USING EVIDENCE TO INFORM CHILD HEALTH POLICIES: FINDINGS FROM A COCHRANE REVIEW ON INTERVENTIONS TO INCREASE CHILD VACCINATION UPTAKE

COCHRANE PEOPLE, HEALTH SYSTEMS AND PUBLIC HEALTH THEMATIC GROUP LAUNCH

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BACKGROUND

• Burden of under 5 deaths
  • Of the 5.3M children who died in 2018, 99% were from LMICs and 700,000 died of vaccine preventable diseases. (Frenkel, 2021)
  • Getting children immunised remains a challenge particularly in LMICs despite the availability of efficacious vaccines
  • 62% of the 19.9M unvaccinated children live in 10 LMICs (Ali et al, 2022)
  • Best scientific evidence about what interventions work is needed to integrate the evidence into the national health systems (Lewin, 2008)
REVIEW OBJECTIVE AND OUTCOMES

• Objective: to evaluate the effectiveness of intervention strategies to boost demand and supply of childhood vaccines and sustain high childhood immunisation coverage in LMICs

• Primary outcomes:
  • Proportion of children who received DTP3 by one year of age
  • Proportion of children who received all recommended vaccines by 2 years of age
THE REVIEW PROCESS

• Types of studies:
  • RCTs, nRCTS

• Types of participants:
  • Children under 5 years of age, caregivers, care providers, health system

• Types of interventions:
  • Recipient oriented, provider oriented, health system oriented, community oriented, or a combination of any

• Search methods:
  • Electronic databases, trial registries, reference list of relevant reviews
11 types of interventions as stand alone or in combination were identified

- **Recipient oriented**
  - Health education (n = 8 studies), monetary incentives (4), patient reminder: Home Based Record (3), phone call/sms (8), wearable reminders (2)
- **Health system oriented**
  - Digital register (2), home visit (1), immunization outreach (3), integration with other services (1), pay for performance funding (2)
- **Health provider oriented**
  - Training of health providers on: IPC (1), supportive supervision (2)
- **Multi-faceted**
  - A combination of any of the interventions above (8)
WHAT WORKS

- Interventions that probably increase vaccination uptake
  - Immunisation outreach (full vaccination of u5s) (RR 3.09; 95% CI: 2.11 to 4.53; participants = 1239; studies = 1)
  - Immunization outreach + non-monetary incentives (RR 6.66, 95% CI 4.78 to 9.28; participants = 1242; studies = 1)
  - Involvement of community leaders + training of health provider on adverse events following immunisation (RR 1.37, 95% CI 1.11 to 1.69; participants = 2020; studies = 1)

- Interventions that may improve vaccination uptake
  - Health education (RR 1.36, 95% CI 1.15 to 1.62; participants = 4375; studies = 6)
  - Home based record (RR 1.36, 95% CI 1.06 to 1.75; participants = 4019; studies = 3)
# Health Education Compared with Routine Care for Improved Childhood Vaccine Uptake

## 1.1.1 Facility-based health education

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>log[Risk Ratio]</th>
<th>SE</th>
<th>Total</th>
<th>Total</th>
<th>Weight</th>
<th>IV, Random, 95% CI</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usman 2009</td>
<td>0.1655</td>
<td>0.083</td>
<td>375</td>
<td>376</td>
<td>19.2%</td>
<td>1.18 [1.05, 1.33]</td>
<td>2009</td>
</tr>
<tr>
<td>Usman 2011</td>
<td>0.4055</td>
<td>0.083</td>
<td>376</td>
<td>378</td>
<td>17.7%</td>
<td>1.50 [1.27, 1.77]</td>
<td>2011</td>
</tr>
<tr>
<td>Hu 2017</td>
<td>0.0527</td>
<td>0.0187</td>
<td>418</td>
<td>433</td>
<td>21.0%</td>
<td>1.05 [1.02, 1.09]</td>
<td>2017</td>
</tr>
<tr>
<td><strong>Subtotal</strong> (95% CI)</td>
<td></td>
<td></td>
<td>1166</td>
<td>1186</td>
<td>57.9%</td>
<td>1.21 [1.01, 1.46]</td>
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</tbody>
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Heterogeneity: Tau² = 0.02; Chi² = 19.88, df = 2 (P = 0.001); P = 90%

Test for overall effect: Z = 2.06 (P = 0.04)

## 1.1.2 Community-based health education

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>log[Risk Ratio]</th>
<th>SE</th>
<th>Total</th>
<th>Total</th>
<th>Weight</th>
<th>IV, Random, 95% CI</th>
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<tr>
<td>Andersson 2009</td>
<td>0.7734</td>
<td>0.2124</td>
<td>535</td>
<td>422</td>
<td>9.4%</td>
<td>2.17 [1.43, 3.29]</td>
<td>2009</td>
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<tr>
<td>Cerial 2011</td>
<td>0.3324</td>
<td>0.0881</td>
<td>179</td>
<td>178</td>
<td>17.5%</td>
<td>1.39 [1.18, 1.65]</td>
<td>2011</td>
</tr>
<tr>
<td>Powell-Jackson 2018</td>
<td>0.4184</td>
<td>0.1173</td>
<td>471</td>
<td>235</td>
<td>15.3%</td>
<td>1.52 [1.21, 1.91]</td>
<td>2018</td>
</tr>
<tr>
<td><strong>Subtotal</strong> (95% CI)</td>
<td></td>
<td></td>
<td>1185</td>
<td>835</td>
<td>42.1%</td>
<td>1.55 [1.27, 1.88]</td>
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Heterogeneity: Tau² = 0.01; Chi² = 3.73, df = 2 (P = 0.15); P = 46%

Test for overall effect: Z = 4.39 (P < 0.0001)

Total (95% CI)

<table>
<thead>
<tr>
<th>log[Risk Ratio]</th>
<th>SE</th>
<th>Total</th>
<th>Total</th>
<th>Weight</th>
<th>IV, Random, 95% CI</th>
<th>Year</th>
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<td></td>
<td>2354</td>
<td>2021</td>
<td>100.0%</td>
<td>1.36 [1.15, 1.62]</td>
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Heterogeneity: Tau² = 0.04; Chi² = 47.12, df = 5 (P < 0.00001); P = 99%

Test for overall effect: Z = 3.55 (P = 0.0004)

Test for subgroup differences: Chi² = 3.18, df = 1 (P = 0.07), P = 68.6%
WHAT HAVE LITTLE OR NO EFFECT

- Interventions that may have little or no effect on vaccination uptake
  - Wearable reminders (RR 1.02, 95% CI 0.97 to 1.07; participants = 1567; studies 2)
  - Phone call/SMS (RR 1.06; 95% CI: 0.99 to 1.12; participants = 10414; studies = 5)

- Intervention that probably has no effect on vaccination uptake
  - Digital register (RR 0.98, 95% CI 0.89 to 1.09; participants = 328; studies = 2)

- Interventions with uncertain effect
  - Training of health providers on supervisory visit and IPC – (studies = 3)
  - Home visit (RR: 1.29; 95% CI: 1.15 to 1.45; participants = 419, study = 1)
  - Pay for performance funding – (studies = 2)
  - Monetary incentives to caregivers – (studies = 4)
SUMMARY/CONCLUSION

- Interventions to improve childhood vaccine uptake in LMICs:
  - Immunization outreach with or without non-monetary incentive
  - Involvement of community leaders + training of health worker on AEFI
  - Health Education
  - Home based record

- Levels of impact varied between interventions

- Certainty of evidence also varied across interventions
  - No study was of low risk of bias
  - 3 interventions were of moderate certainty of evidence

- Rigorous studies of low risk of bias are needed to strengthen the evidence base
THANK YOU!
REFERENCES

