The middle income countries issue

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What is the real MIC issue?

Should we invest in non-Gavi MICs?
A closer look: MICs with high shares of vaccine-preventable diseases and unvaccinated children are supported by Gavi


57% of the world’s vaccine preventable deaths are in Gavi MICs. 8% are in non-Gavi MICs.

63% of the world’s unvaccinated children are in Gavi MICs. 13% are in non-Gavi MICs.
**MICs do not lag behind LICs in number of countries introducing PCV, Rota and HPV**

Percent of countries with vaccine in schedule by income group (2000-2013)

WHO vaccine schedule data (as of Dec 2013). Counted countries with introduction in entire country and part of country (# countries introduced / total countries). In November 2014, EMRO confirmed all countries have introduced Hib (e.g. Egypt and Iran). No new introductions after Dec 2013 have been added to this analysis. However, new introductions are logged elsewhere.
MICs do lag behind LICs in the fraction of the birth cohort without access to PCV, Rota, and Hib

Percent of birth cohort with or without vaccine in schedule by income group

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>LIC</th>
<th>LMIC</th>
<th>UMIC</th>
<th>HIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hib</td>
<td>100</td>
<td>96</td>
<td>45</td>
<td>100</td>
</tr>
<tr>
<td>PCV3</td>
<td>41</td>
<td>74</td>
<td>67</td>
<td>80</td>
</tr>
<tr>
<td>Rota</td>
<td>71</td>
<td>88</td>
<td>73</td>
<td>51</td>
</tr>
<tr>
<td>HPV</td>
<td>98</td>
<td>99</td>
<td>78</td>
<td>74</td>
</tr>
</tbody>
</table>

China, Iran, and Thailand decided not to introduce Hib (Dec 2013)

WHO vaccine schedule data as of 31 Dec 2013.
N = LIC: 34; LMIC: 49; UMIC: 54; HIC: 55.
% reached = sum of birth cohorts of countries with vaccine in schedule (full, partial, sequential, risk groups) / total birth cohort of income group.

Only 7 small LMICs (i.e., Bhutan, Paraguay, Micronesia) have fully introduced HPV
This lag is largely driven by Gavi-supported countries: Pakistan, India, Nigeria, and Indonesia

Percent of birth cohort with or without vaccine in schedule by income group

**Hib**

<table>
<thead>
<tr>
<th></th>
<th>LICs</th>
<th>Gavi LMIC + UMIC</th>
<th>Gavi without Pakistan, India, Nigeria</th>
<th>Non-Gavi LMIC + UMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>% reached</td>
<td>100</td>
<td>99</td>
<td>97</td>
<td>81</td>
</tr>
<tr>
<td>% unreached</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>19</td>
</tr>
</tbody>
</table>

**PCV3**

<table>
<thead>
<tr>
<th></th>
<th>LICs</th>
<th>Gavi LMIC + UMIC</th>
<th>Gavi without Pakistan, India, Nigeria</th>
<th>Non-Gavi LMIC + UMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>% reached</td>
<td>40</td>
<td>76</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>% unreached</td>
<td>60</td>
<td>24</td>
<td>61</td>
<td>63</td>
</tr>
</tbody>
</table>

**Rota**

<table>
<thead>
<tr>
<th></th>
<th>LICs</th>
<th>Gavi LMIC + UMIC</th>
<th>Gavi without Pakistan, India, Nigeria</th>
<th>Non-Gavi LMIC + UMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>% reached</td>
<td>71</td>
<td>92</td>
<td>65</td>
<td>43</td>
</tr>
<tr>
<td>% unreached</td>
<td>29</td>
<td>8</td>
<td>35</td>
<td>57</td>
</tr>
</tbody>
</table>

**HPV**

<table>
<thead>
<tr>
<th></th>
<th>LICs</th>
<th>Gavi LMIC + UMIC</th>
<th>Gavi without Pakistan, India, Nigeria</th>
<th>Non-Gavi LMIC + UMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>% reached</td>
<td>98</td>
<td>99</td>
<td>98</td>
<td>64</td>
</tr>
<tr>
<td>% unreached</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>36</td>
</tr>
</tbody>
</table>

“Gavi” in this case means eligible and graduating countries, LMICs and UMICs. WHO vaccine schedule data as of Dec 2013 (counted as introduced if full, partial, sequential, or risk group introduction).
## A broader look at all GVAP targets: countries that face bigger obstacles receive Gavi support

<table>
<thead>
<tr>
<th>Relative performance against GVAP targets</th>
<th>Group (Gavi status as of 2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gavi eligible</td>
</tr>
<tr>
<td>DTP3 &gt;90%</td>
<td>73</td>
</tr>
<tr>
<td>New vaccine introductions</td>
<td>1.1</td>
</tr>
<tr>
<td>Under-5 mortality</td>
<td>73</td>
</tr>
<tr>
<td>NITAGs % (N)</td>
<td>30</td>
</tr>
<tr>
<td>Drop-outs</td>
<td>7.9</td>
</tr>
<tr>
<td>DTP3 &gt;90% for 3 + years % (N)</td>
<td>35</td>
</tr>
<tr>
<td>90% districts with coverage &gt;80%</td>
<td>30</td>
</tr>
</tbody>
</table>

### Notes:
- **DTP3 >90%**: Weighted average by birth cohort of DTP3 (WHO-UNICEF estimates, 2013), U5M (WHO, 2012), and 90% dist >80% (JRF, 2013). For NUVI, used schedule data (as of Dec 2013) from WHO for PCV, Rota, HPV, IPV, YF, and JE to calculate average # NUVIs per group. NITAG variable is % of group that have functional NITAG, as defined by criteria in JRFs. Dropout % (JRF, 2013) is a straight average of the national percent of dropouts from DTP1 to DTP3. For DTP3 >90% 3+ years, WHO-UNICEF estimates for 2011-2013 were used to create the ratio shown: # of countries with 3 years of 90%+ / total countries in group.
Efforts are well-coordinated for Gavi-funded MICs

Gavi Receives Record-Breaking Financial Pledges For Vaccines

29/01/2015 BY CATHERINE SAEZ, INTELLECTUAL PROPERTY WATCH — LEAVE A COMMENT
Efforts to help non-Gavi MICs have, to date, been substantial but fragmented and uncoordinated.

- Gavi-eligible MICs:
- World Bank Innovative financing
- Sustainable Immunization Financing (SIF)
- Disease dashboard
- LOGIVAC
- SIVAC
- CHAI Cold chain & Logistics (CCL)
- Global immunisation supply chain strategy
- EPIVAC
- ProVac
- African Medicines Regulatory Harmonization Programme (AMRH)
- PAHO Revolving Fund
- Global Medicines Regulatory Harmonization (GMRH) initiative
- V3P
- UNICEF MIC Tender
- VIVA project (Visibility for Vaccines)
- CHAI: Technical and Management Assistance
- “Better Immunization Data” (BID)
- ProVac
- Decade of Vaccines Economics (DOVE) analyses
- NRA strengthening
- ATAP: Access to Appropriate Prices
- HERMES
- Selected non-Gavi MICs:
- Non-Gavi MICs:
- Selected non-Gavi MICs:
Recap: the MIC issue is not what we originally thought

- 63 non-Gavi MICs are not meeting GVAP targets and would benefit from a unified international strategy.
- Equity is a concern for people living in countries without sufficient support.

MICs facing the biggest challenges are getting donor support through a well-coordinated strategy.
What is the real MIC issue?

Should we invest in non-Gavi MICs?
There are 63 non-Gavi MICs: a heterogenous group
Opportunities exist to close important gaps

Reported measles incidence rate:* Feb 2014 - Jan 2015

*Rate per 1'000'000 population

Turkey cases:
7,371 in 2013
531 in 2014

China cases:
27,825 in 2013
52,485 in 2014

Philippines cases:
3,094 in 2013
53,803 in 2014

Seven countries have below 80% DTP3 coverage: Marshall Islands, Syria, South Africa, Vanuatu, Iraq, Gabon

Non-Gavi MICs are home to 11% of MCV1 unvaccinated children

Several countries don’t meet GVAP equity targets (DTP3), among these: Peru, Philippines, Iraq, Venezuela, South Africa, Colombia

Data source: surveillance DEF file. Data in HQ as of 9 March 2015

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. ©WHO 2015. All rights reserved.
Non-Gavi MICs represent an important share of unvaccinated children with NUVI

Share of PCV unvaccinated children (Global total: almost 1 billion unvaccinated)

- Non-Gavi MICs 32%
- Gavi-eligible MICs 38%
- Gavi-graduating MICs 8%
- LIC 16%
- HIC 6%

Main drivers of unvaccinated children by PCV introduction status

- Countries that have not introduced PCV: China, Egypt, Iran, Iraq, Algeria
- Countries that have introduced PCV: Philippines, Guatemala, South Africa, Mexico, Dominican Republic
- Only 27 non-Gavi MICs have introduced PCV

Unvaccinated children are calculated using WHO-UNICEF coverage estimates (WUENIC, 2013) and surviving infants (2012) from all countries, not just those that have introduced the vaccine. Actual number of global PCV unvaccinated children = 99,723,971.
Non-Gavi MICs represent an important share of preventable morbidity and mortality

<table>
<thead>
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<tr>
<td>Non-Gavi MICs represent 10% of global pneumococcal pneumonia deaths 67% of these deaths are in non-Gavi MICs that have not introduced PCV</td>
<td>Non-Gavi MICs represent 13% of global pneumococcal disease and deaths</td>
<td>Non-Gavi MICs represent 20% of global pneumococcal pneumonia cases 75% of these cases are in non-Gavi MICs that have not introduced PCV</td>
</tr>
</tbody>
</table>

- **Global total:** 348,000 deaths
- **Global total:** 13.4 million cases

Source: TRIVAC v.2.0 (2015), based on unpublished country-level 2008 Global Burden of Disease estimates
Baseline year uses WHO CHERG data for deaths from diarrhea, measles, meningitis, and pneumonia. Estimates of VPD growth calculated using the compound annual growth rate of the growth in birth cohort.

Over time, the number of non-Gavi MICs will grow along with the share of VPD.

63 non-Gavi MICs

76 non-Gavi MICs

75 non-Gavi MICs

Nigeria graduates

Without India
Non-Gavi MICs have relatively strong systems to build upon
Small investments now could make a difference

A shared middle income countries strategy

TANIA CERNUSCHI, World Health Organization
GIAN GANDHI, UNICEF Supply Division

SAGE MEETING, APRIL 2015
THANK YOU