Review of 2019-20 Vaccine Effectiveness Estimates

Jessie Chung
For the US Flu VE Network
May 21, 2020

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
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

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

Interim vaccine effectiveness against medically attended influenza, 2019–20

<table>
<thead>
<tr>
<th>Influenza-positive</th>
<th>Influenza-negative</th>
<th>Vaccine Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>N vaccinated</td>
<td>N vaccinated</td>
<td>VE %</td>
</tr>
<tr>
<td>Any influenza A or B virus</td>
<td>390/1060</td>
<td>37</td>
</tr>
<tr>
<td>Influenza B/Victoria</td>
<td>1</td>
<td>221/670</td>
</tr>
<tr>
<td>Influenza A/H1N1pdm09</td>
<td>2</td>
<td>138/326</td>
</tr>
</tbody>
</table>

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

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

Recent publication

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

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
### 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, Chandru Suresh, Jennifer Thomas, Jodian Wallweaver, Tnelda Zunie

- **University of Pittsburgh Schools of the Health Sciences and UPMC:** Richard Zimmerman, Mary Patricia Novello, G.K. Balasubramaniyan, Dave Uhrich, Andrew Vacher, Edward Geddis, Robert Hickey, Philip Iozzi, Monika Johnson, Stephanie Kirk, Joe Suyama, Leonor Wandell, Asad Kamal, Ava Selke, Marco Ciavaglia, Rachel Phillips, Sonny Kim, Stephanie Taylor

- **Kaiser Permanente Washington Health Research Institute:** Michael Jackson, Lisa Jackson, Rachael Burganowski, Erika Kiniry, Matt Nguyen, Lusie Paris, Emily Phillips, Stacie Wellwood, Brianna Wickersham


- **Marshfield Clinic Research Institute:** Edward A. Belongia, Huong Q. McLean, Elizabeth Artagave, Samantha Brown, Thomas Cole, Tom Dickinson, Sherry Ford, Wayne Fracisco, Hannah Grass, Greg Greenwald, Sherri Guzinski, Kayla Hanson, Linda Heeren, Julie King, Jennifer King, Jennifer Kronenwetter Koo, Dione Kohler, Laura Kurihara, Adam Kulas, Stacy Kohler, Corina Marinos, Gene Molonow, Jennifer Menne, Kathy Byrd, Vicki Moore, Malakye Phromsuk, Gary Price, Maureen Ring, Elaine Samborski, Jennifer Shotwell, Charity Sefger, Kristin Sela, Emily Schroeder, Betty Shin, Ann Thompson, Shelley Thompson, Swafy Wulff

- **CDC:** Fatimah S. Dawood, Vicente M. Shin, E. Kaith, Henry Wieden, Beverly Wexler, Andrea L. Bailey, Katherine Butterfield, Cathy Callahan, handguns, Kendra Gallaher, Rebecca Kim, Susan Kleinman, Sarah Guffey, Sherri Guzinski, Kayla Hanson, Linda Heeren, Julie King, Jennifer King, Jennifer Kronenwetter Koo, Dione Kohler, Laura Kurihara, Adam Kulas, Stacy Kohler, Corina Marinos, Gene Molonow, Jennifer Menne, Kathy Byrd, Vicki Moore, Malakye Phromsuk, Gary Price, Maureen Ring, Elaine Sefger, Kristin Sela, Emily Schroeder, Betty Shin, Ann Thompson, Shelley Thompson, Swafy Wulff

---

For more information, contact CDC
1-800-CDC-INF0 (232-4636)

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.