# Gavi Full Country Evaluations

## 2015 Annual Dissemination Report

### Uganda Report

# Acknowledgments

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# Evaluation Team

This report presents findings 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: icddr,b in Bangladesh; University of Eduardo Mondlane (UEM), Mozambique; Manhiça Health Research Centre (CISM), Mozambique; Health Alliance International (HAI), Mozambique; 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. The contents of this publication may not be reproduced in whole or in part without permission from the Gavi Full Country Evaluations Team.

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# Acronyms

| | |
|---|---|
| AEFI | Adverse event following immunization |
| APR | Annual Progress Report |
| BoQ | Bills of Quantities |
| CDP | Child health Days Plus |
| CRS | Catholic Relief Services |
| DAH | Development Assistance for Health |
| DFID | Department for International Development |
| DPT | Diphtheria, pertussis, tetanus |
| FCE | Full Country Evaluations |
| FPHP | Federation for Private Health Professionals |
| GOU | Government of Uganda |
| GVAP | Global Vaccine Action Plan |
| HFS | Health Facility Survey |
| HSS | Health System Strengthening |
| IFMIS | Integrated Financial Management Systems |
| IFMS | Integrated financial management system |
| IPV | Inactivated polio vaccine |
| ISS | Immunization services support |
| JAR | Joint appraisal report |
| KII | Key informant interview |
| M&E | Monitoring and evaluation |
| MoE | Ministry of Education |
| MOF | Ministry of Finance |
| MOFPED | Ministry of Finance, Planning and Economic Development |
| MoH | Ministry of Health |
| MOU | Memorandum of Understanding |
| NCC | National Coordinating Committee |
| NITAG | National immunization technical advisory groups |
| NMS | National Medical Stores |
| PCV | Pneumococcal conjugate vaccine |
| PHC | Primary Health Care |
| PIE | Post Introduction Evaluation |
| SCM | Senior Country Manager |
| SIA | Supplementary Immunization Activities |
| TA | Technical assistance |
| TOC | Theory of Change |
| UNEPI | Uganda National Expanded Programme on Immunisation |
| UNITAG | Uganda National Immunization Technical Advisory Group |
| VIG | Vaccine Introduction Grant |
| VHT | Village Health Team |

# Introduction

The Gavi Full Country Evaluations (FCE) is a prospective study covering the period 2013-2016 with the aim to understand and quantify the barriers to and drivers of immunization program improvement, with emphasis on the contribution of Gavi, the Vaccine Alliance in four countries: Bangladesh, Mozambique, Uganda, and Zambia. This third annual dissemination report complements previous reports by providing key findings and recommendations for the 2015 evaluation period in the four FCE countries. The FCE encompasses all phases of Gavi support, from decisions to apply, application and approval, preparation, and implementation in each of the relevant streams of support. Table 1 summarizes the scope of the evaluation during the 2015 period. In addition to evaluating the various streams of support active in each of the FCE countries, we have in parallel also included findings related to cross-stream processes, most notably, the Joint Appraisal (JA) and Partner Engagement Framework (PEF).

Table 1: Overview of streams evaluated in each country

| | Bangladesh | Uganda | Mozambique | Zambia |
|---|---|---|---|---|
| Health System Strengthening (HSS)[1] | Conclusion of HSS-1 grant and application for HSS-2 | Implementation of HSS-1<br><br>Application for HSS -2 | Implementation of HSS-2 | Application for HSS-2 |
| Human papillomavirus (HPV) vaccine | Preparation for demonstration project | Preparation for and launch of national HPV vaccine roll out | Year two of demonstration project | Post-demonstration project[2] |
| Inactivated polio vaccine (IPV) | Preparation, launch, and post-introduction | Preparation for introduction | Preparation for introduction | Preparations for introduction |
| Measles-rubella vaccine (MR) | Post-introduction | | | Application |
| Measles second dose (MSD) | | | Preparation for introduction | Post-introduction |
| Men A vaccine (MenA) | | Application | | |
| Rotavirus vaccine | | Application | Preparation for introduction and launch | Post-introduction |
| Pneumococcal conjugate vaccine (PCV) | Preparation, launch and | Post-introduction | Post-introduction | Post-introduction |

[1] HSS-1 and HSS-2 refer to phases of HSS support. HSS grants provided prior to 2012 are referred to as first generation, or HSS-I. Grants provided after 2012 are referred to as the second generation of HSS grants, or HSS-2.
[2] The Zambia demonstration project was not Gavi supported.

| | |
|---|---|
| | post-<br>introduction |

In addition to evaluating the various streams of support active in each of the FCE countries, we have in parallel also included findings related to cross-stream processes, most notably, the Joint Appraisal (JA) and the Partner Engagement Framework (PEF).

# Methods

Evaluation components relevant to this Uganda report include:

- Process tracking based on document review, observation, and fact-checking interviews;
- Root-cause analysis to identify underlying causes of identified challenges and successes;
- In-depth analysis of the process using key-informant interviews (KII), focus group discussion (FGD), and social network analysis (SNA);
- A resource tracking study to generate estimates of the national-level resource envelope on immunization;
- Analysis of Health Management Information Systems(HMIS) to understand the rollout of new vaccine introductions;
- A health facility survey including observation at facilities including continuous measurement of cold-chain temperatures and patient exit interviews (Annex 13 and 14).
- A household survey on immunization coverage and related key indicators (Annex 11 and Annex 12). Households were sampled to overlap with the HFS.
- Analysis of secondary data to generate small-area estimates of vaccine coverage and child mortality at subnational levels (Annex 6 and 7); and
- Causal analysis of small-area estimates of vaccine coverage and child mortality at subnational levels to estimate the relationship between new vaccine introductions and child mortality (Annex 5).

# Summary of Uganda findings

Pneumococcal conjugate vaccine (PCV)

1. PCV routinization is measured by comparing the number of reported doses of PCV to the number of reported doses of pentavalent. By the end of 2014, PCV was not fully routinized, in part due to stock-outs at multiple levels of the health system. While there have been improvements since 2014, by the third quarter of 2015, PCV was still not yet fully routinized; furthermore, geographic inequalities in PCV coverage remain, reflecting existing bottlenecks in the immunization system.

Rotavirus vaccine and meningitis A

1. After a consultative, participatory, and inclusive application process for rotavirus and meningitis A vaccines, the Uganda National Immunization Technical Advisory Group (UNITAG) noted that

the cost implication of adding two new vaccines was not clearly explained in the applications. Although UNEPI indicates that the recommendations and comments from the UNITAG were incorporated in both applications, no explicit description was made on total additional operational costs in the applications submitted to Gavi, and the projections in the cMYP do not explicitly describe the same.

Inactivated poliovirus vaccine (IPV)

1. Despite the expedited application and approval process for the IPV vaccine as reported in the 2014 Gavi FCE report, the actual introduction date has been postponed from May 2015 to August 2015 then to February 2016 due to uncertainty on the arrival date of the vaccine due to global supply issues.

Human papillomavirus (HPV) vaccine

1. Despite the fact that Ministry of Health (MoH) drew on lessons learned from the introduction of PCV to initiate preparatory activities for the national HPV vaccine introduction early, the actual launch and rollout did not occur as planned. First, the launch was delayed from April to October, as result of a shortage of vaccine storage space due to delayed implementation of the HSS grant. Then HPV vaccine rollout was further postponed to November, due to the need to have the vaccine distributed to all districts before the launch.

2. Uganda merged the measles campaign, polio Supplementary Immunization Activities (SIA) and HPV vaccine introductory activities due to limited bandwidth within UNEPI and the failure of the country to raise sufficient funds to cover all activities. However, this led to key critical shortfalls in HPV implementation: training of health workers on HPV vaccine was reduced from three days to one day; and there was no social mobilization messaging on HPV vaccine because the vaccine had not yet arrived in the country, hence you would not increase demand and yet the vaccine was not available.

Health system strengthening (HSS)

1. Uganda has not implemented any civil works under the HSS grant due to a lack of anticipation of the time required to contract with partners, lack of consideration of potential partners beyond a single targeted partner to implement civil works, and a lack of clarity about the roles between Gavi and the country as they related to the civil works. This was further exacerbated by turnover in the Gavi senior country manager, which delayed contracting with partners for the civil works and approval of a no-cost extension for implementation of the HSS grant.

2. Implementation of HSS supported activities to strengthen private sector involvement in immunization in Kampala district faced numerous challenges including resulting in several delays. The challenges include delayed disbursement of funds from MoH to FPHP due to IFMS, and partner disagreement over selection criteria of the 100 private facilities to benefit.

3. Despite limited implementation of Gavi's HSS in Uganda, vaccine coverage has improved in a number of districts in Uganda over the last three years. These improvements coincide with the country EPI revitalization plan. It will be important to reflect the successful drivers of these

improvements in the new subsequent application for Gavi HSS. Our FCE HFS also identified a number of key areas that could be target areas for investments under Gavi HSS.

Cross-stream

1. Uganda has faced challenges in adequately financing immunization operational activities, managing the available funds, and planning for financial sustainability of the immunization program.

2. Limited human resources within UNEPI has led to a reliance on short-term technical assistance to support program activities. Sourcing TA from consultants who are familiar with the country context and engaging stakeholders in a participatory process has resulted in positive TA experiences. An important focus, however, is to increase human resource in terms of numbers of UNEPI to undertake these activities with minimal technical assistance.

3. Poorly communicated changes to Gavi processes have created confusion among country-level stakeholders, in some cases delaying implementation of Gavi funds. Although Gavi missions can be an efficient means of communication, numerous unplanned missions in quick succession have overburdened the small EPI team.

Recommendations

For each cross-country and country-specific finding described above, we developed related recommendation(s). Table 2 summarizes the recommendations for the cross-country findings.

Table 2: Findings and recommendations

| Uganda | |
|---|---|
| *Pneumococcal conjugate vaccine* | |
| Finding 1: PCV routinization is measured by comparing the number of reported doses of PCV to the number of reported doses of pentavalent. By the end of 2014, PCV was not fully routinized, in part due to stock-outs at multiple levels of the health system. While there have been improvements since 2014, by the third quarter of 2015, PCV was still not yet fully routinized; furthermore, geographic inequalities in PCV coverage remain, reflecting existing bottlenecks in the immunization system. | 1. Adequate planning in particular vaccine forecasting for new vaccines, including prior distribution of sufficient updated tools, anticipation of different demand characteristics and high-quality training of health workers, should be carefully worked on before new vaccine roll out.<br>2. Gavi and countries should work together to create an accountability mechanism to ensure that recommendations identified during the PIE are implemented and monitored beyond the PIE in order to achieve routinization of a new vaccine. |
| *Meningitis A and rotavirus vaccine* | |

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|---|---|
| Finding 1: After a consultative, participatory, and inclusive application process for rotavirus and meningitis A vaccines, the Uganda National Immunization Technical Advisory Group (UNITAG) noted that the cost implication of adding two new vaccines was not clearly explained in the applications. Although UNEPI indicates that the recommendations and comments from the UNITAG were incorporated in both applications, no explicit description was made on total additional operational costs in the applications submitted to Gavi, and the projections in the cMYP do not explicitly describe the same. | 1. Uganda should develop a long-term immunization financing sustainability plan, as recommended by the UNITAG and the immunization financing review conducted in Feb 2015. Each proposed new vaccine introduction should be considered in light of this sustainability plan. |
| *Inactivated poliovirus vaccine* | |
| Finding 1: Despite the expedited application and approval process for the IPV vaccine as reported in the 2014 Gavi FCE report, the actual introduction date has been postponed from May 2015 to August 2015 then to February 2016 due to uncertainty on the arrival date of the vaccine due to global supply issues. | 1. In situations where Gavi and global partners want to fast track vaccine introduction, they should ensure sufficient global vaccine supply. In the inevitable circumstance of global vaccine shortages, timely and appropriate communication should be made to countries to aid prioritization and adaptive planning. |
| *Human papillomavirus vaccine* | |
| Finding 1: Despite the fact that Ministry of Health (MoH) drew on lessons learned from the introduction of PCV to initiate preparatory activities for the national HPV vaccine introduction early, the actual launch and rollout did not occur as planned. First, the launch was delayed from April to October as result of a shortage of vaccine storage space due to delayed implementation of the HSS grant. Then HPV vaccine rollout was further postponed to November, due to the need to have the vaccine distributed to all districts before the launch. | |

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| Finding 2: Uganda merged the measles campaign, polio Supplementary Immunization Activities (SIA) and HPV vaccine introductory activities due to limited bandwidth within UNEPI and the failure of the country to raise sufficient funds to cover all activities. However, this led to key critical shortfalls in HPV implementation: training of health workers on HPV vaccine was reduced from three days to one day, and there was no social mobilization messaging on HPV vaccine because the vaccine had not yet arrived in the country hence you would not increase demand and yet the vaccine was not available. | 1. Uganda should develop a long-term financial sustainability plan and consider the financial implications of each new immunization activity to avoid being forced to integrate activities which may result in unintended consequences, as was the case with HPV vaccine. |
| *Health system strengthening* | |
| Finding 1: Uganda has not implemented any civil works under the HSS grant due to a lack of anticipation of the time required to contract with partners, lack of consideration of potential partners beyond a single targeted partner to implement civil works, and a lack of clarity about the roles between Gavi and the country as they related to the civil works. This was further exacerbated by turnover in the Gavi senior country manager, which delayed contracting with partners for the civil works and approval of a no-cost extension for implementation of the HSS grant. | 1. In situations where alternate implementation mechanisms are sought, for example procurement/civil works through other agencies, effort should be made to clarify roles and responsibilities between Gavi and country.<br>2. As we recommended in the 2014 Gavi FCE report, the MoH, partners and Gavi should increase efforts to integrate the Ministry of Finance into all Gavi funded immunization-related planning and decision-making. This will ensure proper coordination and implementation of HSS activities.<br>3. Gavi should ensure timely communication to countries about SCM transitions and move expeditiously to fill these posts or assign substitutes in the meantime. |
| Finding 2: Implementation of HSS supported activities to strengthen private sector involvement in immunization in Kampala district faced numerous challenges including resulting in several delays. The challenges include delayed disbursement of funds from MoH to FPHP due to IFMS, and partner disagreement over selection criteria of the 100 private facilities to benefit. | 1. Implementing partners should ensure involvement of all relevant stakeholders at all stages of implementation, particularly in the planning and decision-making process. |

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|---|---|
| Finding 3: Despite limited implementation of Gavi's HSS in Uganda, vaccine coverage has improved in a number of districts in Uganda over the last three years. These improvements coincide with the country EPI revitalization plan. It will be important to reflect the successful drivers of these improvements in the new subsequent application for Gavi HSS. Our FCE HFS also identified a number of key areas that could be target areas for investments under Gavi HSS. | 1. Document best practices during implementation of the revitalization plan. |
| *Cross-stream* | |
| Finding 1: Uganda has faced challenges in adequately financing immunization operational activities, managing the available funds, and planning for financial sustainability of the immunization program. | 1. Gavi should initiate dialogue with the Uganda MoH on possible options to avoid a future co-financing default, including:<br>– Allowing co-financing payments to spread across the year in alignment with the quarterly budget cycle in Uganda; and<br>– Supporting the Uganda MoH request to the Ministry of Finance (MOF) to frontload committed monies for co-financing to MoH in the first quarters of the fiscal year before the December 31 deadline.<br>2. We reiterate the recommendation noted in the rotavirus and meningitis A section and the immunization finance review: Uganda should develop a long-term immunization financing sustainability plan, as recommended by the UNITAG and review findings. Each proposed new vaccine introduction should be considered in light of this sustainability plan. |
| Finding 2: Limited human resources within UNEPI has led to a reliance on short-term technical assistance to support program activities. Sourcing TA from consultants who are familiar with the country context and engaging stakeholders in a participatory process has resulted in positive TA experiences. An important focus, however, is to increase human resource in terms of numbers of | 1. With multiple vaccine introductions and enhanced SIAs, there is a need to strengthen UNEPI's staff numbers and technical capacity. MoH should consider reviewing the UNEPI structure so as to increase staff numbers thus address sustainability. Technical assistance provided by partners should aim at empowering UNEPI and MoH to own and fully |

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| UNEPI to undertake these activities with minimal technical assistance. | take responsibility for all immunization activities to ensure sustainability. |
| Finding 3: Poorly communicated changes to Gavi processes have created confusion among country-level stakeholders, in some cases delaying implementation of Gavi funds. Although Gavi missions can be an efficient means of communication, numerous unplanned missions in quick succession have overburdened the small EPI team. | 1. We reiterate the recommendation noted under the HSS section: Gavi should ensure timely communication to countries about SCM transitions and move expeditiously to fill these posts or assign substitutes in the meantime. |

# Contents

## Summary of Gavi support

Uganda first received Gavi support in 2001 for immunization services support (ISS) and the introduction of hepatitis B vaccine, which was rolled out in 2002. Over the past 15 years, Gavi has disbursed a total of $US 237.9 million to Uganda to support vaccination efforts through the Uganda National Expanded Program on Immunization (UNEPI). Uganda introduced *Haemophilus influenza* (Hib) vaccine in 2001 and pneumococcal conjugate vaccine (PCV) in 2013. The country utilized cash support for injection safety (INS) between 2002 and 2004, and was approved for Health System Strengthening (HSS) support in 2008, with initial disbursements occurring between 2012 and 2014. In March 2015, a revised work plan and budget for HSS were submitted to Gavi, as well as a no-cost extension to 2016. A national introduction of human papillomavirus (HPV) vaccine was initiated in 2015, and the introduction of inactivated polio vaccine (IPV) is scheduled for 2016. Rotavirus vaccine and meningitis A vaccine introductions are also potentially scheduled for 2016. Table 3 provides an overview of all streams of Gavi support, including the period of support and corresponding funding amount.

Table 3: Streams of Gavi support for Uganda

| Gavi support | Period of support | Total amount of funding ($US) |
|---|---|---|
| Pneumococcal conjugate vaccine (PCV) | 2013-2015 | 47,929,326 |
| Pentavalent vaccine | 2002-2015 | 162,650,995 |
| HPV vaccine (national introduction) | 2015-2016 | 10,681,500 |
| Inactivated polio vaccine (IPV) | 2015-2017 | 8,779,500 |
| Health system strengthening (HSS) | Approved in 2008, disbursed in 2012 (2013 funds reprogrammed for use 2014-2015) | 19,242,000 |
| Immunization services support (ISS) | 2001-2004 | 9,230,520 |
| Injection safety support (INS) | 2002-2004 | 1,207,299 |
| Vaccine introduction grant (VIG) | 2002, 2013, 2015 | 4,165,500 |

*Source: http://www.gavi.org/country/all-countries-commitments-and-disbursements, accessed last September 11, 2015. Values shown represent Gavi commitments, those which Gavi intends to fund over the life span of the program, subject to performance and availability of funds.*

## Methods overview

Consistent with the prospective nature of the FCE, the evaluation has reflected Gavi-supported activities, assessing implementation and related milestones by support stream. Table 4 provides an overview of the methods used, the sources of data, and the topics assessed by these methods.

Table 4: Evaluation components

| Methods | Source consulted/study area | Topics investigated |
|---|---|---|
| Process tracking | - Collected and reviewed documents including Gavi applications: rotavirus and meningitis A, HSS no-cost extension application, Gavi decision letters, operational plans and budgets, Expanded Program on Immunization (EPI) revitalization plan, cMYP, meeting minutes, and various reports including the Private health sector assessment report, MoH HSS status update report, IRC reports, joint appraisal report, and APRs.<br>- Observed EPI technical meetings, National Coordinating Committee (NCC) meetings, Gavi coordination committee meeting, HPV/measles health worker trainings and meetings between Gavi, country stakeholders (including the UK's Department for International Development [DFID] mission), meetings with consultants developing rotavirus, meningitis A, and HSS-2 applications. | - Information was collected based on relevant theory of change (TOC) milestones for PCV, HSS, HPV, IPV, rotavirus vaccine, and meningitis A vaccine (Appendix A). |
| Key informant interviews (KIIs) | - Conducted seven in-depth KIIs and 20 fact-checking interviews at the national level with government and other partner organizations. Conducted four in-depth KIIs at the subnational level.[3] | - Information was collected based on relevant TOC milestones for PCV, HSS, HPV, IPV, rotavirus vaccine, and meningitis A. |

[3] During the 2015 evaluation year, a greater volume of evidence was gathered through observation, document review, and fact-checking interviews than in past evaluation years.

| | | |
|---|---|---|
| | - Conducted 23 KIIs at the global-level KIIs. KIIs were conducted with Gavi Secretariat (16), Alliance partners (5), and other (2). | |
| Health facility survey | - Data was collected from 177 facilities in 19 districts using a structured survey instrument between August 2014 and January 2015. Of the 177 health facilities surveyed, 40 were private and 137 were public health facilities. | |
| Household survey | - Collected data from 3,983 households in 19 districts including 1,138 dried blood spot samples.<br>- Data collection began March 16 and concluded August 8, 2015. 4,034 households out of 4,236 were completed in 19 districts with non-response experienced in one problem enumeration area. 1,148 dried blood spot samples, and 181 verbal autopsies were collected. | |
| Analysis of administrative data | - Reviewed all administrative data from HMIS. | - Estimation of vaccine coverage differences between PCV and pentavalent vaccine. |
| Small area analysis | - Compiled and analyzed all available survey and census data sources. | - Estimation of district- and province-level vaccine coverage and child mortality, 1990-2015. |
| Inequality analysis | - Compiled and analyzed all available survey data sources of household wealth and vaccination coverage. | - Estimation of vaccine coverage differences by wealth quintile and gender. |

## Findings

The FCE compiled and systematically analyzed relevant data to estimate country performance along key indicators at the national and, when possible, the subnational level (Table 5, Table 6, Table 7).

Table 5: Country characteristics of Uganda

| Characteristic | |
|---|---|
| Demographic and economic indicators | |
| Total population (2015) | 39,032,305 |
| Birth cohort (2015) | 1,665,238 |
| GDP per capita (2015)* | $US 1,354.35 |
| Health spending and development assistance for health (DAH) ** | |
| Government health expenditure as source (GHE-S) | $US 479.4M |
| DAH, channeled through government (DAH-G) | $US 310.8M |
| DAH, channeled through non-government entities (DAH-NG) | $US 463.5M |
| Total DAH | $US 774.3M |

**GDP per capita source: IHME covariates database, reported in 2005 international dollars*

***Health expenditure is explained in terms of GHE-S, DAH-G, and DAH-NG. GHE-S + DAH-G gives the total government health expenditure, GHE-S + Total DAH gives total spending on health in the country. Health expenditure estimates 2014; Gavi disbursements are total disbursements by calendar year, 2001-2012. Unit is in 2014 $US.*

Table 6: Vaccine coverage estimates in Uganda

| Vaccine coverage | Most recent survey estimate* | WUENIC 2014** | Self-reported coverage (WHO)*** |
|---|---|---|---|
| DPT/Penta3 coverage | 71.5% | 78% | 99% |
| DPT1-DPT3 dropout rate | 21.6% | 11% | 0% |
| BCG coverage | 93.7% | 93% | 90% |
| Polio3 coverage | 62.9% | 82% | 99% |
| Measles coverage | 75.8% | 82% | 96% |
| Percent fully vaccinated**** | 51.6% | N/A | N/A |

* Most recent survey coverage estimates from 2011 DHS
** WHO/UNICEF Estimates of National Immunization Coverage (WUENIC) 2014[4]
***WHO vaccine-preventable diseases monitoring system, 2014 global summary[5]
**** BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth).

[4] "WHO | Global Vaccine Action Plan 2011 - 2020."
[5] Ibid.

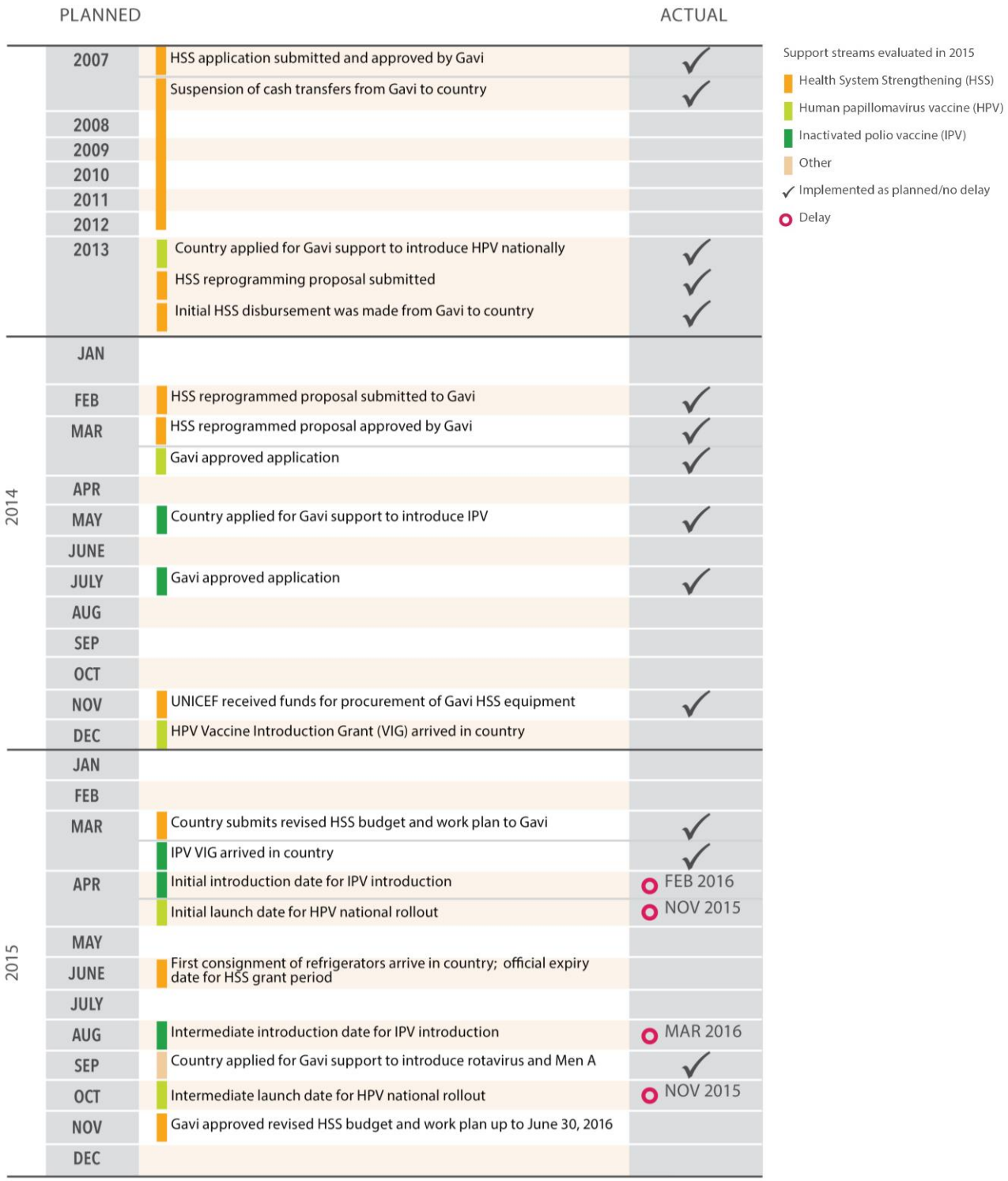
Table 7: Child, adult, and vaccine-preventable disease mortality in Uganda

| Child, adult, and vaccine-preventable disease mortality | GBD 2013* |
|---|---|
| All-cause mortality (deaths per 1,000 live births) | Estimate (confidence interval) |
| Infant mortality ($_1q_0$) | 52.9 (44.5-60.5) |
| Under-5 mortality ($_5q_0$) | 80.1 (69.4-93.1) |
| Female adult mortality ($_{45}q_{15}$) | 295.4 (276.0, 318.7) |
| Male adult mortality ($_{45}q_{15}$) | 362.8 (333.3, 396.5) |
| Cause-specific mortality: children under 5 (deaths per 100,000) | |
| Measles | 26.1 (4.6-80.7) |
| Diphtheria | 0.6 (0.00-3.0) |
| Tetanus | 6.1 (2.9-9.9) |
| Pertussis | 13.7 (0.0-61.3) |
| Meningococcal infection | 7.0 (3.6-11.4) |
| Diarrheal disease | 122.2 (65.1-199.8) |
| Lower respiratory infections | 213.6 (146.4-301.5) |
| Cause-specific mortality: all ages (deaths per 100,000) | |
| Cervix uteri cancer | 6.1 (4.2-8.1) |
| Acute hepatitis B | 0.7 (0.5-0.9) |
| Cirrhosis of the liver secondary to hepatitis B | 2.8 (1.7-4.0) |
| Liver cancer secondary to hepatitis B | 1.0 (0.5-1.5) |

** Mortality based on Global Burden of Disease (GBD) 2013 estimates*

## Timeline of major immunization events

Figure 1: Timeline of major immunization events in Uganda



## Pneumococcal conjugate vaccine

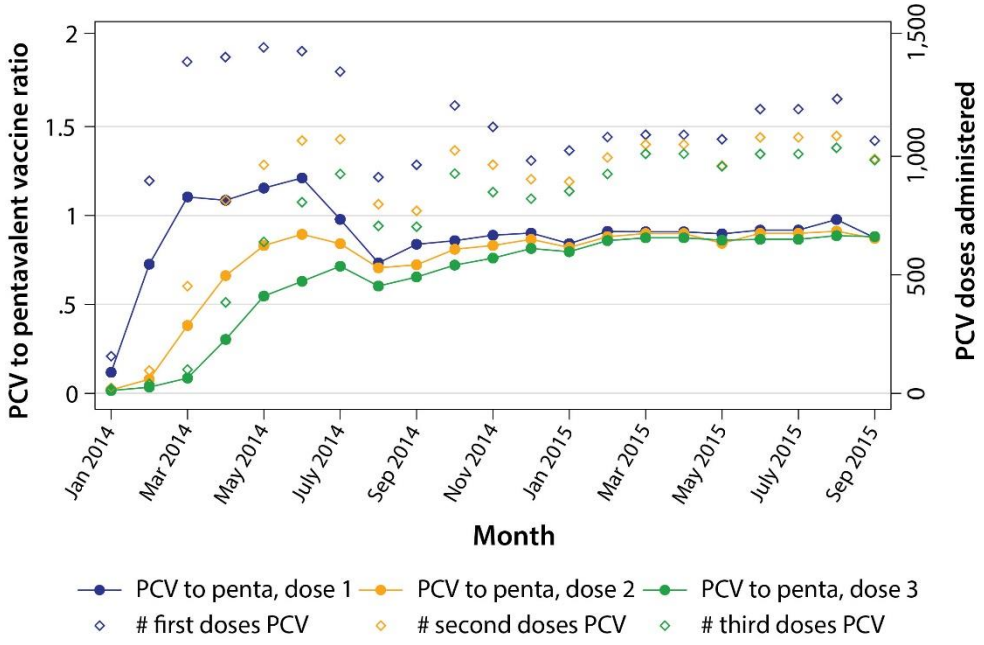
As reported in the Gavi FCE annual reports 2013 and 2014, PCV was introduced in April 2013 in the Iganga district in Uganda. After the initial launch in Iganga district, nationwide rollout of PCV stalled due to numerous challenges but finally all districts started delivering PCV by June 2014. The PCV Post Introduction Evaluation (PIE) was conducted between February 22 and March 7, 2015 as part of the comprehensive EPI review by the World Health Organization (WHO) and MoH.

### Finding 1

*PCV routinization is measured by comparing the number of reported doses of PCV to the number of reported doses of pentavalent. By the end of 2014, PCV was not fully routinized, in part due to stock-outs at multiple levels of the health system. While there have been improvements since 2014, by the third quarter of 2015, PCV was still not yet fully routinized; furthermore, geographic inequalities in PCV coverage remain, reflecting existing bottlenecks in the immunization system.*

Although nationwide rollout of PCV was achieved in June 2014, the PCV PIE suggested that PCV had not become fully routinized as of February 2015. Routinization was measured by comparing the number of reported doses of PCV to the number of reported doses of pentavalent. Since three doses of PCV and pentavalent are delivered to children on the same schedule and pentavalent is already part of routine EPI delivery, pentavalent is a logical comparator. The revelations from the PCV PIE were in agreement with the FCE findings documented in the 2014 report which showed that PCV had not been fully routinized by September 2014. Our updated analysis of HMIS data shows improvements in routinization as measured by the PCV to pentavalent ratios, however, delivery of PCV remains lower than pentavalent vaccine (Figure 2).

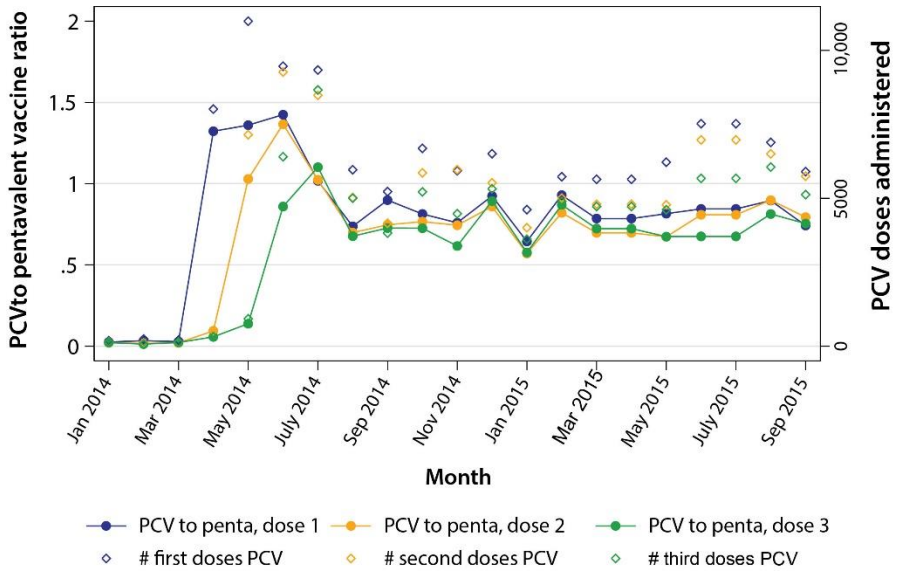
Figure 2: Routinization of PCV has improved in 2015 as evidenced by the increasing ratio of PCV to pentavalent vaccine delivery from HMIS data. *A ratio of 1 indicates that PCV has the same coverage as pentavalent vaccine within the present birth cohort of children.*



In particular, PCV routinization has remained suboptimal in Kampala (

Figure 3) and a few other districts, especially for the second and third doses.

Figure 3: PCV routinization has not significantly improved in Kampala Region in 2015, as evidenced by the suboptimal ratio of PCV to pentavalent vaccine delivery from HMIS data. *A ratio of 1 indicates that PCV has the same coverage as pentavalent vaccine within the present birth cohort of children.*




A root cause of suboptimal routinization in 2014 was stock-outs of PCV at multiple levels of the health system, as illustrated in

Figure 6. The Gavi FCE HFS completed in early 2015, noted widespread stock-outs of PCV in the last quarter of 2014 across all facility types (Figure 4). This was also confirmed by the PCV PIE. Relatedly, data from the household survey completed in June 2015 showed that 14.08% of primary caretakers interviewed did not have their children vaccinated due to PCV stock-outs at the facility. As reported in the 2014 FCE report, the initial stock-outs could have been due in part to high demand caused by eligible unvaccinated children who were carried over from 2013 to 2014.

> *Given that PCV was a new vaccine, there was a lot of confusion in most districts and facilities on how to forecast. Most facilities lacked updated tools, therefore they did not have accurate consumption data. Some districts used consumption rates of DPT to project PCV needs but demand for PCV was higher than DPT due to carry over of unvaccinated children. Therefore stock-outs were inevitable*. (KII, MoH)

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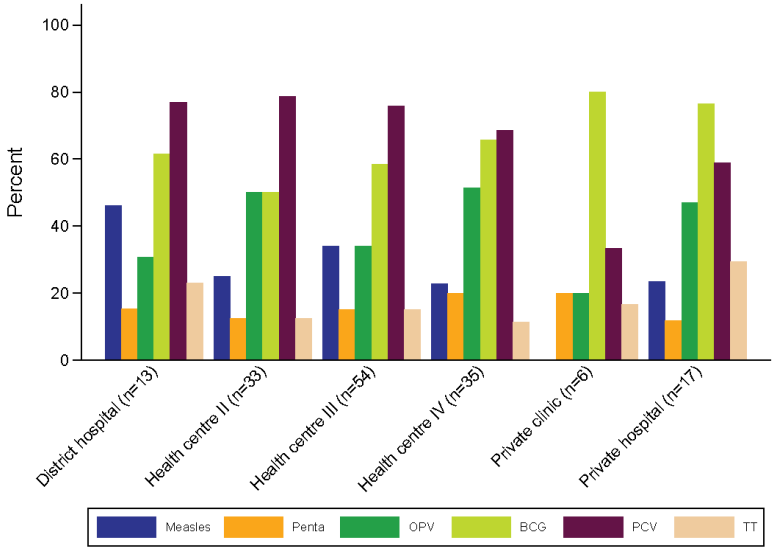
Figure 4: There were significant stock-outs of PCV nationwide, especially compared to other vaccines, according to FCE HFS data (August 2014 to January 2015)




PCV and Pentavalent vaccines are delivered to children at the same visits and the same target group for all three doses, so the doses administered for PCV and Pentavalent should be the same. However, the administrative data shows that there is a ratio of PCV to Pentavalent delivery of less than one (Figure 2) so PCV has still not been routinized. Inadequate supply of PCV at the national level may have contributed to the suboptimal routinization. There are inconsistencies in the vaccine needs forecasted by the country in the Annual Progress Reports, the amount committed by Gavi in the annual decision letters, and the amounts shipped to the country by UNICEF in 2014.

In the past, Uganda submitted an Annual Progress Report (APR) to Gavi that includes the target number of children to be immunized for each vaccine. In the 2013 APR, submitted in May 2014, Uganda forecasted the same number of target children to be vaccinated for both Pentavalent and PCV vaccines in 2014 and 2015. The number of doses of each vaccine to be provided by Gavi is outlined in the annual Gavi decision letter and is based on key parameters that the country provides in the APR, including the target number of children, number of doses for fully immunized child (three for Pentavalent; three for PCV), the calculated wastage rate, and the desired level of buffer stock. The target number of children and number of doses for fully immunized child are the same for PCV and Pentavalent, while the wastage rate differs between the two vaccines.

Uganda forecasted a total of 4,691,200 PCV doses were needed in 2014, however the 2013 Gavi decision letter committed only 2,736,700 PCV doses (including the Gavi and country co-financed vaccines). According to UNICEF shipping records, only 3,830,000 PCV doses were shipped to the country in 2014, and the National Medical Stores (NMS) stock status reports indicated only receiving 3,205,000 PCV doses. Thus, there is a shortfall between what the country forecasted for PCV doses needed in 2014 and what was actually reported as received at the national level in 2014. NMS confirmed that there were insufficient quantities of PCV at the national level in 2014 and they resorted to rationing PCV doses dispersed to lower levels of the health system, which could have led to stock-outs at district and facility levels.

These large inconsistencies are not seen in 2015, where the amount of PCV doses forecasted in the 2014 APR is consistent with the amount of PCV doses committed in the Gavi decision letter (both show 4,861,600 PCV doses). According to the UNICEF shipping records, 4,843,200 PCV doses were shipped to Uganda in 2015 which is consistent with the NMS stock status reports on the amount of PCV doses received.

At this time, the FCE team is unsure of the reason for this discrepancy in PCV doses forecasted compared to those received in 2014. There is confusion among national stakeholders about the reason for receiving inadequate doses at the national level. Key informants from NMS attributed the insufficient doses to inaccurate quantification, whereas most key informants from the MoH thought that less PCV doses had been shipped to the country due to delayed co-financing.

> *We received less doses of PCV than we anticipated. We were made to understand that we only got the doses paid for by Gavi since the country had not honored the co-financing obligations. But this did not last long.* (MoH KII)

> *We had not paid all co-financing, this could have affected the quantities (PCV) shipped.* (MoH KII)

Gavi co-financing is actually co-procurement; the country co-finances a new vaccine by directly procuring a fraction of the required doses. According to UNICEF shipping records, the total of 262,000 PCV doses to be co-financed by the country in 2013-2014 were not actually shipped until the 3rd quarter of 2015. Despite this delay in Uganda's co-financing commitment, this only represents a small fraction of the total number of PCV doses and should not have resulted in major stock-outs.

> *The part they need to procure is very small, so at the end of the day if they don't procure they are not going to have stock-outs; it's not that they're not going to vaccinate children because Gavi provides a 25% buffer in the system and their co-financing is around 5 to 7, 7 to 10%. So they don't feel it.* (Global-level KII, Gavi Secretariat)

Given the inconsistencies between the PCV doses forecasted and received in 2014, and the conflicting reasons for stock-outs cited by national-level stakeholders in Uganda, the FCE team is not able to come up with a conclusive explanation for the suboptimal PCV routinization. The FCE team continues to gather evidence to fully understand the primary causes for both the national-level PCV stock-outs in 2014 and continued lack of complete routinization in 2015.

At the subnational level, even after accounting for improved routinization of PCV (as measured by the PCV: pentavalent ratio), geographic inequalities remain that reflect existing bottlenecks in the immunization system in Uganda (Figure 5).

Figure 5: Estimated coverage of PCV by dose and district in Uganda

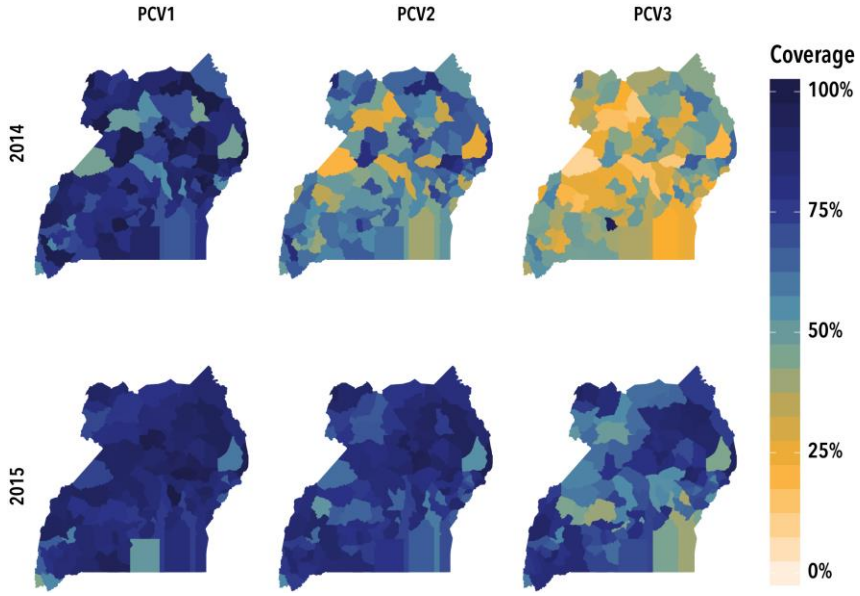
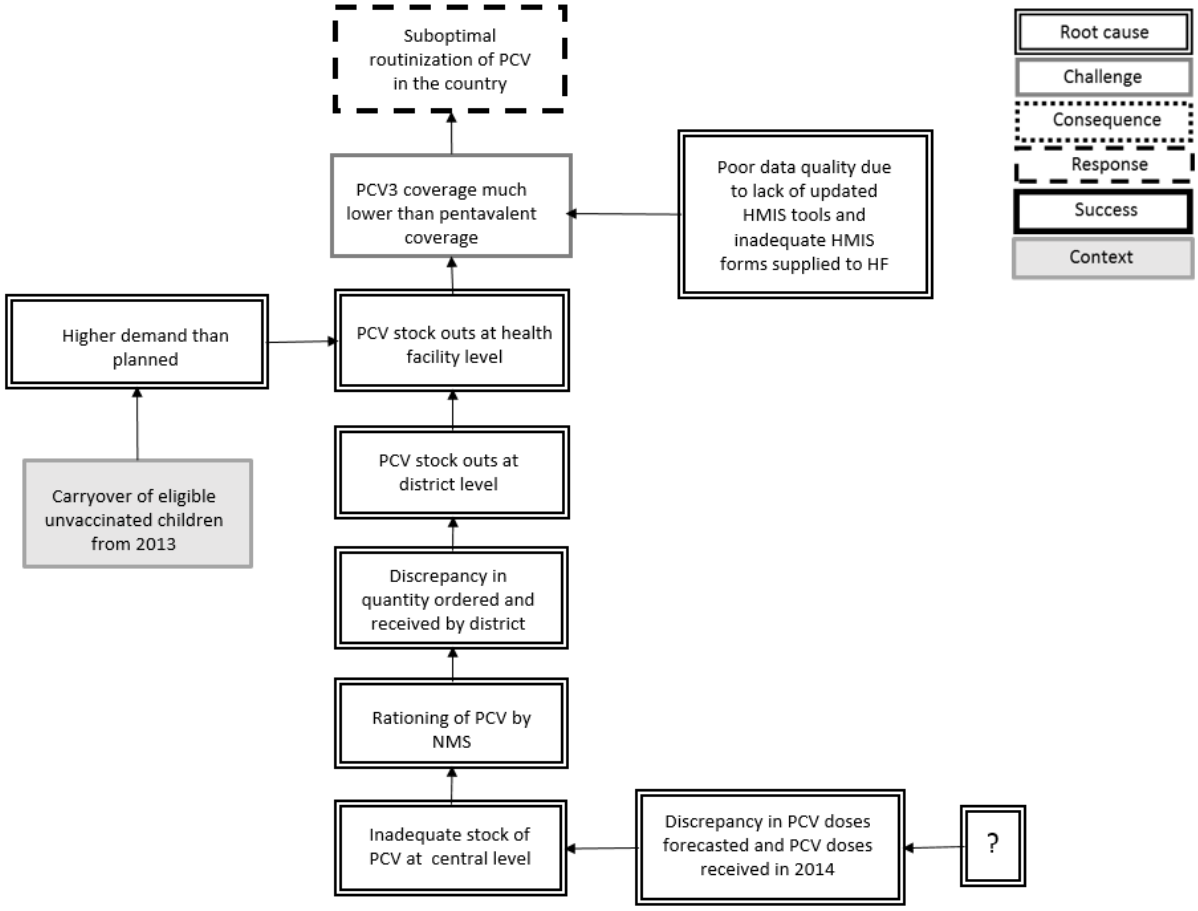



Figure 6: Root cause analysis for suboptimal routinization of PCV in 2014



### *Recommendations*

1. Adequate planning in particular vaccine forecasting for new vaccines, including prior distribution of sufficient updated tools, anticipation of different demand characteristics and high-quality training of health workers, should be carefully worked on before new vaccine roll out.

Lack of enough updated data collection tools at facilities led to improvisations in recording PCV doses administered. This combined with lack of skilled personnel and unanticipated high demand contributed to frequent stock-outs. Ultimately, these stock-outs results in suboptimal and delayed PCV routinization. Adequate planning and preparation prior to the launch may have prevented these problems.

2. Gavi and countries should work together to create an accountability mechanism to ensure that recommendations identified during the PIE are implemented and monitored beyond the PIE in order to achieve routinization of a new vaccine.

WHO recommends conducting a PIE 6 to 12 months after a new vaccine introduction to assess routinization of the new vaccine. The country conducted the PCV PIE in February 2015 (about seven months after PCV introduction) and results showed suboptimal routinization of PCV. In cases where the PIE identifies suboptimal vaccine delivery, there should be an accountability mechanism to ensure that recommendations identified during the PIE are implemented and to assess the ongoing routinization until sufficient coverage is achieved.

*Robustness of finding*

| Finding 1 | Ranking | Robustness criteria |
|---|---|---|
| *PCV routinization is measured by comparing the number of reported doses of PCV to the number of reported doses of pentavalent. By the end of 2014, PCV was not fully routinized, in part due to stock-outs at multiple levels of the health system. While there have been improvements since 2014, by the third quarter of 2015, PCV was still not yet fully routinized; furthermore, geographic inequalities in PCV coverage remain, reflecting existing bottlenecks in the immunization system.* | B | This finding is largely factual and is supported by FCE HFS data, HMIS data and the PCV PIE report, however, there are limitations in understanding fully the root cause(s) of vaccine stock-outs and the root cause(s) for continued lack of routinization into 2015. |

## Rotavirus and meningitis A vaccines

Uganda submitted an application on September, 8 2015 seeking Gavi support for introduction of rotavirus vaccine into the routine immunization program and MenAfriVac (meningitis A) vaccine for campaign against meningitis in selected districts. The country received comments from Gavi on October 2, 2015 and these were responded to on the October 11, 2015. The country plans to jointly implement rotavirus and meningitis A in 2016.

The decision to apply for rotavirus vaccine was based on the country's commitment to the integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD) in addition to the need for adequate implementation of comprehensive Reproductive Maternal, Neonatal, Child and Adolescent Health package emphasizing the Prevent, Protect and Treat (PPT) approach. In addition, the decision to apply for rotavirus vaccine was based on the surveillance for rotavirus infection at one sentinel site based at Mulago National Referral Hospital in Kampala from 2006 to 2012. The study detected rotavirus in 1,844 (32%) of 5,627 children with acute diarrhea. Nearly all (93%) positive cases of rotavirus gastroenteritis were between 3 and 23 months of age, with the highest prevalence in children 6-11 months of age.

Uganda, located in the sub-Saharan Africa meningitis belt, has a large burden of meningococcal disease (1,000 cases per 100,000 population).Northern Uganda and parts of western Uganda endure regular, focal meningitis outbreaks, especially during the dry season from January to June. Based on the information highlighted in the risk assessment conducted in the country using the WHO District Prioritization Tool for Meningitis A Vaccination, the country decided to apply meningitis A vaccine support from Gavi.

### Finding 1

*After a consultative, participatory, and inclusive application process for rotavirus and meningitis A vaccines, the Uganda National Immunization Technical Advisory Group (UNITAG) noted that the cost implication of adding two new vaccines was not clearly explained in the applications. Although UNEPI indicates that the recommendations and comments from the UNITAG were incorporated in both applications, no explicit description was made on total additional operational costs in the applications submitted to Gavi, and the projections in the cMYP do not explicitly describe the same.*

The Global Vaccine Action Plan (GVAP), endorsed in May 2012 by the World Health Assembly, recommends that "independent bodies such as regional or national immunization technical advisory groups (NITAGs) that can guide country policies and strategies based on local epidemiology and cost-effectiveness should be established or strengthened, thus reducing dependency on external bodies for policy guidance." Uganda formally instituted a NITAG (referred to as the UNITAG), in line with the recommendation of the GVAP, in December 2014.

Although the decision to apply for rotavirus and meningitis A vaccines (Expression of Interest) was taken before the formation of UNITAG, the UNEPI sought expert opinion from UNITAG regarding specific recommendations on rotavirus and meningitis A vaccines introductions in the country. Though UNITAG was called upon late in the process, it provided important recommendations to the MoH.

The UNITAG members noted that in future, UNITAG should be involved in decisions to introduce any new vaccine at the point of decision-making/Expression of Interest. Earlier involvement will allow sufficient time for UNITAG to follow its standard evidence gathering and assessment protocols and arrive at consensus on a recommendation. With concern, UNITAG noted that the additional operational cost was not clearly calculated and funder commitment secured to ensure that the new vaccines did not negatively impact the routine immunization program. UNITAG recommended development of a long-term immunization financing sustainability plan on the part of GoU as a priority. Although UNEPI indicates that UNITAG recommendations were incorporated in both applications, no explicit description was made on total additional operational costs in the applications submitted to Gavi and the IRC did not

raise financial or programmatic sustainability concerns in comments back to the country upon approval of the applications.

Given that Uganda is already facing co-financing challenges for pentavalent and PCV vaccines, UNITAG raises legitimate concerns on the country's ability to sustain new additional vaccines without compromising routine immunization activities. Additional co-financing requirements for new vaccines is an emerging reason behind defaults in other countries as noted by a recent evaluation study of Gavi's co-financing policy.[6]

In addition, the country's proposal to introduce rotavirus vaccine as routine with meningitis A as a campaign may encounter operational challenges comparable to what was observed in the introduction of HPV vaccine alongside competing immunization activities in 2015. UNEPI has inadequate human and financial capacity to successfully implement a new vaccine together with an immunization campaign.

*Recommendation*

1. Uganda should develop a long-term immunization financing sustainability plan, as recommended by the UNITAG and the immunization financing review conducted in Feb 2015. Each proposed new vaccine introduction should be considered in light of this sustainability plan.

With a declining overall immunization budget and incidences of defaulting on co-financing, there is a need to develop a comprehensive and feasible financial sustainability plan including the additional operational costs and their sustainability. This will be especially important upon graduating from Gavi support.

*Robustness of finding*

| Finding 1 | Ranking | Robustness criteria |
|---|---|---|
| *After a consultative, participatory, and inclusive application process for rotavirus and meningitis A vaccines, the Uganda National Immunization Technical Advisory Group (UNITAG) noted that the cost implication of adding two new vaccines was not clearly explained in the applications. Although UNEPI indicates that the recommendations and comments from the UNITAG were incorporated in both applications, no explicit description was made on total additional operational costs in the applications submitted to Gavi, and the projections in the cMYP do not explicitly describe the same.* | B | The finding was based on observation during EPI meetings and meningitis A and rotavirus vaccine application process. Documents were reviewed (including the applications themselves, UNITAG terms of reference, and IRC reports) which support this finding. |

[6] Gavi, the Vaccine Alliance, "Partner's Engagement Framework, Report to the Programme and Policy Committee, October 7 to 8."

## Inactivated polio vaccine

Uganda was approved by Gavi to introduce IPV in July 2014 following an application submitted in May 2014. The application took advantage of the decision by the Gavi Board in 2013 to support the introduction of IPV as part of routine immunization programs. A total of $US 1,356,500 Vaccine Introduction Grant (VIG) for IPV was received by the government of Uganda (GOU) on March 3, 2015.

Planning for IPV introduction started in the EPI technical meeting held on March 31, 2015. In that meeting an IPV introduction committee was set up to discuss how best to integrate some IPV introduction activities with the planned measles campaign.

### Finding 1

*Despite the expedited application and approval process for the IPV vaccine as reported in the 2014 Gavi FCE report, the actual introduction date has been postponed from May 2015 to August 2015 then to February 2016 due to uncertainty on the arrival date of the vaccine due to global supply issues.*

Learning from the PCV introduction experience, the MoH was keen on using IPV samples to train health workers for IPV introduction. However, the actual arrival dates for the IPV vaccine remained uncertain making it difficult to plan for training and rollout. As the planned training dates drew close, UNEPI asked the WHO country office to provide technical advice on how to conduct the training without IPV demonstration samples. The launch date was subsequently postponed from May to August 2015 then February 2016. This was due to the global shortage of IPV vaccine. Currently, all preparatory activities are on hold.

On a positive note, postponement of IPV introduction created an opportunity for preparation for IPV introduction; it allowed time for country stakeholders to digest the concept.

*Recommendation*

1. In situations where Gavi and global partners want to fast track vaccine introduction, they should ensure sufficient global vaccine supply. In the inevitable circumstance of global vaccine shortages, timely and appropriate communication should be made to countries to aid prioritization and adaptive planning.

*Robustness of finding*

| Finding 1 | Ranking | Robustness criteria |
|---|---|---|
| *Despite the expedited application and approval process for the IPV vaccine as reported in the 2014 Gavi FCE report, the actual introduction date has been postponed from May 2015 to August 2015 then to February 2016 due to uncertainty on the arrival date of the vaccine due to global supply issues.* | A | Shortage of IPV stocks on the global level is a fact that has been triangulated through fact-checking interviews, document review, and meeting observations. |

## Human papillomavirus vaccine

The GOU successfully applied for Gavi support to introduce HPV vaccine nationally in September 2013 and was approved in March 2014. The HPV VIG totaling $US 1,336,980 arrived in the country on February 16, 2015.

The successful application for Gavi support to introduce HPV vaccine nationally followed a demonstration project of HPV vaccine delivery in selected districts. As reported in the 2014 Gavi FCE report, the demonstration project recommended using a combined (hybrid) approach of integrating the Child Health Days Plus (CDP) with the school-based delivery strategy. However, due to the capital intensive nature of the recommended delivery strategy, the country opted to integrate HPV vaccine into the routine EPI system which is facility-based with an outreach component; a delivery model that was not tested in the demonstration project. We will continue tracking the HPV vaccine introduction process and document any consequences of using an untested delivery model.

The HPV vaccine was initially scheduled to be introduced in April 2015. However, introduction was contingent upon successful expansion of cold chain storage space both at national and subnational level using funds from the Gavi HSS grant. As reported in the HSS section, implementation of civil works and procurement of cold chain storage facilities was delayed. As such, following the Gavi mission to Uganda (February 2 to5, 2015), a decision was taken to postpone HPV vaccine roll out from April to October due to the shortage of cold chain storage space.

### Finding 1

*Despite the fact that Ministry of Health (MoH) drew on lessons learned from the introduction of PCV to initiate preparatory activities for the national HPV vaccine introduction early, the actual launch and rollout did not occur as planned. First, the launch was delayed from April to October as result of a shortage of vaccine storage space due to delayed implementation of the HSS grant. Then HPV vaccine rollout was further postponed to November, due to the need to have the vaccine distributed to all districts before the launch.*

Based on the country's previous experience with PCV introduction and the challenges and delays in the implementation process, stakeholders began the planning process for HPV vaccine in May 2014 shortly after Gavi approval and nearly a year before the planned launch date. The country planned to leverage the procurement of fridges and construction of vaccines stores under the Gavi HSS grant to cover the storage gaps that had been identified in the EVMA 2014 and the cold chain inventory of 2014. However, implementation of the HSS was delayed by the protracted time period required for procurement of equipment and civil works through the Uganda government system and further delayed by the transition of procurement and civil works to UNICEF and CRS (Gavi FCE report 2014).

The HPV vaccine shipment plan was to be implemented after satisfactory inspection of the new storage facilities. Following the assessment done by the Gavi SCM, UNEPI, and a WHO official (February 2-5, 2015), it was discovered that no progress was made on the construction of the Central Vaccine Store (CVS). In addition, UNICEF had not procured the fridges due to delays in protracted transition process which had not been anticipated to be lengthy. Based on these findings, the shipment of HPV vaccine was halted and the launch date was postponed from April to October. Furthermore, learning from the challenge of the staged PCV introduction, the country further postponed HPV vaccine rollout in order to

allow sufficient time to distribute the vaccine to all districts before the launch. HPV vaccine was finally launched and rolled out on November 24, 2015.

The delay in HPV vaccine introduction from April to November 2015 has unintended consequences. In addition to the missed opportunity to deliver the vaccine to girls in need this year, the delay also means that the first cohort of eligible girls will not receive the complete vaccination schedule within a single school year (which runs from February through December). The first cohort of girls will receive their first dose in November (2015 school year) and their second dose in May (2016 school year). Beginning with the second cohort of girls in 2016, HPV vaccine doses will be delivered in April and October. This means that the first cohort will receive their second dose in May 2016 while the next cohort will receive their first dose in April 2016. This may cause challenges with the quantification and projection of the number of HPV vaccine doses needed in 2016, since two cohorts will overlap and receive doses within a month of each other. This could stretch the already limited storage space. More so, given that HPV vaccine will be implemented in primary four, this crossover from 2015 to 2016 means that the girls in the first cohort will receive their second dose in primary five. This will not only interrupt the school program, as having two classes leaving school to go to the facility, as well as the big number, may overwhelm the understaffed health facilities. In addition, there is a possibility that the first cohort of girls will be in holiday in May, and this may interrupt the proposed facility-based delivery model and may also cause confusion to teachers and parents thus affecting HPV vaccine implementation.

While it is a positive finding that lessons learned from PCV have been applied at various stages of the HPV vaccine introduction process, there have been many challenges as a result of unintended consequences of HSS implementation delays. The national HPV vaccine launch is scheduled for mid-November and the evaluation team will continue to track the impact of these challenges on the launch and continued vaccine delivery into 2016.

*Robustness of finding*

| Finding 1 | Ranking | Robustness criteria |
|---|---|---|
| *Despite the fact that Ministry of Health (MoH) drew on lessons learned from the introduction of PCV to initiate preparatory activities for the national HPV vaccine introduction early, the actual launch and rollout did not occur as planned. First, the launch was delayed from April to October as result of a shortage of vaccine storage space due to delayed implementation of the HSS grant. Then HPV vaccine rollout was further postponed to November, due to the need to have the vaccine distributed to all districts before the launch* | A | This finding is factual. Through observation in several preparatory meetings, document reviews and KIIs, we confirmed that delayed rollout of HPV vaccine was largely due to delayed implementation of civil works under HSS. |

### Finding 2

*Uganda merged the measles campaign, polio Supplementary Immunization Activities (SIA) and HPV vaccine introductory activities due to limited bandwidth within UNEPI and the failure of the country to raise sufficient funds to cover all activities. However, this led to key critical shortfalls in HPV implementation: training of health workers on HPV vaccine was reduced from three days to one day, and there was no social mobilization messaging on HPV vaccine because the vaccine had not yet arrived in the country hence you would not increase demand and yet the vaccine was not available.*

As documented in the 2014 Gavi FCE report, the few UNEPI staff are strained by the numerous immunization-related activities in the country. This was the case with PCV introduction and early planning for HPV where the process was overshadowed by the house-to-house polio campaign. Learning from this experience, and given that the country and local partners had failed to raise the 50% operational costs for the measles campaign as expected by the Measles Rubella Initiative, the country decided to merge SIAs with HPV activities. The combined activities included planning meetings, developing field training manuals, social mobilization and training of health workers. UNEPI and country-level partners envisioned that integrating the measles campaign, Child Health Days, and HPV vaccine introduction activities would pull all resources (human, technical, and financial) together, thus resulting in effective and efficient implementation of all activities. Indeed, holding joint meetings for all activities led to time and cost saving compared to if separate meetings had been held. More so, convening one workshop to develop an integrated training manual led to effective and efficient use of both human and financial resources available at the time.

However, the evaluation team documented several unintended consequences as a result of combining measles campaign, Child Health Days, and HPV introduction activities:

1. HPV planning was overshadowed by the measles campaign and other immunization activities; whereas HPV was always included on the agenda of the NCC meeting, much time and focus was on the measles campaign. The campaign was perceived by country-level stakeholders as an emergency, with specific timelines with which to implement all activities. WHO and UNICEF took the lead in pushing through the measles campaign agenda and adding new activities like the Child health plus and polio supplementation in the 23 districts neighboring South Sudan. PATH was the lone voice advocating for HPV.

2. Training of health workers on HPV was originally planned to cover three days, but due to the many topics scheduled to be covered under the integration arrangement, HPV was only taught in one day. The training program was very congested and rushed, which could have affected quality.

3. Usage of HPV VIG on measles campaign and other immunization activities. Whereas it is a good practice for the EPI to use a new vaccine introduction as an opportunity to strengthen routine immunization, key preparatory activities like social mobilization should take precedence. The *Measles Rubella Initiative Strategic Plan 2012-2020* specifies that countries should "raise at least 50% of the operational costs for MR Initiative-supported SIAs, whether from government resources or local partners." The total budget estimate (operational) for Measles SIA was $US 7.5 million. MRI through WHO and UNICEF raised $US 2.4 million which was far less than their expected half of the total budget estimate. The government and other partners were expected

to raise the remaining half. The government did not disburse the $US 200,000 which it had pledged to offer, and efforts to mobilize resources from other partners yielded minimal results, though Rotary and Lions club supported social mobilization in a few districts where they operate. In total, the $US 2,431,750 was not enough to cover the measles campaign, Child Health Days, and polio supplementation in 23 districts. Thus, the HPV VIG grant was used for district- and subcounty-level training on all the activities and to cover several unfunded activities for the campaign like coordination meetings and microplanning. However, this left key HPV activities, including social mobilization, unfunded. HPV was never mentioned in all radio and television advertisements run during the measles campaign period. This did not reflect the spirit of integration as envisaged.

The Gavi FCE team will continue tracking the HPV vaccine introduction processes to fully understand how the unintended consequences will impact HPV vaccine roll out.

*Recommendation*

1. Uganda should develop a long-term financial sustainability plan and consider the financial implications of each new immunization activity to avoid being forced to integrate activities which may result in unintended consequences, as was the case with HPV vaccine.

When integration of activities does occur, it should be driven by strategic rather than solely financial reasons. When strategically sound, EPI activities should be integrated where possible to leverage and maximize potential synergies and conserve resources.

## Health System Strengthening

Uganda is implementing a two year HSS-1 reprogrammed grant which was approved by Gavi in March 2014 running through to June 2015. This grant is a follow up to the HSS grant approved in 2007 but was only sanctioned in 2012 following the signing of a Memorandum of Understanding (MOU) between the GOU and Gavi. Gavi committed $US 19,242,000 and has so far disbursed $US 4,372,695 to the GOU and $US 8,286,982 to UNICEF. Following delays in implementation, Gavi has approved a 12 month no-cost extension to extend the grant window to June 2016.

The HSS grant aims to achieve the following core objectives;

1. To support the participation of communities in health care delivery and decision-making through scaling up of the establishment and training of village health teams.
2. To strengthen the capacity of the health workers at all levels of health care delivery at district level to manage and utilize their data.
3. To strengthen the capacity of the private sector to deliver immunization and other child health services by providing cold chain, training and other related issues
4. To improve the delivery of Uganda National Minimum Health Care Package (UNMHCP) including immunization by providing the necessary infrastructure, logistics supplies and management training

Despite several operational challenges that have impeded smooth implementation of the HSS grant, especially related to procurement and civil works, some of the planned activities have been

implemented with varying levels of success. One key activity under objective 1 was to conduct a comprehensive Village Health Team (VHT) assessment. This was successfully implemented and some of its recommendations are reflected in the revised HSS budget. In addition, mapping, assessment and training of private health practitioners was executed according to the HSS plan under objective 3. Data validation and training of health workers is ongoing in various districts.

However, some unsubstantiated changes were made by MoH during implementation of some activities, for example, whereas the program had planned to train middle-level and operational managers at district and lower levels in Middle Level Managers Training (MLMT), the training content was later changed to medicines and logistics management.

Table 8: Status update on HSS funds as of September 30, 2015

| Grant | Amount approved ($US) | Amount disbursed by Gavi ($US) | Amount spent or committed | Balances | Comment |
|---|---|---|---|---|---|
| HSS | 19,242,000 | 4,372,695 to GoU/MoH on Sept 4, 2013 | 1,866,151 | 2,506,544 | Delayed civil works |
| | | 8,286,982 to UNICEF on December 2014 | 7,528,350 | 758,632 | |

*Note: A total of $US 6,582,323 has not been disbursed by Gavi*

### Finding 1

*Uganda has not implemented any civil works under the HSS grant due to a lack of anticipation of the time required to contract with partners, lack of consideration of potential partners beyond a single targeted partner to implement civil works, and a lack of clarity about the roles between Gavi and the country as they related to the civil works. This was further exacerbated by turnover in the Gavi senior country manager, which delayed contracting with partners for the civil works and approval of a no-cost extension for implementation of the HSS grant.*

Basing on the Cold Chain Inventory 2012, inadequate cold chain space was identified as one of the main critical bottlenecks hindering immunization program improvement in Uganda. As a response, the country included construction of new vaccine stores at the district and central levels and procurement of fridges in the reprogrammed HSS budget.

As reported in the 2014 Gavi FCE report, initially implementation of civil works was delayed due to the protracted time period required by the Uganda government system and was further delayed after reports of abuse and inappropriate handling of the tendering process necessitated reverting all procurement and construction to non-government partners. Gavi identified Catholic Relief Services (CRS) to do the civil works and did not consider other potential partners. However, the cost estimates made by CRS for construction of the staff houses and district medical stores were much higher than

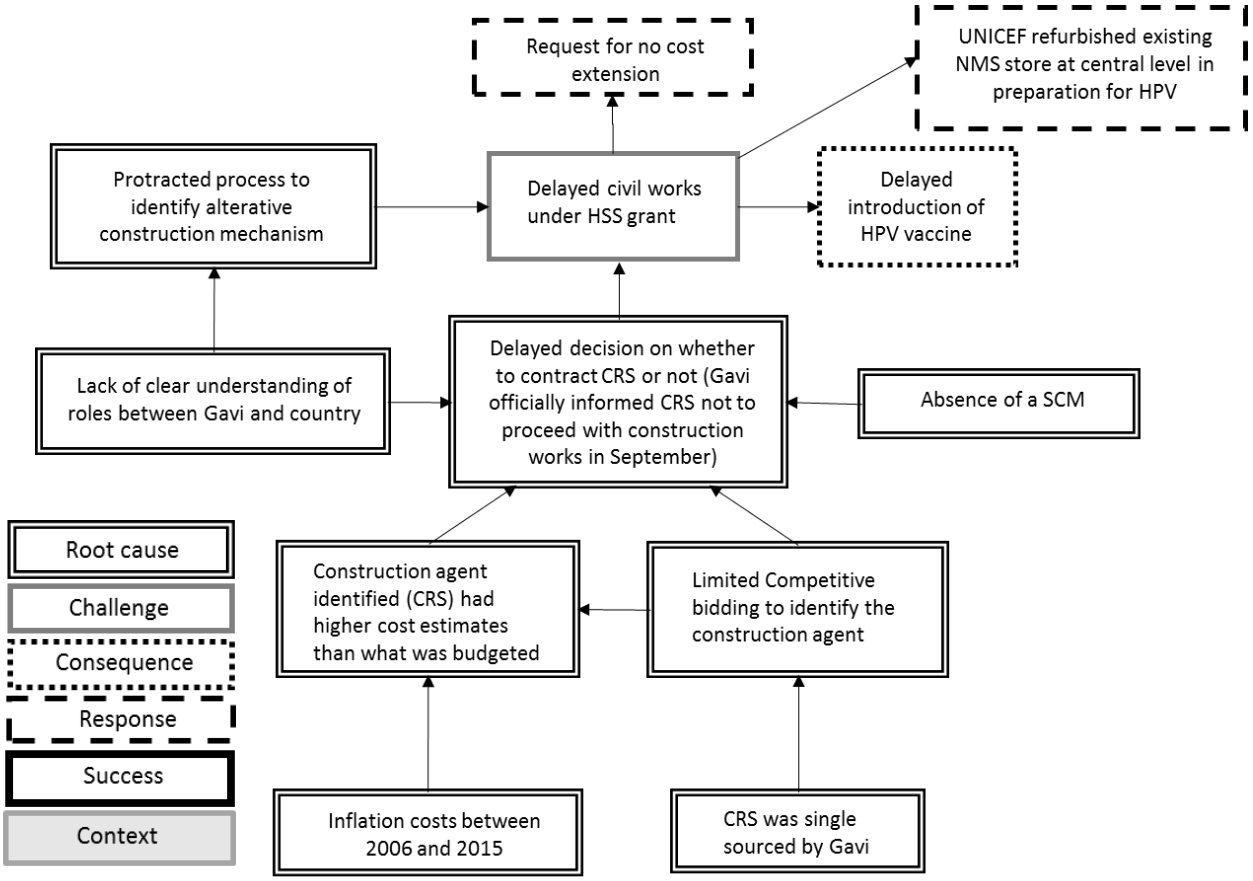
what was budgeted. The total cost of the CRS construction budget being $US 8,115,271 from the initial estimate of $US 5,234,000. CRS attributed the cost differential to inflation costs between 2006 (when the original HSS application budget was developed) and 2015.Given that there was no competitive bidding (CRS was single sourced by Gavi) to give the country a variety of Bills of Quantities (BoQs) to select from, the entire process came to a halt. The process of deciding on how to proceed following this high quotation was protracted as there was a lack of clear understanding of roles between Gavi and the country. The country was under the impression that Gavi was leading the process of contracting a non-governmental partner, as they had done for the HSS procurement of equipment. In contrast to Gavi's decision to procure equipment through UNICEF, there was no formal memorandum of understanding between Gavi, MoH, and CRS to guide the implementation of the construction works. Construction works came to a halt.

Delayed construction of the vaccine stores hindered the much needed expansion of cold chain storage capacity necessary for the introduction of HPV vaccine. As a result the country postponed national introduction of HPV vaccine from April to October 2015. Eventually HPV was launched on November 23 after UNICEF renovating the existing storage facilities at NMS to temporarily store HPV vaccine.

During the Gavi mission to Uganda in February 2015, it became clear that construction works could not be implemented within the remaining four months of the HSS grant period ending June 2015. The MoH was advised to revise the current HSS budget and work plan, taking into consideration current implementation realities. The revised work plan and budget was submitted to Gavi in March 2015. The country asked for a 12-month extension up to March 2016 to complete implementation of HSS activities. However, there was no response from Gavi for about three months; while this was as the result of the Gavi SCM being on sick leave, there was no official communication from Gavi to the country regarding this. Further still, the process of approving revised work plans and budgets was not clearly known by EPI officials. This further hampered implementation of the HSS grant.

Gavi informed Uganda of the appointment of a new SCM in August 2015. With a new SCM, the country started afresh the process of seeking a 12 month no-cost extension up to June 2016. Meanwhile, the Permanent Secretary of Ministry of Finance, Planning and Economic Development (MOFPED) directed that all HSS money for civil works be committed and implemented within the no-cost extension period without fail. This followed a meeting between MOFPED, MoH, Gavi SCM, WHO, and UNICEF. In September 2015, Gavi informed CRS not to proceed with construction. Discussions are ongoing on how to move forward with construction and whether funds should revert back to the government system or be assigned to the World Bank, which is also implementing health system strengthening activities. The evaluation team observed that MOFPED (a key player in HSS grant implementation) was not involved in making the decision in 2014 to revert all construction and procurements from MoH to non-government agencies.

Figure 7: Root cause analysis for delayed civil works under the HSS grant




Two year implementation window for the reprogrammed HSS grant. Following reports of abuse and inappropriate handling of the tendering process within the GoU, all HSS funds for procurement and construction were transferred to non-government partners.

*Recommendations*

1. In situations where alternate implementation mechanisms are sought, for example procurement/civil works through other agencies, effort should be made to clarify roles and responsibilities between Gavi and country.
2. As we recommended in the 2014 Gavi FCE report, the MoH, partners and Gavi should increase efforts to integrate the Ministry of Finance into all Gavi funded immunization-related planning and decision-making. This will ensure proper coordination and implementation of HSS activities.
3. Gavi should ensure timely communication to countries about SCM transitions and move expeditiously to fill these posts or assign substitutes in the meantime.

In the 2014 FCE report we noted that communication between the country and Gavi had tremendously improved due to increased visibility of the SCM in the country. This resulted in successful compilation and submission of the APR. However, in 2015 we observe that there was a communication lapse due to absence of the SCM leading to severe delays in implementation of HSS activities. We recommend that

Gavi should provide timely communication to countries in case of SCM transitions and move expeditiously to fill these posts and to assign substitutes in the meantime.

*Robustness of finding*

| Finding 1 | Ranking | Robustness Criteria |
|---|---|---|
| *Uganda has not implemented any civil works under the HSS grant due to a lack of anticipation of the time required to contract with partners, lack of consideration of potential partners beyond a single targeted partner to implement civil works, and a lack of clarity about the roles between Gavi and the country as they related to the civil works. This was further exacerbated by turnover in the Gavi senior country manager, which delayed contracting with partners for the civil works and approval of a no-cost extension for implementation of the HSS grant.* | B | This finding is largely based on our observation during numerous EPI meetings. It was supported by some KIs at the country level. |

### Finding 2

*Implementation of HSS supported activities to strengthen private sector involvement in immunization in Kampala district faced numerous challenges including resulting in several delays. The challenges include delayed disbursement of funds from MoH to FPHP due to IFMS, and partner disagreement over selection criteria of the 100 private facilities to benefit.*

Inadequate capacity of the private sector to deliver immunizations and other child health services was one of the key bottlenecks identified during a review prior to the HSS application development in 2007. On this basis, Uganda included a strategy to strengthen the capacity of the private sector to offer immunization and other child health services in the 2007 HSS proposal. This strategy was maintained in the reprogrammed HSS proposal of 2014. The strategy is implemented by the Federation for Private Health Professionals (FPHP) in Kampala district, with plans for subsequent scale-up to the rest of the country. The activities to be implemented in this strategy under the current HSS grant are:

i. Conduct accreditation and mapping of private clinics in Kampala District.

ii. Purchase 100 cold chain refrigerators for 100 private clinics.

iii. Train 200 health workers from private clinics in immunization, Integrated Disease Surveillance and Response (IDSR) (four groups of 50 participants each).

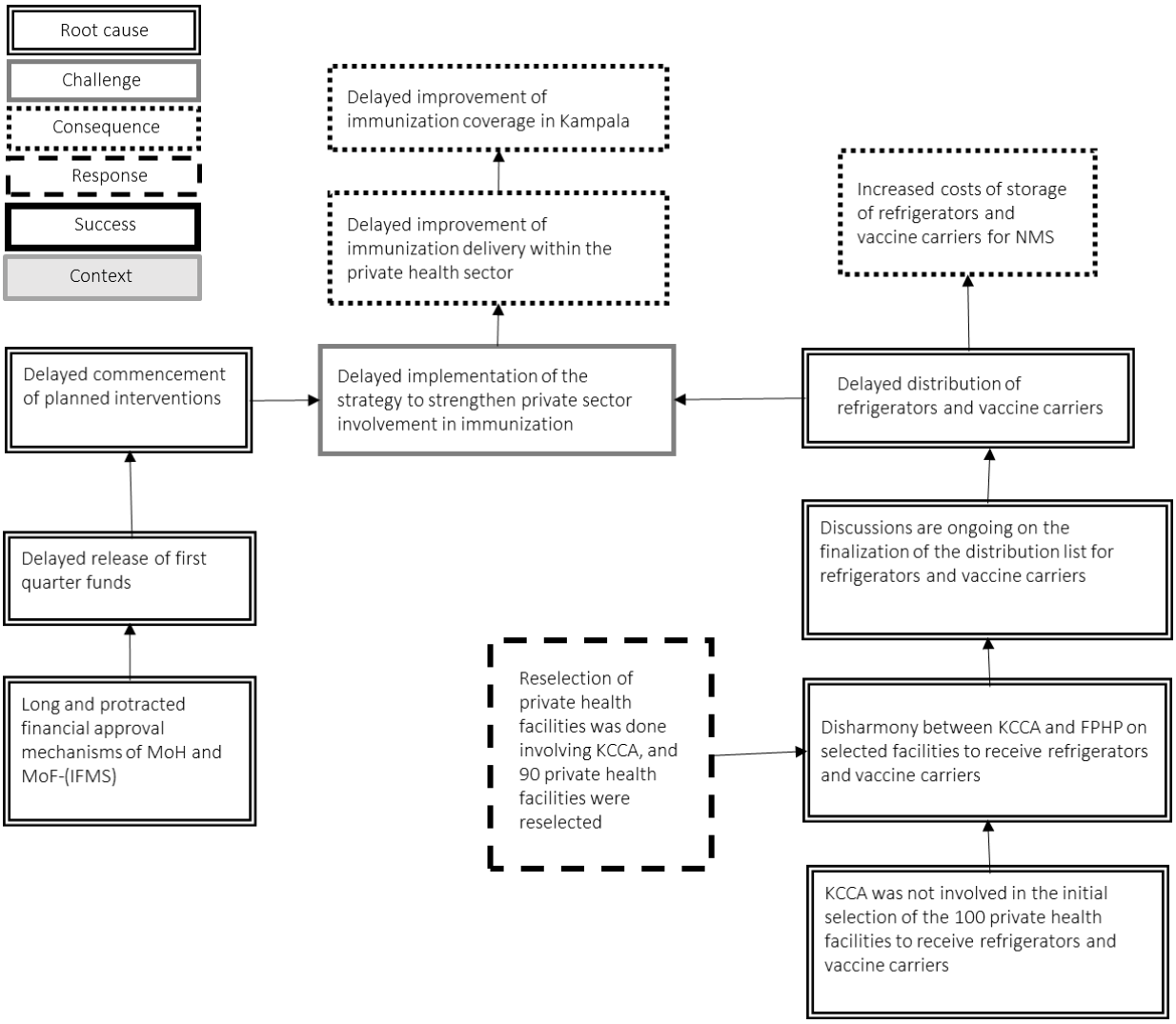
iv. Evaluate private sector facilities providing immunization according to EPI standards and guidelines.

v. Purchase 1,000 vaccine carriers (one carrier per facility for 1,000 clinics).

As reported in the 2013 and 2014 Gavi FCE reports, the new integrated financial management system (IFMS) caused delays in the financial disbursement processes from MOFPED to the MOF and to FPHP which led to late implementation of the planned interventions. Implementation of activities started four months after approval of the HSS funds. Delays were further compounded by Kampala City Authority (KCCA) health division which questioned the selection criteria used to select the 100 facilities to receive cold chain refrigerators, citing several key private health facilities that had been excluded. KCCA further mentioned that the 100 facilities were not representative of the five geographical divisions of Kampala city. The selection criteria had been reviewed and approved by UNEPI but this process omitted the partner, KCCA, which is mandated to oversee and deliver health services in Kampala city under the decentralization arrangement. A series of meetings were held in June 2015 to resolve this standoff. It was agreed that the selection be repeated, and a committee was constituted to do the re-selection. As a result of this process, 90 private health facilities were chosen to receive refrigerators. However, distribution of refrigerators is pending as discussions are ongoing on the finalization of the distribution list for refrigerators and vaccine carriers. Six months later, the process still drags on with no clear decision made. The delayed distribution of refrigerators and vaccine carriers has led to increased storage costs for NMS, as it hires temporary storage space for the equipment. As a result of these delays the strategy to strengthen the capacity of the private sector to offer immunization and other child health services has not been fully implemented.

Regarding objective 3 of the HSS application, a secondary analysis of the baseline health facility survey was conducted to explore EPI capacity in private health facilities. Using comparable public health facilities as reference, vaccine administration of PCV3 and DPT3 was noted to be higher in public facilities than private facilities by 74% and 27% respectively. While the availability of functional cold chain systems was noted to be comparable in both facility types, provision of other immunization related services remains higher in public facilities. Public facilities were more likely to provide outreach services (OR=5.91, 95% CI 1.22, 28.80), use AEFI tools (OR=2.20, 95% CI 0.66, 5.22), have immunization guidelines (OR=3.14, 95% CI 0.66, 7.35), and were more likely to have PCV available on the day of the survey (OR=1.52, 95% CI 0.44, 5.22). In addition, none of the private health facilities in the survey sample reported having received official training for PCV, none reported having a supervisory visit from district- or central-level EPI in a period of 6 months from the time of the survey. It was also noted that none of the private health facilities had received vaccine-bundled sets to facilitate vaccine administration.

Figure 8: Root cause analysis for delayed implementation of the strategy to strengthen private sector involvement in immunization in Kampala district




*Recommendation*

1. Implementing partners should ensure involvement of all relevant stakeholders at all stages of implementation, particularly in the planning and decision-making process.

MoH should improve efforts to map out critical stakeholders and involve them in planning process and decision-making regarding implementation of immunization related activities. We have already indicated how lack of involvement of Ministry of Finance has impeded coordination and implementation of HSS civil works, and similarly the 2014 Gavi FCE findings showed the failure to engage the Ministry of Education (MoE) in the HPV vaccine national application process. We therefore recommend mapping of all EPI partners with an aim of proper coordination and full involvement of key partners at all stages of implementing immunization-related activities.

*Robustness of finding*

| Finding 1 | Ranking | Robustness criteria |
|---|---|---|
| *Implementation of HSS supported activities to strengthen private sector involvement in immunization in Kampala district faced numerous challenges including resulting in several delays. The challenges include delayed disbursement of funds from MoH to FPHP due to IFMS, and partner disagreement over selection criteria of the 100 private facilities to benefit* | A | This finding is largely factual. The finding is documented in most reports submitted by FPHP to MoH. Most KIs were in agreement on this issue. More still, quantitative findings from the FCE HFS show low quality immunization service in private health facilities, supporting the rationale to strengthen private sector involvement in immunization. |

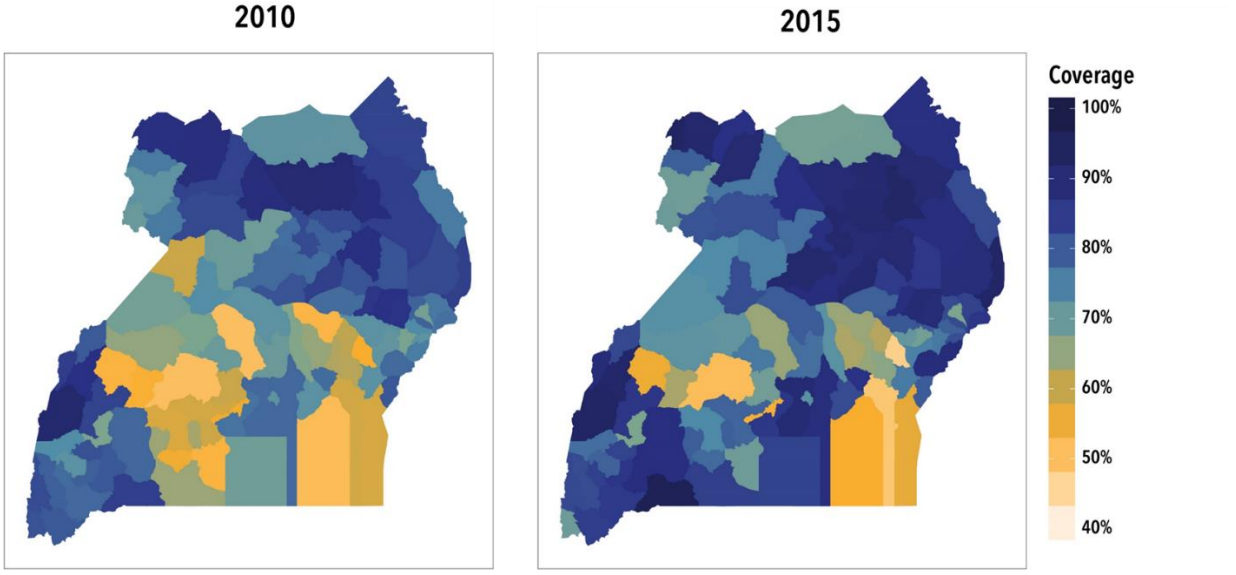
### Finding 3

*Despite limited implementation of Gavi's HSS in Uganda, vaccine coverage has improved in a number of districts in Uganda over the last three years. These improvements coincide with the country EPI revitalization plan. It will be important to reflect the successful drivers of these improvements in the new subsequent application for Gavi HSS. Our FCE HFS also identified a number of key areas that could be target areas for investments under Gavi HSS.*

In the past five years, Uganda's routine immunization program performance has made steady progress in terms of immunization coverage as shown by the FCE small-area estimates (

Figure 9) which incorporate the Gavi FCE household survey conducted in 19 districts in 2015. Although third-dose vaccine coverage in 2015 remains low (< 60%) in a number of districts in Uganda, notable improvements in vaccine coverage have been observed in a number of districts in Uganda, particularly those in the Western and Central, and to a less consistent extent Eastern regions. This was after a period of decline in immunization coverage that was experienced in the country in the early- to mid-2000s.

Figure 9: Uganda has experienced improvements in three-dose pentavalent coverage in nearly all districts from 2010 to 2015




Although there has been limited implementation of the Gavi HSS-1 grant over this time period as noted above, these improvements coincided with concerted efforts to revamp the immunization program through the UNEPI revitalization plan and the immunization multiyear plan 2012-2016. During 2007-2012, EPI coverage had stagnated with several districts showing declining performance resulting in re-emergence of wild polio virus after 13 years and numerous measles outbreaks. This prompted the MoH and partners to conduct numerous assessments (the 2010 UNEPI Review, the 2011 Effective Vaccine Management Assessment, and the 2012 UNICEF/WHO Joint Mission Assessment) to establish the root causes for the low immunization performance. The main bottlenecks were inadequate immunization financing, human resource challenges, and a general lack of prioritization of the routine immunization program at district level.

The EPI revitalization plan and the EPI multiyear plan drew strategies which in part could explain the improvements in immunization performance observed over the past five years. The key notable interventions include:

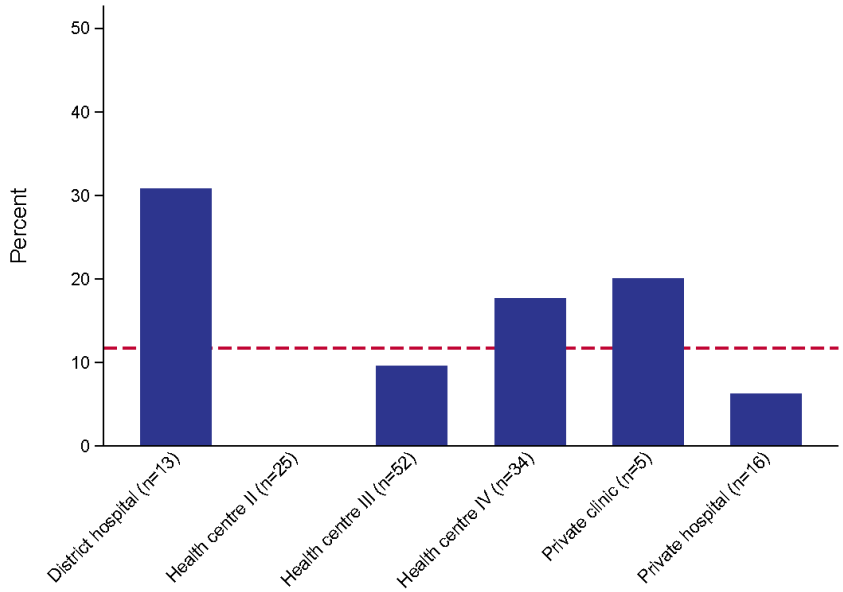
1. Strengthen community-level mechanisms through VHTs to reach the most vulnerable, underserved and un/under-immunized groups to ensure service delivery and sustained demand for immunization services.
2. Improve and streamline vaccine delivery mechanisms to minimize vaccine stock-outs at service delivery points.
3. Strengthen advocacy efforts especially to establish a Parliamentary forum on immunization to influence higher budget allocation for EPI and enactment favorable immunization laws.
4. The several SIA s conducted have been used as an opportunity to strengthen RI through continued mentorship of health workers on general immunization practice. They have also provided an opportunity to strengthen microplanning for immunization activities at both district and health facility levels.

5. The ISS funds sent to districts have greatly boosted financial support for immunization activities such as outreaches, and this may have contributed to improved immunization performance.

These and other strategies could explain the improved immunization coverage registered over the past five years. The FCE team is working to better understand the root causes of vaccine coverage improvements. Ensuring that drivers of these improvements are reflected in the next Gavi HSS support application will help to increase the potential for HSS to improve coverage. Furthermore, the low coverage districts could be targets from greater investments to address geographic inequalities.

In addition to the small-area estimates presented, findings from the Gavi FCE HFS identify existing gaps in immunization delivery that could be the focus of investments through Gavi HSS and other system strengthening efforts. In relation to cold chain capacity, we observed that primary vaccine storage equipment was broken in over 30% of district hospitals in the survey sample (Figure 10).

Figure 10: Percent of facilities reporting that their primary vaccine storage equipment was broken, Uganda HFS. *The red dashed line on the HFS graphs represents the mean across platform types.*




Relatedly, regular reporting or maintenance for equipment was particularly low in district hospitals and private facilities compared to all other facility platforms (Figure 11). Temperature monitoring systems including availability of a temperature monitoring chart and a thermometer for the primary vaccine storage equipment were found to be suboptimal in private health facilities compared to all other facility platforms (

Figure ***11***).

Figure 11: Percent of facilities reporting regular maintenance on vaccine storage equipment, Uganda HFS. *The red dashed line on the HFS graphs represents the mean across platform types.*

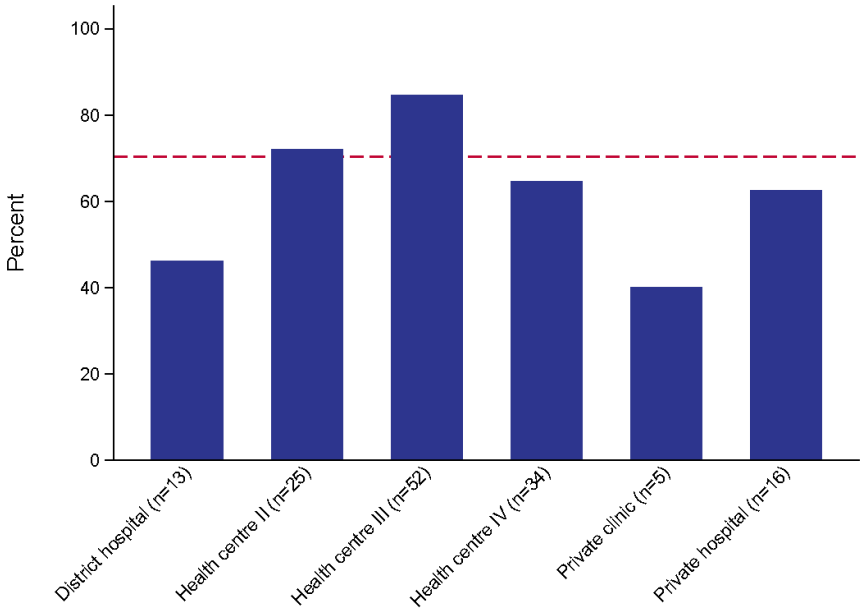
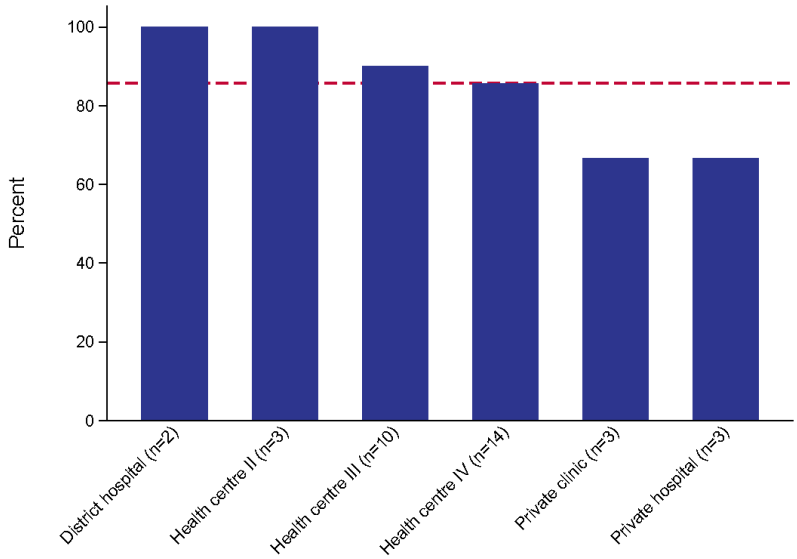
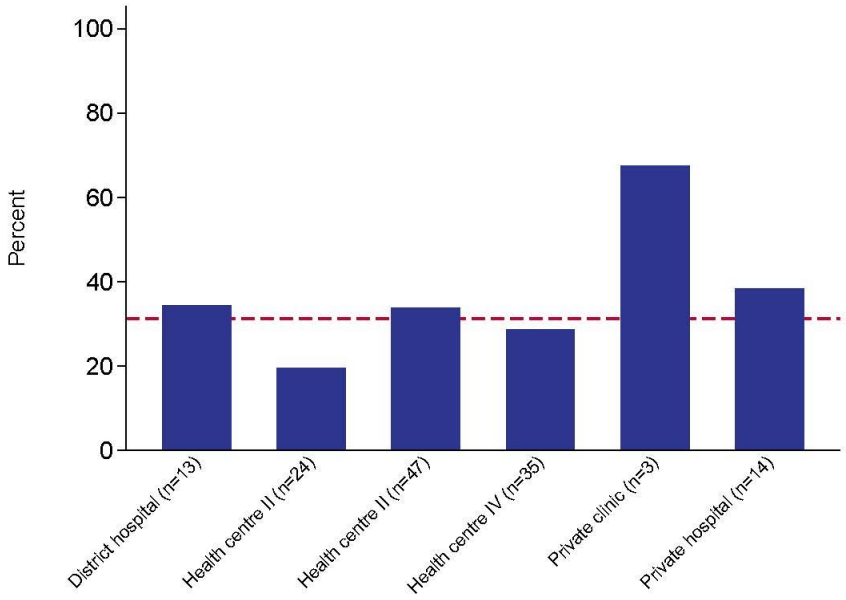



Figure 12: Percent of facilities with observed temperature chart and thermometer for primary vaccine storage equipment, Uganda HFS. *The red dashed line on the HFS graphs represents the mean across platform types.*



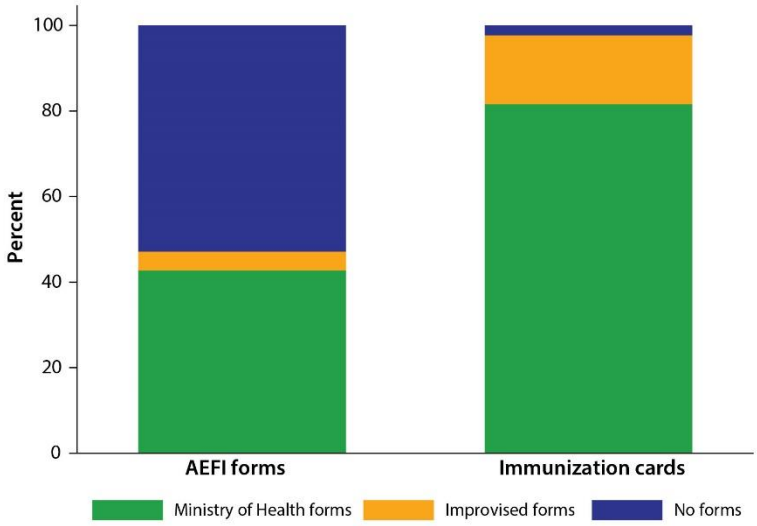

Among facilities with existing temperature monitoring systems, we found that the highest proportion of facilities documenting cold chain temperatures that were out of the recommended range (<2°C and >8°C) were private facilities (Figure 13).Within the public facility category, district hospitals had the higher proportion of cold chain temperature recordings that were out of the recommended range (Figure 13).

Figure 13: Percent of facilities reporting temperatures out of range, by facility platform. *The red dashed line on the HFS graphs represents the mean across platform types.*



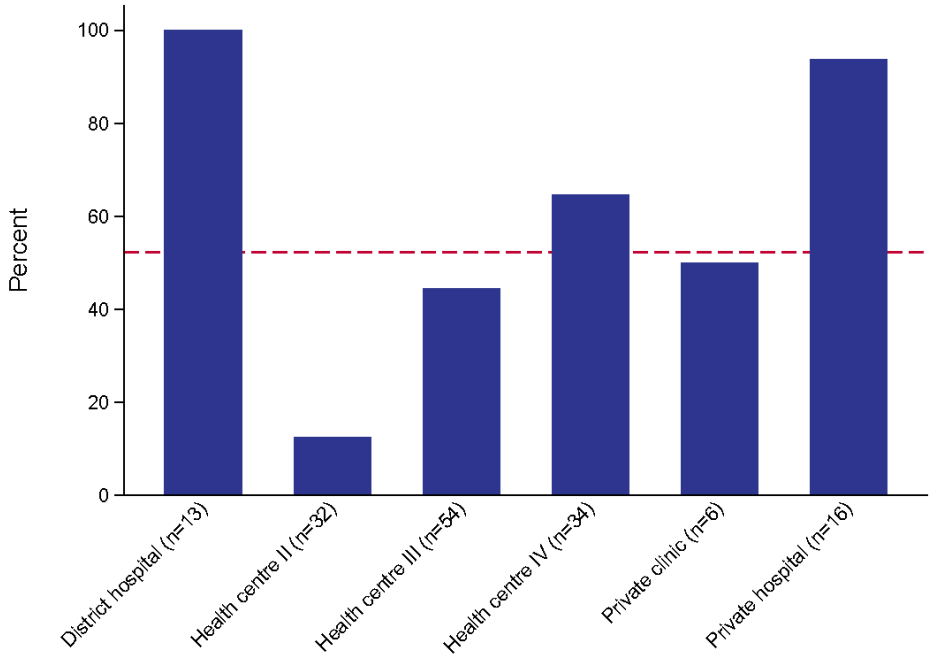

Regarding M&E tools, official immunization cards were available in less than 80% of all other health facility platforms except district hospitals (Figure 14). Tally sheets were available in only 60% of private clinics in the survey sample. Availability of M&E tools including immunization cards, AEFI tools, child registers, vaccine control books and tally sheets was disparate across health facility platform types. In particular, AEFI forms were lacking across all facility types with only about 40% of all facilities reporting availability of these tools. Child registers, official vaccine and injection control books were also notably lacking in health center IIs and private clinics at 45% and 25% respectively.

Figure 14: Percent of facilities with AEFI forms and immunization cards, Uganda HFS



We explored existing vaccine delivery systems and found that among public facilities, health center IIs had the least access to any vehicle for purposes of immunization compared to all other facility platforms (Figure 15). This was further supported by the fact that facilities located in rural areas were least likely to have any access to transportation.

Figure 15: Percent of facilities with access to any vehicle for vaccination, Uganda HFS. *The red dashed line on the HFS graphs represents the mean across platform types.*




*Recommendations*

1. MoH/UNEPI and partners should ensure that the good practices, interventions responsible for the improved immunization performance are reflected in the Gavi HSS design.

2. MoH/UNEPI should consider data on geographic inequalities in vaccine coverage and existing deficiencies in the immunization system such as those noted by the Gavi FCE but also other mechanisms such as the Joint EPI review when designing the Gavi HSS proposal.

## Cross-stream analysis

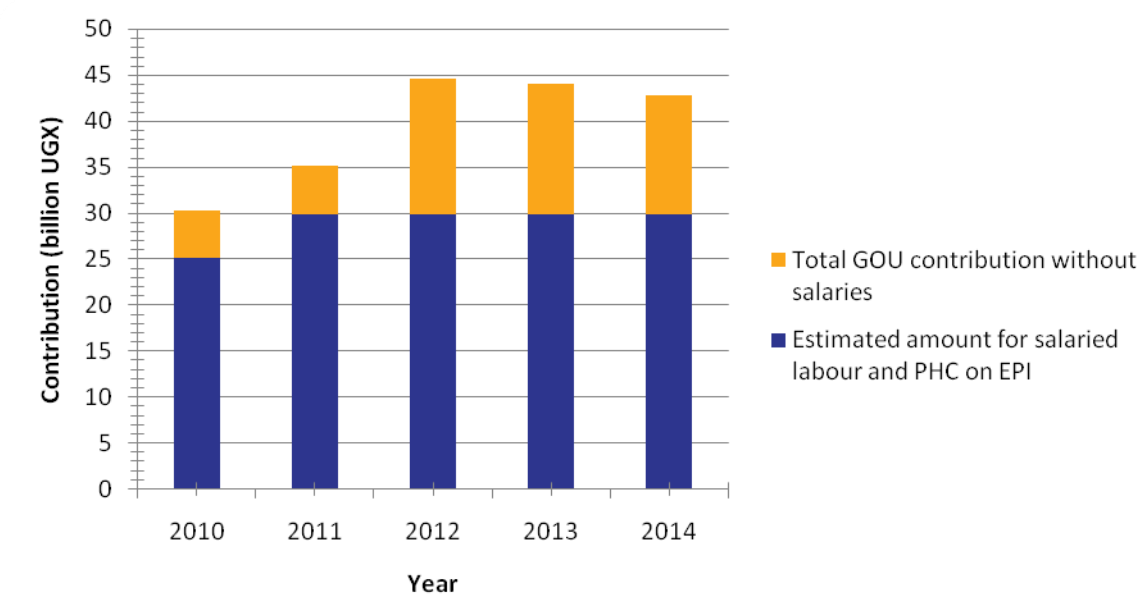
### Major point 1

*Uganda has faced challenges in adequately financing immunization operational activities, managing the available funds, and planning for financial sustainability of the immunization program.*

#### *Adequacy*

A five-year trends analysis from the Gavi FCE resource tracking study and the Bill & Melinda Gates Foundation immunization costing study shows that funding for immunization has been progressively increasing in absolute terms. The GOU has been the greatest contributor towards immunization activities, primarily because of its contribution to salaried labor at district level. However, we see a decline in GOU's contribution between 2012/13 and 2013/14 by 1.2 billion UGX. Figure 16 shows the total resources provided by GOU including expenditure on traditional vaccines, expenditure for UNEPI, and salaried labor and proportion of PHC funds spent on immunization at the subnational level. The decrease in GOU's expenditure between 2012/2013 to 2013/14 can in part be attributed to GOU's outstanding balance for the obligation of PCV co-financing for the FY 2013/14 (discussed further below). The graph further shows that GOU contribution towards primary health care (PHC) has remained constant since 2011. In light of multiple new vaccine introductions, as well as the need to increase coverage rates due to population growth, the decline in GOU's expenditure is a big concern to adequacy of financial support for the immunization program. As we note in the report, there was insufficient funding put up by the GOU for the measles campaign, so they decided to combine the measles campaign with HPV national introduction. Tagging several SIA activities to the HPV VIG compromised the original planned HPV activities with potential negative consequences.

Figure 16: GOU's contribution (billion UGX) to immunization activities from 2009/10 to 2013/14




*Source: Resource Tracking for Immunization in Uganda 2013/2014*

*Management*

In addition to the recurrent financial management challenges reported in 2013 and 2014 Gavi FCE reports, especially delayed disbursement of money from national to subnational levels due to challenges with the integrated financial management system (IFMS), bureaucratic local government systems, and misalignment of country systems with Gavi processes, the country is experiencing difficulty in meeting its co-financing obligations. For example, Uganda did not pay all its co-financing obligations by December 31, 2014 and as such was declared a defaulter. Uganda government ministries and departments operate through a fiscal year that runs from July 1 to June 30. The MOFPED releases money to different ministries in installments on a quarterly basis. Gavi expects the country to have fully paid all its co-financing obligations by December 31 (as Gavi works on a fiscal calendar year cycle) but this falls in the second quarter of the country fiscal year and as such MoH would not have received all its budgetary allocation by then. The country had always paid all its obligations because the money released in the two first quarters was sufficient to cover the annual co-financing obligations. But due to addition of a new vaccine (PCV), this is no longer possible. In addition, the evaluation established that last year MoH faced several competing priorities like payment of intern doctors who had gone on strike and pension arrears which had accumulated to astronomical levels. Therefore, MoH used a bigger proportion of money received in the first two quarters to pay off intern doctors and pensioners, leaving no money for co-financing. These findings for Uganda are also reflected in other countries as highlighted in a recent evaluation of Gavi's co-financing policy[7] which found that in-country procedural challenges – as highlighted in Uganda's quarterly budget procedures – were a common reason for default. A second emerging reason is vaccine stacking, i.e. countries taking on additional co-financing requirements due to newly introduced vaccines – as highlighted in the case of Uganda taking on additional co-financing payments due to the introduction of PCV.

*Recommendations*

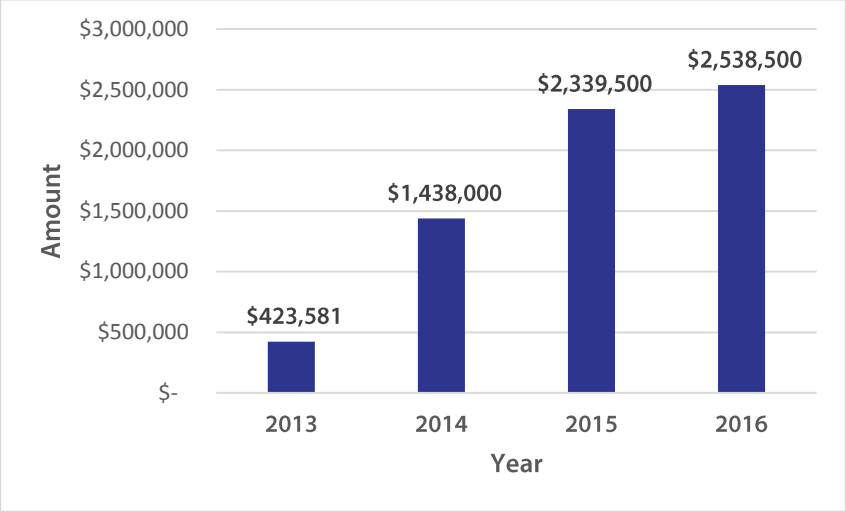
1. Gavi should initiate dialogue with the Uganda MoH on possible options to avoid a future co-financing default, including:
    - Allowing co-financing payments to spread across the year in alignment with the quarterly budget cycle in Uganda; and
    - Supporting the Uganda MoH request to the Ministry of Finance (MOF) to frontload committed monies for co-financing to MoH in the first quarters of the fiscal year before the December 31 deadline.

[7] Gavi, the Vaccine Alliance, "Co-Financing Policy Evaluation."

*Sustainability*

Over the years, the immunization budget has tremendously increased especially because of the co-financing obligations due to multiple vaccine introductions (Figure 17).

Figure 17: Annual co-financing obligation in Uganda based on Gavi decision letters ($US)




At the same time, findings from the 2014 FCE resource tracking study show that overall government contribution towards immunization has reduced since 2012 (Figure 16). Inevitably, this has resulted in co-financing challenges and insufficient operational funds to implement numerous EPI activities as noted in the section on HPV vaccine (p. 29).

The co-financing challenges have raised debate among in-country immunization partners on the ability of the country to sustain the ever increasing immunization budget with each new vaccine added. This was reflected by the NITAG's demand for the MoH to clearly calculate the additional operational costs required for the introduction of rotavirus and meningitis A vaccines and explain how those funds would be raised.

Although not yet developed, there is growing recognition within the country that they need to develop a financial sustainability plan. The 2015 Uganda Joint Appraisal Report (JAR) includes a request for TA to develop a financial sustainability plan and an investment and sustainability plan for EPI.

*Recommendation*

1. We reiterate the recommendation noted in the rotavirus and meningitis A section and the immunization finance review: Uganda should develop a long-term immunization financing sustainability plan, as recommended by the UNITAG and review findings. Each proposed new vaccine introduction should be considered in light of this sustainability plan.

## Major point 2

*Limited human resources within UNEPI has led to a reliance on short-term technical assistance to support program activities. Sourcing TA from consultants who are familiar with the country context and engaging stakeholders in a participatory process has resulted in positive TA experiences. An important focus, however, is to increase human resource in terms of numbers of UNEPI to undertake these activities with minimal technical assistance.*

The findings of this evaluation show that understaffing at UNEPI has greatly affected the implementation of the various Gavi streams. The thin team at UNEPI is often overwhelmed by the numerous competing immunization activities. As a coping mechanism, in 2015 UNEPI with funding from CHAI sought out technical assistance in the form of consultants to develop the country Multi Year Plan (cYMP), the applications for new vaccine support for Rotavirus and Men A vaccines and the new HSS-2 application to be submitted in January 2016. These TA needs were identified in advance and included in the 2014 JAR. The country has so far had positive TA experiences since the hired consultants have been familiar with country context and the local stakeholders, have been based in-country, and have engaged those stakeholders in a participatory process. This stands in contrast to other FCE country experiences, where external TA providers (i.e., individuals from outside the country) have shown less familiarity with local programmatic, policy-relevant, and contextual factors, as was the case for the HSS application in Zambia and Bangladesh and for the HPV demonstration project in Mozambique. While the TA in Uganda has been positive, it will be important to build additional capacity within UNEPI itself to meet these requirements.

*Recommendation*

1. With multiple vaccine introductions and enhanced SIAs, there is a need to strengthen UNEPI's staff numbers and technical capacity. MoH should consider reviewing the UNEPI structure so as to increase staff numbers thus address sustainability. Technical assistance provided by partners should aim at empowering UNEPI and MoH to own and fully take responsibility for all immunization activities to ensure sustainability.

## Major point 3

*Poorly communicated changes to Gavi processes have created confusion among country-level stakeholders, in some cases delaying implementation of Gavi funds. Although Gavi missions can be an efficient means of communication, numerous unplanned missions in quick succession have overburdened the small EPI team.*

Looking at the findings across the various streams of Gavi support in Uganda, we observe that communication gaps between Gavi and the country affected smooth implementation of Gavi support. This contrasts with the FCE findings of 2014, where most stakeholders observed that communication between Gavi and the country had improved tremendously, especially regarding in-country meetings to develop the 2014 Joint Appraisal Report (JAR). Unlike the 2014 JAR, when a team from Gavi held in-country meetings to discuss the Annual Performance Report (APR), this year's appraisal was remote via Skype call with Gavi. The change of approach was not properly communicated to in-country stakeholders. This created confusion, especially coming at a time when Gavi had made changes from the APR to JAR. UNEPI and country partners were not fully conversant with the new appraisal processes, and this confusion led them to submit both an APR and JAR which was an unnecessary duplication of effort.

In another instance, Gavi recommended revisions to the HSS plan and budget which required a new approval process that was not well understood by country stakeholders, leading to a delay in HSS implementation. Following the February 2015 Gavi mission, the country was advised to develop a revised HSS work plan and budget in view of the fact the all HSS activities could not be implemented in the remaining four months before the end of the HSS window. This was not a formal reprogramming (a process the country had undertaken before) but was referred to as a ‘soft’ reprogramming. The country

submitted the revised HSS work plan and budget to Gavi in March 2015, but no formal response was provided by Gavi. The process of approval of revised budgets was not clear to EPI officials. Yet all HSS activities had been halted waiting for approval of the revised budget and the delays led to postponement of the HPV vaccine roll out due to the shortage of vaccine storage space.

Once a new SCM was appointed, the country has received numerous Gavi missions in quick succession. EPI officials mentioned that the purpose of these missions wasn't clearly communicated ahead of time to allow for adequate preparation. It was noted that Gavi missions are so engaging thus stretching the already thin UNEPI team. This and other competing priorities for the immunization program, contributed to the decision to hire consultants to complete the cMYP as well as the rotavirus and meningitis A vaccine introduction proposals.

*Recommendation*

1. We reiterate the recommendation noted under the HSS section: Gavi should ensure timely communication to countries about SCM transitions and move expeditiously to fill these posts or assign substitutes in the meantime.

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