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

The Journal of
Infectious Diseases

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 ...

The Journal of Infectious Diseases, jiy716, https://doi.org/10.1093/infdis/jiy716

Published: 18 December 2018

...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 MaCurdy, PhD; Richard Forshee, PhD Address correspondence to: Hector S. **Izurieta**, MD, MPH, CBER/FDA, 10903...

Abstract ▾ Supplementary data

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

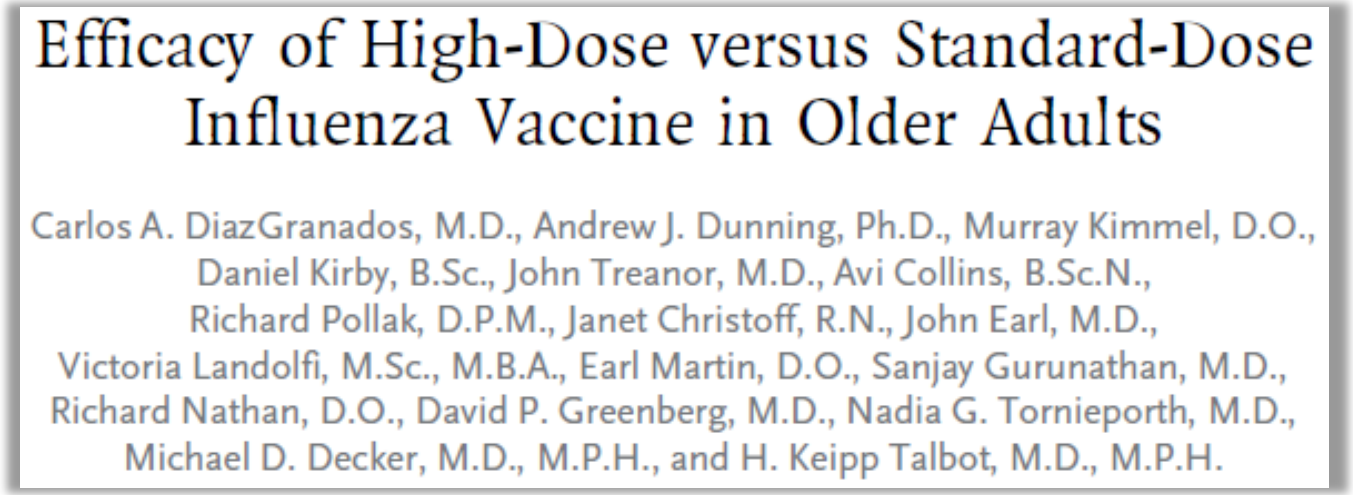
Brendan Flannery ✉, Alicia M Fry

The Journal of Infectious Diseases, jiy717, https://doi.org/10.1093/infdis/jiy717

Published: 18 December 2018 **Article history** ▾

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)



Efficacy of High-Dose versus Standard-Dose Influenza Vaccine in Older Adults

Carlos A. DiazGranados, M.D., Andrew J. Dunning, Ph.D., Murray Kimmel, D.O., Daniel Kirby, B.Sc., John Treanor, M.D., Avi Collins, B.Sc.N., Richard Pollak, D.P.M., Janet Christoff, R.N., John Earl, M.D., Victoria Landolfi, M.Sc., M.B.A., Earl Martin, D.O., Sanjay Gurunathan, M.D., Richard Nathan, D.O., David P. Greenberg, M.D., Nadia G. Tornieporth, M.D., Michael D. Decker, M.D., M.P.H., and H. Keipp Talbot, M.D., M.P.H.

New England Journal of Medicine, 2014

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 Forshee, Thomas MaCurdy, 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