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Evidence Assessment: Summary of a Systematic Review

Who is this summary for?
For Doctors and Health Personal, Administrators and managers of health facilities and the partners involved in the reduction of maternal, newborn and child mortality.

Interventions for improving coverage of child immunization in low- and middle-income countries

Key findings

- Village meetings lead to an increase in the number of children who get vaccinated.
- Giving information to mothers during visits to the clinic may increase the number of children who get vaccinated.
- Giving them specially designed immunisation cards may increase the number of children who get vaccinated.

Background

Immunization coverage remains low, particularly in low- and middle-income countries (LMIC), despite its proven effectiveness in reducing the burden of childhood infectious diseases. In order to reach these children, a variety of interventions have been developed and, in some cases, their effect has been evaluated. The interventions included organising village meetings where immunisation was discussed and promoted; giving information to mothers during their visits to clinics; and distributing specially designed immunisation cards to remind mothers of their children's immunisation appointments.

Question

What is the effectiveness of intervention strategies to boost and sustain high childhood immunization coverage in low- and middle-income countries?

Interventions for improving coverage of child immunization in Cameroon: Despite the free health vaccines of the Expanded Programme on Immunization in Cameroon coverage capped at least 85%, despite the fixed and advanced strategies. Many interventions provide information on the participation of community members to improve immunization coverage.

Table 1: Summary of the systematic review

	What the review authors searched for	What the review authors found
Studies	1. Randomized controlled trials (RCT) 2. Non-randomized controlled trials (NRCT) 3. Interrupted-time-series studies (ITS)	Six studies met the inclusion criteria. Five of the studies were cluster RCTs.
Participants	Children aged zero to four (under five) years who received globally recommended vaccines which include any of diphtheria, pertussis, tetanus, measles, mumps, rubella (as single or combined antigens), polio, *Bacille Calmette-Guérin* (BCG), Hepatitis B, *Haemophilus Influenza*.	Trials included children aged between 12 and 23 months. Participants in three studies were adults: primary healthcare workers, and pregnant women. The adults were targeted with a view to improving childhood immunization
Interventions	1. **Patient- or community-oriented interventions:** • Vaccination requirement for school entry; • Client incentives; • Health education. **2. Provider-oriented interventions:** • Any intervention to reduce missed opportunity (e.g. audit and feedback, provider reminders, fact sheet provider reminders); • Health education, training, and update courses for providers. **3. Health system interventions:** • Interventions to improve the quality of services, such as provision of reliable cold chain system, provision of transport for vaccination, vaccine stock management; • Outreach programmes e.g. school immunization outreach program, door-to-door canvassing; (channeling), immunization campaigns (national and subnational); • Expanded services e.g. extended hours for immunization; • Budget for immunization; • Integration of immunization services with other services; • Plan of action for immunization coverage and disease reduction goals. **4. Multi-faceted (any combination of the above categories of interventions).** **5. Single or multiple interventions, other than the above, intended to improve immunization coverage.**	**1. Patient and community oriented interventions** **Health education** Health education interventions included evidence based discussions in the community on the prevalence of measles among children and the importance of childhood immunization; and an information campaign that involved presentation of audiotape messages, and distribution of posters and leaflets in the community. **Monetary incentives** One studies assessed the effect of withdrawing monetary vouchers if the mothers were not up-to-date with routine antenatal care and well-child preventive health care, and if the child did not attend school regularly. **Patient reminder** An enlarged immunization card for diphtheria, pertussis, and tetanus (DPT) vaccination, designed to remind mothers of immunization appointments, was evaluated. **2. Provider oriented interventions** Interventions targeting providers included training in continuous supportive supervision, development of supportive supervision guidelines, and tools for immunization district managers. **3. Health system interventions** **Home visits** One studies reported on the effects of home visits on childhood immunization: undergraduate students conducted the home visits which aimed to identify non-immunized children and refer them for immunization at the health centre. **4. Multi-faceted (health system plus provider interventions)**
Controls	1. Routine immunization practices. 2. Different interventions or similar interventions implemented with different degrees of intensity	The control groups received routine care.
Outcomes	**Primary outcomes** 1. Proportion of target population fully immunized with recommended vaccines, by age 2. Number of children aged two years fully immunized per vaccine **Secondary outcomes** 1. Occurrence of vaccine preventable diseases 2. Number of under-fives fully immunized with all scheduled vaccines 3. Number of under-fives partially immunized for multi-dose vaccines 4. Costs of intervention 5. Attitudes of caregivers and clients towards immunization 6. Unintended adverse effects	Three of the studies provided data on the proportion of the target population that was fully immunized (by age) by the recommended vaccine. Two studies reported the percentage change in immunization coverage over time. Other outcomes reported were: Tetanus Toxoid (TT) coverage in children, received at least one vaccine, oral polio I coverage, completion of schedule, and cost of the intervention.
Date of the most recent search: 21 January 2011.		
Limitations: This is a moderate quality systematic review with limitations related to the included studies, AMSTAR =9/11.		
Citation: Oyo-Ita A, Nwachukwu CE, Oringanje C, Meremikwu MM. Interventions for improving coverage of child immunization in low- and middle-income countries. Cochrane Database of Systematic Reviews 2011, Issue 7. Art. No.: CD008145. DOI: 10.1002/14651858.CD008145.pub2.		

Table 2: Summary of findings

Outcomes	Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
Uptake of at least one vaccine (information campaign) Follow-up: 12 months	1.43 [1.01-2.02]	1025 (1)	**Moderate**	Most of the results of this review are delived from five cluster RCTs, but the quality of the evidence was moderate due to the small number of eligible studies, variations in study design and outcome measures, and unit of analysis errors.
DPT3 uptake (Facility Based Health Education) Follow-up: 90 days	1.18 [1.05-1.33]	750 (1)	**Low**	
DPT3 uptake (Facility based Health Education + Redesigned card)	1.36 [1.22-1.51]	750 (1)	**Low**	
DPT3 uptake (evidence based discussion) Follow-up: 12 months	2.17 [1.43-3.29]	957 (1)	**Moderate**	
Measles uptake (evidence based discussion)	1.63 [1.03-2.58]	956 (1)	**Moderate**	

Applicability

In this review 2 of the studies were conducted in Pakistan and 1 each in 1 Ghana, Georgia, Honduras and India. These intervention may be applicable in Cameroon in accordance with the implementation of the ongoing reforms of Community Health Workers program.

Conclusions

There is moderate quality evidence that interventions targeting patients or communities and the health system (including with redesigned immunization cards, health education, and home visits) may increase the coverage of vaccines.

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