Lower-middle income countries: study results on adoption and financing of new vaccines

SAGE
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Geneva

Marty Makinen, Principal and Managing Director
Organization of presentation

- Background
- Why LMIC new vaccine adoption?
- Study TORs
- Methods: country case studies, key informant interviews, quantitative analyses
- Limitations
- Findings from country cases, industry interviews, and quantitative work
- Summary of what is new
Background

WHO/Gates LMIC New Vaccine Adoption Study

- Overseen by Bill and Melinda Gates Foundation and WHO
- Advisory Group provided guidance and support
- Study implemented by Results for Development Institute (R4D), Washington, DC
- Began in November 2009, nearing completion
Study Advisory Group

- Gian Gandhi, GAVI Secretariat
- Rana Hajjeh, US CDC
- Jan Hendriks, Netherlands Vaccine Institute
- Akira Homma, DCVMN
- Miloud Kaddar, WHO
- Steve Landry, BMGF
- Rob Matthews, UNICEF SD
- Violaine Mitchell, BMGF
- Ezzedine Mohsni, EMRO
- Jaco Smit, IFPMA
- Gina Tambini, PAHO
LMICs

- World Bank definition: 2008 GNI/capita $976 - $3,855
- Population 3.8 billion (1.4 billion excluding China and India)
- Birth cohort 76 million (33 million excluding China and India)
- Unlike LICs, most do not receive GAVI funding
LMIC Hib adoption

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<tr>
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<td>No. of countries</td>
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<td>Birth cohort (millions)</td>
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LIC Hib adoption

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<td>29 (81%)</td>
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**Hib adoption: comparing LICs and LMICs**

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NIP performance in LMICs

Coverage generally high

DTP3 coverage by class among LMICs

- ≥90%: 27 countries
- 80-89%: 12 countries
- 70-79%: 9 countries
- <70%: 7 countries
Terms of Reference

Purpose:
- Determine constraints to adoption of new vaccines in LMICs and options for addressing constraints

Objectives:
- Identify and analyze constraints
- Formulate solutions
- Prioritize strategic interventions
- Analyze impact of increased LMIC demand

Focuses:
- LMICs not eligible for GAVI support or graduating from GAVI support
- Vaccines: Hib, Pneumo, Rota, and HPV
Rationale for country case selection

- Regional balance
- Lessons from selected UMICs
- Mix of adopters/non-adopters of Hib
- Include some GAVI graduating countries
- Select AMR countries not included in a PAHO study
- India on initial list, replaced by Indonesia
Data collection

Country Studies
Country case studies

- Interviews with 5-10 key informants
- Vaccine adoption decision making
- Regulatory system
- Financial allocations
- External support
- Vaccine suppliers
- Lessons, suggestions
Data collection

Expert Consultations

- Immunization program experts (20)
- Vaccine manufacturers (10 total: 5 IFPMA, 5 DCVMN)
- Regional Working Group members
- Procurement agencies (UNICEF, PAHO)
Data analysis

• Kaplan-Meier survival functions
  – Plotting countries adopting from time of availability
  – Samples: UMICs, LMICs, and LICs

• Cox survival model regressions
  – Dependent variables: time from availability of pre-qualified Hib and Hep B vaccine to adoption
  – Independent variables: measurable factors hypothesized to affect decisions
  – Samples: LICs+MICs; MICs only
Limitations

- Much of information collected and analyzed is observational
- Selection of countries non-random, rather it was deliberate
- Many factors hypothesized to affect adoption decisions not measurable
- Access limited to some sensitive data
Status of study

Complete components

- All country case studies, manufacturer interviews, and global vaccine expert interviews
- Third draft report on country and global expert interviews following AG input
- Draft section on findings from manufacturers
- Draft quantitative analysis
- Session on preliminary results at NUVI in June
Status of study

Components to be completed

• Report to SAGE (November 11, 2010)
• Integration of manufacturer interview results and quantitative analysis with country and global expert information
• Analysis of impact of projected faster adoption on vaccine markets
### Summary of findings from countries

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<th>Country</th>
<th>Epidemiology</th>
<th>Cost-effectiveness</th>
<th>Budget for vaccines</th>
<th>Price</th>
<th>WHO Recommendation</th>
<th>Engagement by Glob./Reg. Orgs</th>
<th>UNICEF or PAHO procurement</th>
<th>Neighbors’ experience</th>
<th>NIP strength</th>
<th>Local production</th>
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Matrix used to analyze findings across countries – to be shown in detail in following slides
Summary of findings

LMIC vaccine decision-making is deliberate and rational

Grouping of factors in country decision making:
- Factors important in the majority of countries
- Factors important in multiple countries
- Other factors mentioned by countries
- Hypothesized factors of small importance
Summary findings

Factors important in the majority of countries (max. 15)

- Local epi evidence
- WHO recommendation
- Budget for vaccines
- Cost-effectiveness
- Price
These three items are interconnected in terms of costs, prices, value, and financing.
Summary of findings

Factors important to multiple countries (max. 15)

- Neighbors' experience
- Use of pooled procurement
- Engagement by Reg/Glob Orgs
Summary of findings

Other factors mentioned by countries (max. 15)

- Champions
- MDGs
- Vaccine safety
- Local events
- Local production
- NIP Strength
- Private markets
Summary of findings

Hypothesized factors of small importance to countries

• Vaccine characteristics
• Media
Summary of findings

Industry perspective

• LMICs important—but LMICs not seen as a single market
• No capacity constraint to meeting demand from LMICs outside India and China (latter are special cases)
• IFPMA members appreciate UNICEF SD for forecasting, multi-year contracts, standard requirements
• DCVMN members want more tech transfers
• Wish to preserve ability to pursue company pricing strategies (for IFPMA members “tiered pricing”)
Summary of findings

Industry perspective

• Pools provide advantages to industry - simplify marketing, standardize products, allow large volumes
• DCVMN members feel disadvantaged by some LMIC regulatory practices and lack of presence
• DCVMN members mainly focused on domestic markets, but working to enter MIC and HIC markets
• Believe budget availability, political commitment, and program performance more important than price in country adoption decisions - worry about GAVI grads
Summary of findings

Quantitative analysis results

Kaplan-Meier survival functions

- Hep B
  - UMICs and LMICs adopted at statistically similar rates, significantly faster than LICs
  - LICs began to catch up following start of GAVI

- Hib
  - UMICs adopted faster than LMICs and LICs that adopted at statistically similar rates
Summary of findings

Quantitative analysis

Cox survival model regression analysis of years to adoption of Hep B and Hib vaccines

• Measurable independent variables:
  • Income, NIP strength, region, govt health spending, govt immunization spending, line-item, BOD evidence, Hep B and meningitis BOD, neighbors’ adoption

• Analyses conducted for: (1) MICs and (2) LICs and MICs together
Summary of findings

Quantitative analysis results

Significant positive associations with vaccine adoption in *multiple* analyses:
- Adoption by neighbors (HepB across income groups)
- Strength of NIP (LMICs/LICs across vaccines)
- AMR countries (Hib across income groups)

Significant positive associations in *only one* analysis:
- Income level
- Line-item for immunizations
- WPR countries
- EMR countries
So what is new?

1. Cost and price-related issues (CEA, prices/budgets) important to LMICs – they assume they have to pay and are concerned about value for money and sustainability

2. LMICs take epidemiological evidence seriously, yet don’t invest much in gathering high-quality data. There is little to no inter-country cooperation or collaboration

3. There is awareness of neighbors adoption decisions and an element of competition

4. No readily available and complete information source, especially concerning prices, vaccine availability, procurement options, and market dynamics
So what is new?

4. Decisions are made at high levels of MOHs (and beyond) and focused on disease reduction with an integrated prevention and treatment approach – not a simple adopt/do not adopt vaccine decision taken at NIP Director level

5. NITAGs growing in importance, have even greater potential to influence decisions

6. GAVI graduates uncertain about whether they can sustain financing, even though other peer LMICs are doing so

7. No one-size-fits-all approach possible for this diverse set of countries
Thank you.

Questions?
LMIC GAVI eligibility in 2011

2008 LMIC, GAVI ineligible
2008 LMIC, GAVI eligible
LIC + LMIC Hib adoption

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Advisory Group involvement

- Advice on methods
- Input into selection of countries
- Identification of key informants
- Providing documents, data, and introductions
- Tracking progress (monthly phone calls, NUVI face-to-face)
- Assisting with decision making along the way
- Review and comment on draft reports
- Assistance with prioritizing recommendations
Background

Relevance to SAGE

November 2008 SAGE:

“WHO conduct further situation analysis of financial challenges for low and middle-income countries and consultation with countries concerned & partners to distil issues to more actionable activities”.

2008 WHA requested the DG:

“To collaborate with international partners, donors as well as vaccine producers to mobilize necessary resources to support low income and middle income countries with the aim of increasing supply of affordable vaccines of assured quality”.