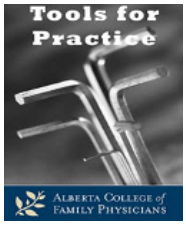
December 21, 2020

COVID-19 Rapid Reviews

Along with regular Tools for Practice, the PEER team will be writing rapid reviews to address COVID-19 topics relevant for primary care. The evidence is changing rapidly, and it is possible that as you read this, new evidence will already be available. We will try our best to stay in front and keep you up to date during these challenging times.



COVID Vax Fast Facts: Say That 10 Times Fast

Clinical Question: What are the benefits and risks of the three COVID-19 vaccines likely available soon in Canada?

Bottom Line: Interim results of two large randomized, placebo-controlled trials (RCTs) demonstrate ~95% relative efficacy in preventing COVID-19 (Pfizer, Moderna). The AstraZeneca/Oxford vaccine has ~70% relative efficacy. Absolute benefits will vary with baseline risk and time but if annual risk of developing COVID-19 is 20%, then vaccine would decrease risk to 1% (6% with AstraZeneca/Oxford). These vaccines appear safe and may decrease the likelihood of severe COVID-19. Ongoing studies should provide further details.

Evidence:

- Interim results from FDA submissions,[1,2] or peer reviewed publications.[3,4] Median follow-up 2 months.[2,3,4] Cases were symptomatic and had laboratory confirmed COVID-19.[5-7] Severe COVID-19 definitions included needing high-flow oxygen or ICU admission.[5-7]
- Pfizer/BioNTech: double-blind, multi-country RCT.[1,3,5] Two doses given 21 days apart to 40,137 adults (median age 51):[1,3]
    - COVID-19 cases: vaccine 9, placebo 169. Relative risk reduction (RRR): 95% (statistically different).
        - Severe COVID-19:[3] vaccine 1, placebo 4.
    - Adverse events:
        - Unsolicited patient reporting:[1] injection pain (11%), fatigue (6%), myalgia/ headache (5%).
        - Solicited reporting (patients asked about specific adverse events): 5-10 times more common.
            - Example fatigue:[1,3] vaccine 34-59%, placebo 17-33%.
        - Serious adverse events (~0.5%) and deaths similar between groups.[1,3]

- Moderna: double-blind RCT.[2,6] Two doses given 28 days apart to 27,817 USA adults (median age 51).[2]
    - COVID-19 cases: vaccine 11, placebo 185. RRR: 94% (statistically different).
        - Severe COVID-19: vaccine 0, placebo 30.
    - Adverse events:[2]
        - Unsolicited patient reporting: headache (3%), fatigue (2%), lymphadenopathy (1.2%), myalgia (1%).
        - Solicited reporting: ~5-20 times more common.
            - Example headache: vaccine 25-63%, placebo 18-29%.
        - Serious adverse events (0.6%) and deaths similar between groups.
- AstraZeneca/Oxford: multiple single-blind RCTs with multiple arms [including variable first dose and timing (4 to >12 weeks) of second dose]. Two doses given to 11,636 Brazil or United Kingdom adults.[4,7]
    - COVID-19 overall: vaccine 30, placebo 101. RRR=70% (statistically different).
        - Low dose regimen RRR=90%, standard dose RRR=62%.
            - Low dose given to only 18-55 year-olds, ~90% health care workers.
        - Severe COVID-19:[4] vaccine 0, placebo 2.
    - Serious adverse events:[4] vaccine 0.7%, placebo 0.8%.
        - 3 cases of transverse myelitis (2 vaccine, 1 placebo): deemed unrelated to vaccine.[4]
        - Overall mortality similar.[4]
- Limitations: efficacy in children and duration of response unknown.

Context:

- Storage requirements:[4,8,9] Pfizer (-70°C), Moderna (-20°C), AstraZeneca/Oxford (2-8°C).
- Baseline risk of COVID-19 varies substantially with location and time, impacting potential absolute benefit.
    - For example, if annual risk of COVID-19 is 20%:
        - Pfizer/Moderna vaccine would decrease risk to 1%.
        - AstraZeneca/Oxford to 6%.

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Disclosures:

Authors do not have any conflicts of interest to declare.

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