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[Intervention Review]

Interventions for improving coverage of childhood immunisation in low- and middle-income countries

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ABSTRACT

Background

Immunisation is a powerful public health strategy for improving child survival, not only by directly combating key diseases that kill children but also by providing a platform for other health services. However, each year millions of children worldwide, mostly from low- and middle-income countries (LMICs), do not receive the full series of vaccines on their national routine immunisation schedule. This is an update of the Cochrane review published in 2011 and focuses on interventions for improving childhood immunisation coverage in LMICs.

Objectives

To evaluate the effectiveness of intervention strategies to boost and sustain high childhood immunisation coverage in LMICs.

Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL) 2016, Issue 4, part of *The Cochrane Library*. www.cochranelibrary.com, including the Cochrane Effective Practice and Organisation of Care (EPOC) Group Specialised Register (searched 12 May 2016); MEDLINE In-Process and Other Non-Indexed Citations, MEDLINE Daily and MEDLINE 1946 to Present, OvidSP (searched 12 May 2016); CINAHL 1981 to present, EbscoHost (searched 12 May 2016); Embase 1980 to 2014 Week 34, OvidSP (searched 2 September 2014); LILACS, VHL (searched 2 September 2014); Sociological Abstracts 1952 - current, ProQuest (searched 2 September 2014). We did a citation search for all included studies in Science Citation Index and Social Sciences Citation Index, 1975 to present; Emerging Sources Citation Index 2015 to present, ISI Web of Science (searched 2 July 2016). We also searched the two Trials Registries: ICTRP and ClinicalTrials.gov (searched 5 July 2016)

Selection criteria

Eligible studies were randomised controlled trials (RCT), non-RCTs, controlled before-after studies, and interrupted time series conducted in LMICs involving children aged from birth to four years, caregivers, and healthcare providers.

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Data collection and analysis

We independently screened the search output, reviewed full texts of potentially eligible articles, assessed risk of bias, and extracted data in duplicate; resolving discrepancies by consensus. We then conducted random-effects meta-analyses and used GRADE to assess the certainty of evidence.

Main results

Fourteen studies (10 cluster RCTs and four individual RCTs) met our inclusion criteria. These were conducted in Georgia (one study), Ghana (one study), Honduras (one study), India (two studies), Mali (one study), Mexico (one study), Nicaragua (one study), Nepal (one study), Pakistan (four studies), and Zimbabwe (one study). One study had an unclear risk of bias, and 13 had high risk of bias. The interventions evaluated in the studies included community-based health education (three studies), facility-based health education (three studies), household incentives (three studies), regular immunisation outreach sessions (one study), home visits (one study), supportive supervision (one study), information campaigns (one study), and integration of immunisation services with intermittent preventive treatment of malaria (one study).

We found moderate-certainty evidence that health education at village meetings or at home probably improves coverage with three doses of diphtheria-tetanus-pertussis vaccines (DTP3: risk ratio (RR) 1.68, 95% confidence interval (CI) 1.09 to 2.59). We also found low-certainty evidence that facility-based health education plus redesigned vaccination reminder cards may improve DTP3 coverage (RR 1.50, 95% CI 1.21 to 1.87). Household monetary incentives may have little or no effect on full immunisation coverage (RR 1.05, 95% CI 0.90 to 1.23, low-certainty evidence). Regular immunisation outreach may improve full immunisation coverage (RR 3.09, 95% CI 1.69 to 5.67, low-certainty evidence) which may substantially improve if combined with household incentives (RR 6.66, 95% CI 3.93 to 11.28, low-certainty evidence). Home visits to identify non-vaccinated children and refer them to health clinics may improve uptake of three doses of oral polio vaccine (RR 1.22, 95% CI 1.07 to 1.39, low-certainty evidence). There was low-certainty evidence that integration of immunisation with other services may improve DTP3 coverage (RR 1.92, 95% CI 1.42 to 2.59).

Authors' conclusions

Providing parents and other community members with information on immunisation, health education at facilities in combination with redesigned immunisation reminder cards, regular immunisation outreach with and without household incentives, home visits, and integration of immunisation with other services may improve childhood immunisation coverage in LMIC. Most of the evidence was of low certainty, which implies a high likelihood that the true effect of the interventions will be substantially different. There is thus a need for further well-conducted RCTs to assess the effects of interventions for improving childhood immunisation coverage in LMICs.

PLAIN LANGUAGE SUMMARY

Interventions that will increase and sustain the uptake of vaccines in low- and middle-income countries

What is the aim of this review?

The aim of this Cochrane review was to evaluate the effect of different strategies to increase the number of children in low-and-middle-income countries who are vaccinated to prevent infection by a disease. Researchers in Cochrane collected and analysed all relevant studies to answer this question and found 14 relevant studies.

Do strategies to improve childhood vaccination work?

Giving information about vaccination to parents and community members, handing out specially designed vaccination reminder cards, offering vaccines through regular immunisation outreach with and without household incentives (rewards), identifying unvaccinated children through home visits and referring them to health clinics, and integrating vaccination services with other services may lead to more children getting vaccinated. However, offering parents money to vaccinate their children may not improve vaccination uptake. Most of these findings were of low-certainty, and we need more well-conducted research in this area.

What was studied in the review?

Millions of children in low-and-middle-income countries still die from diseases that could have been prevented with vaccines. There are a number of reasons for this. Governments and others have tried different strategies to increase the number of children vaccinated.

What are the main results of the review?

The review authors found 14 relevant studies from Georgia, Ghana, Honduras, India, Mali, Mexico, Nicaragua, Nepal, Pakistan, and Zimbabwe. The studies compared people receiving these strategies to people who only received the usual healthcare services. The studies showed the following:

Giving information and discussing vaccination with parents and other community members at village meetings or at home probably leads to more children receiving three doses of diphtheria-tetanus-pertussis vaccine (moderate-certainty evidence).

Giving information to parents about the importance of vaccinations during visits to health clinics combined with a specially designed participant reminder card and integration of vaccination services with other health services may improve the uptake of three doses of diphtheria-tetanus-pertussis vaccine (low-certainty evidence).

Offering money to parents on the condition that they vaccinate their children may make little or no difference to the number of children that are fully vaccinated (low-certainty evidence).

Using vaccination outreach teams to offer vaccination to villages on fixed times monthly may improve coverage for full vaccination (low-certainty evidence).

How up-to-date is this review?

The review authors searched for studies that were published up to May 2016.