Current Issues in Influenza

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Disclosures

- I have no conflicts of interest.
- I do NOT intend to discuss an unapproved or investigative use of a commercial product/device in my presentation.

2

Disclaimer

The opinions expressed in this presentation are solely those of the presenter and do not necessarily represent the official positions of the Immunization Action Coalition or the National Adult and Influenza Immunization Summit.

3

Outline

- Review 2018–2019 influenza season activity and vaccination coverage rates
- Discuss influenza vaccine effectiveness
- Describe ACIP influenza recommendations for 2019–2020 influenza season
- Discuss communication messages

4

The 2018–2019 Influenza Season

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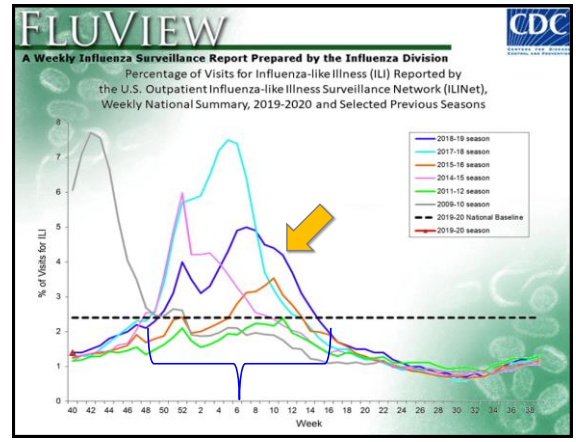

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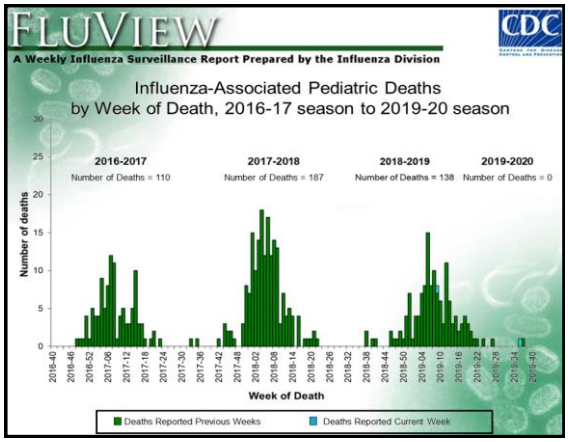

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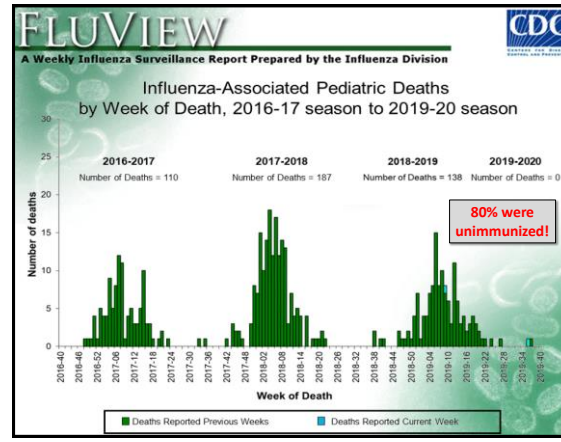

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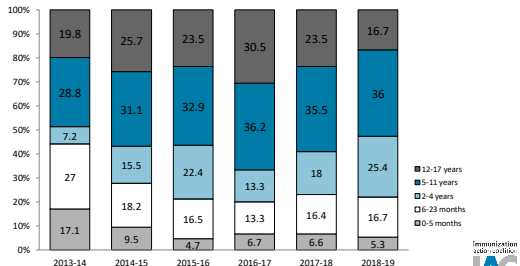
Influenza Associated Pediatric Deaths by Age Group (percent of total deaths)



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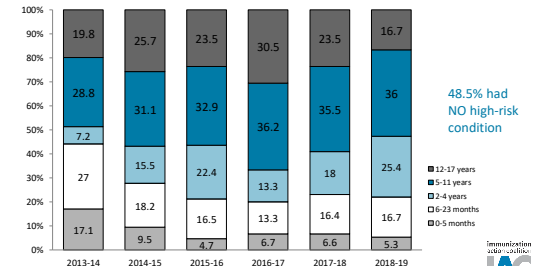

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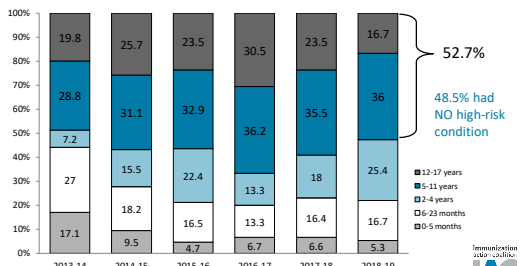

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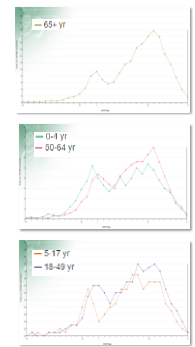
2018–2019 Hospitalization Rates



65 + years
Cumulative Rate: 216.6/100,000

50–64 years
Cumulative Rate: 80.0/100,000

0–4 years
Cumulative Rate: 74.0/100,000

18–49 years
Cumulative Rate: 26.0/100,000

5–17 years
Cumulative Rate: 21.0/100,000

Source: CDC

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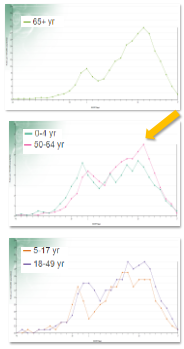
2018–2019 Hospitalization Rates



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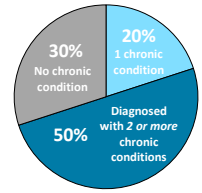
13

Prevalence of Chronic Conditions and Their Association with Influenza Hospitalizations in Adults 50 Years of Age and Older

Prevalence of Chronic Conditions
US Adults 50-64 Years of Age[1]



References: 1. CDC, AARP, American Medical Association. www.cdc.gov/aging/pdf/promoting-preventive-services.pdf. Accessed March 1, 2018. 2. CDC. www.cdc.gov/flu/protect/ whoshouldvax.htm. Accessed March 1, 2018. 3. Dao CN, et al; Emerging Infections Program Network. *J Infect Dis*. 2010;202(6):881-888. 4. CDC. www.cdc.gov/flu/weekly/weeklyarchives2016-2017/Week20.htm. Accessed March 1, 2018.

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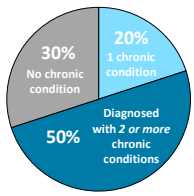
Prevalence of Chronic Conditions
US Adults 50-64 Years of Age[1]



Americans 50 years of age and older are a priority group for influenza immunization.[2]

- In a study covering the 2005–2006, 2006–2007, and 2007–2008 influenza seasons, >80% of adults hospitalized with lab-confirmed influenza had 1 or more underlying medical condition; half had 2 or more conditions[3]
- In the 2016–2017 influenza season, 94.2% of hospitalized adult patients with influenza had at least 1 underlying medical condition[4]

References: 1. CDC, AARP, American Medical Association. www.cdc.gov/aging/pdf/promoting-preventive-services.pdf. Accessed March 1, 2018. 2. CDC. www.cdc.gov/flu/protect/ whoshouldvax.htm. Accessed March 1, 2018. 3. Dao CN, et al; Emerging Infections Program Network. *J Infect Dis*. 2010;202(6):881-888. 4. CDC. www.cdc.gov/flu/weekly/weeklyarchives2016-2017/Week20.htm. Accessed March 1, 2018.

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Influenza and Cardiovascular Disease

- Incidence of admissions for acute myocardial infarction was six times as high during the 7 days after laboratory confirmation of influenza infection[1]
- A study in VA patients showed that 24% of 600 VA patients who tested positive for influenza had acute cardiac injury, and 80% occurred within 3 days of the influenza diagnosis[2]
- A systematic review showed consistent associations between influenza and acute myocardial infarction, with weaker evidence of an association with cardiovascular death[3]
- Acute infections, such as influenza, have been associated with cardiovascular events, and it is hypothesized to be due to triggering of inflammation that elicits cardiovascular events[4]

1. Kwong JC, et al. N Engl J Med 2018; 378:345-353.
2. Ludwig A, et al. BMC Cardiovasc Disord. 2015 Sep 30;15:109. doi: 10.1186/s12872-015-0095-0.
3. Warren-Gash C, et al. Lancet Infect Dis. 2009 Oct;9(10):601-10.
4. Santos-Gallego CG, et al. JAHA 2018; 7(22):e011175.

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Influenza and Diabetes

- People with diabetes experienced more hyperglycemic events and substantial increases in pneumonia, sepsis, and coronary heart disease up to 4 weeks after an influenza claim, as compared to a non-influenza period in the same year[1]
- People with diabetes are 3–6 times more likely to be hospitalized during influenza epidemics[2] and almost 3 times more likely to be hospitalized with pandemic influenza[3]
- People with diabetes have a much higher rate of death associated with an influenza infection[4]
- Influenza vaccination is recommended by the World Health Organization for high risk patients with diabetes

1. Samson SI, Lee W-N, Quisel T, et al. Diabetes. 2018;67(Supplement 1):1616.
2. Bouter KP, Diabetes Res Clin Pract 1991;12:61-8. Allard R, Diabetes Care 2010;33:1491-3.
3. Ruiz, P.L.D. et al. J Int Med. 2019. https://doi.org/10.1111/joim.12984.
3. www.gov.uk/government/publications/influenza-the-green-book-chapter-19 (p4).

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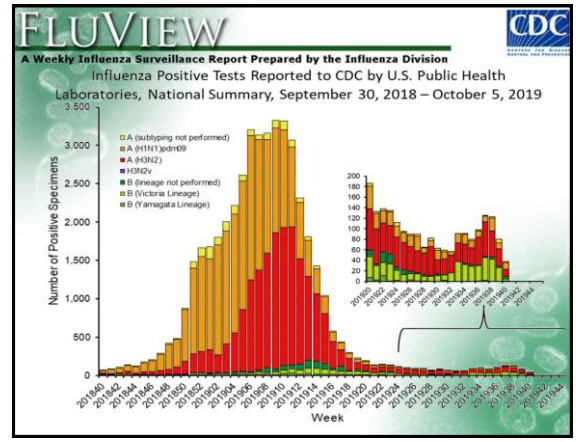

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H1N1

Early December 2018

A (subtyping not performed) | A (H1N1)pdm09 | A (H3N2)
B (lineage not performed) | B (Victoria Lineage) | B (Yamagata Lineage)

Graphic courtesy of Alicia Budd, CDC

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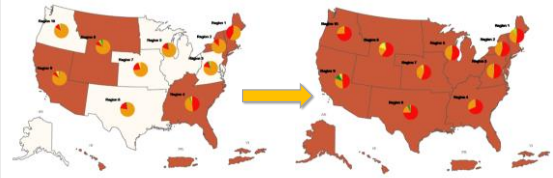
H1N1 → H3N2



Early December 2018 → Mid/Late March 2019

A (subtyping not performed) | A (H1N1)pdm09 | A (H3N2)
B (lineage not performed) | B (Victoria Lineage) | B (Yamagata Lineage)

Graphic courtesy of Alicia Budd, CDC

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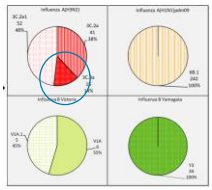
Changing Proportion of H3 Genetic Clades/Sub-clades



End of 2018

Graphic courtesy of Alicia Budd, CDC

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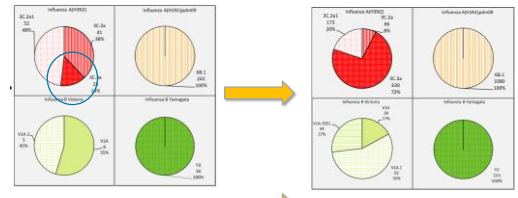
Changing Proportion of H3 Genetic Clades/Sub-clades



End of 2018 → Late April 2019

Graphic courtesy of Alicia Budd, CDC

22

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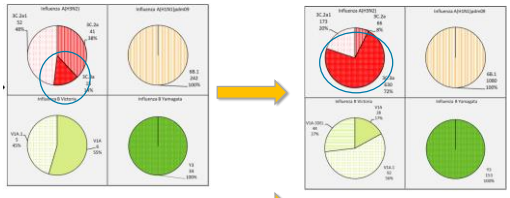

End of 2018 → Late April 2019

Graphic courtesy of Alicia Budd, CDC

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Summary of Influenza Activity 2018–2019

- Two separate waves of influenza A activity – H1 first, then H3
- Almost equal proportions of H1 and H3 by season end
  - H3 drifted away from strain in the vaccine
  - WHO delays vaccine strain selection by a month
- Very little B virus circulation and no later B wave
- Record breaking long season as measured by ILI activity

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The 2018–2019 Influenza Season: Vaccination Coverage

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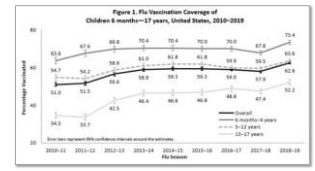
2018–2019 Pediatric Influenza Vaccination Coverage*

Percent of children vaccinated

- 62.6% – 6 mos through 17 yrs
- 73.4% – 6 mos to 4 yrs
- 63.6% – 5 to 12 yrs
- 52.2% – 13 to 17 yrs



*www.cdc.gov/flu/fluvaxview/coverage-1819estimates.htm

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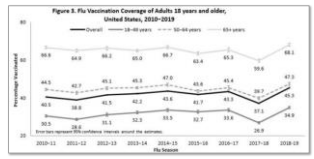
2018–2019 Adult Influenza Vaccination Coverage*

Percent of adults vaccinated

- 45.3% – over 18 yrs
- 68.1% – over 65 yrs
- 47.3% – 50–64 yrs
- 39.0% – 18–64 yrs
  - Only 47.9% of adults 18–64 yrs of age with at least one high-risk medical condition



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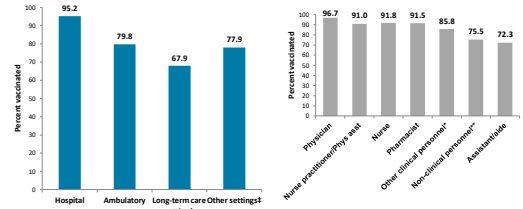
2018–2019 Influenza Vaccination Coverage – Healthcare Personnel#



\# www.cdc.gov/flu/fluvaxview/hcp-coverage_1819estimates.htm
† Nursing home, assisted living facility, other long-term care facility, home health agency or home health care.
‡ Settings other than hospitals, ambulatory care setting, or long-term care facilities; includes dentist office or dental clinic, pharmacy, EMS, and other settings where clinical care or related services was provided to patients
* Allied health professional, dentist, technician, or technologist
** Administrative support staff or manager and nonclinical support staff (including food service workers, housekeeping staff, maintenance staff, janitor, and laundry workers)

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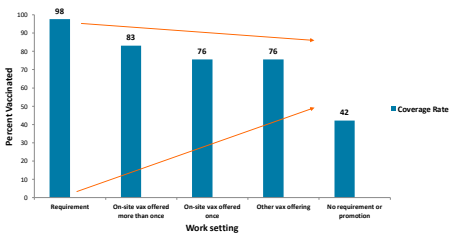
Impact of Employer Policy on Healthcare Personnel Vaccination, 2018–2019



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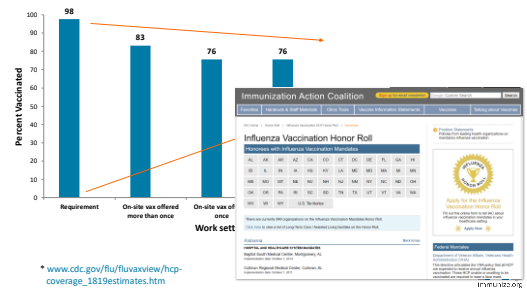
Impact of Employer Policy on Healthcare Personnel Vaccination, 2018–2019



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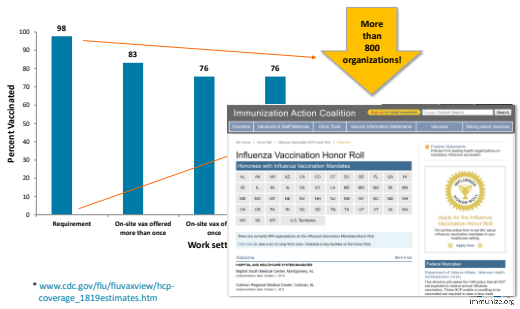

* www.cdc.gov/flu/fluvaxview/hcp-coverage_1819estimates.htm

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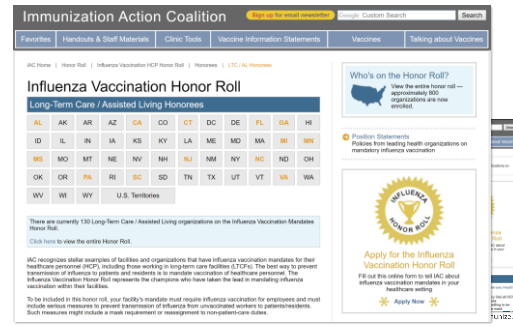

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2018–2019 Influenza Vaccination Coverage in Healthcare Personnel – Summary

- HP2020 goal of 90%
- 81.1% vaccinated by internet panel surveys, similar results to the previous season data
- Long-term care facilities had lower coverage (67.9%) than other facility types (hospitals at 95.2%)
- Higher vaccination coverage among HCP was associated with employer vaccination requirements or access to vaccination at the workplace

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2018–2019 Influenza Vaccination Coverage in Pregnant Women*

Pregnant Women *(HP2020 goal of 80%)*

- 53.7% vaccinated
- Of the pregnant women who reported visiting a doctor or other medical professional at least once before or during pregnancy:
  - 73.3% reported receiving a recommendation and offer or referral for flu vaccination from a doctor or other medical professional
  - 8.2% received only a recommendation for and no offer of flu vaccination
  - 18.5% did not receive a recommendation for or an offer of flu vaccination

* Internet Panel Survey, United States, March 27 – April 8, 2019

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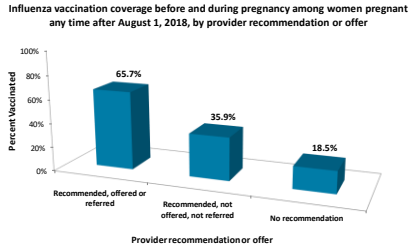
Influenza Vaccination Among Pregnant Women by Provider Recommendation or Offer of Vaccination, 2018–2019 Season*



* Internet Panel Survey, United States, March 27 – April 8, 2019

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Impact of influenza on pregnant women[1]

- Up to 4X increased risk of hospitalization, especially in third trimester, and for those with co-morbid conditions*
- Up to 8X increased risk for influenza-associated complications, including death, particularly for those with co-morbid conditions**
- Increased risk for influenza-associated complications among postpartum women
  - Risk highest during the first postpartum week

* Chronic cardiac disease, chronic pulmonary disease, diabetes mellitus, chronic renal disease, malignancies, and immunosuppressive disorders

** Preexisting diabetes mellitus, pulmonary disease that included asthma, heart disease, renal disease, and anemia

1. Rasmussen, S.A., et al. 2012. American Journal of Obstetrics & Gynecology; 207(3): S3 - S8.

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Some coverage thoughts

- Influenza vaccination coverage appears to still be well below HP2020 targets
  - Despite improvement in adults, still too low ☹
  - Steady improvement in the pediatric population ☺
  - Coverage in the 65 years and older population remains poor ☹
  - Coverage in 18–64 years of age high-risk adults unacceptably low ☹
  - Coverage in pregnant women remains flat; a strong provider recommendation makes a difference
  - HCW coverage remains strong, except in LTCF! ☺

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Vaccine Effectiveness

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Preliminary Adjusted Vaccine Effectiveness (VE) Against Medically Attended Influenza, US Flu VE Network, 2018–19

- Interim results for 2018–19 season (through February 2, 2019) indicated protection against influenza
  - 47% (CI: 35, 57) VE against any influenza virus
  - 46% (CI: 30, 58) VE against H1N1pdm09
  - 44% (CI: 13, 64) VE against H3N2
- H3N2 predominate in later season with drifted strain

MMWR. February 15, 2019 / 68(6);135–139

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However…

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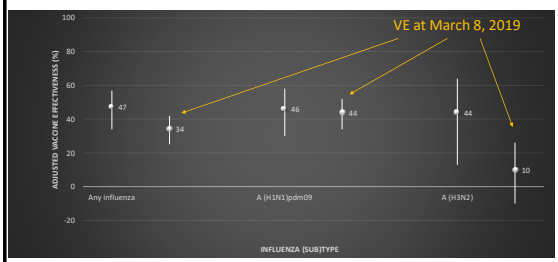
Preliminary Adjusted VE Against Medically Attended Influenza, US Flu VE Network, 2018–19*



* Multivariate logistic regression models adjusted for site, age categories (6m-8y, 9-17y 18-49y, 50-64y, ≥65y), sex, race/Hispanic ethnicity, self-rated general health status, interval from onset to enrollment, and calendar time (biweekly intervals), presented at May 2019 NAIS Meeting

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Preliminary Adjusted VE Against Medically Attended Influenza, US Flu VE Network, 2018–19, by age

Any Influenza A and B	Adjusted VE*	(95% CI)*
All patients aged ≥6 months	29%	(21 to 35)
6 mos – 8 yrs	49%	(38 to 58)
9 – 17 yrs	6%	(-22 to 27)
18 – 49 yrs	25%	(10 to 37)
50 – 64 yrs	12%	(-12 to 31)
≥65 yrs	12%	(-29 to 41)

* Multivariate logistic regression models adjusted for site, age categories (6m-8y, 9-17y 18-49y, 50-64y, ≥65y), sex, race/Hispanic ethnicity, self-rated general health status, interval from onset to enrollment, and calendar time (biweekly intervals)

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Preliminary Adjusted VE Against Medically Attended Influenza, US Flu VE Network, 2018–19, by virus subtype

Influenza Subtype	Adjusted VE*	(95% CI)*
Any influenza	29%	(21 to 35)
A(H1N1)pdm09	44%	(36 to 51)
A(H3N2)	9%	(-4 to 20)
A(H3N2) clade 3C.3a	11%	(-6 to 26)
A(H3N2) clade 3C.2a1	45%	(5 to 68)

* Multivariate logistic regression models adjusted for site, age categories (6m-8y, 9-17y 18-49y, 50-64y, ≥65y), sex, race/Hispanic ethnicity, self-rated general health status, interval from onset to enrollment, and calendar time (biweekly intervals)

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Preliminary VE Against Influenza Hospitalizations in Adults, HAIVEN, 2018–19

Any Influenza A and B	Adjusted VE*	(95% CI)*
All patients aged ≥18 yrs	25%	(1 to 41)
18 – 49 yrs	1%	(-58 to 38)
50 – 64 yrs	47%	(22 to 63)
≥65 yrs	15%	(-24 to 41)

* Multivariate logistic regression models adjusted for site, age categories (6m-8y, 9-17y 18-49y, 50-64y, ≥65y), sex, race/Hispanic ethnicity, self-rated general health status, interval from onset to enrollment, and calendar time (biweekly intervals)

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Preliminary VE Against Pediatric Influenza Hospitalizations, NVSN, 2018–19

Any Influenza A and B	Adjusted VE*	(95% CI)*
All patients aged 6 mos to 17 yrs	31%	(5 to 51)
6 mos to 8 yrs	26%	(-6 to 49)
9 to 17 yrs	53%	(5 to 77)
By virus subtype		
H3N2	13%	(-31 to 43)
H1N1pdm09	48%	(14 to 68)

* Multivariate logistic regression models adjusted for age group, study site, and calendar time (month of enrollment)

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Summary of Preliminary VE for the 2018–2019 Influenza Season

- Increased percentage of A(H3N2) cases enrolled in US Flu VE Network through end of season
  - Updated interim results suggest reduced VE against A(H3N2) compared to earlier estimate published in February 15 *MMWR* (*vs* no change in H1N1pdm09 estimate)
- Circulation of antigenically drifted A(H3N2) clade 3C.3a
  - Supports decision to update A(H3N2) vaccine component
- Remember that vaccine offers significant protection against influenza hospitalizations
  - Vaccine reduced influenza hospitalizations by 22% among all adults and by 24% among adults ≥65 years of age (influenza A and B viruses) in the 2017–18 season

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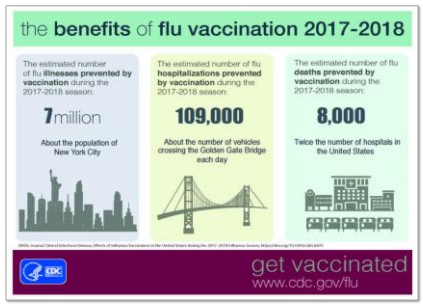
Another Way to Look at Influenza Vaccine Effectiveness – Negative Outcomes Averted



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Another Way to Look at Influenza Vaccine Effectiveness – Negative Outcomes Averted

- Influenza vaccination was associated with reduced risk of laboratory-confirmed influenza-associated pediatric death[1]
  - Estimated influenza vaccine effectiveness was 65% (95% confidence interval, 54% to 74%) against laboratory-confirmed influenza-associated deaths among children
- Influenza vaccination reduces the risk of hospitalization for children 6–59 months of age during most influenza seasons[2]

1. Flannery et al. 2017. Pediatrics. May. doi: 10.1542/peds.2016-4244
2. Buchan SA, et al. 2017. PLoS ONE. doi: 10.1371/journal.pone.0187834

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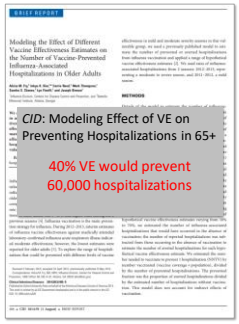
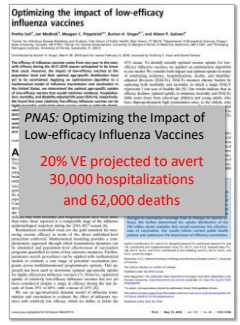
Even when VE is <50%, current vaccines can have a major impact



CID: Modeling Effect of VE on Preventing Hospitalizations in 65+

40% VE would prevent 60,000 hospitalizations



PNAS: Optimizing the Impact of Low-efficacy Influenza Vaccines

20% VE projected to avert 30,000 hospitalizations and 62,000 deaths

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Vaccine Effectiveness – Influenza and CVD

- Acute respiratory illness or influenza-like illness increases acute MI risk 2X; 5X in those with history of MI
- Influenza vaccination effectiveness: Meta-analyses[1,2]
  - 29% (95% CI 9,44) against acute MI in persons with existing CVD
  - 36% (95% CI 14,53) against major cardiac events with existing CVD
- Vaccine effectiveness 29% in acute MI prevention
  - "On par or better than accepted preventive measures [as] statins (36%), anti-hypertensives (15–18 %), and smoking cessation (26%)"
  - Influenza vaccination recommended as secondary prevention by American College of Cardiology and American Heart Association

1. Barnes M, et al. Acute myocardial infarction and influenza: a meta-analysis of case–control studies. Heart 2015;101:1738–1747
2. Udell JA, et al. Association between influenza vaccination and cardiovascular outcomes in high-risk patients: a meta-analysis. JAMA 2013;310:1711–20

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Vaccine Effectiveness – Influenza and Diabetes

- Six cohort and five case-control studies were included in a recently-published systematic review and meta-analysis[1]
- In working age persons with diabetes mellitus:
  - There was pooled VE of 58% against all-cause hospitalization
  - No significant effects on all-cause mortality and influenza-like illness
- In elderly patients with diabetes mellitus, adjusted VEs of 38% against all-cause mortality and 23% against all-cause hospitalization were seen

1. Remschmidt C, Wichmann O, Harder T. Vaccines for the prevention of seasonal influenza in patients with diabetes: systematic review and meta-analysis. BMC Med 2015;13:53.

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Vaccine Effectiveness – Influenza and Diabetes

- A retrospective study demonstrated that influenza vaccination was associated with a significant decrease in risk for hospital admission due to stroke, heart failure, and influenza or pneumonia[1]
- However, another recent systematic review that factored in confounders such as indirect health outcomes, selection and health-seeking bias, and the frequent absence of adjustment for pneumococcal vaccination status, suggested that the overall evidence for influenza vaccine effectiveness could be low[2]
- Yet another report states that the present evidence suggests that influenza vaccination among adults and elderly with diabetes mellitus if efficacious and safe[3]

1. Eszter P. Vamos, Utz J. Pape, Vasa Curcin, Matthew J. Harris, Jonathan Valabhji, Azeem Majeed and Christopher Millett. CMAJ October 04, 2016 188 (14) E342-E351.
2. Casanova L, Gobin N, Villania P, Verger P. 2016. Primary Care Diabetes 10(6):398–406.
3. M. Goeijenbier, T.T. van Sloten, L. Slobbe, C. Mathieu, P. van Genderen, Walter E.P. Beyer, Albert D.M.E. Osterhaus. 2017. Vaccine 35(38):5095-5101

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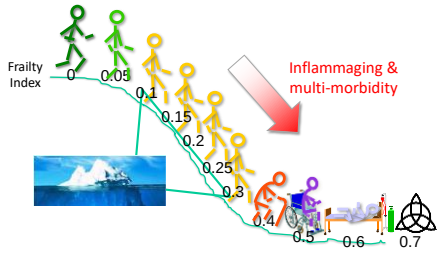
Resilience to Influenza with Aging



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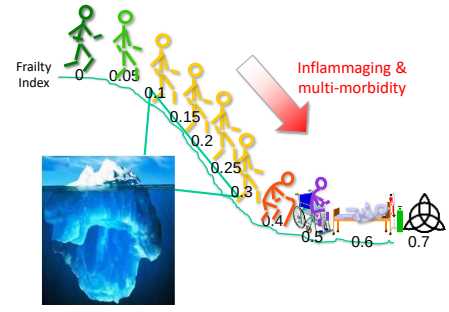
Resilience to Influenza with Aging



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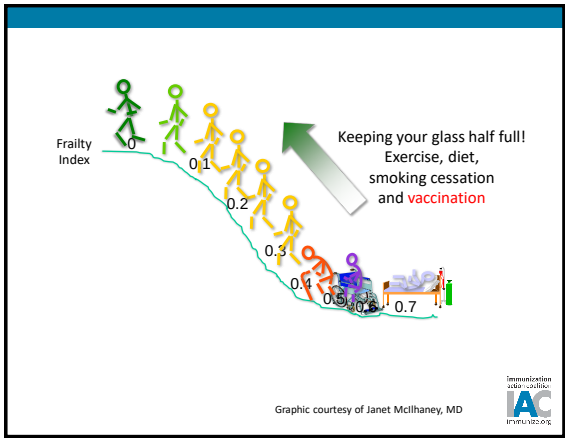

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ADA, AHA, ALA come together to urge flu vaccination

Nation's Top Health Organizations Band Together to Urge Patients to Get Flu Vaccinations to Prevent Serious Health Risks

(October 15, 2019) - CHICAGO For the first time, the American Lung Association, the American Diabetes Association (ADA), and the American Heart Association (AHA) have come together to raise an important alert about the dangers of influenza (flu) for people with chronic health conditions, including diabetes, heart disease and lung diseases such as asthma and COPD. With this year's flu season just beginning, together three of the nation's leading, non-profit health organizations are urging the 117 million adults living with chronic disease to prioritize annual flu vaccination and calling on health care professionals to advocate for and support flu immunization within their practices.

For more information please contact:

Stephanie Goldina
Stephanie.Goldina@Lung.org
312-801-7629

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Influenza Vaccines

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2019–2020 Influenza Vaccine Strains

- Two strain changes from last year
- New seasonal influenza vaccine formulations
  - Trivalent preparations
    - A/Brisbane/02/2018 (H1N1)pdm09-like virus
    - A/Kansas/14/2017 (H3N2)-like virus
    - B/Colorado/06/2017-like (B/Victoria lineage) virus (Victoria lineage)
  - Quadrivalent preparation adds a B/Phuket/3073/2013-like virus (Yamagata lineage)

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Influenza Vaccines 2019–2020

Influenza Vaccine Products for the 2019–2020 Influenza Season

Manufacturer	Trade Name	How Supplied	Mercury Content	Age Range	CVX Code	Vaccine Product Billing Code* 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†	150	90686
		0.5 mL (single-dose syringe)	0	6 months & older†	150	90686
	FluLaval (IIV4)	5.0 mL (multi-dose vial)	<25	6 months & older†	158	90688
Sanofi Pasteur	Flublok (RIV4)	0.5 mL (single-dose syringe)	0	18 years & older	185	90682
		0.25 mL (single-dose syringe)	0	6 through 35 months†	161	90685
		0.5 mL (single-dose syringe)	0	6 months & older†	150	90686
	Fluzone (IIV4)	0.5 mL (single-dose vial)	0	6 months & older†	150	90686
		5.0 mL (multi-dose vial)	25	6 through 35 months†	158	90687
		5.0 mL (multi-dose vial)	25	3 years & older	158	90688
	Fluzone High Dose (IIV3-HD)	0.5 mL (single-dose syringe)	0	65 years & older	135	90662
Seqirus	Afluria (IIV4)	0.25 mL (single-dose syringe)	0	6 through 35 months†	161	90685
		0.5 mL (single-dose syringe)	0	3 years & older†	150	90686
		5.0 mL (multi-dose vial)	24.5	6 through 35 months†	158	90687
		5.0 mL (multi-dose vial)	24.5	3 years & older†	158	90688
	Fluad (aIIV3)	0.5 mL (single-dose syringe)	0	65 years & older	168	90653
	Flucelvax (ccIIV4)	0.5 mL (single-dose syringe)	0	4 years & older	171	90674
		5.0 mL (multi-dose vial)	25	4 years & older	186	90756

NOTES

1. IIV3/IIV4 = egg-based trivalent/quadrivalent inactivated influenza vaccine (injectable); where necessary to refer to cell culture-based vaccine, the prefix "c" is used (e.g., ccIIV4); RIV4 = recombinant quadrivalent IIV; aIIV3 = adjuvanted trivalent inactivated influenza vaccine.
2. An administration code should always be reported in addition to the vaccine product code. Note: Third party payers may have specific policies and guidelines that might require additional clinical information on their claim forms.
3. Dosing for infants and children age 6 through 35 months:
   - Afluria 0.25 mL
   - Fluarix 0.5 mL
   - FluLaval 0.5 mL
   - Fluzone 0.25 mL or 0.5 mL
4. Afluria is approved by the Food and Drug Administration for intramuscular administration with the Pharmajet Stratis Needle-Free Injection System for persons age 18 through 64 years.

IMMUNIZATION ACTION COALITION Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org | Editorial content reviewed by the Centers for Disease Control and Prevention • www.immunize.org/catg.d/p4072.pdf • Item #P4072 (9/19)

www.immunize.org/catg.d/p4072.pdf

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Influenza Vaccine Availability Tracking System (IVATS)

www.izsummitpartners.org/ivats

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ACIP Influenza Recommendations (2019–20)

- All persons 6 months of age or older should receive influenza immunization
  - Influenza vaccination should not be delayed to procure a specific vaccine preparation if an appropriate one is already available
- LAIV is back! But capacity is low for 2019–2020 season
- You should receive a flu vaccine by the end of October, if possible
  - For those requiring only 1 dose for the season, early vaccination (i.e., in July and August) is likely to be associated with suboptimal immunity before the end of the influenza season, particularly among older adults

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Findings from Ferdinands et al, 2019*

- Rate of waning is uncertain and overall VE differs season-to-season and by flu type, making it hard to predict best overall balance of vaccination timing
- However, it may be prudent to prevent a substantial shift toward early vaccine uptake

*Ferdinands JM et al. *Clin Infect Dis*. Jun 29 2019; slide courtesy of Jill Ferdinands

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So what does that mean?

- How do you balance the pros and cons of delaying vaccination?
- Fuzziness in the recommendation regarding September
- What about a second dose of vaccine?
  - Which vaccine?
- Are there vaccines that are "better" with respect to duration of immunity?
- Will there be increased missed opportunities to vaccinate?
  - Too late now (October)
  - Delayed, never came back

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ACIP Influenza Recommendations (2019–20) (cont.)

- Vaccination should be offered as long as influenza viruses are circulating, and unexpired vaccine is available
  - Vaccine administered in December or later, even if influenza activity has already begun, is likely to be beneficial in the majority of influenza seasons
- Final 2019–20 recommendations:
  www.cdc.gov/mmwr/volumes/68/rr/rr6803a1.htm?s_cid=rr6803a1_w

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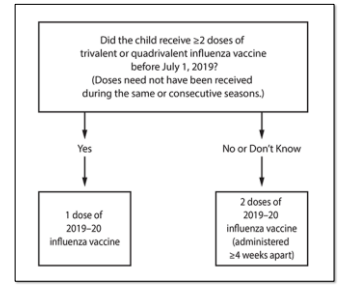
ACIP Pediatric Algorithm (2019–20)



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

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How Do We Discuss Vaccine Effectiveness?

- Address vaccine effectiveness directly, early, and as needed during season
- Communicate the variability and unpredictability of flu
- Acknowledge that flu vaccination is not a perfect tool, but it is the best way to protect against flu infection
- Communicate the benefits of flu vaccination beyond prevention of disease
  - Flu vaccination can:
    - reduce doctor visits
    - reduce missed work and school due to flu
    - prevent flu-related hospitalizations and deaths
    - reduce loss of quality of life (vaccine-preventable disability)

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More Messaging on Vaccine Effectiveness

- Questions about efficacy and duration will persist
  - Do not base efficacy or duration of immunity discussions on one season, but look collectively at multiple seasons
    - Use impact data, and data collected over multiple years to provide perspective on vaccine benefits
- Ultimately, influenza vaccine in the patient is 40%–60% effective; *vaccine on the shelf is 0% effective*

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Messaging on Vaccination Timing*

- July through August
  - It might be too soon to get vaccinated unless the person is a child needing two doses of vaccine. CDC recommends flu vaccination by the end of October.
- Beginning September
  - CDC recommends flu vaccination by the end of October. While it's fine to get vaccinated in September, keep 4 things in mind:
    1. Current flu levels are (low/rising/high);
    2. It takes about two weeks after vaccination for protective antibodies to develop;
    3. Immunity from vaccination wanes over time; and
    4. Flu activity most often peaks in February and can last as late as May

* From the CDC, presented at the NAIIS Weekly Call, September 19, 2019

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Messaging on Vaccination Timing*

- October
  - Get vaccinated before the end of October.
- Beginning in November
  - CDC recommends flu vaccination continue as long as influenza viruses are circulating. Though the timing of flu season varies, significant flu activity can last as late as May.
- Early December through February
  - It's not too late to get vaccinated. CDC recommends vaccination continue as long as influenza viruses are circulating. Though the timing of flu season varies, flu season most often peaks in December and February, but significant flu activity can last as late as May

* From the CDC, presented at the NAIIS Weekly Call, September 19, 2019

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Messaging on Vaccination Timing*

- March through May
  - Flu viruses are circulating at X levels nationally, though activity varies by location. CDC recommends vaccination continue as long as influenza viruses are circulating. Check *FluView Interactive* (www.cdc.gov/flu/weekly/fluviewinteractive.htm) for more information about flu activity in your state.
- June
  - Most flu vaccine expires by the end of June. If you haven't gotten vaccinated and plan a trip to the Southern Hemisphere (where their flu season is just beginning) or plan to travel in a relatively crowded setting where people from many parts of the country might be in close proximity (e.g., a cruise), get a flu vaccine at least two weeks before traveling. Vaccine for the upcoming season will be available next fall.

* From the CDC, presented at the NAIIS Weekly Call, September 19, 2019

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Dispelling Myths and Handling Objections about Flu Shots

Objection: *The flu shot will give me the flu.*
It is impossible to get the flu from the flu vaccine. It is made with viruses that are not infectious or with no viruses at all. You can get the flu from someone else.
Objection: *I'm healthy. I don't need a shot.*
Every year healthy people get sick from the flu, and some even die. Many people have underlying conditions that they are not aware of. Even with a mild case, you can still pass the virus along to the people you love and care about.
Objection: *I've never had the flu.*
Every year up to 20% of Americans get the flu – that's up to 60 million people – many of whom have not had the flu before.
Objection: *The flu shot doesn't work.*
Effectiveness varies from season to season and between flu strains. Vaccine effectiveness is not just measure by the percentage of disease prevented, but, more importantly, by the myriad of negative outcomes that vaccination prevents even if you catch the flu, such as hospitalization and quality of life (disability).

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IAC Resource for Clinicians

www.influenza-defense.org

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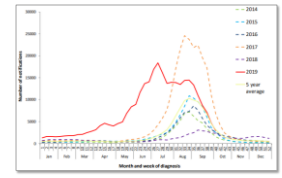
2019 Southern Hemisphere Influenza Season

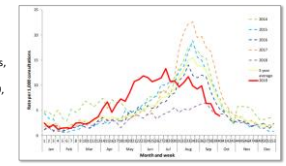
Notifications of Laboratory-Confirmed Influenza, Australia, 1 January 2013 to 6 October 2019, by month and week of diagnosis*



Source: NNDSS

*NNDSS notification data provided for the current and most recent weeks may be incomplete. All data are preliminary and subject to change as updates are received.

Unweighted Rate of ILI Reported from Sentinel GP Surveillance Systems, Australia, 1 January 2013 to 6 October 2019, by month and week



Source: ASPREN

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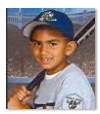
Why do we immunize against influenza?

Amanda
died at age 4½ yrs from influenza

Breanne
died at age 15 mos from influenza complications



Lucio
died at age 8 yrs from influenza complications

Barry
veteran firefighter, died at age 44 yrs from influenza

Alana
died at age 5¼ yrs from influenza

Slide Courtesy of Families Fighting Flu

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Visit IAC Resources

- Check out IAC's Influenza Educational Materials
  - www.immunize.org/handouts/influenza-vaccines.asp
- Read *IAC Express* (weekly email newsletter)
  - www.immunize.org/express
- Visit our websites
  - www.immunize.org
  - www.vaccineinformation.org
  - www.immunizationcoalitions.org
  - www.izsummitpartners.org
- Stay ahead of the game! Subscribe to our updates
  - www.immunize.org/subscribe

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Thank you for your attention!

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