Do community engagement interventions work to improve immunization outcomes in LMICs? How? And why?

Findings from a 3ie systematic review

Monica Jain
Lead Evaluation Specialist, 3ie
mjain@3ieimpact.org

#EvidenceDialogues
30 June 2022
Authors

Shannon Shisler
Charlotte Lane
Avantika Bagai
Elizabeth Brown
Mark Engelbert
Yoav Vardy
John Eyers
Daniela Anda Leon
Shradha S. Parsekar
Systematic review objectives

Assess effectiveness of community engagement interventions to improve routine immunization of children in low- and middle-income countries.

Identify factors relating to program design, implementation, and context associated with intervention success or failure.

Assess cost-effectiveness of community engagement interventions to improve routine immunization of children.
Defining community

• A group of people who are served by a particular primary health facility

*Kebele* in Ethiopia
*Ward* in Nigeria
*Sub-center* in India
Engagement can be…

• In the design of the intervention

• In the implementation of the intervention

• Embedded in the intervention
Engagement in intervention design

Community input or feedback on intervention is sought \textit{before} the implementation of an intervention
Engagement in intervention design

Community input or feedback on intervention is sought **before** the implementation of an intervention

Examples:
- Asking community members about the size and form of incentives
- Community input in designing reminders
- Feedback on educational tools
Engagement in implementation with some autonomy

When community members involved in the implementation of the intervention have some opportunity to affect or influence its implementation.
Engagement in implementation with some autonomy

When community members involved in the implementation of the intervention have some opportunity to affect or influence its implementation.

Examples:
- Community led beneficiary selection
- Community leader involvement in outreach activities and defaulter tracing
Engagement embedded in intervention

Community-based interventions with a serious attempt to gain community support
Engagement embedded in intervention

Community-based interventions with a serious attempt to gain community support

Examples:
- Creation of village health committees or community groups such as community health workers, women’s group, etc.
- Day for immunization and community dialogue (immunization camp)
PRISMA diagram of search and screening process

43,208
Records identified through database searching

29,481
Records remaining after de-duplication

29,481
Abstracts screened

1,285
Full-texts reviewed

61
IEs included in SR

3,029
Records identified through website searching and citation tracking

28,152
Abstracts excluded

44
Unable to locate full text

1,224
Full texts excluded (high-income country studies, not an effectiveness study, not community engagement intervention, etc.)
<table>
<thead>
<tr>
<th>Type of analysis</th>
<th>Evidence base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meta-analysis</td>
<td>56 primary studies</td>
</tr>
<tr>
<td>Qualitative synthesis</td>
<td>61 primary studies and associated 47 qualitative papers and 69 project reports</td>
</tr>
<tr>
<td>Cost effectiveness</td>
<td>14 primary studies</td>
</tr>
</tbody>
</table>
### Number of evaluation studies by type of community engagement

<table>
<thead>
<tr>
<th>Type of community engagement</th>
<th>Number of studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement embedded in intervention</td>
<td>27</td>
</tr>
<tr>
<td>Engagement in design</td>
<td>16</td>
</tr>
<tr>
<td>Engagement in implementation with some autonomy</td>
<td>5</td>
</tr>
<tr>
<td>Multiple*</td>
<td>15</td>
</tr>
</tbody>
</table>

*This category includes interventions with more than one engagement classification.*
Distribution of studies by geography
## Summary of meta-analysis results

<table>
<thead>
<tr>
<th>Engagement</th>
<th>Engagement in the design</th>
<th>Engagement in implementation (some autonomy)</th>
<th>Multiple Engagement Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>For complete evidence base</td>
<td>Engagement embedded in the intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Full immunisation</strong></td>
<td>0.14**</td>
<td>0.08**</td>
<td>0.10*</td>
</tr>
<tr>
<td><strong>Measles</strong></td>
<td>0.07**</td>
<td>0.10***</td>
<td>0.11*</td>
</tr>
<tr>
<td><strong>DPT3</strong></td>
<td>0.10***</td>
<td>0.09**</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Timeliness (Full immunisation)</strong></td>
<td>0.15***</td>
<td>N/A</td>
<td>0.15*</td>
</tr>
<tr>
<td><strong>Timeliness (DPT3)</strong></td>
<td>0.10***</td>
<td>N/A</td>
<td>0.12***</td>
</tr>
</tbody>
</table>

* p < .05  
** p < .01  
*** p < .001
Factors underlying intervention success or failure
Contextual factors

- Interventions that ignored contextual factors during design tended to fail
- Common contextual barriers:
  - transport or opportunity costs
  - logistics
  - distance
  - limited availability of services
- Contextual enablers:
  - positive caregiver perception of immunization
  - availability of health services

“Discussions in our focus groups confirmed the importance of poverty as a barrier to vaccination in many cases, as parents described being unable to afford the costs of the supposedly “free” immunisations: travel costs, opportunity costs, and demands for unofficial payments.”

(Andersson 2009, pg 10)
Intervention features

- Community engagement features associated with intervention success included:
  - Conducting stakeholder consultations
  - Holding community dialogues
  - Involving community leaders
- Non-engagement features were also important, e.g.,
  - Incentives to caregivers
  - Leadership and supportive supervision to health workers

“Interviewees spoke of the tangible benefits of the community dialogues and proactive household approaches as expanding access, improving relationships with communities, and increasing knowledge and uptake of services.”

((Padayachee, 2013, pg. 76) )
Implementation challenges

- Low fidelity was a common reason for intervention failure
- Interventions did not properly account for realities on the ground
  - Irregular internet or limited cellphone service
  - Health worker availability
  - Political instability
- Administrative challenges were common:
  - technical
  - political
  - staffing

“This intervention was designed on the expectation that the text message portion could be rolled out in tandem with the ECIIN, an immunization tracking program that planned to have HEWs report immunization dates, mother’s data, child’s data, using text messages. Due to data issues and conflict in the region ECIIN was discontinued.”

(Demilew 2020, p34)
Cost-effectiveness of community engagement interventions

The median intervention cost per treated child per vaccine dose (excluding the cost of vaccines) to increase absolute immunization coverage by one percent was US $3.68 (all costs are reported in 2019 US dollars)
The range of cost-effectiveness estimates varied from a minimum of US $0.88 to a maximum of US $29.98.
Implications for policy and practice

• Community engagement interventions are an effective tool to improve immunization outcomes of children.
• Engagement embedded in intervention has the strongest effects
• Reasons consistently cited for intervention success include:
  • Appropriate intervention design, including building in community engagement features
  • Addressing common contextual barriers to immunization and leveraging facilitators
  • Accounting for preconditions like regular internet service or sufficient staffing,
• Systematic cost comparisons by outcome are feasible
  • Decisionmakers can choose interventions based on impacts AND cost
Implications for research

- Clear description of intervention components and characteristics is needed
- Evaluations should consider subgroup analysis to understand equity considerations
- There is a need for more rounded analysis of why the interventions worked through mixed-methods evaluations
- Researchers must pay attention to the quality of cost related data and costing methods for improving cost analysis
Major limitations

• Limited number of studies looking at each intervention type & outcome of interest.
• Most community engagement interventions are part of combined packages of interventions.
• Limited availability of cost data.
Thank You.