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Evaluation of GAVI Immunization Services Support Funding

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Acronyms

AED	Academy for Educational Development
CCM	Country Coordinating Mechanism
CDC	Centers for Disease Control
CIP	Coverage improvement planning
CVP	Children's Vaccine Program
DfID	Department for International Development (UK)
DMO	District Medical Officer
DQA	Data Quality Audit
DTP	Diphtheria, Tetanus, Pertussis vaccine
EPI	Expanded Program on Immunization
FSP	Financial Sustainability Plan
GAVI	Global Alliance for Vaccines and Immunization
GFATM	Global Fund for AIDS, Tuberculosis and Malaria
HIS	Health Information Systems
ICC	Inter-agency Coordinating Committee
IRC	Independent Review Committee
ISS	Immunization Services Support
JRF	WHO/UNICEF Joint Reporting Form
JSI	Jereo Salama Isika project (Madagascar)
LFA	Local Fund Agent
MCV	Measles containing Vaccine
MNT	Maternal and Neonatal Tetanus
MOH	Ministry of Health
MYP	Multi-Year Plan
NGO	Nongovernmental organization
NIP	National Immunization Program
PATH	Program for Appropriate Technology in Health
PR	Principal Recipient
PRSP	Poverty Reduction Strategy Paper
SC	Steering Committee
TT	Tetanus Toxoid
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VF	Vaccine Fund
WHO	World Health Organization

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Executive Summary

The Global Alliance for Vaccines and Immunization (GAVI) is an alliance involving multiple partners from the private and public sectors, dedicated to improving health and saving the lives of children through the support of widespread vaccine use. GAVI provides support to immunization programs through the Vaccine Fund (VF) in the form of in-kind support for the introduction of new vaccines, in-kind and cash contributions for injection safety, and cash contributions for immunization services support (ISS). Routine immunization is primarily supported through ISS funding, which is the focus of this study. In order to be eligible for ISS grants, countries must have a per capita gross national income of less than \$1,000 (which includes 75 of the world's poorest countries) and DTP3 coverage rates below 80 percent.¹

ISS funding is an innovative performance-based strategy that makes continued funding conditional upon improved performance and high quality coverage data. This strategy allows countries and governments to spend ISS funds in any manner they deem appropriate, but funding in later years is based on increases in the number of immunized children. Countries are approved for five years of support, usually including new vaccines, safe injection supplies, and ISS funding. While the calculation of funding or in-kind support is based on five year projections, for many countries, the period of support is extended over seven years. ISS funding for the first "year" is paid in installments over three years and is considered investment funds. The final four years is comprised of reward funding. The reward funding is calculated at \$20 per additional child² receiving DTP3 above the number of children in the baseline year, defined as the year prior to its application year. The reported number of children immunized with DTP3 is verified through a Data Quality Audit (DQA) conducted by GAVI-retained external auditors. Reward funding is contingent upon both increasing the number of children immunized with DTP3 and on achieving a verification factor of 80 percent on the DQA. If a country does not achieve the 80 percent verification factor on its DQA, it may work to improve data quality and becomes eligible for reward shares if it passes a subsequent DQA.

Countries applying for ISS funding in the first round of applications in 2000 became eligible in 2004 for four years of reward share funding, based on the actual number of additional children immunized with DTP3. Countries that failed the DQA were declined reward shares, and those that passed the DQA and increased the number of children immunized began to receive reward shares in 2004.

As of December 2003, US \$38 million of ISS funds had been disbursed to 50 countries, with as much as \$332 million to be disbursed in the first five-year phase of GAVI. Because of the magnitude of this funding and the innovative, yet untested, performance-based design of this support, the GAVI partners and Board commissioned this study to examine how the ISS mechanism, as it is currently configured, operates in practice and to determine its impact to date. The overall aims of the evaluation are to assess the performance-related funding scheme for immunization services support in furthering GAVI's objectives, and to identify ways to improve it.

GAVI established a study Steering Committee including representatives from the GAVI Secretariat, USAID, DfID, WHO, UNICEF, Centers for Disease Control and Prevention (CDC), and the Global

¹ GAVI has made exceptions for some countries whose coverage exceeds 80 percent.

² \$20 represents an estimate of the cost of fully vaccinating a child.

Fund for AIDS, Tuberculosis, and Malaria (GFATM) to guide the evaluation of the ISS funding mechanism. Abt Associates carried out the evaluation together with the Academy for Educational Development (AED). The Steering Committee was involved throughout the evaluation process and reviewed a draft version of this report.

The main areas of evaluation are:

1. Implementation and management of ISS funds
2. Use of ISS funds at country level
3. Impact of ISS funds on performance of the immunization program
4. Factors affecting successful implementation of the ISS scheme and improved performance
5. Cost of administering ISS scheme
6. Comparison of GAVI and GFATM application process and impact on the health system

In discussions with the Steering Committee, it was agreed that while the impact on immunization programs should be the focus of evaluation, to the extent possible, evaluation of the similarities and differences between the GAVI and GFATM application processes and their impact on health systems would also be included.

Approach and Methods

The findings of this evaluation are based on a desk review of GAVI documents and in-depth case studies. Countries analyzed in the desk review are the 52 countries that have been approved for ISS funding by December 2003. The six country case studies include countries with early ISS approval, chosen by the Steering Committee in an attempt to gain a cross-section of experiences through diversity in immunization performance and eligibility for ISS reward shares – it includes three countries that were eligible and three that were ineligible for reward shares. The desk review provides an overall picture of country experiences with ISS funding and performance, while the country case studies provide more country contextual information, qualitative information regarding allocation decisions and experiences with ISS funding, and more in-depth analysis of actual impact on immunization program performance.

Of the 52 countries, 33 had received funding as of June 2002. This date is used as the cutoff point for our analysis as earlier analysis using 2002 data (done before 2003 data was available) found that funds cannot be immediately programmed and that meaningful impact cannot be measured within a short time period. Data analyzed in the desk study come from the UNICEF/WHO Joint Reporting Form (JRF), the primary source of data for coverage results, and documents from the GAVI Secretariat, including country applications, Progress Reports, FSPs, DQA reports, and documents recording the dates of country approval, decision letters, receipt of country bank information, and funding transfers. The steering committee agreed to focus on DTP3 coverage and the number of children vaccinated with DTP3 as the principal indicators of performance. In our analyses the baseline year is defined as the year prior to first tranche funding. As coverage reports may vary significantly, the steering committee agreed to use the official country estimates as reported in the JRF as the basis for analysis in the desk study. The most recent coverage data available at the time this report was written were from 2003, however, these are still provisional figures and are subject to change. Data for measles and, when available, TT2+ and DTP1 are also considered.

The six countries chosen for the case studies were Cambodia, Kenya, Madagascar, Mali, Mozambique, and Tanzania. Two key criteria (among others) in selection of countries were including early ISS recipients and including both countries who will and will not receive reward shares this year. Cambodia, Mali, and Tanzania will be receiving reward shares, while Kenya, Madagascar, and Mozambique will not be receiving reward shares at present. These countries were all in the first round of applicants to GAVI (applying in June 2000), although Cambodia did not apply for ISS funding in its initial application. These countries received their first tranche of ISS funds between November 2000 and February 2002. Data from these countries were collected by a two-person study team composed of a financing expert and an immunization program implementation expert in country for two weeks during the months of April and May 2004.

Discussion of Findings

Through the desk review and the country case studies, we have compiled a substantial body of data regarding management of the ISS mechanism, how ISS funding is being used, its impact on the immunization program, and factors that may be contributing to more effective use of funds. In some cases, the data collected, combined with the study team's judgment and experience, provides a clear direction for moving forward, or for types of analyses or monitoring that would be useful in the future. In other cases, we must recognize that the data are limited and describe a short timeframe, and we must be careful when formulating conclusions. In this section, we discuss the strengths and limitations of our findings, and provide recommendations on how to move forward.

Implementation and Management of ISS Funds

This discussion of the initial stages of implementation must be prefaced with the reminder that the case study countries were all first round GAVI applicants, so they were subject to all of the start-up issues related to sorting out the details of a new funding mechanism. The initial application process was marked, to some extent, by lack of clarity and processing delays. For the most part, that phase of GAVI/ISS is over. In most case study countries, that first set of actors has moved on to other assignments, and the National Immunization Program (NIP) staff and ICC members who currently implement the ISS mechanism were not involved at the initial stages. With the exception of the baseline figures provided in one country's application, there do not seem to be major issues related to ownership of the application process that is affecting current implementation.

The issue of baseline data submitted at the time of application is an important one, as it determines the amount of reward shares, or even whether reward shares will be forthcoming at all. For one case study country, because the baseline year DTP3 estimates came from coverage survey data that greatly exceed routine administrative data, it is unclear that the country will ever be able to receive reward shares. We are unable to determine whether this country was the one exception among GAVI recipients or whether any other countries are in the same situation.

There appears to be good understanding of the mechanism for calculating reward shares within the NIP, and generally among ICC members (although this was not the case in one country). With the exception of one country, this understanding is only at the central level, and there is very limited understanding at subnational levels. Overall, it does not appear that the concept of maximizing reward shares is a high priority in the programming of ISS funds. We can only speculate as to why more attention has not been paid to the reward shares. There may be insufficient individual incentive to maximize on the reward. Or, perhaps this type of incentive is so unusual within public health that there is not a real grasp of its implications yet. The validity of the latter reason will be tested now that

countries have actually received (or been denied) reward shares – the concept should now “sink in.” With this in mind, it does not appear that the reward shares have really served as a strong incentive up to now, although it should be noted that in the one case study country with high awareness of the reward system at multiple levels, funds for subnational activities were directed so as to maximize gains in the numbers of children immunized, ie, targeted to relatively populous areas.

There have not been problems accessing ISS funds at central level in country – although in some countries with decentralized management systems, there has been difficulty accessing funds at district level. ISS funding was generally managed outside of the normal government funding mechanisms. Although the MOH was often responsible for managing the funds, their release would be “fast-tracked” by signature of senior officials. Despite lack of specific requirements, most countries have in place adequate financial reconciliation procedures. Full compliance with these procedures is an issue in some countries, although there is no evidence of misuse of funds.

Allocation and Use of Funds at Country Level

Across the case study countries, there was great variety with respect to how ISS funds were allocated. Countries used quite different criteria for allocating funds among districts. Some countries targeted underperforming districts, while others targeted districts with high number of unimmunized children, and yet others provided funds to all districts for political and “fairness” reasons. One country did not allocate cash to districts at all, but purchased commodities that the central level then distributed to districts. In two case study countries, there were no records of ISS disbursements to districts that specified which districts received how much ISS money, and when. Given only six case study countries, and the short timeframe for study, it is not possible to see any association between different allocation procedures or criteria with performance.

In most countries, the allocation process appears systematic and strategic. Countries used funds to address specific obstacles identified and to implement coverage improvement strategies. Where allocation processes seemed less thoughtful and transparent, the country ICCs seemed less coherent and functional. Although ICCs were not always involved in the actual design of the allocation process – even in countries with strategic allocation – they were aware of, and supported, the process. This finding is important because GAVI has not directed ICC involvement in management of ISS funds in the same manner as they have directed ICC involvement in developing the application or the Financial Sustainability Plan (FSP), although the ICCs sign Progress Reports indicating some involvement in monitoring the use of funds.

Aggregate data across the subset of 33 early recipients indicate that ISS funding is largely used for recurrent expenses (81 percent of expenses), and at subnational levels (68 percent of expenses). The highest expenditure categories were training (21 percent), monitoring and surveillance (11 percent) and vehicles (9 percent). While the information contained in progress reports suggests that outreach is not a major category for use of ISS funds, the experience from country case studies shows that the purchase of vehicles and payment of per diems, both of which constitute major categories of use, are applied largely to the provision of outreach services. Across the desk study countries, 62 percent of ISS funding disbursed has been spent.

One of the unique and most valued characteristics of ISS funding is the complete flexibility and discretion given to NIPs regarding how and when to program funding. The true value-added of ISS funding would be significantly diminished if GAVI were to prescribe to countries how to use this funding, or required funds to be disbursed within a specified time period.

While experience varied across countries, the use of ISS funds seems to reflect the under-funding of some critical areas, which previously hindered the implementation of performance improvement strategies. To the extent that ISS funding has been able to fill gaps in funding or to allow the immunization program to function in times of crisis, it does support the immunization program and contributes to coverage, when funds are available. At the same time, immunization programs risk becoming dependent on ISS funding for some expenditures, rather than addressing systemic issues causing funding shortfalls that compromise coverage. This point is particularly important given the limited implementation of FSPs to date – sustainable financing is critical to maintaining the progress made with current ISS funding.

Impact of ISS Funds on Immunization Program Performance

The picture that emerges regarding changes in coverage is somewhat mixed. Overall, 23 of 33 earlier recipient countries in the desk review showed positive trends in numbers of children immunized with DTP3 between their baseline year and 2003, while 23 of 33 countries showed increased numbers of children immunized against measles from baseline year to 2003. To eliminate the impact of increases in the number of children immunized that result solely from population growth, the number of children immunized in 2003 is adjusted based on the population growth rate. Adjusting for population growth, these numbers are slightly deflated, with 17 countries showing any improvement in the number of children vaccinated with DTP3 and 18 showing improvement in doses of measles administered. The picture is similar for DTP1-3 dropout rates – out of 23 countries for which changes over time could be analyzed, 14 showed a decrease while nine showed an increase in dropout rates. The ISS indicator of number of children immunized with DTP3 does not appear to be adversely affecting performance of other antigens. GAVI's focus on DTP3 does not appear to have diverted attention away from other antigens administered to children, but seems to be relatively unrelated to trends in TT2+ coverage.

Immunization data quality and completeness were a major problem in most of the case studies, further complicating any conclusions regarding changes in performance. The problems with data quality are country specific, with irreconcilable data from different sources, and often no clear indication of which source is most reliable. In this regard, ISS funding and the structure of reward shares is having impact, as some countries that failed their DQAs are making substantial efforts to improve the quality of their immunization data.

With the exception of Cambodia, case study countries did not allocate funds in order to reach the highest number of children or maximize reward shares. As discussed earlier, the full implication of reward shares may not have been truly understood until this year when the first reward payments were made. Even so, those countries that were declined reward shares may experience little change at field level in the near term as they are stretching out their ISS disbursements, while those receiving reward shares have little reason to become more preoccupied with this indicator. Case study countries generally did not undertake any special effort to target the “hard to reach,” except to the extent that a significant portion of funding supported outreach efforts. Although the ISS reward has the potential to serve as a disincentive to investing funds to reach small disadvantaged populations, countries for the most part did not strategically plan either to ignore, or reach out to, the hard to reach.

Introduction of new vaccines did not seem to adversely affect program performance in case study countries, except in Kenya. Shortages of pentavalent vaccine there affected not only ability to reach

ISS targets, but also reportedly eroded community confidence in immunization services because of frequent stockouts that disrupted services.

There have been several positive changes related to financing of immunization programs – total funding for immunization has increased, total amount of government funding for immunization has increased, and ISS funds have not replaced other funding in most countries. All three of these findings mean that the trend in financing is moving in the right direction, but large gaps are expected once VF support ends. The limited implementation of FSPs, and in some countries, the decline in ICC engagement in immunization activities, are reasons for concern.

Overall, the results are inconclusive when comparing the performance of ISS recipients with a convenient similar group of countries. We also attempted to compare performance for recipient and non-recipient districts in three case study countries, but the analysis was extremely limited and difficult to interpret due to lack of complete data. Further, it is not possible to attribute changes in performance of recipient countries to ISS funding. However, on a country by country basis, we see that ISS funds appear to be related to modest improvements in performance, but again specific attribution is not possible because other funding may have been forthcoming in the absence of ISS funds.

Factors Affecting Successful Implementation and Improved Performance

Several key factors emerged that contribute to successful implementation of ISS funding. The presence of a coherent ICC and strong technical capability within or easily available to the NIP appeared to be the key factors determining strategic allocation of funds. From the country case studies, the use of ISS funds appears most promising where they provide the financial means to implement locally-appropriate technical strategies to strengthen routine immunization – the ISS funds transform a plan into reality. The accessibility of funds depended mostly on whether funds were held in NIP accounts, or accounts specifically set up for GAVI provided funds. Monitoring of funds was generally stronger where the central level programmed the funding, with or without district input.

Some differences emerged when analyzing the characteristics of countries with improving and declining performance. Countries receiving funding earlier were more likely to show performance improvements, which suggests that it requires some time for performance improvements to occur at a level that is measurable. Across the 33 desk review countries, those with improved performance spent more of their ISS funds on transport, IE&C, and vehicles, relative to countries with declining performance, who spent more on maintenance and overhead, personnel and cold chain. Countries with improved performance also spent more at subnational level, and had larger increases in government contribution. Countries with declining performance spent a larger portion of their ISS funding. In each of these instances, however, it is not possible to describe what other changes occurred, independent of the spending of ISS funds, nor what other funding was available and how it was used.

While these findings are valuable, and provide insight on best practices, it is not advised to use them for developing prescriptions for countries. These findings do not mean that if countries were given more ISS funding, and if the NIP controlled the funds, and spent money on transport and vehicles, performance would improve. Within the appropriate context, these findings do highlight better ways to manage ISS funding and to allocate it to produce more immediate outcomes.

Cost of Implementing the ISS Scheme

Countries did not view the cost associated with managing the ISS scheme to be burdensome. The cost of ongoing administration is minimal, particularly because GAVI has almost no requirements for financial reporting. To-date, the two costliest activities are related to preparation of the FSP and conduct of the DQA, although the cost of the FSP is not specific to ISS funding but is required for all GAVI support and the cost of the DQA is borne by GAVI. Given the minimal reporting requirements imposed by GAVI, future work to analyze the cost effectiveness of this funding mechanism compared with other donor funding targeted toward immunization would be valuable to inform immunization financing policy.

Comparison of GAVI and GFATM Application Process and Impact on Health System

ISS and the GFATM funding share certain common characteristics and requirements, such as a performance-based calculation of awards and country coordinating committees. While there may be similarities in the structure of the funding processes, the scope of the GFATM is much broader, leading to more complex processes and the involvement of a much wider range of organizations. It is not surprising that GAVI ISS processes were perceived as being a bit more manageable, even though both applications required a great deal of effort and coordination. We do not have data to analyze the impact on the health system of these two funding schemes, but it seems likely that the impact of GAVI on the overall health system is relatively insignificant given the magnitude of funding, compared with the GFATM funding, which in some cases is greater than the public health budget.

Recommendations

Based on the data presented, we provide our recommendations below, grouped into those that have broad design and evaluation implications, and those targeting implementation improvements.

Recommendations Related to Design, Impact, and Evaluation

1. **GAVI should continue to provide ISS funding, but ongoing monitoring and evaluation is needed.** In most of the countries visited, ISS funding shows signs of having the effect that GAVI sought – countries are spending funds in response to identified needs, targeting areas in need of support. There is a complex pathway between getting additional funding and realizing improvements in outcomes. More time is needed to see whether there will be broad positive impact on NIP performance. There are some indications of performance improvements and countries appear well-positioned for further improvements, which would support continuation of ISS funding. However, future evaluation is recommended to confirm or re-assess findings.
2. **GAVI should continue its current approach toward ISS funding that provides flexibility.** The complete flexibility of GAVI funds is its most valuable characteristic. It allows NIPs to use funds when and where they are most needed – to operationalize locally-appropriate strategies for improving performance and in response to acute problems. ISS funding allows strategic plans to become a reality. Overall, funding allocations and expenditures seem appropriate to address obstacles identified. Efforts to direct the use of funds would erode a unique and valuable characteristic of ISS funding.
3. **Additional financial monitoring at global level is unnecessary, but support to improve monitoring at country level may be useful.** Countries have established reasonable procedures for disbursing and monitoring funds. There was no evidence of misuse of funds

in case study countries. This evaluation did find incomplete financial reporting from subnational to national level in two countries. Nonetheless, additional financial monitoring at global level does not appear necessary at this time and may not be cost-effective, but support to improve monitoring at the country level may be useful in some countries.

4. **GAVI should monitor any changes in the use of funding, particularly now that rewards are a reality and countries may become overly focused on maximizing the reward, rather than the overall program.** There was no evidence of countries inflating DTP3 figures or strategically ignoring the “hard-to-reach” – two inherent risks of the ISS incentive structure. While there was good understanding of the reward structure at central level, there was little awareness at subnational levels. In the one country where there was awareness of the reward structure at all levels, funds were targeted toward the most populous areas. Now that the reward shares are a reality, countries may become more focused on this incentive. Diligent monitoring of the use of funds is particularly important to ensure that countries do not focus on the DTP3 indicator to the detriment of the overall program – ie, ignoring hard to reach populations or long-term training needs.
5. **ISS funds have been additive to overall funding and government contribution is increasing, but ongoing monitoring is necessary.** Overall trends have been positive, although they cannot be attributed to ISS funding or GAVI. Nonetheless, ongoing monitoring is necessary to track these trends over time.
6. **Support for the implementation of FSPs should be given high priority – it is critical not only to sustain new vaccine, but also for routine immunization.** Country reliance on ISS funding to support operational costs of routine immunization has important implications for long-term sustainability. ISS funding allows countries in the medium term to circumvent systemic problems causing funding shortfalls that compromise coverage. Over the long term, however, support to implement FSPs at the country level, coupled with changes in global level financing policies, are required to sustain improvements achieved. It is recommended that GAVI continue to support efforts to ensure the implementation of FSPs – the gains in immunization performance that may be attained in the short or medium term with ISS funds can only be sustained over the long term with a secure funding base.
7. **GAVI should support efforts to improve data quality, taking advantage of the current focus and momentum on this issue.** The DQA appears to have had significant impact in motivating countries to address the problem of data quality, which has long been recognized but the subject of little action. Although NIPs are highly motivated to make improvements, technical assistance is necessary. It is recommended that GAVI partners provide follow-up technical support to countries, not only to improve data quality but also to increase the capacity to use data for management. It is also recommended that GAVI partners actively document, evaluate, and promote the exchange of experiences of different countries in addressing this problem.
8. **GAVI should evaluate the cost-effectiveness of the ISS funding scheme.** The ISS funding mechanism has low administrative costs. In addition, funding flexibility contributes to the value of this funding, which may ultimately translate into impact. The cost effectiveness of this model for donor funding has not been evaluated, although it had already been adopted by other global funds. Analysis of the cost-effectiveness of ISS

funding, particularly in comparison with other models for donor funding, is recommended both to inform GAVI policy as well as for potential use in advocacy.

Recommendations Related to Implementation

9. **GAVI should provide opportunities for the discussion of varied country experiences, including dissemination of findings from this study.** Allocation and use of ISS funds has varied widely, with some countries targeting low performing areas while others focused on equity in distribution of funding. Some countries have been more strategic in their planning than others. It is recommended that GAVI support discussion of country experiences, cross-country learning and application of best practices.
10. **GAVI should establish a mechanism for strengthening ICCs.** Countries that had more strategic allocation of funds tended to have more coherent ICCs. Although ICCs were not closely involved in the allocation process, they were aware of and supported the process in more strategic countries. Stronger ICCs also support better communication and planning. GAVI should encourage more ICC involvement in managing ISS funds, and establish a mechanism for providing external support to strengthen their capacity and role in countries with weak ICCs.
11. **GAVI should improve its communication of procedures and policies – including communication in multiple languages and broadening the group of individuals who receive communications at country level.** Communication to the operational level within GAVI partners and among the ICC members was sometime insufficient. Staff turnover is high so there is little institutional memory. There were also some misunderstandings that resulted from language issues, and from the lack of clear descriptions of ISS policies. The study team also found that in one country, the impact of pentavalent shortage was not reflected to global level. We recommend ongoing communication of its procedures and policies related to ISS funding to countries and WHO and UNICEF regional offices, preparing clear and concise explanations of procedures in multiple languages, broadening the number of ICC members to whom GAVI communications are sent – copying more ICC members in communications, including communications regarding anticipated funding, transfer of funds, etc.
12. **Without increasing GAVI reporting requirements, GAVI should encourage countries to monitor appropriate process indicators that describe progress toward longer term objectives.** GAVI seeks data from countries only on financial inputs, performance outcomes, and data quality. Because the path between financial inputs and performance outcomes is complex and varies by country, careful evaluation and management of the intermediate steps can improve outcomes. It is recommended that GAVI encourage countries to monitor process indicators that measure progress toward country specific objectives – eg, increases in supervision visits, number of outreach sessions, or timeliness of district reporting.
13. **GAVI should consider revising the format of the Progress Reports to allow easier monitoring of some key areas.** The team does not wish to increase the reporting requirements of countries to GAVI, but at the same time realizes that information in progress reports is limited and that the categories for expenditures in the current reporting format is a mix of inputs and activities. This can lead to such things as underestimation of

funding to support outreach, as it appears both as outreach and sometimes as personnel or transport. Also, the line items do not provide any insight on the strategies pursued. It is suggested that GAVI consider developing and field testing alternative designs to the reporting format.

14. Consider implementing a formal appeals process related to awarding reward shares.

An appeals process would allow countries who dispute baseline values (established by their predecessors) or who have demonstrated significant progress (in ways that are not captured in the number of children immunized with DTP3) to qualify for reward shares. It would also improve the transparency related to decisions made to reward countries that do not “technically” qualify for reward shares.

1. Background to the Study

The Global Alliance for Vaccines and Immunization (GAVI) is an alliance involving multiple partners from the private and public sectors, dedicated to improving health and saving the lives of children through the support of widespread vaccine use. GAVI partners include WHO, UNICEF, the World Bank, the Bill and Melinda Gates Foundation, bilateral aid organizations, governments, research institutes and foundations, nongovernmental organizations, and vaccine industry representatives. GAVI provides support to immunization programs through the Vaccine Fund (VF) in the form of in-kind support for the introduction of new vaccines, in-kind and cash contributions for injection safety, and cash contributions for immunization services support (ISS). Routine immunization is primarily supported through ISS funding, which is the focus of this study.

In order to be eligible for these GAVI grants, countries must have a per capita gross national income of less than \$1,000 (which includes 75 of the world's poorest countries) and DTP3 coverage rates below 80 percent.³ To receive GAVI support, eligible countries must submit an application to GAVI and have in place three conditions: 1) an inter-agency coordination committee (ICC); 2) a review of its immunization program conducted within three years of the application year; and, 3) a multi-year plan for its immunization program. Applications are reviewed by an independent review committee (IRC).

ISS funding is an innovative performance-based strategy that makes continued funding conditional upon improved performance and high quality coverage data to encourage countries to make the necessary allocations and immunization investments to vaccinate more children. This strategy allows countries and governments to spend ISS funds in any manner they deem appropriate, but funding in later years is based on increases in the number of immunized children. Many organizations became interested in this new approach, and the Global Fund for AIDS, Tuberculosis and Malaria (GFATM) followed suit by implementing its own performance-based grants.

Countries are approved for five years of support, usually including new vaccines, safe injection supplies, and ISS funding. While the calculation of funding or in-kind support is based on five year projections, for many countries, the period of support is extended over seven years. ISS funding for the first "year" is paid in installments over three years and is considered investment funds. The final four years is considered reward funding. The reward funding is calculated at \$20 per additional child⁴ receiving DTP3 above the number of children in the baseline year, defined as the year prior to its application year. The number of children receiving DTP3 serves as the primary performance indicator for routine immunization. The reported number of children immunized with DTP3 is verified through a Data Quality Audit (DQA) conducted by GAVI-retained external auditors. Reward funding is contingent upon both increasing the number of children immunized with DTP3 and on achieving a verification factor of 80 percent on the DQA. If a country does not achieve the 80 percent verification factor on its DQA, it may work to improve data quality and becomes eligible for reward shares if it passes a subsequent DQA.

³ GAVI has made exceptions for some countries whose coverage exceeds 80 percent.

⁴ \$20 represents an estimate of the cost of fully vaccinating a child.

Countries applying for ISS funding in the first round of applications in 2000 became eligible in 2004 for two years of reward share funding, based on the actual number of additional children immunized with DTP3. Countries that failed the DQA were declined reward shares, and those that passed the DQA and increased the number of children immunized began to receive reward shares in 2004.

As of December 2003, approximately US \$38 million of ISS funds had been disbursed to 50 countries, with as much as \$332 million to be disbursed in the first five-year phase of GAVI. Because of the magnitude of this funding and the innovative, yet untested, performance-based design of this support, the GAVI partners and Board commissioned this study to examine how the ISS mechanism, as it is currently configured, operates in practice and to determine its impact to date. The overall aims of the evaluation are:

- To assess the performance-related funding scheme for immunization services support in furthering GAVI's objectives; and,
- To identify ways to improve it.

GAVI established a study Steering Committee including representatives from the GAVI Secretariat, USAID, DfID, WHO, UNICEF, CDC, and the GFATM to guide the evaluation of the ISS funding mechanism. Abt Associates carried out the evaluation together with the Academy for Educational Development (AED). Two components comprise the final evaluation: a desk review of available data from 52 countries that had been approved for ISS funding by December 2003, and a series of six country case studies. Complementing the broad, overall picture of the desk review, the country case studies provide depth of information on the countries' experiences with ISS funding. The country studies are not audits of countries' use of funds; instead, they describe how countries have allocated ISS funding and assess the actual and potential impact of ISS funds on immunization program performance. The main areas of evaluation are:

1. Implementation and management of ISS funds
2. Use of ISS funds at country level
3. Impact of ISS funds on performance of the immunization program
4. Factors affecting successful implementation of the ISS scheme and improved performance
5. Cost of administering ISS scheme
6. Comparison of GAVI and GFATM application process and impact on the health system

Involved throughout the process from start to finish, the Steering Committee drew up the terms of reference for the study, provided input to the Abt/AED team for the desk review and case study methodologies, selected the countries for the case studies, was briefed at two stages throughout the data collection and report writing process, and reviewed a draft version of this report. In discussions with the Steering Committee, it was agreed that while the impact on immunization programs should be the focus of evaluation, to the extent possible, evaluation of the similarities and differences between the GAVI and GFATM application processes and their impact on health systems would also be included.

2. Approach and Methods

The findings of this evaluation are based on a desk review of GAVI documents and in-depth case studies. Countries analyzed in the desk review are the 52 countries that have been approved for ISS funding by December 2003. The six country case studies include countries with early ISS approval, chosen by the Steering Committee in an attempt to gain a cross-section of experiences through diversity in immunization performance and eligibility for ISS reward shares – it includes three countries that were eligible and three that were ineligible for reward shares. The desk review provides an overall picture of country experiences with ISS funding and performance, while the country case studies provide more country contextual information, qualitative information regarding allocation decisions and experiences with ISS funding, and more in-depth analysis of actual impact on immunization program performance.

2.1. Desk review

The 52 countries that have been approved for GAVI funding vary significantly in their basic characteristics, immunization program performance, and their stage in the process of ISS funding. While the majority of the countries are African (67 percent), there are five countries from WHO's Eastern Mediterranean region, four each from Europe and Southeast Asia, three from the Western Pacific Region and one from Latin America (Haiti). Of the 52 countries, 33 had received funding as of June 2002. This date was used as the cutoff point for consideration in our analysis as countries receiving funding after June 2002 have had only limited time to program funds and provide data on spending through Progress Reports and Financial Sustainability Plans (FSP), the main sources from which this analysis derives information. Earlier analysis using 2002 data (done before 2003 data were available) found that funds cannot be immediately programmed and that meaningful impact cannot be measured within a short time period. Using June 2002 as the cut-off date allows countries 18 months to program and spend funding, presumably enough time to start showing impact on 2003 coverage data.

Data analyzed in the desk study come from two main sources: the UNICEF/WHO Joint Reporting Form (JRF), which contains official country estimates of coverage and the number of children vaccinated for various years, and documents from the GAVI Secretariat. GAVI Secretariat documents include copies of country applications, Progress Reports, FSPs, DQA reports, and documents recording the dates of country approval, decision letters, receipt of country bank information, and funding transfers.

Given that there are numerous ways to measure changes in performance over time, the steering committee agreed to examine the DTP3 coverage rate and the number of children vaccinated with DTP3 as the principal indicators of performance. Different baseline years were considered for analysis of performance, including (i) the year prior to funding, (ii) the average between the year of funding and the year prior to funding (to reduce the variability in the baseline), (iii) the GAVI application year, (iv) 2000 (regardless of year of application or funding). Using 2003 as the end point, we found that the different definitions of baseline year made minimal difference in the classification of countries' performance. We used the year prior to the funding year (i) as a baseline for our analysis – in most cases this is the same year as the application year, but where there were long delays, the

year prior to funding is a more reasonable baseline.⁵ As coverage reports may vary significantly, the steering committee agreed to use the official country estimates as reported in the JRF as the basis for analysis in the desk study. Data for measles and, when available, TT2+ and DTP1 are also considered.

For the measure of change in DTP3 coverage rate, we consider the actual percentage point difference in coverage from baseline to 2003. For the number of children immunized, we use the percent change in the number of children immunized between these two points in time.

In order to analyze factors impacting changes in performance, we define three levels of performance: improving performers, stable performers and declining performers. Improving performers are those reporting an increase in the number of children immunized with DTP3 of more than five percent from baseline year to 2002, stable performers are those who saw a change of between –5 and 5 percent (inclusive), and declining performers are those experiencing a decline in coverage rates of greater than five percent. Rather than defining a cutoff at zero change in coverage, with countries assessed as either increasing or decreasing coverage, we opted for this ternary classification in order to capture differences among the countries that clearly improved or declined in coverage. On many issues, the stable performers with marginal change acted to confound findings, and this categorization helped to pinpoint important differences between the improving and declining performers.

2.1.1. Limitations of the Desk Review

The quality of the desk study analysis depends on the quality of the data found in the documents cited. There are some cases where countries did not fill out forms completely, information was missing, or questions were interpreted in different ways. This inconsistency in reporting may have skewed the information from which conclusions are drawn. In cases where we could probe for more information in the Progress Reports, we have reported the results of these efforts. Analysis is conducted on data for which we have observations, which is not always the complete sample. If countries reported inaccurate information, some of the analysis could be skewed – for example, several countries reported expenditures which exceeded the total funds reportedly received from GAVI. At the time of this report, DQAs had been completed in 24 countries and complete FSPs were available for 20 countries. Countries varied in terms of whether they had submitted one, two, three or no progress reports at the time this report was written.

A previous version of this report using 2002 data found that the results were very sensitive to the data selected for use as the baseline and endline years, and whether coverage rates or the numbers of children vaccinated were considered. Results using 2003 data appear to be much more reliable, as our analysis produced similar results using different measures.

As stated above, our analysis includes only countries that received funding prior to June 2002, or 33 of the 52 countries that have been approved for funding as of December 2003. We are not able to determine the extent to which the remaining 19 countries may have had different experiences with ISS funding until more data is available.

⁵ Funding must have been available for at least 2 months in a given year, so that countries funded in December 2001 are assessed against baseline data from 2001, rather than 2000.

All of the information for the desk review is derived from the JRFs and documents provided to us by the GAVI Secretariat. We cannot determine the extent to which these documents contain the most updated information. A complete list of desk review countries, baseline coverage rates, coverage changes, and the date of first tranche funding can be found in Tables A1 and A2 in Annex A.

2.2. Country Case Studies

The six countries chosen for the case studies were Cambodia, Kenya, Madagascar, Mali, Mozambique and Tanzania. These countries were chosen based on the following criteria: early application for ISS funds, qualification for reward shares, geographic diversity, generalizability to the region, and amount of ISS funds granted. The short time period available for the case studies precluded the selection of many countries that were in the midst of conducting supplementary immunization activities at this time. Cambodia, Mali, and Tanzania will be receiving reward shares, while Kenya, Madagascar and Mozambique will not be receiving reward shares at the present. These countries were all in the first round of applications to GAVI (applying in June 2000), although Cambodia did not apply for ISS funding in its initial application. These countries received their first tranche of ISS funds between November 2000 and February 2002.

A two-person study team composed of a financing expert and an immunization program implementation expert traveled to each country for a period of 13 to 15 days during the months of April and May 2004. The consultants were provided written materials that included information on this study and their case study country. There were also discussions with the consultants regarding the study questions, the discussion guides, and general review of the information required from the case studies. During the visits, the team conducted interviews with officials of the national immunization program, Ministry of Health (MOH), members of the ICC, and the focal point of the GFATM. Table 1 shows the type of individuals that were interviewed in each of the case study countries.

Table 1. Individuals Interviewed for Country Case Studies

	Cambodia	Kenya	Madagascar	Mali	Mozambique	Tanzania
NIP Manager (current)	Yes	Yes	Yes	Yes	Yes	Yes
NIP Manager (application)	Yes	No	Yes	Yes	Yes	No
Official to whom NIP reports	Yes	Yes	Yes	Yes	Yes	Yes
WHO	Yes	Yes	Yes	Yes	Yes	Yes
UNICEF	Yes	Yes	Yes	Yes	Yes	Yes
Other ICC Members	CVP/PATH JICA, RACHA, RHAC, USAID	JICA, DfID	JICA, JSI, World Bank, Institut Pasteur, USAID	ATN, USAID, Save the Children-US, Safe Motherhood	Project Hope, USAID	JICA, DANIDA, World Bank
Accountant responsible for ISS funds	Yes	N/A	No	Yes	Yes	Yes
GFATM Focal Point	Yes	Yes	No*	No*	No*	No*
Description of District 1	Received lots of ISS funds, peri-urban	High performing district	High performing district	Received ISS funds	Urban district	Received ISS funds
District 1 EPI person	Yes	Yes**	Yes**	Yes	Yes	Yes
Description of District 2	Received little ISS funds, rural	Average performing district	Low performing district	Did not receive ISS funds	Rural district	Did not receive ISS funds
District 2 EPI person	Yes	Yes*	Yes	No	Yes	Yes

* The GFATM Focal Point was not available, but the team met with at least one Country Coordinating Mechanism (CCM) member.

** The study team met with deputy district level EPI manager.

In each country, the team visited 2 districts in an effort to understand the use of ISS funds at the operational and service delivery level. The criteria for district selection depended on the actual allocation of the ISS funds in each country. For example, if ISS funds were distributed to all districts, then a medium (typical) performing and a high performing district, or a rural and urban district, were chosen. If ISS funds were only distributed to some districts, a recipient district and a non-recipient district were chosen. Given the time constraints in-country, the districts visited were generally easily accessible ones.

Four discussion guides were developed to guide semi-structured interviews at the central and district levels, targeted at four different cadre of officials:

- National level ICC members – “high level” officials

- National level technical officials and advisors
- District health officials
- Financial management staff

These discussion guides focused on the following areas:

- GAVI application process
- National planning and allocation process
- Management of ISS funds
- Use of funds at country level
- Changes in immunization performance
- Immunization financing trends
- Comparison between GAVI and the GFATM

These discussion guides were used in the first country, then revised slightly for use in the remaining five countries.

2.2.1. Limitations of the Country Case Studies

Due to the short timeframe of this evaluation, the study team had very limited time to complete the case studies for inclusion in the final report. During the months of March, April and May, many countries were preparing for or conducting supplementary immunization activities such as polio, tetanus and measles campaigns. The steering committee had difficulty identifying countries that would agree to participate in this study during the period proposed. Country visits were scheduled between other major NIP activities, and the case study teams had very tight schedules in country. Despite communications from the GAVI Secretariat and the study teams requesting assistance and preparation prior to the visit, some country teams had to spend several days in-country planning their schedules, further limiting the time for data collection.

Due to the high turnover of both government staff and donor community officials, some interviewees had only been in their current posts for a relatively short time, and were not able to speak about earlier GAVI developments in their country. In Mozambique, Tanzania, Kenya, and Mali, the NIP managers at the time of the GAVI application are no longer in that position. Whenever possible, the study team sought out individuals with historical information about the GAVI experience. The study teams also made great efforts to meet with as many of the identified individuals as possible, but in some cases, key individuals were traveling outside of the country during the study teams' visit, and thus their perspectives are not reflected.

The immunization coverage data and the financial accounting records for ISS funds varied greatly from country to country. Difficulties obtaining data and the varied quality of data received impacted the study teams' ability to draw definitive conclusions regarding performance changes and the impact of ISS funds on performance. As GAVI did not require countries to maintain records of the use of ISS funds, some countries were not able to provide complete records of the actual use of ISS funds.

The short timeframe of this study required the use of many different staff and consultants to conduct the country visits. Using a large pool of staff, coupled with the varying availability of data across countries, resulted in differences in the information collected and the types of analyses conducted

across countries. While this limits our ability to conduct cross-country comparisons, it was also a strength by broadening the range of data and analysis.

Lastly, the fact that these six countries were all first round applicants means that their experience is not entirely representative of all GAVI-eligible countries. These first round applicants generally had more external support than other countries, and some were “selected” to be among the first applicants. At the same time, these countries were also the testing ground for GAVI procedures – they were the first to undergo the application process (which was very much still under development), to develop FSPs, etc. – so their perception of the clarity of GAVI processes may be biased. These factors affect both immunization performance, as well as general perceptions of GAVI.

3. Findings

The findings from the desk review and country case studies are presented for each of the six areas of this evaluation. For some sections, there is data only from either the desk review or the case studies (for example, these are no data on allocation processes from the desk review). In most cases, the data from the desk review and case studies are complementary, and we integrate both sources of data throughout this section on findings.

3.1. Implementation and Management of ISS Funds

3.1.1. GAVI Application Process

There was significant variation among the six case study countries related to their decision to apply for GAVI support. In Madagascar, there was strong pressure from the UNICEF and WHO Representatives to apply for GAVI funding. In Mali, the decision was made at senior levels, coming from the Minister of Health and Secretary General, while in Mozambique the NIP Manager was the person who instigated the application. An international NGO led and supported the application process by providing external consultants in Cambodia. In Kenya, the MOH led the process with strong technical support from the local WHO office.

In all countries, WHO and UNICEF advisors were closely involved in the preparation of the application, with some countries such as Tanzania and Cambodia receiving support from external consultants. Except for Cambodia, all countries had an established ICC – in Cambodia, its ICC was constituted in 1999 primarily in preparation for the GAVI application. In countries where there were bilateral projects or NGOs, such as the USAID-funded Jereo Salama Isika (JSI) project in Madagascar and the Children’s Vaccine Program (CVP) in Cambodia, these organizations played a central role in the application process.

In Cambodia and Tanzania, the primary interest in GAVI was for new vaccine support. In Tanzania, there was discussion about whether ISS funding would distract from the introduction of new vaccines and whether increasing targets would be difficult to attain. In the end, Tanzania did apply for ISS funding together with new vaccine support, while in Cambodia, it was agreed to delay application for ISS funding until there were clear strategies for the use of funds.

3.1.2. Understanding of GAVI ISS Funding

While few of the individuals actually involved in the application process were available for interviews, we probed current country officials and ICC members on their understanding of the following aspects of the ISS funding scheme:

- Availability of funding for 5 years
- Final two years of ISS funding based on the additional number of children immunized
- Significance of attaining a verification factor of at least 80 percent in the DQA

The NIP managers of all six countries had a good understanding of these key aspects of ISS funding. In four of the countries, central level ICC members also had a good understanding of the structure of ISS funding. However, in two countries, only the NIP manager seemed to be fully informed about the

nature of ISS funding. In one country, ICC members were not aware of the implications of not passing the DQA, and were surprised to learn that ISS funding would actually be suspended as a result. In that country, it appeared that there was general lack of communication between the NIP manager and the ICC members. In the other country, officials understood that funding was linked to DTP3 coverage, but did not know it was based on the number of additional children immunized. One very senior official had the impression that improving the population estimates would lead to increased funding.

District level staff was asked about their awareness of GAVI as a funding source for immunization activities and how they had benefited from GAVI ISS funds. In Kenya, Madagascar, Mali, Tanzania, and Cambodia, district level staff was aware that GAVI funding was made available at the district level to support routine immunizations. There was only very limited knowledge about the performance-based nature of ISS funding, except in Cambodia where staff at all levels seemed aware that funding was based on immunizing more children with DTP3. District level staff in Mozambique did not know where extra funding or commodities came from, since it was procured at central level. While we would not expect subnational staff to understand the details of the ISS funding, it is important that they understand that ISS funding will not continue if they do not increase the number of children immunized and maintain reliable records to document those increases.

3.1.3. Baseline Data and Target Setting

There was not a clear understanding always about what baseline data and targets to use in the application, partly because the case study countries were all first round countries. Once the formula for calculating the investment and the reward shares was fully disseminated and understood, countries in subsequent application rounds could manipulate the baseline data and targets to maximize total GAVI funding, regardless of whether the number of children immunized increased. Based on the case study findings, it seems that some of these first countries have actually done the reverse, and put themselves at a disadvantage because of the data they used in their applications.

Countries initially were not given specific guidance on the source of data (routine administrative data, coverage survey or official country estimates from JRF) to be used to report the number of children immunized at baseline. Later, GAVI decided that JRF data would be used to calculate the number of additional children immunized each year, for comparison with the baseline number reported in the application. This policy has dramatic consequences in countries where JRF data were not used for the baseline number and where the routine administrative data differs vastly from the JRF estimates.

In Kenya, the baseline number of children vaccinated reported in the application was based on the 1998 DHS survey. Coverage surveys in Kenya have historically reported coverage rates to be 20 to 40 percentage points above routine administrative data, indicating problems in routine reporting. In order to assess whether countries get reward shares, GAVI examines the JRF data based on administrative reports, which in Kenya is consistently lower than coverage survey data. As a result, it appears that the number of children immunized in Kenya has decreased (when compared with the baseline based on coverage survey data), when this number has increased if routine administrative data are consistently used. The Kenya NIP were disheartened, feeling that it would be difficult to surpass the baseline figures in its GAVI application, without revising its baseline, or using a different source of data for calculating number of additional children immunized.

A similar situation exists in Madagascar where the number of children vaccinated between 1999 and 2001 has increased based on routine administrative data. However, the number of children vaccinated between 1999 and 2001 has decreased based on JRF official country estimates, and therefore even if Madagascar had attained a DQA verification factor of 80 percent, they would not have qualified for reward shares because they did not increase the number of children vaccinated.

3.1.4. Application Processing and Funding Transfers

The GAVI board met a total of eight times between the summer of 2000 and the summer of 2003 in order to review IRC recommendations and approve 52 ISS applications. Once a set of applications was approved, notification letters were sent to the approved countries. Before GAVI ISS funds were released, however, bank information had to be received from countries for funds transfer.⁶

There was considerable variation in the amount of time elapsed from GAVI board approval to the receipt of first tranche funding. While the number of days ranged from 24 for Burundi to 804 for Pakistan, the average number of days elapsed for the subsample of 33 countries receiving first tranche funding prior to June 2002 was 166 days, or about five and a half months. Responsibility for the length of this processing time falls on both GAVI and the recipient countries, with GAVI procedures contributing about three months of the time elapsed (time from Board approval to the decision letter and time from receipt of country bank information⁷ to funding transfer), and countries contributing another two months of delay (time from decision letter to bank information), on average. In some cases, approval was conditional on additional information or clarification from countries, and decision letters were delayed awaiting such information. Table 2 shows the average length of time for each step in the process for the sub-sample of countries receiving funding prior to June 2002.

Table 2. Average Delays in Stages of the Application Process, First Tranche Funding

	Number of Days			No. of Countries
	Average	Minimum	Maximum	
Approval to Decision Letter	54	4	129	33
Decision Letter to Bank Information	79	-7	310	25
Bank Information to Tranche Transfer	34	-5	108	25
Approval to Tranche Transfer	166	24	349	33

Source: GAVI Secretariat documents

Note: 8 countries were not reported to have sent bank information for the first tranche

As shown in Table 3, the average time elapsed from approval to funding transfer decreased from 166 days to 141 days for second tranche funding. GAVI procedures appear to have been streamlined for the second tranche, with all countries being sent the decision letter in 18 days or less, except Côte d'Ivoire and Rwanda (with 222 days of delay). The maximum total time from approval to funding

⁶ Note that bank information was only recorded as having been submitted for 35 of the 47 countries that received first tranche funding.

⁷ Bank information was recorded as having been submitted from 25 of the 33 countries in this subsample.

transfer was 459 days for Côte d’Ivoire (which faced extraordinary political circumstances), while Azerbaijan, Ghana, Liberia, Mali and Uganda received funding within 57 days.

Table 3. Average Delays in Stages of the Application Process, Second Tranche Funding

	Number of Days			No. of Countries
	Average	Minimum	Maximum	
Approval to Decision Letter	23	7	222	33
Decision Letter to Bank Information	61	-7	182	17
Bank Information to Tranche 2 Transfer	68	35	131	17
Approval to Tranche 2 Transfer	141	57	459	32

Source: GAVI Secretariat documents

Note: 15 countries were not reported to have sent bank information for the second tranche

3.1.5. Management of ISS funds

GAVI did not provide any requirements regarding how ISS funds were to be managed, so it is striking that there is one general similarity among the case study countries – these funds, at least at the national level, are all managed outside of the normal government funding mechanisms. Although government officials are involved in the authorization processing or are signatories on accounts, ISS funds generally flow outside of standard government channels. Several countries noted that these procedures were vital to the utility of ISS funds.

In Madagascar, Kenya, Cambodia, Mozambique and Mali, officials were able to open separate commercial bank accounts specifically for the receipt of vaccine fund support, including ISS funding, cash for new vaccine introduction and injection safety support. These accounts came about for a variety of different reasons. In Kenya, funding for National Immunization Days (NIDs) set the precedent for external funding that bypasses the national treasury, as the result of an agreement between the Permanent Secretary of the MOH and the Minister of Finance – the ISS funds were able to take advantage of this prior arrangement. In Mozambique, it was necessary to open a commercial bank account because the central bank does not allow accounts denominated in US dollars. In Mali, ISS funds were initially wired to a general external funding account, but eventually moved to a separate commercial bank account in order to increase the visibility and accountability of the ISS funds.

In Tanzania, WHO was selected to manage the ISS funds, based largely on its past experience with managing NIDs funding. In accordance with how WHO currently manages funding in Tanzania, ISS funds are transferred to the WHO regional office for Africa in Harare, with the WHO/Tanzania office disbursing the actual cash for expenditures. A Memorandum of Understanding was signed between the Ministry of Health of Tanzania, the Ministry of Health of Zanzibar and WHO. As a result, all ISS funds were subject to WHO rules and regulations concerning procurement and disbursement of funding.

There were a variety of experiences among the countries in terms of which individuals at national level are permitted to access ISS funds, with some countries requiring rather high level authorization. In Cambodia the Director General for Health is a required signatory. In Kenya, the Director of

Medical Services, as well as the Permanent Secretary, has signatory status. In Madagascar, in contrast, only the NIP manager and Director of Preventive Medicine are signatories on the bank account. In Tanzania, the WHO office is actually the custodian of GAVI funds, and disburses funding if the authorization from the Director of Preventative Services is in order. In Mozambique, the National Director of Health and the Chief Secretariat for Health are required signatories. Additional conditions on disbursements are imposed on ISS funding, namely that expenditures made outside Mozambique (for imports) or cash withdrawals above \$5,000 must be approved by the Central Bank. It is worth noting that even in Tanzania, where WHO administers the funds, government officials are the ones who authorize use of funds.

The case studies identified a number of very different issues related to management that delayed use of ISS funding. None of the countries mentioned problems related to accessing the funds though. In Mozambique, delays in spending were attributed to a lack of communication between the bank that received the funds and the MOH, as well as between the MOH and NIP officials, so that it took a long time before the NIP knew funds were available. In Mali and Tanzania, districts that did not return receipts for ISS funds previously disbursed could not get new funding, thereby slowing down the expenditure rate. In Kenya, the immunization program deliberately delayed releasing ISS funds to districts at certain times to avoid commingling ISS funds with the measles campaign funds, and to avoid ISS fund disbursement just before the Christmas holidays, preempting possible misuse of funds at the district level.

3.1.6. Reconciliation of expenditures

Because GAVI did not provide any guidelines regarding how use of funds should be monitored, most countries generally modeled their procedures for reconciliation of expenses after government, UNICEF, or WHO procedures. Cambodia, Mozambique, and Tanzania seemed to have more rigorous reconciliation procedures, relying on trained accountants within the NIP or National Health Directorate to reconcile expenses. In Mozambique, the ISS account is subjected to an annual independent audit. Overall, there was no evidence of misuse of funds in the case study countries.

With the exception of Mozambique, all the study countries disbursed cash funding to districts. Most countries (except Cambodia) had difficulties in obtaining complete expenditure reports from all districts. While this is not an unusual problem, in some countries a lack of clear guidelines may have contributed to the problem. In Madagascar, Mali, and Tanzania, districts cannot receive new funding without justification of previous funding through reconciliation of receipts. Nonetheless, this requirement was not very effective in ensuring financial reporting, and slowed the use of funds. In Kenya, only general guidance was sent to districts to produce monthly activity reports and financial statements. Without a specific form in hand, only some districts returned receipts and expenditure statements, and continued ISS disbursements did not depend on the reconciliation of expenditures.

During the interviews, some country officials expressed the desire for assistance in creating procedures and systems for tracking ISS funds. The immunization program in Cambodia benefited from World Bank and CVP/PATH assistance to train an accountant in the immunization program office. Recently, the NIP in Kenya sought assistance from the MOH's primary health care accountant to set up systems for tracking ISS funding.

3.2. Allocation and Use of ISS Funds at Country Level

3.2.1. Allocation Process

The allocation process in most of the countries studied can be broken down into several sub-processes, which may occur simultaneously. One decision is how to allocate ISS funds between central and district level. Another decision is whether support to the districts should be in the form of cash or in-kind disbursements. There is also a decision regarding how to allocate the funds or goods among the different regions or districts. Lastly, there is decision about the specificity of guidance to the districts regarding how to use the funds.

Allocation between National and Sub-national Levels

There appear to be several key factors involved in determining the portion of ISS funds used at the national level: 1) existence of an unfunded need at central level; 2) response to an acute problem requiring immediate attention at the central level (political crisis, failing to pass the DQA); 3) concern with use of funds at the district level. The types of expenditures that represent previously unfunded activities include staff training (which may include training for staff at sub-national levels), supervision and monitoring, and capital equipment including computers and vehicles.

In the case study countries, failing the DQA appears to have had a very significant impact on a country's spending patterns. Kenya, Tanzania, and Mozambique reacted swiftly to a failed DQA, partly because it was such a high profile exercise and partly because of the impact on reward shares. Using ISS funds, Mali made large investments in computers (\$371,000), while Mozambique also purchased computers, as well as conducted workshops with the Health Information Systems unit to identify ways to improve data management. Tanzania invested in computers and training for regional and district staff to improve data collection and management. For some countries, failing the DQA meant that a larger portion of funds was spent at central level aimed at improving data quality.

In Kenya and Tanzania, part of the reason for modestly increasing the portion of the funds spent at the central level over time was concern regarding whether funds sent to the district level was the most effective use of ISS funding, and whether funds at district level were being used effectively. In Tanzania, there was also some concern regarding the accessibility and timely use of funds. ISS funds in Tanzania are sent through the District Executive Director, which is the procedure for disbursing all government funds. The ISS funds are held in a district level account along with funding for a variety of uses. The District Medical Officers (DMO) had a difficult time accessing those funds, and in one district visited, the DMO had the opinion that the funds may have already been used for other activities, and might never be accessible.

Allocation among Regions and Districts

Most of the case study countries aimed to be systematic and strategic in the way they allocated ISS support (support in this section refers to both cash and in-kind support) at the district level. Countries used a variety of criteria for allocation, according to their differing objectives. Over time, it appears that countries were able to examine the use and impact of ISS support, and alter allocation criteria in response to such findings. Only in one country did allocation decisions seem rather ad hoc and less than transparent. Some of the main factors or criteria considered by countries in the allocation of ISS

funds among regions or districts are summarized in Table 4, along with an annotation of which countries identified each factor as a criteria for funding allocation.

Table 4. Main Factors Considered in ISS Support to Districts

	Cambodia	Kenya	Madagascar	Mali	Mozambique	Tanzania
Political feasibility and equity		***			***	
Reaching poor performing districts/areas				***	***	***
Maximizing the number of children immunized	***					
Rewarding high performing districts	***	***				
Population size		***			***	
Geography, size of district, transport costs		***			***	***
District requests			***	***		
Availability of other support in-district	***		***			***

The allocation criteria generally reflected a trend towards directing funds to the districts most in need (where performance is low, transport is difficult, or there is lack of external support), along with an awareness of the need for “fairness” in the allocation process. There are differences among the countries in the extent to which they directed the funds to the districts most in need. Only Cambodia and Kenya attempted to implement performance-based funding (rewarding districts based on the number of children receiving DTP3, mirroring the GAVI reward system). In Cambodia, this pilot was abandoned because of administrative difficulty. In Kenya, a reward system represented only one component of the allocation formula, and has been minimized over time, until it was discontinued with the third tranche in 2003. In Mozambique, the concept of “rewards” to districts actually had negative connotations associated with historical problems with political favoritism and lack of transparency.

Neighboring countries Kenya and Tanzania provide an interesting contrast in how countries approached the goal of reaching the districts most in need. In Tanzania, all district-level ISS funding to date has been directed to 16 low-performing districts. Only recently is there discussion of expanding beyond the 16 districts. In Kenya, for political reasons and a desire for equity, it was felt that all districts should receive some funding. The initial allocation formula included a flat payment to each district, along with funding based on population and transport needs, together with a reward component. In response to complaints, the second tranche funding was allocated based on a transparent formula weighted by the operational cost per child immunized, target population, and district performance. A worksheet detailing all district allocations according to this formula was distributed to all districts. By contrast, Tanzania did not experience any public pressure to include other criteria for district allocation, nor to include all districts in funding allocations.

Given the performance-based funding design, countries also faced the choice of whether to target districts strategically to maximize potential ISS reward shares. While Kenya, Mozambique and Tanzania clearly targeted those districts with the greatest need (defined in a number of way including

lowest coverage rates, most difficult geography, etc), Cambodia used part of its ISS funding to target districts most likely to have the greatest impact on the number of children immunized. They did so by targeting districts that had the highest number of unimmunized children, which generally correlated to the most populous districts, and not the poorer performing districts. Mali targeted the lowest performing regions, and requested districts in those regions to submit plans for ISS funding. However, because the higher capacity districts in those regions were more likely to submit funding requests, they were more likely than the neediest districts to receive ISS funds.

Changes in Allocation Practices Over Time

The allocation practices were not static, but evolved over time as countries gained more experience in managing the ISS funds. There is no clear pattern among the study countries related to how allocation practices changed, although several countries spent more of the funding at central level over time or increased central level control of the funds (providing more guidance to district on how to spend the funds). It is worthy of discussion that there was thoughtful change in allocation to improve performance.

In Cambodia, once it was clear that 2002 coverage rates showed a continued decrease in coverage, it was decided to use ISS funds in 2003 to support outreach in the first quarter of the year (when it is the dry season and all districts are accessible, but government funding is generally unavailable). ISS funds were received in February 2002, too late to support 2002 outreach, but much needed to support training that had been unfunded for many years. In Madagascar, funding in 2002 was used to transport vaccine during the political crisis. The lack of a clear allocation pattern across the case study countries to some extent reflects the use of ISS funds as a source for filling funding gaps, but also indicates that countries used funds to implement locally-appropriate strategies. Despite the sustainability issues related to using ISS funds for expenses that are a critical part of ongoing operations, in these two countries, the decisions to use ISS funds in this way were probably critical to the coverage rates for that year.

Role of the ICC in Allocation

While select members of the ICC had influential roles in the allocation process, the ICC as a whole played a relatively small role in determining the allocation of ISS funds. This limited role reflected a spirit of trust in the NIP in some cases, or a sense that ISS funds were the government's responsibility and so other stakeholders should have relatively less influence. The level of full ICC participation ranged from broad discussions of program priorities to the direct approval of proposed expenditures, or in at least one case, merely a review of progress reports after funding had already been expended.

In most countries, there was a sub-group of the ICC that was much more active in operational decisions. Usually this sub-group consisted of the NIP manager, UNICEF, and WHO, although in Cambodia, an international NGO, CVP/PATH was also a key member. This subgroup may provide input into funding allocation decisions, but is not required to approve the use of funds. Unlike other GAVI-related matters such as preparing the application or the FSP, which encourage and require broad stakeholder participation, the full ICC is not required to formally approve the use of ISS funds.

Although this question was not specifically asked, none of the ICC members expressed dissatisfaction with their role in shaping the use of ISS funds. In one country, however, a few of the ICC members

were critical of the NIP’s decision to use a small portion of ISS funds to make renovations to the NIP office.

3.2.2. Types of Expenditures

In analyzing the use of ISS funds, it is important to keep in mind that one of the most important advantages of ISS funding is its flexibility. There are no requirements or guidelines about how ISS funds should be used, so that funds may be directed toward expenditures or activities that are traditionally under-funded by government and NIP donor sources. Data on the use of ISS funds seems to reflect the lack of funding in some critical areas, which previously hindered the implementation of performance improvement strategies. We can only comment on how ISS funds were used – we do not have information on other sources and uses of funding. It is likely that the availability of other funds or in-kind support influenced the allocation of ISS funds, as allocation decisions are made within the context of the overall immunization program.

Desk Study Findings

Countries included in the desk study used ISS funds for both capital and recurrent expenditures and at both central and sub-national levels. Overall, the categories receiving the most ISS funding were training, vehicles, monitoring/surveillance, and IEC, with a large proportion of ISS funds being spent on other recurrent costs, as presented in Table 5. On average, the bulk of the spending (approximately 77 percent) was for recurrent costs. Most of the funds were spent at subnational levels (68 percent of the first tranche, 63 in the second tranche and 62 percent in the third tranche).

Table 5. Percent ISS Spending on Immunization Activities, First and Second Tranches

Expenditure Category	Tranche 1 (n=33)	Tranche 2 (n=27)	Tranche 3 (n=17)
Personnel	6.0	6.5	3.6
Training	22.9	16.4	11.6
Transport	7.0	5.6	4.3
Maintenance & Overhead	2.7	8.2	7.9
IEC	8.2	8.4	3.9
Outreach	2.2	5.6	3.2
Monitoring, surveillance	9.7	8.8	19.2
Other	18.8	11.7	22.6
Recurrent	77.5	77.9	76.9
Vehicles	11.3	11.7	9.7
Cold chain	8.7	2.6	9.1
Other equipment	2.5	7.8	4.4
Capital expenditures	22.5	22.1	23.1
Central	31.7	37.4	38.1
Subnational	68.3	62.6	61.9

Source: Progress Report Data

It is interesting to note the differences among the tranches. Training expenditures trended significantly downwards over time, perhaps indicating a backlog of unfunded training needs that are increasingly met over time. At the same time, expenditures on monitoring and surveillance increased over time. It may be that expenditures were shifted to monitoring activities once training and IEC

needs were met, or that monitoring was increasingly recognized to be an important activity. It should also be noted that over time, an increasing share of funds were used at central level.

As many countries spent a significant proportion of ISS funds on “other” recurrent costs (19 percent of first tranche, 12 percent of second tranche and 23 percent of the third tranche), we examined the types of expenditures that are reported in this category. While difficult to decipher, these expenses appear to be related to planning, management, and outreach. Some examples of expenditures categorized as “Other” are: Bangladesh acquired consulting services, Senegal provided support to regions and districts, Lesotho classified “immunization accelerations” in this category, Côte d’Ivoire used funds for developing an accounting framework and district microplanning. Kenya reports most of its expenditures in this category, likely because it is unable to classify funds disbursed to the district level across different categories (as we learned during the country visit). In progress reports submitted in 2003, this category included printing and stationary expenditures for half of the countries, meetings in Tanzania and Guinea, and other miscellaneous or expenses such as bank charges, storage or customs fees.

It should be noted that while the data from progress reports are the most comprehensive data across all recipient countries on the use of funds, the figures reported in the progress reports for the six case study countries could not be entirely reconciled during the country visits. We deem neither the progress report data nor our findings in country to be more valid than the other because the country visits were not audits. Further, while the exact figures do not match, the general pattern of expenditure found in the country visits was similar to that described in the progress reports. For these reasons, we use the progress report data “as is” in the cross-country comparisons, while reporting the case study findings also “as is”, even though there are some discrepancies.

Case Study Findings

The country visits were useful to gather more detail around the use of funds (in particular, the types of activities funded), and to validate the progress report data. In every country visited, differences were found between the data reported in the progress report and available expenditure records. One potential explanation for discrepancies is the timing of the Progress Report, which provided information as of one point in time. Since the Progress Report was submitted, additional expenditures have occurred, and it is difficult to separate exactly what was reported in the progress reports from what has been spent since the report was prepared. Another possible explanation is that differences result from the difficulty in compiling data on the use of funds at the district level, for those countries in which cash disbursements were made to districts. District reporting on use of funds was at times incomplete, and even with complete reporting, compilation of data from all districts is necessary to provide an accurate picture on overall use of funds.

While most countries used funds for both capital and operational costs, there were a few cases where funds were used almost exclusively for one or the other. In Cambodia, all the funds were used for operational costs, focusing on training, IE&C materials, and outreach. At least part of the reason for this allocation was the receipt of large donations of capital equipment around the same time that ISS funds were disbursed. In contrast, Mozambique used most of its ISS funding for capital equipment, notably motorcycles and bicycles, as transport had been identified as a priority in its Multi-Year Plan. Mali also spent most of its ISS funds on capital equipment (vehicles and computers), driven primarily by a perception that these “investment” shares should be used for investment or capital goods.

Where funding was used for operational costs (in Cambodia, Kenya, Madagascar, and Tanzania), all of the countries spent a large portion of the first tranche funds on training, ranging from 21.5 percent of reported expenditures in Kenya to 39 percent of reported expenditures in Tanzania⁸. Expenditures on IE&C and social mobilization were another large item in Cambodia (33 percent) and Madagascar (50 percent). All of the study countries spent funds on monitoring and evaluation, ranging from 2.4 percent in Mali, to 4.0 percent in Tanzania, to 14.0 percent in Mozambique. Kenya reported significant funding in the “other” recurrent expenditures category (65.9 percent of funding reported in the first progress report and 90.4 percent of funding reported in the second progress report), which likely reflects the lack of quantitative documentation about the actual use of funds disbursed to the district level.

Across the case study countries, the majority of capital expenditures were for vehicles, with a small portion spent on computer and office equipment. Mali was the exception, reporting in the first progress report that 19.4 percent of its funds were spent on cold chain equipment and 19.8 percent of funds were spent on other equipment. In the second progress report, Mali reported 68.2 percent of its funds were spent on other equipment, mostly consisting of computer equipment in response to its failed DQA.

The ISS funds were generally used to fill gaps in other funding. Training and IE&C were the highest categories of operating expenditures, representing areas that were under-funded. Vehicles and computer equipment were main areas of capital expenditures, again reflecting the relatively lower available funding from donors for these areas, compared with cold chain equipment.

3.2.3. Percent of ISS Funds Used

Across the desk study countries, 43 countries have reported on use of funds in the three rounds of progress reports submitted through 2003. These countries reported spending 76 percent of all ISS funding that they have received.⁹ Of the 9 countries not yet reporting on ISS spending, all but Somalia and Guinea Bissau have received at least one tranche of funding.

The country case studies confirmed that there are large amounts of ISS funds that remain unused. In some cases, funds were deliberately held in reserve as a buffer stock for when acute problems arise. In other cases, there were disbursement and administrative issues that delayed expenditures. As described in Section 4.1.4, there were delays in disbursing ISS funds, as countries sorted out the ownership and responsibility for ISS funds. Once funds arrived in country, however, there were sometimes delays with planning, disbursement or administration of the funds. Some of the issues causing delays include: 1) timing of planning for use of ISS funds; 2) disbursing and accessing funds at sub-national levels; 3) procurement procedures.

In Mozambique, for example, there were delays in programming of the first tranche funds because funds arrived in the middle of a planning cycle – it was not for several months before another planning cycle that funds were programmed. Once planning was complete, Mozambique faced delays

⁸ Tanzania figure is based on Progress Reports in-country.

⁹ Nine countries report having spent 100 percent or more of total ISS funds received. While some countries may have benefited from exchange rate fluctuations, it also could be that expenditure information in Progress Reports is merely estimated and not reconciled with actual expenditures. Among those that spent less than 100 percent of ISS funds, the average percent of funds spent was 63.

due to procurement procedures. As a result, expenditures did not occur for about one year after funds were in country, and over 50 percent of the ISS funds received remain unused.

In Tanzania, approximately 21 percent of ISS funds were disbursed in cash to target districts, of which approximately half has been spent and accounted for. Kenya deliberately disbursed smaller amounts of funding gradually to districts in order to prevent misuse, and had set aside 5 percent of GAVI funds as a savings fund. For countries not receiving reward shares, there is a sentiment of trying to make the money last, since it is not often that NIPs have access to completely discretionary funds.

One of the unique characteristics of ISS funding is the complete freedom that is provided to NIPs about how and when to program the funds. NIP managers in particular appreciate having a budget that they could actually direct. Countries did not feel any pressure to spend the money immediately and were able to thoughtfully consider how and when to spend the funds. In situations where there were real expenditure issues (for example in Tanzania where some districts had difficulty accessing funds that were transferred to district accounts), the NIP program provided smaller cash disbursements to districts in the next round.

3.3. Impact of ISS Funds on Performance of the Immunization Program

This study sought to measure the extent to which GAVI ISS funding has resulted in improvements in outcome, as measured by immunization coverage and additional children immunized. The study terms of reference included several questions regarding impact on performance, including:

- What has happened to actual DTP3 coverage and coverage with other vaccines?
- Can impact, in terms of equity, be assessed – that is, has ISS funding led to greater success in reaching the “hard to reach”?
- What are the effects of ISS funding on intermediate performance indicators (benefits/outcomes other than coverage, e.g., new fridges, training)?
- Is there evidence that the introduction of new vaccines had an impact on program performance?
- To what extent can improvements be attributed to ISS support as opposed to other changes in program circumstances and support?

The six country case studies afforded the opportunity to collect and analyze a mix of both quantitative and qualitative information that are pertinent to these questions. As discussed below, a thorough review of information available at country level also determined whether or not it is even possible to answer these questions at this time with the types and quality of data that can be found at country level.

For each country, study team members were instructed to collect trend information for multiple antigens from both the WHO/UNICEF JRFs and administrative data from the Ministry of Health. The administrative data are important because they permit more detailed analyses to be conducted, including those concerning district level performance and trends over the months of a given year. In consultation with the Study Steering Committee, it was agreed to track the following indicators for the reasons presented below:

- DTP1 coverage – as indicator of access and initial use of services
- DTP3 coverage and number of children immunized – standard GAVI indicator of completion of the immunization schedule and measure of progress
- Measles coverage – epidemiologically important; tracked to investigate whether GAVI focus on DTP3 diverts attention from routine measles immunization
- TT2+ coverage – important for preventing neonatal tetanus; tracked to investigate whether GAVI focus on DTP3 diverts attention away from vaccination of women with TT
- DTP1-3 drop-out rate – GAVI indicator for failure to complete schedule
- DTP1-measles drop-out rate – another important measure to assess completion of the vaccination schedule; tracked in parallel to DTP1-3 to explore whether GAVI’s focus on DTP1-3 diverted attention from routine measles.

3.3.1. Findings from Country Case Studies

Table 6 summarizes the key quantitative information from the six country case studies on the indicators described above.

Table 6. Summary of Immunization Performance Data from Six Country Case Studies
(Sources: Official estimates from Joint Reporting Forms, GAVI applications, DQA reports)

	Cambodia	Kenya	Madagascar	Mali	Mozambique	Tanzania
DTP3 baseline year: # Children immunized	289,952	614,312*	474,409	220,596	589,887	1,056,603
Coverage rate (%)	60	63	80	32	88	79
DTP3 2003: # Children Immunized	300,252	893,445	506,991	350,724	613,348	1,256,211
Coverage rate (%)	69	73	87	79	85	95
DTP1 coverage (%): Baseline year	65	73	86	61	102	NA** BCG=86
2003	74	89	99	98	88***	100
Measles coverage (%): Baseline year	59	46	81	57	97	78
2003	65	72	86	68	80***	97
TT2+ coverage (%): Baseline year	40	51	40	62	61	77
2003	43	66	49	46	30	80
DTP1-3 drop-out (%): Baseline year	8	14	7	48	14	8
2003	7	16	12	19	17	5
DTP1-measles dropout rate (%): Baseline year	9	37	6	6	5	9

2003	12	21	13	27	6	3
DQA score: Verification Factor	0.87 ('02) 0.98 ('03)	0.401 ('01) 0.496 ('02)	0.58 ('03)	0.747 ('02)	0.554 ('02)	0.572 ('01) 0.902 ('02)
Reward Shares?	Yes	No	No	Yes	No	Yes

* Figure shown is from 2000 JRF official country estimates, which are based on administrative data. Kenya's application uses 1999 data extrapolated from coverage surveys (825,592).

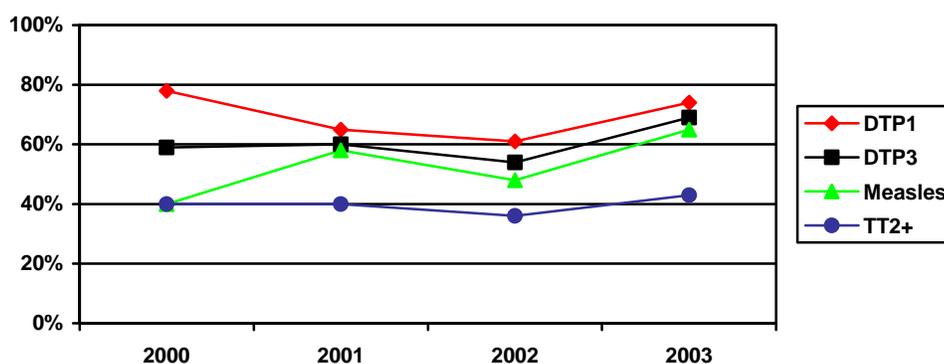
** DTP1 data not available. BCG coverage rate is shown as an estimate for DTP1.

*** JRF official estimates were not available – figures presented were obtained in-country.

While these data are presented for the purpose of allowing comparisons, there is a detailed history that is unique to each country described here. The key issues regarding potential impact of ISS funds in each country are summarized below. These represent extracts from the country case study reports and give particular attention to the following issues: trends in coverage and additional children immunized for DTP3 and other antigens; changes in drop-out rates; efforts to “reach the unreached”; attribution of changes to ISS funds; and issues of data quality and completeness.

Cambodia

Figure 1. Immunization Coverage, by Antigen, Cambodia, 2000-2003



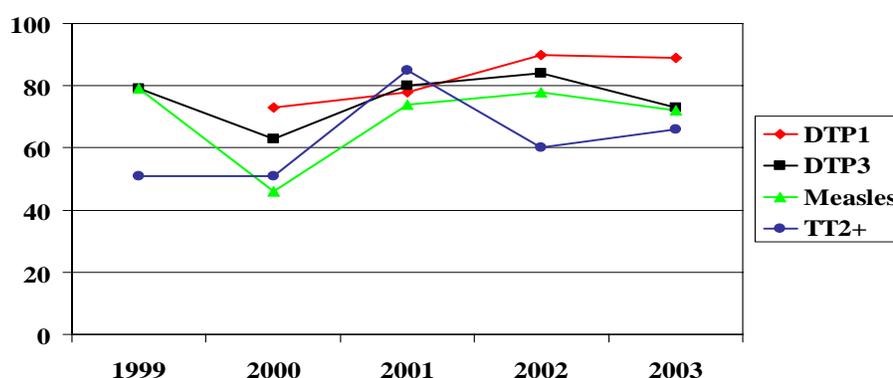
Source: Official JRF Estimates

Overall, there is little difference between Cambodia's coverage in its baseline year of 2000 as compared with 2003. While DTP1 coverage decreased in 2001 and 2002, DTP3 coverage increased moderately, and measles coverage increased significantly. There was an apparent dip in coverage in 2001 and 2002, possibly due to the inability to provide outreach services during the first few months of the fiscal year; this is because funds were unavailable at the operational level (district). The allocation of ISS funds in early 2003 ensured that outreach (as well as other activities, including training and IEC materials production) did take place as planned. Furthermore, this funding permitted the Coverage Improvement Planning (CIP) scheme (an adaptation of Reaching Every District) to be implemented in 13 out of 74 districts. The CIP has several components, including strong interaction with community leaders, mobilization of village volunteers, and a revised system for accurately reimbursing outreach costs that encouraged the provision of services to remote populations. While there was nationwide improvement in coverage for DTP3 (an increase of 9 percent additional DTP3-immunized children in 2003 over 2002), the particular districts with the highest increases were those supported with ISS funds, particularly those implementing CIP. However, the ISS districts were also more populous than some of the non-ISS districts, which themselves received financial support from

UNICEF, the MOH, or NGOs. Over half of the country's 74 health districts have DTP1-3 drop-out rates over 10 percent, with more of these in remote, mountainous areas. In that Cambodia passed both of its DQAs, immunization data are considered to be of generally good quality.

Kenya

Figure 2. Immunization Coverage by Antigen, Kenya, 1999-2003

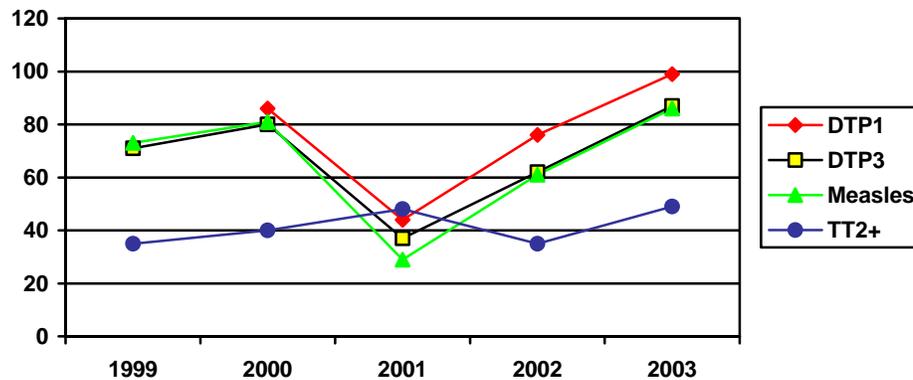


Source: Official JRF Estimates

It is difficult to say with certainty whether Kenya's coverage has increased, decreased, or remained unchanged since the baseline year of 1999. While JRF official estimates, which were based for several years on the 1998 DHS survey, suggest stagnation and a slight decrease, administrative estimates from the MOH suggest that there have been slow and steady increases in coverage; to some extent, however, this may be an artifact improved reporting. Kenya met and greatly exceeded its GAVI targets for additional children immunized with DTP3 by 2001 and 2003. DTP1 and measles tend to follow the monthly pattern of DTP3 doses administered; these themselves are affected to large extent by pentavalent vaccine supply problems (late and split deliveries, lack of buffer stock) that have required emergency re-distribution efforts and have resulted in interruptions in services. TT2+ coverage seems relatively independent of these fluctuations. Since 1999, disaggregated district-level data show that DTP1-3 drop-out rates have increased slightly from a median of 11 percent to 15 percent while DTP1-measles has decreased from 30 percent to 21 percent. With all 77 districts receiving some ISS funding, there has been a tendency toward more equitable coverage levels since 1999; for example, whereas in 1999, 14 districts had DTP3 coverage of 40 percent or lower, in 2003, no districts had DTP3 coverage in this low range. ISS funds have been used to support improved reporting, outreach, and supervision. While reporting has improved, there has not been tracking to see whether outreach sessions and supervision visits have increased, and if so, whether they correlate with increased immunization. Kenya's DQAs revealed verification factors of less than 0.50; strong efforts to increase completeness and quality of data since 2002 complicate the ability to do analyses over time.

Madagascar

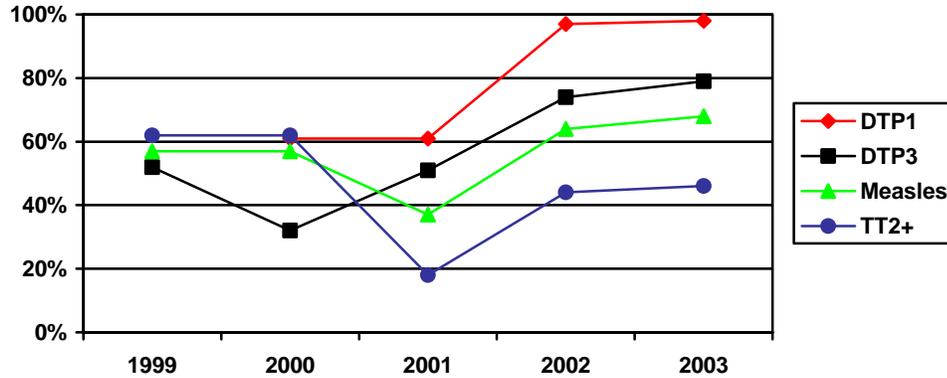
Figure 3. Immunization Coverage, by Antigen, Madagascar 1999-2003



Source: Official JRF Estimates

Since the GAVI baseline year of 1999, Madagascar has undergone severe political instability, as well as cyclones and civil strikes, that disrupted social and health services between October 2001 and mid-2003. Reporting on immunization was certainly affected, creating more than the usual share of problems for data quality and completeness. This is borne out by the 2003 DQA which produced a verification factor of 0.58. Coverage estimates vary by source of data, with JRF figures indicating increased coverage during 2002 while MOH administrative data show a dip for that year. The source of data also affects estimates of numbers of additional children immunized with DTP3 between the 1999 baseline year and 2001: by administrative data, 56,576 additional children were vaccinated but by JRF official estimates, 79,023 fewer children received DTP3. An analysis of drop-out rates disaggregated to district level indicates that the median DTP1-3 drop-out rate fell from 18 percent to 15 percent; the median drop out rate for DTP1-measles fell from 18 percent to 14 percent, suggesting that GAVI's focus on DTP3 has not led to neglect of measles. However, measles coverage in Madagascar is believed to be inflated by a numerator that includes doses given to children over the age of one. While it would be tempting to compare changes in performance among ISS and non-ISS districts, this is ill-advised in Madagascar because many ISS districts were also supported by USAID or UNICEF—thus “doubly blessed”—so, such analyses could be misleading.

Figure 4. Immunization Coverage, by Antigen, Mali 1999-2003

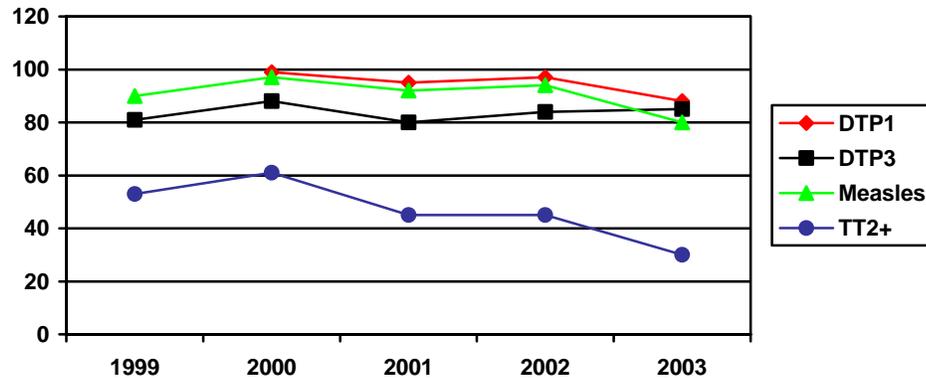


Source: Official JRF Estimates

Mali's coverage trends vary by source of data. Across sources, there was a consistent jump in coverage between 2001 and 2002 for DTP1, DTP3, measles, and TT2+. Attempts to analyze the impact of ISS funding are complicated by the lack of details regarding how ISS funds were directed to particular districts: it is only possible to identify those districts that were beneficiaries of any ISS funding any time after 1999. As a group, the ISS districts demonstrated steady and substantial gains in children vaccinated with DTP3, measles, and DTP1 relative to non-ISS districts, which fluctuated from year to year. The consequence is that while ISS districts vaccinated an additional 96,215 children with DTP3 between 1999 and 2003, only 9,824 additional children were immunized with DTP3 in non-ISS districts during this timeframe. However, in the absence of more detailed information, such a cursory analysis could be misleading, overlooking critical variables such as population of ISS vs. non-ISS districts and migration between them, other donor inputs, circumstances affecting local health programming, changes in reporting completeness among districts, and a major drop in immunization performance in non-ISS districts during one year. It seems unlikely that the large increase in doses administered in ISS recipient districts could be explained exclusively by the use of ISS funds, since only a limited amount of monies were used for service-related activities (vehicles for outreach, social mobilization) and a larger proportion for computerizing health data at the district level. Drop-out rates for both DTP1-3 and DTP1-measles are similar to each other and exceed 20 percent. With a DQA verification factor of 0.747, there may be some inherent uncertainty in analyses using administrative data.

Mozambique

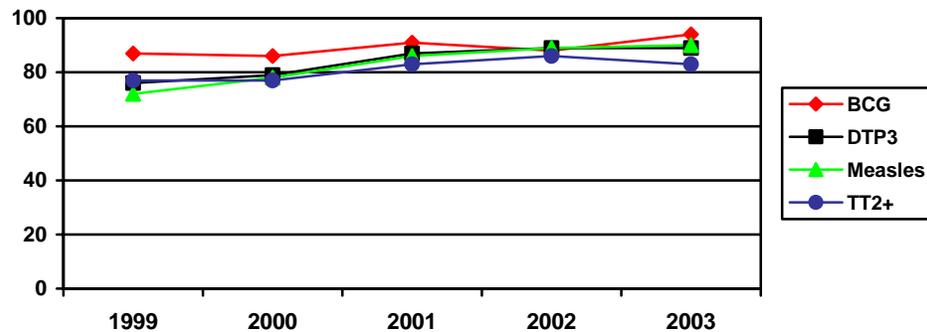
Figure 5. Immunization Coverage, by Antigen, Mozambique 1999-2003



Source: Official JRF Estimates

Mozambique's coverage varies greatly by source of data: for example, whereas JRF official estimates for 1999-2002 cite DTP3 coverage in the range of 80 percent to 88 percent and measles coverage of 90 percent and higher, WHO/UNICEF estimates for these same four years maintain DTP3 coverage at 60 percent and measles at 58 percent. These lower estimates are consistent with DHS survey estimates from 1997 and 2003. Mozambique's DQA in 2002 produced a verification factor of 0.554, indicative of data quality problems; the problems identified include DTP3 coverage estimates over 100 percent and DTP3 coverage estimates higher than those for DTP1. In early 2002, the MOH hired an NIP data manager to help improve the situation, and ISS funds are being used in 2004 to conduct a review of the information system and provide training in formative supervision on information management. Considering the problems of data quality, it is extremely difficult to conduct meaningful analyses of the impact of ISS funds. Assuming that data quality did not change appreciably since the baseline year, it appears that an additional 110,184 children have been immunized with DTP3 between 1999 and 2003; this compares favorably with the projections in the GAVI application, which target an additional 102,463 children to be immunized with DTP3 during this timeframe. The drop in TT2+ coverage is of concern.

Figure 6. Immunization Coverage, by Antigen, Tanzania 1999-2003



Source: Official JRF Estimates

Tanzania has long demonstrated its ability to both achieve and maintain high levels of immunization coverage, based on strategic planning. There has been a steady increase in coverage across antigens from the 1999 baseline through 2003, including for TT2+. Some 40 percent of ISS funds received to date have been directed toward 16 low-performing districts. While coverage trends in individual districts have shown fluctuations, the pooled data from all 16 districts demonstrates a steady increase – by 30 percentage points, from 60 percent to 90 percent – in DTP3 coverage. However, a similar increase in DTP3 coverage of 28 percentage points was observed in a group of 16 other districts that were selected for comparison on the basis of their low performance as of 1999. By contrast, the numbers of children immunized was substantially higher in the 16 ISS recipient districts compared to the non-ISS districts – an increase of 52 percent versus 32 percent, respectively. Similar trends were observed for the number of children immunized with measles. However, the bulk of these increases took place in 1999 and 2000, that is, prior to the receipt of ISS funds. The apparent discrepancy between coverage and numbers immunized is due to occasional changes in district level denominators that affect coverage estimates, but not numbers of children immunized. In both sets of districts, TT2+ showed a modest increase that was slightly higher in non-ISS districts than ISS districts—11 versus eight percentage points, respectively.

3.3.2. Findings Across Case Study Countries and Desk Review

Trends in Immunization Performance

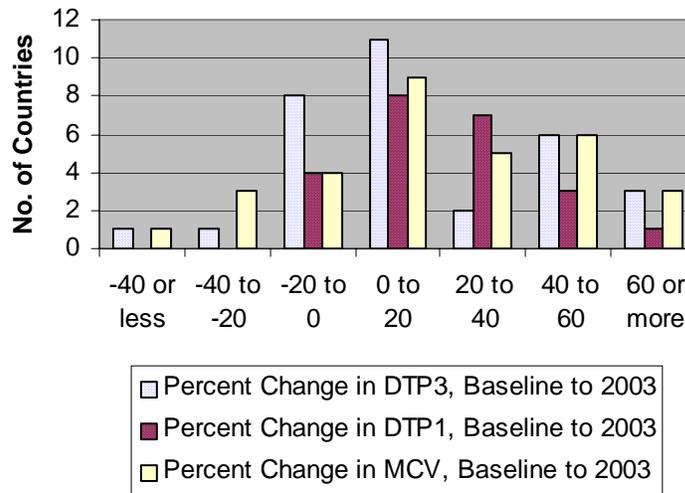
Of the 52 recipient countries for ISS support, 33 received ISS funding prior to June 2002 and have had a longer period to reflect the impact of ISS funding. For that reason, this discussion of trends in immunization performance is restricted to these 33 countries, all of which are included in the desk review. It is based primarily on changes in numbers of children immunized. A comparison of changes in numbers of children immunized against changes in coverage rates showed that in 19 out of 30 countries for which a comparison could be made, the percent change in DTP3 coverage was within 10 percentage points of the percent change in numbers of children immunized with DTP3. In only five of the 30 countries was the direction of change (positive or negative) different between these two indicators, and in only two countries were these differences not marginal (less than 5 percent change

increase or decrease)¹⁰. Given the analyses conducted in the country case studies with regard to coverage figures, it appears that GAVI is on stronger footing in using number of children immunized, rather than coverage, as its principal indicator.

The analysis of impact on performance was done by comparing doses administered for the baseline year and 2003, the most recent year for which largely complete, but still provisional, data were available. As noted elsewhere in this report, the baseline year for each country is defined as the year immediately preceding the receipt of GAVI funding, except in cases where funding was received in November-December in a given year. In such cases, because there is not enough time to program funds, the baseline year is the same year as funds were received. For each country, the figures used are the official country estimates from Joint Reporting Forms, unless otherwise indicated.

Changes in numbers of children immunized with DTP3 between the baseline year and 2003 are shown in Figure 7. To examine whether GAVI's focus on DTP3 has led to differential improvements on DTP3 over other antigens, percent changes in numbers of children immunized with DTP1 and measles are also presented.

Figure 7. Percent Change in Numbers of Children Vaccinated with DTP3, DTP1 and Measles, Baseline year to 2003



Overall, 23 of 33 countries with data demonstrate an improvement of any size with regard to the numbers of children immunized with DTP3.¹¹ The same number of countries (23) showed an increase in the number of children immunized with measles. For DTP1, out of 22 countries for which data

¹⁰ An earlier version of this report using 2002 data found that in only 13 of 30 countries was the percent change in DTP3 doses administered within 10 percentage points of the percent change in DTP3 coverage. It also found the direction of change to be different in one-third of the countries. Using 2003 data represents a substantial improvement in our confidence in the numbers and may be indicative of some improvement in data quality at country level.

¹¹ Note that baseline data for Sierra Leone are not available, but that analysis using the year prior to baseline (1999) and the year following baseline (2001) both reveal clear increases in coverage. Although it is included in other analyses as an improving country, it is not included in Figure 7 because the exact percent increase is unclear.

were available for both years, 19 countries showed an increase in number of children immunized since the baseline year. The range of percent change in children immunized with DTP3 went from a low of -53 percent in Liberia to an increase of 68 percent in Uganda, with a median percent change of 4.1 percent in Zimbabwe. For measles, the range of percent change went from a low of -47 percent in Lao P.D.R. to a high of 132 percent in Liberia, with a median of 12.5 percent in Mozambique. Countries experiencing or emerging from recent political instability during this timeframe tended to show relatively extreme changes.

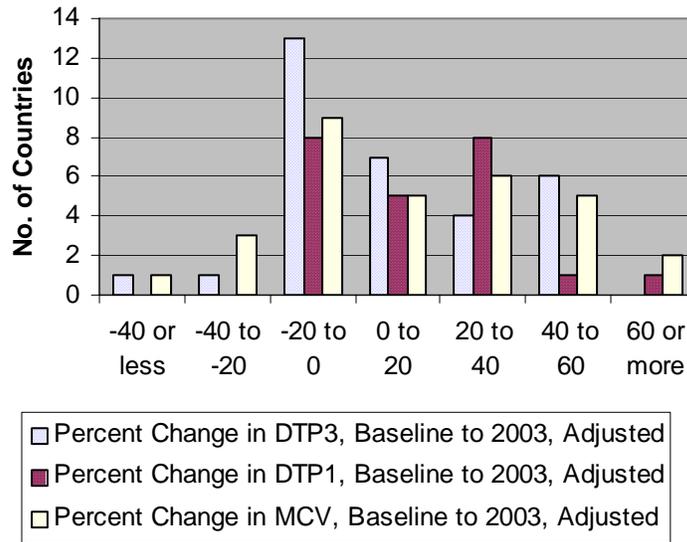
The indicator of number of children immunized avoids the problems with denominators that are inherent in coverage figures. However, this indicator becomes of limited value if used over the course of several years because it does not take into account normal population growth. While such growth may have negligible impact over one or two years, it becomes a more important factor with time. In the absence of such information to “ground” the numerator data, it is impossible to know if increases in children vaccinated represents true improvements in the proportion of the target population protected against the diseases in question. For this reason, we have adjusted the figures presented above to take into account estimated population growth in each country between the baseline year and 2003. The average population growth rate over the period 1990 to 2002 was used to adjust the number of children vaccinated in 2003 for each year elapsed between baseline and 2003.¹² The change in DTP3 doses administered was then calculated using this adjusted number for 2003.

¹² The number of children vaccinated with DTP3 for 2003 are adjusted as follows:

(Number of DTP3 Doses Administered 2003)/(adjustment factor), where adjustment factor = $(1 + g)^{\#yrs}$, g = average annual population growth rate over the period 1990 to 2002, and $\#yrs$ = number of years elapsed between baseline and 2003.

Thus if the country population grew at an average annual rate of 2 percent between 1990 and 2002, the adjustment factor over 3 years would be 1.061 $((1+0.02)^3)$. The number of children immunized in 2003 is then deflated by 1.061. The adjusted 2003 number of children immunized with DTP3 is compared with the baseline number to determine change in number of children immunized. Source of data for population growth rates is *State of the World's Children, 2004*.

Figure 8. Percent Change in Numbers of Children Vaccinated with DTP3, DTP1 and Measles, Baseline Year to 2003, Adjusted for Population Growth



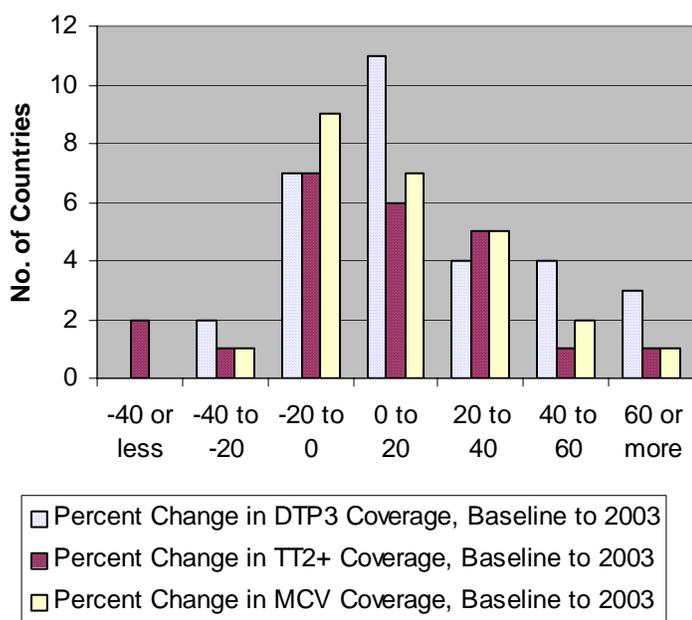
Source: Official JRF Estimates

When adjusted for population growth, 17 out of 32 countries showed an improvement in number of children vaccinated with DTP3. It is interesting to note that a higher proportion of countries showed increases in measles and DTP1 performance, with 18 out of 31 countries (58 percent) and 15 out of 23 countries (65 percent), respectively, demonstrating improvements. Correction for population growth does change the picture somewhat, but over the course of multiple years may provide a more accurate portrayal of progress than using only numbers of children immunized.

While we did not have access to figures on the numbers of doses of TT2+ administered for baseline year and 2002, we did explore whether trends in TT2+ vaccination coverage rates differed substantially from coverage rates for DTP3 and measles. As indicated in Figure 9 below, similar trends were seen for DTP3, measles, and TT2+: for each antigen, between 55 and 70 percent of countries included in the analysis showed coverage increases of any size (22 out of 31 countries for DTP3, 17 out of 25 countries for measles, and 17 out of 23 countries for TT2+). These aggregate data present a somewhat different picture from what was observed in individual case studies, where changes in TT2+ were minimal and seemed unrelated to trends for childhood antigens. The data from the desk study reveal that many countries have seen modest increases in TT2+ coverage, although most were starting from baseline levels that were quite low.¹³ As mentioned earlier in this section, coverage figures are less likely to be accurate than doses administered, which may in part explain these differences.

¹³ The average baseline TT2+ coverage rate for the 24 countries with data available is 52 percent.

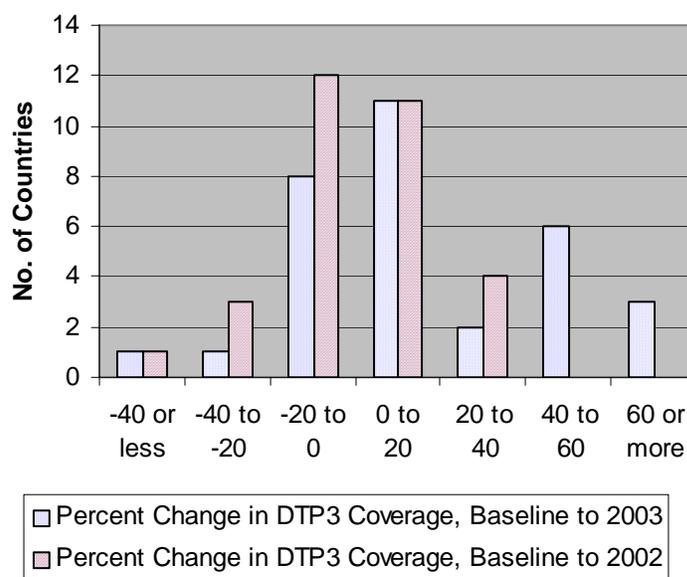
Figure 9. Percent Changes in DTP3, Measles, and TT2+ Coverage Rates, Baseline Year to 2003



On one level, it is underwhelming to see that a system that was first established in 2000 has not yielded dramatic improvements in performance. On another level, it is unsurprising since only 12 of the 33 countries received their first tranche of ISS funding at national level before mid-2001. It takes time to set up accounts, decide on how the funds are to be used, disburse them to appropriate operational levels, and then actually use the funds in a way that affects service delivery. Strategies for strengthening systems may take a complex pathway that does not immediately manifest itself in increased performance levels. Some countries used ISS funds to support approaches such as training or improvements in data management, for which the evidence of their value – in terms of improved immunization performance – may not be realized for additional years. In all six country case studies, improvements in performance between 2002 and 2003 were observed. Figure 10 below shows the changes in DTP3 doses administered through 2002 and through 2003. Results clearly demonstrate that improvement correlates with additional time.¹⁴

¹⁴ Note that 5 countries received funding in 2002, and were classified in the category “0 to 20 percent” for the values of percent change from baseline to 2002.

Figure 10. Percent Change in Number of Children Vaccinated with DTP3, Baseline to 2002 versus Baseline to 2003



Changes in Dropout Rates

An analysis was conducted of changes in DTP1-3 and DTP1-measles drop-out rates over time, comparing the baseline year to 2003. This could only be done for a subset of 22 countries for baseline year and 31 countries for 2003. Several countries had to be excluded for the baseline year because they lacked DTP1 data. Overall, the mean DTP1-3 drop-out rate declined slightly from 14.4 percent to 11.9 percent. Of the 22 countries for which data were available for both years, 14 decreased their DTP1-3 dropout rates while eight showed an increase; the range of change was from drop out reduction of 30 percentage points to an increase of 18 percentage points. For the DTP1-measles drop-out rate, 11 countries showed a reduction while 10 showed an increase. In only four of the 22 countries with data was it observed that the DTP1-3 drop-out rate declined but the DTP1-measles drop-out rate increased, suggesting again that routine measles immunization has not suffered a loss because of the GAVI emphasis on DTP3. For 2003, the mean drop-out rate for DTP1-measles was 16 percent. These rates are above WHO targets of 10 percent or less and suggest that more concerted effort to reduce drop out rates is needed.

Data Quality, Completeness, and Availability

Not surprisingly, issues of data quality and completeness were a major theme raised as a problem or frustration in most country case studies. In the desk review, out of a sample of 33 countries, 21 had conducted DQAs; of them, eight had received a verification factor of 0.80 or higher, but 13 had fallen short of this level.

Among the case study countries, data quality problems were most severe in Madagascar, where the ability to retrieve even standard immunization data at national level was problematic, and in Mozambique, where poor data quality is a well-known issue at all levels. Data quality was much less problematic in Tanzania and Cambodia. In Mozambique, Mali, Madagascar, and Kenya, the questionable quality of administrative data means that different pictures of coverage trends emerge, depending on whether one looks at MOH data or JRF official estimates or WHO/UNICEF estimates.

Furthermore, the issues vary across country: in Mozambique, estimates from administrative data greatly exceed those from population-based surveys by 30 percentage points while the reverse is true in Kenya. The use of survey data must itself take into account the relevant timeframe: a population-based survey is often compared with administrative data from the calendar year in which the survey was performed when the survey actually reflects activity taking place 12-23 months prior to the survey date and thus is more comparable to the previous year's administrative data.

The issue of data quality and completeness is a moving target for reasons that are tied to GAVI itself: in Kenya, Mozambique, and Mali, the DQAs have stimulated activity to try to improve completeness and accuracy of figures. This makes it particularly difficult to conduct meaningful trend analyses that span the years of such improvements. While completeness of reporting is receiving additional attention in some countries, e.g., Kenya, the ability to monitor the accuracy is still an issue.

The data quality problems limit the confidence with which most analyses in this study can be made or interpreted, but does not render them altogether invalid. GAVI's choice of using children immunized with DTP3 partly mitigates the problem. On one level, it may be desirable to propose some additional indicators that are not based on doses administered, as this would broaden the basis for analyses. But in reality it is difficult to identify indicators that would be both useful and suitable for all countries.

Impact on Antigens Other than DTP3

As described above and in Figures 7, 8, and 9, GAVI's focus on DTP3 does not appear to be associated in a negative way with trends in measles or TT2+ coverage in these 33 countries. However, an examination of trends within individual countries indicates that in seven of 22 countries showing improvement in the number of doses of DTP3 administered, changes in children vaccinated with DTP3 exceeded those for measles by 10 percentage points or more. For example, in Senegal, the percent change in children vaccinated was 60 percent for DTP3 but 39 percent for measles; in Niger, the figures were 60 percent for DTP3 but only 17 percent for measles. In five of the countries registering declines during this timeframe (Cote d'Ivoire, Haiti, Laos, Lesotho, Yemen), less of a decrease was observed for DTP3 compared to measles. In seeming contradiction, it should also be noted that in eight of the 33 countries, increases in children immunized with measles were more pronounced (by more than ten percentage points) than those for DTP3.

In most of the case studies, both quantitative and qualitative findings suggest that the GAVI focus on DTP3 has not diverted attention away from other antigens administered to children. The limited awareness at operational level of the performance-based aspect of ISS funding suggests that, as of early 2004, there is little impetus for intentional inflation of DTP3 figures. The quantitative data suggest that DTP1 and routine measles coverage have neither declined nor followed a different pattern than that for DTP3. A possible exception is Cambodia, where administrative data show coverage rising more rapidly for DTP3 than for other antigens; this is also the one case study country where awareness of DTP3 as the GAVI indicator for performance was high at multiple levels. Drop-out rates for DTP1-3 and DTP1-measles have not gone in different directions for most countries. One exception is that in Kenya, where analysis of district-disaggregated data showed that the DTP1-measles rate has declined while DTP1-3 has increased slightly for reasons attributed to global pentavalent vaccine supply shortages that interrupt service delivery at field level. By contrast, tetanus toxoid (TT2+) coverage has shown a pattern that is relatively independent of DTP3 coverage across countries. Overall, there is no evidence that the focus on DTP3 has a negative impact on other antigens or indicators.

Efforts to Reach the “Hard to Reach”

Every country in this sample used at least some portion of its ISS funds to support outreach efforts. As outreach provides services to those who live at a distance from health facilities, it is one way of reaching some less accessible groups. But distance from a facility is not the only attribute of marginalized populations that are missed by the health system, and additional analysis and strategy development must be considered. Such groups are sometimes marginalized slum-dwellers who live in close proximity to facilities but face cultural or societal barriers. Because marginalized groups are not usually well-defined populations whose geographic distribution corresponds to a particular administrative unit (such as a division or district) it is difficult to measure coverage within such groups and determine whether outreach or other efforts is reaching them.

Some limited efforts in addition to outreach were noted in country case studies that indicated efforts to improve the equity of immunization services. For example, in Kenya, all districts receive some ISS funds and with its third tranche, the MOH provided proportionally more funds to geographically larger districts with dispersed populations. Tanzania targeted its funding to low-performing districts and described plans to reach the remaining unreached populations. In Cambodia, ISS funds were not directed to remote, mountainous populations but rather to populous districts where there is an increased possibility of immunizing large numbers of additional children and therefore achieving its GAVI targets. Within these districts, the Coverage Improvement Planning approach emphasized efforts to enlist community support and provide outreach to remote populations. As pointed out in some interviews, GAVI rewards countries on the basis of additional children immunized and this may serve as a disincentive to investing funds in attempts to reach relatively small, disadvantaged populations. While we did not see evidence of systematic neglect of such groups, this area merits further attention at country level.

Impact of New Vaccines on Program Performance

Despite the fact that all six case study countries had introduced a new vaccine since the baseline year, it was only in the country introducing pentavalent vaccine (Kenya) that the concerns about impact of new vaccines on program performance arose. In Kenya, the effect of global shortages of pentavalent vaccine supply was cited repeatedly as a major challenge to the immunization program, affecting not just program management but also DTP3 coverage and the ability to reach ISS targets. At health facility level, health workers described the erosion of community confidence in immunization services on the frequent occasions when the new, recently-publicized vaccine was out of stock. Although pentavalent vaccine is supported by a different GAVI subaccount than ISS funds, at field level the close interrelationship between the two subaccounts was tangible in Kenya. The desk review did not, however, uncover any association between pentavalent vaccine introduction and detrimental effects on numbers of children immunized with DTP3: all countries introducing pentavalent vaccine showed an increase in this indicator.

3.3.3. Impact on Immunization Financing

Financing of immunization programs has changed significantly since the introduction of the VF. The VF has not only expanded total funding, but has tried to encourage increased funding from other sources. It is impossible to attribute financing changes to ISS funding alone, or even GAVI policies (although GAVI emphasizes financial sustainability). Factors external to GAVI, such as increased emphasis on health as part of the Poverty Reduction Strategy (PRSP) framework, may also be contributing to changes in immunization financing.

On average across the 52 desk review countries, ISS funding disbursed represented 16 percent of countries' recurrent cost spending in the year prior to the introduction of ISS funding. In addition to ISS funding, however, countries received contributions of new vaccines and injection supplies, thereby increasing total immunization program costs. After including all VF contributions, ISS funding represented less of the overall budget, accounting for 12 percent of expenditures in the year following the introduction of the VF. Nonetheless, ISS funding represents a significant and perhaps more importantly, discretionary, source of funding.

Prior to the introduction of ISS funds, governments in ISS recipient countries were contributing an average of 37.5 percent of total recurrent costs for immunization, across the 19 countries with available FSP data on government contribution. On average, government contribution has increased 50.6 percent from baseline year to 2002. However, because of the overall increase in the immunization budget, government funding is declining as a proportion of routine costs. Post-VF, government contribution represents 31.2 percent of total recurrent costs, as shown in Table 7.

Table 7. Percent of Total Recurrent Costs Contributed by Government, Before and After the Introduction of VF Support

	Government Contribution, Percent of Total Recurrent (n=19)
Before VF	37.5
After VF	31.2

Source: Financial Sustainability Plan (FSP) Data

It was always an important GAVI principle that VF support be additive to existing immunization program funding, and not replace existing funding. We consider ISS funds to be additive if total recurrent expenditures in the year following the introduction of VF support were greater than the total recurrent expenditures prior to VF support plus the average yearly amount of ISS funds received. Based on this definition, data from the desk review show that for 14 out of 20 countries with data (70 percent), ISS funding has been additive.

3.3.4. Attributing Changes in Performance to GAVI ISS Funds

The question of attributing changes in performance to ISS funding is very complex. ISS funding represents a small percentage of the immunization budget in all countries; thus other financial and technical inputs provided by governmental or nongovernmental sources may be more important determinants of performance. Major contextual factors must be taken into account, including the priority given to routine immunization within the health system, the natural environment (e.g., floods in Mozambique, cyclones in Madagascar), and the political environment. Even to make meaningful comparisons between ISS and non-ISS districts requires matching the districts on several characteristics, of which current level and history of immunization performance are only two.

In order to definitively answer the question of attribution, however, we would need to know what would have happened to ISS recipients in the absence of ISS funding, a counterfactual that is impossible to construct. Although it is not possible to know what would have happened to recipients had they not received funding, we can attempt to compare the coverage changes of recipient countries to a comparison group of countries that applied for and were approved for ISS funding but had not received funding as of June 2002 (our cutoff date for the subsample in this analysis). We also

attempted to compare performance for recipient and non-recipient districts in three case study countries, but the results are not presented because the analysis was extremely limited and difficult to interpret due to lack of complete data.

The comparison group used to construct Table 8 is made up of all ISS-eligible countries that applied and were approved for funding. This comparison group, by virtue of being eligible for GAVI funding, broadly shares similar income levels and immunization rates with the sample group of countries receiving funding before June 2002. However, these later recipients could be quite different from earlier recipients in terms of level of donor support, organizational capacity, or resources for immunization, among other characteristics, which may have contributed to their applying for ISS funding at a later date. We compared the change in DTP3 coverage rate between ISS recipients with the comparison group of non-sample countries. The coverage rate, rather than the number of children immunized, was used for this analysis as it facilitates the comparison of changes across countries.

Table 8. Change in DTP3 Coverage Rate, ISS Recipients vs. Late Recipients

	Number of Countries	Average Baseline Coverage Rate	Average Coverage Rate 2003	DTP3 coverage, Percentage Point Change from Baseline to 2003
Sample countries, 2000 baseline	18	70.6	81.5	10.9
Non-sample countries, 2000 baseline	17	51.1	61.9	10.8
Sample countries, 2001 baseline	13	62.0	68.9	6.9
Non-sample countries, 2001 baseline	16	52.4	63.4	11.1
All sample countries, changes 2000 to 2003	32	67.4	76.7	9.3
Non-sample countries, changes 2000 to 2003	17	51.1	61.9	10.8

Source: JRF Data

ISS recipients with 2000 as a baseline year (who received funding between Nov 2000 - Oct 2001) improved coverage by 10.9 percentage points on average, while the non-sample countries improved their coverage rates by 10.8 percent over that same period. ISS recipients with 2001 as a baseline year (who received funding between Nov 2001 - Oct 2002) improved coverage rates by an average of 6.9 percentage points, compared with an 11.1 percentage point increase in coverage among those countries not receiving funding during that period.

Overall, the picture is inconclusive, with the group of ISS recipients performing in line with its comparison group, except for ISS recipients funded in 2001 who slightly underperform its comparison group. It is important to note that the baseline coverage rates are much lower among the non-sample countries (countries receiving funding after June 2002) than for sample countries. It may be more difficult to improve coverage rates when starting from a relatively higher baseline than from lower baseline coverage rates. While the comparison group countries appear to have performed marginally better, coverage rates continue to increase for the sample countries and remain significantly higher compared to the comparison group for 2003.¹⁵

¹⁵ A recent presentation by Bob Davis of UNICEF (May 2004), considered performance of ISS recipients in Eastern and Southern Africa, using 2000 as baseline for all countries, and 2003 data as the endline. His analysis compares coverage rates for ISS recipients to non-recipients that did and did not apply for funding

There are many limitations to this analysis. The comparison groups merely represent a convenient group of countries that share the characteristic of ISS eligibility. We cannot control for other external and contextual factors that may have led to an increase in DTP3 coverage for either ISS recipient or comparison countries. Lastly, the reliance on coverage rates does not reflect how GAVI measures performance and may be less reliable than the number of children immunized. What is shown here does not show conclusive differences in performance, nor can any of the differences shown be attributed to ISS funding.

On a case by case country level, there is evidence that ISS funding contributed to performance. In Madagascar, ISS funds were used for transport of vaccines during its political instability, and likely contributed to Madagascar maintaining its immunization services. In Cambodia, ISS funds were used to fund outreach when other government funds were unavailable. In Cambodia, Kenya, and Mozambique, ISS funds appear to be used fruitfully to pay for operational costs that enable performance improvement strategies to be carried out at field level. Even in these cases, it is impossible to say whether performance can be attributed to ISS funding, because we cannot know what would have happened in the absence of funding – other donors may or may not have provided this funding in the absence of ISS funds.

Overall, it is not possible to attribute changes in performance to ISS funding. First, it is not clear that ISS recipients outperform non-recipients. Second, even if better performance could be shown, the question of attribution could not be substantiated given the small sample of countries, and lack of a good comparison group. Nonetheless, we did see that in the case study countries, ISS funding is being used in ways that we would expect to lead to performance improvements.

3.4. Factors Affecting Successful Implementation of the ISS Scheme and Improved Performance

3.4.1. Factors Contributing to or Hindering Successful Implementation

Successful implementation of ISS funds is defined in this report as timely use of funds in ways that would be expected to improve the NIP. Successful implementation of ISS funds does not necessarily mean that there are positive performance results, but merely that the administration occurred smoothly (that there was adequate planning of the funds, that funds were accessed when needed, and that monitoring was sufficient for evaluation purposes). As would be expected with the implementation of a new funding mechanism, countries all faced some stumbling blocks along the way. Based on the case study findings, this section describes the reasons why some countries were able to use these funds more easily, and why some countries continue to face challenges with one or more aspects of implementation. Successes and challenges in each of the case study countries are discussed, together with analysis of the factors contributing to both successes and challenges.

Cambodia was one of the study countries where there was fairly smooth implementation of the ISS funding. There was careful planning for the use of ISS funds within the technical working group of

(thus some may not be comparable), namely Botswana, Malawi, Namibia and Swaziland, and treats Zimbabwe (received funding in June 2002) as a non-recipient. This study finds that GAVI ISS funding has been very effective. Given the differences in Davis' sample and comparison groups, it is not surprising that different results emerge.

the ICC. ISS funds are held in a GAVI-specific account at the MOH, with withdrawals subject to the approval of the Minister of Health. Funding that was disbursed to districts were clearly earmarked for specific activities, and this was clearly communicated. Two factors that contributed to smooth implementation was the existence of a coherent ICC and ICC technical working group, and central level directives to districts about how to use the ISS funds. The latter factor is particularly important because such directives may not be acceptable in many countries – Cambodia’s NIP is able to maintain a high level of control at the district level despite a general trend toward more decentralized management in the health sector. Obviously, there are advantages and disadvantages to central level control, but in this case it eased implementation.

In Kenya, there was careful deliberation at the receipt of each tranche of funding about how to allocate funds to districts, with explicit formulas set for the second and third tranches. There was no difficulty accessing funds at the central or district levels. Districts were given little guidance about how to program funds in the first tranche, but received increasingly more direction with each tranche, with specific directions provided by the third tranche. Although there is limited financial information, districts report back monthly to the NIP on the activities supported by the ISS funds. While the ICC was quite thoughtful about how to allocate funds, political pressures also played a role in how the criteria for allocation were developed. Districts had NIP accounts (accounts originally established for NIDs funding), so it was clear exactly how much money was available, and funds were easily accessible. Because districts received little guidance about how to report on expenditures, there is incomplete information at central level about use of funds.

In Madagascar, there was minimal planning to allocate ISS funds. Funds were granted based on district requests with no explicit criteria, and no review of the merit of the requests. Although funds were originally aimed to target two low performing provinces, in practice, they were disbursed to whichever districts made proposals. As a result, the districts most capable and with the most external support were the ones most likely to make proposals and be granted funding. Accessing funds was not a problem at central or district levels, where funds were kept in commercial bank accounts for NIP already set up by UNICEF. Districts do provide financial reports to NIP because they are not provided new funding until they have reconciled previous expenditures. ICC members had no input into how funds are allocated and decision-making was not transparent. Overall the ICC did not seem to have any role in setting priorities or strategies for use of ISS funds.

In Mali, ICC members were not involved in the allocation of funds. There were some issues with the transparency of ISS funds held in a general NIP account, which led to the establishment of a specific GAVI account this year. Funding to districts first goes to the regional level, which notify districts that funds are available. Districts must then submit requests for funding tied to district microplans. Districts must report back to the central level because they are not provided additional funds until receipts are reconciled, but this requirement has caused delays in districts accessing funding. Districts level officials pointed out delays in accessing funding. There was also some confusion because districts may receive less than requested with no explanation provided, so districts then had to re-plan to prioritize their activities given the limited funding. In Mali, it appears that the many layers of administration do cause delays and miscommunication, adversely impacting smooth implementation.

In Mozambique, there were delays in programming the first tranche funding because of a need to adhere to the government planning cycle. Most of the funds were used for vehicles (based on identification of transport as a priority in the NIP multi-year plan), which were procured centrally and allocated to districts based on explicit criteria. There were no problems with accessing funds at

central level. Expenditures were made only at the central level, with districts provided goods rather than cash. Although the ICC was not involved in the allocation process, expenditures were based on the MYP, which they supported, and there was implicit approval of the process. ICC members trusted the NIP with programming these funds appropriately. This model for disbursing ISS support simplified implementation because there were no issues with accessing funds or reporting at the district level, however, it is not feasible for all expenditure types (for example, fuel could not be distributed this way).

In Tanzania, the first tranche of ISS funds targeted 16 low performing districts, identified through a technical assessment. There was a delay initially accessing funds in country due to WHO regulations, since WHO administered the funds. There are also issues with accessing funds at the district level because funds are disbursed to district accounts controlled by the District Executive Directors. Only 54 percent of the funds disbursed to districts are accounted for, but it is difficult to disentangle financial reporting problems from problems with accessing funds at district level. Some ICC members expressed dissatisfaction over how a small portion of the funds was programmed. Tanzania was the one study country where ISS funds did not get “special treatment” – funds were required to flow through the normal administrative channels at the district level, and did not always flow smoothly. In the five other case study countries, special procedures were put in place for ISS funds, providing easier access.

Table 9 summarizes the key findings from each of the case study countries.

Table 9. Factors Affecting Smooth Implementation

	Cambodia	Kenya	Madagascar	Mali	Mozambique	Tanzania
Planning/ Allocation	ICC TWG	NIP with ICC involvement	No specific procedures, ICC not involved	NIP/MOH	NIP, but implicit ICC support	NIP, with input from selected ICC members
Accessibility	No problems GAVI account at central level	No problems GAVI account at central level, district EPI acts	No problems	Some issues led to creation of GAVI account	No problems	No problem at central level, but difficult at districts
Monitoring	Easy – funds programmed by NIP	Incomplete– particularly financial monitoring	Financial reports required or no new funding	Financial reports required or no new funding	Easy – goods procured centrally and disbursed to districts	Incomplete financial reporting from districts

The presence of a coherent ICC and strong capacity within the NIP appeared to be the key factors affecting good allocation of funds. The ICC was not always directly involved in the decision (such as in Mozambique and Tanzania) but there was implicit approval of the process, it was based on sound principles (a MYP in Mozambique and an assessment in Tanzania), and there was high transparency. Where the allocation process seemed less clear and strategic (Madagascar and Mali), there was poor communication within the ICC, and the ICC was not included in the decision process.

The accessibility of the funds depended mostly on the presence of independent NIP accounts, or accounts set up specifically for GAVI-provided funds. Separate accounts prevented the co-mingling of ISS funds with other health or other sector funds. Mali faced problems with transparency and timely notification about receiving funds from GAVI, leading to opening an account specifically for GAVI funds. Districts in Tanzania had a difficult time accessing GAVI funds that were held in district combined accounts. For government administrative reasons in Tanzania, however, the view was that the ISS funds would not be able to circumvent this problem. Where there were no problems, there were GAVI specific accounts and/or special “fast-track” procedures allowing NIP to access funds outside of the normal government funding procedures.

Monitoring the use of funds was most challenging in environments with decentralized district management and where cash was disbursed to districts for their own programming. Monitoring the funds was easiest where they were programmed at the central level. Even where funds were centrally programmed or where reports from the districts were available, there was little being done to examine district expenses, compile the data, or evaluate the effectiveness of ISS funds. Kenya, which originally provided little guidance to districts about use of funds, has moved toward more directed spending guidelines to districts.

3.4.2. Factors Contributing to Changes in Immunization Program Performance

As described in earlier sections, the limited timeframe for this study and the mixed quality of immunization data makes analysis of immunization program performance very challenging. What is included here are observations of the characteristics of countries whose performance seems to be clearly improving or declining to see whether there are differences between these groups of countries related to timing and use of funds, government contribution to NIP, and magnitude of ISS funding. Improving performance is defined as over 5 percent increase in the number of children immunized with DTP3 from baseline year to 2003, while declining performance is defined as over 5 percent decrease in number of children immunized with DTP3 from baseline to 2003, based on JRF data. The results shown should not be interpreted as statistically significant or as being attributable to GAVI – these are only observations of differences among improving and declining countries.

Among the 33 countries receiving funding prior to June 2002, 15 countries (46 percent), were improving performers, 7 were stable, and 11 were declining performers. Sierra Leone was missing data for numbers of children vaccinated for its baseline year of 2000, but using either 2001 or 1999 as a baseline year, it demonstrates clear improvement in DTP3 coverage, and was therefore classified as a DTP3 improving country for this section. Of the 9 non-African countries, one increased DTP3 coverage, three experienced marginal changes in DTP3 coverage, and five experienced declines. Of the 24 African countries, 14 saw improvements in coverage (58 percent), four were more stable (17 percent), and six declined in DTP3 coverage (25 percent). See tables A1 and A2 of Annex A for a list of the countries falling within these categories.

Timing of Funding

As discussed in a previous section, there was great variability in the amount of time that countries have been receiving ISS funding. Analysis of improving and declining performers show that countries that have had ISS funding for a longer period of time were more likely to show improvements in coverage. Table 10 shows the performance of countries broken down by the year in which they received initial funding

Table 10. Changes in No. of Children Vaccinated with DTP3, Baseline to 2002, by Year of Funding

	Funding year 2000		Funding year 2001		Funding year 2002	
	Number	Percent	Number	Percent	Number	Percent
DTP3 Improvers	3	60.0	9	50.0	3	30.0
DTP3 Stable Countries	1	20.0	3	16.7	3	30.0
DTP3 Decliners	1	20.0	6	33.3	4	40.0

Source: Internal GAVI Tracking Documents, JRF Data

Of the five countries that were funded in the year 2000, three were improving performers. Of the 18 countries funded in the year 2001, half were improving performers. For the 10 countries receiving funding in the year 2002, only 3 countries were improving performers. This shows a pattern that the longer a country has had ISS support, the more likely it is to show increases in coverage. This result shows that earlier a country receives funding, the longer time it has had to program and use the funding, and that there is likely cumulative benefit from ISS funding over time. However, it should also be considered that countries applying and receiving funding earlier may also manage their NIP programs more efficiently or were already receiving significant external assistance, which not only led to early applications, but better performance.

The time elapsed from board approval to first tranche funding was also examined to see whether there was any affect on performance, as shown in Table 11. Improvers experienced a slightly quicker process from approval to tranche transfer, with decliners delaying significantly more in providing bank information

Table 11. Average Delays in Stages of the Application Process, First Tranche Funding, by Performance

	No. of Countries	Approval to Decision Letter	Decision Letter to Bank Information	Bank Information to Tranche Transfer	Approval to Tranche Transfer
DTP3 Improvers	15	62	44	34	141
DTP3 Stable Countries	7	42	112	34	199
DTP3 Decliners	11	50	97	35	177
Overall	33	54	79	34	166

Source: Internal GAVI Tracking Documents

Note 7 countries were not reported to have sent bank information (5 DTP3 improvers, 1 stable change country and 1 DTP3 decliner)

Use of Funds

Differences in use of ISS funds between improving and declining performers was analyzed, though there are limitations to this analysis. First, we do not have information on other sources and uses of funds, which would influence the allocation of ISS funds. Second, this data is based solely on Progress Reports, and it is unclear whether countries interpreted the line items as intended. For example, we know that the outreach line may be under-represented because some costs may be reported under transport or personnel or vehicles. With these limitations, the findings must be interpreted cautiously.

As shown in Table 12, some differences in spending allocations emerged. Improving performers spent less on cold chain (5.7 percent vs. 9.1 percent) and personnel (3.8 percent vs. 13.4 percent) compared with declining performers. At the same time, they spent more on transport (5.0 percent vs. 2.3 percent), IE&C (7.2 percent vs. 3.1 percent), and a bit more on vehicles (7.7 percent vs. 5.4 percent) compared with declining performers. Although there were differences in specific funding allocations among recurrent expenditures, both groups spent the vast majority on recurrent costs, or 80.6 percent overall. The choice of supplementing recurrent costs with GAVI resources among all groups may be indicative of an ongoing gap between program needs and government budget or donor resources.

Table 12. Percent ISS Spending on Expenditure Categories, by Performance

Expenditure Category	Average Between Tranches			
	DTP3 Improvers (n=15)	DTP3 Stable Countries (n=7)	DTP3 Decliners (n=11)	Overall (n=33)
Personnel	3.8	5.3	13.4	7.3
Training	22.1	14.3	21.5	20.3
Transport	5.0	13.1	2.3	5.8
Maintenance & Overhead	2.4	8.2	6.4	5.0
IEC	7.2	10.2	3.1	6.5
Outreach	3.3	4.9	3.5	3.7
Monitoring, surveillance	11.4	10.2	10.2	10.8
Other	25.9	6.4	15.5	18.3
Recurrent	81.4	80.3	79.7	80.6
Vehicles	7.7	17.4	5.4	9.0
Cold chain	5.7	1.4	9.1	5.9
Other equipment	5.2	0.9	5.8	4.5
Capital expenditures	18.6	19.7	20.3	19.4

Source: Progress Report

*Simple averages across tranches, except when only one spending tranche reported, in which case only the first tranche is included.

The differences shown would support the theory that funding spent directly on information campaigns and service delivery (IEC, transportation, outreach, vehicles) could result in coverage improvements more quickly. However, it is important not to jump to conclusions regarding how countries *should* spend their ISS funds. Expenditures on training or cold chain equipment could have significant impact on vaccine safety, efficacy and wastage, which improve aspects of the immunization program that are not captured in the DTP3 indicator. Further, while these coverage gains are encouraging,

country reliance on ISS funds for basic service delivery costs do not bode well for the sustainability of high coverage if ISS funding was discontinued.

Differences also emerged between improving and declining performers with regard to the level of the health system at which funds were spent, detailed in Table 13. Improving performers spent only 21.5 percent of ISS funds at the central level, funneling a greater proportion of funds to operational and service delivery levels. Declining and stable performers, on the other hand, spent respectively 65.7 percent and 52.9 percent of ISS funds at the central level. This finding reiterates the previous one – that spending more directly on service delivery (thus closer to or at the service delivery level) may lead to more immediate increases in coverage rates.

Table 13. Percent ISS Spending by Health System Level, by Performance

Expenditure Level	Average Between Tranches			Overall (n=33)
	DTP3 Improvers (n=17)	DTP3 Stable Countries (n=5)	DTP3 Decliners (n=11)	
Central	21.5	34.3	47.1	32.3
Subnational	78.5	65.7	52.9	67.7

Source: Progress Reports, JRF Data

*Simple averages across tranches, except when only one spending tranche reported, in which case only the first tranche is included.

A complete list of countries with key immunization financing data (providing the details behind Tables 13-17) can be found in Annex A, Tables A4 and A5.

There was also a difference between improving and declining performers with regard to the percent of ISS funds spent. Improving performers spent 56 percent of their ISS funds, while declining performers spent 75 percent of their ISS funds (Table 14). It was not clear how to interpret this finding. It may be that declining performers face such acute funding shortages that they had quick immediate needs for funding. Or, declining performers may have spent funding in ways that are “easier” to spend, but which may have less immediate impact on children immunized (eg, it is easier to spend large amounts of funding on cold chain equipment quickly, compared with spending on fuel for outreach). There is insufficient information to fully explain this finding.

Table 14. Percent of ISS Funds Spent, by Performance

	No. of Countries	Percent of ISS funds spent*
DTP3 Improvers	11	0.56
DTP3 Stable Countries	6	0.79
DTP3 Decliners	9	0.75
Overall	26	0.68

Source: Progress Reports, JRF Data

* Note : Azerbaijan, Burkina Faso, Burundi, Eritrea, Gambia, Sierra Leone and Zimbabwe are excluded from this analysis because the data show these countries as having spent more than they have received.

Government Contribution to NIP

We analyzed differences between improving and declining performers to see whether there were differences in government funding for immunization, on the assumption that government funding would be a proxy for government commitment, which would impact performance. Table 15 shows a large difference between improving and declining performers in this area. While DTP3 improvers increased their contribution to government expenditures by over 50 percent from the year before ISS funds were introduced to the year after the introduction of ISS, DTP3 decliners increased their contribution to government expenditures by much less, at 18.5 percent of the previous year's expenditures. The improving countries seem to have had greater government commitment than declining countries, as measured by increases in government funding to immunization.

Table 15. Percent Change in Government Contribution to Total Routine Costs, by Performance

	No. of Countries	Percent change in government contribution, total dollar amount
DTP3 Improvers	10	50.4
DTP3 Stable Countries	5	83.0
DTP3 Decliners	5	18.5
Overall	20	50.6

Source: Financial Sustainability Plan Data

ISS Spending and Funding Relative to Total Immunization Program Costs

There were differences in the magnitude of ISS spending relative to the immunization program costs between countries with improving performance and declining performance. As shown in Table 16, the average ISS funding tranche represented 17.6 percent of pre-VF costs and 12.9 percent of post-VF costs for countries with improved performance. By comparison, for countries with declining performance, the average ISS funding tranche represented 11.9 of program costs pre-VF, and 12.6 percent of program costs post VF. ISS expenditures represented a larger portion of program costs – that is, provided a larger increase to the immunization program expenditures, for the improvers compared to the decliners.

Table 16. Total ISS Funds Spent as Percent of Total Recurrent Costs, Before and After the Introduction of VF Support, by Performance

	No. of Countries	Before VF	After VF
DTP3 Improvers	10	17.6	12.9
DTP3 Stable Countries	5	17.4	8.4
DTP3 Decliners	5	11.9	12.6
Overall	20	16.1	11.7

Source: Financial Sustainability Plan Data

Table 17 shows data from 17 of the 20 countries that have submitted financial sustainability plans,¹⁶ showing the magnitude of ISS funds, expressed in dollars per surviving infant. For improving countries, average costs per surviving infant pre-ISS was \$4.99, with ISS funding providing an additional \$0.83 per tranche on average. Post-ISS funding however increases to \$6.94 per surviving infant, likely as a result of increases in other GAVI funding and increases in government budget. In contrast, declining countries spend more per surviving infant pre-ISS (\$6.30), receive more ISS funds (\$1.13), but ultimately spend less per surviving infant (\$5.97) post-ISS. While this seems startling, it is not very meaningful because of the small and unrepresentative sample of declining countries (Azerbaijan, Haiti, and Lao PDR) in this analysis. Thus, it is not clear whether the magnitude of funding is related to performance outcomes.

Table 17. Total Recurrent Costs pre-VF, post-VF and ISS Funds, per Surviving Infant, by Performance

	No. of Countries	Average Total Recurrent Costs pre-ISS per Surviving Infant	Average ISS Tranche per Surviving Infant	Average Total Recurrent Costs Post ISS per Surviving Infant
DTP3 Improvers	10	\$4.99	\$.83	\$6.94
DTP3 Stable Countries	4	\$4.03	\$.65	\$7.59
DTP3 Decliners	3	\$6.30	\$1.13	\$5.97
Overall	17	\$4.99	\$.84	\$6.92

Source: Financial Sustainability Plans, Progress Reports, JRF Data

Note: Armenia (stable), Ghana (decliner), and the Gambia (decliner) are excluded from this analysis because they are outliers and skew the results.

3.5. Cost of Administering ISS Scheme

While VF support has provided a significant resource infusion to immunization programs, this support has not been without cost. In order to continue receiving VF support, whether it is ISS funding, new vaccines, or injection supplies, all countries are required produce Progress Reports and Financial Sustainability Plans, and undergo Data Quality Audits. While these are not requirements only for ISS recipients, significant resources are needed to meet these reporting requirements. In addition to the reporting requirements, there are costs specific to the management of the ISS funding

¹⁶ Armenia and the Gambia are excluded as they are outliers, with \$21.50 and \$25.70 reported as having been spent per surviving infant prior to the introduction of ISS funds.

mechanism. None of the case study countries had documentation of the costs of reporting or management, nor did they find these costs to be overly burdensome. From the case study interviews, it does not appear that the administration costs related to GAVI and ISS funding are a significant consideration for countries.

3.5.1. Costs of Administering ISS Funds

Because countries were given complete flexibility on the administration of the ISS funds, with no reporting requirements aside from a simple table in the annual progress report, each country created its own rules to manage the ISS funds. The study countries generally adapted a set of procedures already in place for administering other funding. The level of administration associated with ISS funding was not considered burdensome in any of the study countries.

In Madagascar and Cambodia, the NIP manages the administration of ISS funds directly. It is responsible for disbursing funds and reconciling receipts with the bank statement. There is a designated person within the NIP assigned to this task. In Kenya, Mozambique and Mali, the MOH is managing the reconciliation of ISS expenditures according to standard MOH procedures. There is minimal additional burden to the NIP. In Tanzania, the funds are managed by the WHO financial clerk who also manages other donor funding routed through WHO.

3.5.2. Costs of Fulfilling GAVI Requirements

The two GAVI requirements that represent significant effort at the country level are preparing the Financial Sustainability Plan (FSP) and undergoing the DQA. The FSP requires substantial time commitments from the NIP manager, ICC members, and sometimes external consultants over several months. For many program managers, it is their first exposure to costing and financing concepts. The Data Quality Audit usually takes place in countries two years after they have received their first GAVI inputs, and it requires a significant commitment from NIP personnel while it is being conducted. The DQA usually takes place over a two week period and costs approximately \$35,000 (not from country funds).

During the country case studies, NIP managers in Kenya, Madagascar, Tanzania, and Cambodia specifically cited the FSP as the most burdensome GAVI requirement. The feedback about how burdensome the FSP is may be because there is a learning curve just to understand what an FSP is, it takes place over several months, and it includes analysis and projections that are not within the expertise of NIP managers. However, the NIP managers valued the FSP process and believed it to be a useful exercise despite its high costs.

None of the NIP managers mentioned the costs of the DQA. In Mozambique, Tanzania, and Kenya, the DQA spurred the NIP to improve its information systems. Two of these countries were denied reward shares and must improve their information systems in order to increase their verification factor in the next DQA. The DQA has actually been perceived as being valuable and necessary for improving the system.

3.5.3. Cost Effectiveness of ISS Scheme

Although there was initial discussion by the steering committee of analyzing the cost effectiveness of the ISS scheme within this evaluation, subsequent discussions recognized that the scale of such

analysis would be beyond our capacity at this time. Such an analysis would require an accurate costing of all aspects of ISS implementation at global and country level. Given the minimal reporting requirements imposed by GAVI, future work to analyze the cost effectiveness of this funding mechanism compared with other donor funding targeted toward immunization would be valuable to inform immunization financing policy.

3.6. Comparison of GAVI and GFATM Application Process and Impact on Health System

There is interest in comparing GAVI and the Global Fund for AIDS, Tuberculosis and Malaria (GFATM or GF) as they both implement a similar performance based funding mechanism. Like ISS funding, GFATM funding after the first two years is contingent upon progress in reaching targets as previously identified. Although not the primary focus of this evaluation, it was agreed that to the extent possible, this evaluation would compare the experiences of countries with the GAVI and GF application processes, and their effects on the health system.

3.6.1. Comparison of Application and Management Processes

Like GAVI's requirement for ICCs, the GF requires a country coordinating mechanism (CCM) for identifying program needs and financing gaps. While the ICC is a multiple partner committee, the CCM is much more broad-based, including various government sectors, NGOs, the private for profit sector, community groups, and various multilateral and bilateral agencies. Although CCM membership varies greatly from country to country, a recent GF analysis of CCM membership found that government sectors involved range from finance, education, defense, and labor departments to justice, family, social, culture and information sectors. Apart from the major multilateral and bilateral organizations that often play a large role in each country, there were also faith-based organizations, academic institutions, private sector involvement and people living with AIDS participating in the CCM. In contrast, the ICC is limited to fewer organizations that have generally had historical working relationships.

As part of the proposal for funding, the CCM nominates one or more principal recipients (PR), who act as the main implementers of proposed activities. Like the GAVI's independent review committee, GF proposals are reviewed by a technical review panel, which provides recommendations to the Board, which makes the final funding decisions. Unlike GAVI, the GFATM contracts with a local fund agent (LFA) in each country that certifies the financial management and administrative capacity of the PRs, and is responsible for administering the funding. The GFATM requires both financial and programmatic reporting, including external audits of the funds. The GFATM develops/negotiates key indicators country by country depending on the activities proposed, unlike GAVI's reliance on one indicator for all countries.

The GFATM introduced a unique process for appealing application decisions – the Internal Appeal Mechanism. This process allows proposals that were rejected in two consecutive rounds to appeal the decision. In appeal, a group of five experts, three designated by WHO, UNAIDS and the World Bank, as well as two technical review panel experts that were not involved in the initial application review, meet to reconsider the application. Such an appeal process is not available under GAVI for approval of the application, or authorization of reward shares.

3.6.2. Findings from Case Studies

In part due to the high-profile nature of the CCM, it proved difficult in many of the country case studies to set up interviews with individuals involved in the GF application process, as NIP managers were not often the appropriate persons to make first contact with CCM leaders. However, interviews (that were quite brief in some cases) in Kenya, Madagascar, Mali and Mozambique did point to some interesting findings.

In these four countries, the ICC was seen as a more effective mechanism for the coordination of financing and decision-making in comparison to the CCM. The ICC has been in existence longer and has a high level of participation, but without so many actors involved that it becomes difficult to make decisions. The focal point for the CCM is often a high level official (e.g. the Minister of Health) who does not always have the time to attend CCM meetings. Some individuals felt a lack of leadership from the CCM, as well as frustration over delays in the release of GFATM funds. Respondents reported that while the scope and mandate of the ICC are clear and limited, the CCM is much larger and more complex, with its role still evolving.

Both of the application processes were quite time consuming and complex, however, GAVI guidelines and procedures were perceived as more straightforward than GFATM, with just one indicator and a clear process for verification (DQA). In Mali, the GFATM procedures were so complex that the first two funding proposals for GFATM were rejected, and the country had to bring in an external consultant to complete the third version. In contrast, the immunization program in Mali was able to maintain ownership of the ISS application process.

Another major difference between the two processes is the establishment of targets. While the GF application involves the development of targets through a negotiation process between GF and the recipient, the indicator for ISS funding (number of additional children immunized with DTP3) is clear and globally imposed. This clear indicator was perceived as simplifying the process. In Mali, however, there was a perception that the indicator chosen for ISS (the number of children immunized rather than the coverage rate) was new and required additional compilation beyond their normal reporting system. Mozambique found that the GAVI ISS indicators were easier to measure than the GF indicators.

Overall, the funding mechanisms and requirements of the GFATM and ISS are very different, and while there may be similarities in the structure of the funding processes, the scope of GFATM is much broader, leading to more complex processes and the involvement of a much wider range of organizations. It is not surprising that GAVI ISS processes were perceived as being a bit more manageable, even though both applications required a great deal of effort and coordination.

4. Discussion and Recommendations

Through the desk review and the country case studies, we have compiled a substantial body of data regarding management of the ISS mechanism, how ISS funding is being used, its impact on the immunization program, and factors that may be contributing to more effective use of funds. In some cases, the data collected, combined with the study team’s judgment and experience, provides a clear direction for moving forward, or for types of analyses or monitoring that would be useful in the future. In other cases, we must recognize that the data are limited and describe a short timeframe, and we must be careful when formulating conclusions. In this section, we discuss the strengths and limitations of our findings, and provide recommendations on how to move forward.

4.1. Discussion of Findings

4.1.1. Implementation and Management of ISS Funds

This discussion of the initial stages of implementation must be prefaced with the reminder that the case study countries were all first round GAVI applicants, so they were subject to all of the start-up issues related to sorting out the details of a new funding mechanism. The initial application process was marked, to some extent, by lack of clarity and processing delays. For the most part, that phase of GAVI/ISS is over. In most case study countries, that first set of actors has moved on to other assignments, and the National Immunization Program (NIP) staff and ICC members who currently implement the ISS mechanism were not involved at the initial stages. With the exception of the baseline figures provided in one country’s application, there do not seem to be major issues related to ownership of the application process that is affecting current implementation.

The issue of baseline data submitted at the time of application is an important one, as it determines the amount of reward shares, or even whether reward shares will be forthcoming at all. For one case study country, because the baseline year DTP3 estimates came from coverage survey data that greatly exceed routine administrative data, it is unclear that the country will ever be able to receive reward shares. We are unable to determine whether this country was the one exception among GAVI recipients or whether any other countries are in the same situation.

There appears to be good understanding of the mechanism for calculating reward shares within the NIP, and generally among ICC members (although this was not the case in one country). With the exception of one country, this understanding is only at the central level, and there is very limited understanding at subnational levels. Overall, it does not appear that the concept of maximizing reward shares is a high priority in the programming of ISS funds. We can only speculate as to why more attention has not been paid to the reward shares. There may be insufficient individual incentive to maximize on the reward. Or, perhaps this type of incentive is so unusual within public health that there is not a real grasp of its implications yet. The validity of the latter reason will be tested now that countries have actually received (or been denied) reward shares – the concept should now “sink in.” With this in mind, it does not appear that the reward shares have really served as a strong incentive up to now, although it should be noted that in the one case study country with high awareness of the reward system at multiple levels, funds for subnational activities were directed so as to maximize gains in the numbers of children immunized, ie, targeted to relatively populous areas.

There have not been problems accessing ISS funds at central level in country – although in some countries with decentralized management systems, there has been difficulty accessing funds at district level. ISS funding was generally managed outside of the normal government funding mechanisms. Although the MOH was often responsible for managing the funds, their release would be “fast-tracked” by signature of senior officials. Despite lack of specific requirements, most countries have in place adequate financial reconciliation procedures. Full compliance with these procedures is an issue in some countries, although there is no evidence of misuse of funds.

4.1.2. Allocation and Use of Funds at Country Level

Across the case study countries, there was great variety with respect to how ISS funds were allocated. Countries used quite different criteria for allocating funds among districts. Some countries targeted underperforming districts, while others targeted districts with high number of unimmunized children, and yet others provided funds to all districts for political and “fairness” reasons. One country did not allocate cash to districts at all, but purchased commodities that the central level then distributed to districts. In two case study countries, there were no records of ISS disbursements to districts that specified which districts received how much ISS money, and when. Given only six case study countries, and the short timeframe for study, it is not possible to see any association between different allocation procedures or criteria with performance.

In most countries, the allocation process appears systematic and strategic. Countries used funds to address specific obstacles identified and to implement coverage improvement strategies. Where allocation processes seemed less thoughtful and transparent, the country ICCs seemed less coherent and functional. Although ICCs were not always involved in the actual design of the allocation process – even in countries with strategic allocation – they were aware of, and supported, the process. This finding is important because GAVI has not directed ICC involvement in management of ISS funds in the same manner as they have directed ICC involvement in developing the application or the Financial Sustainability Plan (FSP), although the ICCs sign Progress Reports indicating some involvement in monitoring the use of funds.

Aggregate data across the subset of 33 early recipients indicate that ISS funding is largely used for recurrent expenses (81 percent of expenses), and at subnational levels (68 percent of expenses). The highest expenditure categories were training (21 percent), monitoring and surveillance (11 percent) and vehicles (9 percent). While the information contained in progress reports suggests that outreach is not a major category for use of ISS funds, the experience from country case studies shows that the purchase of vehicles and payment of per diems, both of which constitute major categories of use, are applied largely to the provision of outreach services. Across the desk study countries, 62 percent of ISS funding disbursed has been spent.

One of the unique and most valued characteristics of ISS funding is the complete flexibility and discretion given to NIPs regarding how and when to program funding. The true value-added of ISS funding would be significantly diminished if GAVI were to prescribe to countries how to use this funding, or required funds to be disbursed within a specified time period.

While experience varied across countries, the use of ISS funds seems to reflect the under-funding of some critical areas, which previously hindered the implementation of performance improvement strategies. To the extent that ISS funding has been able to fill gaps in funding or to allow the immunization program to function in times of crisis, it does support the immunization program and

contributes to coverage, when funds are available. At the same time, immunization programs risk becoming dependent on ISS funding for some expenditures, rather than addressing systemic issues causing funding shortfalls that compromise coverage. This point is particularly important given the limited implementation of FSPs to date – sustainable financing is critical to maintaining the progress made with current ISS funding.

4.1.3. Impact of ISS Funds on Immunization Program Performance

The picture that emerges regarding changes in coverage is somewhat mixed. Overall, 23 of 33 earlier recipient countries in the desk review showed positive trends in numbers of children immunized with DTP3 between their baseline year and 2003, while 23 of 33 countries showed increased numbers of children immunized against measles from baseline year to 2003. To eliminate the impact of increases in the number of children immunized that result solely from population growth, the number of children immunized in 2003 is adjusted based on the population growth rate. Adjusting for population growth, these numbers are slightly deflated, with 17 countries showing any improvement in the number of children vaccinated with DTP3 and 18 showing improvement in doses of measles administered. The picture is similar for DTP1-3 dropout rates – out of 23 countries for which changes over time could be analyzed, 14 showed a decrease while nine showed an increase in dropout rates. The ISS indicator of number of children immunized with DTP3 does not appear to be adversely affecting performance of other antigens. GAVI's focus on DTP3 does not appear to have diverted attention away from other antigens administered to children, but seems to be relatively unrelated to trends in TT2+ coverage.

Immunization data quality and completeness were a major problem in most of the case studies, further complicating any conclusions regarding changes in performance. The problems with data quality are country specific, with irreconcilable data from different sources, and often no clear indication of which source is most reliable. In this regard, ISS funding and the structure of reward shares is having impact, as some countries that failed their DQAs are making substantial efforts to improve the quality of their immunization data.

With the exception of Cambodia, case study countries did not allocate funds in order to reach the highest number of children or maximize reward shares. As discussed earlier, the full implication of reward shares may not have been truly understood until this year when the first reward payments were made. Even so, those countries declined reward shares may experience little change at field level in the near term as they are stretching out their ISS disbursements, while those receiving reward shares have little reason to become more preoccupied with this indicator. Case study countries generally did not undertake any special effort to target the “hard to reach,” except to the extent that a significant portion of funding supported outreach efforts. Although the ISS reward has the potential to serve as a disincentive to investing funds to reach small disadvantaged populations, countries for the most part did not strategically plan either to ignore, or reach out to, the hard to reach.

Introduction of new vaccines did not seem to adversely affect program performance in case study countries, except in Kenya. Shortages of pentavalent vaccine there affected not only ability to reach ISS targets, but also reportedly eroded community confidence in immunization services because of frequent stockouts that disrupted services.

There have been several positive changes related to financing of immunization programs – total funding for immunization has increased, total amount of government funding for immunization has

increased, and ISS funds have not replaced other funding in most countries. All three of these findings mean that the trend in financing is moving in the right direction, but large gaps are expected once VF support ends. The limited implementation of FSPs, and in some countries, the decline in ICC engagement in immunization activities, are reasons for concern.

Overall, the results are inconclusive when comparing the performance of ISS recipients with a convenient similar group of countries. We also attempted to compare performance for recipient and non-recipient districts in three case study countries, but the analysis was extremely limited and difficult to interpret due to lack of complete data. Further, it is not possible to attribute changes in performance of recipient countries to ISS funding. However, on a country by country basis, we see that ISS funds appear to be related to modest improvements in performance, but again specific attribution is not possible because other funding may have been forthcoming in the absence of ISS funds.

4.1.4. Factors Affecting Successful Implementation and Improved Performance

Several key factors emerged that contribute to successful implementation of ISS funding. The presence of a coherent ICC and strong technical capability within or easily available to the NIP appeared to be the key factors determining strategic allocation of funds. From the country case studies, the use of ISS funds appears most promising where they provide the financial means to implement locally-appropriate technical strategies to strengthen routine immunization – the ISS funds transform a plan into reality. The accessibility of funds depended mostly on whether funds were held in NIP accounts, or accounts specifically set up for GAVI provided funds. Monitoring of funds was generally stronger where the central level programmed the funding, with or without district input.

Some differences emerged when analyzing the characteristics of countries with improving and declining performance. Countries receiving funding earlier were more likely to show performance improvements, which suggests that it requires some time for performance improvements to occur at a level that is measurable. Across the 33 desk review countries, those with improved performance spent more of their ISS funds on transport, IE&C, and vehicles, relative to countries with declining performance, who spent more on maintenance and overhead, personnel and cold chain. Countries with improved performance also spent more at subnational level, and had larger increases in government contribution. Countries with declining performance spent a larger portion of their ISS funding. In each of these instances, however, it is not possible to describe what other changes occurred, independent of the spending of ISS funds, nor what other funding was available and how it was used.

While these findings are valuable, and provide insight on best practices, it is not advised to use them for developing prescriptions for countries. These findings do not mean that if countries were given more ISS funding, and if the NIP controlled the funds, and spent money on transport and vehicles, performance would improve. Within the appropriate context, these findings do highlight better ways to manage ISS funding and to allocate it to produce more immediate outcomes.

4.1.5. Cost of Implementing the ISS Scheme

Countries did not view the cost associated with managing the ISS scheme to be burdensome. The cost of ongoing administration is minimal, particularly because GAVI has almost no requirements for financial reporting. To-date, the two costliest activities are related to preparation of the FSP and

conduct of the DQA, although the cost of the FSP is not specific to ISS funding but is required for all GAVI support and the cost of the DQA is borne by GAVI. Given the minimal reporting requirements imposed by GAVI, future work to analyze the cost effectiveness of this funding mechanism compared with other donor funding targeted toward immunization would be valuable to inform immunization financing policy.

4.1.6. Comparison of GAVI and GFATM Application Process and Impact on Health System

ISS and the GFATM funding share certain common characteristics and requirements, such as a performance-based calculation of awards and country coordinating committees. While there may be similarities in the structure of the funding processes, the scope of the GFATM is much broader, leading to more complex processes and the involvement of a much wider range of organizations. It is not surprising that GAVI ISS processes were perceived as being a bit more manageable, even though both applications required a great deal of effort and coordination. We do not have data to analyze the impact on the health system of these two funding schemes, but it seems likely that the impact of GAVI on the overall health system is relatively insignificant given the magnitude of funding, compared with the GFATM funding, which in some cases is greater than the public health budget.

4.2. Recommendations

Based on the data presented, we provide our recommendations below, grouped into those that have broad design and evaluation implications, and those targeting implementation improvements.

4.2.1. Recommendations Related to Design, Impact, and Evaluation

- 1. GAVI should continue to provide ISS funding, but ongoing monitoring and evaluation is needed.** In most of the countries visited, ISS funding shows signs of having the effect that GAVI sought – countries are spending funds in response to identified needs, targeting areas in need of support. There is a complex pathway between getting additional funding and realizing improvements in outcomes. More time is needed to see whether there will be broad positive impact on NIP performance. There are some indications of performance improvements and countries appear well-positioned for further improvements, which would support continuation of ISS funding. However, future evaluation is recommended to confirm or re-assess findings.
- 2. GAVI should continue its current approach toward ISS funding that provides flexibility.** The complete flexibility of GAVI funds is its most valuable characteristic. It allows NIPs to use funds when and where they are most needed – to operationalize locally-appropriate strategies for improving performance and in response to acute problems. ISS funding allows strategic plans to become a reality. Overall, funding allocations and expenditures seem appropriate to address obstacles identified. Efforts to direct the use of funds would erode a unique and valuable characteristic of ISS funding.
- 3. Additional financial monitoring at global level is unnecessary, but support to improve monitoring at country level may be useful.** Countries have established reasonable procedures for disbursing and monitoring funds. There was no evidence of misuse of funds in case study countries. This evaluation did find incomplete financial reporting from subnational to national level in two countries. Nonetheless, additional financial monitoring at global level

does not appear necessary at this time and may not be cost-effective, but support to improve monitoring at the country level may be useful in some countries.

4. **GAVI should monitor any changes in the use of funding, particularly now that rewards are a reality and countries may become overly focused on maximizing the reward, rather than the overall program.** There was no evidence of countries inflating DTP3 figures or strategically ignoring the “hard-to-reach” – two inherent risks of the ISS incentive structure. While there was good understanding of the reward structure at central level, there was little awareness at subnational levels. In the one country where there was awareness of the reward structure at all levels, funds were targeted toward the most populous areas. Now that the reward shares are a reality, countries may become more focused on this incentive. Diligent monitoring of the use of funds is particularly important to ensure that countries do not focus on the DTP3 indicator to the detriment of the overall program – ie, ignoring hard to reach populations or long-term training needs.
5. **ISS funds have been additive to overall funding and government contribution is increasing, but ongoing monitoring is necessary.** Overall trends have been positive, although they cannot be attributed to ISS funding or GAVI. Nonetheless, ongoing monitoring is necessary to track these trends over time.
6. **Support for the implementation of FSPs should be given high priority – it is critical not only to sustain new vaccine, but also for routine immunization.** Country reliance on ISS funding to support operational costs of routine immunization has important implications for long-term sustainability. ISS funding allows countries in the medium term to circumvent systemic problems causing funding shortfalls that compromise coverage. Over the long term, however, support to implement FSPs at the country level, coupled with changes in global level financing policies, are required to sustain improvements achieved. It is recommended that GAVI continue to support efforts to ensure the implementation of FSPs – the gains in immunization performance that may be attained in the short or medium term with ISS funds can only be sustained over the long term with a secure funding base.
7. **GAVI should support efforts to improve data quality, taking advantage of the current focus and momentum on this issue.** The DQA appears to have had significant impact in motivating countries to address the problem of data quality, which has long been recognized but the subject of little action. Although NIPs are highly motivated to make improvements, technical assistance is necessary. It is recommended that GAVI partners provide follow-up technical support to countries, not only to improve data quality but also to increase the capacity to use data for management. It is also recommended that GAVI partners actively document, evaluate, and promote the exchange of experiences of different countries in addressing this problem.
8. **GAVI should evaluate the cost-effectiveness of the ISS funding scheme.** The ISS funding mechanism has low administrative costs. In addition, funding flexibility contributes to the value of this funding, which may ultimately translate into impact. The cost effectiveness of this model for donor funding has not been evaluated, although it had already been adopted by other global funds. Analysis of the cost-effectiveness of ISS funding, particularly in comparison with other models for donor funding, is recommended both to inform GAVI policy as well as for potential use in advocacy.

4.2.2. Recommendations Related to Implementation

9. **GAVI should provide opportunities for the discussion of varied country experiences, including dissemination of findings from this study.** Allocation and use of ISS funds has varied widely, with some countries targeting low performing areas while others focused on equity in distribution of funding. Some countries have been more strategic in their planning than others. It is recommended that GAVI support discussion of country experiences, cross-country learning and application of best practices.
10. **GAVI should establish a mechanism for strengthening ICCs.** Countries that had more strategic allocation of funds tended to have more coherent ICCs. Although ICCs were not closely involved in the allocation process, they were aware of and supported the process in more strategic countries. Stronger ICCs also support better communication and planning. GAVI should encourage more ICC involvement in managing ISS funds, and establish a mechanism for providing external support to strengthen their capacity and role in countries with weak ICCs.
11. **GAVI should improve its communication of procedures and policies – including communication in multiple languages and broadening the group of individuals who receive communications at country level.** Communication to the operational level within GAVI partners and among the ICC members was sometime insufficient. Staff turnover is high so there is little institutional memory. There were also some misunderstandings that resulted from language issues, and from the lack of clear descriptions of ISS policies. The study team also found that in one country, the impact of pentavalent shortage was not reflected to global level. We recommend ongoing communication of its procedures and policies related to ISS funding to countries and WHO and UNICEF regional offices, preparing clear and concise explanations of procedures in multiple languages, broadening the number of ICC members to whom GAVI communications are sent – copying more ICC members in communications, including communications regarding anticipated funding, transfer of funds, etc.
12. **Without increasing GAVI reporting requirements, GAVI should encourage countries to monitor appropriate process indicators that describe progress toward longer term objectives.** GAVI seeks data from countries only on financial inputs, performance outcomes, and data quality. Because the path between financial inputs and performance outcomes is complex and varies by country, careful evaluation and management of the intermediate steps can improve outcomes. It is recommended that GAVI encourage countries to monitor process indicators that measure progress toward country specific objectives – eg, increases in supervision visits, number of outreach sessions, or timeliness of district reporting.
13. **GAVI should consider revising the format of the Progress Reports to allows easier monitoring of some key areas.** The team does not wish to increase the reporting requirements of countries to GAVI, but at the same time realizes that information in progress reports is limited and that the categories for expenditures in the current reporting format is a mix of inputs and activities. This can lead to such things as underestimation of funding to support outreach, as it appears both as outreach and sometimes as personnel or transport. Also, the line items do not provide any insight on the strategies pursued. It is suggested that GAVI consider developing and field testing alternative designs to the reporting format.

14. **Consider implementing a formal appeals process related to awarding reward shares.** An appeals process would allow countries who dispute baseline values (established by their predecessors) or who have demonstrated significant progress (in ways that are not captured in the number of children immunized with DTP3) to qualify for reward shares. It would also improve the transparency related to decisions made to reward countries that do not “technically” qualify for reward shares.

Annex A. Desk Study Tables

Table A1. Country Characteristics, Sample Countries (First Tranche ISS Funding Received Prior to June 2002)

Country	Baseline Year (Year Prior to Funding)	Date First Tranche Received (GAVI)	Number of Surviving Infants at Application (GAVI)	DTP3 Coverage Rate, Baseline Year (JRF)	No. Children Vaccinated w/ DTP3, Baseline Year (JRF)*	Percent Change No. of Children Vaccinated with DTP3, Baseline to 2003**	Percentage Point Difference DTP3 Coverage Rate, Baseline to 2003	Percent Change No. Children Vaccinated DTP3, 2000 - 2003**	Percentage Point Difference DTP3 Coverage Rate, 2000 - 2003	Percentage Point Difference MCV Coverage Rate, Baseline to 2003	Percentage Point Difference TT2+ Coverage Rate, Baseline to 2003	
Overall Sample, Average			556,075	67	1,092,491		8		9	5	0	
DTP3 Improvers, Average			722,807	58	1,392,288	32.8	18	88.0	22	12	4	
1	Bangladesh	2001	21 Dec 01	3,662,915	65	3,097,460	7.2	7	15.1	4	5	-1
2	Burkina Faso	2000	26 Jul 01	456,000	57	266,917	44.9	16	44.9	27	7	13
3	Burundi	2001	20 Dec 01	261,669	64	174,094	40.7	30	41.3	30	27	9
4	Cameroon	2000	02 Jul 01	594,855	53	326,027	37.2	30	37.2	20	14	17
5	Comoros	2001	20 Dec 01	21,376	70	10,501	25.1	5	18.0	5	-7	.
6	Eritrea	2001	20 May 02	97,846	65	58,437	16.4	5	49.7	23	.	10
7	Kenya	2000	08 Feb 01	1,285,300	63	614,312	35.4	-7	35.4	10	-2	-19
8	Mali	2000	29 Dec 00	391,620	32	220,596	46.3	47	46.3	47	11	-16
9	Niger	2001	20 May 02	484,000	31	168,868	49.8	29	111.5	27	16	4
10	Rwanda	2000	29 Dec 00	326,886	90	215,498	33.5	6	33.5	6	.	.
11	Senegal	2001	20 May 02	418,091	52	200,898	52.7	13	729.4 ^a	21	6	8
12	Sierra Leone	2000	27 Jun 01	166,464	24	.	.	32	.	46	33	20
13	Tanzania	2000	17 Nov 00	1,279,401	79	1,056,603	9.4	16	9.4	16	19	3
14	Uganda	2000	02 Jul 01	968,155	53	529,013	53.7	21	53.7	28	.	3
15	Zambia	2000	17 Oct 01	427,524	76	408,314	6.4	.	6.4	16	.	.
DTP3 Stable, Average			685,629	78	823,137	-0.4	5	16.4	4	8	2	
1	Armenia	2000	04 Sep 01	36,118	93	33,842	4.2	0	4.2	1	-2	.
2	Cambodia	2001	21 Feb 02	434,774	60	289,952	-2.2	15	-2.3	11	13	7
3	Ethiopia	2001	29 Apr 02	2,532,519	51	1,200,578	1.7	3	8.1	10	4	9
4	Madagascar	2000	29 Dec 00	588,315	80	474,409	-1.9	7	-1.9	7	5	9
5	Mozambique	2000	16 Jan 01	672,000	88	589,887	-4.0	.	-4.0	-3	.	-15
6	Tajikistan	2000	23 Aug 01	155,283	97	148,692	-1.4	-1	-1.4	-1	.	.
7	Zimbabwe	2001	03 Jun 02	380,394	75	221,342	0.7	5	112.4	3	20	0
DTP3 Decliners, Average			246,268	72	388,236	-18.8	-6	-18.7	-6	-7	-9	
1	Azerbaijan	2000	06 Mar 01	106,250	99	103,038	-9.9	-3	-9.9	-2	.	-20
2	Cote D'Ivoire	2000	02 Jul 01	468,276	72	461,353	-30.0	.	-30.0	-18	0	15
3	Gambia	2001	20 Dec 01	51,840	.	51,749	-13.6	-9	-7.2	7	-19	.
4	Georgia	2001	04 Feb 02	50,776	86	39,219	-14.4	.	-25.1	-22	.	.
5	Ghana	2000	06 Dec 00	779,359	84	617,387	-6.3	-4	-6.3	-4	-4	-7
6	Haiti	2000	26 Oct 01	262,500	59	164,352	-13.6	-5	-13.6	.	-13	1
7	Lao PDR	2001	20 May 02	180,000	40	98,786	-16.1	2	-18.3	-3	2	.
8	Lesotho	2001	07 Feb 02	64,324	72	47,265	-17.7	-24	-12.3	-7	-25	-32
9	Liberia	2000	19 Apr 01	147,540	48	81,448	-58.2	-1	-58.2	-10	-1	.
10	Sao Tome	2000	17 May 01	5,651	82	4,957	-13.0	.	-13.0	12	.	.
11	Yemen	2001	28 May 02	592,436	76	443,720	-13.9	-3	-11.4	-10	1	-8

* Averages for categories are weighted by number of surviving infants at baseline to control for population

** 2003 numbers adjusted for population growth

^a Official country estimate of the no. of children vaccinated in 2000 was 36,978 (the numbers for 1999 to 2003 are 37,400 (1999); 36,978 (2000); 200,898 (2001); 282,725 (2002); 321,612 (2003))

Table A2 Country Characteristics, Non-Sample Countries (First Tranche ISS Funding Received After June 2002 or not at all)

Country	Date First Tranche Received (GAVI)	Number of Surviving Infants at Application (GAVI)	DTP3 Coverage Rate, 2000 (JRF)	No. Children Vaccinated w/ DTP3, 2000 (JRF)*	Percent Change No. of Children Vaccinated with DTP3, 2000 to 2003**	Percentage Point Difference DTP3 Coverage Rate, 2000 to 2003	Percentage Point Difference MCV Coverage Rate, 2000 to 2003	Percentage Point Difference TT2+ Coverage Rate, 2000 to 2003
Overall Average	.	1,208,854	50	1,987,772	44.3	11	9	10
1 Afghanistan	14 Jul 03	901,328	31	276,406	80.5	23	15	53
2 Angola	12 Aug 03	623,114	31	187,478	55.0	15	.	.
3 CAR	30 Dec 02	131,612	29	36,157	0.3	-1	2	-3
4 Chad	25 Nov 03	287,769	28	72,153	91.6	20	19	.
5 Congo Rep	10 Dec 03	141,266	33	35,242	100.8	17	16	21
6 Djibouti	12 Mar 03	24,762	46	10,947	55.4	22	16	20
7 DRC	23 Jun 03	2,425,327	40	509,748	110.4	9	8	23
8 Guinea	27 Dec 02	288,702	57	183,399	15.8	12	16	15
9 Guinea Bissau	.	43,500	.	14,853	150.8	.	.	.
10 Indonesia	12 Aug 03	4,570,828	77	2,977,317	41.9	14	17	.
11 Korea	11 Nov 03	441,096	80	1,646,190	-82.8	-12	4	13
12 Mauritania	09 Jun 03	106,768	31	.	.	45	.	.
13 Myanmar	.	1,271,239	82	894,863	15.6	-5	-9	-8
14 Nepal	08 Aug 02	727,764	80	557,764	11.8	-2	-2	-30
15 Nigeria	27 Dec 02	4,608,972	38	1,751,410	.	.	.	.
16 Pakistan	21 May 03	4,878,000	78	3,914,749	-4.5	-11	-14	6
17 Somalia	.	270,769	33	67,279	18.7	7	.	.
18 Sudan	16 Sep 02	1,029,179	65	651,274	14.5	9	10	2
19 Togo	12 Mar 03	196,240	50	109,434	32.6	22	29	9

* Averages for categories are weighted by number of surviving infants at baseline to control for population

*** 2003 numbers adjusted for population growth

Table A3. Country ISS Spending, Sample Countries (Received Funding Prior to June 2002)

Country	Date First Tranche Received (GAVI)	Total ISS Received by December 31, 2003 (GAVI)	Total ISS Reported Spent as of December 2003	Total ISS Funds Spent as Percent of Total Transferred (GAVI)	Routine Costs per Surviving Infant Pre-VF (FSP)	Routine Costs per Surviving Infant Post-VF (FSP)	Portion of Total Routine Costs Contributed by Government Pre-VF (FSP)	Total ISS Spent per Surviving Infant (PR)	Percent ISS Spent on Recurrent (PR)	Percent ISS Spent at Central Level (PR)	ISS Funds Additive (FSP)	Days from Approval to First Tranche Funding Receipt (GAVI)
Overall Sample Average		\$821,793	\$511,206	80.8	\$7.04	\$9.96	37.5	1.681433	80.6	32.3	70%	166
DTP3 Improvers, Average		\$1,115,087	\$610,142	75.3	\$4.99	\$6.94	40.0	\$1.36	81.4	21.5	60%	141
1 Bangladesh	21 Dec 01	\$3,570,000	\$197,745	5.5	.	.	.	\$0.05	100.0	72.3	.	182
2 Burkina Faso	26 Jul 01	\$1,311,000	\$1,473,200	112.4	\$4.18	\$4.72	68.8	\$3.23	46.4	14.3	No	140
3 Burundi	20 Dec 01	\$325,000	\$476,770	146.7	\$4.18	\$3.15	6.9	\$1.82	67.6	33.6	No	24
4 Cameroon	02 Jul 01	\$1,107,000	\$770,221	69.6	.	.	6.9	\$1.29	100.0	28.3	.	116
5 Comoros	20 Dec 01	\$30,000	\$27,007	90.0	\$6.95	\$9.09	30.4	\$1.26	100.0	7.2	Yes	24
6 Eritrea	20 May 02	\$78,600	\$92,332	117.5	.	.	.	\$0.94	76.2	1.8	.	175
7 Kenya	08 Feb 01	\$1,933,500	\$1,029,362	53.2	\$5.71	\$7.76	6.2	\$0.80	100.0	7.0	Yes	205
8 Mali	29 Dec 00	\$1,716,000	\$979,560	57.1	\$6.25	\$13.86	77.1	\$2.50	49.3	1.2	Yes	164
9 Niger	20 May 02	\$870,000	\$27,709	3.2	.	.	.	\$0.06	100.0	0.0	.	175
10 Rwanda	29 Dec 00	\$1,816,000	\$837,660	46.1	\$6.79	\$8.01	61.5	\$2.56	63.9	60.6	No	164
11 Senegal	20 May 02	\$247,200	\$117,139	47.4	.	.	.	\$0.28	100.0	4.0	.	175
12 Sierra Leone	27 Jun 01	\$360,000	\$476,294	132.3	\$5.93	\$7.58	17.2	\$2.86	48.0	35.7	Yes	111
13 Tanzania	17 Nov 00	\$1,214,000	\$1,205,817	99.3	\$5.36	\$7.16	51.7	\$0.94	71.5	41.8	Yes	122
14 Uganda	02 Jul 01	\$1,820,000	\$1,159,187	63.7	\$2.25	\$4.22	79.6	\$1.20	100.0	9.3	Yes	225
15 Zambia	17 Oct 01	\$328,000	\$282,130	86.0	\$3.95	\$3.80	1.1	\$0.66	97.9	4.6	No	117
DTP3 Stable, Average		\$695,481	\$488,176	82.9	\$7.52	\$11.12	46.0	\$1.25	80.3	34.3	100%	199
1 Armenia	04 Sep 01	\$60,000	\$54,550	90.9	\$21.51	\$25.26	84.2	\$1.51	64.7	74.9	Yes	294
2 Cambodia	21 Feb 02	\$668,600	\$611,839	91.5	\$7.85	\$9.85	34.5	\$1.41	100.0	26.6	Yes	87
3 Madagascar	29 Dec 00	\$700,500	\$545,622	77.9	\$3.01	\$8.82	53.7	\$0.93	98.8	43.4	Yes	164
4 Ethiopia	29 Apr 02	\$1,928,000	\$847,877	44.0	.	.	.	\$0.33	100.0	0.0	.	154
5 Mozambique	16 Jan 01	\$693,000	\$596,100	86.0	\$3.13	\$6.95	35.4	\$0.89	35.2	19.5	Yes	182
6 Tajikistan	23 Aug 01	\$500,000	\$432,184	86.4	\$2.13	\$4.74	22.3	\$2.78	63.4	13.7	Yes	168
7 Zimbabwe	03 Jun 02	\$318,270	\$329,061	103.4	.	.	.	\$0.87	100.0	62.0	.	346
DTP3 Decliners, Average		\$502,227	\$390,947	86.8	\$10.67	\$14.83	23.8	\$2.39	79.7	47.1	60%	177
1 Azerbaijan	06 Mar 01	\$66,000	\$105,704	160.2	\$5.58	\$6.75	46.9	\$0.99	63.3	66.7	Yes	107
2 Cote D'Ivoire	02 Jul 01	\$1,026,000	\$710,446	69.2	.	.	.	\$1.52	81.7	.	.	349
3 Gambia	20 Dec 01	\$64,600	\$80,085	124.0	\$25.71	\$28.25	26.2	\$1.54	87.2	54.5	Yes	24
4 Georgia	04 Feb 02	\$34,000	\$16,900	49.7	.	.	.	\$0.33	100.0	15.4	.	70
5 Ghana	06 Dec 00	\$1,058,000	\$1,019,867	96.4	\$8.73	\$27.99	31.5	\$1.31	88.3	26.1	Yes	141
6 Haiti	26 Oct 01	\$942,000	\$927,000	98.4	\$6.82	\$4.59	8.8	\$3.53	41.8	65.6	No	341
7 Lao PDR	20 May 02	\$715,600	\$595,328	83.2	\$6.49	\$6.56	5.5	\$3.31	100.0	21.5	No	175
8 Lesotho	07 Feb 02	\$74,800	\$74,400	99.5	.	.	.	\$1.16	100.0	3.2	.	73
9 Liberia	19 Apr 01	\$916,500	\$523,051	57.1	.	.	.	\$3.55	96.4	38.6	.	151
10 Sao Tome	17 May 01	\$60,000	\$49,315	82.2	.	.	.	\$8.73	50.4	79.0	.	179
11 Yemen	28 May 02	\$567,000	\$198,320	35.0	.	.	.	\$0.33	67.1	100.0	.	340

Table A4. Country ISS Spending, Sample Countries (Received Funding After June 2002 or not at all)

Country	Date First Tranche Received (GAVI)	Total ISS Received by December 31, 2003 (GAVI)	Total ISS Reported Spent as of December 2003	Total ISS Funds Spent as Percent of Total Transferred (GAVI)	Total ISS Spent per Surviving Infant (PR)	Percent ISS Spent on Recurrent (PR)	Percent ISS Spent at Central Level (PR)	Days from Approval to First Tranche Funding Receipt (GAVI)
Overall Average	.	\$571,026	\$448,255	60.0	\$0.66	86.2	27.4	337
1 Afghanistan	14 Jul 03	\$519,500	.	.	.	.	.	752
2 Angola	12 Aug 03	\$747,000	\$297,892	39.9	\$0.48	100.0	0.0	43
3 CAR	30 Dec 02	\$111,400	.	.	.	.	.	41
4 Chad	25 Nov 03	\$144,500	.	.	.	.	.	148
5 Congo Rep	10 Dec 03	\$153,500	.	.	.	.	.	.
6 Djibouti	12 Mar 03	\$28,200	\$15,125	53.6	\$0.61	83.7	41.4	295
7 DRC	23 Jun 03	\$2,030,100	\$987,294	48.6	\$0.41	91.6	18.4	398
8 Guinea	27 Dec 02	\$643,200	\$313,577	48.8	\$1.09	64.0	23.9	396
9 Guinea Bissau	.	\$0	.	.	.	.	.	.
10 Indonesia	12 Aug 03	\$1,657,000	\$33,448	2.0	\$0.01	96.4	100.0	43
11 Korea	11 Nov 03	\$297,200	.	.	.	.	.	539
12 Mauritania	09 Jun 03	\$97,000	.	.	.	.	.	202
13 Myanmar	.	\$487,400	.	.	.	.	.	.
14 Nepal	08 Aug 02	\$705,000	\$804,600	114.1	\$1.11	95.1	25.3	255
15 Nigeria	27 Dec 02	\$432,900	\$478,009	110.4	\$0.10	100.0	9.4	553
16 Pakistan	21 May 03	\$1,000,000	\$79,797	8.0	\$0.02	100.0	.	804
17 Somalia	.	\$0	.	.	.	.	.	.
18 Sudan	16 Sep 02	\$1,445,000	\$1,135,459	78.6	\$1.10	73.2	9.7	294
19 Togo	12 Mar 03	\$350,600	\$337,351	96.2	\$1.72	58.0	18.1	295