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Vaccines for preventing influenza in healthy children.

[Jefferson T](#), [Rivetti A](#), [Harnden A](#), [Di Pietrantonj C](#), [Demicheli V](#).

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Abstract

BACKGROUND:

The consequences of influenza in children and adults are mainly absenteeism from school and work. However, the risk of complications is greatest in children and people over 65 years old.

OBJECTIVES:

To appraise all comparative studies evaluating the effects of influenza vaccines in healthy children; assess vaccine efficacy (prevention of confirmed influenza) and effectiveness (prevention of influenza-like illness) and document adverse events associated with influenza vaccines.

SEARCH STRATEGY:

We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2007, issue 3); OLD MEDLINE (1950 to 1965); MEDLINE (1966 to September 2007); EMBASE (1974 to September 2007); Biological Abstracts (1969 to September 2007); and Science Citation Index (1974 to September 2007).

SELECTION CRITERIA:

Randomised controlled trials (RCTs), cohort and case-control studies of any influenza vaccine in healthy children under 16 years of age.

DATA COLLECTION AND ANALYSIS:

Two review authors independently assessed trial quality and extracted data.

MAIN RESULTS:

Fifty-one studies with 294,159 observations were included. Sixteen RCTs and 18 cohort studies were included in the analysis of vaccine efficacy and effectiveness. From RCTs, live vaccines showed an efficacy of 82% (95% confidence interval (CI) 71% to 89%) and an effectiveness of 33% (95% CI 28% to 38%) in children older than two compared with placebo or no intervention.

Inactivated vaccines had a lower efficacy of 59% (95% CI 41% to 71%) than live vaccines but similar effectiveness: 36% (95% CI 24% to 46%). In children under two, the efficacy of inactivated vaccine was similar to placebo. Variability in study design and presentation of data was such that a meta-analysis of safety outcome data was not feasible. Extensive evidence of reporting bias of safety outcomes from trials of live attenuated vaccines impeded meaningful analysis.

AUTHORS' CONCLUSIONS:

Influenza vaccines are efficacious in children older than two but little evidence is available for children under two. There was a marked difference between vaccine efficacy and effectiveness. No safety comparisons could be carried out, emphasizing the need for standardisation of methods and presentation of vaccine safety data in future studies. It was surprising to find only one study of inactivated vaccine in children under two years, given current recommendations to vaccinate healthy children from six months old in the USA and Canada. If immunisation in children is to be recommended as a public health policy, large-scale studies assessing important outcomes and directly comparing vaccine types are urgently required.

Update of

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