National Center for Immunization & Respiratory Diseases

Review of 2019-20 Vaccine Effectiveness Estimates

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For the US Flu VE Network

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US Flu VE Network Methods

Enrollees: Outpatients aged ≥6 months with acute respiratory illness with cough ≤7 days duration at 52 clinics in 5 sites in MI, PA, TX, WA, WI

Dates of enrollment: Oct 23, 2019–Jan 25, 2020

Design: Test-negative design

- Comparing vaccination odds among influenza RT-PCR positive cases and RT-PCR negative controls
- Vaccination status: receipt of at least one dose of any 2019–20 seasonal flu vaccine according to medical records, immunization registries, and/or self-report

Analysis: VE = (1 – adjusted OR) x 100%

- Adjustment for study site, age, sex, self-rated general health status, race/Hispanic ethnicity, interval from onset to enrollment, and calendar time

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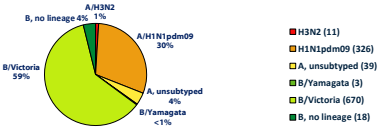
Interim Results

- 4,112 enrolled from Oct–Jan
- 1,060 (26%) influenza RT-PCR positive
- 3,052 (74%) influenza RT-PCR negative

Cases enrolled by (sub)type, N=1,060



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Interim vaccine effectiveness against medically attended influenza, 2019–20

	Influenza positive		Influenza negative		Vaccine Effectiveness			
					Unadjusted		Adjusted*	
	N vaccinated /Total	(%)	N vaccinated /Total	(%)	VE %	95% CI	VE %	95% CI
Any influenza A or B virus	390/1060	37	1682/3052	55	53	(45 to 59)	**45**	**(36 to 53)**
Influenza B/Victoria[1]	221/670	33	1682/3052	55	60	(52 to 66)	**50**	**(39 to 59)**
Influenza A/H1N1pdm09[2]	138/326	42	1682/3052	55	40	(25 to 53)	**37**	**(19 to 52)**

* Multivariable logistic regression models adjusted for site, sex, race/ethnicity, self-rated general health status, interval from onset to enrollment, and calendar time.

[1] 262 B/Victoria viruses from US Flu VE Network participants have been sequenced:
--256 (98%) V1A.3 clade (2020 S. hemisphere vaccine component)
--6 (2%) V1A.1 clade (2019-20 N. hemisphere vaccine component)

[2] 94 A(H1N1)pdm09 viruses from US Flu VE Network participants have been sequenced:
--94 (100%) 6B.1A (2019-20 N. hemisphere vaccine component)

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Summary

- Interim results for 2019–20 season indicate vaccination reduced medically attended illness due to any influenza virus type by 45% (CI: 36 to 53) based on enrollment through January 25, 2020
- Vaccination provided 50% (CI: 39 to 59) protection against predominant influenza B/Victoria virus (clade V1A.3)
- Overall effectiveness against H1N1pdm09 = 37% (CI: 19 to 52)
  - H1N1pdm09 circulation increased after interim
- Preliminary end-of-season VE anticipated for June ACIP

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Recent publication

JAMA Pediatrics | Original Investigation

Patterns of Influenza Vaccination and Vaccine Effectiveness Among Young US Children Who Receive Outpatient Care for Acute Respiratory Tract Illness

Jessie R. Chung, MPH; Brendan Flannery, PhD; Manjusha Gaglani, MBBS; Michael E. Smith, BS; Evelyn C. Reis, MD; Robert W. Hickey, MD; Michael L. Jackson, PhD; Lisa A. Jackson, MD; Edward A. Belongia, MD; Huong Q. McLean, PhD; Emily T. Martin, PhD, MPH; Hannah E. Segaloff, PhD; Sara S. Kim, MPH; Manish M. Patel, MD

- VE higher among children who received the recommended number of doses compared with children who did not
- 2 doses provided better protection than 1 among vaccine-naïve children aged 6 months – 2 years

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US Flu VE Network

- **Baylor Scott and White Health, Texas A&M University College of Medicine:** Manjusha Gaglani, Alejandro Arroliga, Madhava Beeram, Kelsey Bounds, Lydia Clipper, Amanda Karl, Mary Kylberg, Michael Smith, Kempapura Murthy, Teresa O'Quinn, Deborah Price, Chandni Raiyani, Jeremy Ray, Michael Reis, Natalie Settele, Courtney Shaver, Jennifer Thomas, Jamie Walkowiak, Tnelda Zunie
- **University of Pittsburgh Schools of the Health Sciences and UPMC:** Richard Zimmerman, Mary Patricia Nowalk, G.K. Balasubramani, Todd M. Bear, Heather Eng, Andrew Fackler, Edward Garofolo, Robert Hickey, Philip Iozzi, Monika Johnson, Stephanie Kirk, Jason A. Lyons, Donald B. Middleton, Jonathan M. Raviotta, Evelyn C. Reis, Theresa Sax, Joe Suyama, Leonard F. Urbanski, Marian Vanek, Alexandra Weissman, John V. Williams
- **Kaiser Permanente Washington Health Research Institute:** Michael Jackson, Lisa Jackson, Rachael P. Burganowski, Erika Kiniry, Matt Nguyen, Suzie Park, C. Hallie Phillips, Stacie Wellwood, Brianna M Wickersham
- **University of Michigan and Henry Ford Health System:** Arnold S. Monto, Emily Martin, Joshua G. Petrie, Lois E. Lamerato, Ryan E. Malosh, E.J. McSpadden, Hannah Segaloff, Caroline K. Cheng, Rachel Truscon, Emileigh Johnson, Armanda Kimberly, Anne Kaniclides, Amy Getz, Kim Beney, Sarah Bauer, Michelle Groesbeck, Kendra Goforth, Rebecca Fong, Sanaa Khechen, Sarah Davenport, Miranda Viars, Micah Wildes, Regina Lehmann-Wandell, Asad Kamal, Ava Selke, Marco Ciavaglia, Rachel Phillips, Sonny Kim, Stephanie Taylor
- **Marshfield Clinic Research Institute:** Edward A. Belongia, Huong Q. McLean, Elizabeth Armagost, Samantha Braun, Deanna Cole, Tom Dalcher, Erin Donnerbauer, Terry Foss, Wayne Frome, Hannah Gourdoux, Gregg Greenwald, Sherri Guzinski, Kayla Hanson, Ellice Harris, Linda Heeren, Lynn Ivacic, Julie Karl, Jennifer King, Tamara Kronenwetter Koepel, Diane Kohnhorst, Laura Konrardy, Erik Kronholm, Stacey Kyle, Carrie Marcis, Karen McGreevey, Jennifer Meece, Nidhi Mehta, Vicki Moon, Madalyn Palmquist, Cory Pike, Rebecca Pilsner, DeeAnn Polacek, Martha Presson, Carla Rottscheit, Julian Savu, Jacklyn Sazwedel, Rachel Schoone, Charity Schug, Kristin Seyfert, Elisha Stefanski, Patrick Stockwell, Sandy Strey, Arin Thompson, Chelsey Thompson, Suellyn Wojcik
- **CDC:** Fatimah S. Dawood, Jessie R. Chung, Sara S. Kim, Angie Foust, Wendy Sessions, Juliana DaSilva, Shoshona Le, Thomas Stark, Rebecca J. Kondor, John R. Barnes, David E. Wentworth, Lynnette Brammer, Alicia M. Fry, Manish Patel

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For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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