HOW CAN WE ADDRESS ZERO DOSE STATUS?
INNOVATIVE STRATEGIES FOR ZERO DOSE USING THE IDENTIFY, REACH, MONITOR, MEASURE, AND ADVOCATE (IRMA) FRAMEWORK:

IDENTIFY:
• Locate and prioritize zero dose communities through data triangulation and precise analytics (e.g., using prioritization tool or GIS-based micro-planning).

REACH:
• Co-create context-specific delivery approaches using human-centered design thinking.
• Equip health providers and volunteers with last-mile delivery tools and resources.
• Deliver vaccinations alongside an integrated package of responsive family-oriented services.

MONITOR AND MEASURE:
• Revive or erect community accountability systems to ensure no community is left behind.
• Strengthen data analysis capacity.

ADVOCATE:
• Mobilize political will for zero dose agenda using influential champions.
• Expand partnerships with private sector and civil society organizations to mobilize resources and support.
• Increase funding to pro-equity immunization strategies.

HOW CAN WE LOOK BEYOND IMMUNIZATION TO IMPROVE CHILD HEALTH?
Many of the barriers that zero dose families face in accessing immunizations also hinder their ability to reach care when their child is ill. Approximately 60 percent of people in Madagascar live more than five kilometers from a health facility. There are also many close links between nutrition and vaccination, and vaccination can support healthy growth and development. Children with poor nutritional status and vaccine status are often clustered, and malnourished children are at a greater risk of severe outcomes from vaccine-preventable illness. Opportunities to integrate immunization, child health, and maternal health services could greatly close equity gaps in access to health care and improve health outcomes in underserved communities.

REFERENCES

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MOMENTUM
Country and Global Leadership

ZERO DOSE COUNTRY PROFILE: MADAGASCAR
July 2023

BACKGROUND
Immunization protects health and saves lives. Zero dose children are those who have not received any vaccinations. For operational purposes, zero dose children are defined as those who have not received a first dose of combined diphtheria-tetanus-pertussis (DTP1) vaccine. In Madagascar, 34 percent of children 12–23 months of age are zero dose, and these children suffer a higher risk of poor health outcomes. Reaching zero dose children with immunizations can serve as a valuable opportunity to connect vulnerable children and communities with the health system. Improving equity by targeting children not yet reached by immunization systems will require adjusting existing approaches and identifying new and innovative strategies. It is important to understand the zero dose population in Madagascar, the barriers they face, and the tools that can be leveraged to reach them.

WHERE ARE ZERO DOSE CHILDREN?
Prevalence of zero dose children in Madagascar

HOW MANY ZERO DOSE CHILDREN ARE IN MADAGASCAR?
There were approximately 449,000 zero dose children in Madagascar in 2022. Over the past decade, 1 in 4 children in Madagascar are zero dose. The proportion is increasing.

References

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USING DATA FROM THE 2021 DEMOGRAPHIC AND HEALTH SURVEY CAN HELP TO UNDERSTAND THE CHARACTERISTICS AND DRIVERS OF ZERO DOSE CHILDREN IN MADAGASCAR. Over 40 percent of zero dose children live in the poorest wealth quintile, and more than 1 in 3 have mothers who did not receive any education. Mothers of zero dose children in Madagascar have lower utilization of health services and are more likely to give birth at home than mothers of vaccinated children. Yet, a large proportion of mothers of zero dose children do receive the recommended health services—36 percent had at least four antenatal care visits—which highlights the need to address missed opportunities and better integrate care.4

**WHO ARE THE ZERO DOSE CHILDREN IN MADAGASCAR?**

Most zero dose children in Madagascar live in rural areas (90%) and are from the poorest homes (43%).

Zero dose children in Madagascar have mothers with limited access to education and health services.2

**Demographic and health profile in Sub-Saharan Africa and the full population of Madagascar, for comparison**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Madagascar</th>
<th>Sub-Saharan Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal mortality rate, under 5 per 1,000 live births, 2020</td>
<td>50.2</td>
<td>53.1</td>
</tr>
<tr>
<td>Maternal mortality rate, infant (per 1,000 live births), 2020</td>
<td>16.3</td>
<td>50.3</td>
</tr>
<tr>
<td>Maternal mortality ratio (indirect estimate, per 100,000 live births), 2017</td>
<td>391</td>
<td>574</td>
</tr>
<tr>
<td>Economic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP per capita (PPP, current international $), 2000</td>
<td>2,510</td>
<td>1,791</td>
</tr>
<tr>
<td>Out-of-pocket expenditure (% of current health expenditure), 2019</td>
<td>32.52</td>
<td>29.38</td>
</tr>
<tr>
<td>Current health expenditure (% of GDP), 2019</td>
<td>3.69</td>
<td>4.56</td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population, total 2021</td>
<td>20,437,153</td>
<td>-</td>
</tr>
<tr>
<td>Rural population (% of total population), 2021</td>
<td>44.2</td>
<td>-</td>
</tr>
<tr>
<td>Maternal health and demographic*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of mothers who are adolescents (15–19 years), 2021</td>
<td>13.8</td>
<td>-</td>
</tr>
<tr>
<td>Percentage of mothers without primary education, 2011</td>
<td>10.9</td>
<td>-</td>
</tr>
<tr>
<td>Home births (%), 2021</td>
<td>59.6</td>
<td>-</td>
</tr>
<tr>
<td>Pregnant women with 0 ANC visits (%), 2021</td>
<td>10.2</td>
<td>-</td>
</tr>
<tr>
<td>Mothers with 0 tetanus injections (%), 2021</td>
<td>18.7</td>
<td>-</td>
</tr>
</tbody>
</table>

* Among mothers of children 12–23 months

**NATIONAL IMMUNIZATION STRATEGY ANALYSIS: UNDERSTANDING THE STRENGTHS AND WEAKNESSES OF THE IMMUNIZATION SYSTEM TO GUIDE STRATEGIES TO REACH ZERO DOSE CHILDREN**

**WHY ARE THEY ZERO DOSE? KEY CORRELATES OF ZERO DOSE STATUS:**

1. Inadequate quantity of human resources for health and lack of supervision at all EPI levels.
2. Inadequate human resources for health development policy.
3. Outdated national human resources for health development policy.
4. Regional/district infrastructure unsuitable for installation of new cold rooms. Insufficient budget and tools for maintenance of cold chain equipment.
5. Irregular functioning of coordination platforms on EPI at all levels.
6. Serious delays in the flow of funds from central to operational levels.
7. Inadequate state budget allocation to EPI and low utilization rate of Gavi funds.
8. Standard operating procedures unavailable for logistics management of the EPI.
9. Inadequate immunization data management tools.
10. Under/overestimation of target population in some districts.
11. Inadequate capacity to analyze data for action.
12. Highly inaccurate data, leading to discrepancy between administrative coverage and DHS or Demographic and Health Survey coverage.
13. Inadequate sectoral involvement of political, religious, and traditional groups in immunization activities.
14. Insufficient interaction and coordination of all immunization stakeholders.
15. Irregular functioning of coordination platforms on EPI at all levels.
WHO ARE THE ZERO DOSE CHILDREN IN MADAGASCAR?

Most zero dose children in Madagascar live in rural areas (90%) and are from the poorest homes (43%).

Zero dose children in Madagascar have mothers with limited access to education and health services.

**Urban vs. rural living among zero dose children**

**Breakdown of wealth quintiles among zero dose children**

<table>
<thead>
<tr>
<th>Wealth Quintile</th>
<th>Rural</th>
<th>Urban</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest</td>
<td>3.6%</td>
<td>2.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Poorer</td>
<td>4.7%</td>
<td>5.4%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Middle</td>
<td>17.9%</td>
<td>14.9%</td>
<td>16.4%</td>
</tr>
<tr>
<td>Richer</td>
<td>22.2%</td>
<td>22.0%</td>
<td>22.1%</td>
</tr>
<tr>
<td>Richest</td>
<td>43.2%</td>
<td>39.9%</td>
<td>41.5%</td>
</tr>
</tbody>
</table>

Maternal characteristics of zero dose children

- **Maternal Education**:
  - Secondary: 17.2%
  - Primary: 44.6%
  - None: 38.2%
- **Adolescent Age**:
  - >20 years: 84%
  - 15-19 years: 16%
- **Maternal Tetanus Injection**:
  - ≥4 times: 17.9%
  - ≥3 times: 31.5%
  - 1-3 times: 32.6%
  - 0 times: 49.4%
- **Number of Antenatal Visits**:
  - ≥4 times: 35.8%
  - ≥3 times: 31.6%
  - 1-3 times: 24.2%
  - 0 times: 13.5%
- **Place of Delivery**:
  - Home: 83.2%
  - Other: 0.4%

**Percentage among Zero Dose Children**

- **Percentage of mothers who are adolescents (15–19 years), 2021**: 19.7%
- **Mortality, infant (per 1,000 live births), 2020**: 21.1
- **Mortality rate, infant (per 1,000 live births), 2020**: 36.3
- **Maternal mortality ratio (modelled estimate, per 100,000 live births), 2017**: 435
- **Out-of-pocket expenditure (% of current health expenditure), 2019**: 32.5
- **Current health expenditure (% of GDP), 2019**: 4.0
- **Percentage of mothers without primary education, 2021**: 79.0
- **Percentage of mothers with ≥4 ANC visits, 2021**: 50.2
- **Children delivered at home were more likely to be zero dose than children whose mother had no education were 75 percent more likely to be zero dose than those whose mother had primary education.**

**Strengths**

1. Robust communication plans for campaigns.
2. Good collaboration of the Ministry of Public Health with local radio/Social networks, influencers, and mobile operators at all levels.
3. Existence of community health volunteers to leverage immunization activities.

**Weaknesses**

1. Inadequate operationalization of strategic plan.
2. Insufficient funding for the implementation of routine demand generation activities.
3. Sub-optimal utilization and management of community health volunteers.

**Human Resources**

1. Establishment of Regional Training Offices in 74 percent of the regions.
2. Innovative online capacity building approaches for community workers in USAID program areas.
3. Inadequate quantity of human resources for health and lack of supervision at all EPI levels. Many health centers have only one staff person; thus, capacity for vaccination (especially outreach) is limited.
4. Outdated national human resources for health development policy.
5. Low motivation for community agents, because they are not absorbed into the system.

**Vaccines and Logistics**

1. Solar refrigeration at the health center level has increased from 45 to 62 percent in three years.
2. Trained staff in immunization supply chain and logistics at national level.
3. Digitalization of vaccines and consumables management at the central level.
4. Frequent stock-outs of vaccines and devices. Standard operating procedures unavailable for logistics management of the EPI.
5. Regional/district infrastructure unsuitable for installation of new cold rooms. Insufficient budget and tools for maintenance of cold chain equipment.
6. Eighty percent of health centers without means of transport for vaccine collection; many districts without adequate transport for vaccine supply and supervision.

**Monitoring and Disease Surveillance**

1. Existence of a functional surveillance system.
2. Recent integration of EPI data into DHIS2 in 2021.
4. High accurate data, leading to discrepancy between administrative coverage and DHS or WHO estimates.
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How can we look beyond Immunization to improve child health?

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