October 2015 SAGE meeting

RUNNING ITEMS
- Global report
- Report from Gavi
- Report from other Advisory Committees on Immunization
  - Global Advisory Committee on Vaccine safety (GACVS)
  - Product Development for Vaccines Advisory Committee (PDVAC)
  - Implementation Research Advisory Committee (IMR-AC)
  - Immunization Practices Advisory Committee (IPAC)
  - Expert Committee on Biological Standardization (ECBS)

SPECIFIC TOPICS
- Global Polio eradication
- Ebola vaccines and vaccination
- Measles and Rubella vaccines
- Malaria vaccine - joint session with the Malaria Policy Advisory Committee (MPAC)
- Assessment of progress towards the Global Vaccine Action Plan
- Updates from International Immunization partners
Core message revolved around “closing the immunization gap”

– Vaccine research and development including:
  • unprecedented contribution to the development of Ebola vaccines
  • mention of the Global Vaccine & Immunization Research Forum
    (occurring in March 2016)

– Vaccine delivery and coverage
  • Closing the immunization gap and importance of continued partnerships
    as part of a people-centered platform to support quality immunization

– Regional achievements, challenges, and priorities
– Implementation of selected SAGE recommendations and
  agenda items on the horizon for future meetings
October 2015 SAGE meeting -
Global report: Regional updates

- **AFR**
  - Despite challenges due to Ebola, the immunization programmes in Africa achieved historic milestones towards certification of polio free status as there remains no polio endemic country.
  - Great progress was made in the region by introducing rotavirus vaccine as well as pneumococcal conjugate vaccine.
  - Strengthening routine immunization services remains difficult, including in Gavi graduating countries.

- **AMR**
  - Achieved key milestone of rubella elimination in August 2015.
  - Transmission of measles in Brazil ended.
  - Regional Immunization Action Plan (RIAP) approved by the Pan American Health Organization Directing Council.

- **EMR**
  - Ongoing Middle East geo-political situation inspires bold actions to maintain and increase access to vaccines.
  - SAGE expressed grave concern that humanitarian emergencies remain a barrier to full immunization and vaccine stock-outs pose a serious impediment to achieving high vaccination coverage.
October 2015 SAGE meeting - Global report: Regional updates

- **EUR**
  - Political commitment on implementation of the regional action plan observed.
  - Progress on measles elimination, with the lowest regional incidence since 2010, despite measles outbreaks in selected countries. Susceptibility in age-groups >=15 years of age is a problem.
  - In addition to vaccine shortages, a new challenge with arriving refugees, although, to date, no vaccine preventable disease outbreaks have occurred in this population.
  - EURO's activities in developing communication and advocacy tools on immunization were well received by countries.

- **SEAR**
  - Steady progress towards 2020 goals with heightened Regional coordination and accountability systems.
  - Progress with DTP3 coverage: most countries have already achieved 90% nationally. India has surpassed the 80% level for first time.
  - A second dose of measles containing vaccine will be introduced in all countries by end of 2015.
  - Peer-learning between countries fostered and all countries with National Immunization Technical Advisory Groups (NITAGs).

- **WPR**
  - SAGE noted with concern, that although there is some progress towards elimination, the high incidence of measles was worrisome, with large-scale outbreaks ongoing in Vietnam, Malaysia, China and the Philippines.
Globally, 90% coverage with first dose of DTP containing vaccine but coverage with third dose only 86%.

Vaccination coverage rates of newer vaccines, such as rotavirus and pneumococcal conjugate vaccine, remain very low (below 35% worldwide):
- in addition to coverage issues this reflects the delayed vaccine introductions in particular in large countries.

Checking immunization cards should be the norm to reduce missed vaccination opportunities.
3 steps to close the immunization gaps:
- Integrate immunization with other health services
- Strengthen health systems so vaccination programmes can continue through crises
- Ensure vaccines are accessible and affordable to all

Most unvaccinated infants in the world remain located in a few large underperforming countries. Data on missed opportunities, when provided to countries, could enhance country ownership and implementation of local solutions.

SAGE expressed its concerns linked with private sector engagement on provision of routine immunization. Despite possible beneficial effects in some countries these developments pose a threat to routine immunization in others and may induce changes in the epidemiology of a particular disease as in the case of varicella if inadequate vaccine coverage occurs.
SAGE emphasized the need to advance work on refining guidance in delivering continuous immunization services during humanitarian conflicts.

SAGE expressed the critical need to continue to advocate for the inclusion of an immunization target in the new sustainable development goals.

SAGE applauded the development of the framework that outlines WHO’s vision and mission in vaccines and immunization and called for its translation in support of the GVAP goals.
"WHO is working with partners to support all countries to deliver quality immunization services as part of an integrated, people-centered platform of disease prevention that spans the human life-course."

http://www.who.int/immunization/sage/meetings/2015/october/3_WHO_Vision_Final_Draft_WVAP_11Sept.pdf?ua=1
## WHO’s Vision and Mission in Immunization and Vaccines: core role

| Convene leaders and experts from all sectors | Establish norms and standards for products and technologies | Develop evidence-based policies and guidance | Facilitate synergies for disease prevention | Monitor and use data for analytics |

http://www.who.int/immunization/sage/meetings/2015/october/3_WHO_Vision_Final_Draft_WVAP_11Sept.pdf?ua=1
Framework strategy for 2016-2020 approved by Gavi Board in June 2015 has 4 goals:
1- Accelerate equitable uptake and coverage of vaccines;
2- Increase effectiveness and efficiency of immunization delivery as an integrated part of strengthened health systems;
3 - Improve sustainability of national immunization programmes;
4 - Shape markets for vaccines and other immunization products.
Four key elements of the new strategy:

- more proactive and country-tailored grant management;

- new partners’ engagement framework to provide targeted technical support to countries;

- engagement in 6 strategic focus areas including supply chain, data, improving sustainability beyond co-financing, vaccine demand promotion, political will and leadership, management and coordination;

- differentiated approach focusing on 20 priority countries.
In December 2015, Gavi Board will consider enhancing Gavi’s engagement to bring the elimination of measles and rubella back on track with a funding support of up to USD 800 million over 2016-2020.

Gavi continues to support the recovery of routine immunization and health systems in Ebola-affected countries. It is committed to stockpile Ebola vaccines as soon as one is approved, licensed, and recommended by WHO.

Following WHO’s recommendation on the use of the RTS’S malaria vaccine, the Board will provide guidance on potential support in this area.
At its June 2015 meeting, GACVS discussed:

- Review of safety monitoring of new vaccines - malaria, dengue, Ebola
- Methodological improvements on the Vaccine Safety Net (network of websites assessed for credibility, content, accessibility and design) and generation of information sheets describing the observed rates of vaccine reactions.

- Dengue vaccine:
  - Higher risk of hospitalized dengue cases among vaccine recipients aged 2-5 years in the Asian study.
  - Consistent protective effect among vaccine recipients aged >9 years in both Asian and Latin American studies.
  - GACVS highlighted the importance of understanding factors associated with the increased hospitalization risk among young children from the Asian study and to assess if the protective effect among older age groups is sustained over time.
At its June 2015 meeting, IVIR-AC discussed:

- research methods for community vaccine acceptance studies;
- non-specific effects of vaccines;
- polio vaccine modelling;
- the GVAP’s Decade of Vaccine Economics study;
- impact evaluation of hepatitis B vaccines;
- a pertussis impact modelling comparison study;
- a dengue vaccine modelling comparison exercise; and
- the development of guidance for the collection, assessment, and use of immunization data and analysis for EPI surveys.

SAGE requested IVIR-AC:

- assess optimal immunization schedules based on both direct and indirect effect
- explore research studies and methods including behavioural science studies for ranking reasons behind lack of vaccine delivery and other 'barriers to access'.
At its October 2015 meeting,

**IPAC discussed:**
- plans to gather evidence and develop guidance on a 2nd Year of Life Platform,
- new guidance on collecting, assessing and using immunization data,
- operational aspects of monitoring the switch to bivalent oral polio vaccine and sustaining maternal and neonatal tetanus elimination.

**IPAC endorsed:**
- a proposal to streamline and harmonize country programme assessments.
- development of a new method for estimating vaccine wastage rates used in vaccine forecasting, incorporating improved calculation of opened-vial vaccine wastage rates.
At its September 2015 meeting PDVAC reviewed a global pipeline analysis concerning 24 pathogens.

PDVAC noted the initiation of WHO’s Blueprint for Emergency R&D Preparedness and Research Response.

- Recognized that emerging pathogens need inclusion in the annual PDVAC pipeline analyses.
- Availability of specific data for decision-making on transition from pre-clinical to Phase 1 was recognized as an area to be included in their considerations.
October 2015 SAGE meeting – Report of the Product Development for Vaccines Advisory Committee (PDVAC)

- **Respiratory syncytial virus (RSV) vaccine:**
  - Progress towards Phase 3 trials and a pathway for 3rd trimester maternal immunization pre-licensure trials has been agreed upon.
  - Data indicating safety, immunogenicity, placental transfer to infants now available from clinical trials of a subunit RSV vaccine in pregnant women.
  - RSV session planned to inform SAGE in April 2016.

- **Group A&B streptococcal (GAS, GBS) vaccines:**
  - Technically feasible vaccine development using conjugated polysaccharide approach; substantial disease burden; vaccine would fit maternal immunization agenda for GBS.
  - Modest industry engagement so far.

- **Enterotoxigenic *Escherichia coli*, Shigella, norovirus vaccines**
  - Highlighted for PDVAC to give WHO enabling guidance if additional resources become available.
At its October 2015 meeting, ECBS:

- Adopted revised WHO Guidelines on Good Manufacturing Practices (GMP) for Biological Products;

- Adopted new WHO Guidelines on Stability Evaluation of Vaccines for use under Extended Controlled Temperature Conditions;

- Revised WHO Recommendations to assure the Quality, Safety and Efficacy of Recombinant Human Papilloma Virus-like Particle Vaccines.

- Established the first ever WHO reference preparations for Ebola. Reagents will allow comparison of data and outcomes from clinical trials across different studies.
The Global Commission for the Certification of Poliomyelitis Eradication has certified that wild poliovirus type 2 has been eradicated worldwide.

All readiness criteria for the global withdrawal of type 2 oral poliovirus vaccine (OPV2) as well as type 2 vaccine-derived poliovirus (VDPV2) epidemiology has been reviewed by SAGE.

April 2016 reaffirmed as the date for globally coordinated withdrawal of OPV2 by switching from use of trivalent OPV (tOPV) to bivalent OPV (bOPV).
  - Every country should stop using tOPV on a single day of its choosing between 17 April to 1 May 2016 and remove all stocks of tOPV from service delivery points within two weeks of that day, and confirm their removal to WHO.
Since the beginning of 2014, persistent circulating VDPV2 (cVDPV2) transmission has occurred only in Nigeria and Pakistan.

Both countries have improved type 2 population immunity through increased frequency and quality of tOPV campaigns, supplemented by inactivated poliovirus vaccine (IPV).

SAGE reviewed progress against the established criteria to confirm readiness for OPV2 withdrawal, concluding they are largely met, and highlighted areas requiring further risk mitigation measures.

SAGE concluded that risks associated with continued use of the type 2 component contained in tOPV far outweighs the risk of new VDPV2 emergence after use of type 2 oral polio vaccine (OPV2) is stopped, even in countries where IPV introduction will be delayed.
October 2015 SAGE meeting -
Polio eradication

- SAGE emphasized withdrawal of OPV2 can never be entirely risk-free, and strong implementation of risk-mitigation measures is crucial.

- SAGE emphasized that all countries must ensure regulatory approval of bOPV for routine immunisation before April 2016.

- UNICEF Supply Division, PAHO Revolving Fund and WHO should secure the global supply of prequalified bOPV.

- SAGE advised GPEI to accelerate implementation of the WHO Global Action Plan for containment (GAPIII) including:
  - all countries completing phase I;
  - regional focal points closely monitoring country activities and ensuring each country completes its inventories of facilities that hold or handle polioviruses, and destroys or commits to destroying WPV2 by end 2015 and any other type 2 containing materials including Sabin poliovirus by July 2016.
• SAGE advised GPEI to develop targeted advocacy and communication plans to engage key countries and stakeholders to ensure completion of phase I and implementation of phase II, including establishment of national containment authority and national regulation for containment of poliovirus in designated essential poliovirus facilities.

• SAGE requested Polio WG to provide urgent guidance on optimal management of IPV supply and mitigation of risks if supply further reduced.

• SAGE received and acknowledged an update on polio legacy planning, and encouraged engagement of WHO regional offices to ensure adequate support to countries.
October 2015 SAGE meeting - Ebola vaccines and vaccination

- 4 leading vaccine candidates immunogenic in a one or two-dose schedule.

- Interim results from a phase 3 trial suggest that rVSV-ΔG-ZEBOV is efficacious, safe, and likely to be effective at the population level when delivered during an EVD outbreak, using a ring vaccination strategy.

- Available safety data for both ChAd3-ZEBOV and rVSV-ΔG-ZEBOV vaccines indicate an acceptable safety profile in healthy adults. Data on safety in children, pregnant women, and in subjects with underlying medical conditions are insufficient to draw conclusions.

- SAGE concluded that vaccination is likely to provide added value in controlling outbreaks of EVD caused by Zaire ebolavirus (ZEBOV) species.

- Currently, no data to make recommendations on vaccines against other species of Ebola virus.
October 2015 SAGE meeting - Ebola vaccines and vaccination

- SAGE noted that candidate vaccines are currently only being used in the context of clinical trials, or exceptional circumstances in countries where no trial is ongoing to respond to a new confirmed Ebola virus disease (EVD) case, but within the context of expanded use of an investigational vaccine.

- Recommendations for use as an additional public health tool will depend on the vaccines receiving regulatory approval (i.e. full licensure, conditional licensure or emergency use authorization outside a clinical trial setting).

- In light of the emerging data on the persistence of Ebola virus in survivors of EVD and transmission of infection to sexual contacts, SAGE noted that the expanded use of vaccines in contacts of survivors are under consideration, but within the context of expanded use of an investigational vaccine as part of a study.
Based on review of current data, SAGE made the following provisional recommendations:

- Vaccination during outbreaks should be part of an integrated strategy and does not substitute for full-time personal protective equipment use, contact tracing and other infection control measures.
- Main objectives for vaccination are interruption of transmission and individual protection for those at high risk during an outbreak.
- The categories of front-line workers and other risk groups may vary between communities and should be defined locally.
- Delivery strategy will depend on extent of the spread of disease, disease incidence when vaccination is initiated, status of implementation of other control measures, effectiveness of contact tracing, and available supply of vaccine.
SAGE made recommendations for additional data review or research. These can be found in detail in the report and addressed inter alia the following areas:

- Pregnant women and other high risk groups.
- Duration of protection
- Evaluation of vaccine delivery strategies, including community involvement and acceptance.
- Research readiness.
October 2015 SAGE meeting - Measles and rubella

- SAGE reaffirmed that the 2015 global measles control milestones as well as regional measles and rubella elimination goals are off-track (except for the Americas).

- SAGE supported conduct of a midterm review of the global measles and rubella strategic plan to better understand why targets are missed and to propose measures that can accelerate progress.

- Recent outbreaks of measles in countries achieving high level control, or near elimination, demonstrate a bimodal age distribution, involving infants below the recommended age for vaccination, adolescents and young adults.
The multi-country analysis of the impact of supplemental immunization activities (SIA) strategies and comparison of surveillance and susceptibility data is still at an early stage.

Mathematical modeling suggests a high quality measles SIA (reaching >90% of susceptible children) targeting children <5 years is equally effective and more cost-efficient than a lower quality wider age range SIA (e.g., targeting children <10y reaching >70% of susceptible children).

An introductory measles-rubella algorithm to guide countries on what age groups to target looks promising.

Further work is required to confirm applicability and allow an integrated measles-rubella approach.
Infants of mothers with vaccine-induced immunity lose passive immunity to measles approximately 3 months earlier than infants of mothers with immunity from measles disease.

A systematic review of the literature found that measles vaccination given as of 6 months of age is immunogenic, effective and safe.

Vaccine effectiveness increases with the infant’s age of vaccination and some evidence of a blunted response to a second dose of measles containing vaccine (MCV2) after MCV1 <9 months of age was found with respect to Geometric Mean Titres and avidity, but not for the proportion seropositive and cellular immunity.
SAGE concluded that evidence supports use of MCV before 9 months of age and recommends that infants from 6 months of age receive a dose of measles containing vaccine in the following circumstances:

1) during a measles outbreak as part of intensified service delivery;
2) during SIAs in settings where risk of measles among infants remains high (e.g., endemic countries experiencing regular outbreaks);
3) refugees, and populations in conflict zones or internally displaced;
4) individual children at high risk of contracting measles (e.g., contacts of known cases or in settings with increased risk of exposure during outbreaks such as day care);
5) infants travelling to countries experiencing measles outbreaks;
6) infants known to be HIV positive.

Available evidence on safety and immunogenicity of rubella and mumps-containing vaccines support their use from 6 months of age. Countries using MR or MMR in their national schedule should use the combined vaccine rather than measles-only formulations in children <1 year.
October 2015 SAGE meeting - Measles and rubella

- SAGE reviewed evidence indicating that an increasingly large number of HIV-infected children will receive highly active antiretroviral therapy (HAART) and that these children are at increased risk of measles because of poor antibody responses following vaccination prior to initiation of HAART. While HAART does not restore measles immunity from previously received vaccine doses, it enables higher and more prolonged antibody responses following revaccination.

- SAGE recommended an additional dose of MCV be administered to HIV-infected children receiving HAART following immune reconstitution.
  - Where CD4+ T lymphocyte counts are monitored, an additional dose of MCV should be administered when immune reconstitution has been achieved, e.g. when CD4+ T lymphocytes are ≥ 20 to 25%.
  - Where CD4+ T lymphocyte monitoring is not available, children should receive an additional dose of MCV 6-12 months after initiating HAART. Current evidence is insufficient to recommend an additional dose of MCV for children who start HAART prior to the first dose of MCV.

- A supplementary dose of MCV should be considered shortly after diagnosis of HIV infection in children older than 6 months of age who are not receiving HAART, and for whom the risk of measles is high, to potentially provide protection until they are revaccinated after immune reconstitution with HAART.
WHO recently estimated that 214 million new episodes of clinical malaria will have occurred during 2015, with 438,000 deaths. Most cases and deaths occur in Sub-Saharan Africa.

Substantial reduction in the last 15 years (over 50% for global malaria mortality in children under 5 years of age) mainly due to improved investments in malaria control that have facilitated access to insecticides-treated nets, effective anti-malaria medicines and other tools.

Given increasing problem of multi-drug resistance and insecticide resistance, new tools to combat malaria are needed.
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663 million cases averted (Confidence Interval 542-753 million cases)
October 2015 SAGE/MPAC meeting - RTS,S/AS01 malaria vaccine

- A pivotal Phase 3 clinical trial of RTS,S/AS01 has been completed involving approximately 15,000 infants and young children in 7 sub-Saharan African countries with a range of low to high malaria transmission settings.

- The trial showed that there was moderate but important protection against clinical malaria after 3 doses that waned substantially by 18 months. Protection was partially restored by a fourth RTS,S dose, given 18 months after the third dose.

- The group receiving 4 doses of malaria vaccine experienced less clinical and severe malaria than those receiving 3 doses.
Design of RTS,S/AS01 Phase 3 trial

In both 5-17 months and 6-12 weeks at enrolment

Median follow up to SE:
48 months for 5-17 mo
38 months for 6-12 wks
Vaccine efficacy (95%CI) against all episodes of clinical malaria and severe malaria

<table>
<thead>
<tr>
<th>Study period</th>
<th>6-12 weeks</th>
<th>5-17 months</th>
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<tbody>
<tr>
<td></td>
<td>VE against clinical malaria</td>
<td>VE against severe malaria</td>
</tr>
<tr>
<td>2.5M-14M</td>
<td>32.9% (26.3, 38.9)</td>
<td>38.5% (7.8, 59.0)</td>
</tr>
<tr>
<td>2.5M-20M</td>
<td>26.6% (20.3, 32.4)</td>
<td>17.4% (-16.2, 41.3)</td>
</tr>
<tr>
<td>2.5M-SE*</td>
<td>18.2% (11.4, 24.5)</td>
<td>16.0% (-14.5, 38.4)</td>
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<tr>
<td>(3 doses)</td>
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<tr>
<td>2.5M-SE*</td>
<td>26.7% (20.5, 32.4)</td>
<td>20.5% (-9.8, 42.5)</td>
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<tr>
<td>(4 doses)</td>
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*median 38 months for 6-12 weeks; 48 months for 5-17 months
## Vaccine efficacy against severe malaria by time interval

<table>
<thead>
<tr>
<th>Time Interval</th>
<th>3-dose Schedule</th>
<th>4-dose Schedule</th>
<th>6-12 weeks</th>
<th>3-dose Schedule</th>
<th>4-dose Schedule</th>
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<tr>
<td>5-17 months</td>
<td></td>
<td></td>
<td>6-12 weeks</td>
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<tr>
<td>M2.5-M8</td>
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<td>M2.5-M8</td>
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<tr>
<td>M9-M14</td>
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<td>M9-M14</td>
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<td>M15-20</td>
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<td>M15-20</td>
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<td>M21-32</td>
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<td>M21-32</td>
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<tr>
<td>M33-SE</td>
<td></td>
<td></td>
<td>M33-SE</td>
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<tr>
<td>M2.5-SE</td>
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<td>M2.5-SE</td>
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<tr>
<td>5-17 months</td>
<td>70.1</td>
<td>20.5</td>
<td>53.7</td>
<td>M2.5-M8</td>
<td>16.0</td>
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<tr>
<td>M2.5-M8</td>
<td>(49.0, 82.5)</td>
<td>(-17.8, 46.4)</td>
<td>(18.7, 73.6)</td>
<td></td>
<td>(-14.5, 38.4)</td>
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<tr>
<td>M9-M14</td>
<td>20.5</td>
<td>18.2</td>
<td></td>
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<tr>
<td>M9-M14</td>
<td>(-17.8, 46.4)</td>
<td>(-43.8, 53.5)</td>
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<tr>
<td>M15-20</td>
<td>14.6</td>
<td>-38.9</td>
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<tr>
<td>M15-20</td>
<td>(-41.0, 48.2)</td>
<td>(-143.2, 20.6)</td>
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<tr>
<td>M21-32</td>
<td>-47.9</td>
<td>-6.0</td>
<td>4.7</td>
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<tr>
<td>M21-32</td>
<td>(-134.6, 6.8)</td>
<td>(-75.2, 35.9)</td>
<td>(-52.8, 40.6)</td>
<td></td>
<td>(-4.8, 63.0)</td>
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<tr>
<td>M33-SE</td>
<td>-74.2</td>
<td>-22.7</td>
<td>7.3</td>
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<tr>
<td>M33-SE</td>
<td>(-220.0, 5.2)</td>
<td>(-137.9, 36.8)</td>
<td>(-113.0, 59.9)</td>
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<td>(-91.6, 61.2)</td>
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<tr>
<td>M2.5-SE</td>
<td>-2.2</td>
<td>31.5</td>
<td>16.0</td>
<td></td>
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</tr>
<tr>
<td>M2.5-SE</td>
<td>(-31.3, 20.4)</td>
<td>(9.3, 48.3)</td>
<td>(-14.5, 38.4)</td>
<td></td>
<td>(-9.8, 42.5)</td>
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Note: The numbers in red circles indicate statistically significant differences.
October 2015 SAGE/MPAC meeting - RTS,S/AS01 malaria vaccine

- RTS,S/AS01 was given a positive scientific opinion by the European Medicines Agency under Article 58, indicating that in their assessment the quality of the vaccine and the risk/benefit is favorable from a regulatory perspective.

- In settings of moderate- to high-transmission intensity, mathematical models predict the cost per DALY averted to be consistent with a highly cost-effective intervention and in a favourable range compared to other high impact vaccines.

- Based on efficacy data from the Phase 3 trial, SAGE/MPAC does not recommend the use of the malaria vaccine in the younger (6-12 weeks) age group. The vaccine efficacy is lower than in the older one.
October 2015 SAGE/MPAC meeting - RTS,S/AS01 malaria vaccine

- To address how best to ensure that 4 doses of malaria vaccine can be given between 5 to 27 months of age, SAGE/MPAC recommend evaluation of RTS,S in staged pilot implementations, taking into consideration various knowledge gaps before wider country level introduction can be considered.

- Other questions that should be addressed as part of the pilot implementation include:
  - The extent to which RTS,S vaccination impacts mortality. This could not be adequately assessed in the Phase 3 trial due to the very low overall mortality in the trial setting;
  - Whether the excess cases of meningitis and cerebral malaria, identified during the Phase 3 trial are causally related to RTS,S vaccination.
October 2015 SAGE/MPAC meeting - RTS,S/AS01 malaria vaccine

- SAGE/MPAC:
  - strongly recommends that WHO oversees the design and evaluation of pilot implementations and monitors the emerging findings.
  - requests continued review of the planning of the pilot implementations and to receive regular updates on the results.
  - emphasized the importance of maximizing the rigour of the pilot implementations to address above issues.

- Prior to any pilot implementation, appropriate communication materials should be developed and disseminated with particular emphasis on:
  - partial efficacy of the vaccine,
  - importance of the fourth dose,
  - need for the continued/increased usage of existing malaria control measures,
  - importance of evaluating safety signals.
Performance against key immunization targets remains off-track, though there have been some success stories. These isolated improvements in countries and at the global level as highlighted below will have to become the norm if the plan is to get back on track.

- GVAP target for introduction of new or under-utilized vaccines is on track worldwide, with 86 low and middle-income countries introducing 128 vaccines since 2010.
- Ebola candidate vaccines were developed and tested within a short time frame and showed the potential to protect against a high mortality disease.
- To date, 40 countries have shared information on vaccine pricing with WHO compared with only 1 country last year.
- India has been declared free of maternal and neonatal tetanus, demonstrating it is possible to eliminate this disease even in challenging circumstances.
- Africa has not had a case of wild poliovirus since August 2014.
- The Americas became the first region to eliminate rubella and congenital rubella syndrome.
SAGE identified the following common factors that would lead to success and progress with the GVAP:

- improving quality and use of data;
- community involvement;
- improved access to immunization services for marginalized and displaced populations;
- strengthening health systems;
- securing and sustaining supply of vaccines at all levels;
- leadership and accountability.
October 2015 SAGE meeting -
Global Vaccine Action Plan (GVAP)

- SAGE recommended that to improve accountability to achieve the GVAP goals:

  1. Countries have annual plans for immunization consistent with the GVAP and relevant regional vaccine action plans.

  2. WHO regional offices establish a process of annual progress review through their regional technical advisory groups and report to the respective Regional Committees.

  3. Global, regional and national development partners align their efforts to support countries in strengthening their leadership and accountability frameworks and in implementing their national plans.

  4. Decade of Vaccines secretariat agencies report to SAGE in 2016 on their supporting activities conducted in the 10 countries where most of the unvaccinated and under-vaccinated children live.
SAGE recommended that to improve accountability to achieve the GVAP goals (continued):

5. WHO and UNICEF convene a meeting of global partners and affected countries regarding MNT elimination. This to agree on an action plan, resources and respective responsibilities so the goal is achieved no later than 2017.

6. Global, regional and national development partners support countries in securing the required resources and in implementing their measles and rubella elimination or control strategies and plans.

7. Global, regional and country development partners coordinate and align their efforts to support countries to immunize more children by various integrated strategies and targeted approaches.

8. WHO should provide guidance for countries and partners on implementation of immunization programmes and strategies during situations of conflict and chronic disruption.
2016 GVAP assessment report will serve as a mid-term review of progress in the Decade of Vaccines.

SAGE recommends report be presented at World Economic Forum in Davos where the Decade of Vaccines was launched.

2016 report should aim to highlight the game-changers at global, regional, and country levels.

Collective efforts and expanded partnerships required.
October 2015 SAGE meeting -
International Immunization Partner Reports

Inaugural presentations on immunization-related activities of partners working in the field of immunization and contributing to GVAP implementation.

- UNICEF presented on data acquisition and analysis, humanitarian emergencies, sustainable financing for vaccines and other products, supply chains, procurement, and vaccine and other health-related communications.
- MSF outlined work on vaccination activities within routine immunization and in humanitarian emergencies, their outbreak response work and its research and advocacy activities.
October 2015 SAGE meeting -
International Immunization Partner Reports

– SAGE highlighted importance of global stakeholders and partners in the field of immunization.
– SAGE applauded organizations for their work and stressed continuous efforts to ensure collaboration between WHO and partner agencies as well as non-governmental organizations.
– SAGE underlined the necessity to assess how immunization activities fit in the context of response to humanitarian emergencies.
– SAGE called for strengthened collaboration between Gavi, UNICEF and MSF to facilitate prompt provision of vaccines to the most vulnerable populations.
April 2016 SAGE meeting
Tentative specific agenda items

- Polio eradication.
- Implementation in the context of health system strengthening and universal health coverage.
- Missed opportunities for vaccination.
- 2nd year of life platform: Immunization and monitoring in the second year of life.
- Ebola vaccine.

- Preempting vaccine shortages.
- Hepatitis B vaccination.
- Immunization in conflict and emergency situations.
- Dengue vaccine.
- RSV vaccine.
SAGE 2016 meetings
Selected topics on the horizons

Cross-cutting
- GVAP monitoring of implementation
- Involvement of the private sector
- Use of vaccines in immunocompromised populations
- Strategies to reach older age groups
- Strengthening NITAGs
- Maternal vaccination
- Emergency vaccine development
- Implementation policies

Vaccine specific
- Polio eradication
- Measles and rubella elimination
- MNT elimination strategy and tetanus control
- Ebola
- Impact monitoring
- Typhoid
- PCV alternative schedules
- BCG
- HPV
- Rotavirus
- Rabies