

# Live Attenuated Versus Inactivated Influenza Vaccine in Hutterite Children

## Background

- Question exists of the effectiveness of live attenuated influenza vaccine (LAIV) versus inactivated influenza vaccine (IIV) in providing both direct and community protection from contraction of influenza virus. Hutterite colonies are close-knit communities significantly isolated from the general population which offer a chance to assess the effectiveness of these vaccines head-to-head.

## Objective

- To determine whether vaccinating children and adolescents with LAIV provides better community protection from influenza contraction than IIV.

## Methods

- 52 Hutterite colonies in Alberta and Saskatchewan, Canada were enrolled.
- Study design: cluster randomized blinded trial conducted from October 2012 – May 2015 (3 flu seasons)
- 1186 Canadian children and adolescents (age 3-15 y.o.) received either LAIV or IIV, and 3425 community members who were unvaccinated
- Children randomly assigned according to community in a blinded manner to receive LAIV or IIV (both trivalent)
- Primary outcome: laboratory confirmed (RT-PCR) influenza A or B in all participants (vaccinated children and persons who did not receive the study vaccine)

## Results

- Percentage of vaccinated children in the LAIV group ranged from 74.7%-77.6% and from 68.4-77.2% in the IIV group.
- Percentage of people who received the vaccine outside the study across 3 years was 2.8-3.7% in the LAIV group and 0.4-4.2% in the IIV group.
- Percentage that did not receive any vaccine ranged from 18.7-21.9% in the LAIV group and 22.4-27.8% in the IIV group.
- Infection occurred at a rate of 5.3% in the LAIV group versus 5.2% in the IIV group.
- HR comparing LAIV to IIV for contraction of influenza was 1.03 (95% CI 0.85-1.24)

## Strengths

- Randomized, Double-blind, double-dummy
- Manufacturer relations handled by third party
- Appropriate exclusion criteria
- 90% power met

## Limitations

- Study population does not resemble general population. Many differences in societal interaction, contact, and norms. Virus transmission patterns likely unique.

- Study did not include adults in group receiving vaccination – only gave them the option to participate as active non-vaccinated volunteers, or receive vaccine outside the study.
- Participants assessed twice weekly for influenza contraction with checklist of symptoms. Not likely to be done in normal practice.

### **Conclusion**

- It cannot be reliably concluded from this study that there is not difference in efficacy between LAIV and IIV for individual and community protection from influenza. Further study is needed in a patient population more reflective of the general population with inclusion of adults and a more realistic monitoring system for virus contraction.

### **Reference**

- Loeb M, Russell ML, Manning V, Fonseca K, Earn DJD, Horsman G, et al. Live Attenuated Versus Inactivated Influenza Vaccine in Hutterite Children. *Ann Intern Med.* 2016. Epub ahead of print. Accessed: Sept 29, 2016.