MISSED OPPORTUNITIES FOR IMMUNIZATION IN LOW AND MIDDLE-INCOME COUNTRIES
A SYSTEMATIC LITERATURE REVIEW

Background

- Last review: 20 years ago in 1993 by Hutchins et al.
- Mean prevalence in 1993: 41%
- MOI seen as major stumbling block towards achieving full immunization of 90% of the world’s children

Objective

To reassess the prevalence of MOI in low and middle income countries in children and women of childbearing age through a systematic literature review.

Definition of Missed Opportunity for immunization (MOI)

“an occasion when a person eligible for immunization and with no valid contraindication visits a health service facility and does not receive all recommended vaccines”

Selection of papers

6983 papers found on database search (PubMed, Cochrane, Pysphie, WHO regional databases, The African Journal Online (AJOL), Google Scholar) + 24 papers from secondary searches

6948 papers excluded after title screening, abstract screening and pdf screening

59 papers

Qualitative (57)

Qualitative + Quantitative (4)

Quantitative (2)

Children (52)

Women (10)

Children (41; 51*)

Women (10; 10*)

*Indicates the number of data points. One data point is one observation. One paper could have more than one observation depending on the type of the study.
Data points used for analysis from each WHO region

- Europe:
- Western Pacific region:
- Eastern Mediterranean region:
- South East Asia:
- Americas:
- Africa:

Meta-analysis showing pooled prevalence of missed opportunities for immunization in children

Pooled prevalence: 32.2%, but highly variable individual point estimates

Meta-analysis showing pooled prevalence of missed opportunities for immunization in women of childbearing age group

Pooled prevalence: 46.9%, also highly variable individual point estimates.
Reasons for missed opportunities in children (out of total 317 reasons reported in 57 papers)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Parents</th>
<th>Healthcare Provider</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARENTS</td>
<td>56</td>
<td>33</td>
<td>89</td>
</tr>
<tr>
<td>HEALTHCARE PROVIDER</td>
<td>28</td>
<td>18</td>
<td>46</td>
</tr>
<tr>
<td>TOTAL</td>
<td>84</td>
<td>51</td>
<td>135</td>
</tr>
</tbody>
</table>

Reasons for missed opportunities in women (out of 35 reasons reported in 10 papers)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Parents/SELF</th>
<th>Healthcare Provider</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARENTS/SELF</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>HEALTHCARE PROVIDER</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
<td>3</td>
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Conclusions and limitations
- Despite substantial efforts, MOI similar to 1993 estimates
- MOI higher in Americas than Africa, despite in former higher:
  - Economic advancement
  - Immunization infrastructure
- Financial/economic issues uncommon
- Focus efforts on immunization clinics
- Multifaceted efforts needed
- Limitations:
  - Methods varied by population/time
  - Few studies overall
  - Unknown link between MOI reduction and immunization coverage improvement

Recommendations
1. Evidence based recommendations:
   - Card retention
   - SMS reminders
   - Immunization during curative visits
2. Other possible recommendations (need more evidence)
   - Electronic record systems
   - Biomarkers
   - Prefilled syringes or single-dose vials
   - Provider training
   - Better organized immunization sessions (adequate staff, time, rooms)
Scope of further research?

1. Multi-site ongoing surveillance over many years (similar to ID surveillance) using standard methodologies to facilitate monitoring and comparisons.

2. Intervention impact on MOI prevalence.

3. Degree to which reducing MOIs leads to improving immunization coverage.

Authors

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Thank you!!!