

# DSEN ABSTRACT

## Trivalent and quadrivalent seasonal influenza vaccine in adults aged 60 and older: a systematic review and network meta-analysis

### Summary

- We conducted a systematic review and network meta-analysis to compare the effectiveness of influenza vaccines. Overall, our results indicated that influenza vaccines were effective in preventing LCI when compared with placebo, with IIV3-HD showing the most promise for preventing LCI and hospitalisation for ILI and ARI. RIV was also shown to be effective in protecting against LCI and may reduce all-cause mortality when compared with other vaccines. Results should be interpreted with caution however, due to diverse findings with low certainty of evidence of the RCT studies included.

### Key messages

- Policy-makers and healthcare providers should consider these findings when formulating immunisation strategies to protect older and vulnerable populations from seasonal influenza and its complications.
- Evidence suggests that annual vaccination with any vaccine is the best way to prevent infection and its complications.

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### What is the issue?

- Seasonal influenza vaccination of adults aged 60 and older is a cost-effective way to reduce morbidity and mortality associated with influenza infection.
- Multiple licensed seasonal influenza vaccines for older adults are available in a variety of formulations with different production methods.
- There is a lack of high-quality analysis of randomised controlled trial (RCT) data pertaining to influenza vaccine production and composition. This makes it challenging for clinicians and policy-makers who need to make evidence-based recommendations about choosing optimally effective and safe influenza vaccines.

### What was the aim of the study?

- The aim of the study was to compare the efficacy of influenza vaccines of any strength for adults aged 60 and older.

### How was the study conducted?

- This systematic review followed Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) extension to network meta-analysis, Guidance for Reporting Involvement of Patients and the Public (GRIPP-2) reporting guidelines, and methods outlined in the Cochrane Handbook for Systematic Reviews of Interventions.
- We searched Ovid MEDLINE, JBI (formerly the Joanna Briggs Institute) Evidence-Based Practice Database, Embase, PsycINFO and Cochrane Evidence-Based Medicine database from inception to June 20, 2022.
- We included RCTs evaluating adults 60 years of age and older comparing any influenza vaccine at any dose that was licensed in Canada or the USA.
- The primary outcomes were laboratory-confirmed influenza (LCI) and influenza-like illness (ILI). Secondary outcomes were the number of vascular adverse events, hospitalisation for acute respiratory infection (ARI) and ILI, inpatient hospitalisation, emergency room (ER) visit for ILI, outpatient visit, and mortality.

### What did the study find?

- After screening 6,858 potentially relevant citations, we screened 3,425 studies at the full text level. Of these, 41 studies and 15 companion reports were included.
- Our results indicated that influenza vaccines were effective in preventing LCI compared with placebo. High-dose trivalent inactivated influenza vaccine (IIV3-HD) showed the most promising results in preventing LCI, followed by recombinant influenza vaccine (RIV), adjuvanted influenza vaccine (IIV3-Adj), and standard dose trivalent IIV3 (IIV3-SD).
- Our findings highlight the potential benefits of IIV3-HD in preventing hospitalisations for ILI and hospitalisation for ARI, and of IIV4-Adj in reducing vascular adverse events among older adults.

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