# Evaluation of the Gavi Health Systems Strengthening Support to Madagascar

# Evaluation Report

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## Acronym List

| | |
|---|---|
| APR | Annual Progress Report |
| APS | *Audit du Programme de Soutien* |
| ASC | *Agents de Santé Communautaire* |
| CCDS | *Commission Communale de Développement de la Santé* |
| CDC | Centers for Disease Control and Prevention |
| COSAN | *Comité de Santé* |
| CSB | *Centre de Santé de Base* |
| CSO | Civil Society Organization |
| DDDS | *Direction de Développement des Districts Sanitaires* |
| DDS | *Direction des Districts Sanitaires* |
| DEP | *Direction des Etudes et de la Planification* |
| DPT, DPT# | Diphtheria, Pertussis, and Tetanus Vaccine, # indicates doses |
| DQS | Data Quality Self-Assessment |
| DRSP | *Direction Régionale de la Sante Publique* |
| DSEMR | *Direction de la Sante de l'Enfant, de la Mère et de la Reproduction* |
| EPI | Expanded Program for Immunizations |
| FMA | Financial Management Assessment |
| Gavi | Gavi, the Vaccine Alliance |
| HSCC | Health Sector Coordinating Committee |
| HSS | Health Systems Strengthening |
| ICC | Interagency Coordinating Committee |
| IEC | Information, Education, and Communication |
| IRC | Independent Review Committee |
| JSI R&T | JSI Research & Training Institute, Inc. |
| MoPH | Ministry of Public Health |
| MoU | Memorandum of Understanding |
| NGO | Nongovernmental Organization |
| UG | Unité de Gestion |
| PTA | *Plan de Travail Annuel* |
| RED | Reaching Every District |
| RFP | Request for Proposals |
| SSD | *Système de Santé de District* |
| SV | *Service de Vaccination* |
| SWAP | Sector-Wide Approach |
| UNICEF | United Nations Children's Fund |
| USAID | U.S. Agency for International Development |
| WHO | World Health Organization |

# Summary

In 2007, Madagascar submitted a proposal for Gavi Health Systems Strengthening (HSS) Support funds, which were aimed to strengthen the provision of quality health services to the entire population; improve human resources management; improve allocation of financial resources; stimulate demand and use of health services; and strengthen and institutionalize the monitoring and evaluation system. HSS Support funds were first approved in 2008 and have been disbursed through 2013, with the fourth tranche of funds approved in 2014. During the implementation period (2008–2014), reprogramming of funds was conducted, responding to changing country priorities and environmental constraints.

The aim of this evaluation was to assess Madagascar's performance related to the achievement of the planned objectives in the country's Gavi HSS Support proposal. The assessment included Gavi HSS Support's contribution to improved health system performance, the potential link between Gavi HSS Support funding and improved immunization system performance and outcomes, and the effect of the country context—particularly the political situation—on Gavi HSS Support performance. The evaluation was led by JSI Research & Training Institute, Inc. (JSI R&T), in collaboration with in-country partner TANDEM.

The World Health Organization's health systems building blocks and Centers for Disease Control and Prevention's evaluation framework were used as guiding principles for the evaluation design. Methods used to conduct the evaluation included a guided desk review, key informant interviews at the national level, and district field visits. The evaluation team and key partners agreed upon selection criteria used to select districts included in the study. The evaluation collected data to assess both the process of implementing the Gavi HSS Support activities and the effects of said activities. The JSI team used several analytic techniques, including financial flow analysis, analysis of output- and outcome-level data to assess how the activities unfolded and how the immunization program performance evolved over time, and thematic analysis techniques to triangulate health system performance data.

The development of the Gavi HSS Support proposal for Madagascar was initiated in 2006 to strengthen the overall health system through service delivery, training, and management. The evaluation revealed that this process was intensive, although well executed with steady support from Gavi; however, there were some gaps in the development of the proposal, such as the limited involvement of civil society organizations (CSOs), which may have resulted in an initial proposal that did not include funds for CSO activities. Nevertheless, the Health Sector Coordinating Committee core team designed a proposal to address bottlenecks identified in the 2007 Health Sector Development Plan and validated by several assessments, including the Independent Review Committee.

Gavi HSS support was not implemented as planned due to several issues. These included a delay in initiating activities due to the unavailability of a manual of procedures to guide implementation; political disruption that led to frequent changes in leadership at all levels of the system; frequent reprogramming at the request of Gavi after the political crisis; and a cash audit that resulted in further delay of funds disbursement. Despite these issues, the country is on track to receive the fourth tranche of Gavi HSS Support funding, and the reprogrammings resulted in a more immunization program–focused plan. Despite reduced financing for health sector activities due to the withdrawal of many partners during the political crisis, Gavi HSS Support remained constant.

Attribution of impact on immunization outcomes to Gavi HSS Support funding is difficult to measure due to the major changes that took place in the country during implementation. Gavi HSS Support activities were partially successful in improving access, quality, and equity of immunization and other services. Health facilities were improved through renovations, addition of vehicles and motorbikes, and newly

hired staff deployed to poorly served areas. With regard to efficiency, the implementation of funds was not efficient. This was primarily due to the political crisis resulting in frequent changes in health personnel who were not familiar with the objectives of the Gavi HSS Support; the suspension of the key committees, thereby limiting the consultation between the government, Gavi, and external partners; the lack of a manual of procedures from Gavi until 2013; and finally administrative delays and late disbursement of funds. Results regarding efforts to ensure the sustainability of Gavi HSS Support were unclear. The proposal strategy for sustainability included meetings and regular correspondence between partners and the government to sustain their interest; however, this was not effective. Other issues include a decline in vaccine financing and a decrease in the health workforce in the next few years. But efforts are also underway to develop an action plan to address government spending for health and immunization and to further involve decentralized territorial collectives, nongovernmental organizations (NGOs), and associations that would potentially be a source of financial and technical support once Gavi HSS Support funds cease.

Gavi HSS Support was intended to increase immunization coverage rates, thereby reducing infant and child mortality, so coverage rates were assessed between 2008 and 2013. A consistent level of DPT3 coverage was observed despite the political crisis and decline in donor support. Overall, Gavi HSS Support likely had a greater impact than initially anticipated because of the consistent support provided during the political crisis.

Based on these findings, the evaluation team outlines several recommendations to strengthen Madagascar's health system and investment in immunization:

- The new proposal should include a risk mitigation plan that is elaborated through meetings between Gavi and the country.
- Gavi should convene a joint meeting with key Interagency Coordinating Committee members prior to implementation of the next HSS Support activities and work to align donor support.
- There should be continuous training on the policies and procedures manual, which should include well-defined roles for each person involved in HSS Support management activities. The management structure should also involve technical experts from the *Service de Vaccination* and *Direction de la Sante de l'Enfant, de la Mère et de la Reproduction* in implementation.
- Gavi should provide training and support on procurement to the entire HSS Support team. Clear rules and regulations for procurement are necessary to ensure transparency in the process.
- The structure of program management at the national and decentralized levels should be specified in a guidance document. The government should also pilot a system of decentralized funding to increase efficiency, since the process of managing Gavi funds is highly centralized within the *Direction des Districts Sanitaires*. Furthermore, the new proposal should increase the involvement of regional-, district-, and community-level staff to instill a greater sense of ownership of the HSS activities at different levels of the health system.
- Gavi HSS Support should include specific mechanisms for data tracking, procurement, and involvement of CSOs in HSS planning and implementation.
- The NGO mapping activity should be expanded to include information on how the intervention domains by the partners are addressed geographically.
- Gavi could consider identifying poorly performing districts and supporting Reaching Every District training, better *Comités de Santé*, review meetings, and outreach visits, which would feed into their approach to working with implementers to identify defaulters.
- There should be improved tracking of data at all levels. Gavi and the government should consider a theory of change model that documents the pathways and assumptions to proposed

results. Gavi should also provide technical assistance to the government to strengthen quantitative measures.

# I. Evaluation Background

Health outcomes at the population level, including those related to immunization and child survival initiatives, depend on the existence of well-functioning health systems. Looking beyond commodity provision, the Gavi Alliance Board opened a new funding window for health systems strengthening (HSS) in 2005. The primary objective for this additional support was to strengthen the capacity of the health system, which, in turn, would improve access to immunization services, reduce health inequities, and increase utilization uptake and adherence to immunization schedules. HSS activities targeted three areas: health system organization, increased demand for health services, and the health system environment.

The stated objectives of the Gavi HSS Support were to strengthen the provision of quality health services to the entire population; improve human resources management; improve allocation of financial resources; stimulate demand and use of health services; and strengthen and institutionalize the monitoring and evaluation system. Based on this framework, applications approved by Gavi must clearly demonstrate how the proposed activities will improve health system function and link to improved immunization outcomes. Gavi HSS Support provides support to countries to strengthen critical components of their national health systems, including management and supervision, health information systems, health financing and governance, infrastructure and transportation, and health workforce numbers, motivation, and training.

Madagascar submitted a Gavi HSS Support proposal in October 2007. The application was approved and funds granted in November 2007, covering the years 2008 to 2012. The funds received through 2013 amounted to $7,667,000 (68 percent of the total proposed budget) and the final tranche of funding ($3,500,000) was approved in 2014.[1] The Gavi HSS Support proposal identified a number of challenges within the health system, including low use of health services (partially due to poor geographic access and lack of coordination with community health advocacy organizations); lack of a community health strategy; incomplete range of essential products available; lack of purchasing and support plans for equipment and infrastructures (including maintenance of the cold chain); weaknesses in the health information system (including collection, monitoring, and auditing of immunization data); and the shortage, high turnover, and aging of clinical health personnel. Regarding the financing of the health system, the application identified challenges with low socioeconomic status of patients, lack of rational financial policy documents, centralized budget and administrative delays, and low budget allocations for operations and recurring costs.

Madagascar's Gavi HSS Support application proposed the following **results** would be achieved through the use of Gavi HSS Support funds:

- Increased immunization performance through increased coverage and decreased dropout
- Increased offerings of a range of health services
- Increased utilization of these services

[1] The final tranche is focused more on immunization outcomes and equity/geographical issues. Disbursement was delayed due to the suspension of funds due to audit.

It set five **objectives** for achieving the proposed results and outlined activities to achieve these objectives detailed in an implementation plan (See Annex A). These objectives are:

1. Strengthen the provision of quality health services to the entire population
2. Improve human resources management of the health sector
3. Increase the mobilization and allocation of financial resources
4. Stimulate demand and use of the health services
5. Strengthen and institutionalize a monitoring and evaluation system

The proposal targeted 40 health districts and 10 regions. Districts were selected for Gavi HSS Support based on the following criteria:

1. Immunization (all antigens combined) coverage rates less than 75 percent
2. Proportion of the population serviced: more than 75,000 inhabitants in the health district
3. Geographical access difficulties: certain districts that have a population of less than 75,000 were included in the proposal due to their geographical isolation and difficulty to access
4. Poor immunization program performance and self-efficacy of the health districts

Changes in the political context during implementation of activities are of particular importance to this evaluation of the Gavi HSS Support performance. In early 2009, Madagascar experienced a political crisis, and most donors withdrew assistance from the country. As a result, the health budget declined in parallel with the decline of donor contributions, and official aid over the 2009 to 2013 period dropped by approximately 30 percent. The political transition caused major disruptions of activities at all levels of the health system beginning in January 2009 and continuing until elections were held in December 2013. While a new government was nominated in April 2014, many decisions are pending and some politically appointed positions are in flux. This situation caused a delay in implementing the planned activities.

In addition to complications emerging from the political crisis, Gavi required two instances of reprogramming in order to realign funds to emerging priorities. The first reprogramming occurred in 2011 when funds were redirected from activities planned in the original proposal to procure cold chain equipment to support rotavirus vaccine introduction. Gavi recommended the second reprogramming after the 2012 Expanded Program for Immunizations (EPI) review and an *Audit du Programme de Soutien* (APS) in 2013, which flagged several issues and made recommendations to refocus the program more on specific components of the immunization program.

# II. Scope of the Evaluation

In October 2014, JSI Research & Training Institute, Inc. (JSI R&T), in collaboration with its partner organization in Madagascar, TANDEM, implemented an evaluation of Gavi's HSS Support in Madagascar. The evaluation covered the period of Gavi financing from 2008 to 2013 and any activities funded by Gavi in 2014, focusing on all stages of HSS support including proposal preparation and submission, implementation at all levels, annual reports, and results follow-up. The evaluation assessed performance related to the achievement of the planned objectives in Madagascar's Gavi HSS Support proposal, including:

- Its contribution to improved health system performance

- The potential link between Gavi HSS Support funding and improved immunization system performance and outcomes
- The effect of the country context, particularly the political situation, on Gavi HSS Support performance

The evaluation explored the practical steps taken by country stakeholders to engage with Gavi, utilize Gavi HSS Support resources efficiently, transform those resources into system strengthening activities, and their influence on the delivery of immunization services. The evaluation also investigated how the two reprogramming phases, disruption in funds, and departure of some external partners due to political unrest affected the implementation of planned activities.

The primary questions used to frame the evaluation are listed below. They focus on the following domains:

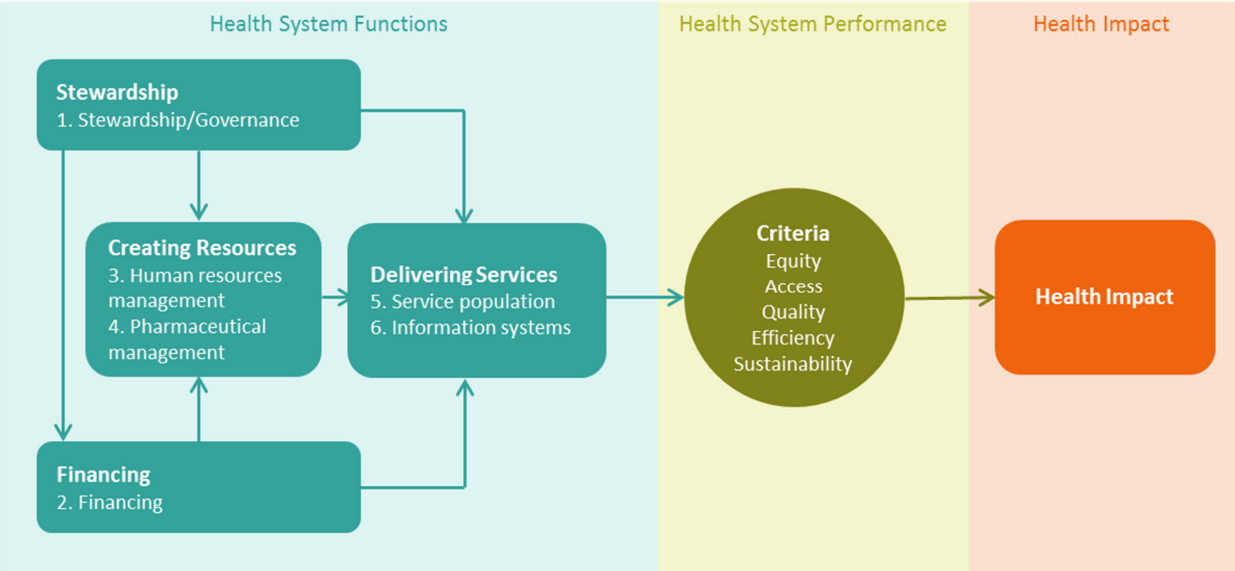
1) Design and implementation
2) Results of Gavi HSS Support activities on health system performance
3) Results of Gavi HSS Support activities on immunization program performance

Synthesized findings from these domains are then translated into recommendations and lessons learned for the future.

For framing the evaluation, it is useful to map the evaluation questions to the World Health Organization (WHO) health system building blocks (stewardship and governance, financing, human resources, pharmaceuticals, service delivery, and information systems) framework, which was adapted by the U.S. Agency for International Development (USAID)[2] and is presented in Figure 1. The framework depicts the pathway through which the building blocks work to achieve improved health system performance and health impact. The framework offers guidance about health systems components that are required to achieve system goals. Objectives outlined in the Gavi HSS Support implementation plan focus directly on several components: financing, health workforce, information, and service delivery. Some components were not addressed by the Gavi HSS Support (e.g., stewardship and governance). The ultimate success of achieving improved health impact is based on how well the health system performs with respect to equity, access, quality, efficiency, and sustainability.

[2] Islam, M., ed. 2007. "Health Systems Assessment Approach: A How-to Manual." Submitted to the U.S. Agency for International Development in collaboration with Health Systems 20/20, Partners for Health Reform plus, Quality Assurance Project, and Rational Pharmaceutical Management Plus. Arlington, VA: Management Sciences for Health.

**Figure 1. Health Systems Framework**




Evaluation questions presented by the three domains are detailed below.

**Design and Implementation**

- To what extent was the Gavi HSS Support proposal developed in collaboration with other partners?
- To what extent were the activities outlined in the Madagascar HSS Support application to Gavi based on:
  - Rigorous evaluation of needs and of the key bottlenecks of the health system?
  - Integrated strategies to address the bottlenecks?
  - Complementarity of subsidized activities by different partners?
  - A clear theory of change with solid links between planned activities and health system improvements in general as well as the immunization program in particular with regard to new vaccine introduction and improvement of immunization coverage?
- To what extent were the activities set out in the Gavi HSS Support application implemented as planned (quality, quantity, ways and means), monitored and evaluated and discussed for decisionmaking by the Interagency Coordinating Committee (ICC)?
  - What contextual and organizational factors (administrative and financial procedures, responsibilities of the *Direction de Développement des Districts Sanitaires* [DDDS] for the coordination of the grant) have influenced (positively or negatively) the implementation of the activities?
  - To what extent did program management appropriately adapt to difficulties encountered?
  - To what extent were the different reprogrammings of activities appropriate and justified (e.g., number of districts in question)? What was the approach used?
  - To what extent were the resources and activities coordinated, monitored, and reported to Gavi and to partners?

  - To what extent was the involvement and support provided by the Gavi Secretariat and local partners during the application process and the implementation appropriate and sensitive to the contextual changes?
- To what extent were the findings/recommendations from previous in-country studies/evaluations, the comments made by Gavi and the partners, and the new Gavi rules relative to HSS used to better prepare the second proposition for Gavi (2014)? In particular, attention should be focused on:
  - Role and place of immunization program on the design, implementation, and follow-up
  - Link between activities and improvement of immunization performance
  - Efforts made to achieve equity objectives
  - Rigor of proposed methodology to measure the impact of Gavi HSS Support activities already implemented (first submission in 2008)
  - The relevance of program interventions, taking into account the effectiveness and impact of the activities already implemented (first submission in 2008)

**Results of Gavi HSS Support Activities on Health System Performance**

To assess the extent to which the Gavi HSS Support activities improved health system performance, the evaluation focused on how well the activities addressed access, quality, equity, efficiency, and sustainability as framed by the following questions.

*Access*

- Did the activities to improve access to services in remote areas have the intended effect?

*Quality*

- To what extent did the Gavi HSS Support funding support the quality of services provided?
- What were the problems related to measuring HSS indicators, coverage indicators, and equity of immunization services?

*Equity*

- What efforts were made to improve equity and how well were these activities implemented?

*Efficiency*

- To what extent were the funds used efficiently and as planned, based on Gavi rules and dispositions indicated in the National Manual of Procedures? What would be done differently to improve the efficiency?
- What contextual factors explain the low utilization rate of the funds received?
- Were there delays and bottlenecks with the availability of funds and financial flow? At which level? What were the causes and how were they resolved?
- Was there any financial follow-up conducted at the operational level? Were there any measures to limit business risk and how were they applied? What were the results of the actions taken (positive or negative), added values, or consequences?
- To what extent did the Gavi HSS Support add value compared with other financial means of health system financing in Madagascar? Did it play a catalytic role? Was it complementary?

*Sustainability*

- To what extent are the Gavi HSS Support program results at various levels (district, regional, and national) financially and programmatically sustainable?

**Results of Gavi HSS Support Activities on Immunization Program Performance**

To assess the extent to which the Gavi HSS Support activities improved immunization program performance as measured by increase in coverage and decrease in dropout rates, the evaluation reviewed data on key immunization program indicators such as coverage and dropout rates as well as other key sources such as district-level interviews and annual reports. Data were assessed to answer the following question:

- To what extent were the expected results of Gavi HSS Support achieved in supported zones?
  - In unsupported or partially supported zones?
  - Nationwide?

Results from design and implementation, health system performance, and immunization program performance were used to identify key lessons learned to guide recommendations for future Gavi HSS Support. The following questions were used to frame the lessons learned from this evaluation:

**Lessons Learned for the Future**

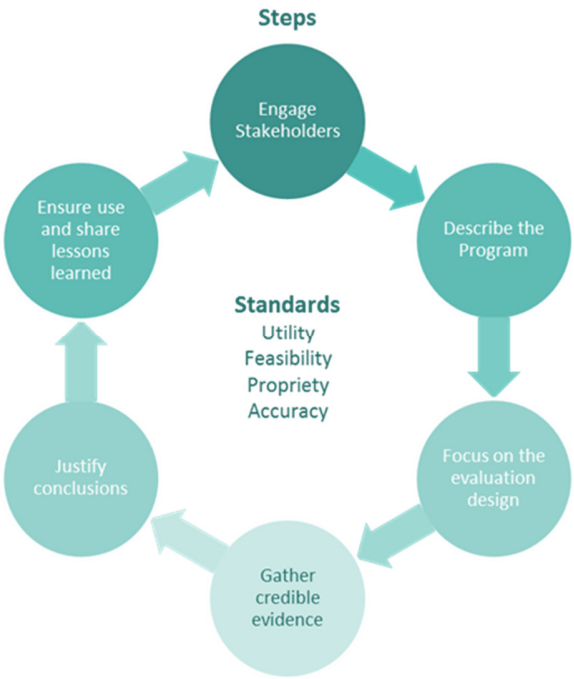
- What are the lessons learned? What worked well and why? What did not work well and why?
- What were the unexpected consequences (positive and negative) of Gavi HSS Support?
- To what extent can results achieved be attributed to the activities financed by Gavi?
- What could be done to improve the effectiveness of the activities?
- What are the important lessons that can be drawn to inform:
  - The new Madagascar Gavi HSS Support application submitted/approved (particular focus should be placed on monitoring and evaluation of the activities)?
  - Improved design and implementation of Gavi HSS Support in the future?
  - Revision of the design and monitoring and evaluation of Gavi HSS Support activities in general?

# III. Evaluation Methods

JSI used the U.S. Centers for Disease Control and Prevention (CDC) evaluation framework (Figure 2) to guide the evaluation and to ensure that credible evidence was gathered to address the evaluation questions, including descriptive data used to identify lessons learned and improve future programming. The JSI/TANDEM team worked with Gavi and country stakeholders at the national level such as WHO and the United Nations Children's Fund (UNICEF) to review evaluation questions; identify the appropriate documents, key informants, and sites to inform the evaluation; and to gain the necessary country permissions.

JSI/TANDEM adhered to Gavi's evaluation policy, as well as the Organization for Economic Cooperation and Development's Norms and Standards for Evaluation of Development Programmes,[3] and conducted the evaluation using the guiding principles of independence, impartiality, and transparency.

**Figure 2. CDC Evaluation Framework**




The strategy for evaluating the health system inputs, the impact on the desired outcomes, and the overall impact of the Gavi HSS Support funding is outlined below.

The JSI/TANDEM team employed a multi-method approach to collect information about the design, implementation, and results of the Gavi HSS Support to Madagascar. This strategy included three main data collection approaches:

1. A guided desk review of available documentation conducted in October 2014
2. Key informant interviews with representatives of key stakeholder organizations and government entities held October 6–17, 2014
3. Site visits to selected districts, with the tool pilot tested on Oct 16–17, 2014, and data collection conducted over a period of two weeks, November 3–18, 2014

These methods were used to document and evaluate the HSS inputs provided under the Gavi HSS Support and their influence on the desired health system and immunization program outcomes. Results were compiled and mapped out to key evaluation questions to allow for triangulation across the three methods.

*Guided desk review*

The JSI/TANDEM team used a guided desk review to collect information about Madagascar's HSS experiences and results. The desk review also enabled the retrospective analysis of the country's health

[3] http://www.oecd.org/dac/evaluation/summaryofkeynormsandstandards.htm

system development and an examination of the national health plan, HSS planning process, Gavi HSS Support proposal, and Gavi HSS Support implementation experience. A list of documents reviewed is included in Annex B.

Specifically, the desk review examined:

- The structure, terms of reference, and objectives for the Gavi HSS Support mechanism as reported in the Gavi HSS Support guidelines and applications
- Processes and activities carried out under the Gavi HSS Support as reported in annual progress reports (APRs)
- Disbursement records to provide information related to the process of disbursing funds within Madagascar through the Gavi audit report
- Any internal and external assessments of the support mechanisms, including the Gavi Technical Support Assessment and the Survey Report on the Problems of Coherence of Operational-Level Data in the Gavi HSS–Supported Districts: Realities and Challenges (*Rapport d'Enquête sur les Problèmes de la Cohérence des Données au Niveau Opérationnel dans les Districts d'Intervention RSS/Gavi: Réalités et Defis*)

In addition to providing context to the evaluation, the document review formed the basis for developing structured and semi-structured interview guides to use with key informants at central, regional, and district levels and identified any additional data collection needs. Additional details on the areas of inquiry and data sources are presented in Table 1.

**Table 1. Desk Review Data Sources by Area of Inquiry**

| Areas of Inquiry | Data sources |
|---|---|
| • The country's health system structure<br>• Metrics to assess public health performance, equity, and access<br>• Indicators and methods chosen by the country to evaluate HSS performance<br>• Baseline data on country performance measures (e.g., coverage rates)<br>• HSS interventions and how they were developed<br>• Intended outcomes of HSS support<br>• Effective interventions versus challenges<br>• Barriers and facilitators including assessing mechanisms that could use performance data to revise HSS strategies<br>• Local and national context<br>• Allocation, flow and rate of Gavi HSS Support funding | 1) Original GAVI HSS Support application with annex<br>2) Independent Review Committee comments on the proposal, reprogramming, and APRs<br>3) Madagascar Action Plan (2007–2012)<br>4) Health sector development plan<br>5) Madagascar Comprehensive Multi-Year Plan for Immunization<br>6) APRs for all Gavi funding (includes Immunization Services Support, HSS, reports of commodities ordered, received, and distributed; operational reports – Health Information Systems; supervision report; micro plans and district reporting)<br>7) ICC/Health Sector Coordinating Committee meeting minutes<br>8) Gavi audit report (APS, 2013)<br>9) HSS midterm evaluation<br>10) *Rapport d'Enquete sur les Problemes de la Coherence des Donnees au Niveau Operationnel dans les Districts d'Intervention RSS/Gavi: Realites et Defis*<br>11) *Financement Basé sur les Résultats Document*<br>12) Presentation on *Analyse du financement durable de la vaccination*<br>13) National health information system reports and Demographic and Health Survey data<br>14) Reprogramming applications<br>15) Financial management report (2012)<br>16) World Bank report on implementation completion and results of support for HSS in Madagascar (2010)<br>17) Madagascar internal audit report (2013)<br>18) Aide memoire |

Documents were made available to the study team members through a shared Web-based project space. The team employed a structured digital template for document review to facilitate consistency in approach as well as data compilation and tabulation.

Review and compilation of quantitative data from Ministry of Public Health (MoPH) reports was one of the key steps in the desk review. Data were collected based on the following categories: HSS funding flows, immunization program indicators, and health impact indicators.

All data were collected or compiled at national and district levels (where feasible) to permit comparisons of districts targeted and those not targeted for Gavi HSS Support investment. Data were collected and analyzed for constructing process indicators as defined in the original Madagascar HSS Support application.

*National- and subnational-level key informant interviews*

Before launching the fieldwork phase, the JSI/TANDEM team conducted preliminary key informant interviews by phone with representatives from UNICEF, WHO, JSI staff, and the Gavi Country Support Officer. The calls were used to identify the main inputs and outputs of each Gavi HSS Support objective, the level of performance, and strengths and weaknesses of the approach and to elicit stakeholder

perceptions on Gavi HSS Support performance. These interviews helped to describe and explain the HSS processes and activities overall and the role of Gavi HSS Support in this context.

The JSI/TANDEM team then conducted a second, more extensive set of interviews with partners and government representatives in country to obtain in-depth information about the design and implementation process, the reason why various processes succeeded or failed, coordination between multiple stakeholders, and the extent of adaptability and sustainability of health system inputs. Interviews with key informants at central and district levels allowed researchers to follow up on specific responses and to gain a deeper understanding of respondents' perspectives on implementation choices, funding flows and efficiencies, and the effectiveness of Gavi assistance.

The JSI/TANDEM team developed a comprehensive list of respondents in collaboration with Gavi. Key informant interviews were conducted with in-country informants in October 2014, including national and subnational counterparts in the MoPH and civil society organizations (CSOs) involved in Gavi HSS Support proposal development, implementation, and monitoring and evaluation.

Participants were purposefully sampled to be as comprehensive as possible and included at least one representative from each multilateral agency and each national and subnational entity involved with Gavi HSS Support implementation. Overall, the evaluation team completed interviews with 16 individuals. A list of key informants is included in Annex C.

Invitations to participate in the interviews were extended during a meeting on October 9, 2014, to discuss the results of the 2014 audit, during which key informants targeted for the interviews were present. Some respondents were asked to participate through an e-mail invitation from the JSI/TANDEM team. Face-to-face interviews were used wherever possible and supplemented with telephone interviews and e-mail communications where face-to-face interviews were not feasible. Telephone interviews and e-mail communications were also used to follow up on select issues. Interviews took place in French in a private and secure location and were facilitated by two members of the JSI/TANDEM team during in-country visits.

The interview guide addressed the evaluation objectives and specified in the original Gavi Request for Proposals (RFP) questions. Interview guides were based on the desk review and drew from tools, methods, and lessons learned from existing studies that have assessed health system aspects of immunization programs, including the EPI review questions, the HSS tracking study, and the Africa Routine Immunization System Essentials study. The guide contained 24 questions (Annex F), and interviews averaged two hours in length.

The JSI team (facilitator and note taker) recorded interviews and took notes. Interviews were conducted in a period of one week from October 9 to October 17, 2014. The team expanded on these notes as soon as possible following each interview using the recordings; however, they did not produce verbatim transcripts. The recordings were deleted after notes were finalized. The JSI team analyzed data to identify major themes related to the study objectives and specific questions posited by the RFP.

*District site visits*

In-country district site visits allowed the evaluators to assess the effectiveness of Gavi HSS Support at the regional, district, and community levels, including effects on human resources management, funding allocation, coordination with community organizations and CSOs, and on-the-ground implementation of

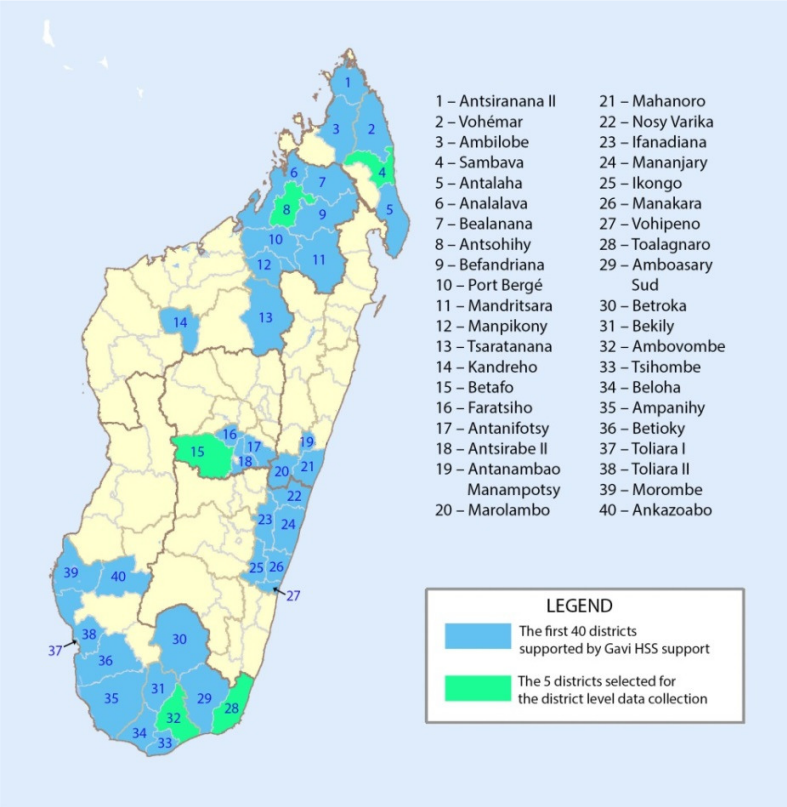
the Gavi HSS Support activities and objectives. The site visits focused on understanding the flow of funding and supplies to the district level, trends in select performance indicators, and the prospects for sustainability.

The JSI/TANDEM team identified five representative districts—Ambovombe, Antsohihy, Betafo, Sambava, and Toalagnaro—in which to conduct site visits (Figure 3). Criteria that influenced selection of districts included immunization performance (pentavalent coverage in 2013), receipt of Gavi funding, geographic accessibility, and security. To understand the contribution of Gavi HSS Support funding across districts with varying success in achieving HSS Support goals of performance, two of these were low-performing districts and three were high-performing districts. Performance was defined as being low if pentavalent coverage in 2013 was less than 80 percent and high if greater than or equal to 80 percent. Among the original 40 districts that received funding based on the first Gavi HSS Support proposal, a sample was selected to investigate how the funds were used. Districts were also selected among those that were geographically accessible and secure for the safety of data collectors, as suggested by TANDEM. The teams also ensured that the districts had not been surveyed in the recent 2014 audit. The selected districts were also discussed with key partners for finalization. Annex D provides a table comparing districts across selection criteria.

The JSI team worked with TANDEM to develop questionnaires for each of the four levels of the health system: region, district, *Centres de Santé de Base* (CSBs), and *Agents de Santé Communautaire* (ASCs). A data sheet was also developed to collect quantitative data at the district level on human resources, immunization coverage, disease surveillance, and vaccine stockouts. Copies of the tools are included in Annex F. Interviews were conducted with four regional directors and five medical inspectors. For each district, interviews were also conducted with one chief physician per CSBs and five ASCs at each CSB, except for Toalagnaro in which only four ASCs were interviewed for one of the three CSBs because the chief of the CSB was new to his post and therefore could only recommended these four ASCs. In total, 74 respondents were included in the site visits. Conducting interviews with a range of respondents and in a range of locations enabled the evaluation team to validate the results at different levels of the health system.

The JSI team provided guidance on data collection procedures and fieldworker training. The JSI team also participated in the pilot exercise for the tools. Data collection was conducted by TANDEM, who deployed data collection pairs composed of a supervisor and a junior interviewer in each district. TANDEM coordinated with the districts to ensure that all data were collected in a timely manner and compiled in a preliminary summary.

**Figure 3. Map of Districts Selected for Gavi Funding and Districts Selected for Evaluation Site Visits**




*Data Management*

Questionnaires for the district site visits were paper-based. TANDEM entered and organized all data from the questionnaires electronically into Microsoft Word and sent the data to JSI for analysis.

*Analysis*

The JSI team used several analytic techniques with data from the desk review, key informant interviews, and site visits. First, data were extracted to conduct a financial flow analysis to understand the patterns in funding over time. Next, output- and outcome-level data were analyzed to assess the unfolding of activities related to the immunization program and the evolution of immunization program performance over time. Finally, thematic analysis techniques were used to triangulate information on the areas of health system performance.

## Limitations

Triangulating data across multiple data collection methods can be an effective evaluation method. However, this study has a number of limitations. These limitations are discussed based on the data source: desk review, key informant interviews, and interviews with key stakeholders in the five selected districts that received Gavi HSS Support. Broadly, the limitations reflect several challenges in implementing this evaluation, including availability of data, budget and time constraints for data collection and rigorous review of data, and methodological limitations to measure and attribute impact.

**Desk Review**

The desk review was based on documents from key informants and those provided directly by Gavi through a shared folder. As the evaluation team prioritized incorporating source material directly from Gavi, proper organization and sorting of materials would have streamlined the process. The folder used for file sharing contained multiple versions of many documents and materials not relevant to this evaluation (e.g., those from other countries) resulting in delays in the review process. In addition, some information necessary for answering the evaluation questions was not available in the key documents as expected, resulting in additional time spent attempting to procure this information from key informants who were sometimes unresponsive, resulting in additional delays.

In addition, certain documents that were key to address the study questions were also not available to the team in a timely manner. Many of the reports were incomplete and did not include full reporting of the Gavi HSS Support implementation. The evaluation team tried to request this information from key informants but were told that if it was not in the documents it was not available. Furthermore, the evaluation budget and time frame did not allow for a thorough review and analysis of documents in the short timeline.

Requests from Gavi to respond to certain questions such as effectiveness and impact were compromised by the limited data available on immunization coverage in Gavi-targeted districts. Future efforts should anticipate the need to conduct coverage surveys at the district level since administrative data are widely known to have issues with quality.

**Key Informant Interviews**

The evaluation team met with all of the key informants identified during a one-week trip in October 2014. This work was greatly facilitated by the team's institutional field presence and links to the appropriate informants. As the evaluation was conducted on a highly accelerated time frame, interviews with stakeholders were limited due to availability and time. Additional time allotted for follow-up interviews and a second trip by the evaluation team to Madagascar would have been helpful in augmenting the analysis.

A final limitation of the key informant interviews was that many of the respondents who had participated in the early phase of Gavi HSS Support were no longer working with the program.

**District Data**

The evaluation team made efforts to collect information about Gavi HSS Support and its effect on lower levels of the health system. Although data were collected from five districts, the number was inadequate to provide more than limited evidence of material support provided by Gavi HSS Support, and it was difficult to determine whether this support led to any changes. Future evaluations should plan for a more robust data collection at subnational levels and include data collection at baseline and end line with appropriate counterfactuals.

# IV. Results

The results are presented according to the domains outlined in Section II: design and implementation, effect of HSS support on health system performance, and effect of HSS support on the immunization program. First, we describe and analyze the design of the Gavi HSS Support and then report on activities, coordination, monitoring and reporting, the influence of contextual and organizational factors, and the reprogramming of Gavi HSS funds.

## Design of Gavi HSS Support

This section addresses questions on the design of the original Gavi HSS Support proposal. More specifically, we discuss the extent to which the proposal was developed in collaboration with other partners as well as the extent to which activities outlined in the proposal were based on a rigorous evaluation of needs and of key bottlenecks and whether these bottlenecks were addressed via integrated strategies.

**Partner Collaboration during Proposal Development**

The development of the Gavi HSS Support proposal for Madagascar began in 2006 and was completed in March 2007. The proposal was developed under Gavi's first HSS Support Window, which focused on strengthening the overall health system through service delivery, training, and management. It was led by the *Direction des Etudes et de la Planification* (DEP). Participants involved in proposal development were members of the Health Sector Coordinating Committee (HSCC) (i.e., the Health Director, the DDDS, Service de Vaccination [SV], WHO, UNICEF, the World Bank, USAID, and CSOs). The HSCC represented the core team for proposal development. Other stakeholders, including the Japan International Cooperation Agency, *Agence Francaise de Developpement*, and CSOs, provided oversight and gave technical approval. The Gavi HSS proposal was designed to complement the activities of other partners. It was developed during a period when the country was also developing a sector-wide approach (SWAP) and a decentralization policy. The Gavi HSS plan was expected to be framed by health sector development policies and align with external financing from the World Bank, USAID, and others by focusing on strengthening services at the peripheral level.

The JSI evaluation team interviewed five people involved in the Gavi HSS proposal development, including four members of the HSCC and one CSO representative. All respondents agreed that the process was intensive but well executed. Due to a lack of leadership in the Ministry of Health, there was a problem of coordination between the SV and DDDS during the proposal development process resulting in a conflict of responsibility. This may explain some concerns expressed by respondents. Overall, respondents felt that Gavi had been helpful in supporting proposal development and was responsive to their questions about the proposal process.

Respondents identified several CSOs involved in the meetings who provided technical contributions to the proposal including *Action Socio-sanitaire Organisation Secours*, the National Order of Physicians, *Centrale d'achats de Médicaments Essentiels*, *Sampan'Asa Loterana momba ny Fahasalamana* (the Health Department of the Malagasy Lutheran Church), and *La Source*. These CSOs attended the meetings and were expected to be involved in the fourth objective, which focused on stimulating demand and use of health services. The lack of involvement of CSOs in the core team developing the proposal may have contributed to the fact that the proposal did not include funding for their activities, which focused on supporting community agents. However, Gavi provided funding later through a separate mechanism.

**Evidence-Based Planning**

### Assessing Needs and Addressing Bottlenecks through Integrated Strategies

Gavi guidelines for HSS support proposals require applicants to collect and consider evidence of country needs and health system bottlenecks to inform plans for Gavi HSS support. From the desk review, the JSI team found that the proposal development committee identified both strengths in the health sector and specific weaknesses that could be obstacles to the successful implementation of the immunization program. The weaknesses were closely aligned with those identified in the 2007 Health Sector Development Plan, as shown below in Table 2.

**Table 2. Bottlenecks in Health Sector to Program Implementation**

| Problem | Evidence and Source(s) | Strategy to Alleviate Constraint |
|---|---|---|
| Insufficiency of **human resources** in rural areas; insufficiency of human resources at different levels of system; aging of technical personnel | Health Sector Development Plan (2007) identifies problem that not enough health personnel are working in rural areas. Also noted in the Human Resources Development Plan (2006). | Improve human resources management in the health sector through contract doctors and paramedics to work in underserviced areas (Objective 1) |
| Weak performance of the **information system** | Health Sector Development Plan (2007) identifies problem of insufficient data and analysis | Strengthen and institutionalize a monitoring and evaluation system (Objective 5) |
| Insufficient **coordination** among the various structures and the different priority programs of the system | Health Sector Plan (2007) identifies the problem of poor coordination among priority services. | Stimulate demand and use of the health services (Objective 4) |
| Existence of areas and Districts with reduced **accessibility** | More than 40% of population lives more than 10 km from a health facility (Health Sector Development Plan 2007). | Construct 25 CSBs (Objective 1); support mobile health teams |
| Insufficiency of **financial resources** in terms of equity funds for adequate care of the poor population (68% of the population live below the poverty line but only 1% of the population is cared for by the equity funds). | Only one mutual insurance plan has existed but it is currently on hold; Increasing uptake of equity funds should assist poor to obtain health care (Health Sector Development Plan 2007). | Increase the mobilization and allocation of financial resources (Objective 3) |

The proposal presents the principal forces (positive and negative) identified in the health system:

1) The introduction of a policy of decentralization
2) The strategic plan of the health sector, which is operationalized by the Madagascar Action Plan
3) A national health policy
4) The availability of norms and standards in materials, infrastructure, and resources for certain health care establishments
5) Equity funds (funds that subsidize free medicine for the poor at public health centers)
6) Collaboration between technical partners and financers of the health sector

The identification of bottlenecks appears to have been well thought out and is validated by several activity assessments cited in the Gavi HSS Support application. The Independent Review Committee (IRC) review of the proposal stated that the proposal had identified the right obstacles to immunization program implementation, since it planned to address bottlenecks through national strategies and activities and took into consideration the main barriers, weaknesses, and needs already identified through other assessments. However, the initial proposal was criticized by the IRC because its budget was too high, some proposed activities were heavily supported by other donors, there were inconsistencies between the facilities to be constructed and those identified for renovation, and some of the activities were planned to begin too late to be effective. Madagascar resubmitted the proposal in October 2007, met all the required conditions, and received approval in February 2008.

The strategies in the final proposal addressed the weaknesses identified in the Health Sector Development Plan (Table 2). There were five strategies which were to be applied simultaneously:

1) Strengthen the provision of quality health services to the entire population, with the objective of extending quality services from health centers to referral hospitals, particularly in underserved areas
2) Develop a sectoral health strategy that contributes to the management of human resources in the health sector
3) Assure the mobilization and allocation of financial resources
4) Stimulate demand for and use of health services
5) Strengthen and institutionalize a monitoring and evaluation system

## Implementation of Gavi HSS Support

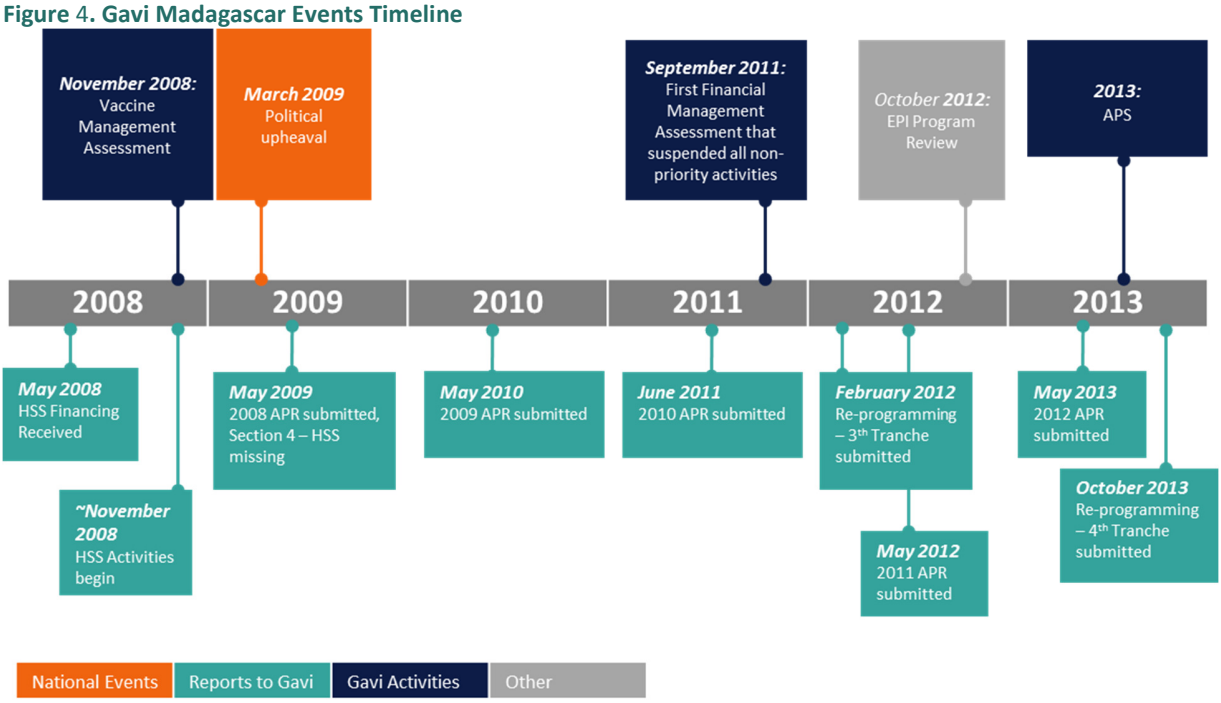
In this section, we discuss the extent to which activities in the Gavi HSS Support proposal were implemented as planned, monitored and evaluated, and discussed for decisionmaking by the ICC. The results are organized chronologically by the first year of implementation, first reprogramming, and second reprogramming.

**First Year of Implementation**

The implementation of Gavi HSS Support did not correspond to the proposal design for several reasons: delay in initiating activities, the political crisis of 2009, a lack of clarity related to procedures, and difficulties faced while implementing the activities. Figure 4 depicts a timeline of the implementation of Gavi HSS Support and political and program-related events that influenced HSS activities that will be discussed below. The implementation of Gavi HSS Support is therefore characterized by delay, disruption, critical review, and frequent reprogramming.

While the HSS proposal was approved in February 2008, implementation in the first year was limited to establishment of the Unité de Gestion (UG). Respondents noted that there was no manual of procedures to guide the implementation of Gavi HSS Support and the UG was not able to provide clear guidance related to management and monitoring of project activities. As they set up the HSS Support activities, the UG team was forced to develop their own procedures, which delayed the initiation of activities. The responsibility for hosting the UG was transferred from the DEP to the DDDS, and most activities in that period were limited to the central level. Some respondents indicated that they regretted not being involved in the implementation of the proposal. This situation emerged partially because DDDS managed the implementation rather than the DEP. This observation was supported by other respondents who noted that DDDS did not fully involve the stakeholders in the Gavi HSS Support

**Figure 4. Gavi Madagascar Events Timeline**




implementation. Due to a lack of leadership in the Ministry of Health, there was a problem of coordination between the SV and DDDS that continued during implementation. The limited scope of project management was possibly inevitable as the team was learning new processes and practiced some trial and error. As the program evolved, the government began to address some of these limitations by validating the Gavi procedures manual and conducting training activities with regional management teams and district management teams on procedures. However, respondents stated that the manual of procedures is not well applied and needs to be strengthened.

Gavi HSS Support was negatively affected by the political crisis that began in 2009. After the crisis began, key persons in the MoPH changed at the national and district levels, and consequently implementation slowed. In addition, many of the partners were no longer willing to support government activities, which reduced the total amount of financing for health sector activities, including funds from the SWAP and equity funds. For example, USAID no longer provided support for vaccines and regional supervision support teams but continued to support outreach through local CSOs and community-oriented services, such as distribution of health products from private pharmacies and community Integrated Management of Childhood Illness. This decision slowed the pace of implementation of certain activities further. Senior ICC members who were responsible for funding decisions and aligning resources based on the status of the implementation and challenges faced by the country no longer met with the government, and therefore funding decisions were not made and shared. During the crisis, an informal group of external technical partners met monthly to discuss HSS Support implementation. WHO and UNICEF provided implementation support, and WHO validated the quarterly work plan and supported certain immunization activities. The political situation caused major disruptions of health activities at all levels of the DDDS beginning in January 2009 and continuing until elections were held in December 2013. Gavi's support was particularly important during this period, as it was one of the few development partners that did not withdraw funding. The importance of Gavi's

support was acknowledged during interviews with district and community health center managers conducted as part of data collection.

**First Reprogramming 2012**

In 2011, Gavi commissioned a financial management assessment (FMA) in response to the political crisis. In 2012, as a result of FMA findings and at the request of Gavi, Madagascar reprogrammed the Gavi HSS Support funds. This change was the first of two reprogramming phases that changed, cancelled, or added activities from those that were originally outlined in the HSS Support proposal. The reprogramming activities were necessary to refocus the project given the changing environment (reduced external financing, for example) and new national immunization program objectives, such as the introduction of new vaccines. The reprogramming also provided an opportunity to align funding under the new Gavi HSS Support objectives, which focused directly in immunization outcomes. The rationale for the reprogramming included:

1) Limited spending on planned activities due to slow contracting and procurement processes
2) Insufficient funding for the immunization program, particularly given the demands of new vaccine introduction

The FMA recommended that activities should be prioritized to focus on improving immunization program indicators and aligned with Gavi priorities. MoPH and other external partners reported being fully involved in the reprogramming activities. However, program managers from the regional and district levels did not participate in the reprogramming activities. Respondents stated that Gavi support was valuable in assisting the government to reprogram activities in response to the new vaccine introduction and reduced funding at the periphery.

The first reprogramming in 2012 focused on the following objectives and activities:

1) Increasing access to primary health care facilities for underserved populations by contracting health personnel and renovations, providing vehicles for outreach, improving the cold chain, and securing fuel
2) Improving financial management by training health managers in HSS/GAVI manuals, internal audit, and facility assessment
3) Increasing demand and reducing unvaccinated children through a database of community NGOs, contracting CSOs, and the Reaching Every District (RED) strategy for vaccination
4) Making quality data available at all levels by applying data quality self-assessment (DQS) to EPI data and monitoring and evaluation reviews at the district level

In addition, the first reprogramming called for an end-of-project evaluation to be conducted and two accountants to be recruited.

Gavi program managers reported that the coordination of the HSS Support activities by the EPI and other government programs improved after the reprogramming. During the reprogramming meetings, they planned to allocate some of the funds to RED activities, including monitoring and supervision as well as training in data management and annual planning. Some program managers report that while they were involved in the reprogramming activities, they were not informed about the timing and location of supervision and RED activities. That is, the regional health and immunization program managers were often not informed when materials and funds were sent directly to their health districts, nor were they informed when training and RED activities were planned.

**Second Reprogramming 2013**

In 2012, an EPI review was conducted and found many weaknesses in the immunization program. Among those weaknesses related to the health system were surveillance and vaccination activities not clearly defined in the *Plan de travail annuel* (PTA) or annual work plan and a number of closed health centers or health centers with insufficient staff. Gavi recommended the second reprogramming after the 2012 EPI review and APS in 2013. The second reprogramming related to the fourth tranche of HSS funding and focused more on specific components of the immunization program. Activities under the second reprogramming included the organization of biannual coordination and partnership development meetings with the *Commission Communale de Développement de la Santé* (CCDS) and the *Comités de Santé* (COSANs) in the target districts. The second reprogramming request was submitted in August 2013 and was recommended for approval with clarification by the IRC in November 2013. The second reprogramming addressed the recommendation from the HSCC and ICC to expand the HSS Support activities to districts with insufficient staff and weak EPI performance. The Gavi HSS Support extended its zone of intervention from 40 districts to 74 districts in the first reprogramming. However, the budget allocated for supporting primary health care workers was redirected in the second reprogramming to strengthen EPI performance in all 112 districts, including supporting the cold chain and use of national immunization days in remote districts.

According to the DDDS, a positive outcome of the second reprogramming was that all of the MoPH departments and the immunization program began participating in the supervision, monitoring, and training; however, two program managers stated that while they were fully involved in the reprogramming and planning activities, they were not asked to be involved in the supervision and monitoring of the activities at the district level.

In December 2012, a cash audit was conducted and cited some irregularities in expenditures on the purchase of motorbikes. As a result, Gavi suspended further disbursement of funds in May 2013 until reimbursement was completed by the government in August 2014. Implementation continued in 2014 using funds carried over from 2013. The government repaid Gavi for the funds tagged by the audit as overspending ($279,000) and is now eligible to receive the fourth tranche of HSS funding. The project submitted the required annual audit in October 2014 and did not meet the June audit deadline.

**Summary of implementation**

Table 3 provides a summary table of activities included in the implementation schedule found in the proposal and results achieved, as reported in Madagascar's APRs. Reporting on activities in the APRs was weak. While data were reported for some activities, in other instances there was no documentation on the outcomes of activities from Gavi HSS Support. The ability to trace results across APRs was further complicated with the multiple reprogramming phases, which resulted in elimination or modifications of initial activities. After the reprogramming phases, several new indicators were proposed for new activities, but there is no documentation on whether or not some of these indicators were approved and what the targets were or if the results were attained (no trimester report submitted at the CCIA/CCSS level, no data collected at the DDDS level). The evaluation team invested considerable effort in trying to piece together the results from the activities by objective, but the results are inconsistent, and it is difficult to generate a conclusive analysis of whether or not the initial activities or the activities proposed following the reprogramming phase were executed as planned and of good quality. One may

speculate that the absence of a functioning ICC exacerbated this issue since oversight was limited over the reporting period.

**Table 3. Summary of Program Activities**

| Objective | Outcome | If Changed, Outcome | Notes |
|---|---|---|---|
| **Objective 1: Strengthen the provision of quality health services to the entire population** | | | |
| Activity 1.1<br>Contract health care workers in the marginalized health care facilities | 26 physicians and 57 paramedics (midwives and nurses) were hired (2011). Recruited additional 65 paramedics (midwives and nurses) to work in rural health facilities. | | There were requests to change some indicators in 2011 but there are no reports whether the change was approved or the activities occurred. |
| Activity 1.2<br>Identify the factors (geographic, financial, and cultural) that limit the use of the services through field research | Not reported | | In certain zones, given the provisional results of the 2011 Vaccine Coverage Survey, three reasons for not being immunized were mentioned: various obstacles related to knowledge, behavior; physical obstacles; habits and customs. |
| Activity 1.3<br>Pilot strategies in around 5 *Système de Santé de District* (SSD) aimed at increasing the use of the services based on the results of the assessment study | Measures have been taken to overcome these problems: Advocacy with community and traditional leaders and the authorities; hubs were created for immunization sessions. | | |
| Activity 1.4<br>Carry out renovations (painting, purchase of furniture for receiving patients, roofing, ceiling, etc.) 15 CSB per year | Renovation of 23 health facilities (2012) Renovation of health centers in rural areas: 19 CSB renovated and 4 CSB were in process out of the 23 envisioned. | | |
| Activity 1.5<br>Head up PTA ratification missions: the central team of the ministry and partners will be deployed in the regions and will ratify the PTA in the field. | Progress: 80 PTA have been validated in 13 regions. | Activities redirected to develop work plans based on RED approach. | The original activity is no longer relevant if we refer to the recommendations of the external review of the EPI. |
| Activity 1.6<br>Equip 10 SSD with a 4x4 vehicle, the center supervisors with 2 vehicles, and 120 CSB with motorbikes | Acquired: 10 4x4 cars for the 10 health districts; 1 liaison car for the Project (2011). Purchase of 1 vehicle, 80 motorbikes (interview indicates 120 in beginning with 50 in 3rd tranche and 45 in 4th tranche). Activity listed as complete. | | |
| Activity 1.7<br>Introduce different strategies for increasing the population's financial accessibility to health care services in 5 SSD | Original activity changed. | Activities planned after the reprogramming included acquiring cold chain materials:13 cold chains, 51 solar refrigerators, replacement parts, fuel funds months for 473 CSB in 11 *Direction Régionale de la Sante Publique* (DRSP) | Given that the cold chain is a priority for EPI and based on the recommendations from FMA 2011 on strengthening the immunization system, activity 1.7 of the initial proposal on mutual health organizations was redirected to benefit the functioning of the cold chain. |

| Objective | Outcome | If Changed, Outcome | Notes |
|---|---|---|---|
| Objective 2 **Improve human resources management of the health sector** | | | |
| Activity 2.1<br>Contracting (see 1.1) | Original activity changed. | Activity was duplicative with Objective, 1 and 2011 FMA advised to focus on financial procedures so activity was voided. | Based on the recommendations from FMA 2011, on financial management, the preparation of a procedures manual for the use of Gavi funds is necessary. |
| **Objective 3 Increase the mobilization and allocation of financial resources**<br>**Reprogrammed to Objective 2 Improve financial management (by training health managers in HSS/GAVI manuals, internal audit, and facility assessment) (2013 IRC)** | | | |
| Activity 2.1<br>Offer training on financial and program management to the managers on the periphery of the targeted districts | A total of 254 peripheral managers in 21 regions received training on financial and program management, and activity was reported as complete. | Manual on administrative and financial procedures for the use of Gavi funds validated (2013). | There were requests to change some indicators in 2011, but there are no reports whether the change was approved or the activities occurred. |
| Activity 2.2<br>Strengthen the application of the equity funds and mutual health organization system implementation plan in the targeted health care facilities (see also activity 4.5) | Original activity changed. | 39 of 74 SDSP in 17 DRSP have received supervision/ monitoring of EPI activities in targeted CSs/districts with support from the central level.<br><br>65 of 74 SDSP in 18 DRSP have benefited from support in the implementation of RED. | |
| Activity 2.3<br>Carry out financial auditing and supervision of the priority health care activities with the EPI and develop corrective strategies. | Original activity changed | No outcome reported | There were requests to change some indicators in 2011, but there are no reports whether the change was approved or the activities occurred. |
| Activity 2.4<br>Verify the efficacy of activities carried out at district level (internal audit and supervision) | New activity (not in original proposal) | No outcome reported | A recommendation from the 2011 FMA required the involvement of the ministry's internal control body |
| Activity 2.5<br>Conduct a study on the performance-based funding of health districts (SARA, technical assistance…..) | New activity (not in original proposal) | No outcome reported | Activity introduced to have quality data on the performance of districts for the new Gavi HSS proposal 2014–2018 |

| Objective | Outcome | If Changed, Outcome | Notes |
|---|---|---|---|
| Objective 3<br>**Stimulate demand and use of the health services** | | | |
| Activity 3.1<br>Carry out a regional mapping of the NGOs and associations working at a community level | Training sessions for staff responsible for mapping were achieved and the license for the consultant to use ArcGIS was obtained | | |
| Activity 3.2<br>Convene 3 meetings per year with 160 local authorities in the targeted areas | Original activity changed | | There were requests to change some indicators in 2011, but there are no reports whether the change was approved or the activities occurred. |
| Activity 3.3<br>Convene meetings for drafting policy documents establishing community health strategies (including reference terms and *Paquet Minimum d'Activité* [Minimum Package of Activities]) | Not reported | | |
| Activity 3.4<br>Provide training for community health care workers in *Paquet Complémentaire d'Activité* [Complimentary Activities Package) in 40 targeted SSD. This training includes the provision of an information, education, and communication (IEC) immunization expansion program] kit including IEC aids, guides, supplies, and management tools.<br>Target = 2,400 | There was a budget error and allocated funds were only sufficient to train 1,200 health care workers. As a result, instead of the planned training of 2,400 health care workers, only 900 health care workers in 15 health districts were trained. Funding from activity 1.7 was redirected to support completion of this activity. Additional details on the outcome of this activity are not available. | | There were requests to change some indicators in 2011, but there are no reports whether the change was approved or the activities occurred. |
| Activity 3.5<br>Strengthen the application of the equity funds and mutual health organization system implementation plan in the targeted health care facilities (see also activity 3.2) | Original activity changed | Data and recommendations on the nonuse of the equity fund were prepared and disseminated. | |

| Objective | Outcome | If Changed, Outcome | Notes |
|---|---|---|---|
| Objective 4 (formerly Objective 5)<br>**Strengthen and institutionalize a monitoring and evaluation system** | | | |
| Activity 4.1<br>Provide training for health care workers on the benefits and use of data for planning and decisionmaking in targeted areas. | All 640 health workers planned for have been trained: 82.5% in 2009 and 17.5% in 2008.<br><br>Training tool on data use for planning and decisionmaking made available | | There were requests to change some indicators in 2011, but there are no reports whether the change was approved or the activities occurred. |
| Activity 4.2<br>Assess the health data transfer performance of the CSBs on a central level in order to identify bottlenecks | Activity completed in 2012 | | There were requests to change some indicators in 2011, but there are no reports whether the change was approved or the activities occurred. |
| Activity 4.3<br>Carry out regular follow-up and supervisory reviews of the CSBs | Monitoring and supervision activities took place at health facilities in the targeted districts (51 of 74) with support from the central level | | There were requests to change some indicators in 2011, but there are no reports whether the change was approved or the activities occurred. |
| Activity 4.4<br>Support coaching in the targeted areas | Not reported | | This activity already included in activity 4.3. |
| Procurement of information technology material (including ink, disks etc.) for 40 SSDs | New activity (not in original proposal) | Acquired 40 laptop computers for the districts being supported. | This activity already included in activity 4.3. |
| Activity 4.5<br>Evaluate the performance of regions/districts with regard to activities supported by HSS/Gavi during the first proposal | New activity (not in original proposal) | No outcome reported. | |

## Results of Gavi HSS Support Activities on Health System Performance

To measure the extent to which the Gavi HSS Support activities improved health system performance—a precursor to improved health outcomes—the evaluation focused on how well the activities addressed health system performance criteria, including access, quality, equity, efficiency, and sustainability.

### Access, Quality, and Equity

The Gavi HSS Support activities were partially successful in improving access, quality, and equity of immunization and other services by hiring and deploying health staff to areas poorly served by trained health personnel, providing vehicles and motorbikes, and renovating health facilities. The target of hiring 50 physicians and 50 paramedics was successfully adapted to focus only on paramedics when physicians were reluctant to work in remote areas. In total, under Gavi HSS Support in 2011 and 2012, the government recruited 26 physicians and 122 paramedics for CSBs. All regional program managers interviewed reported that the recruitment of new health workers was instrumental for opening CSBs in remote areas. In addition, the government met half the target for renovation of facilities.

An independent assessment of change in the quality of immunization or other services was not reported for the period of the Gavi HSS Support grant; however, respondents at the central and district level noted that the rehabilitation of some CSBs had helped to augment service access and quality.

With respect to future steps to address access, quality, and equity more directly, several respondents spoke about how the central level does not actively seek to understand the challenges faced at lower levels of the health system and coordinate with managers and staff there to define effective strategies. Suggestions for improvements included introducing procedures that instill shared responsibility across levels and encourage engagement between the central and lower levels of the health system during planning. Specifically, respondents identified the need to coordinate across levels when working with ASCs to tap their knowledge of how to engage with the communities in the hard-to-reach areas. Respondents noted that health worker motivation is a significant factor affecting availability of services in remote areas. Health workers who are not motivated may abandon their posts. ASCs interviewed noted that receiving incentives helped to motivate them, and many suggested a monetary sum to augment salaries. International partners noted that there is no consistent approach regarding incentives for ASCs. World Bank projects provide monetary incentives while other partners such as USAID do not.

The proposal originally included activities to support equity funds (funds that subsidize free medicine for the poor at public health centers) and *mutuelles*. The government collected data on factors that affect the use of these funds. However, after the reprogramming, much of the funding for this activity was shifted into support for RED to help identify unvaccinated children.

Routine immunization reporting does not include sex-disaggregated data. The country reports that there has never been any distinction between girls and boys in terms of immunization, a fact it states is borne out by the 2008/9 coverage survey. The recently concluded report on analysis of factors of inequity (including a plan of action) provides a more nuanced picture of inequity factors. Demand-side factors include geographic location, mothers' education level, caregivers' lack of information, challenges to mothers' access to health facilities, etc., while supply-side factors include weak cold chain capacity and non-availability of vaccines. The equity report also indicates that 50 percent of all infants not immunized with DPT3 live in six regions/provinces. Three chief factors for low coverage are noted: rural residence, poverty, and lack of information for the mother. The plan of action specifically addresses reduction of gender and other inequities that limit access to immunization.

## Efficiency

The implementation of Gavi HSS Support funds was not efficient for a number of reasons.

- The political crisis had a negative effect on implementation efficiency because the new government appointed new health personnel in the regions and districts, and they were unfamiliar with the objectives of Gavi HSS Support;
- There was limited consultation between the government, Gavi HSS managers (DDDS), and external partners, as the HSCC and ICC were suspended for two years (2009–2011). During this time, the HSCC could not perform its tasks to coordinate and provide guidance on implementation of HSS activities. As a result, the coordination of Gavi HSS Support was poor, and there was limited implementation of HSS activities during this period.
- Gavi did not provide a manual of procedures to the country until 2013; thus, there was confusion about how to implement the Gavi HSS Support activities.
- During the two years of political crisis, the DDDS UG received little direction from ministry programs (e.g. EPI, *Direction de las Sante de l'Enfant, de la Mère et de la Reproduction* [DSEMR]), further hindering implementation.
- Implementation was also influenced negatively by administrative delays and late disbursement of funds due to cumbersome government procurement procedures, customs delays, omission of articles, and nonprovision of expenditures for certain acquisitions (spare parts for the cold rooms); missing fuel for generators and motorbikes; funds for prepayment of electricity; and overpayment for motorbikes. At the time of this evaluation, new cold chain equipment had been waiting at the port for several months because it was unclear which entity was required to pay the freight charges.

Table 4 presents a summary of the planned versus actual expenditure of Gavi HSS Support funds from 2008 to 2012. Overall, disbursement of funds has been very slow. During the first year of Gavi HSS Support implementation, only $120,941 (15 percent of total funds received) were expended. The slow rate of implementation continued from 2009 to 2011 and increased in 2012 when more than half of the total funds disbursed were expended. Data on the absorption of funds after 2012 are not presented since there were no expected expenditures in 2013 and 2014, and the project was expected to end in 2012.

**Table 4. Absorption Rate of Annual HSS Budgets**

| | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| **Expenditures** | $120,941 | $615,581 | $318,966 | $802,152 | $2,504,498 | $4,362,138 |
| **Original annual budget** | $810,516 | $3,408,945 | $3,446,898 | $3,549,250 | - | $11,215,608 |
| **Percentage of expenditure on original annual budget** | 14.9% | 18.1% | 9.3% | 22.6% | - | 38.9% |
| **Total funds received** | $811,000 | - | $1,704,500 | $5,151,500 | - | $7,667,000 |

**Measures Taken to Monitor Financial Flow and Limit Business Risk**

Gavi developed a transparency and accountability policy in 2009. Financial audits were a component of the policy and are now conducted in Madagascar. In addition, a partnership agreement was signed with Gavi that stipulates policies guiding collaboration.

Despite these policies, financial management of Gavi funds has been problematic, partially because Gavi did not have necessary procedures in place at the beginning of the project. The country has also experienced difficulties with fund disbursement and procurement. During the political crisis, Gavi asked WHO and UNICEF to sign off on financial disbursements but both refused to do so because inadequate procedures were in place to validate use of the funds. The 2011 FMA found several problems with the financial management of the project and recommended several steps to validate the use of funds. The problems with financial management continued when in 2013 the audit found that the amount spent to purchase motorbikes was higher than expected by $279,000.

As a result, the government was asked to reimburse the funds before Gavi would disburse additional funds. In 2013, the manual on Gavi procedures was produced. The DDDS is now conducting training on using procedures specified in the manual. However, the DDDS has indicated that it still does not have enough personnel to carry out the financial management adequately, and the procedures are not being implemented systematically. An external audit conducted in August 2014 generally found no major problems with the financial management. It did, however, find that receipts were missing for about $1,500 of expenditures.

## Sustainability

Assessment results about efforts to ensure the sustainability of Gavi HSS Support were mixed. According to the approved HSS proposal, efforts to address sustainability included holding meetings and maintaining regular correspondence between partners and the government to sustain their interest. The intent was to encourage the partners and government to become involved financially and technically in HSS activities, especially if these activities were well managed, timelines were met, and results were achieved. Given the delays in implementing Gavi HSS Support and the political crisis, this strategy was not effective.

According to a presentation prepared in May 2014 that analyzed the sustainability of vaccine financing, government financing declined from 39 percent as a share of the total in 2010 to 32 percent in 2012. One respondent suggested that the MoPH needs to more effectively petition for resources during budget conferences and that it is important that the MoPH should prepare for these discussions with evidence demonstrating the links between Gavi HSS Support performance and sustainable and adequate financing. Table 5, below, presents the funds expended on health as a percentage of total government expenditure. Government expenditure on health as a percentage of total government expenditure grew from 10.5 percent in 2008 to 14.4 percent in 2010. However, there was an absolute decrease in total health expenditures over the same period. There was a decrease in government expenditures on health as a percentage of total government expenditures in 2011 and 2012 to 12.8 percent (2012) that coincided with an increase in government expenditures on health.

**Table 5. Total Government Expenditures on Health as % of Total Government Expenditures**

| | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| **Government expenditure on health as % of total government expenditure** | 10.5% | 12.0% | 14.4% | 13.5% | 12.8% | NA |
| **Government expenditures on health (USD)*** | 272,757,619 | 243,080,100 | 229,966,100 | 262,651,500 | 284,725,100 | NA |

*Source World Development Indicators 2014

Currently, efforts are under way to develop an action plan to address concerns about government spending for health and immunization. Draft legislation on sustainable immunization financing was prepared with the support of partners including the Sabine Vaccine Institute, JSI R&T/Gavi, UNICEF, and the Technical Committee, under the initiative of the chief of the SV of the MoPH with the collaboration of the Ministry of Finance and Budget, Ministry of Justice, Ministry of Foreign Affairs, and members of the Parliament of Madagascar. The proposed legislation is available and scheduled to be submitted to Parliament for a vote in 2015.

Another strategy proposed to address sustainability was to support the involvement of decentralized territorial collectives, NGOs, and associations in the pursuit of HSS activities since these organizations are a likely source of financial and technical support once Gavi HSS Support funds cease. To this end, Gavi-funded activities focused on developing a map of NGOs to better understand where organizations were working and to identify any gaps. In addition, partnership development meetings were scheduled with the CCDS and COSANs in the targeted districts.

One of the most important Gavi HSS Support activities has been to contract health staff to work in rural areas where health facilities were nonfunctional. Maintaining health workers in rural areas is often complicated by issues of security, mainly for the female nurses, as well as the limited educational opportunities for health staff and their dependents. The health workforce issues are not limited to the rural areas. Nearly 40 percent of the health workforce is set to retire in the next few years, and the new government has yet to establish a workforce improvement strategy.

The government is optimistic that the training provided on management of health services and, in particular, financial management will improve sustainability. Likewise, it is expected that efforts to improve resource mobilization internally and preferential allocation to health would gradually improve, just as the introduction of equity health funds would provide an additional source of financing for basic health services. The introduction of SWAP would also enhance efficiency in resource allocation, but the government recognizes that additional (external) resources would be required to ensure financial sustainability.

## Results of Gavi HSS Support Activities on Immunization Program Performance

Gavi HSS Support was provided with the intent to increase immunization coverage rates and consequently reduce infant and child mortality in Madagascar. We cannot confidently say that Gavi HSS Support had an effect on immunization performance over the study period. There are several factors that prevent attribution to Gavi funding of changes in coverage rates.

1) While there was a coverage survey in 2008 and a second survey in 2013, due to the slow absorption of funds, only a little over a third of the original budget had been expended by 2013, and the majority of these funds did not begin to reach the lower levels of the health system until 2012.
2) Coverage survey data were only available at the regional level. Data available at the district level that would allow a more targeted analysis of immunization performance by districts receiving Gavi HSS support compared with those not receiving support were based on administrative reports that have not been validated and often have issues with data quality.
3) There are numerous contextual issues, such as support from other donors, and security issues, which vary by zone, that may have had an effect on the coverage rates. Despite these issues, data from the immunization program can provide an overview of how the Madagascar immunization program has changed overall since the Gavi HSS Support commenced.

Available data from the coverage surveys as well as administrative data were used to assess trends in immunization coverage and other key indicators at the national level from 2008 to 2013. As shown in

Table 6, Madagascar reported DPT3 coverage at 88 percent in 2008 and 90 percent in 2013. Coverage remained high (>85 percent) in the interim years. Over the same period, measles vaccination fluctuated. Coverage of the first dose of measles exceeded 90 percent in 2008, but in 2009 it dropped below 90 percent, then stagnated around 85 percent through 2012, and reached 86 percent 2013. The DPT1-3 dropout rate examines the proportion of children who receive the first DPT immunization in the series of three but do not receive the second or third doses. DPT dropouts varied greatly between 2008 and 2013. During that period, the proportion of children who did not receive all subsequent doses of DPT was highest in 2008 (13 percent). By 2011, the proportion of DPT dropouts had fallen to 7 percent, but rose the next year (2012) to 11 percent. Data from 2013 indicate that the dropout rates may have fallen to a five-year low of 6 percent. Vaccine stockouts were recorded in 2008 (BCG, pentavalent, and measles vaccine), 2009 (BCG), and in 2012 (PCV10 vaccine).

One would expect that with a political crisis and sudden decline in donor support that immunization coverage would measurably decline over the study period. However, it is assuring to observe a consistent level of DPT3 coverage. While we may not be able to attribute these results directly to Gavi HSS Support, it is reasonable to assume that Gavi's continued support over this period played a role in maintaining immunization coverage rates. The overall declines in dropout rates for DPT1-3 and DPT wastage rates also indicate overall improvement of the EPI.

**Table 6. National Trends in Immunization Program Indicators, 2008–2013**

| Indicators | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| Births | 724,713 | 745,006 | 772,345 | 793,057 | 815,257 | 829,771 |
| Surviving infants | 682,680 | 701,795 | 729,024 | 747,055 | 767,972 | 781,644 |
| Target population vaccinated DPT3 | 600,065 | 625,042 | 623,404 | 666,111 | 660,797 | 700,172 |
| DPT3 coverage | 88% | 89% | 86% | 89% | 86% | 90% |
| % of districts with DPT3 >80% | 78% | 69% | | | | |
| Target pop vaccinated measles 1st dose | 620,985 | | 640,063 | 633,248 | 649,479 | 668,426 |
| First dose measles coverage | 91% | 85% | 88% | 85% | 85% | 86% |
| Dropout rate DPT1-3 | 13% | | 9% | 7% | 11% | 6% |
| DPT wastage rate | 15% | | 5% | 25% | 10% | 10% |
| Vaccine stockouts (yes/no) | Yes | Yes | No | No | Yes | No |

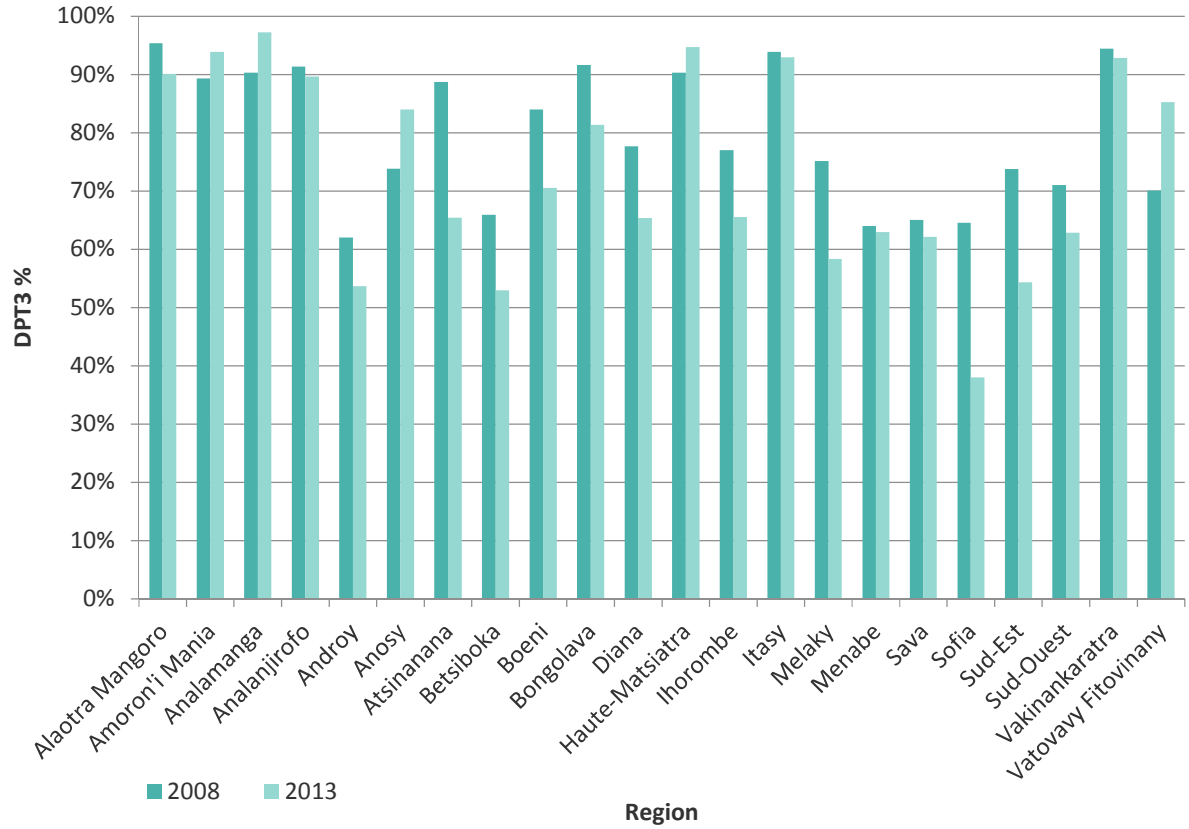
Sources: APRs, IRC reports, and MoPH routine immunization data (Note: Data reported from reports and routine data are higher than data collected through the 2008 and 2013 coverage surveys, which reported DPT3 coverage of 80.3% in 2008 and 76.9% in 2013.) Grey boxes indicate missing information from the sources.

Results from the most recent coverage survey in 2013 provided data on trends in DPT3 coverage from 2008 to 2013 by region. As seen in Figure 6 below, DPT3 Coverage Estimates by Region, 2008 and 2013, DPT3 coverage increased in only five of the country's 22 regions. Of the five regions experiencing increased coverage, two (Anosy and Vatovavy Fitovinany) received Gavi HSS Support. The greatest increase among the five regions was observed in Vatovavy Fitovinany, where DPT3 coverage increased from 70 percent in 2008 to approximately 85 percent in 2013. In the 15 regions that observed a decrease or no change in coverage, the greatest decreases were also observed in regions that received Gavi HSS Support (Atsinanana and Sofia), where DPT3 coverage decreased from approximately 88 percent to 65 percent and 64 percent to 38 percent, respectively. Overall, DPT3 coverage in 2013 was low, with only 10 regions having coverage greater than 80 percent.

There are many factors that influence the regional coverage rates and make it difficult to interpret performance trends. According to interviews with key informants, geographic accessibility and functioning health centers can be major factors influencing trends in coverage rates. Geographic accessibility can vary widely within a region and district, making it challenging for regional and district teams to conduct supportive supervision. In addition, the weather patterns, including cyclones that occur in the southern part of the country, have a significant effect on the responsiveness of the health system.

It is important to note that coverage estimates from the surveys were much lower than the administrative data reported by the MoPH, in which only four regions had DPT3 coverage estimates lower than 80 percent. The national estimate for DPT3 coverage from the 2013 coverage survey was 78 percent whereas the MoPH reported a much higher 89 percent. The estimate from the coverage survey was closer to WHO and UNICEF estimates in 2014 of immunization coverage, where DPT3 for Madagascar in 2013 was 74 percent.

**Figure 5. DPT3 Coverage Estimates by Region, 2008 and 2013**

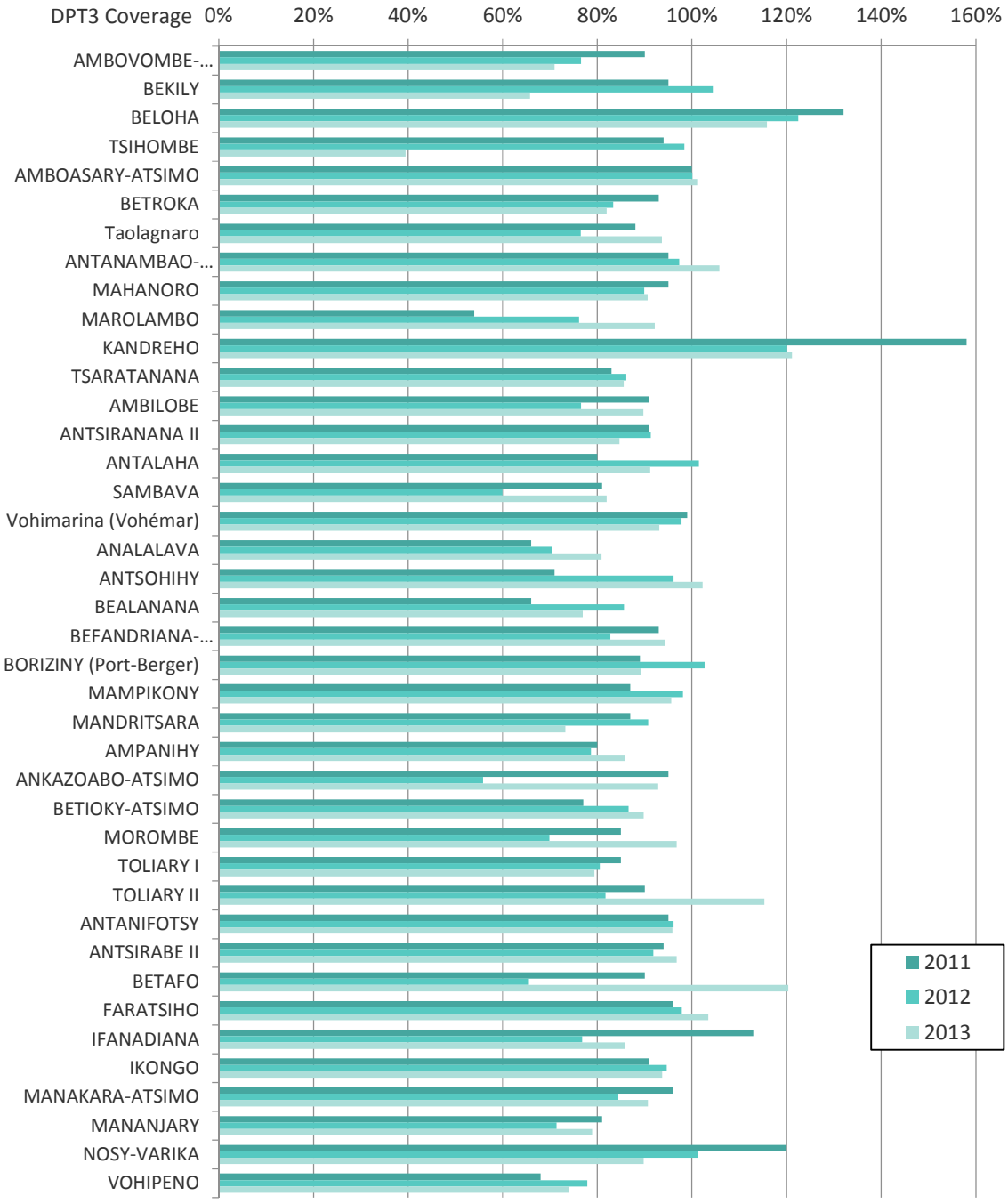



*Source: 2008 and 2013 coverage surveys

DPT3 coverage data from the coverage surveys were not available at the district level; however, administrative data from the MoPH were available and showed trends in DPT3 coverage rates from 2011 to 2013. Figure 6 depicts DPT3 coverage estimates by district, 2011 to 2013, and shows data for the 40 districts that received Gavi HSS Support between 2008 and 2013. As seen in the figure, 34 of the 40 supported districts had high DPT3 coverage (>80 percent). But in 2012, 21 districts experienced a decrease in coverage; however, over half (11) of these districts still had high DPT3 coverage (>80 percent). In 2013, 18 districts experienced a decrease in DPT3 coverage. Overall, 32 districts had high DPT3 coverage by the end of 2013.

As noted earlier, the estimates from the 2013 coverage survey were much lower than the estimates reported by the MoPH, and the results presented below should be interpreted with caution since they are not consistent with findings from the coverage survey, which are more consistent with WHO- and UNICEF-reported data. Interviews with key informants acknowledged that the quality of administrative data is a serious issue, and periodic DQS has uncovered poor reporting and instances where 100 percent coverage rates are reported, yet evidence to support these claims is unavailable. In addition, issues were noted with changes in denominators over the course of the year. Specific examples from the data below from the 2011 to 2013 coverage data show extreme values reported, including 160 percent DPT3 coverage in one district in 2011 and multiple districts that exceed 100 percent DPT3 coverage in a single year. See Annex E for a presentation of additional data collected at the subnational level.

**Figure 6. DPT3 Coverage Estimates by District, 2011–2013**




**Trends in Infant and Child Mortality**

Overall, data on infant and child health indicators show a slight decrease from 2008 to 2013 (Table 7, Infant and Child Health Mortality Rates, 2008 and 2013). Infant mortality rates have decreased from 47 to 40 deaths per 1,000 live births, and child mortality rates have decreased from 69 to 56 deaths per 1,000 live births in those six years.

**Table 7. Infant and Child Mortality Rates, 2008–2013**

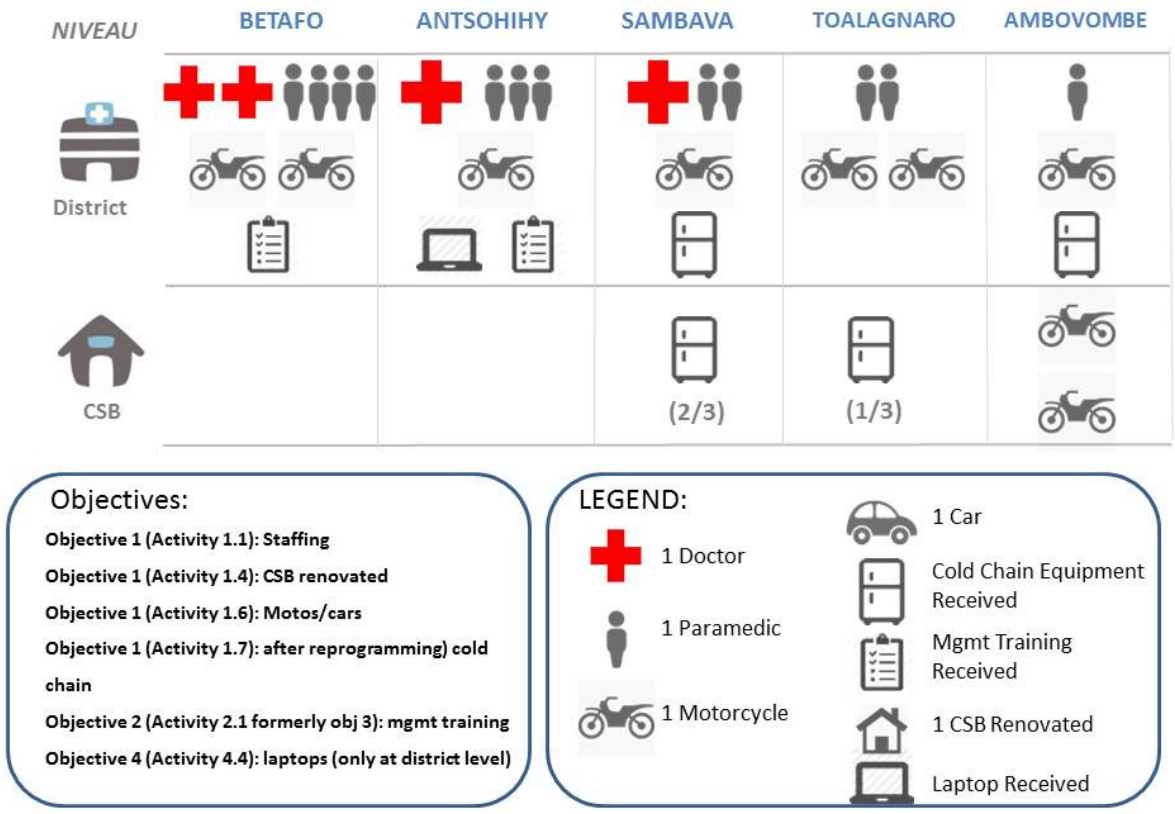
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|
| Infant mortality rate (deaths/1,000 live births) | 47 | 45 | 44 | 42 | 41 | 40 |
| Child mortality rate | 69 | 66 | 63 | 61 | 58 | 56 |

Source: UNSTATS

The monitoring and evaluation plan of the Gavi HSS Support program followed a typical logical framework design rather than constructing a theory of change. The approach was challenging to implement and follow over time due to the multiple reprogramming phases that altered the program activities defined in the original application. As a result, it was difficult for the JSI/TANDEM team to assess how well the program actually performed with regard to the output-level indicators since some activities were not completed and reporting on new activities was not routinely assessed.

Figure 7 provides a visual presentation of support provided to districts and CSBs interviewed as a part of the evaluation. In the districts where interviews took place, all five had received health workers and motorcycles. CSBs in Ambovombe district also received motorcycles. Sambava and Ambovombe districts received cold chain equipment. In two of the three CSBs interviewed in the Sambava district, health workers reported receiving cold chain equipment as well. Two districts, Betafo and Antsohihy, received management training while Antsohihy was the only district to receive a laptop. The justification for how resources were distributed across districts was not made available. While the figure shows the receipt of support aimed at addressing key health system needs that were addressed in the Health Sector Development Plan, there are no clear patterns that emerge, and it is not possible to draw conclusions on how the receipt of this support affected immunization program performance.

**Figure 7. Support Received from Gavi HSS Support Grant by Type of Support and Districts/CSBs Interviewed**




Responses from interviews at the subnational level supported the view that Gavi HSS Support had led to overall improvements in the health system and immunization program. Respondents indicated that funds supported recruitment of health staff (doctors and paramedics) to effectively contribute to the reinforcement of the health system by reopening and revitalizing certain CSBs. Gavi HSS Support also permitted CSBs in eligible districts to obtain petrol, despite delays in the allocation of funds to the periphery. These funds contributed to an improvement in conditions notably for vaccinations. The support of motor transport to certain CSBs improved the integration of health activities (epidemiological surveillance and nutrition, periodic reporting, vaccination, and sanitation). The financial support to ASCs during the maternal and child health weeks and during the days of intensive routine vaccination was also noted to be beneficial. Respondents indicated the support allowed targeted public sensitization and mobilization, home visits, and searching for children lost to follow-up on vaccinations. While some respondents mentioned that there were fluctuations in the availability of resources (funded by Gavi), overall the Gavi investments improved vaccine coverage.

# V. Lessons for the Future & Recommendations

The lessons learned and recommendations for investing in Madagascar's immunization program and strengthening its health system in the future are summarized below. They are based on information gathered through the desk review, key informant interviews at the central level, and the district-level site visits. The lessons presented focus on improving design, implementation, monitoring and evaluation, and ultimately the effectiveness of Gavi HSS Support in the future. These recommendations were developed drawing from input from TANDEM (the JSI team's local research partner) and were shared with the Malagasy government officials before being finalized.

## Lessons Learned

*Risk Mitigation*

- The absence of a risk mitigation plan in the initial Gavi HSS Support proposal meant that there was no plan to address the many challenges the country faced both in terms of uncertainty over policies and procedures as well as the unexpected political crisis.

*Donor Coordination*

- The limited involvement of the ICC over the implementation period has made it difficult for the country and members of the technical partners to react to difficulties occurring in the country.

*Policies and Procedures*

- Gavi did not provide adequate guidance on policies and procedures prior to implementation. The lack of adequate policies and procedures led to slow implementation and an overly centralized management of the Gavi HSS Support activities.
- The initial HSS Support proposal did not clearly define the role of key players in management. The government finance officer was required to take on too many responsibilities, and this hindered implementation.

*Procurement*

- Over the course of implementing Gavi HSS Support, the DDDS UG has also learned important lessons about procurement, training, and contracting. The procedures in the Gavi HSS Support manual should be applied to procurement for materials needed to renovate CSBs. In addition, the government can use its experience with renovating CSBs over the course of implementing the first Gavi HSS Support grant to procure materials more efficiently in the future.

*Decentralization Management*

- Inconsistent and limited coordination between the DDDS and other program managers has contributed to ineffective programming and use of resources. The DDDS has been managing program activities even though they are not technical specialists.
- Health staff at lower levels of the health system were not actively consulted or involved in the design and plans for implementation. Understanding their needs may help to strengthen the program.

**Project Management**

To reinforce financial sustainability of the immunization program, lessons learned on the use of annual plans should be applied to mobilize resources. It is important that district plans be developed annually

and verified at the regional and national levels so that resources (e.g., petrol and motorbikes) are optimally allocated.

Over the course of implementing Gavi HSS Support, the importance of involving CSOs in planning and implementation of HSS activities was felt. That is, they were not sufficiently involved in the initial proposal design and did not receive funding for their activities with community agents until a separate funding mechanism was introduced by Gavi. Catholic Relief Services is currently supporting a platform to increase coordination and build capacity across CSOs. Each of the CSOs contributes to the implementation of the platform by instituting regional networks. The CSOs work with the district SVs and with the DRSP to identify and select CSOs at each level of the district. This effort helped to increase the flow of data from the various levels of the health system. The objective is to reach the maximum number of communes for the vaccination improvement. CSO involvement in HSS is essential to improve utilization of the health system and to stimulate demand for service through community agents.

The lessons learned from the first HSS project were applied to the second proposal in terms of the role and place of support for the immunization program. Since support for immunization was not the focus of the HSS project, the activities were changed during the reprogramming to emphasize more support for the immunization program and it features prominently in the second proposal. Some of the links between activities and improvement of immunization performance include improving access to basic health care services through increased support for outreach for immunization; investing in cold chain equipment to improve the supply of EPI vaccines; improved monitoring to improve EPI performance; and advocating for a draft law on EPI, advocacy, and increased government funding to improve the sustainability of the EPI program.

The activities in the second HSS proposal build on the interventions that were most effective from the first proposal, such as the contracting of health workers, purchase of cold chain equipment, and funding for outreach activities.

The proposal tries to achieve equity objectives though increasing coverage of health care services in places with limited access. Specifically it plans to increase access through constructing/rehabilitating/equipping 28 dilapidated health centers and improving outreach for immunization. In addition, it plans to support employee retention by contributing to incentives for health workers in isolated areas of the countries and by continuing to contract health workers to be placed in remote areas.

**Monitoring and Evaluation**

Gavi HSS support was provided with the intention of increasing immunization coverage rates and consequently reducing infant and child mortality in Madagascar. There are several factors that prevent attribution to Gavi funding of changes in coverage and mortality rates (as noted previously). Despite the lack of quality data at the district level that would allow for a quantitative assessment of Gavi's support to the immunization program, several respondents commented on the importance of Gavi's support during a challenging political period. The second HSS project is expected to have improved measurement since one of the project's objectives is to improve the health care information technology system to produce high-quality data.

## Recommendations

**Design of HSS Support**

*Risk Mitigation*

- The new HSS Support proposal includes a risk mitigation plan. However, it would be beneficial to develop a more elaborate plan prior to implementation. It may be useful for Gavi and the government to outline potential threats and weaknesses that could derail the activities and outline how each of these specific issues could be addressed. As a part of risk mitigation plans in countries where there is a history of instability, Gavi should outline steps to react to political crisis and when possible continue to support the country. For example, Gavi can consider convening meetings with donors in countries with political instability to determine if there are other ways that they could support immunization. Gavi can work to communicate with the country to understand their plans and therefore liaise with partners to align resources. For fragile or vulnerable countries in the event of political instability, GAVI should establish a technical and financial support mechanism to avoid penalizing children in the event of a funding suspension. For example, in the case when the funds were suspended for the 4th tranche until the repayment of 279 000 USD was completed resulted in a delay in the implementation of activities planned for 2014.
-

*Donor Coordination*

- Gavi should consider convening periodic joint meetings with key ICC members prior and throughout implementation of the next HSS Support activities to define their expectations and work to align donor support through a memorandum of understanding (MoU) thereby allowing for a review of expectations and objectives and revising the plan as needed. A key issue that should be addressed in the MoU will be the need for a quarterly data use meeting that incorporates data from multiple sources that will allow ICC members to triangulate information and develop a more comprehensive understanding of the issues and areas where attention should be focused.

*Policies & Procedures*

- There should be continuous training on the policies and procedures manual with clear guidance in the manual on the objectives and activities and how to execute these activities, including using and disbursing funds. Clear and specific checklists can help to clarify areas of ambiguity.
- The policies and procedures should include a clear organogram with terms of reference for each person involved in HSS Support management activities. Clearly defined responsibilities will facilitate better assessment of gaps that need to be filled and flow of communication. A clear understanding of roles and responsibilities will also enable staff to understand what is expected, what needs to be done, and what to prepare ahead of time.
- The government of Madagascar should institute a finance manager with a clear job description to monitor program support funds allocated by Gavi (support the reconciliation process, and manage disbursements).
- The management structure should involve technical experts from the SV and DSEMR in implementation. Members of the SV should be more actively involved during the

implementation of these activities for quality assurance purposes. These specialists could also aid in the decisionmaking process for procurement and installment of cold chain equipment.

*Procurement*

- Gavi should provide training and support on procurement to the entire Madagascar HSS Support team (administrative, technical, finance, and procurement) so that everyone understands the technical aspects of the program and can advise on deliverables. The UG should improve the governance of Gavi HSS Support through developing clear rules and regulations for procurement of goods and materials for other levels in the health system. As part of the rules and regulations, the UG should ensure that there is transparency in the procurement process by announcing details of the tendering process by the appointment of a PRMP technician to facilitate collaboration with the UG to improve the sharing of information on the process of the acquisition procedure with presence of the PFT members throughout.
- To ensure that the procurement process is efficient and that funds reach the peripheral levels, it is recommended that a printed register be provided to CSBs to enter their information. These registers should be used for registering items received and given out and provide transparency for the local partners, community agents, community coordinating committee, and health committees.

*Decentralize Management*

- For transparency, the JSI/TANDEM team recommends that the structure of program management at the national and decentralized levels be updated in a procedure/orientation manual. Ongoing training and monitoring on the structure and procedures in the guidance document are also needed to ensure that all members are informed and know both what to expect from each key player and the procedures that need to be followed for different types of activities. Adherence to these procedures also needs to be emphasized to ensure that training objectives are achieved.
- There is a need to pilot a system of decentralized funding. At present, the process of managing Gavi funds is highly centralized within DDDS. Decentralizing management may increase efficiency. Management of HSS funds at the regional or district levels would reduce the time required to distribute them for HSS activities. Maintaining funding flows should be based on district trimester workplans. However, regional and district managers would have to report and provide receipts for their expenditures on a systematic basis. Thus, the JSI/TANDEM team recommends that the government pilot a new approach to financing where funds should be replaced only when receipts for expenditures have been received at the central level. To instill a greater sense of ownership of the HSS activities at different levels of the health system, the JSI R&T/TANDEM team recommends greater involvement of regional-, district-, and community-level staff in the design, implementation and evaluation of Gavi HSS Support. Central-level managers should include representatives from health regions and districts at the stage of designing future HSS support. Creating a sense of ownership is equally valuable at the CSB level. There is an urgent need to develop validated annual plans so that CSBs can work toward goals that are agreed upon with the districts, self-assess their performance, and propose corrective actions to address shortcomings. Periodic presentations to members of the ICC / HSCC on the performance of Districts is essential for the UG / SV.

**Project Management**

- Support is recommended for the development of a health worker strategy that addresses motivation. For the next round of Gavi HSS Support, improved incentives for health workers, particularly physicians, should be considered to encourage staff to work in remote areas. Levers to increase health worker motivation include both financial and nonfinancial incentives. Financial incentives include increases in salary or pay-for-performance approaches, while nonfinancial incentives can vary widely, including career development and continuing education, increased infrastructure and resource availability (transport, commodities, etc.), improved management and supervision, and personal recognition and appreciation.
- Efforts to address financial sustainability at the national level should be addressed through an overarching government plan such as the Madagascar Action Plan (PDSS). The government should engage and outline its contribution and explain how it will increase funding through a multiyear plan. HSS Support needs to align with the immunization multiyear plan (PPAC) and with donor support.
- Conducting a pre- budget conference on the state budget is a major condition to ensure the availability of funds pending finalization of the sustainable immunization financing law.

- The national plan should be grounded in the needs of the subnational level. Training on the development of district plans began in the first HSS Support implementation period but needs to be reinforced and supported in the next HSS Support iteration to improve financial sustainability of the immunization program. In addition, it is important that planning and supervision take place to ensure that cold chain equipment and vehicle purchases include spare parts and operational costs so that these can remain functional. It is also important that other bottlenecks related to the lack of financing by the state for health and immunization are removed, such as validation of requests, monitoring and control of effectiveness of expenditure, compliance of procedures, and documentation.
- The program should ensure that activities are budgeted and managed appropriately. Several activities remain incomplete because of poor budgeting practices. For example, the DDDS UG training on the procedures manual was not completed. In addition, the unit lacks sufficient personnel to carry out the financial management adequately. Thus, procedures are not being implemented systematically. The DDDS should ensure that training is completed and should utilize Gavi procedures to document expenditures for the trainings.
- Gavi HSS Support should include specific mechanisms for data tracking, procurement, and involvement of CSOs in HSS planning and implementation.
- To address issues of inequities, there should be more consideration to how budgets are prepared so that issues of geographical accessibility are addressed.
- The NGO mapping activity should be expanded to include information on how the intervention domains by the partners are addressed geographically.
- Gavi could consider identifying poorly performing districts and supporting RED training, better COSANs, review meetings, and outreach visits, which would feed into their approach to working with implementers to identify defaulters.

**Monitoring and Evaluation**

- Improved tracking of data at all levels is warranted. District managers and FMAs noted that there was a recurring problem securing information on services provided as well as receipts for funds received between the different levels. Improved tools and support are needed to assist CSB managers and others to record information and transmit it to the other levels in the health system in a timely fashion. The introduction of these tools and support would greatly facilitate

implementation of Gavi HSS Support activities as well as their monitoring and supervision. The presence of a universal global positioning antenna in all regions and districts is also recommended to improve communications and verification of activities and receipts for expenditures.

- Regarding accountability, it is recommended that Gavi's HSS Support financing should be based on performance and measured by an efficient system of monitoring and evaluation. In addition, compliance with the points of terms of references of the project must be agreed upon by the signatories and the stakeholders.
- Gavi and the government should consider developing a theory of change model that documents the pathways and assumptions that will lead to the proposed results. In addition, it may be useful to develop monitoring and evaluation processes that capture not only the quantitative outputs of activities but also includes periodic qualitative data collection that allows for a better understanding of how the context and underlying assumptions are unfolding throughout program implementation. Results of the qualitative studies should be routinely presented to partners for learning and feedback.
- Gavi should provide technical assistance to the government to strengthen the quantitative monitoring measures. More support should be provided to strengthen data collected through routine monitoring of the program.
- The government of Madagascar should prepare monthly summaries and quarterly reports. These reports should be shared through transparent discussions with senior ICC members.
- Gavi and the government should insist on timely monitoring, reconciliation, and reporting, and this should be aligned with disbursements.
- If a more rigorous assessment of the HSS Support is desired in terms of understanding the effects at the outcome and impact level, Gavi should consider funding a pre/post–quasi-experimental survey in order to collect high-quality coverage data that can be used to model mortality estimates while controlling for contextual factors.

# VI. Conclusion

The early implementation strategies for the Gavi HSS Support were less successful than planned due to a slow start, lack of a manual of procedures for Gavi funding, and the political crisis. It is difficult to measure the direct impact of Gavi HSS Support due to the major changes that took place in the country. Most activities were not carried out until the end of 2011 or the beginning of 2012, and many of the other partners recalled their funding at this time. As a result of all of this changing environment, the Gavi HSS Support had to be reprogrammed to help the HSS grant adjust to the changing needs of the health sector and immunization program.

Gavi HSS Support was intended to increase immunization coverage rates, thereby reducing infant and child mortality. A consistent level of DPT3 coverage was observed between 2008 and 2013 despite the political crisis and decline in donor support. Overall, Gavi HSS Support likely had a greater impact than initially anticipated because of the consistent support provided during the political crisis. Gavi HSS Support activities were partially successful in improving access, quality, and equity of immunization and other services. Health facilities were improved through renovations, addition of vehicles and motorbikes, and newly hired staff deployed to poorly served areas.

An unexpected but positive result of Gavi HSS Support relates to the funding distributed to the health facility and district levels in 2011. Once it was released, it enabled the program managers to conduct monitoring and supervision of the health facilities, have the health facilities conduct supervision of the community agents, and transport necessary supplies and commodities to every level. This led to improvements in the overall functioning of the immunization program. In particular, the funding for RED, petrol, provision of motorbikes, and placement of health workers helped these districts increase access to primary health care services and immunization. Gavi HSS Support was also able to provide needed cold chain equipment to the country to assist with its introduction of rotavirus vaccine, as an additional positive outcome of the reprogramming of Gavi HSS Support funding. District managers benefited from management and financial training as well as data management support, which improved their reporting and program management skills. Introducing training at this level was particularly useful since new district health managers were put in place after the political crisis without sufficient orientation and support.

Gavi helped the country maintain its immunization coverage when resources were scarce due to the decline in external support from most donors. All of the respondents in the district survey noted that Gavi funding was essential to their maintaining and, in some cases, increasing access to immunization services over this period. However, one would expect that Gavi's role would have been more influential if it had been available to play the catalytic role that was originally envisioned and thus worked with other external partners to implement the full scope of the HSS Support activities.

# VII. Annexes

## Annex A. Objectives of Gavi HSS Support (2007–2010)

| | | 2007 | 2008 | | | | 2009 | | | | 2010 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Obj. 1** | **Strengthen the provision of quality health services to the entire population** | | | | | | | | | | | | | |
| Activity 1.1 | Contract health care workers in the marginalized health care facilities | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Activity 1.2 | Identify the factors (geographical, financial and cultural) that limit the use of the services through field research | | | | x | x | | | | | | | | |
| Activity 1.3 | Pilot strategies in around five *Système de Santé de District* (SSDs) aimed at increasing the use of the services based on the results of the assessment study (see activity 1.2) | | | | | | x | x | x | x | | | | |
| Activity 1.4 | Carry out renovations (painting, purchase of furniture for receiving patients, roofing, ceiling, etc.) in 15 *Centre de Santé de Base* (CSBs) per year with the aim of improving their physical appearance and making them more welcoming to patients | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Activity 1.5 | Head up *Plan de Travail Annuel* (PTA) ratification missions: the central team of the ministry and partners will be deployed in the regions and will ratify the PTA in the field, instead of having the PTA sent to them centrally | | | | x | | | | x | | | | x | |
| Activity 1.6 | Equip 10 SSDs with a 4x4 vehicle, the center supervisors with two vehicles, and 120 CSBs with motorbikes | | | | | x | x | | | | x | | | |
| Activity 1.7 | Introduce different strategies for increasing the population's financial accessibility to health care services in five SSDs: Mutual health organization system | | | | x | x | | | | | x | x | x | |
| **Obj. 2** | **Improve human resources management of the health sector** | | | | | | | | | | | | | |
| Activity 2.1 | Contracting activities | | | | | | | | | | | | | |
| **Obj. 3** | **Increase the mobilization and allocation of financial resources** | | | | | | | | | | | | | |
| Activity 3.1 | Offer training on financial and program management to the managers on the periphery of the targeted districts | x | | | | | | | | | | | | |
| Activity 3.2 | Strengthen the application of the equity funds and mutual health organization system implementation plan in the targeted health care facilities | | | | | | | | | | | | | |

| | | 2007 | 2008 | | | | 2009 | | | | 2010 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Activity 3.3 | Carry out financial auditing and supervision of the priority health care activities with Expanded Program for Immunizations (EPI) as top priority (focused on the continuation of child and maternal care) in the targeted areas and develop corrective strategies for improving the program management | | | | x | | | | x | | | | x | x |
| **Obj. 4** | **Stimulate demand and use of the health services** | | | | | | | | | | | | | |
| Activity 4.1 | Carry out a regional mapping of the nongovernmental organizations (NGOs) and associations working at a community level | | | x | x | | | | | | | | | |
| Activity 4.2 | Convene three meetings per year with 160 local authorities in the targeted areas | | x | x | x | x | x | x | x | x | x | x | x | x |
| Activity 4.3 | Convene meetings for drafting policy documents establishing community health strategies (including Reference Terms and a *Paquet Minimum d'Activité*) | | x | x | x | | | | | | | | | |
| Activity 4.4 | Provide training for community health-care workers in a *Paquet Complémentaire d'Activité* in 40 targeted SSDs. This training includes the provision of an information, education, communication (IEC) EPI kit including IEC aids, guides, supplies and management tools | | x | x | x | | | | | | | | | |
| Activity 4.5 | Strengthen the application of the equity funds and mutual health organization system implementation plan in the targeted health care facilities (see also activity 3.2) | | x | x | x | | | | | | | | | |
| **Obj. 5** | **Strengthen and institutionalize a monitoring and evaluation system** | | | | | | | | | | | | | |
| Activity 5.1 | Provide training for health-care workers on the benefits and use of data for planning and decision-making in the targeted areas | x | x | x | | | | | | | | | | |
| Activity 5.2 | Assess the health data transfer performance of the CSBs on a central level in order to identify bottlenecks | | | x | | | | x | | | | x | | |
| Activity 5.3 | Carry out regular follow-up and supervisory reviews of the CSBs | | x | x | x | x | x | x | x | x | x | x | x | x |
| Activity 5.4 | Support coaching in the targeted areas | | x | x | x | x | x | x | x | x | x | x | x | x |

### Annex B. List of Documents Reviewed

Gavi HSS Support Madagascar Application of Madagascar
Revised Guidelines for HSS Applications
Madagascar HSS Implementation Description
Madagascar Action Plan
*Madagascar Plan de Developpement Secteur Sante*
World Bank Health Sector Development Plan
5-Year EPI Plan Madagascar 2007–2011
Madagascar MIRC Report July 2013 Final
*Rapport d'Act 2008 Eng.doc*
*Rapport d'activites 2009 final Gavi.doc*
Madagascar_APR_2010_Madagascar_EN.pdf
Madagascar_APR_2011_MDG_2012 06 08-en.pdf
Madagascar_APR_2012_MDG.2013.11.12.EN.pdf
Reprogramming 4th tranche 21Oct13 - EN.doc
*APS-Madagascar Mai 2013_version Juin 2013 - VERSION REVISEE.doc*
Gavi Alliance HSS Tracking Study
HSS report
*Financement Basé sur les Résultats Pilot*
*Analyse du financement durable de la vaccination_AP Latest.pptx*
Gavi_Second_Evaluation_Rerpot_2010.pdf
Gavi Alliance second evaluation-SP8-Performance against strategy indicators.pdf
Mada final report IMMbasics 10_09.doc
UNICEF/WHO coverage data from Jaures
Minutes ICC meeting endorsing change of vaccine presentation - 1 - EN
Minutes of ICC meeting endorsing extension of vaccine support if applicable - 1 - EN
Minutes of ICC meeting in 2014 endorsing the APR 2013 - 1 - EN
*Reprogrammation tranche 23 juillet 2013* – EN

### Annex C. List of Key Informants

| Organization | Title | Name |
|---|---|---|
| *Action Socio-sanitaire Organisation Secours* | *Secretaire Executif* | Dr. Jean Claude Rakotomalala |
| Catholic Relief Services | *Chef d'Unité* | Dr. Hilda Rakotondriabe |
| Gavi Alliance | Senior Country Manager | Véronique Maeva-Fages |
| John Snow, Inc. | Technical Advisor | Dr. Jaures Churchill Rabemanantena |
| *Ministère de la Santé* | *Directeur des Etudes et de la Planification* | Dr. Tiana Vololontsoa |
| | *Directeur du Développement des Districts Sanitaires* | Dr. Sahondra Harisoa Josée |
| | *La gestionnaire de Gavi RSS dans la Direction de Développement des Districts Sanitaires* | Voahangy Andriambolanoro |
| | Retired RSS technician | Dr. Maurice |
| *Service de Vaccination* | *Chef* | Dr. Louis Marius Rakotomanga |
| UNICEF | Health Manager, *Survie et Développement de la Mère et de l'Enfant* | Dr. Paul Richard Ralainirina |
| | Madagascar EPI Manager | André Yameogo |
| USAID | USAID/Madagascar | Dr. Jocelyn Andriamiadana |
| WHO | Global RSS focal point | Guy Andriantsara |
| | EPI focal point | Dr. Constance Razaiarimanga |
| | Retired RSS focal point | Dr. Damoela Randriantsimaniry |
| World Bank | *Spécialiste en Santé Publique* | Dr. Rajoela Voahirana |

### Annex D. Districts Selected for Evaluation by Selection Criteria

| | | | | Gavi Funding | | | |
|---|---|---|---|---|---|---|---|
| **District** | **Region** | **Population total** | **2013 DPT3 coverage** | **2012** | **2013** | **2014** | **Performance level** |
| Ambovombe | Androy | 279,193 | 71% | - | 9,038,000 | 3,375,000 | Low |
| Antsohihy | Sofia | 184,929 | 77% | - | 11,038,800 | | Low |
| Betafo | Vakinankaratra | 245,024 | 120% | - | 7,336,000 | | High |
| Sambava | Sava | 367,186 | 82% | - | 13,734,000 | | High |
| Toalagnaro | Anosy | 297,115 | 94% | 8,388,100 | 6,390,000 | | High |

### Annex E. District-Level Immunization Program Performance Data

***No. de rupture de stocks***

| | | **2009** | **2010** | **2011** | **2013** | **2014** |
|---|---|---|---|---|---|---|
| **Betafo** | **BCG** | - | 0 | 0 | 0 | 0 |
| | **VPO** | - | 0 | 0 | 0 | 0 |
| | **Penta** | - | 0 | 0 | 0 | 0 |
| | ***rougeole*** | - | 0 | 0 | 0 | 0 |
| **Antsohihy** | **BCG** | 0 | 0 | 0 | 0 | 0 |
| | **VPO** | 0 | 0 | 0 | 0 | 0 |
| | **Penta** | 0 | 0 | 0 | 0 | 0 |
| | ***rougeole*** | 0 | 0 | 0 | 0 | 0 |
| **Sambava** | **BCG** | - | - | - | - | - |
| | **VPO** | - | - | - | - | - |
| | **Penta** | - | - | - | - | - |
| | ***rougeole*** | - | - | 15 *jours* | - | - |
| **Toalagnaro** | **BCG** | - | - | - | - | - |
| | **VPO** | - | - | - | - | - |
| | **Penta** | - | - | - | - | - |
| | ***rougeole*** | - | - | - | - | - |
| **Ambovombe** | **BCG** | 0 | 0 | 0 | 0 | 0 |
| | **VPO** | 0 | 0 | 0 | 0 | 0 |
| | **Penta** | 0 | 0 | 0 | 0 | 30 *jours* |
| | ***rougeole*** | 0 | 0 | 0 | 0 | 0 |

***Taux de couverture vaccinale***

| | | 2009 | 2010 | 2011 | 2013 | 2014 |
|---|---|---|---|---|---|---|
| **Betafo** | **BCG** | | 64.70% | 41.70% | 67% | 91% |
| | **VPO** | | | | 106.40% | 109% |
| | **Penta** | | 73.90% | 46.50% | 70.30% | 108% |
| | ***rougeole*** | | 70.40% | 44.80% | 70.40% | 97% |
| | **TT2+** | | 45.40% | 30.20% | 44% | 65% |
| **Antsohihy** | **BCG** | 76% | 72% | 66% | 80% | 75% |
| | **VPO** | 71% | 109% | 85% | 114% | 111% |
| | **Penta** | 75% | 83% | 70% | 104% | 99% |
| | ***rougeole*** | 69% | 99% | 75% | 95% | 98% |
| | **TT2+** | 35% | 45% | 69% | 52% | 86% |
| **Sambava** | **BCG** | 89.90% | 76.50% | 80.30% | 66.16% | 76.86% |
| | **VPO** | 82.42% | 75.78% | 81.11% | 65.61% | 80.69% |
| | **Penta** | 77.29% | 66.42% | 74.09% | 55.99% | 76.76% |
| | ***rougeole*** | 75.18% | 78.39% | 75.19% | 61.19% | 72.45% |
| | **TT2+** | 63.09% | 60.46% | 67.21% | 49.76% | - |
| **Toalagnaro** | **BCG** | | 53% | 52% | 54% | 64% |
| | **VPO** | | ND | ND | 109% | 105% |
| | **Penta** | | 90% | 81% | 86% | 96% |
| | ***rougeole*** | | 90% | 74% | 83% | 86% |
| | **TT2+** | | 68% | 53% | 65% | 78% |
| **Ambovombe** | **BCG** | 68% | 44.90% | 42% | 47% | 35% |
| | **VPO** | 142.10% | 131.30% | 106.40% | 106.10% | 93% |
| | **Penta** | 122% | 113.10% | 99% | 81% | 71% |
| | ***rougeole*** | 124% | 102.50% | 97% | 76% | 63% |
| | **TT2+** | 62.60% | 73% | 73% | 67% | 68% |

*Taux de perte (nombre de doses non utilisées/aux doses d'antigènes reçues)*

| | | 2009 | 2010 | 2011 | 2013 | 2014 |
|---|---|---|---|---|---|---|
| **Betafo** | **BCG** | - | 42.90% | 44.40% | 44% | 49.20% |
| | **VPO** | - | 7.90% | 9.20% | 14% | 14% |
| | **Penta** | - | 2.80% | 1.50% | 4% | 8% |
| | ***rougeole*** | - | 11.20% | 21.70% | 45.40% | 33% |
| **Antsohihy** | **BCG** | - | - | - | 69% | 68% |
| | **VPO** | - | - | - | 11% | 24% |
| | **Penta** | - | - | - | 4% | 16% |
| | ***rougeole*** | - | - | - | 78% | 51% |
| **Sambava** | **BCG** | - | 27.80% | 42.30% | 53.60% | 62.20% |
| | **VPO** | - | 10.60% | 11.30% | 15.70% | 20.10% |
| | **Penta** | - | - | - | - | - |
| | ***rougeole*** | - | 14.50% | 24.20% | 26.40% | 43.70% |
| **Toalagnaro** | **BCG** | - | 74% | 70% | 71% | 70% |
| | **VPO** | - | 18% | 40% | 20% | 19% |
| | **Penta** | - | 13% | 6% | 3% | 9% |
| | ***rougeole*** | - | 81% | 51% | 41% | 69% |
| **Ambovombe** | **BCG** | - | - | 580 | (-72%) 380 | 180 |
| | **VPO** | - | - | 80 | (4%) 530 | 0 |
| | **Penta** | - | - | 20 | (-89%) 100 | 10 |
| | ***rougeole*** | - | - | 0 | (-70%) 150 | 380 |

***Les taux d'abandon (TDA %)***

| | | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|
| **Betafo** | **DPT1/DPT3** | | 2.65% | 1.20% | 3.42% | 1.37% |
| | **BCG/*Rougeole*** | | 0% | 0% | 0% | 0% |
| **Antsohihy** | **DPT1/DPT3** | -6% | 24% | 17% | 8.80% | 9.70% |
| | **BCG/*Rougeole*** | 8% | -38% | -5.70% | -20% | -34% |
| **Sambava** | **DPT1/DPT3** | 5.12% | 10.12% | 8.71% | 13.97% | 4.87% |
| | **BCG/*Rougeole*** | 14.37% | 12.90% | 7.89% | 3.16% | 5.73% |
| **Toalagnaro** | **DPT1/DPT3** | ND | 14% | 15% | 21% | 9% |
| | **BCG/*Rougeole*** | ND | -59% | -35% | -28% | -23% |
| **Ambovombe** | **DPT1/DPT3** | 14.30% | 13.40% | 12% | 28% | 24% |
| | **BCG/*Rougeole*** | | | | | |

***Accessibilité des formations sanitaires***

| | ***(Nombre (#) ou % (par rapport au nombre total de formations sanitaires dans le district) dans un rayon de 10 km d'une route principale)*** |
|---|---|
| **Betafo** | 24% |
| **Antsohihy** | 38% |
| **Sambava** | 40% |
| **Toalagnaro** | 59% |
| **Ambovombe** | 100% |