter 13: Influenza. In: Epidemiology and Prevention of Vaccine-Preventable Diseases, 4th ed. Department of Health and Human Services, Public Health Service, 1998, 220



Slightly different composition between the egg-based vaccines and the cell- or recombinant-based vaccines

For the egg based vaccines:

- A/Guangdong-Maonan/2019 (H1N1)pdm09
- A/Hong Kong/2019 (H3N2)
- B/Washington/2019/(B/Victoria lineage)
- B/Phuket/2013 (Yamagata lineage)



3 of the 4 strains are new this year!

VARIATION IN INFLUENZA VACCINE EFFECTIVENESS



Table. Adjusted vaccine effectiveness estimates for influenza seasons from 2005-2016

Influenza Season ¹	Reference	Study Site(s)	No. of Patients ^a	Adjusted Overall VE (%)	95% CI
2004-05	Belongia 2009	WI	762	10	-36, 40
2005-06	Belongia 2009	WI	346	21	-52, 59
2006-07	Belongia 2009	WI	871	52	22, 70
2007-08	Belongia 2011	WI	1914	37	22, 49
2009-10	Griffin 2011	WI, MI, NY, TN	6757	56	23, 75
2010-11	Treanor 2011	WI, MI, NY, TN	4757	60	53, 66
2011-12	Ohmit 2014	WI, MI, PA, TX, WA	4771	47	36, 56
2012-13	McLean 2014	WI, MI, PA, TX, WA	6452	49	43, 55
2013-14	Unpublished	WI, MI, PA, TX, WA	5990	51	43, 58
2014-15	ACIP presentation, Flannery	WI, MI, PA, TX, WA	9329	23	14, 31
2015-16*	ACIP presentation, Flannery	WI, MI, PA, TX, WA	7563	47*	39, 53*

<https://www.cdc.gov/flu/professionals/vaccination/effectiveness-studies.htm>

*Estimate from Nov 2, 2015 - April 15, 2016

EFFECTIVENESS FOR WHAT?



- 45% effective for prevention of an illness that brings you to the clinic and you need an influenza test
- More effective for preventing hospitalization
- Even more effective for preventing death





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Can you give the influenza
vaccine too early?



Table 4. Summary of Findings

Outcome	Participants, No. (Studies)	Studies, No.	Evidence Certainty ^a	Δ VE (95% CI)	VE (95% CI), by Time After Vaccination	
					15–90 d	91–180 d
Influenza A(H3)	10 736 cases, 27 689 controls	11	Moderate	-33 (-57 to -12)	45 (34 to 54)	13 (-10 to 31)
Influenza B	6424 cases, 17 877 controls	6	Low	-19 (-33 to -6)	62 (52 to 70)	43 (33 to 52)
Influenza A(H1)	5148 cases, 17 044 controls	5	Low	-8 (-27 to 21)	62 (35 to 78)	54 (43 to 63)

Aggregate odds ratios from the meta-analysis in [Figure 2](#) were converted to VE values, stratified by influenza virus type/subtype and time since vaccination, with bootstrapped estimates used for Δ VE.

Abbreviations: CI, confidence interval; VE, vaccine effectiveness.

^aBased on the Grading of Recommendations Assessment, Development and Evaluation.

WHEN TO GIVE INFLUENZA VACCINE



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- The goal is to immunize everyone by November 1
- Immunize children who need 2 doses of vaccine as soon as you can
- Immunize anyone who may not be back/come back by November 1
- Otherwise wait until September
- No recommendation for a second dose half-way through the season

INFLUENZA-WHO DO WE WORRY ABOUT THE MOST?



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■ HIGH RISK CONDITIONS

- Children under 5 years
- Pregnant women
- Adults over 50 years
- Everyone with chronic lung, heart, kidney, liver, neurologic diseases
- Residents of long-term care facilities
- Immunocompromised people
- American Indian/Alaskan Natives
- Persons with extreme obesity
- Children on chronic aspirin

WHO ELSE IS VERY IMPORTANT TO IMMUNIZE?



- People who care for the high risk groups
 - Household contacts
 - Other caregivers
- Health care personnel



2020-2021 INFLUENZA VACCINE PRODUCTS



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Influenza Vaccine Products for the 2020–2021 Influenza Season

Manufacturer	Trade Name (vaccine abbreviation) ¹	How Supplied	Mercury Content (mcg Hg/0.5mL)	Age Range	CVX Code	Vaccine Product Billing Code ²
						CPT
AstraZeneca	FluMist (LAIV4)	0.2 mL (single-use nasal spray)	0	2 through 49 years	149	90672
GlaxoSmithKline	Fluarix (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older ³	150	90686
	FluLaval (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older ³	150	90686
Sanofi Pasteur	Flublok (RIV4)	0.5 mL (single-dose syringe)	0	18 years & older	185	90682
	Fluzone (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older ³	150	90686
		0.5 mL (single-dose vial)	0	6 months & older ³	150	90686
		5.0 mL (multi-dose vial)	25	6 through 35 months ³	158	90687
		5.0 mL (multi-dose vial)	25	3 years & older	158	90688
	Fluzone High-Dose (IIV4-HD)	0.7 mL (single-dose syringe)	0	65 years & older	197	90662
Seqirus	Afluria (IIV4)	0.25 mL (single-dose syringe)	0	6 through 35 months ³	161	90685
		0.5 mL (single-dose syringe)	0	3 years & older ³	150	90686
		5.0 mL (multi-dose vial)	24.5	6 through 35 months ³	158	90687
	Fluad (aIIV3) Fluad (aIIV4)	5.0 mL (multi-dose vial)	24.5	3 years & older ⁴	158	90688
		0.5 mL (single-dose syringe)	0	65 years & older	168	90653
		0.5 mL (single-dose syringe)	0	65 years & older	205	90694
		Flucelvax (ccIIV4)	0.5 mL (single-dose syringe)	0	4 years & older	171
5.0 mL (multi-dose vial)	25		4 years & older	186	90756	

NOTES

Immunization Action Coalition <https://www.immunize.org/catg.d/p4072.pdf>



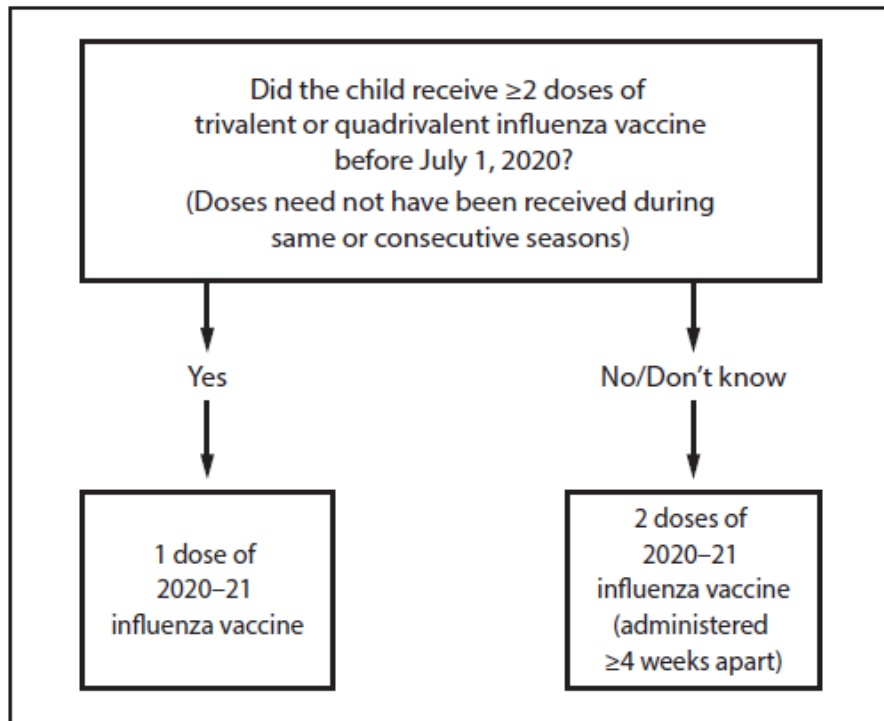
TABLE 3. Dose volumes for inactivated influenza vaccines licensed for children aged 6 through 35 months* — United States, 2020–21 influenza season

Trade name (Manufacturer)	Dose volume for children aged 6 through 35 mos (μg HA per vaccine virus)
Afluria Quadrivalent (Seqirus)	0.25 mL (7.5 μg)
Fluarix Quadrivalent (GlaxoSmithKline)	0.5 mL (15 μg)
FluLaval Quadrivalent (GlaxoSmithKline)	0.5 mL (15 μg)
Fluzone Quadrivalent (Sanofi Pasteur)	0.25 mL (7.5 μg) or 0.5 mL (15 μg) [†]

TWO DOSES OF INFLUENZA VACCINE FOR YOUNG CHILDREN-UPDATE



FIGURE. Influenza vaccine dosing algorithm for children aged 6 months through 8 years* — Advisory Committee on Immunization Practices, United States, 2020–21 influenza season



* For children aged 8 years who require 2 doses of vaccine, both doses should be administered even if the child turns age 9 years between receipt of dose 1 and dose 2.

One dose of vaccine in this population provides very little protection

CDC, MMWR 2020;69(8)



- High dose IIV4 (HD-IIV4)
- Recombinant IIV4 (RIV)
- Adjuvanted IIV3 and 4 (aIIV3; aIIV4)
- Probably all work better than other IIV vaccines
 - HD-IIV3 24% more effective
 - RIV 17-30% more effective
 - aIIV3 ??63% more effective

No preference for these vaccines stated by CDC

CDC, MMWR 2020;69(8)

WHO SHOULD GET A FLU VACCINE?

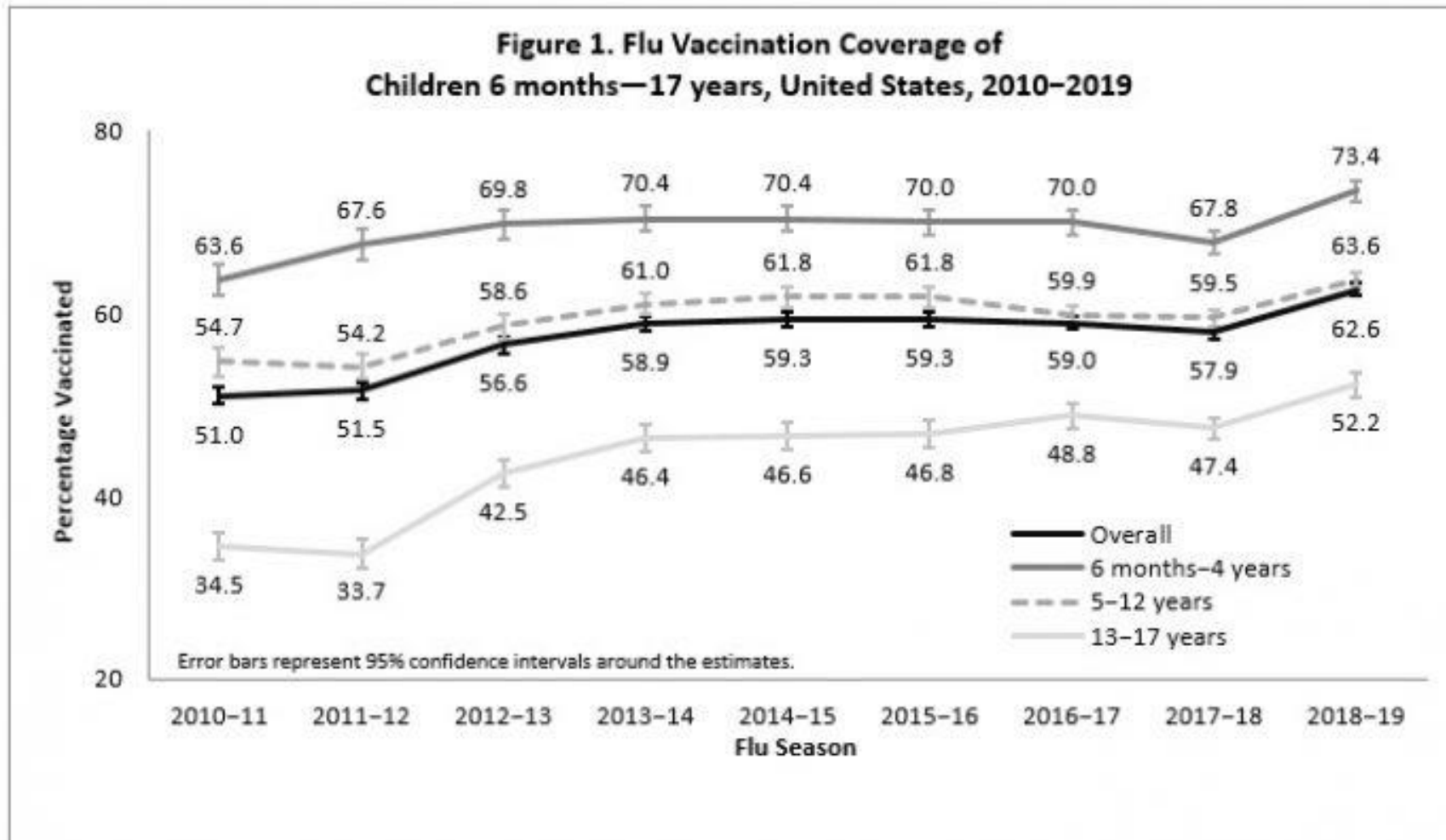


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- Everyone 6 months of age and older!

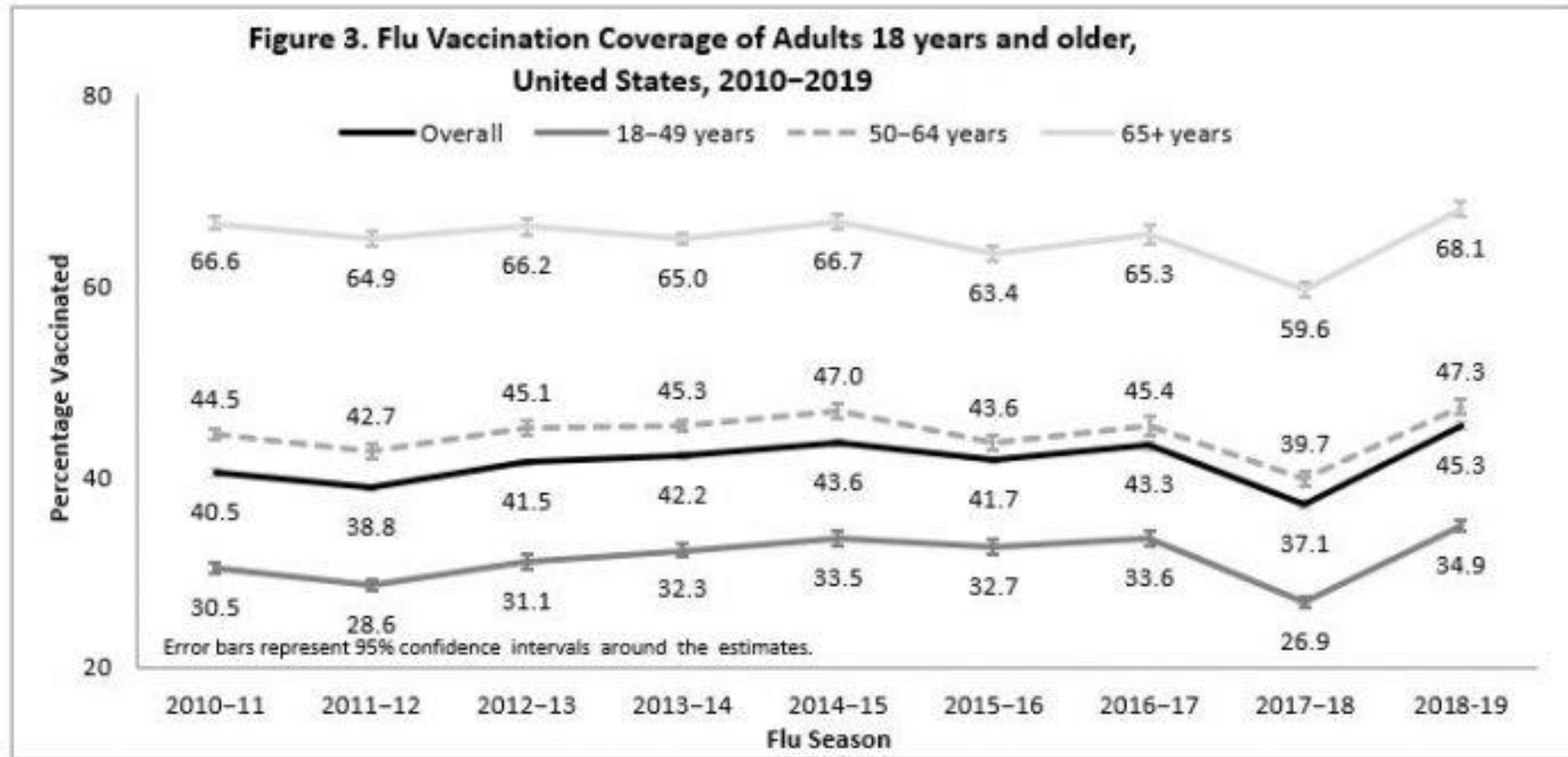


INFLUENZA VACCINE COVERAGE-CHILDREN



<https://www.cdc.gov/flu/fluview/coverage-1819estimates.htm#figure1>

INFLUENZA VACCINE COVERAGE -ADULTS



WHERE TO GO FOR MORE INFORMATION



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- San Diego HHSA Immunization Branch (SDIZ.org)
- California Department of Public Health (www.cdph.ca.gov)
- CDC (cdc.gov/vaccines)