Global Immunization Overview

An Update on Accelerated implementation of the Global Vaccine Action Plan (GVAP)

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SAGE meeting, 25 April 2017
Outline

Accelerated GVAP implementation at global and regional levels
- Access and Coverage
- Supply chains
- Data quality

Immunization in global health agendas
- Vaccines & Anti-Microbial Resistance
- Vaccines & Health security

Ways forward
- GVAP Leadership meeting
- GVAP at WHA and Regional Ministerial meetings
- Transition at WHO
WHO campaign website

WIW digital hub
thesocialpresskit.com/vaccineswork

5 FACTS ON VACCINES
There's a lot of conflicting information out there about vaccines. Question what you read and hear — and understand the facts.

1. Vaccines are safe and effective.
Any licensed vaccine is rigorously tested before it is approved for use, regularly reassessed and constantly monitored for side effects. In the rare event a serious side effect is reported, it is immediately investigated.

2. Vaccines prevent deadly illnesses.
Vaccination protects children from diseases like diphtheria, measles, mumps and pertussis (whooping cough). Failure to vaccinate leaves children and adults vulnerable to diseases, complications or even death.

3. Vaccines provide better immunity than natural infections.
The immune response to vaccines is similar to the one produced by natural infection but less risky. For example: natural infection can lead to cognitive impairments from Haemophilus influenzae type b (Hib), birth defects from congenital rubella infection or irreversible paralysis from polio.

4. Combined vaccines are safe and beneficial.
Giving several vaccines at the same time has no negative effect on a child’s immune system; reduces discomfort for the child; and saves time and money. Children are exposed to more antigens from a common cold than they are from vaccines.

5. If we stop vaccination, diseases will return.
Even with better hygiene, sanitation and access to safe water, infections still spread. When people are not vaccinated, infectious diseases that have become uncommon – diphtheria, measles, mumps and polio – quickly reappear.
Immunization Week in the 6 regions

AFR: Vaccines protect everyone, get vaccinated!
AMR: #GetVax to celebrate a healthy tomorrow!
EMR: #Vaccines work
EUR: #Vaccines work
SEAR: #Vaccines work
WPR: Vaccination is everyone’s job. Protect our children, protect our community
Malaria Vaccine Pilot Implementation
Progress to date

$52.1m secured for phase 1 (2017-2020)

Coordinating mechanisms being set up

Country selection and field implementation planning initiated (Malawi, Kenya, Ghana)

Joint regulatory review initiated

Master protocol for evaluation developed
ACCELERATED GVAP IMPLEMENTATION
GVAP mid-term report: some progress, but too slow to achieve goals

**POLIO:**
Number of new cases of paralytic poliomyelitis due to wild poliovirus

- **2010:** 359 cases, 9 countries
- **2015:** 79 cases, 2 countries

**2015 TARGET:** 0 cases

**MATERNAL AND NEONATAL TETANUS ELIMINATION:**
Number of countries verified for elimination

- **2015 TARGET:** 40 priority countries
- **2015:** 22 priority countries

**COVERAGE AND EQUITY:**
Number of countries with national vaccination coverage of 90%, with no district’s coverage less than 80%

- **2015 TARGET:** 194 countries
- **2015:** 126 countries achieved 90% national coverage for DTP3
- **2015:** 52 countries achieved 90% national coverage and no districts coverage less than 80% for DTP3

**MEASLES:**
Number of WHO regions to achieve measles elimination

- **2010:** 1 region achieved measles elimination
- **2015 TARGET:** at least 4 WHO regions
- **2015:** 1 region achieved measles elimination

**RUBELLA:**
Number of WHO regions verified for rubella and CRS elimination

- **2010:** 0 regions
- **2015 TARGET:** at least 2 WHO regions
- **2015:** 1 region achieved rubella elimination
Infants in the world according to their DTP3 vaccination status, 2015

- 116.1 M vaccinated (86%)
- 5.9 M to complete their schedules
- 13.5 M never reached

Source: JRF 194 WHO Member States. Updated on 18 July 2016
Tackling the top operational challenges

Access & missed opportunities for vaccinations

Vaccine & supply chain management

Availability and use of quality data at all levels
The Reaching Every District’s (RED) strategy revisited!

- Planning and management of resources
- Monitoring and use of data for action
- Supportive supervision
- Engaging with communities
- Reaching the target populations

Measles vaccination coverage DRC, 2016

- CV < 50%
- 50% >= CV < 80%
- 80% >= CV < 95%
- CV >= 95%
The AFRO revised “RED” guide

Emphasis on reaching equity in Immunisation *(new)*
- Targets: marginalized populations ie urban poor, migrants, ethnic/religious, etc...

Life course vaccination *(new)*
- Catch up on missed vaccination during 1st year of life
- “Routinize" 4th DTPc, MCV2, HPV

Integration of health services *(reinforced)*

HF and community level focus *(new)*
Addressing the “Missed Opportunities for Vaccinations” (MOVs) to close the coverage gaps

Proportion of eligible infants missed for vaccinations

Children with multiple contacts per year
Reducing MOVs: time for bold actions!

- MOVs guidance manuals available
- Training of consultants
- Strong partnership support secured
- 20 countries to apply new norm: “Every health contact, an opportunity to vaccinate”
19.4 million infants not immunized (DTP3), 2015

Immunization Vaccines and Biologicals, (IVB), World Health Organization.
194 WHO Member States. Date of slide: 28 July 2016.
Trends of DTP1/DTP3 doses administered and DTP3 coverage Pakistan, 2006-2015

Mapping Routine Immunization coverage (Admin vs Non-Polio Acute Flaccid paralysis – NPAFP)


Slide from Hil Lyons and Guillaume Chabot-Couture, Institute for Disease Modeling, Nov 2015
Progress update, Pakistan

• Strong political support (Federal/some provinces)
  – Gov financial contribution secured
  – Increased visibility and openness
  – Peer learning across provinces
  – Comprehensive EPI review for KP and Sindh in 2017

• PEI-EPI synergy and collaboration improving

• MNT elimination validated/Rota vaccine introduced in Punjab province

• Ongoing work to improve data quality work
IMMUNIZATION SUPPLY CHAIN AND LOGISTICS

A neglected but essential system for national immunization programmes

A CALL-TO-ACTION

For national programmes and the global community by the WHO immunization practices advisory committee
Effective Vaccine Management (EVM) global trends

120 EVM assessments reported from 83 countries in all regions.
Great improvements in Central Cold Chain Capacity, 2012-2016
Access to timely & affordable vaccine supply

**Lower priced vaccines in emergencies**
- ‘Humanitarian mechanism’ currently applied for PCV10 through MSF (Syria, South Sudan and Nigeria)
- GSK & Pfizer currently offering PCV at ~US$3 under mechanism

**Increasing Vaccine Price transparency**
- Vaccine prices available for 70% of the world in 2016
- For many vaccines, significant spread in prices across different markets

**Addressing vaccine shortages**
- To pre-empt and manage vaccine shortages and enhanced access
- Current prototypes: BCG and D/d & T containing vaccine
Access to timely and affordable vaccine supply

Supply-Demand Balance

In 2017 available supply of BCG is expected to be 1.5X greater than forecasted demand. Given instability of the BCG manufacturing process, this extra supply is sufficiently managing and confirms important progress relative to a balanced supply-demand balance in recent years. Nevertheless, the BCG market is not risk free. Two main factors contribute to the risk:

- Supply concentration: two suppliers represent 50% of global vaccine supply and importantly, 75% of supply of product POI by UNICEF. The loss of a major supplier would not lead to a supply/demand imbalance, but certainly to a constrained supply situation requiring careful management. In those circumstances vaccine requirements for self procuring countries and countries procuring through UNICEF will need to be coordinated. Of note, the two major suppliers are released by the same National Regulatory Authority (NRA) - India.

- Limited demand flexibility: one third of countries have only one production line and/or a result may be at risk for shortages should a production issue occur. Among those, this is most at risk for countries with BCG in the EPI schedule, a large batch order and then report and thus have less control or visibility on production issues and risks.

Pricing

Over the past ten years, the price for BCG has remained low - the median reported price in 2015 was US$0.52 (range 0.04-15.00) for 29 reporting countries plus UNICEF and PRH, each included as a single price point. Pricing data (2013) for self procuring countries shows that price per dose varies by income level, with high income countries (HIC) paying significantly more than middle income countries (MIC), albeit for different product/ presentations. Disparity by region is also seen, notably, MICs in Africa reported a much higher price per dose than EUR or WPR for the same product. Countries excluding WHO WPR excluded are paying up to 30X more than the UNICEF price. That said, country affordability has not been raised as an issue for the BCG market.

Recommendations

Global immunization stakeholders, countries, and manufacturers can work to enhance sustainable access to BCG supply by pulling four levers:

- Collect and share information on global demand, supply, and pricing of BCG to continue risk identification and problem solving
- Enhance supply management at country-level expanding procurement volumes when necessary
- Create opportunities for registration of several BCG products in each country and for accepting fast track procedures for POI products
- Investigate the possibility of shortening production processes of a few key manufacturers for supply security

Data Sources

Strategic regional consultations (current): WHO/UNICEF Joint Reporting from UN reports to UNICEF

Demand: historical procurement data relevant (JRF and UNICEF) and global demand forecast (World Health Organization Global Vaccine Market Model)

Supply: Nine manufacturers (including the first POI), 29 published articles, and fair policy papers concerning supply, UNICEF SD supply updates, JRF procurement data, PRH Revolving Fund contributions

Pricing: historical data relevant (WHO Vaccine Product, Price and Procurement database V3.0, UNICEF SD, PRH Revolving Fund)
Strengthened coordination with DHS/MICs and with DHIS-2

Reference Guidance:
- Reference manual for improved quality and use of coverage surveys
- Routine immunization module in DHIS-2
- Electronic Immunization Registries Guide (AMR)

Capacity building Workshops:
- Data workshops for National and subnational managers
- Desk review of 2016 cov data for all countries in AFR
- Consultants training

Identification and Outsourcing to collaborating institutions

- Support to national DQ assessment and coverage surveys
- New in JRF: collection of subnational data at global level in 2017
Monitoring Laboratory Performance by External Quality Assessment (EQA) Programs

**Rotavirus EQA (2016)**

- **Performance for RV Diagnosis by EIA**
  - 119/119 (100%)

- **Performance for RV Diagnosis by Genotyping**
  - 53/60 (88%)

Includes 19 China provincial labs, 7 Indian labs, 65 NLs, 9 RRLs, and 19 SSLs that participated in the 2016 Rotavirus EQA.

- Passing score cutoff for both EIA and genotyping for RRLs: 90% all other labs: 80%

**IBVPD EQA (2016)**

- **Performance for IBVPD Diagnosis**
  - 100/116 (86%)

Includes 9 RRLs, 25 NLs, and 82 SSLs that participated in the 2016 EQA that tested for Gram stain, culture ID, and genotypic ID (when applicable).

- Passing score cutoff for RRLs: 90% SSLs and NLs: 75%
7/12 AFRO countries published results showing early impact of rotavirus vaccination in Africa and rotavirus; Sup 2 CID vol 62, May 2016
Our data work urgently requires improved partners’ coordination and funding

Main challenges

Data not always available, complete or detailed enough
Data not always reliable, consistent over sources
Lack of “data use culture” and use for decision making
Inefficient information systems

Global level Governance on DQ

- Agree on a vision and on critical global and regional indicators
- Agree on data collection & sharing with Member States and across partners
- Define the role of SAGE and participating agencies

Adequate Financing

- Support both immunization and surveillance data systems
- Support All countries including non Gavi MICs, in the polio transition context
VACCINES IN GLOBAL HEALTH AGENDAS
AMR, a global health threat

- 50,000 deaths in the US and Europe due to AMR costs $20 billion/yr
- Predict mortality due to AMR at 10 million/yr by 2050
- Greatest impact will be in developing countries
**Strategies for vaccines**

- Increased use of vaccines (PCV, HiB, pertussis but also influenza, rota)

- **R&D:**
  - Diseases where Antibiotics are less effective (TB, typhoid, STIs, etc)
  - Diseases treated with Antibiotics (GBS, GAS)

**Impact of vaccine on antibiotic resistant invasive pulmonary disease in children in SA**

![Graph showing impact of PCV7 and PCV13 on antibiotic resistance](image)
Emergency Yellow Fever vaccination in Brazil

PAHO support to NITAG, March 2017:

- Suspension of booster dose
- Protocol for use of dose-sparing approach in Rio de Janeiro (+Sao Paulo and Bahia, as needed)
- Universal YF vaccination for all children in Brazil for implementation in 2018.
WAYS FORWARD
The GVAP ‘Leadership Council’ meeting, Washington, DC, 21 Apr

- Pleased with progress in some areas; concerned with challenges in coverage and equity

- Sense of urgency in tackling GVAP shortcomings

- ‘Sherpas’ requested to come back with actions drawing from success and lessons from Polio Eradication and other immunization initiatives
GVAP at WHO Governing Bodies

• Executive Board, Jan 2017
  – Substantive discussion on GAVP Mid-term Report

• WHA, May 2017
  – GVAP Mid-Term Report *(Draft Resolution calls for reporting in 2020 and 2022)*
  – Polio transition
  – Technical briefing (high level panel)
AMERICAS: High level support to sustain the elimination of measles, rubella and CRS

• Strategy and Action Plan to sustain elimination to be presented for endorsement at the next Pan American Sanitary Conference (Sept 2017).

• Strategy Highlights:
  – Role of national commissions & annual reports to monitor sustainability.
  – Standardized mechanisms for rapid outbreak response in light of importations.
West Pacific to seek Member States endorsement of new plan for Measles and Rubella Elimination*

<table>
<thead>
<tr>
<th>Categories</th>
<th>Countries, Areas, Epidemiological Blocks**</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Verified as having achieved elimination</td>
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<tr>
<td>2</td>
<td>Achieved elimination but deferred verification (ongoing outbreak)</td>
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<tr>
<td>3</td>
<td>Approaching elimination, but with surveillance gaps</td>
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<td>4</td>
<td>Re-established transmission and Endemic measles virus transmission</td>
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* TAG recommendation: WHO to finalize the drafting of a new regional strategy and plan of action in collaboration with TAG, NIPs and partners

** as of Sept 2016
EUROPE: GUIDANCE WELL RECEIVED BY MEMBER STATES

Recent EURO price transparency work, demand & acceptance support, financial sustainability focus and establishment of Hep B verification and control programme

Targeted interventions in measles and rubella endemic countries and verification of the elimination at country-level leading to increased focus on elimination efforts by Member States

Steady progress made in M&R elimination (~70% MS have interrupted &/or eliminated)
AFRICA: Highest level support to Universal Vaccination

• African Union Summit endorses the Declaration on “Universal Access to Immunization as a Cornerstone for Health and Development in Africa”

• Roadmap to support the implementation of the Declaration finalized.
WHO Business Case for Immunization on the African Continent – Ambitions and Timeframe

<table>
<thead>
<tr>
<th>Business Case ambition</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
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<tbody>
<tr>
<td>Define objectives of Advocacy document and Model</td>
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<td>Identify donors and their motivations</td>
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<td>Define Key Success Factors</td>
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<td>Conduct secondary and primary research on VPDs</td>
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<td>Workshop 1 Market overview and interventions</td>
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<td>Assess and map existing interventions</td>
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<td>Develop model of current financial costs and economic benefits</td>
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<tr>
<td>Identify and categorize alternative options</td>
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<td>Workshop 2 Financial analysis and options</td>
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<tr>
<td>Define implications for each option</td>
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<tr>
<td>Enhance model to incorporate alternatives</td>
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<tr>
<td>Assess risks, social and systems impact</td>
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<td>Workshop 3 Roadmap</td>
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<td>Define governance and stakeholders engagement</td>
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<td>Build a high-level roadmap and timeline</td>
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<td>Formulate an action plan to raise funds</td>
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<tr>
<td>Finalize the business case with areas for customization</td>
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<td>Finalize the impact model</td>
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<tr>
<td>WHO feedbacks and Final document</td>
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Validation & Finalization

- Project Committees & Weekly check-ins
- Steering Committees

- Ad-hoc project introduction
- #1
- #1
- #1
- #1
- #2
- #2
- #2
### Transition planning in India – progress so far

Priority public health needs for potential support by polio workforce (identified jointly by government and WHO)

<table>
<thead>
<tr>
<th>Public health needs</th>
<th>Area identified by</th>
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<tbody>
<tr>
<td>Polio</td>
<td>GoI, WHO</td>
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<tr>
<td>Routine immunization, introducing and scaling up new vaccines &amp; health system strengthening</td>
<td>GoI, States</td>
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<tr>
<td>Urban health</td>
<td>GoI</td>
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<tr>
<td>Measles elimination &amp; rubella control</td>
<td>GoI, WHO</td>
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<tr>
<td>VPD surveillance</td>
<td>GoI</td>
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<td>NTD: Kala Azar, Lymphatic Filariasis, etc.</td>
<td>GoI, Affected states</td>
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<tr>
<td>Leprosy</td>
<td>GoI, Affected states</td>
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<tr>
<td>RMNCH+A</td>
<td>GoI</td>
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<tr>
<td>Malaria</td>
<td>GoI, Affected states</td>
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<td>IDSP</td>
<td>GoI/NCDC</td>
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<tr>
<td>Dengue, Chikungunya, Zika</td>
<td>GoI?</td>
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<tr>
<td>Emergency/Disaster preparedness</td>
<td>State government</td>
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Mapping of POLIO assets (HR & infrastructure), India
Where on the vaccine and immunization value chain is the WHO/IVB department involved?
Work areas and key outputs:

Monitoring and reporting on immunization programmes and vaccine preventable diseases
- Produce norms and standards for immunization and VPD surveillance data collection and use
- Collect, collate and disseminate national and subnational data
- Analysis, interpretation and visual representation of key immunization data

National information systems to guide immunization programmes
- Publish guidance on monitoring and assessing programme performance
- Provide guidance on use of innovative information and communication technologies and information systems

Surveillance of VPDs and vaccine safety supported by a well-functioning laboratory networks
- Provide country wide surveillance, safety and outbreak monitoring
- Provide sentinel site surveillance with impact monitoring
- Provide high performing laboratory networks to support surveillance and outbreak preparedness
The new Global Vaccine Framework
GVAP 2.0 by 2020!

Sustain current DoV momentum after 2020 with definition of a ”Global Vaccine and Immunization Framework” for the Decade 2021-2030

Timeline: aim for approval by WHA (May 2020)

Coordination: GVAP Secretariat to coordinate and monitor progress
SAGE: Selected topics on the horizon
(*tentatively planned for October 2017)

Cross-cutting

- GVAP monitoring of progress and plans for Global immunization strategy 2021-30*
- Quality and use of global immunization and surveillance data
- Use of vaccines in immunocompromised populations
- Vaccine health economics
- Strategies to reach older age groups
- Maternal vaccination
- Middle Income countries strategies
- Emergency vaccine development
- Heterologous prime-boost -issues for policy and use
- Combination products
- Optimizing immunization schedules
- .........

Vaccine specific

- Polio eradication*
- Measles and rubella elimination*
- Typhoid*
- Rabies*
- BCG*
- Pneumococcal conjugate vaccines*
- Influenza vaccines
- Meningitis B
- Rotavirus
- RSV
- Mumps
- .........
Conclusions

- “Smallpox has succeeded only because it reached beyond the established services and childhood immunization should do the same…” (R. Henderson in “Immunising the children of the world”, 2016)

- Meeting the GVAP goals requires working differently with a sense of urgency, sustained focus on reaching the goals and secured high level support!
THANK YOU!