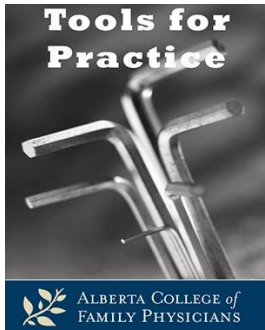


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November 4, 2013



Will the flu shot help my Grandma and Grandpa?

Clinical Question: Does the seasonal trivalent influenza vaccine (flu shot) prevent influenza or its complications in patients age ≥ 65 years old?

Bottom-line: One high quality randomized controlled trial demonstrated that vaccinating 40 community dwelling seniors with the trivalent influenza vaccine (flu shot) will prevent one case of influenza. Cohort studies demonstrating mortality benefits are biased by healthy user effect.

Evidence:

- Meta-analysis evaluating cohort and randomized controlled studies of influenza vaccine in patients ≥ 65 years concluded they are unable to determine effectiveness of the vaccine.¹
- Randomized Controlled Trials (RCTs) of community dwelling patients:
 - Netherlands: double blinded RCT of flu shot vs. placebo in 1838 patients, mean age 67 years, 87% without previous vaccination.^{2,3}
 - Influenza (influenza-like illness plus serology): vaccine 1.7%, placebo 4.2%, Numbers Needed to Treat (NNT)=40.
 - Mortality rates not reported.
 - Adverse events: local reactions more common, systemic effects similar.³
 - United Kingdom: smaller, single blinded, less generalizable (729 patients with co-morbidities excluded) placebo-controlled RCT of flu shot after all received pneumococcal vaccine.⁴
 - No difference in influenza, pneumonia, hospitalization for respiratory illness or mortality.
 - RCT of 614 nursing home patients: lower quality, multi-armed, placebo-controlled RCT of flu shot +/- live intranasal vaccine.⁵
 - Only the combination of flu shot plus live intranasal vaccine significantly decreased influenza rates (4.5% vs. 12.8% placebo, NNT=13).
 - Study appears underpowered to show benefits of other interventions.
 - Mortality rates not reported.

Context:

- Cohort studies demonstrated large reductions in hospitalizations and mortality, but are confounded by healthy user effect¹ as:
 - Benefits seen outside of influenza season.
 - Overall mortality reduction is greater than reduction in influenza, hospitalizations and deaths due to respiratory illnesses.
- Based on this observational data, Canadian guidelines recommend vaccinating elderly to decrease influenza related morbidity and mortality.⁶
- For Canadians ≥65 years, the annual influenza death rate is ~100/100,000.^{7,8}
 - Cardiovascular disease and cancer deaths are at least 25 times more common.⁸

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