Use of GVMM Data in decision making

June 2022
Wrik Ghosh, Lena Stashko, Yvonne Teng
## Agenda

<table>
<thead>
<tr>
<th>Item</th>
<th>Content</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>- Current industry vaccine market resources and tools</td>
<td>5 min</td>
</tr>
<tr>
<td><strong>GVMM Methods</strong></td>
<td>- The Global Vaccine Market Model (GVMM)</td>
<td>20 min</td>
</tr>
<tr>
<td></td>
<td>- Demand forecast methodology and scope</td>
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<tr>
<td><strong>Using GVMM</strong></td>
<td>- How to access and log into GVMM</td>
<td>10 min</td>
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<td></td>
<td>- Case studies</td>
<td></td>
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<tr>
<td><strong>Further Use of GVMM</strong></td>
<td>- HPV strategy</td>
<td>10 min</td>
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<td></td>
<td>- Measles to MR transition</td>
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<tr>
<td><strong>Q&amp;A</strong></td>
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<td>15 min</td>
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</table>
Many global health organizations help vaccine manufacturers understand their role in supplying key public vaccine markets by providing a range of useful resources and interactions.

Public Documents

Gavi Roadmap Summaries

WHO MI4A Market Studies

Industry Outreach

Annual UNICEF Industry Consultation

Bi-annual VMD Convening

Vaccine Market Dynamics Convening 2018

Joint Industry Roadshow

Individual Supplier Meetings
## Vaccine Market Dynamics Data Tools

A list of important public data sources for suppliers to understand the supply, demand, pricing, usage and coverage dynamics across vaccines

<table>
<thead>
<tr>
<th>Category</th>
<th>Source Name (Source Link)*</th>
<th>Antigen</th>
<th>Supply</th>
<th>Demand</th>
<th>Price</th>
<th>Supplier</th>
<th>Country</th>
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<tr>
<td>Multiple</td>
<td>Linksbridge Global Vaccine Market Model</td>
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<td>Demand</td>
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<td>Gavi Detailed Product Profiles - DPP (<a href="#">Link</a>)</td>
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<tr>
<td>Product Profile</td>
<td>WHO PQ List (<a href="#">Link</a>)</td>
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<td>Intro &amp; Usage</td>
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<td>✔️</td>
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<tr>
<td>Price &amp; Supply</td>
<td>WHO MI4A/V3P Database (<a href="#">Link</a>)</td>
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* List is not exhaustive
The Global Vaccine Market Model (GVMM)

GVMM is a vaccine market resource compiling public and private information from the Gates Foundation, CDC, CHAI, PAHO, PATH, UNICEF, WHO and other sources that is managed and curated by Linksbridge, SPC.
Module #1: Countries
Includes country population and current and projected country income and Gavi eligibility status

Content:
• UNPD estimated birth cohort
• IMF projected GDP per capita
• Gavi co-financing status
• For all countries in the world
• By WHO region, World Bank status, and Gavi eligibility

Notes:
• Updated for users—so they don’t have to
• Includes Gavi board decision monitoring etc. for changes to status policies
• Public and privileged source data only
Module #2: Demand

Demand, also referred to as Total Required Supply (TRS) for all vaccines for all countries 2000–2040, with a focus on routine immunization and partial information on campaign, outbreak and stockpile vaccines.

Content:
- Global public demand for vaccines for the period 2000 through 2040
- Includes known new vaccine introductions and product replacements
- Special section on Covid-19 demand
- Private, traveler, military and hospital markets included

Main sources:
- WHO/UNICEF Joint Reporting Form
- MI4A Vaccine Purchase Data
- Gavi Strategic Demand Forecasts
- UNPD World Population Prospects
- Stochastic consensus vaccine introductions estimate
- Media monitoring at https://pharmanews.linksbridge.com
- Partner intel
- European CDC
Module #2: Demand

Demand by country, by vaccine is forecasted for each year based on the immunization schedule as reported by countries or projected for new vaccine introductions.

### Target Population
- Population by country, year of life, and sex
- Country-reported target age from JRF
- Planned and projected new introductions as indicated by countries or from partner consultations

### Number of Doses
- Country-reported immunizations schedule as reported in the JRF
- Planned and projected new introductions based on WHO recommended schedule

### Coverage/Uptake Analog
- WUENIC coverage estimates (historical) for BCG, DTP1, and MCV1 for RI only
- Coverage type applied based on target age
- Projected as: if coverage <70% then 3% annual increase; 1% annual increase up to 90% (or highest historical if >90%)
- For new intros, uptake is applied (80% in year one)

### Vaccine Wastage
- Based on doses per vial and presentation
- Standard wastage rates from WHO, unless country-specific wastage is available

### Buffer
- Buffer is added only in the calculation of demand for routine immunization
- It is most important for the introduction of new vaccines when countries are building stocks
- Calculated as demand in year X minus the demand in year X-1 multiplied by 25%
Module #3: Products and Supply
Marketed, prequalified, and pipeline vaccines across manufacturers aggregated from multiple sources

Contents:
- Vaccine products:
  - Pipeline
  - Marketed
  - PQ’d
  - Covid-19 pipeline and capacity
- Supplier:
  - Capacity
  - Time to market
  - PTRS discount

Main sources:
- Subscription data
- WHO PQ list
- Public procurement data
- Weekly media monitoring
- Company websites
- Donor investments (mostly confidential)
- Supplier validation *(Efficient Markets project)*

Note: Details down to company-level are not available to maintain confidential information.
Module #4: Pricing
Vaccines bought by major procurers and countries since 2000

Contents:
• Pricing reference data 2000-2021
• GVMM pricing model 2022-2040 with price tiers as:
  – USA
  – Super HICs
  – HICs
  – UMICs
  – China
  – Other LMICs
  – India
  – PAHO
  – UNICEF
  – Private markets

Main sources:
• CDC
• PAHO
• UNICEF Supply Division
• MI4A (formerly V3P)
• Company press releases and media monitoring
• Country research for 17 countries including Brazil, Russia, India, China and South Africa
• GVMM Private Markets module
Module #5: Share

Revenue and volume share of global and Gavi vaccine markets per company type

Contents:
• Estimated share of global and Gavi vaccine market volumes and revenues based on GVMM analysis

Main sources:
• Gavi public roadmaps
• UNICEF market notes
• MI4A market studies
• Company financial reports
• Media monitoring
• Country lot release data
• Donor information (confidential)
• Supplier validation (through Efficient Markets)

Note: Details down to company-level are not available to maintain confidential information.
Where does GVMM get resources and data from?

Entities contribute as financial or in-kind funders, as data collaborators, source data providers, and discounted subscription providers

<table>
<thead>
<tr>
<th>Funders/In-kind</th>
<th>Program Partners</th>
<th>Main Public Sources</th>
<th>Subscription/Media</th>
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</thead>
<tbody>
<tr>
<td>Bill &amp; Melinda Gates Foundation</td>
<td>[Clinton Health Access Initiative logo]</td>
<td>CDC, Gavi, [National Academy of Sciences logo]</td>
<td>[GlobalData logo]</td>
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<tr>
<td>linksbridge</td>
<td>Duke University</td>
<td>IHME, [National Academy of Sciences logo]</td>
<td>[LexisNexis logo]</td>
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<tr>
<td>PATH</td>
<td>PATH</td>
<td>Pan American Health Organization, Johns Hopkins University</td>
<td>[The World Bank logo]</td>
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<tr>
<td>Tableau Foundation</td>
<td></td>
<td>World Health Organization</td>
<td></td>
</tr>
</tbody>
</table>
GVMM: A Vaccine Market Dynamics Data Resource

The Global Vaccine Market Model (GVMM) gives you direct access to timely, consistently-updated vaccine markets datasets that industry can query itself, analyze and download

1. Data offered is subset of **Global Vaccine Market Model (GVMM)** information already available and used by global health actors

2. Easily accessible **datasets** provided
   - That industry can **query itself online** and carry out own analyses
   - Or **download** to analyze in companies’ own preferred tool

3. **Regularly updated** when new intelligence comes in
Accessing and Using GVMM
In 2019, Linksbridge launched a data-sharing initiative to provide GVMM data to DCVMs to support better supply and demand planning, in exchange, DCVMs provide data validation and intelligence support.

### Efficient Markets: A GVMM Data Access Initiative

<table>
<thead>
<tr>
<th>Level</th>
<th>Data User Receives</th>
<th>Data User Provides</th>
</tr>
</thead>
</table>
| Level 5 | ▪ Share estimates  
▪ Private market estimates                           | ▪ Validates share and pricing estimates                  |
| Level 4 | ▪ Access to products module                            | ▪ Validates capacity estimates  
▪ Dialog on goals                                        |
| Level 3 | ▪ Access to pricing module                             | ▪ Country registrations                                 |
| Level 2 | ▪ Global demand data by country  
▪ Market value by product by WB income group             | ▪ User validates pipeline and markets products           |
| Level 1 | ▪ Countries reference data  
▪ Global demand data by WB income group                  | ▪ No requirement                                         |
How to Access GVMM

1. To set up free GVMM access, please send an email to gvmm@linksbridge.com with the names and email addresses of who you would like to request access for in your company.

2. In your email request, please also indicate if you would like to have Level 1, 2, or 3 access.

3. Level 1 access is available to all and requires no further steps.

4. If you indicate that you would like to access Level 2 and Level 3 content, we will respond with further instructions for you to provide information for access.
Accessing GVMM (Live Demonstration)

data.linksbridge.com

Case Study [Level 2]

- What is the forecasted market demand for MR for UMICs over the next 5 years?
- What is the value of the overall HPV market for UMICs over the next 5 years?

Case Study [Level 3]

- What is the forecasted average price of PCV for UMICs over the next 5 years?
Further Use of GVMM
Further Use of GVMM

The GVMM database allows you to conduct your own analysis to answer your market needs. However, if you have more specific questions, partners such as Linksbridge or CHAI can support with the further discussion and interpretation of the data.

**Gavi 73: HPV Demand** *(Sample analysis produced from GVMM)*

![Graphs showing Single-Dose Strategy Demand and Elimination Demand for HPV2/4 and HPV9 across years 2020 to 2030.](chart)
Further use of GVMM with CHAI

Example: Expected Switch from Measles to MR vaccines for Gavi Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Expected RI Intro</th>
<th>Annual Demand (doses, M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comoros</td>
<td>2022</td>
<td>0.5</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>2022</td>
<td>1.1</td>
</tr>
<tr>
<td>Liberia</td>
<td>2022</td>
<td>2.7</td>
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<tr>
<td>Mali</td>
<td></td>
<td>11.6</td>
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<tr>
<td>Niger</td>
<td></td>
<td>14.7</td>
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<tr>
<td>Ethiopia</td>
<td>2023</td>
<td>26.9</td>
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<tr>
<td>Sudan</td>
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<td>23.5</td>
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<tr>
<td>Congo, Dem. Rep.</td>
<td>2024</td>
<td>43.9</td>
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<tr>
<td>Madagascar</td>
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<tr>
<td>Afghanistan</td>
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<td>20.1</td>
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<tr>
<td>Central African Republic</td>
<td>2025</td>
<td>3</td>
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<td>Guinea</td>
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<td>6.9</td>
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<td>South Sudan</td>
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<td>Chad</td>
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<td>Djibouti</td>
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<td>Pakistan</td>
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<td>79.3</td>
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<tr>
<td>Somalia</td>
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<td>9.9</td>
</tr>
<tr>
<td>Nigeria</td>
<td>Uncertain</td>
<td>59.9</td>
</tr>
</tbody>
</table>

**Context:**
- Majority of countries using Measles vaccines are Gavi countries
- Expected switch from Measles to MR vaccines based on timelines in GVMM
- Annual demand in year of switch comprises RI and campaign demand

**Using Data:**
- Inform timelines for country registrations
- Plan capacity and requirements for long-term planning
- Form expectations and strategy for markets in the future

CHAI can support discussion and interpretation of GVMM data to inform your strategy and decision-making

Contact Wrik Ghosh ([wghosh@clintonhealthaccess.org](mailto:wghosh@clintonhealthaccess.org)) to discuss how CHAI may be able to support you
GVMM: the Vaccine Almanac

The Vaccine Almanac is a catalog of the data available in GVMM – reach out to receive a free copy in your inbox.
THANK YOU!

Please don’t hesitate to reach out if you have any further questions

wghosh@clintonhealthaccess.org  Lena.stashko@linksbridge.com  Yvonne.teng@linksbridge.com