

MOZAMBIQUE Findings from the 2015 Gavi Full Country Evaluations













*PATH



This report presents findings in Mozambique from the 2015 Gavi Full Country Evaluations (FCE). It was prepared by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington (UW) in collaboration with members of the FCE Team: University of Eduardo Mondlane (UEM), Mozambique; Health Alliance International (HAI), Mozambique; Manhiça Health Research Centre (CISM); icddr,b in Bangladesh; the Infectious Diseases Research Collaboration (IDRC), Uganda; the University of Zambia (UNZA), Zambia; and PATH in the United States.

This work is intended to inform evidence-based improvements for immunization delivery in FCE countries, and more broadly in low-income countries, with a focus on Gavi funding. This publication reflects content from the preliminary version of the 2015 Annual Report, available for download at IHME's and Gavi's websites.

Citation: Gavi Full Country Evaluations Team. *Mozambique: Findings from the 2015 Gavi Full Country Evaluations*. Seattle, WA: IHME, 2016.

Universidade Eduardo Mondlane, Faculdade de Medicina Av. Salvador Allende, 702 Maputo Maputo C. P. 257 Mozambique

Telephone: +258 (21) 428076 or +258 (84) 3158350 Fax: +258 (21) 325255 Email: Baltazar Chilundo, MD, PhD baltazar.chilundo@gmail.com

www.medicina.uem.mz

Health Alliance International 1107 NE 45th Street, Suite 350 Seattle, WA 98105 USA

Telephone: +1-206-543-8382 Email: Sarah Gimbel, PhD, MPH, RN Sgimbel@uw.edu

www.healthallianceinternational.org

Centro de Investigação em Saúde da Manhiça Escritório da Manhiça Rua 12, Cambeve, Vila de Manhiça Maputo C. P. 1929, Mozambique

Telephone: +258 21 810002 Fax: +258 21 810002 Email: Betuel Sigaúque, MD, PhD, necy_sigauque@yahoo.com

www.cism@manhica.net

Institute for Health Metrics and Evaluation 2301 Fifth Ave., Suite 600 Seattle, WA 98121 USA

Telephone: +1-206-897-2800 Fax: +1-206-897-2899 Email: engage@healthdata.org

www.healthdata.org

PATH

Department of Monitoring and Evaluation 2201 Westlake Avenue, Suite 200 Seattle, WA 98121 USA

Telephone: +1-206-285-3500 Fax: +1-206-285-6619 Email: Jessica Shearer, PhD jshearer@path.org www.path.org

www.path.org

Gavi Secretariat

Monitoring and Evaluation 2, Chemin des Mines, 1202 Geneva

Telephone: 00 41 22 9096542 Fax: 00 41 22 9096551 Email: Abdallah Bchir abchir@gavi.org

www.gavi.org

TIMELINE of major immunization events in Mozambique

We present an overview of major immunization events in country, indicating any relevant delays in implementation.







2015 evaluation activities

Assessment of progress, successes, and challenges

- Collected and reviewed documents relevant to Gavi funding, operational plans and budgets, guidelines, and datasets.
- Attended and observed key meetings, workshops, launches, and trainings at the national, province, and district levels.

Key informant interviews (KII)

- Conducted 51 interviews at the national and district levels and with government partners, Gavi partners, nongovernmental organizations (NGO), health research centers, and health offices.
- Conducted 23 interviews at the global level with the Gavi Secretariat, Vaccine Alliance partners, and others.
- · Conducted eight fact-checking interviews.

Analysis of partnership

• Conducted partnership study using Social Network Analysis (SNA*) methods. The SNA survey was administered to respondents during national and subnational KIIs.

Resource tracking

• Administered surveys and conducted interviews to collect data on resource spending for immunization.

Household survey

• Planned analysis of data from the Inquérito Nacional de Indicadores de Malária e HIV/SIDA (IMASIDA).

Analysis of administrative data on vaccine coverage

• Used Modulo Basico and National Immunization Program (NIP) vaccine coverage data to examine scale-up and routinization of pneumococcal conjugate vaccine (PCV).

Small area analysis

- Complied and analyzed all available household survey and census data sources.
- Estimated national, divisional, district, and subdistrict-level vaccination coverage and under-5 mortality.

Inequality analysis

- Compiled and analyzed all available survey data sources of household wealth and vaccination coverage.
- * Social network analysis (SNA) is a social science research method that measures the composition and structure of relationships.

ANALYSIS of major challenges and successes

Each finding is accompanied by a ranking that reflects the robustness of evidence. The four-point ranking scale is summarized below:

| Ranking | Rationale |
|---------|--|
| А | The finding is supported by multiple data sources (good triangulation) which are generally of good quality. Where fewer data sources exist, the supporting evidence is more factual than subjective. |
| В | The finding is supported by multiple data sources (good triangulation) of lesser quality, or the finding is supported by fewer data sources (limited triangulation) of good quality but is perhaps more perception-based than factual. |
| с | The finding is supported by few data sources (limited triangulation) and is perception-based, or generally based on data that are viewed as being of lesser quality. |
| D | The finding is supported by very limited evidence (single source) or by incomplete or unreliable evidence. In the context of this prospective evaluation, findings with this ranking may be preliminary or emerging, with active and ongoing data collection to follow up. |

PNEUMOCOCCAL = conjugate vaccine

Mozambique introduced the 10-valent pneumococcal conjugate vaccine (PCV) into its routine immunization program in April 2013 with support from Gavi. Health management information system (HMIS) data from 2013 to 2015 indicate that PCV has been largely routinized into the country's immunization system.

FINDING 1

PCV has largely been routinized into the immunization system in Mozambique, with the number of doses of PCV delivered stabilizing at the same level as existing vaccines. There are geographic inequities in coverage, reflecting existing system bottlenecks.

Ranking: B

Successful scale-up. PCV has largely been routinized into the immunization system, with the ratio of PCV doses to pentavalent doses having stabilized at a ratio of one for approximately two years (Figure 2).

Figure 2: Ratio of PCV to pentavalent doses reported as delivered from health management information system (HMIS)



Inequalities persist. Zambezia province has notably lower estimated PCV coverage than other provinces in the country (Figure 3).

The IMASIDA survey will confirm the level of coverage of PCV and other vaccines in Mozambique.

RECOMMENDATION

Further evaluation should explore the drivers of regional inequities as they relate to how PCV is currently being implemented.

Figure 3: Estimated coverage of PCV by dose by province in Mozambique



FINDING 2

Preliminary findings from vaccine effectiveness studies,¹ including nasopharyngeal carriage surveys pre- and post-PCV introduction in Nampula, Maputo, and Manhiça, as well as surveillance of invasive pneumococcal disease and X-ray-confirmed pneumonia, suggest that the scale-up of PCV is reducing pneumococcal disease burden in Mozambigue.

Ranking: B

Pneumococcal nasopharyngeal carriage study

• Direct effect of vaccine on burden among HIV-uninfected children <5 years old

A 41% (95% confidence interval [CI] 6, 69) reduction in vaccine serotypes (VTS) pneumococcal carriage was observed among HIV-uninfected children receiving three doses. A 61% (95% CI 9, 82) reduction was observed in HIV-infected children receiving three doses.

• Early indications of indirect effect on vaccine of burden among HIV-infected children

There was a 31% reduction (95% CI 11, 46) among HIVinfected children receiving no PCV doses. There was an increase in pneumococcal carriage of non-PCV10 VTS, including serotypes in PCV13.

Pre-and-post surveillance of invasive pneumococcal disease in Manhiça²

- There was a significant reduction in vaccine type invasive pneumococcal disease (IPD) (72.5%, 95% CI 8.9, 91.7).
- There was a non-significant increase in non-vaccine type IPD (49.9%, 95% CI -30.1, 221.3).
- There was a non-significant reduction in X-ray-confirmed pneumonia (20.8%, 95% CI -43.2, 56.3) and overall IPD (25.8%, 95% CI -39.0, 60.4).

¹As part of the Gavi FCE, vaccine effectiveness studies of PCV were conducted in Mozambique by CISM with support from USAID and CDC.

² These preliminary results on vaccine effectiveness represent changes 18 months post-introduction and are based on observational studies.

MULTIPLE NEW VACCINE INTRODUCTION (MVI): rotavirus vaccine, inactivated polio vaccine, and measles second dose

Following an unsuccessful first application for rotavirus vaccine in 2012, the country submitted a successful second proposal for the joint introduction of rotavirus and measles second-dose vaccines in 2013. Mozambique submitted a successful application for inactivated polio vaccine (IPV) introduction in August 2014.

Mozambique proposed a plan to jointly launch RV and IPV in July 2015 and implement a stand alone MSD launch in

October 2015. Rotavirus vaccine was launched on September 4, 2015, and IPV and MSD were launched nationwide jointly in November 2015.

Summary finding across MVIs

The three planned vaccines (RV, IPV, and MSD) were successfully introduced in 2015.

RCA for deviations in original plans for joint introduction of rotavirus, inactivated polio, and measles second-dose vaccines **Ranking: A**



RECOMMENDATIONS

- 1. Introducing multiple new vaccines simultaneously and into the existing supply chain has the potential to maximize limited resources in resource-poor settings.
- 2. Supply of vaccines to countries should be taken into account when planning joint vaccine launches, in order to ensure continuity of introductions.

HUMAN PAPILLOMAVIRUS

The two-year human papillomavirus (HPV) vaccine demonstration project in Mozambique began in 2014. During year one, a school-based delivery model adapted from the existing tetanus school-based vaccination campaign approach was implemented. The demonstration project included three sites: one Gavi-sponsored district, Manhiça, and two Ministry of Health-sponsored districts: Manica, located in the central region, and Mocímboa da Praia, located in the northern region of the country. In the second year, the country continued with the focus on school-based delivery with first and second doses administered in all three districts.

FINDING 1

The HPV vaccine demonstration project was successful in meeting the Gavi-demonstrated ability criteria of 50% coverage in the Gavi-supported Manhiça district. The Gavi-supported HPV demonstration project was leveraged to provide in-kind training and IEC support to the two MOH-led demonstration sites which tested similar delivery modalities. Coverage of HPV vaccine in these two districts, however, was notably lower due to challenges with demand generation and community mobilization, providing important lessons for national introduction. These lessons would otherwise have not been learned without the government of Mozambique funding the two additional demonstration sites.

In the Gavi-supported Manhiça district, the HPV vaccine demonstration project met the Gavi-demonstrated ability criteria of 50% coverage.

- The project was successful in engendering high community acceptance.
- As a result, it achieved coverage of fully immunized girls of 73% based on the year one coverage survey.

The Gavi-supported HPV demonstration project was leveraged to provide in-kind training and IEC support to the two MOHled demonstration sites (Manica and Mocimboa de Praia).

• Through CISM, the Gavi-supported demonstration project was leveraged to provide in-kind support to the two additional MOH-led sites, which tested similar delivery modalities.

Coverage of HPV vaccine in Manica and Mocimboa de Praia was notably lower (Figure 4).

- Coverage was notably lower due to challenges with demand generation and community mobilization.
- These findings represent important lessons on the delivery of HPV vaccine in Mozambique and will assist the country in better preparing for national introduction.
- These critical lessons learned were gained because the government funded the two additional demonstration sites.

Figure 4: HPV coverage in Mozambique



RECOMMENDATION

Future stepped implementation of HPV nationally should be implemented in order to facilitate real-time monitoring and evaluation of contextual effectiveness.

FINDING 2

Year one evaluation products to inform NIP and partners about the coverage, acceptability and financial sustainability of the HPV vaccine delivery model tested in the demonstration project were not available in time for the year one review due to unrealistic timelines set by Gavi as well as limitations in TA and capacity. As a result, there was a missed opportunity to refine or test an alternative delivery model in year two. This is particularly pertinent given present concerns regarding the programmatic and financial feasibility of the tested delivery model for national introduction.

Certain products were expected to be available for the year one review (month 10-12 of the first year) in order to adjust the tested delivery model or to design a new strategy to be used in year two.

- The required products intended to guide the end of year one review include:
 - A post-introduction evaluation (PIE) to assess the feasibility of the tested delivery model (to be conducted at the time of final dose);
 - (ii) A community-based coverage survey (to be conducted within six weeks of the final dose); and
 - (iii) A micro-costing analysis of program implementation costs (to begin at the time of the first dose).

CISM, the partner responsible for completion of the three products, did not meet the March 2015 submission deadline for the evaluation products.

- The primary drivers of the reporting delay were:
 - o Unrealistic timelines set by Gavi
 - o Limited availability of WHO TA to complete the PIE (including the feasibility component)
 - o CISM's limited capacity to carry out the costeffectiveness study, with delays in identification of a suitable consultant.

- CISM was tasked with the HPV evaluation but was heavily relied upon for TA by NIP for the other two demonstration projects.
- The roles and expectations of CISM and NIP in relation to the final reports lacked clarity.

Due to the delay in submission of the evaluation products, there was a missed opportunity to refine or test an alternative delivery model in year two.

- Preliminary results on the acceptability, coverage, and feasibility (incorporated in the PIE) were presented in 2015, and the results of the cost-effectiveness report were presented early 2016.
- As a result of the late production of the evaluation reports, it was not possible to undertake a comprehensive review of year one to inform possible refinements or changes to the delivery model in year two of the demonstration project.
- This was compounded by limited country-level awareness of the importance of the HPV vaccine demonstration project objective of refining or testing new vaccine delivery models in year two. Though this aspect of the demonstration project was later clarified, implementation plans for year two could not be altered.

FINDING 3

The consensus amongst stakeholders is that national rollout of HPV should move forward in a stepwise fashion using school-based, facility-based and community-based campaign delivery modalities and that accompanying implementation research should be conducted to capture and disseminate key lessons learned across a range of contexts.

At the HPV review meeting that took place shortly before the finalization of the 2015 FCE report, most key stakeholders were present to review findings from the demonstration project and define next steps.

- CISM, INS (Instituto Nacional de Saúde), the FCE, and other key partners participated.
- Preliminary coverage from the three sites demonstrates significant heterogeneity of uptake, which highlights the critical importance of implementing demonstration projects across multiple sites to gain a fuller understanding of potential regional challenges and opportunities.

After subgroup and plenary discussion after review of the HPV findings to date, there was consensus that implementation had been successful and that various lessons learned could be used to guide the next phase of scale-up.

• It was agreed that multiple delivery modalities, including school, facility, and community, should be considered and that scale-up should occur in stepped fashion, whereby implementation research can be conducted in real time to capture and disseminate best practices and lessons learned.

RECOMMENDATION

- 1. The government of Mozambique, together with stakeholders, should develop and submit a proposal to introduce HPV nationally through three modalities, which will be communicated through nationally organized media mobilization campaigns via radio, TV, and newspapers.
 - a. Health facilities: general availability of HPV provided through SAAJ services.
 - b. School: periodic school-based campaigns for girls, initiating with a year one catch-up for girls 10-13 years and subsequent 10-year-old immunization target group. Also allow for non-school attending girls access at schools.
 - c. Community: periodic outreach campaigns in low school attendance areas, and supported with involvement of community leaders.

HEALTH SYSTEM Strengthening

After two unsuccessful submissions, Mozambique's third Health System Strengthening (HSS) application was approved in July 2013. Preparations for HSS implementation suffered delays due to the prioritization of new vaccines and ongoing communication challenges caused by turnover at both the National Immunization Program (NIP) and the Gavi Secretariat. Negotiations for the introduction of the Financial Management Requirements (FMR) caused additional delay. Disbursement of the first tranche of the program funds occurred in July 2015. Despite these delays, there were widespread improvements in vaccine coverage.

FINDING 1

There was continued delay in HSS implementation with limited initiation of planned programmatic activities. Preparatory activities are ongoing at MOH and procurement under responsibility of UNICEF is taking place.



RCA for continued delay in HSS implementation without initiation of planned programmatic activities

RECOMMENDATIONS

- 1. Technical assistance for financial management should be considered because programmatic management has already been boosted. Financial management may be weakened by this added workload and is a risk for the performance of the grant.
- 2. Understanding the drivers of immunization coverage improvements in Mozambique will help to guide future health system strengthening efforts.

CROSS-STREAM

Major point 1

The financial management processes are complex, involving numerous steps and actors beyond the realm of the NIP; therefore, planning for new vaccine introductions (NVI) needs to take this into consideration.

Critical delays in 2015 were observed between receiving VIG and NVI trainings, and between receiving HSS funds and the start of related activities. Delays were attributed to:

- Complex financial processes required to integrate donor funds with government accounts, and also to major delays often stemming from steps that depend on financial management staff outside of the jurisdiction of the national Directorate of Public Health.
- Necessary involvement of actors outside of the NIP and Directorate of Public Health for major aspects of the financial process.
- Limited financial management capacity of the NIP and the Directorates of Public Health and Administration and Finance. and the communication difficulties across the MOH.

While it is unlikely that the design of the complex financial management processes can be changed, the FCE proposes these actions for improvement:

- Steps should be taken to ensure the process are managed well and that government managers and implementers have the time and capability to work within the existing system.
- Where possible, the standard period of time expected for registration of in-country funds should be considered in the planning phase and included in implementation plans.

Major point 2

The cumulative effect of NVI and the need for new competencies in order to manage cash grants has stretched the financial and programmatic management capacity of the immunization system.

Plans for multiple vaccine introductions (MVI) in 2015 were created in 2012 and did not plan to combine multiple vaccine introduction with HSS implementation.

• Delays caused by lags in the grant approval process, complexities surrounding HSS implementation, and other factors like the availability of vaccines created an environment where capacity did not meet implementation demand.

Key actors decided to proceed with multiple introductions in 2015, despite known capacity limitations. Key factors included:

- Pressure to rapidly introduce vaccines, a known effective disease-prevention strategy.
- The merge of vaccine introductions that were maximizing limited resources.
- National commitments to the Global Polio Eradication Initiative (GPEI) that necessitated introduction of IPV by the end of 2015.

Major areas of decision-making are spread across actors.

• The Mozambique National Immunization Technical Advisory Group (NITAG) played a technical decision-making role while the Interagency Coordinating Committee (ICC) is tasked with program management.

Cold-chain capacity is critical to multiple introductions.

- HSS funds dedicated to cold-chain expansion were significantly delayed. Facilitation of contingency plans was completed for the expansion prior to the 2015 launches, though further expansion is needed.
- This use of contingency funding led to reprogramming of HSS funds, where funds marked for central-level warehouse

expansion were then assigned to central and northern region warehouse expansion.

The NIP identifies data quality as a weak area and included it in the HSS plan.

• Evidence indicates that data quality will deteriorate as new vaccines are added to the immunization system, as there are no plans to expand human resources for the paper-based immunization registers that are used by health workers.

Demands of HSS grant necessitates strengthening of the NIP.

- The NIP and UNICEF assigned key staff to serve as focal points for HSS, the Directorate of Public Health identified financial staff to support the NIP, and HSS funds will be used to hire an HSS manager for key regions.
- The FMA flagged that DAF needs to allocate an HSS account focal person and that the MOH needs to allocate a procurement specialist to support financial management.

Major point 3

The Joint Appraisal (JA) process resulted in the identification of a comprehensive set of technical assistance (TA) needs; however, the process was resource-intensive and may be improved through better clarification of roles and responsibilities across key stakeholders.

The JA process was implemented for the first time in Mozambique in August 2015. The JA included a new approach for identifying Technical Assistance (TA) needs and suggesting TA providers to inform TA funding through the new Partners' Engagement Framework (PEF).

There was a lack of clarity on roles of actors in the JA process.

- Gavi Secretariat expected a country-led JA process, but government and partner stakeholders expected a similar structure for the JA process, where external teams facilitated sessions and prepared presentations and reports.
- Lack of clarity around this expectation may have been due to suboptimal implementation and communication of the JA process, uncertainty about the process at the Secretariat, and high turnover in Gavi's Mozambique Senior Country Managers (SCM).
- Involvement of a UNICEF-hired consultant for JA process caused confusion among stakeholders. The NIP and country stakeholders assumed the Gavi Secretariat, in conjunction with UNICEF and the consultant, would facilitate the JA workshop.

There was a lack of clarity on the identification of Technical Assistance needs.

• An initial lack of clarity on how to identify TA needs and a lack of explicit instructions on who was selecting new

in-country partners for the PEF negatively impacted the process. Members were concerned that the advised method for identifying TA needs may have allowed the PEF process to generate additional TA management responsibilities for the NIP.

Mozambique JA process brought together Gavi and the core partners together to push forward on stalled issues.

• Bringing these key actors together in the same place facilitated a pace that would not have otherwise been possible.

JA process was lengthy and rigorous.

- The NIP and its stakeholders were rigorous in the JA exercise, as Mozambique had not conducted an Expanded Program on Immunization (EPI) review in the previous three years.
- The three-week JA process was time-consuming. KIIs indicated that this level of effort was not annually feasible.

Major point 4

Senior Country Manager (SCM) turnover at the Gavi Secretariat impacted negatively on communication with Mozambique and contributed to suboptimal implementation of Gavi products before the arrival of the new SCM in Q2 of 2015.

Key informants (KI) in Mozambique indicate that frequent change in the Mozambique SCM during the last two years impacted the implementation of streams, especially with the HSS grant.

• Mozambique has had five SCMs between 2014 and 2015.

Challenges with communication in Portuguese.

- Mozambique is a Portuguese-speaking country, and many of the NIP stakeholders, especially from MOH, are not professionally proficient in English. This causes additional burden for these actors.
- The recently appointed SCM speaks Portuguese, and stakeholders in Mozambique have expressed that this is already facilitating good communication.

RECOMMENDATIONS

- 1. Future introductions and activity plans need to include the time it takes Gavi funds to be accessible in order to avoid a situation of planned activities not taking place because monies are at the treasury but are not accessible for utilization by MOH, creating a perception of delay.
- 2. Weak financial management is a risk for Gavi funds and especially for HSS. TA for this should be considered by Gavi to ensure that funds are appropriately allocated and

managed at the central and subnational levels. The TA needs to be seconded into the MOH DAF and/or in the Directorate of Public Health to support the financial management teams in these departments and work closely with the newly appointed HSS focal person in the NIP.

- 3. FMR for strengthening accounting staff in the DAF should be implemented.
- 4. Listing roles and responsibilities in one accessible document prior to the JA process would help facilitate communication and subsequent joint work efforts of stakeholders.
- 5. Gavi Secretariat should be more explicit to the country and partners on their roles in JA and PEF, specifically clarifying how resources are meant to be allocated between Alliance partners (UNICEF and WHO) and other immunization stakeholders (MOH, VillageReach, CDC, FDC, etc.).
- 6. Any TA identified to support the implementation of Gavi products should be preferably country-based.
- 7. Mozambique expressed desire that Gavi TA should build capacity. Gavi, together with the GOM should consider an indicator to measure this, while clarifying what type(s) of capacity are to be prioritized.
- 8. SCMs should be professionally proficient in the country's official language which has been addressed with the present appointment.
- 9. Gavi should minimize high turnover of SCMs and have in place mitigation strategies in the event of turnover.

Major point 5

Mozambique remains heavily reliant on external financing of its immunization program. The introduction of multiple new vaccines raises questions about the ability of the country to financially sustain delivery and to meet its co-financing obligations.

In 2015, the Mozambique FCE team conducted a resource tracking study that was a follow-up to a study conducted in 2014.

The study aims to understand the monetary resources dedicated to immunization in-country and the proportion of the government's contribution relative to Gavi and other funders.

Mozambique is overwhelmingly dependent on external donor financing for immunization.

- The total amount of spending for immunization captured³ by this study in 2014 was US\$40,228,184, which translates to US\$1.56 per capita total spending (Figure 4).
- The largest amount of funding for immunization in Mozambique in 2014 was from Gavi (71%), followed by state budget contributions (11%) and USAID (5%). In 2013, Gavi (35%), the UK Department of International Development (DFID) (27%), and the state budget (19%) were the largest funding sources.

³Not all organizations reported every funding stream; this total may be underestimated.

Figure 4: Percentages of total funding for immunization in Mozambique by source in 2014



The majority of financing for immunization is channeled through UNICEF and the MOH.

- Immunization funds are either channeled through procurement agencies or disbursed to the country using different channels.
- The majority of Gavi funds are channeled through UNICEF for vaccine procurement (Figure 5).

Figure 5: Amount of financing for immunization handled by each financing agent, as provided by participating organizations, 2014



The flows for immunization funds from national to subnational levels are complex with many bottlenecks.

- Funding from sources to non-government agents typically flowed smoothly. These agents preferred to support government at the central and provincial levels via in-kind support, rather than transferring cash due to bottlenecks.
- Entities depending on government ministries and departments at both the central and provincial levels reported a number of bottlenecks to the flows of funding:
 - Donors often tie disbursements of funds or vaccines to conditions that dictate the MOH implement certain activities prior to disbursement.
 - The bureaucratic process for funding disbursement to the government further slows the funding flow to provincial and district levels.
 - Cash disbursements are impeded by burdensome justification of funds process. KIs revealed that this drove a number of financing agents to support the MOH in-kind rather than through cash disbursements, causing disruption in flows of funds, and occasionally delaying projects.

The FCE identified a lack of knowledge of administrative procedure, especially around the context of the country's ongoing decentralization process.

• Notably, training and follow-up supervision was lacking for peripheral health managers who were newly introduced to these tasks through decentralization.

In context of heavy dependence on external funding, there are increases in co-financing requirements.

- Co-financing requirements accompany PCV and rotavirus vaccine introductions (Figure 6).⁴
- Key stakeholders interviewed at the central level reported significant challenges for financial sustainability.
- There is a need to establish sustainable capacity in financial management as co-financing increases, which will increasingly force the MOH to manage their resources and funds at all levels of the health system.



Figure 6: Annual co-financing amounts for pentavalent, PCV, and rotavirus vaccines by the government of Mozambique (in USD)

⁴ Country contributions are projected into 2016 and include rotavirus, using country contribution data which were collected from projected data in the previous year's annual report. There may be differences between projected expenditure volumes and actual expenditure volumes.

Note: Country data not available for 2009.