



## A Jab for Your CAD: Influenza vaccination for the prevention of cardiovascular events

### CLINICAL QUESTION

**Does influenza vaccination reduce the risk of cardiovascular events?**

### BOTTOM LINE

**For every 100 patients vaccinated for influenza within about one month after an acute coronary syndrome, there will be 2 fewer cardiovascular events and 2 fewer deaths at one year compared to placebo. The impact of influenza vaccination in primary cardiovascular prevention and other cardiovascular conditions is less clear.**

### EVIDENCE

- Five meta-analyses<sup>1-5</sup> compared the effect of influenza vaccination to placebo/no vaccination on cardiovascular events (5-8 randomized controlled trials [RCTs], 4,211-12,029 patients, follow-up 1.5-12 months). Focusing on the most complete (results statistically significant unless otherwise stated):
- Secondary prevention:
  - Influenza vaccination reduced the risk of all-cause mortality (relative risk reduction [RRR] 42%) and cardiovascular events (RRR 37%).<sup>1</sup>

- Largest, highest-quality, multi-country (mostly European) RCT<sup>6</sup> compared one-time influenza vaccination to placebo in 2,532 participants ≤3 days after myocardial infarction. At 1 year:
      - Death: 2.9% versus 4.9% with placebo.
      - Cardiovascular events (death, myocardial infarction, stent thrombosis): 5.3% versus 7.2% with placebo.
      - Local injection site reactions: ~5% absolute increase.
    - Limitations: Cardiovascular benefit only seen in patients within <2 months of acute coronary syndrome (unclear benefit in chronic coronary artery disease) in subgroup analysis.<sup>2</sup>
  - Other cardiovascular disease:<sup>7</sup>
    - Influenza vaccine did not reduce death or cardiovascular events in 2-year RCT of 5,129 patients with heart failure when compared to placebo but reduced overall hospitalization (15% versus 18% with placebo).
  - Primary prevention:<sup>3</sup>
    - No difference in cardiovascular deaths based on 12 events in 2 RCTs.
    - No other cardiovascular events reported.
  - No difference in cardiovascular events between: Different vaccine types/dose;<sup>8</sup> or timing (administration during myocardial infarction hospitalization or within 30 days of discharge).<sup>9</sup>

## CONTEXT

- Recent respiratory tract infections/influenza are associated with increased risk of cardiovascular events.<sup>10-11</sup>
- Guidelines recommend influenza vaccination for people with coronary disease.<sup>12</sup>
- ~40% of Canadian adults with a chronic condition receive influenza vaccination each year.<sup>13</sup>
- Influenza vaccine efficacy for secondary cardiovascular prevention is comparable to other preventive therapies in reducing recurrent cardiovascular events [examples: Acetylsalicylic acid and statins (RRR ~25%)].<sup>14,15</sup>

## REFERENCES

1. Diaz-Arocutipa C, Saucedo-Chinchay J, Mamas MA, Vicent L. *Travel Med Infect Dis.* 2022; 47:102311.
2. Behrouzi B, Bhatt DL, Cannon CP, *et al.* *JAMA Netw Open.* 2022; 5:e228873.
3. Clar C, Oseni Z, Flowers N, *et al.* *Cochrane Database Syst Rev.* 2015; 5:CD005050.
4. Udell JA, Zawi R, Bhatt DL, *et al.* *JAMA.* 2013; 310(16):1711-20.
5. Jaiswal V, Ang SP, Yaqoob S, *et al.* *Eur J Prev Cardiol.* 2022; 00:1-12.
6. Fröbert O, Götberg M, Erlinge D, *et al.* *Circulation.* 2021; 144(18):1476-84.

## AUTHORS

**Blair J. MacDonald**, PharmD,  
**Michael R. Kolber**, MD MSc  
 CCFP, **Ricky D. Turgeon**, BSc  
 (Pharm) ACPR PharmD

*Authors do not have any  
 conflicts of interest to declare.*

7. Loeb M, Roy A, Dokainish H, *et al.* Lancet Glob Health. 2022; 10:e1835-44.
8. Vardeny O, Kim K, Udell JA, *et al.* JAMA. 2021; 325(1):39-49.
9. Fonseca HAR, Furtado RHM, Zimerman A, *et al.* Eur Heart J. 2022;43:4378-88.
10. Smeeth L, Thomas SL, Hall AJ, *et al.* N Engl J Med. 2004; 351:2611-8.
11. Barnes M, Heywood AE, Mahimbo A, *et al.* Heart. 2015; 101:1738-47.
12. Fihn SD, Gardin JM, Abrams J, *et al.* Circulation. 2012; 126:3097-137.
13. Public Health Agency of Canada. Available at: <https://www.canada.ca/en/public-health/services/immunization-vaccines/vaccination-coverage/seasonal-influenza-survey-results-2021-2022.html>  
Accessed 2022 November 8.
14. Antithrombotic Trialists' Collaboration. Lancet. 2009; 373:1849-60.
15. Wilt TJ, Bloomfield HE, MacDonald R, *et al.* Arch Intern Med. 2004; 164:1427-36.

---

**TOOLS FOR PRACTICE  
PROVIDED BY**



---

**IN PARTNERSHIP WITH**



**Tools for Practice** are peer reviewed and summarize practice-changing medical evidence for primary care. Coordinated by **Dr. G. Michael Allan** and **Dr Adrienne Lindblad**, they are developed by the Patients, Experience, Evidence, Research (PEER) team, and supported by the College of Family Physicians of Canada, and the Alberta, Ontario, and Saskatchewan Colleges of Family Physicians. Feedback is welcome and can be sent to [toolsforpractice@cfpc.ca](mailto:toolsforpractice@cfpc.ca). Archived articles can be found at [www.toolsforpractice.ca](http://www.toolsforpractice.ca)

*This communication reflects the opinion of the authors and does not necessarily mirror the perspective and policy of the College of Family Physicians of Canada.*