REPORT OF THE INDEPENDENT REVIEW COMMITTEE TO THE GAVI ALLIANCE ON THE REVIEW OF APPLICATIONS

November 2021

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List of Acronyms

ACSM	Advocacy, Communication and Social Mobilization
ADIW	Appropriate Disposal of Immunisation Waste
AEFI	Adverse event(s) following immunisation
bOPV	Bivalent oral polio vaccine
CAR	Central African Republic
CCE	Cold-chain equipment
CCEOP	Cold-chain equipment optimization platform
CEO	Chief executive officer
cMYP	comprehensive Multi-Year Plan (for immunisation)
COVID-19	Coronavirus Disease 2019
cVDPV	circulating Vaccine-Derived Poliovirus
DHS	Demographic and Health Survey
DSA	Daily Service Allowance
EPI	Expanded Programme on Immunisation
EVM	Effective Vaccine Management
EYE	Eliminate Yellow Fever Epidemics
FPM	Financial and Public Management
GII	Gender Inequality Index
HCWM	Health Care Waste Management
HSCC	Health Sector Coordinating Committee (or Council)
HPV	Human papillomavirus
HR	Human resources
HSS	Health System Strengthening
ICC	Inter-Agency Coordinating Committee
IMCI	Integrated Management of Child Interventions
IPV2	Inactivated Polio Vaccine 2nd dose
IRC	Independent Review Committee
MCV	Measles-containing vaccine
MICS	Multi-Indicator Cluster Survey
MR	Measles-Rubella Vaccine
NNHS	National Nutrition and Health Survey
NITAG	National Immunisation Technical Advisory Group
NVS	New Vaccine Support
Ops	Operational
PCV	Pneumococcal conjugate vaccine
PCCS	Post Campaign Coverage Survey
Penta	Pentavalent vaccine (DTP, Hib, HepB)
PFM	Public financial management
PHC	Primary Health Care
PoA	Plan of Action
PSC	Programme Support Costs
RI	Routine Immunisation
SAGE	Strategic Advisory Group of Experts on Immunisation
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
SCM	Senior Country Manager
SIA	Supplementary immunisation activity
TA	Technical assistance
TCA	Targeted Country Assistance
ToR	Terms of Reference
VPD	Vaccine preventable diseases
WUENIC	WHO and UNICEF estimates of national immunisation coverage
YF	Yellow Fever

Executive Summary

The Gavi Independent Review Committee (IRC) met from 8 to 16 November 2021 to review applications from seven countries. This was the seventh IRC meeting held virtually because of the COVID-19 pandemic. Ten IRC members participated throughout this round, while 1 participated in a rapid remote review component. Areas of expertise including immunisation services; vaccine preventable diseases (VPDs); adverse event(s) following immunisation (AEFI); health development and health systems strengthening (HSS); outbreaks, epidemic and emergency response; management and evaluation of health services; health policy and planning; primary health care (PHC); epidemiology and burden of disease; reproductive health, cold chain and supply chain management; health care waste management; biomedical equipment maintenance, health economics, health financing and auditing. Two members conducted in-depth financial reviews, and two focused on supply chain and waste management.

The IRC members focused on the following specific tasks during the review (a) Review of countries' funding requests and supporting documentation for vaccine introductions and campaigns to support national efforts to improve immunisation coverage and equity; (b) Production of country-specific review reports and recommendations; (c) Development of a consolidated report of the review round, including recommendations for improving funding requests and strengthening routine immunisation; and, (d) Provision of recommendations to the Gavi Board and Alliance partners on improving processes relating to Gavi policies, governance, and structure. Review modalities included an independent desk review of applications by designated members and virtual discussion in plenary with the participation of the full committee Two members of the committee reviewed requests for IPV2 support remotely in advance of the meeting and their recommendations were presented to the full committee meeting. Applications were for measles/rubella campaign support (Cameroun, Democratic Republic of the Congo (DR Congo), Syria–Ministry of Health (MOH), Togo). Applications for introduction of IPV2 were from Azerbaijan, Mozambique and Senegal.

Results

The IRC recommended approval for four of five applications for measles/rubella campaigns support and approved all three IPV2 introduction requests, with an overall total funding of US$ 16,566,945 and an approval rate of 87.5% for a target population of 26.6 million children. The IRC noted improvement in the quality of the applications and this could be attributed to the revised guidelines for preparing the plans of action and incorporation of strategies that are aligned to Gavi 5.0 and the thorough pre-screening process by the secretariat and technical partners. The review however identified a number of common issues which need to be addressed to improve the applications. These included the following: supply- and demand-side barriers to immunisation were identified to a limited extent resulting in their insufficient translation to differentiated strategies to reach zero-dose and consistently missed populations, lack of gender responsive strategies, failure to use epidemiological analyses for strategic prioritization, weak gap analyses for the supply chain and lack of specific strategies to strengthen routine EPI. The IRC notes that despite improvements in the quality of the budgets, misclassification of activities and input costs remain unaddressed and alignment of the budget with personnel workloads and activities in the plans of action remain a major challenge that will continue to significantly impact the quality of implementation of the interventions.

Methods and Processes

Methods

The Gavi Independent Review Committee met from 8 - 16 November 2021 by Zoom. This was the seventh virtual meeting because of the COVID-19 pandemic. The meeting was complemented by email communication outside the plenary sessions.

Eleven IRC members participated in this round with areas of expertise including immunisation services; vaccine preventable diseases (VPDs); adverse event(s) following immunisation (AEFI); health development and health systems strengthening (HSS); outbreaks, epidemic and emergency response; management and evaluation of health services; health policy and planning; primary health care (PHC); epidemiology and burden of disease; reproductive health, cold chain and supply chain management; health care waste management; biomedical equipment maintenance, health economics, health financing and auditing. Two members conducted in-depth financial reviews, and two focused on cold chain and supply issues and waste management. (See Annex 1 for the list of participating IRC members). Three members of the IRC served in additional roles: interim chair, Benjamin Nkowane and vice-chair, Dafrossa Lyimo and interim vice-chair, Sandra Mounier-Jack.

The meeting agenda, country review assignments, country applications and supporting documents were shared with IRC members on 29 October 2021, ten days before the start of the meeting. IRC members reviewed and analysed these applications and prepared draft reports on their assigned countries. The Secretariat provided clarifications and any additional documentation the IRC members requested.

The meeting opened by Ms. Anuradha Gupta, Deputy CEO Gavi. She welcomed the IRC members and provided an update of the immunisation landscape and in particular, Gavi supported countries and the expectations from the November 2021 IRC review meeting. Ms Gupta reiterated the priorities for Gavi 5.0 and the importance of the core focus on reaching zero-dose children and missed communities, with equity as the organising principle. She specifically noted the low-risk appetite of the Alliance for sub-optimally planned campaigns and highlighted the need for countries to develop and implement differentiated, tailored and targeted approaches for immunisation activities and that the key elements in Gavi 5.0 should guide the IRC in the review of applications. She further noted that due to the COVID-19 pandemic, 2020 was a challenging year as there was an overall drop of 4% coverage and an increase of approximately 30% in zero dose children, with an estimated 3 million zero-dose children added globally mainly from Pakistan, India and Indonesia. For 2021, there has been continued recovery although it is not certain that this will remain.

Additional briefings by secretariat and technical partners included an update on follow-up on previous IRC recommendations, an update on the measles and rubella, Gavi's revised Gender Policy, global COVID-19 status and in countries being reviewed in this IRC and the COVAX facility. An update on the changes related to the Financial and Public Management (FPM) teams work in relation to the IRC was also provided.

Review process

Each country proposal was reviewed by a primary and a secondary reviewer, except for Syria (MOH), which had two secondary reviewers. Each IRC member reviewed the application and supporting documents independently and prepared separate, individual reports. Cross-cutting issues related to budgets and financial sustainability and supply chain and waste management were reviewed in each

application by one financial crosscutter and one IRC member specialized in supply chains. These reports were presented during the daily virtual plenaries and the initial findings were extensively discussed. The IRC then came up with final, consensus outcome recommendation of either approval or re-review for each application. Specific action points for the country and Gavi to follow-up were agreed upon during the plenary. The Gavi Secretariat and Alliance partners supported the plenaries by providing information and clarifications when needed, especially on country-specific background and context. The first reviewers then consolidated the reports from the different reviewers and the outcome of the plenary discussion, including decisions and recommendations. These drafts were then finalized after editing, fact checking, consistency checking, and quality review. Seven applications from seven countries reviewed are presented in Table 1.

Table 1: Country applications by type and review modality

Countries	Application/ Support requested	Gavi requested amount Operational Costs and Switch grants (US$)	Number of applications
Cameroun	MR follow-up campaign	2,880,621	1
DR Congo	Measles follow-up campaign	13,513,423	1
Togo	MR follow-up campaign	907,383	1
Syria (MOH)	MR follow-up campaign	1,731,613	1
Azerbaijan*	IPV2 Introduction	Not applicable**	1
Mozambique*	IPV2 Introduction	263,746	1
Senegal*	IPV2 Introduction	150,780	1

** IPV2 introduction applications were reviewed remotely by two members of the IRC in advance of the meeting.*
*** Azerbaijan requested only IPV vaccine and did not request the "Switch Grant".*

Criteria for review

Review of the applications was guided by the IRC Terms of Reference and key criteria in line with Gavi's mission. These include justification for the proposed activities, soundness of approach, country readiness, feasibility of plans, contribution to system strengthening, programmatic and financial sustainability, and public health benefits of the investment. The IRC adhered strictly to these guidelines to ensure the integrity, consistency, and transparency of the funding decision.

Decisions

There were two decision categories:

1) **Recommendation for Approval** when no issues were identified that would require re-review by the independent experts. In this case, the minor issues raised by the IRC will be addressed by the country in consultation with the Secretariat and Partners.
2) **Recommendation for Re-review** when there were critical issues that required a new review by the independent experts; this will entail detailed revision of the application and a revised submission to the IRC.

Table 2 presents the review outcomes for this round. Six of the seven applications were recommended for approval and one was recommended for re-review, with an overall proportion of recommendations for approval of 87%.

Table 2: Requests from Countries and Review Outcomes

Countries	Application/ Support requested	Target population	Recommendation
Cameroun	MR follow-up campaign	5,240,164	**Re-review**
DR Congo	Measles follow-up campaign	20,789,881	**Approval**
Syria (MOH)	MR follow-up campaign	2,664,240	**Approval**
Togo	MR follow-up campaign	1,468,732	**Approval**
Azerbaijan	IPV2 Introduction	63,700	**Approval**
Mozambique	IPV2 Introduction	1,054,893	**Approval**
Senegal	IPV2 Introduction	596,766	**Approval**

Thematic areas sub-committees

During the review, IRC members, organized in six sub-committees (New vaccine support and AEFI; Coverage, equity and gender; Data quality and use; Best practices and innovations; Supply chain and waste management; Budget, financial management and sustainability). Each sub-committee identified specific issues in the applications that would be of general interest for Gavi and partners and could be presented in the debriefing session with Gavi Senior Management, Secretariat staff and partners as well as in this report. The suggested issues were reviewed and agreed upon in a plenary session on the 15 November 2021.

Gavi Senior Management, Secretariat and Alliance partners debriefing and closing session

The debriefing was held on the 16 November 2021. It included a summary presentation of the meeting's outcomes and key issues and recommendations from the IRC to Gavi and Alliance partners. This was followed by a brief discussion, questions/comments, and responses from the IRC. At the end of the debriefing session, Dr Thabani Maphosa, Director, Country Programmes, Gavi, expressed his appreciation for the work of the IRC and the recommendations from the review. He noted specifically issues raised by the IRC in relation to differentiated strategies in applications, the need for gender responsiveness and the challenges in timely preparation of applications.

Key Findings and Recommendations

NVS (Routine and Campaign support)

The IRC reviewed four applications from four countries for Measles/Measles-Rubella campaign support (Cameroun, DR Congo, Syria (MOH), Togo), and three applications for introduction of second dose of IPV (IPV2) in routine immunisation programmes (Azerbaijan, Mozambique, Senegal).

Measles and Measles-Rubella applications

Four applications for nation-wide measles or measles-rubella (M/MR) support were reviewed by the IRC. Three countries (Cameroun, Syria-MOH, Togo) applied for MR follow-up campaign targeting a standard follow-up campaign age range (9 to 59 months). Of these, one country (Cameroun) was requested to submit its application for re-review. The third approved application was from DR Congo for a measles follow-up campaign targeting children from 6 to 59 months of age.

1. Supply and demand sided barriers to immunisation

The IRC highlights the importance of identification of barriers to immunisation, both supply- and demand-side, to devise adequate tailored strategies. In this round, all countries used the new template for M/MR campaign plan of action which follows Gavi 5.0 strategy and vision of leaving no child behind with immunisation by reaching zero-dose and missed communities. Though the prioritization was variably presented, the IRC commends countries for this effort and in particular for submitting improved epidemiologic analyses with their applications, also in accordance with IRC recommendations made over several years.

Countries differentiated intra-country contexts based on the difficulty to reach underserved communities in each subnational unit/area and determined the level of difficulty (from 0 to 3) to reach the children for each of these areas along with barriers to immunisation. However, supply- and demand-side barriers to immunisation were generally high-level descriptions, with no clarity on what they are based on and if a comprehensive analysis of inequalities in un- and under-vaccinated children was undertaken. For example, DR Congo identified only 51 of 519 remote rural areas for tailored activities and did not prioritize provinces which performed poorly in previous SIAs. Syria assigned level 0 difficulty to 90% of the target population and Togo identified barriers to immunisation only in 15 of 54 districts and did not quantify vulnerable populations. Cameroun assigned levels 0 and 1 difficulty to 40% of districts without clear quantification of population in the plan of action and with no identified supply- and demand- side barriers. While IRC realizes that the countries may have not explored the magnitude of inequity in vaccination coverage within different country contexts as a separate activity, available programmatic and epidemiologic information from post-campaign coverage surveys, outbreak investigations or surveillance data from districts including well-performing and easy to reach ones, should be used to devise relevant differentiated strategies. Failure to identify, validate and address barriers to under-immunisation will make further improvements in reaching the underserved unlikely.

Issue 01: Supply- and demand-side barriers to immunisation identified to a limited extent results in their insufficient translation to differentiated strategies to reach all consistently missed children.

Recommendations:

- Gavi and technical partners should further support countries to focus on subnational prioritization of strategies based on analyses and interpretation of epidemiologic data and

programme evidence, and specifically design the strategies to reach children who have missed on routine and previous campaigns.

- If information to support identification of supply- and demand-side barriers is unavailable, Gavi and technical partners should support countries to explain their ideas and assumptions and plan for their validation and revision.

2. Planning and preparation of differentiated strategies

The IRC has repeatedly emphasized that measles campaigns will have the greatest impact if they are able to reach those children not previously reached for which a subnational focus is needed. In accordance with this and the new Gavi 5.0 strategy, countries are required to present in their plans of action the subnational differentiation of districts by difficulty to reach consistently missed children with designation of adequate strategies. This is a more complex task, different from uniform application of 60%-30%-10% pattern for fixed, outreach and mobile delivery strategies that most countries were previously using in their plans of action and budgeting. Overall, aligning the strategy with country context, level of difficulty to reach, barriers, key stakeholders and finally budgeting has been challenging to countries. While DR Congo, Syria-MOH and Togo provided somewhat more detailed outline of differentiated strategies for each internal context, the strategies at best remained described in general terms, and were not reflected or detailed in the relevant sections of plans of action (e.g. in advocacy, social mobilization and communication). Interestingly, while post-campaign coverage surveys identified sub-optimal coverage in urban and peri-urban settings in previous campaigns, none of the countries proposed urban strategies. Articulation of staffing needs is additionally poor with differentiated planning. Only one country (Syria-MOH) somewhat better aligned and articulated strategies and staffing requirements, although with overestimated number of teams and/or daily workload well above WHO recommendations.

Issue 02: Planning and preparation of differentiated strategies is insufficiently included in the plan of action and budget while staffing needs continue to be poorly articulated.

Recommendation:

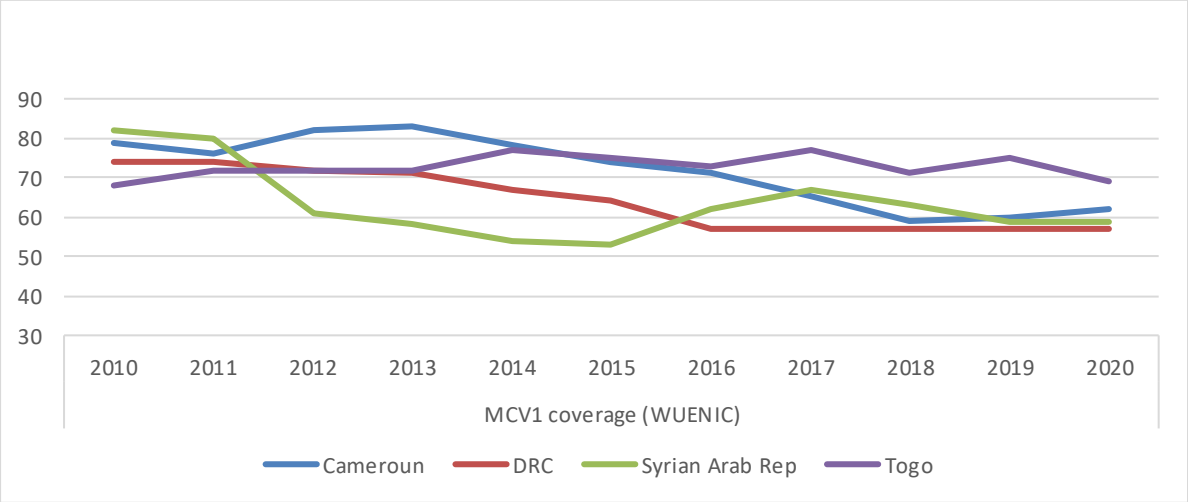
- Technical partners should work with countries to further develop relevant strategies and critical activities in the plan of action across programme components, ensure that the budget implications are adequately thought through, and ensure that there are budget allocations for the identified necessary activities.

3. Missed opportunities to evaluate routine immunisation interventions and strengthening.

In their situation analyses, all countries state that they adopted Reach Every District/Community (RED/REC) approach more than a decade ago. Gavi, WHO and other partners launched this strategy in WHO African Region in 2002, with an intention to improve and strengthen immunisation programmes/systems in areas with low coverage through application of operational strategies designed to be flexible and tailored to the district. In spite of two revisions (2008, 2017) which placed emphasis on reaching marginalized populations, community engagement, and integration with other sectors/programmes to reduce missed opportunities for vaccination, MCV1 coverage has not improved in any of the applicant countries (Figure 1). Furthermore, countries appear to have difficulties and show variable quality in their plans of action in articulating important elements for campaign design, planning and preparation which are also building blocks of core RED/REC components, such as monitoring and use of data (e.g. drop-out rates DTP1/DTP3, MCV1/MCV2,

DTP3/MCV1 seldom interpreted and often incorrectly calculated, surveillance data), and reaching all eligible populations (e.g. differentiated strategies outlined for only small number of districts). In fact, these analyses should already be available at the district level, but proposed activities to strengthen routine immunisation seldom refer to them and remain generic lists of actions to implement before, during and after the campaign. Stagnating or decreasing MCV1 coverage, paired with low (Syria - MOH) or recently introduced and low (Togo, Cameroun) MCV2 coverage or no MCV2 in the national immunisation programme (DR Congo) results in reliance on frequent campaigns. It should be noted that despite the reliance on frequent campaigns, none of the countries reached 95% coverage by survey in recent campaigns and therefore, current mechanisms are not improving measles control.

Figure 1: MCV1 coverage in applicant countries in the period 2010-2020 (source JRF)



Issue 03: Continued missed opportunities to critically evaluate interventions and routine immunisation programme strengthening.

Recommendation:

- Gavi and technical partners should encourage countries to evaluate their current RED/REC approach by critically assessing implementation of activities and explore and propose adaptations to be used in design and implementation of SIA strategies.

Second dose of IPV (IPV2) introduction

Three country applications (Azerbaijan, Mozambique, Senegal) for support to introduce the second dose of IPV in routine immunisation were remotely reviewed by the IRC. Mozambique chose the SAGE recommended "preferred" schedule for IPV1 to be given at 4 months and IPV2 at 9 months and Senegal chose the SAGE recommended "early" schedule for IPV1 at 6 weeks and IPV2 at 14 weeks. Azerbaijan proposed to give IPV1 at 3 months and IPV2 at 6 months. This schedule is not recommended by SAGE because the interval between the two doses is less than 4 months. The country opted for this schedule for operational reasons as they do not have a routine immunisation visit at 9 months. In addition, the country proposes to change the routine immunisation schedule for OPV by removing the birth dose of bOPV. There is no information on the basis for the decision (neither by the NITAG nor ICC). This is not consistent with the SAGE recommendation which states that the introduction of IPV2 should not lead to changes in the routine bOPV schedule.

Issue 04: Proposal to change the routine bOPV schedule by removing the birth dose of bOPV not supported by SAGE recommendations

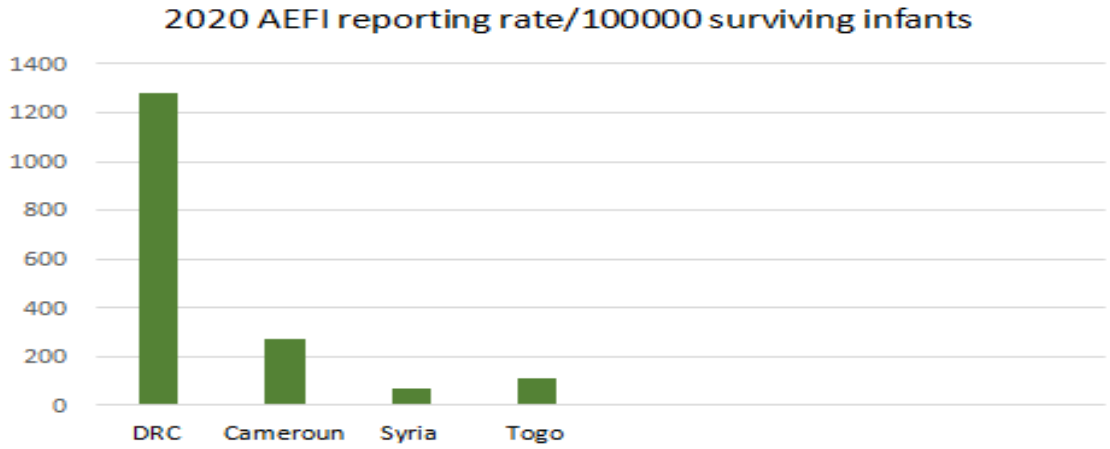
Recommendation:

- Azerbaijan to maintain current national routine schedule of bOPV with birth dose in line with SAGE recommendation

Adverse events following immunisations (AEFI)

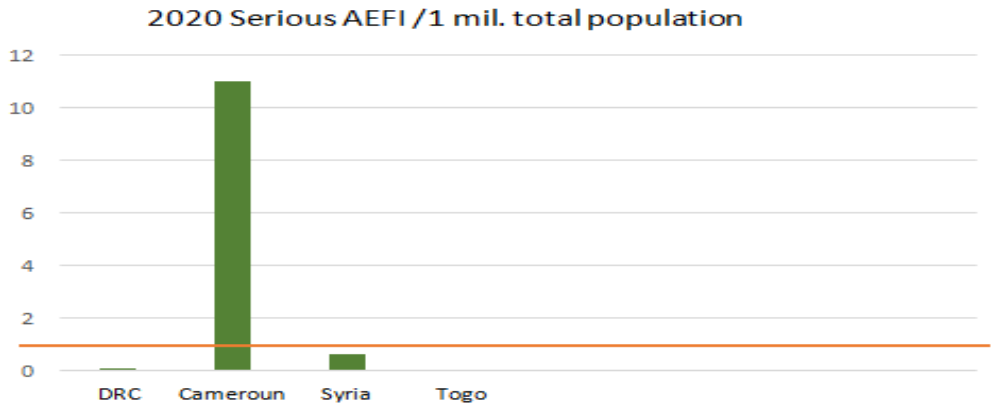
The IRC continues to emphasize the need of functional AEFI surveillance systems in all country contexts and for all vaccines. Generally, countries show slow improvement in AEFI reporting. All four applicant countries meet the minimal capacity indicator of at least 10 reported AEFI cases per 100 000 surviving infants for 2020 (Figure 2). Only 1 country (Cameroun) meets the indicator of the rate of case-based serious AEFI which is reported per 1 million total population in 2020 (Figure 3).

Figure 2: AEFI reporting rates in applicant countries for 2020 (source: JRF)



Countries provided variable levels and quality of information on their AEFI surveillance systems, relating mostly to its structure, components and theoretical reporting flow. Links of immunisation programmes with national regulatory agencies and their functionality status are not detailed and it is difficult to determine whether safety data are harmonized and shared between National Regulatory Authorities and the immunisation programmes within countries. Countries do not include numbers, types or frequencies of events from routine immunisation or campaigns although fragments of this information can be found elsewhere, such as, post-campaign coverage surveys, cMYPs, and JRFs. No substantial information is available on reported serious events. Furthermore, countries did not provide any or adequate annual AEFI surveillance reports (2018, 2019, 2020) to IRC on request, or any updated AEFI reporting forms. Plans of action presented in this round did not reflect on AEFI management from previous campaigns or any experience in lessons learned or planning for risk communication. For example, Cameroun had 5 reported deaths after vaccination in the previous campaign, DRC had 73 serious AEFI along with more than 5 thousand non-serious ones, but this information is not further elaborated or used.

Figure 3: Rate of serious AEFI in applicant countries for 2020 (source: JRF)



Issue 05: AEFI monitoring data from previous campaigns not included in lessons learned and planning for risk communication in subsequent SIA.

Recommendations:

- Gavi and technical partners should further support countries to enhance AEFI reporting and analysis from routine programme and from SIAs. Findings should serve for campaign AEFI management and AEFI risk communication planning.
- Strengthening overall technical capacity of AEFI surveillance systems to include detection, reporting, investigation, analysis and causality assessment.

Coverage, Equity and Gender

Gavi's 5.0 strategy brings greater attention to gender equity in immunisation. It promotes gender responsive programming by focusing on identifying and addressing underlying gender-related barriers faced by caregivers, adolescents, and health-workers. It encourages and advocates for women's and girls' full and equal participation in decision-making related to health programmes and wellbeing. In this round, only one of four applications mentioned lack of power to decide on vaccination. Another mentioned "gender-responsive" programming with no further explanation provided of what this might mean in operational terms. No application included specific actions to address barriers in plans of action. Gender-responsive approaches that would address gender-based barriers will need to be articulated and used in design and implementation of campaign vaccination strategies in order to reach chronically missed children. However, it remains unclear if country planners fully appreciate how selective, disease-specific interventions such as campaigns would potentially be improved through gender responsive interventions or how to conduct a gender analysis and use resultant information to improve campaign outcomes.

Issue 06: Gender analysis and gender-responsive strategies remain unaddressed in applications due to lack of guidance to countries and partners on Gavi requirements and expectations.

Recommendations:

- Gender responsive programming should be included in the Vaccine Funding Guidelines.
- Gavi to actively engage with partners and countries (e.g. a gender TA approach) to explain what the gender strategy is and how to implement it in Gavi 5.0 applications.

Data Quality and Use

1. Follow-up campaign justification

The Measles or MR follow-up campaigns were justified with the presence of inadequate coverage and the accumulation of susceptible children. Data presented and used by countries are available in Table 3. All countries reported an analysis of measles cases, generally presented by vaccination status and age of children for the year 2020 and 2021. Only Cameroon provided sub-national data on measles cases. All countries calculated an estimated proportion of a birth cohort susceptible to infection as more than one birth cohort by the time the follow up campaign would occur. Two countries modelled such proportion at over two birth cohorts (Togo and Syria). All countries reported that the gap in immunity was due to insufficient routine measles vaccine coverage over several years, and inadequate coverage in previous campaigns. Two countries presented the modelled immunity gap at sub-national levels to highlight regions more at risk of measles outbreaks. Countries provided some evidence on sub-national cases and information on regions exhibiting insufficient coverage level in previous campaigns, and those targeted by outbreak responses to a lesser extent. However, sub-national coverage data was rarely used to target geographical areas with poor coverage or experiencing repeated outbreaks. While Togo explored the possibility of a subnational campaign targeting two regions, which was ultimately rejected, no alternative to a national non-selective campaign was proposed by any of the other countries.

The number of measles zero dose children was estimated but methods for this calculation was often not explained and was not always linked to tailoring the strategic approach of the plan of action, such as DR Congo and Cameroon not specifically presenting a plan for large urban areas, despite a large number of zero doses having been estimated there.

Table 3: Data and epidemiological analysis used by countries to support rationale for campaign

Country	Routine MCV (2019)	Measles cases (2020)* WHO	Measles cases Up to 6 Oct 2021	Analysis by age & Vacc. of cases	Number of outbreaks Year (Heath Districts)	CDC gap immunity	Subnational population immunity (risk level)	Estimated Number of Measles zero dose children
Cameroon	MR: 60% MR2: 28%	1490 9/10 regions	414	Yes and by region	2019 (54 HDs) 2020 (79 HDs)	2.07 birth cohort	High=24% Medium=28%	200,000 (not used in analysis)
DR Congo	MCV1: 57%	14,577	3560	Yes	2020 (110 outbreaks in 19 provinces)	>1 birth cohort	303/419 HDs (72%) High or Very High	Kinshasa only >77,349 (43% not reached with MCV1)
Syria-MOH	MMR1: 59% MMR2:53%	15	127	Yes	No	2.17 birth cohort	No	161,202
Togo	MR1: 75% MR2: 60%	96	410	Yes	2019 (5/6 HDs) 2020 outbreak Lomé/Maritime	1.50 birth cohort	No	56,249 (2020)

*Source: WHO

Issue 07: Though quality of epidemiological analysis supporting the application has improved and gaps and inefficiencies from previous SIAs are documented, this data fails to inform strategic prioritization of regions or a selective coverage-based approach in subnational areas.

Recommendations

- Countries should specifically tailor their campaign strategies to their sub-national analysis of vaccine coverage and measles zero dose children; and when relevant propose a subnational and/or elective campaign.
- Countries should list all lessons learned from previous Follow-up and outbreak response campaigns to explain how their action plans address previously identified gaps and inefficiencies.

2. Data from recent campaigns and measles outbreaks

In DR Congo, all recent measles campaigns, including outbreak responses documented in the application have targeted 6-59 months children. In this application, justification for including children 6-8 months of age is not provided (WHO recommends that the dose given before 9 months (MCV0) should be given for individual at high risk of contracting measles, such as internally displaced populations and refugees, and when the risk of measles among infants in this age group is high). Furthermore, the DR Congo application does not stratify deaths (6941 deaths/376000 measles cases) by age and does not highlight particular sub-national areas that would qualify as fulfilling the above complex emergency criteria. The IRC noted that the "normalised" vaccination of children less than 9 months of age in SIAs leaves them with sub-optimal seroconversion (estimated at 76% (95% CI 71-82%). If these children are not subsequently vaccinated at or after 9 months, this may potentially undermine the routine immunisation programme.

Issue 08: Inclusion of children 6-59 months in follow-up SIAs has become the "new norm" in DR Congo and the application does not provide justification for inclusion of 6-8-month old children.

Recommendations

- Countries should provide adequate justification for including infants aged 6-8 months in their SIA target population.
- Countries should evaluate MCV1 uptake of children receiving MCV0 during campaigns

3. Recording and reporting of zero-dose children

In outbreak technical reports (DR Congo), MCV0 or dose zero (MCV given before scheduled routine immunisation) are sometimes reported as measles zero dose, leading to confusion on outbreak response effectiveness in reaching and immunizing unvaccinated children. Additionally, zero dose for all vaccines and zero dose for measles are often interchangeably used, leading to lack of clarity in terms of analysis and associated strategies.

Issue 09: MCV0 or dose zero (MCV given before scheduled routine immunisation) are sometimes reported as measles zero dose.

Recommendations

- Gavi should ensure that adequate nomenclature of zero dose children is used, and that reported figures are clear and consistent across countries and partners.

4. Significant proportion of reported cases of measles aged 5 to 9 years of age

Two countries (DRC and Togo) report a significant share of 5-9 year old children in measles cases - up to 25% of all cases - while other two countries note a lower but notable representation of this age

group – Cameroon (11%) and Syria (16%), with potential variation by sub-national area. Though countries acknowledge this age group in their immunity gap analysis, they do not offer any strategies to reduce the risk of transmission in this age group. In the Syria (MOH) application, the NITAG recorded the recommendation to include these children in campaign as a temporary strategy but this is not reflected or further considered in the application.

Issue 10**:** The relatively large percentage of cases among children aged 5-9 years of age in countries is described but not addressed.

Recommendations

- Countries should specifically address children aged above 59 months who are susceptible to measles outside of the current measles follow campaign application, and provide a strategy to address this population to reduce risk of outbreaks.
- Countries should update their immunisation policy to remove upper age limit for measles vaccination; introduce school entry checks to catch up these children; and any other interventions to increase vaccine uptake.

5. Data from measles outbreak investigations, SIA technical reports and Post Campaign Coverage Surveys (PCCS)

SIA technical reports and PCCS reports in the applications highlight poor performance areas, and factors of low coverage but are often not reflected in campaign strategies. Reasons for non-vaccination inform communication and social mobilization strategy to limited extent: primary reason for non-vaccination is parents reporting they were not informed of the campaign but strategy tends to replicate previous approaches; social mobilization is often under-budgeted; challenges specific to the urban context are not addressed. In addition, although outbreaks were reported, they were not comprehensively analysed.

Issue 11: Information from PCCS and outbreak investigation reports outbreaks is seldomly used to develop sub-national strategies/prioritization.

Recommendations

- Findings of PCCS and outbreak reports to be included systematically in lessons learned and corresponding action integrated into campaign strategy
- Systematic review of recurrently poorly performing regions to be conducted and action plans should be updated to reflect strategies to address the poor performance.

6. Root cause analysis

All four country applications included some efforts at root cause analysis, though there was no standardized approach in terms of methodology, or tools used. The identified causes were sometimes assumptions rather than being data driven. For example, Syria-MOH indicated coverage and equity gaps were due to the ongoing conflict. DR Congo should be commended for providing the most thorough root cause analysis in their application. Common causes mentioned as root causes included weak decentralized coordination, insufficient inter-sectoral engagement, social and behavioural drivers, insufficient communication, lack of real-time data, HR challenges, population mobility/displacement, and insecurity.

Issue 12: Root cause analyses are variable and when mentioned, the data is not thoroughly used in planning.

Recommendation:

- Gavi to continue encouraging countries to provide data-driven root cause analyses and consider providing further guidance and standardisation for methods and tools to ensure analysis is data driven and robust.

7. Measuring improvements in coverage

As countries improve their campaign coverage and focus is increasingly placed on strategies to reach zero-dose children, measurement of success will become more difficult. An example in this round was the application from Togo which had achieved over 93.6% coverage by survey in its most recent follow-up campaign. The current application includes strategies to reach nomadic groups, itinerant workers and urban poor among others. RCM, LQAS and PCCS may not adequately capture these sub-groups of the population to allow assessment of differentiated strategies whenever there is high coverage.

Issue 13: Current measures to assess impact of tailored strategies to reach zero-dose and frequently missed sub-groups of the population may not allow measurement of achievements of the differentiated strategies.

Recommendation:

- Partners to provide guidance and/or further develop tools and methods to assess changes in coverage among vulnerable groups in countries that achieve high coverage

Best Practices and Country Innovations

The IRC noted some best practices and innovative approaches described by countries in areas of planning and implementation to improve their campaign and immunisation performance. Best practices noted from countries included a thorough root cause analysis of measles outbreaks (DR Congo), use of Information, communications technology (ICT) in Cameroun for ACSM to address rumours in communities and using blogger networks and digital communication actors on social media in favour of the MR vaccine using a variety of platforms (Facebook, Twitter, WhatsApp groups) and the Ministry of Health website. In DR Congo, digital communication such as U-Report bloggers and SMS are used for advocacy and social mobilization. For capacity building and training, Syria-MOH propose use of differentiated training by type of health workers including of adult learning methods such as group discussion, demonstration and skill practice, and methods for knowledge retention by using mobile phone applications and text messages to share info-graphics and short videos. Only Togo indicated in the application that they will use virtual ICT modalities for some of the planned meetings, but no budget was allocated to this. As regards innovation, Cameroun will use satellite – image based maps to form planning and deployment of vaccination teams to hard to reach areas. DR Congo and Togo will carefully consider integration in areas of planning, coordination and implementation even when interventions do not overlap such as HPV, HepB birth dose introduction, COVID-19 vaccination (Togo), yellow fever (DR Congo).

Issue 13: Few countries develop or build on existing, proven best practices and/or innovations to address planning and implementation challenges. In addition, despite an increase in the use of ICT modalities for meetings such as "Zoom" as a result of the COVID-19, few applications indicate use of ICT modalities for virtual meetings.

Recommendations:

- Gavi and partners to evaluate and share the best practices and innovations with countries to inspire them to focus on improving their planning and implementation
- Gavi and Partners to support and encourage Countries to use their locally appropriate ICT modalities for meetings/trainings activities

Supply chain and waste management

The Committee was pleased to see that Gavi CCE support to countries (through HSS, CCEOP, COVAX CCE) has helped significantly reduce CCE storage gaps, particularly at national and regional levels. However, the delivery and installation times for CCE under procurement are often not provided, making it difficult for countries to rely on them. The IRC noted also the persistence of some of the insufficiencies highlighted in previous IRC reports such as lack of updated CCE inventories and sizing tools that include passive containers, absence of transport inventories and missing information on dry storage. Togo and Cameroun propose to use their existing negative storage as contingency for storage of vaccine. This could be an appropriate alternative if it does not hinder icepack conditioning capacity and if storage and management practices for diluents are respected. Waste management remains still insufficiently addressed and countries do not have comprehensive waste management plans and do not plan to map available waste disposal equipment prior to campaigns. DR Congo should however be commended for clearly describing and budgeting for waste management and for mentioning the public-private partnership with industries to ensure the disposal of waste from the campaign.

Issue 14: Persistent weaknesses in gap analysis and waste management

Recommendations

- The IRC reiterates its previous recommendations and urges that standardized CCE inventory and gaps analysis tools be made available to countries and used, and that the consideration of dry spaces and transport inventory be systematically included in the analysis of CCE preparedness
- Countries should conduct waste disposal mapping during microplanning and develop/update comprehensive waste management plans that will also benefit routine immunisation.

Issue 15: Uncoordinated campaign and other vaccine deliveries can strain capacity. Using existing negative storage for vaccine contingency storage could risk icepack conditioning capacity.

Recommendations

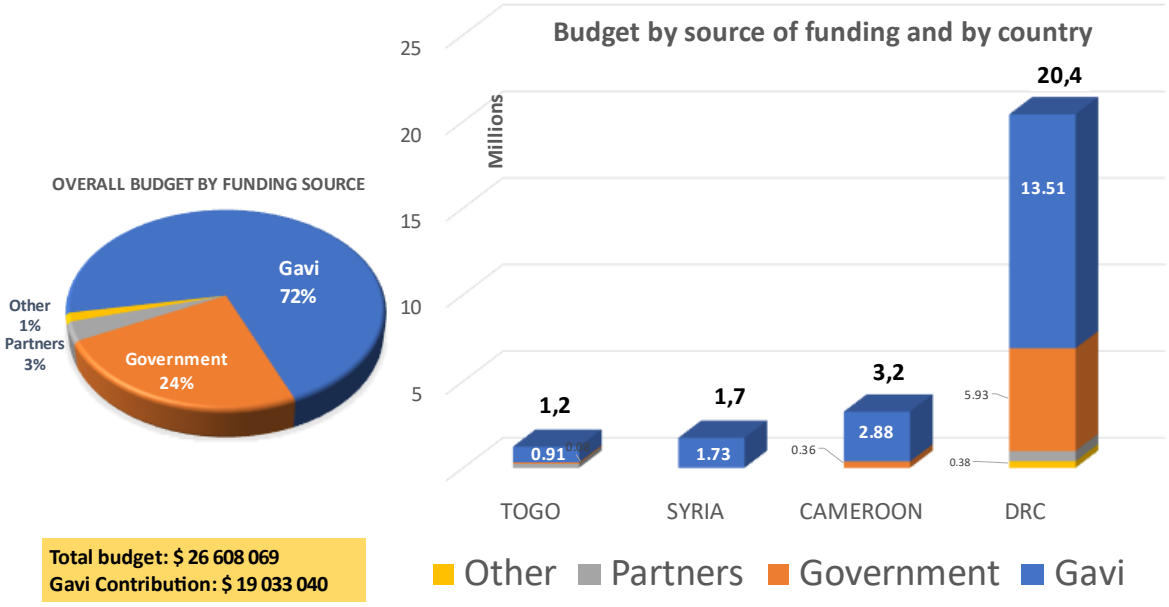
- Consider ways to coordinate delivery of campaign vaccines with other vaccine deliveries to reduce strain on the cold chain system.
- Countries using negative walk-in freezers and freezers for contingency storage should demonstrate that this will not risk icepack conditioning capacity and cause breach of storage and management practices for diluents.

Budgets, Financial Management and Sustainability

1. Budget overview

In this round, four applications for measles/MR campaign support totaling US$26,608,069 were reviewed. The requested Gavi contribution of US$19,033,040 constituted 72% of the total planned budget, with governments and partners contributing respectively 24% and 4%. As shown in Figure 4, the relatively high share of non-Gavi funding in this round is explained by the unusually high government contribution in DR Congo which is commendable, but also poses a major risk to the planned campaign in case this funding does not materialize. It should also be mentioned that only Syria-MOH is relying entirely on Gavi contribution for conducting its MR campaign, while the 3 other countries are using additional funding from government and/or donors.

Figure 4: Overall budget requested by country and by source of funding.



Of the total requested Gavi contribution, 71% accrued to DR Congo, 15% to Cameroun, 9% to Syria-MOH and 5% to Togo. The share of the Gavi contribution by antigen was 71% (US$13.51 million) for Measles and 29% (US$5.52 million) for Measles-Rubella.

The breakdown of Gavi contribution by activity shows that on average 44% of this contribution will be used for service delivery, with a variation range of 39% in DR Congo and 66% in Syria-MOH. An additional 21% of Gavi contribution will be used for procurement and supply chain management, although this high share is largely driven by the DR Congo allocation of 28% of Gavi contribution to this activity. Health information system is allocated an additional 11% of Gavi contribution, with a variation range of 9% in Syria-MOH and 16% in Togo. ACSM is allocated about 8% of Gavi contribution, with a variation range of 4% in DR Congo and 19% in Togo.

The breakdown of Gavi contribution by input costs shows that on average 32% of this contribution will be used for human resources (variation range of 28% in Cameroun and 37% in Syria-MOH), 27% will be used for transport (variation range of 18% in Syria-MOH and 44% in Togo), and 14% for events-related costs (variation range of 1% in Togo and 15% in DR Congo). It should be noted that because of misclassification issues these rates may not reflect the actual distribution of input costs.

2. Inappropriate use of the budget template and misclassification of activities and input costs

Togo used the Gavi 4.0 standard budget template with zero-dose tagging, including unit price and funding sources. However, the budget template included only the main budget worksheet showing classification of activities and input costs, but no detailed calculation worksheet (s) as required by the guidelines. In addition, the more than 400 budget lines were lacking calculation formulas, making it difficult to understand and not transparent.

Cameroun used the updated Gavi budget template but did not follow the Gavi guidance on the classification of activities and input costs, resulting in major discrepancies between the POA and the budget and between the main budget worksheet and the detailed calculation worksheet. While this situation complicates the budget review, it is also indicative of the difficulties that some countries face in preparing budgets. This may also explain why the delivery strategies for reaching zero-dose children outlined in the POA are not reflected in the budget.

Frequent classification issues are also noted in the DR Congo budget, including for example coordination activities classified under events, zero-dose and catch-up activities classified under EPS, aprons and armbands (US$205,655) are classified under events instead of communication materials, printing of campaign tools (US$674,700) are classified under program administration instead of health products, and the PCCS (US$621,000) is classified under "Program administration" instead of "Health Information system".

Issue 16: Improved quality of budgets due to pre-screening, but persistence of key challenges of misclassification of activities and input costs (Cameroun, DR Congo) and inappropriate use of the budget template (Togo, Cameroun)

Recommendations:

- Gavi Secretariat to continue current efforts in pre-screening budgets with focus, among others, on issues of classification of activities and input costs, the appropriate use of the budget template, and alignment of the budget with the POA.
- Gavi Secretariat to ensure that all budgets submitted to the IRC include at least a main budget worksheet showing the classification of activities and input costs and a detailed calculation worksheet.

3. Campaign staffing requirements

Overall, staffing requirements are better articulated in this round as most countries have tried to estimate the required numbers of vaccination teams based on the target population, its distribution by vaccination strategy (fixed, outreach and mobile) and an estimated workload by vaccination strategy. The following tables summarizes the staffing requirements at the national level.

Table 2. Summary of staffing requirements by country for follow-up campaigns

	Target Population	Days of campaign	Number of vaccination teams	Number of vaccinators	Daily Workload per team	Daily workload per vaccinator
Cameroun	5,240,164	5	5,245	**10,490**	**200**	**100**

DR Congo	20,789,881	5	22,717	**45,434**	**183**	**92**
Syria-MOH	2,664,148	10	2,750	**4,250**	**97**	**63**
Togo	1,468,732	7	1,491	**2,982**	**141**	**70**

It is clear from the above table that compared to international standards, the daily workload per vaccinator is relatively low in Syria-MOH and Togo, indicating over-estimation of the number of vaccinators and teams required for the campaigns. On the other hand, DR Congo appears to have adequately estimated the required numbers of staff, while Cameroon appears to have under-estimated staffing needs.

Syria-MOH campaign staffing requirements are better articulated in the revised submission. Vaccination team composition for the three delivery strategies (i.e. fixed urban, fixed rural, mobile) appears more efficient with 4, 3 and 2 team members respectively. However, estimated vaccinator daily workloads of 75 vaccinations in urban areas and 52 in rural areas appear low by WHO recommended standards and resulting vaccination teams needed per delivery strategy may still be inflated. If daily vaccination workload in urban and rural settings is slightly increased to minimum WHO SIA guideline recommendations of 100 and 75 daily vaccinations respectively, vaccination team numbers could be reduced by 432 teams, resulting in a reduction of 1,421 (20%) vaccination staff. While vaccination team staff have been reduced from 10,700 to 7,500 in this revised submission (i.e. from 5,000 to 2,750 teams), the HR share of the total budget remains high at 45% (i.e. including per diems classified under meetings and events). This high share is driven less by DSA rates, which are relatively low, than by the high staff numbers involved in the campaign. In addition to the apparently inflated number of vaccination teams, 416 supervisors for fixed urban and rural delivery and 700 supervisors for mobile delivery are budgeted. This overall ratio of 2.4 vaccination teams per supervisor is approximately half the WHO standard rate of 4-5 teams per supervisor, resulting in HR and transport costs for this category approximately double what they should be. Thus, further reductions in the share of HR costs will improve efficiency and value-for-money.

In the Togo budget, the calculation of the number of vaccination teams is based on the number of health facilities (one vaccination team per health facility) rather than the target population, the delivery strategy, and the associated workload per team and per vaccinator. As a result, the daily vaccinator workload of 70 vaccinations per day is far below the WHO standard leading to an inflation of 442 additional vaccination teams and 1,768 additional vaccinators if the standards workload ratios outlined in the POA are applied, or 30% of the total number of staff required for the campaign.

In the DR Congo application, the planned HR requirements appear adequate although questionable. While the teams to supervisor ratio complies with 4 to 1 standard, supervision activity quantities can be rationalized. For example, DR Congo plans prospective pre-campaign supervision and 2 separate communications and technical supervisions that might be consolidated. Similarly, number of supervision days appear inflated (e.g. 14 days at central level for a 5-day campaign). Additionally, ratios used to calculate central supervisor numbers are not consistent with assumptions, as the POA ratio of central supervisors is presented to be between 1 to 2 by Antenna while calculations lead to a 2.2 ratio (potential impact of US$146,000 with a mean ratio of 1.5 by antenna).

In the Cameroun application, all key parameters required for the calculation of the number of vaccination teams are clearly outlined in the POA, including a differentiated daily workload per delivery strategy (200 vaccinations in urban areas, 150 in rural areas and 100 in hard-to-reach areas requiring mobile delivery strategy). However, in the budget, the number of required vaccination teams in every district and every Health Area is calculated based on a single daily workload of 200 vaccinations per day and per team. While the resulting numbers of vaccination teams appear adequate for urban areas, they are unlikely to be adequate for rural and hard to reach areas. As a result, the expected manpower shortage in rural and hard to reach areas is likely to compromise the achievement of the campaign objectives.

Issue 17: Improved estimates of HR requirements (numbers and composition of vaccination teams) for campaigns, but over-estimation and under-estimation issues persist.

Recommendations:

- Gavi and partners to sustain ongoing efforts to fully implement past IRC recommendations, including:
  a) Requesting countries to demonstrate that budgets are aligned with POAs
  b) Ensuring that campaign staffing requirements are calculated based on WHO standards

4. Differentiated delivery strategies

Syria was the only country in this round which reflected in the budget the delivery strategies for reaching zero-dose and hard to reach are clearly outlined in the POA. As a result, the greatest share of resources will be allocated to rural and mobile delivery strategies, which may enable the achievement of campaign coverage goals in rural and hard to reach areas.

In the Cameroun application, key delivery strategies for reaching zero-dose children outlined in the POA are not costed and reflected in the budget. All regions of the country, all districts and all HA (AS) will be receiving the same amount of resources per target population regardless of the difficulties of reaching these populations. This approach carries a significant risk that the campaign objectives are unlikely to be achieved in areas with the greater difficulties in reaching these populations.

In the DR Congo application, the 3 delivery strategies (fixed, mobile, outreach) are clearly outlined in the POA. Budget calculations are not based on the delivery strategies but rather on fixed 30%-70% ratio of distribution of the target population between urban and rural areas for all provinces except Kinshasa.

Issue 18: Strategies for reaching zero-dose children and the hard-to-reach are increasingly outlined in the POAs, but often not reflected in the budget.

Recommendation

- Ensure that differentiated delivery strategies targeting the hard to reach and zero-dose children are adequately costed and reflected in the budgets.

5. Unfunded and underfunded activities

In the Syria-MOH application, key activities such as micro-planning and waste management are still not allocated adequate funding in the revised application. It was indicated in the pre-screening that waste management is the responsibility of campaign supervisors, and that microplanning will be included in the few scheduled meetings of staff. However, adequate waste management may still require additional resources and adequate microplanning may involve much more than a few meetings, therefore raising concerns about adequacy of the allocated funding. In addition, although the share of program planning and coordination in the budget has been increased from 1.2% to 2.3% in the revised budget, it still appears inadequate in view of the size of the planning and coordination task of the MR campaign and the fact that it also includes planned microplanning activities.

In the DR Congo application, critical activities such as microplanning will be funded from Government sources rather than from Gavi contribution. This constitutes an implementation risk as there have been previous delays in release of government funding. Some routine activities funded from Gavi contribution, e.g. national coordination, would more appropriately be funded from government, and the resulting saving used to fund critical activities such as microplanning.

Issue 19: Key priority activities are often under-funded or unfunded (Syria, DR Congo).

Recommendations:

- Gavi and Alliance partners to request countries to:
  a) Allocate adequate funding to key activities critical for the success of the planned campaigns
  b) Ensure that technical staff and finance staff work together on budget preparation and to prioritize technical assistance

6. High transport costs

Both DRC and Syria-MOH plan to rent 100% of vehicles needed for the campaigns. In addition to inflating budgets, this practice is raising sustainability issues as it creates total dependency on external funding for conducting national SIAs. In addition, in DRC, vehicle rental is planned for 8 days, including 3 days for vaccines distribution and 5 days for supervision. However, local transport costs of US$616,308 were additionally budgeted for supervision indicating duplication. In the Togo budget, transport costs account for 44% of the budget. This unusually high share of transport cost is driven by a systematic allocation of 5,000 FCFA for each local meeting and activity. This cost was classified as transport cost in the budget, but it is in reality an HR cost.

Issue 20: High transport costs resulting from renting 100% of vehicles required for conducting campaigns (Syria, DRC) and from increased use of transport allowances (Togo).

Recommendations:

- Gavi and Alliance partners to request countries to:
  a) Ensure that technical staff and finance staff work together on budget preparation to ensure that key activities are adequately funded and budgets are aligned with the POAs.
  b) Submit as part of the application an inventory of existing vehicles that may be used in SIA activities and to limit vehicle rental to what is necessary.
  c) Request countries to submit as part of the application an inventory of existing vehicles that may be used in SIA activities and to limit vehicle rental to what is necessary.

Review process

The IRC greatly appreciated Gavi Secretariat responses to suggestions in previous rounds related to virtual IRC meetings review processes. The responses and follow-up have been key in ensuring an effective IRC Review Process. Specifically for this round, these were, (a) optimal scheduling of the sessions and reviews, (b) improvement in the pre-screening by the technical partners and the Gavi country management teams, (c) addressing on-going challenges in budgets and linkages to POAs and, (d) the revised Plan of Action guidelines and template with focus on Gavi 5.0.

The IRC however noted that countries requesting support for follow-up campaigns for measles containing vaccine due to sub-optimal routine coverage for measles as well as suboptimal coverage during the most recent SIAs often face challenges of early proposal preparation. This was reflected in that of the initial 13 country applications received for this round of the IRC, six (five measles and one IPV2) were not deemed ready for review due to quality of budgets or lack of response to pre-screening points. The IRC re-iterates the concern that any delays in funding, due to either poorly prepared applications or last minute submission of applications risk delays in a implementation of time-sensitive interventions.

Issue 21: Improving the quality of applications for measles follow-up or catch-up campaigns to avoid delays in implementing time-sensitive interventions.

Recommendations:

- A long-term approach should be adopted for preparation of the applications in view of the fact that almost in all instances, proposed dates for measles follow-up campaigns are included in the country strategy documents

- Early proposal preparation with realistic timelines and adequate technical support from both local and global partners should be given priority and reflected in the relevant EPI annual plans of action and overall TCA plan of the country.

Conclusion

The IRC appreciates the efforts of the Gavi Secretariat and technical partners in ensuring that the IRC effectively carries out its tasks. This round reflected an overall improvement in the quality of the country applications and the on-going efforts to address the challenges related to budgets and the defining of differentiated strategies to reach the most vulnerable children during campaigns. The countries made an effort to follow the revised guidelines for preparation of the plans of action and in particular assignment of districts based on level of difficulty to reach. However, quantification of the hard to reach and vulnerable populations was not optimal and identified supply and demand related barriers were not based on available epidemiologic or operational data. As such, prioritization and proposed strategies in the plans of action were remained high level and lacked specificity. Within the budgets of the applications, misclassification of activities and input costs remain unaddressed and alignment of the budget with activities, including required personnel, transport costs , differentiated strategies to reach zero-dose and missed communities remain major challenges that are likely to significantly impact in the quality of implementation of the interventions proposed by the countries.

The IRC urges Gavi and technical partners to provide technical support to assist the countries in developing strategies for the Gavi 5.0 approaches and for strengthening routine immunisation programmes during the pre-campaign, campaign and immediate post campaign periods.

Acknowledgements

The IRC would like to thank the Gavi Executive Team, the CEO and Deputy CEO, for their support and responsiveness to key IRC recommendations. The IRC is expresses its gratitude to FDR team (Lindsey, Verena, Sonia, Anjana) for their excellent organisation of the meeting and for being available at all times during the review process.

Our sincere thanks go to all the Gavi Secretariat, SCMs, VP and PFM team members. Their timely and informative pre-review screenings and the inputs during plenary sessions, often providing country-level perspectives, were particularly useful during plenary discussions and final decision-making. We are also very grateful to the Gavi IT team for ensuring the smooth conduct of this virtual IRC meeting.

Finally, we wish to recognize the essential contribution of the Alliance partners who supported countries in preparing the applications, attended the contributions and clarifications on global policies and strategic issues.

Annex 1: IRC Members for the 8-16 November 2021 Meeting

	Name	Nationality	Profession/Specialization	Gender	French	Expertise
1	Aleksandra Caric	Croatia	Independent consultant	Female	FR	Measles, AEFI Surveillance and vaccine safety, programme management, primary health care.
2	Natasha Howard	Canada	Associate Professor, NUS School of Public Health and LSHTM, Singapore	Female		Health policy, social epidemiology, immunisation service delivery, fragile setting, refugees.
3	Sandra Mounier-Jack **Interim Vice-Chair**	France/UK	Associate Professor in Health Policy at the Faculty of Public Health and Policy of the LSHTM	Female	FR	HPV, measles, immunisation programmes, HSS, health policy and health financing.
4	Dafrossa Lyimo **Vice Chair**	Tanzania	Independent Consultant	Female		Immunisation campaigns, programme and health systems management, disease control, RI, surveillance.
5	Benjamin Nkowane **Interim Chair**	Zambia	Independent consultant	Male		Measles, epidemiology, mass vaccination campaigns, technical support for field operations in risk areas.
6	Tcha Landry Kaucley	Benin	National EPI logistics manager	Male	FR	Cold Chain, vaccine logistics, EPI monitoring & evaluation, public health management.
7	Tibouti, Abdel	Morocco, Canada	Independent Consultant	Male	FR	Financial and Budget Analysis, Health Economics, Health Financing Strategies, Program M&E.
8	Karen Wilkins	USA	Independent Consultant	Female	FR	Routine immunisation, measles, polio, surveillance, planning & evaluation.
9	Khrouf Wassim	Tunisia	Auditing and Consulting Worldwide, Partner	Male	FR	Financial & budget analysis, audits, project assessment.
10	Ousmane Tamba Dia	USA, Senegal	Independent Consultant	Male	FR	Routine immunisation, Project/Program management, Supply chain management, Biomedical equipment maintenance, Health care waste management.
11	Hersh, Bradley **(IPV2 Reviews only)**	USA	Independent Consultant	Male	FR	Health policy, epidemiology, immunisation/NVS, outbreaks, campaigns, measles, and rubella control.