Washington State Department of Health

Office of Immunization and Child Profile
VACCINE ADVISORY COMMITTEE
High-Dose and Adjuvanted Flu Vaccine for Persons 65 Years and Older

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Multiple formulations of flu vaccine are available for persons aged 65 years and older. **The Advisory Committee on Immunization Practices does not state a preference for adjuvanted*, high-dose or standard-dose flu vaccine for persons 65 years and older.[1] However, there is evidence that high-dose and adjuvanted flu vaccines are more effective than standard-dose, unadjuvanted vaccine in preventing medically-attended, lab-confirmed influenza infection in this population.**

If multiple vaccine products are available and another adjuvanted vaccine is not planned for the visit, the Washington Vaccine Advisory Committee recommends that healthcare providers offer high-dose or adjuvanted flu vaccine to patients 65 years of age or older. Flublok Quadrivalent, a vaccine available in the 2019-20 influenza season with higher efficacy rates than standard dose flu vaccine, may also be considered for older adults.

Given unknown but theoretical concerns of increased reactogenicity when administering two adjuvanted vaccines, selection of a nonadjuvanted influenza vaccine may be considered when influenza vaccine and another vaccine containing a novel adjuvant are administered at the same time.[1] Examples of vaccines containing a novel adjuvant include Shingrix and Heplisav-B. Vaccination should not be delayed if a specific product is not available and another opportunity to vaccinate the patient before the end of October is uncertain.

**An adjuvant is a substance that enhances the body's immune response to a vaccine*

Summary of immunogenicity and clinical efficacy/effectiveness data:

- Fluzone High-Dose – Contains four times more antigen than the standard-dose flu vaccine and has been shown to produce a higher antibody response than standard-dose vaccine in older adults.[2-3]
  - One randomized controlled trial comparing the efficacy of high- vs. standard-dose flu vaccine showed the high-dose vaccine had 24% greater efficacy against any lab-confirmed influenza infection compared to standard-dose flu vaccine (95% CI: 9.7%-36.5%). Based on this study, the high-dose vaccine would prevent about 5 additional cases of lab-confirmed influenza for every 1000 people vaccinated.[4]
  - A separate study among those living in long-term care facilities reported high-dose flu vaccine was associated with a lower risk of respiratory-related hospital admissions compared with standard-dose vaccine.[5]
  - Recent meta-analyses showed that high-dose inactivated influenza vaccine was more likely than standard dose vaccine to prevent influenza and its complications.[6-7]
- FLUAD™ – Approved through accelerated-approval process in November 2015,[8-9] FLUAD™ is the first adjuvanted flu vaccine marketed in the United States and was FDA licensed for use

starting in the 2016-17 flu season.
  - Studies have shown that FLUAD™ induces antibody levels similar to those induced by flu vaccine without adjuvant.[8]
  - One case-control study performed in Canada during the 2011–12 season showed that FLUAD™ was significantly more effective at preventing lab-confirmed influenza infection in older adults compared to a trivalent vaccine without an adjuvant.[10]
  - A recent systematic review and meta-analysis showed that adjuvanted influenza vaccine is more effective than unadjuvanted vaccine at preventing influenza-related complications.[11]
- Flublok Quadrivalent – A randomized trial was conducted in 2014-2015 that showed Flublok Quadrivalent was more efficacious than standard dose flu vaccine.
  - The relative vaccine efficacy of Flublok Quadrivalent compared with standard dose flu vaccine was 30% (95% CI: 10–47). When restricted to persons aged ≥65 years, the relative vaccine efficacy was 17% (95% CI: -20%–43%).
  - Flublok Quadrivalent is manufactured without the use of influenza viruses or eggs, and may be used for persons with severe egg allergy.[1]

Summary of safety data

- Fluzone High-Dose – Recipients of high-dose influenza vaccine more commonly report mild and/or moderate side effects than recipients of standard-dose influenza vaccine.[13] The most common adverse events have been mild and temporary, and include pain, redness and swelling at the injection site, headache, myalgia, fever and malaise.[5]
- FLUAD™ – Some adverse events are reported more frequently after vaccination with FLUAD™ than vaccines without adjuvants. The most common adverse events experienced during clinical studies were mild to moderate, and included pain, redness at the injection site, headache, muscle aches, and malaise.[8]
- Flublok Quadrivalent – The most common (≥10%) injection site reactions were tenderness (48%) and pain (37%); the most common (≥10%) solicited systemic adverse reactions were headache (20%), fatigue (17%), myalgia (13%) and arthralgia (10%).The safety of simultaneous or sequential administration of two novel adjuvant-containing vaccines such as FLUAD™, Shingrix and Heplisav B has not been evaluated, and the ideal interval between vaccines is not known. Vaccines with newer adjuvants should be administered at separate sites from other vaccines that are given simultaneously. [1]

References

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[8]FDA. Vaccines, Blood & Biologics – FLUAD™ Approval (www.fda.gov/biologicsbloodvaccines/safetyavailability/vaccinesafety/ucm473989.htm)
[9]FDA. FLUAD™ Clinical Review (www.fda.gov/downloads/BiologicsBloodVaccines/SafetyAvailability/VaccineSafety/UCM474387.pdf)
[10]Van Buynder PG1, Konrad S, Van Buynder JL, et al. The comparative effectiveness of adjuvanted and unadjuvanted trivalent inactivated influenza vaccine (TIV) in the elderly. *Vaccine.* 2013; 31(51):6122-8. (www.ncbi.nlm.nih.gov/pubmed/23933368)
[11]Domnich A, Arata L, Amicizia D, Puig-Barbera J, Gasparini R, Panatto D. Effectiveness of MF59-adjuvanted seasonal influenza vaccine in the elderly: A systematic review and meta-analysis. *Vaccine.* 2017;35(4):513–520. (www.ncbi.nlm.nih.gov/pubmed/28024956)
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[14]Food and Drug Administration Flublok Quadrivalent Package Insert: www.fda.gov/media/123144/download

Other Resources
CDC: www.cdc.gov/flu/protect/vaccine/qa_fluzone.htm
CDC: www.cdc.gov/flu/protect/vaccine/adjuvant.htm
CDC: www.cdc.gov/flu/professionals/acip/immunogenicity.htm