Recent article of interest:

Relative effectiveness of cell-culture and egg-based influenza vaccines among the U.S. elderly, 2017-18

Izurieta et al.

Journal of Infectious Diseases (online)

National Adult and Influenza Immunization Summit call
Thursday, January 10
Relative effectiveness of cell-cultured and egg-based influenza vaccines among the U.S. elderly, 2017–18

Hector S Izurieta, MD, Yoganand Chillarige, MPA, Jeffrey Kelman, MD, Yuqin Wei, MS, Yun Lu, PhD ...

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... Hector S Izurieta, MD; Yoganand Chillarige, MPA; Jeffrey Kelman, MD; Yuqin Wei, MS; Yun Lu, PhD; Wenjie Xu, BA; Michael Lu, BS; Douglas Pratt, MD; Steve Chu, JD; Michael Wernecke, BA; Thomas MacCurdy, PhD; Richard Forshee, PhD Address correspondence to: Hector S. Izurieta, MD, MPH, CBER/FDA, 10903...

Comparing influenza vaccine types: the path towards improved influenza vaccine strategies

Brendan Flannery, Alicia M Fry

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Background: High-dose (HD) vs standard-dose (SD) vaccines

- Large randomized trial of high-dose vs. standard dose, egg-based influenza vaccines
- 31,989 participants aged ≥65 years, 126 research centers in U.S. and Canada
- High-dose vaccine 24% (95% CI, 10% to 37%) more efficacious against laboratory confirmed influenza during 2 influenza seasons (2011-12 and 2012-13)
Background: HD vs SD—observational data

Comparative effectiveness of high-dose versus standard-dose influenza vaccines in US residents aged 65 years and older from 2012 to 2013 using Medicare data: a retrospective cohort analysis

Hector S Izurieta*, Nicole Thadani*, David K Shay, Yun Lu, Aaron Maurer, Ivo M Foppa, Riley Franks, Douglas Pratt, Richard A Farshee, Thomas McCurdy, Chris Worrall, Andrew E Howery, Jeffrey Kelman

Lancet Infectious Diseases, 2015

• 2012-2013 influenza season, >12M Medicare beneficiaries aged ≥65 years
  • 19% received HD vaccine
  • 81% received SD vaccine
• Beneficiaries matched by vaccination clinic/pharmacy
• Results:
  • HD 22% (95% CI, 15% to 29%) more effective than SD against influenza-associated office visits and hospitalizations
Introduction: 2017-18 influenza season

• Severe, predominantly A(H3N2) season, large burden among older adults
  • 660,000 influenza hospitalizations and 68,000 deaths aged ≥65 years

• CDC estimated influenza vaccine effectiveness of 40% against any influenza illness
  • 24% effective against A(H3N2)-related illness

• Licensed, recommended influenza vaccines for ≥65 years include:
  • Standard-dose, trivalent and quadrivalent inactivated vaccines produced in eggs
  • High-dose trivalent inactivated vaccine (eggs)
  • Adjuvanted trivalent inactivated vaccine (eggs)
  • Recombinant hemagglutinin (HA) quadrivalent inactivated vaccine (insect cells)
  • Cell-culture quadrivalent inactivated vaccine produced in mammalian cells
    • Avoids antigenic changes in vaccine viruses caused by growth in eggs
2017-18 FDA observational study findings

• >13M Medicare beneficiaries aged ≥65 years included in analyses
  • 5% received cell-culture quadrivalent
  • 63% received HD
  • 21% received SD egg-based vaccines (14% quadrivalent, 7% trivalent)
  • 11% received adjuvanted vaccine (eggs)
  • Few received recombinant HA vaccine (not included)

• Influenza-diagnosed hospitalizations 10% (95% CI, 7% - 13%) lower among beneficiaries who received SD cell-culture vaccine compared to SD egg-based vaccines
  • Relative effectiveness for HD: 9% (95% CI, 7% - 11%)
  • Relative effectiveness for Adjuvanted: 4% (95% CI, 1% - 6%)

• Influenza office visits 6% (95% CI, 2% - 9%) lower for cell-culture vs SD IIV4
  • Low rates of influenza office visits among SD-IIV3 recipients
Interpretation and commentary

• Cell-culture of influenza vaccine components (avoiding egg-adapted changes in egg-grown viruses) improved effectiveness over SD egg-based vaccines
  • Similar to relative effectiveness of egg-based HD vaccine with 4x antigen content
  • Egg-adapted changes one factor of many affecting vaccine effectiveness

• Observational data important for comparing different types of vaccines
  • Importance of large datasets like Medicare claims
  • Limitation of non-laboratory confirmed influenza outcomes
  • Results from different studies helpful for policymakers

• Incremental improvements in vaccine effectiveness on the path to better vaccines