Zero-Dose Analysis Card

Key Concepts and Definitions

"Zero-dose children" are those that have not received any routine vaccines. For operational purposes, Gavi defines "zero-dose children" as children who have not received the first dose of diphtheria-tetanus-pertussis containing vaccine (DPTcv1) as a proxy measure.

"Missed communities" are population groups that face multiple deprivations, including systematic constraints on their access to immunisation and other essential health services. These may include socio-economic inequities such as gender-related barriers. Often the presence of zero-dose individuals, populations, or disease outbreaks are signals for missed communities as they are inextricably linked.

"Under-immunised" are those who have not received a full course of routine vaccines. For operational purposes, Gavi defines "under-immunised" children as those missing a third dose of diphtheria-tetanus-pertussis containing vaccine (DPTcv3).

"Equity" is the organising principle of the Alliance's 2021-2025 strategy, whose vision is "leaving no one behind with immunisation." This entails a laser focus on using all Gavi levers to sustainably reach missed communities and zero-dose children with routine immunisation.[1]

[1] WHO Equity definition. Cross refer to Programme Guidance

Purpose

Assist with and/or consolidate analyses relating to zero-dose and under-immunised communities in order to identify Gavi investments in a given country. It builds on existing programme reviews, assessments, and studies undertaken in the country; in some cases, it may need to be supplemented by primary data collection.

Identify

Find and describe (i.e., whom, where, and how many)

A clear understanding of how many zero-dose children and missed communities there are, who and where they are, and why they have not been reached. **Ultimately, this is to arrive at an understanding of which barriers need to be prioritised and addressed using Gavi support.**

Before zero-dose and under-immunised children (and communities) can be identified, it is important to have a robust understanding of the "real" target population, both in terms of number and localisation, at the most decentralised level. When possible, knowledge of social determinants at the most decentralised level should be used. Once the target population has been ascertained, then it is important to understand the distribution of zero-dose and under-immunised communities.

Key Questions

Are population estimates used for planning immunisation services at all levels, including the community, up-to-date and accurate?

- Are there some communities and/or settlements which are not captured by these estimates (e.g., mobile / nomadic populations)?
- Do you have information regarding these communities and/or settlements which are not captured by these estimates?
- Do the available target population estimates allow you to ascertain the size of the catchment area population?

How are zero-dose, under-immunised and missed children, and their communities geographically distributed?

- Are they concentrated amid specific geographies and/or specific populations?
- What is the proportion of zero-dose and under-immunised children living in different settings, especially urban, remote rural, and fragile / conflict contexts?
- What is the remaining proportion of zero-dose and under-immunised children who do not live in urban, remote rural, and fragile / conflict settings?

Areas for Gavi Support

Technical Assistance

- Data collection, analysis, and triangulation for ascertaining accuracy of denominators as well as distribution of zero-dose and under-immunised children in the population. Triangulation efforts should include use of disease outbreak and surveillance, population, service delivery, and other health data sources used by polio, nutrition, malaria, and primary health care programmes.
- Centralising data sources to create various map layers (e.g., denominators used by both Routine Immunisation [RI] and Polio programmes).

Health Systems Strengthening

Activities to improve routine data systems

- Strengthen linkages between the Health Management Information System (HMIS) and Civil Registration and Vital Statistics (CRVS), including birth notification and community registries
- Scale-up and/or strengthen use of a Geographic Information System (GIS) to update boundaries of catchment areas and health facilities via digitised maps

Activities which are implemented point in time

- Use of satellite imagery to identify missed settlements
- Community headcounts (facilitated by community actors)
- Use of surveys, including post-campaign surveys, to identify zero-dose and under-immunised children (with geotagging)

Key Analyses and Resources[2]

At minimum, the following analyses should be used; those analyses may already be included in existing reports, studies and/or assessments. The mapping of resources for improving coverage and equity can also be used to frame this process.

- Comparing different data sources of denominators as well as health facility data to ascertain the accuracy of population estimates.
- Distribution of zero-dose and under-immunised children by administrative units as well as specific settings especially urban, rural remote, fragile / conflict and other areas.
- Mapping immunity gaps.

Key Data Sources

Distribution of zero-dose and under-immunised children should draw from the following data sources:

- Routine immunisation sources such as administrative / LMIS data, coverage evaluation surveys, electronic immunisation registries (wherever available)
- Post immunisation campaign survey (for identifying antigen-specific zero-dose children)

Comparison of denominators:

- Routine immunisation sources such as administrative / LMIS data, electronic immunisation registries (wherever available)
- Projections generated by the National Bureau of Statistics
- Polio / measles campaign enumeration data

Mapping immunity gaps:

- Vaccine-preventable disease surveillance data for mapping immunity gaps

[2] WHO repository of tools along the IRMMA framework (link to be added).

Identify

A clear understanding of how many zero-dose children and missed communities there are, who and where they are, and why they have not been reached. **Ultimately, this is to arrive at an understanding of which barriers need to be prioritised and addressed using Gavi support.**

Understand and listen (i.e., why)

Once areas and/or populations with higher number of missed children have been identified, it is important to reflect upon barriers to these children being reached by immunisation and primary health care more generally. These barriers can be associated with supply and demand related considerations. This step draws from both quantitative and qualitative research methods.

Key Questions

Why have zero-dose and under-immunised children not been vaccinated?

- What social, cultural, political or gender-related barriers might they or their families face to accessing services?
- Do the reasons differ by urban, remote rural, and fragile settings?

Specifically, what are the **supply-related barriers** that prevent zero-dose and under-immunised children from being vaccinated?

- Are these supply-related barriers already addressed by existing interventions / support? If so, what are some of the existing gaps?

Specifically, what are the **demand-related barriers** that prevent zero-dose and under-immunised children from being vaccinated?

- Are these demand-related barriers already addressed by existing interventions / support? If so, what are some of the existing gaps?

What *new interventions are required to overcome these barriers and* **how** do all those identification-related analyses culminate in a Theory of Change (ToC) for Gavi support?

- What is the relative importance / weight of each bottleneck?
- In which areas are the most missed children and will interventions need to be targeted?
- What is the right balance between systemic and targeted interventions?

Areas for Gavi Support

Technical Assistance

- Secondary analyses of existing quantitative data collected through routine systems (e.g., data sources included in the DHIS 2 Bottleneck Analysis [BNA] application) as well as surveys
- Triangulation to uncover reasons for non-vaccination related to supply-related barriers
- Qualitative assessment (e.g., KAPB surveys, coverage and equity assessments, gender toolkit / analysis) to better understand barriers to immunisation and primary health care
- Development of a ToC

Health Systems Strengthening

- Establish and/or strengthen social listening related interventions to understand beliefs, perceptions and intent for vaccination
- Strengthen use of triangulation through automated dashboards
- Strengthen use of the DHIS 2 BNA application
- Implementation research

Key Analyses and Resources

The list of minimum analyses below are meant to help distinguish supply versus demand related barriers.

Supply-related challenges:

- Mapping of health facilities overlayed with vaccine stock availability, healthcare worker availability, and/or cold chain equipment availability and functionality
- Visualisation of fixed and outreach immunisation sessions conducted
- Fund flow related analyses

Analyses of **demand-related challenges** should unpack perceptions and experience relating to all steps of the caregiver journey: (1) knowledge and awareness; (2) intent; (3) preparation; (4) cost and effort; (5) point of service; and (6) after service.

Key Data Sources

Supply-related data sources:

- Geo-enabled Master Facility Lists
- Health Facility Assessments including SARA, HeRAMs, etc.
- Assessments and/or studies relevant to some or all pillars of the health system (e.g., Effective Vaccine Management [EVM] assessment, HR-related assessment, in-depth data quality assessments, health financing analyses, etc.)

Demand-related data sources:

- KAP / BeSD surveys
- Social listening tools (e.g., key informant interventions, exit interviews, analysis of social media content, etc.)

Resources for developing and designing a ToC:

- Gavi Application Materials

Reach (Tailor strategies, integrate and sustain)

Develop and implement tailored and sustainable strategies to address supply and demand-side barriers from the identify step, to ensure missed children are reached with immunisation in different settings (urban, remote rural, fragile, and others), and to serve as a platform for broader integrated PHC over the life course.

Key Questions

Demand and Supply side Barriers

- How can programmes build communities' trust, confidence, and understanding of immunisation?
- How can strategies be adapted to overcome gender and other socio-economic barriers to caregivers and children accessing immunisation?
- How can immunisation services be better designed to meet the needs of caregivers and what are the best strategies to motivate caregivers and communities to bring children for immunisation?
- Can strategies be adapted to overcome gender and other socio-economic barriers to caregivers and children accessing immunisation?

Service Delivery

- Are services available where and when needed in the community?
- How can service delivery approaches be tailored to reach specific contexts e.g. urban settings, conflict/fragile, remote rural, etc? How can we strike a balance between fixed side PHC delivery models and community outreach sessions to reach the missed communities in a sustainable way?
- How can immunisation be better integrated with other PHC interventions to maximise reach? Can immunisation be integrated with delivery of other services which may have greater access (e.g.,bed nets, Vit A, nutrition supplements, etc)?
- How can service delivery approaches be tailored to ensure health services are convenient, inclusive, and facilitative for caregivers including to meet needs for infection/prevention/control?
- Is there a strategy to track drop outs or defaulter tracing?

Human Resources

- Are sufficient health workers available in targeted communities to provide regular immunisation services?
- Are health workers fully equipped with skills and tools to provide people-centred quality immunisation services that are trusted and sought by communities to complete immunisation schedules
- Are there enough health workers, who are fully equipped with the right knowledge and skills, to manage the supply chain especially when new cold chain points are established?

Supply chain:

- Are there costed robust immunization supply chain (iSC) improvement plans in place anchored towards reaching zero dose children and missed communities?
- How will the CCE capacity needs, distribution and deployment plans prioritize these communities?
- Are there systems in place to reliably distribute the full set of vaccines to these communities and are replenishment intervals optimized to serve the needs of these communities?
- Are there systems in place for stock monitoring, triangulating program and supply data, and use of data for action by coordinators and implementers of these interventions?
- Are there systems in place for vaccine accountability, while implementing targeted interventions to reach zero-dose/missed communities, including reverse logistics?
- Are supply chains resilient and responsive to shifting needs of these communities including the potential for disease outbreaks?

Partnerships:

- Which CSOs, humanitarian agencies, private for-profit sector and non-health sector actors have a comparative advantage in reaching these communities? Are suitable mechanisms in place to engage them?

Long-Term Strengthening & Innovation

- What innovations are needed to strengthen access to zero-dose children and missed communities in the long term?

Programme Management and oversight capacity at sub/national level

- Are there gaps in capacity to develop effective plans to reach zero dose communities and a performance management system to track progress on reliable services acceptable to the communities? If so, what steps are being taken to address these gaps?
- What transformational changes are necessary to the current systems and processes to ensure availability of resources (financial, human, supplies and TA) to deliver services matching community needs?
- What changes are necessary in the mandate, membership and scope of governance committees (ICC/HSCC) to provide effective oversight to ensure that the programme is reaching these communities

Reach (Tailor strategies, integrate and sustain)

Develop and implement tailored and sustainable strategies to address supply and demand-side barriers from the identify step, to ensure missed children are reached with immunisation in different settings (urban, remote rural, fragile, and others), and to serve as a platform for broader integrated PHC over the life course.

Areas for Gavi Support

Technical Assistance

- Perform or update Human Centered Design based studies, along with Knowledge, Attitudes, Beliefs and Practices (KABP), and formative studies targeted to specific populations to understand the barriers
- Perform or update Health Facility Assessments (HFA) targeted to specific geographies and populations
- Perform implementation research and/ or process evaluation for continued learning and course correction

Health Systems Strengthening

- Deliver tailored and gender responsive service delivery models
- Support strategies to reach zero-dose communities with regular and reliable services based on sound microplanning (PIRI and mobile and outreach services can be supported in the short term with a clear understanding of how to sustainably strengthen services to these communities in the long term)
- Procure necessary cold chain and related equipment for adequate cold chain capacity in missed communities
- Functional national and subnational logistical working groups prioritising the zero-dose agenda; priority setting and resource allocation leveraging existing funding sources; upskilling and equipping vaccinators and vaccine handlers.
- Tailor supply chain interventions based on assessments including appropriate forecasting accounting for missed populations; alternate vaccine delivery; increased distribution points with appropriate cold chain equipment; engagement of private sector, community leaders, and NGO/CSO engagement for last mile delivery and CCE maintenance; increased solarisation as part of sustainable energy solutions; improved management of vaccine stocks
- Incentivise deployment of trained staff for immunisation and community mobilisation
- Aligning with other non-health donors (e.g. International Organization for Migration (IOM) in conflict settings, women and youth-led CSOs in urban settings)
- Invest in reliable data (e.g. Electronic immunisation registry)

Technical Assistance

- Build capacity to orient management and assist in developing participatory approaches to ensure community participation in planning, managing and monitoring services
- Build capacity for strategic use of data for management decisions in order to improve EPI performance
- Build capacity to manage new partnerships
- Build capacity to ensure that critical resources (HR, vaccines and funds) are available to deliver reliable and quality services to the community

Health Systems support

- Support mechanisms to institutionalise local, community based partnerships
- Support investments in innovative mechanisms to transform leadership and management approaches to reach the zero dose communities

Technical Guidance

Global Routine Immunisation Strategies and Practices (GRISP): a companion document to the Global Vaccine Action Plan (GVAP) (WHO 2016)

Microplanning for immunisation service delivery using the Reaching Every District (RED) strategy (WHO/UNICEF 2009)

WHO guidance on COVID response, recovery and maintenance plan

Improving immunisation coverage and equity through the effective use of geospatial technology

UNICEF ROSA Practical guidance on gender and immunisation

Immunization Supply Chain Interventions to Enable Coverage and Equity in Urban Poor, Remote Rural and Conflict Settings

Tailoring Immunization Programmes (TIP)

Missed Opportunities for Vaccination

Periodic Intensification of Routine Immunization

Urban Immunization Toolkit

Vaccination in Acute Humanitarian Emergencies

WHO guidance for planning and implementing catch-up vaccination

Second Year of Life (2YL) Resources

Working together – an integration resources guide for immunization services throughout the life course

Gavi Programme Funding Guidelines

Gavi Alliance Programming Guidance (Demand, Gender, Urban, Human Resources for Health, Leadership, Management and Coordination)

Gavi Innovations catalogue

Tools

UNICEF Human-Centred Design Toolkit

Revised C&E toolkit from UNICEF/WCARO/ESARO

Monitor

Ongoing monitoring to ascertain (1) if programmatic strategies, as defined in the REACH step, are achieving the outputs and outcomes specified in the country's 'ToC' and (2) which course correction measures need to be implemented.

At minimum, analyses and visualisations used in this step should speak to the ToC and therefore look at the following:

- Programmatic and financial progress for Gavi-supported activities (i.e., Gavi workplan and budget).
- Progress against the Gavi strategy, core, and supplementary (if any) indicators.
- Addressing the learning questions put forward in the Monitoring & Learning (M&L) plan.

Key Questions

How will you monitor whether programmes are on track to reach zero-dose children and missed communities as per the ToC?

- Progress towards intermediate results as described in the ToC?
- Progress towards immunisation outcomes as described in the ToC?
- Whether Gavi-supported programmatic areas are contributing to reaching zero-dose populations?

What monitoring / data systems do you need to establish and/or improve to ascertain whether **demand-related pro-equity strategies** are effective?

- How will you integrate community-centred insights from users, beneficiaries, and CSOs into your monitoring system?

What monitoring / data systems do you need to establish and/or improve to ascertain whether **supply-related pro-equity strategies** are effective?

What processes do you need to establish and/or improve to assure **use of data for action**?

- How will you ensure that data is available in a timely manner and used to design, monitor, course correct, and learn from programme implementation?
- How will you track the implementation of course correction measures?

Areas for Gavi Support

Technical Assistance

- Strengthen capacity to analyse, consolidate, and use programmatic data for decision making supported by dashboards
- Design community-centred monitoring system
- Use of implementation research for addressing learning questions listed in the M&L plan

Health Systems Strengthening

- Monitoring Gavi financial and workplan activities
- Strengthen data systems such as HMIS, Electronic Immunisation Registries (EIRs), LMIS (including the temperature monitoring, track and tracing functions), operational data, etc.
- Real-time campaign monitoring
- Establish and/or strengthen community monitoring systems
- Establish and/or strong linkages between monitoring, accountability, and learning
- Implementation research

Gavi Programme Funding Guidelines

Programming guidance on data (forthcoming)

Measure (and Learn)

Evaluation of effectiveness and efficiency of immunisation programmes in reaching zero-dose children and missed communities.

Key Questions

How will you measure the **effectiveness and cost-efficiency** of selected pro-equity strategies in

- Reaching and reducing the number of zero-dose, under-immunised, and missed communities
  - At the subnational level and in specific settings (i.e., remote rural, urban, conflict, and mobile populations)?
- Addressing **gender-related barriers**?
- Addressing **supply-related barriers**?
- Addressing **demand-related barriers**?

Areas for Gavi Support

Technical Assistance

Activities that strengthen routine country data systems

- Comprehensive approach to strengthening local capacity for monitoring, learning, and evaluation
- Perform an evaluability assessment at the programme design phase if a country-level evaluation is proposed to ensure evaluability of a programme or programme component
- Approaches to temporarily bolster collection, analysis, and use of operational data (e.g., local data collector networks, mobile phone reporting, sentinel sites with more robust data collection methods)
- Implementation research
- Process evaluation

Activities which leverage existing surveys

- Assure objectives in targeted surveys (i.e., subnational, urban areas) and serosurveys are aligned with ToC measurement
- Optimise campaign surveys including resulting analyses are supporting the assessment of cost effectiveness and efficiency

Activities that rely on modelling

- Plan and pilot use of geostatistical modelling at subnational level
- Combine geographic modelling with socio-economic indicators, including gender-related barriers, to reveal areas of inequity and identify underlying causes and potential solutions

Health Systems Strengthening

- Implementation research
- Replicate and scale-up innovations / strategies pilot tested in Gavi Learning Hubs

Technical Guidance

- Implementation research data base and guidance (forthcoming)
- Targeted survey (forthcoming)
- Evaluability assessment guide
- Evidence-based learning guide
- Implementation research database and guidance

Gavi Programme Funding Guidelines

Programming guidance on data (forthcoming)

Technical Guidance

- Implementation research data base and guidance (forthcoming)
- Targeted survey (forthcoming)
- Evaluability assessment guide
- Evidence-based learning guide
- Implementation research database and guidance)

Advocate

Use evidence to make a case for political attention and resources. Secure commitment to prioritise reaching zero-dose children and missed communities with immunisation services by national, subnational, and community leaders, civil society and development partners, and ensure that this commitment is reflected in policies, planning, and domestic resources for immunisation.

Key Questions

- Are these commitments reflected in policies, planning, budgets, and coordination? Is an advocacy strategy needed to secure such commitment?
- Are national, subnational, and community leaders, including civil society and development partners in and beyond immunisation, committed to prioritising zero-dose and missed communities by addressing demand/gender-related and additional socio-economic/cultural barriers to immunisation?
- Are other programmes and funders prioritising zero-dose communities for other services?

Key Indicators:

- **Policies and Planning:** Is reaching zero-dose children and missed communities a clear priority reflected in National Health policy and/or National Immunisation Strategy and related national and subnational operational plans?
- **Budgets and Services:** Are there functioning mechanisms in place to direct and manage resources to sub-national and community levels to address key barriers to immunisation, including gender-related barriers?
- **Single Platform for Zero-Dose Efforts:** Are relevant donors, humanitarian, and development partners in the country participating on a single Primary Health Care (PHC) platform coordinated by the Ministry of Health at national and sub-national levels to address equity challenges?

Areas for Gavi Support

Technical Assistance

- Design a targeted advocacy and engagement strategy to engage national, sub-national, humanitarian, and civil society stakeholders in the zero-dose agenda
- Develop advocacy planning and engagement tools and content in support of the zero-dose agenda
- Identify and leverage opportunities to integrate approaches to zero-dose and under-immunised communities into relevant national policies and plans
- Evaluate sustainability of domestic financing for immunisation and support countries to design budgets to target resources to specific approaches, geographies, and populations necessary to reach zero-dose populations.

Gavi Programme Funding Guidelines

- *Gavi Guidance on Demand and Gender-Related Barriers to Immunisation (forthcoming)*
- *Gavi Guidance on Civil Society Organisations (CSOs) and Community Engagement (forthcoming)*

Other Resources

- Relevant political commitments to support advocacy, e.g., UHC Declaration (2019; all UN Member States); Astana Declaration on Primary Health Care (2018; all WHO Member States); Global Compact on Refugees (2018; all UN Member States); Addis Declaration on Immunisation (Africa)