Evaluating seasonal influenza vaccine performance

Global Influenza Initiative

The CDC highlights the key challenges of real-world observational studies of influenza vaccine performance:[1]

- include people with underlying medical conditions
- schedules, storage and handling may not be followed precisely
- have a risk of bias

An independent, ECDC-funded systematic review of influenza vaccines assessed the risk of bias using standard protocols, and the quality of evidence of included studies using the GRADE methodology[2]

GRADE (Grading of Recommendations, Assessment, Development and Evaluations) *'A transparent framework for developing and presenting summaries of evidence and provides a systematic approach for making clinical practice recommendations.'*
Siemieniuk and Guyatt 2011[3]

The ECDC review provided several considerations for improving the quality of reporting on influenza vaccines[2]

'The use of standardised protocols would greatly aid the interpretation and comparison of effectiveness data.'
Prof. Bruno Lina
(GII co-chair)

A NACI review highlighted several factors which should be considered when interpreting influenza vaccine study data, including:[4]

- Influenza seasonality
- Vaccine mismatch with circulating strains
- Indirect protection from vaccination

In summary, the evaluation of influenza vaccine performance is challenging because studies of VE:[1–2,4]

- often do not include RCTs
- use different endpoints
- have a risk of bias
- may include low quality evidence
- often lack key details
- include diverse populations

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Abbreviations. CDC, US Centers for Disease Control and Prevention; ECDC, European Centre for Disease Prevention and Control; ICU, intensive care unit; IVY, Influenza Vaccine Effectiveness in the Critically Ill; LCI, laboratory-confirmed influenza; NACI, National Advisory Committee on Immunization of Canada; NVSN, New Vaccine Surveillance Network; RCT, randomised controlled trial; VE, vaccine effectiveness.

References. 1. CDC. How flu vaccine effectiveness and efficacy are measured. Available at: https://www.cdc.gov/flu/vaccines-work/effectivenessqa.htm. Accessed June 2022. **2.** European Centre for Disease Prevention and Control. Systematic review of the efficacy, effectiveness and safety of newer and enhanced seasonal influenza vaccines for the prevention of laboratory-confirmed influenza in individuals aged 18 years and over. Stockholm: ECDC; 2020. Available at: seasonal-influenza-vaccines-systematic-review-efficacy.pdf (europa.eu). Accessed June 2022. **3.** Siemieniuk R and Guyatt G. What is GRADE? BMJ Best Practice. Available at: https://bestpractice.bmj.com/info/toolkit/learn-ebm/what-is-grade/. Accessed June 2022. **4.** National Advisory Committee on Immunization (NACI) of Canada. Literature review update on the efficacy and effectiveness of high-dose (Fluzone® High-Dose) and MF59-adjuvanted (Fluad®) trivalent inactivated influenza vaccines in adults 65 years of age and older. 1 May 2018. Available at: https://publications.gc.ca/site/eng/9.852907/publication.html. Accessed June 2022.