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# Immunization Financing in the Kyrgyz Republic

## Challenges to long-term financial sustainability of the National Immunization Program and how they might be addressed

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## **Abbreviations**

AD	Auto-Disposable
BCG	Bacillus Calmette–Guérin
CAC	Central Asia and Caucasus
CCEOP	Cold Chain Equipment Optimization Platform
CHE	Current Health Expenditure
cMYP	Comprehensive Multi-Year Plan
DHS	Demographic and Health Survey
DPT	Diphtheria, Pertussis, Tetanus
EPI	Expanded Programme on Immunization
FAP	Feldsher-Obstetrical Ambulatory Point
FGP	Family Group Practice
FMC	Family Medicine Center
Gavi	Gavi, the Vaccine Alliance
GDP	Gross Domestic Product
GNI	Gross National Income
HPV	Human Papillomavirus
HSS	Health System Strengthening
HTA	Health Technology Assessment
ICC	Interagency Coordinating Mechanism
IMF	International Monetary Fund
INS	Injection Safety Support
IPV	Inactivated Polio Vaccine
ISS	Immunization Services Support
JICA	Japan International Cooperation Agency
LMIC	Low- and Middle-Income Country
MHIF	Mandatory Health Insurance Fund
MICS	Multiple Indicator Cluster Survey
MMR	Measles, Mumps, and Rubella
MoF	Ministry of Finance
MoH	Ministry of Health
MR	Measles-Rubella
MRI	Measles and Rubella Initiative
NIP	National Immunization Program
NITAG	National Immunization Technical Advisory Group
NVS	New Vaccine Support
ODA	Overseas Development Assistance
OECD	Organization for Economic Co-operation and Development
OOP	Out-of-pocket

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OPV	Oral Polio Vaccine
PCV	Pneumococcal Conjugate Vaccine
PEF	Partners' Engagement Framework
PFM	Public Financial Management
PHC	Primary Health Care
RCI	Republican Center for Immunoprophylaxis
SGBP	State Guaranteed Benefit Package
SHA	Systems of Health Accounts
SIA	Supplementary Immunization Activity
SOPs	Standard Operating Procedures
SSES	State Sanitary-Epidemiological Surveillance
SWAp	Sector-Wide Approach
TCA	Targeted Country Assistance
UMIC	Upper-Middle-Income Country
UNICEF	United Nations Children's Fund
VIG	Vaccine Introduction Grant
WDI	World Development Indicators
WHO	World Health Organization

## Summary

**The Kyrgyz Republic graduated from low income to a low- and middle-income country (LMIC) status in 2014, impacting both the availability and type of development aid available to the country.** For immunization, financial sustainability is of particular concern because the National Immunization Program (NIP) is funded predominantly with donor funds, especially by Gavi. At the time of writing, the Kyrgyz Republic was in Gavi's preparatory transition phase, during which the government's contribution to new vaccine purchases increases by 15 percent per year (for example, from 10 percent of total new vaccine purchases one year, to 11.5 percent the next).<sup>1</sup>

**The Kyrgyz Republic has achieved a high level coverage rates for some vaccines, although estimated levels of coverage demonstrate persisting inequalities.** In the Kyrgyz Republic, according to DHS 2012 almost all children ages 18–29 months (96 percent or higher) have received vaccinations for BCG, measles (alone) or measles, mumps, and rubella (MMR), and the first doses of polio and Penta/DPT.<sup>2</sup> There are marked inequalities in vaccination coverage by geographic area and by socioeconomic status. The proportion of children who have received all the basic vaccinations is considerably higher in rural areas (78 percent) than in urban areas (67 percent) (DHS 2012). The country experienced a major measles outbreak in 2014–2015, affecting thousands of children (more than 21,000 suspected cases in 2015)<sup>3</sup>.

**Government health expenditure in the Kyrgyz Republic suggests a stronger commitment to health than other LMICs.** Total health expenditure (public and private) was 8.2 percent of GDP in 2015 in the Kyrgyz Republic, compared to 5.7 percent in LMICs. Public health expenditure alone accounts for 3.8 percent of GDP, compared to 3.0 percent average among LMICs. Government expenditure on routine immunization in the Kyrgyz Republic is comparable to other middle-income countries receiving Gavi support, estimated at US\$8.42 per live birth in 2015–16.<sup>4</sup> This represented a 29 percent increase over the 2010–11 spending (US\$6.50 per live birth).

**National Immunization Program (NIP) vaccine expenditures vary considerably one year to another.** Over the seven-year period, 2010 to 2017, expenditures varied from US\$1.2 million per year in 2011 to US\$5.5 million per year in 2015. This represents US\$0.23 per capita in 2011 up to US\$0.92 per capita in 2015. Gavi is the predominant source of most NIP resources—36 percent to 83 percent of total—depending on the year. Routine vaccine purchases by Gavi and the government are secured from UNICEF (Supply Division, Copenhagen). In an average year, the MoH (via the Republican Center for Immunoprophylaxis (RCI)) represents 30 percent of total NIP expenditures and Gavi represents 51 percent. There is considerably more variability in Gavi vaccine spending each year relative to government vaccine spending, driven by 'new vaccine support' spending in a particular year. These new vaccines, pneumococcal and pentavalent, are the predominant drivers of all vaccine spending.

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<sup>1</sup> Gavi, Eligibility and transition policy. Available at: <http://www.gavi.org/about/programme-policies/eligibility-and-transition/>. Accessed March 17, 2018.

<sup>2</sup> MoH, Kyrgyz Republic, Kyrgyz Republic DHS, 2012. National Statistical Committee of the Kyrgyz Republic, Bishkek.

<sup>3</sup> Gavi, Joint appraisal report 2015. Available at: <http://www.gavi.org/country/kyrgyzstan/documents/>. Accessed March 24, 2018.

<sup>4</sup> WHO. 2017. *Global Vaccine Action Plan: Monitoring, Evaluation and Accountability. Secretariat Annual Report 2017*. Geneva: World Health Organization.

The 2015–16 figure (and the increase relative to 2010–11) must be interpreted with caution given that there were extraordinary expenses owing to a Measles-Rubella campaign in 2015.

**As is the case for vaccines, the two primary sources of non-vaccine spending are the government (RCI budget) and Gavi.** Gavi support is provided through two different streams. The ISS—which has been phased out and is set to close at the end of 2017—is held in the RCI treasury account with its uses guided by the Interagency Coordinating Mechanism (ICC). HSS 2 is a five-year US\$4.6 million grant split across five organizations, the largest share of which (US\$1.91 million) is allocated to WHO for strengthening PHC and capacity building and surveillance; US\$1.8 million goes to the MoH, largely for the purchase of cold chain equipment. In parallel, UNICEF receives funds for communications and demand generation (US\$0.85 million). The RCI controls budgets and resource allocation for immunization services down to the regional level, but has limited influence over resources allocated for operating costs at the district and facility levels where services are implemented. It is up to the local and regional governments to allocate sufficient operating resources to facilities to make them effective at providing services.

**On occasion, other sources have contributed financing to the NIP.** In 2015–16, additional operational resources were transferred to the government by the Measles and Rubella Initiative for outbreak response. In 2012, the Japanese Government purchased refrigerated vehicles. In 2016, donors to the Sector-Wide Approach (SWAp) purchased 216 refrigerators for facilities at the regional and district levels. Government financing of these non-vaccine expenditures is relatively small (less than 5 percent each year 2015-17), and almost all government non-vaccine spending is on salaries at only the RCI level.

**While adequate funds are currently available to the NIP for vaccine purchases, there is some question as to whether additional funding might help address challenges in the performance of the NIP.** For example, HSS 2 resources remain underspent by the national agencies, suggesting that the major problem really is not adequacy, rather capacity of the national agencies to absorb funding, predictability (and donor dependence), inefficiency (including the factors contributing to low budget execution), and issues around preparedness.

**The 2017 cMYP conducted for the period 2017–21 suggests a fairly modest resource gap for NIP needs.** The total resource requirements for the 2017–2021 NIP were estimated at US\$47.3 million (including shared health system costs). The total funding gap—taking into consideration financing which has already been secured, but not the financing that is probable but not yet secured—accounts for 12 percent (or US\$5.3 million) of total resource requirements.

**The heavy reliance on donor financing means that funding is irregular and unpredictable, at least in the long term.** Recently Gavi HSS support was nil (for example, 2013 and 2014), whereas other years it was upward of US\$1 million (for example, 2016). This HSS support flowed through the government and partners and was difficult for country systems to ramp up/down in response to the unpredictability. The amount from the republican budget for the RCI is relatively stable year to year. However, an issue is that the actual contribution may not become clear until quite late in the calendar year. The republican budget to the MoH does include a budget line (line 2217) that is protected for vaccines and consumables—so the entire amount budgeted must be used by the RCI for these purposes. While the MoH typically requests the full budgeted amount, the MoF may not open credit in full, especially at the beginning of the year when the MoF is in a cash constrained situation. As a general budget rule, money unspent by the end of the year is supposed to be returned to the Treasury.

**There is some indication that allocative efficiency could be improved.** Spending on new vaccines is increasing (and is projected to increase further), significantly outpacing non-vaccine spending. Possible implications of this trend are twofold. First, there would appear to be a need to increase spending on service delivery toward increasing coverage rates. Second, it is not clear if the endorsement of new

vaccines incorporates a cost-effectiveness assessment—to assure the significant increase in vaccine spending is justified in relation to other sector needs—and an assessment of affordability, both short and longer term.

**Contingency financing for vaccine-preventable diseases is weak.** While the response to the 2014–2015 measles outbreak demonstrated the ability of the Government of the Kyrgyz Republic to mobilize resources quickly and effectively, there is no contingency funding for future outbreaks of vaccine-preventable diseases. It is not clear what the level of flexibility in the budget is to meet the adaptive needs of the health sector or whether funds are set aside in the budget to meet contingencies, including health contingencies.

**In summary, projections of the funding gap for the NIP, and of the fiscal space for health, suggest that without strong political decisions to increase or release extra resources for health, the Kyrgyz Government will not be able to cover the estimated gap in NIP funding on its own.** The Kyrgyz Republic will remain in the Gavi preparatory transition phase for several more years, and a clear challenge to the sustainability of the program is the unpredictable nature of funding from all sources: government, Gavi, and other donors. Room for improving fiscal space for the immunization program exists, through (a) increasing priority for the NIP within the existing health resource envelope; (b) increasing priority for health within the government existing resource envelope; (c) implementing measures to increase fiscal space for health as outlined in the fiscal space analysis<sup>5</sup>; and (d) improving value for money in the current NIP spending and allocation, from both government and Gavi sources.

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<sup>5</sup> World Bank. 2018. *Kyrgyz Republic: Fiscal Space Analysis for the Health Sector*.

## 1. Background and objectives

1. The Kyrgyz Republic is at a crossroad on the development of the health sector with the Program of the Kyrgyz Republic Government on Public Health Protection and Health Care System Development for 2019–2030 in the final stage of development. The draft program, while covers a wide range of service delivery aspects, also recognizes the challenges in the changing health financing landscape. With the transition process already started by major donors such as the Global Fund to Fight AIDS, Malaria, and Tuberculosis and Gavi, the Vaccine Alliance (Gavi), strong national commitment is warranted to assure continued improvement in related outcomes which are of significant public health importance.

2. The Kyrgyz Republic graduated from low income to a low- and middle-income country (LMIC) status in 2014. The Kyrgyz Republic's transition from low-income to lower-middle-income status will impact both the availability and type of development aid available to the country. For immunization, financial sustainability is a particular concern because the National Immunization Program (NIP) is funded predominantly with donor funds. The majority of the donor support comes from Gavi (an average of US\$1.25 million per year during 2001–2018, see Annex 1), which supports the purchase of 'new vaccines'<sup>6</sup> as well as provides program support and technical assistance.

3. The Kyrgyz Republic is currently in Gavi's preparatory transition phase, during which the government's contribution to new vaccine purchases increases by 15 percent per year (for example, from 10 percent of total new vaccine purchases one year, to 11.5 percent the next) and is assessed as a percentage of the price of vaccines, the absolute amount varying by vaccine.<sup>7</sup> The next phase, accelerated transition, will occur when the three-year average of gross national income (GNI) surpasses the eligibility threshold, currently set by Gavi's Board at US\$1,580 per capita. Projections suggest that by approximately 2032, the Kyrgyz Republic will see average GNI per capita for the three preceding years at US\$1,570, and 2032 will be the year the Kyrgyz Republic enters the accelerated phase (Box 1). After five years in the accelerated transition phase, countries become fully self-financing by gradually taking on a greater portion of the cost. Fully self-financing countries no longer receive Gavi support.

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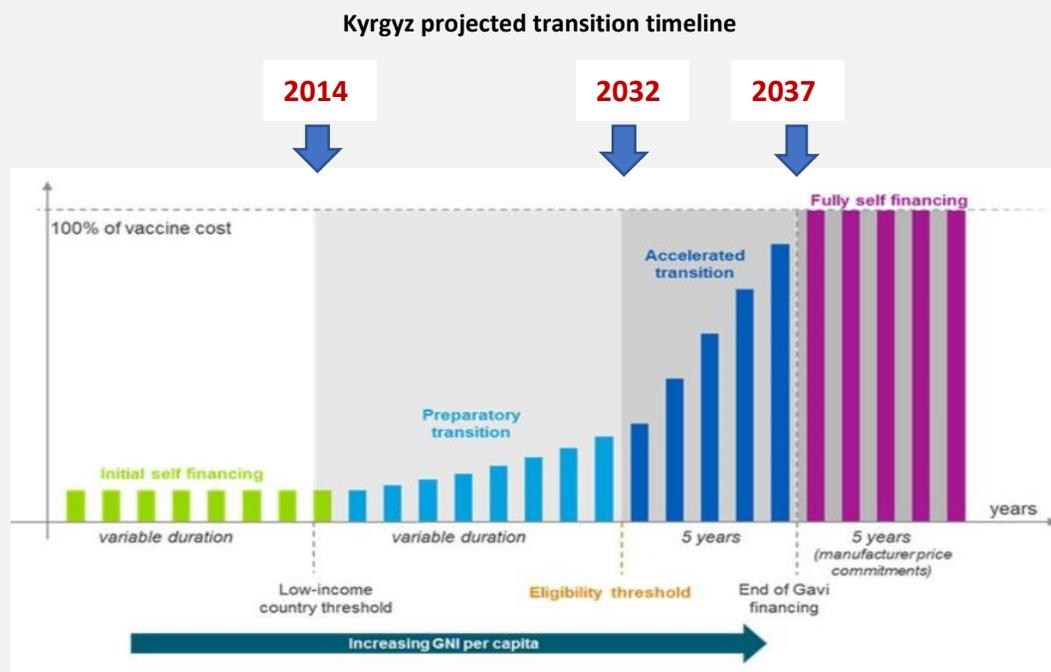
<sup>6</sup> As per Annex 1, 'New vaccines' currently include Pentavalent Vaccine (also called 5-in-1 Vaccine), Pneumococcal Vaccine, and Inactivated Polio Vaccine (IPV).

<sup>7</sup> Gavi, Eligibility and transition policy. Available at: <http://www.gavi.org/about/programme-policies/eligibility-and-transition/>. Accessed March 17, 2018.

**Box 1: Projected Gavi transition timeline for the Kyrgyz Republic**

Based on Gavi’s current co-financing policy, the Gavi transition timeline was projected specifically for the Kyrgyz Republic.<sup>8</sup> For 2018, countries are eligible to apply for Gavi support in the so-called ‘preparatory transition’ when their GNI per capita is below or equal to US\$1,580, on average over the past three years. This threshold is adjusted every year but for the purpose of projection into the future, we assume that the threshold of US\$1,580 remains constant. The projection uses data on current GNI from the World Development Indicators (WDI). GNI growth projection is based on the growth projection from the International Monetary Fund (IMF) for gross domestic product (GDP) for 2017–2022<sup>9</sup> and assumes the 2022 level for every year after that. Population growth rate is based on the 2015 rate of 1.45 percent.

The projection shows that roughly by 2032, the Kyrgyz Republic will see average GNI per capita for the three preceding years at US\$1,570, and 2032 will be the year the Kyrgyz Republic enters the accelerated phase.



The projection result is only indicative and should be treated with caution. First, GAVI will certainly adjust the eligibility threshold. Second, the IMF’s growth projection will likely be adjusted as has happened in the past on multiple occasions. Most importantly, the projection does not clearly highlight the fact that already (during the preparatory transition phase) government copayment for vaccines is increasing each year, and the threat to the financial sustainability of the NIP is likely to be a problem long before 2032.

Source: Authors.

4. This immunization financing assessment seeks to explore (a) issues that pose a threat to sustainable financing of immunization in the Kyrgyz Republic in the context of donor transitioning and (b) how these issues might be addressed. The assessment focuses exclusively on the financing aspects of immunization, while also acknowledging that it is not possible to delineate financing completely from

<sup>8</sup> <http://www.gavi.org/about/programme-policies/co-financing/>

<sup>9</sup> <https://www.imf.org/en/News/Articles/2017/10/25/pr17409-imf-executive-board-concludes-2017-article-iv-consultation-with-the-kyrgyz-republic>, accessed on March 27, 2018

service delivery and other health system components. It complements various existing studies on the topic of immunization in the Kyrgyz Republic, including most notably the Joint Appraisal Report 2016; Joint National-International Review of the National Immunization Program in the Kyrgyz Republic 2016; and the NIP Comprehensive Multi-Year Plan (cMYP) 2017–2021, among others.<sup>10</sup> The focus on financing was determined based on the gap in the existing literature and on the synergy between this assessment and several other studies being conducted by the World Bank team, namely an assessment of the State Guaranteed Benefit Package (SGBP) that includes immunization, a fiscal space analysis, and a public financial management (PFM) assessment for the health sector.

5. In the remainder of the paper, Section 2 provides a brief overview of health financing and of the NIP in the Kyrgyz Republic. Section 3 describes the financing arrangement and funding flow for the NIP. Due to the special characteristics of the NIP, fund flow is described separately for vaccine, service delivery, and technical assistance. This is followed by Section 4, which critically assesses the challenges to financial sustainability of the NIP in terms of adequacy, predictability, efficiency of financing, and preparedness for unexpected outbreaks, adopting a conceptual framework developed by the World Bank’s Health Financing Global Solutions Group<sup>11</sup>. The paper concludes with a summary of main findings and a set of recommendations on next steps.

## **2. A brief overview of health financing and the NIP in the Kyrgyz Republic**

### ***Health and immunization financing from an international perspective***

6. Public health expenditure in the Kyrgyz Republic, relative to other LMICs and countries in the region, suggests a strong commitment to health. However, in per capita terms it is still low relative to World Health Organization (WHO) benchmarks. Total health expenditure (public and private) was 8.2 percent of GDP in 2015 in the Kyrgyz Republic, compared to 5.7 percent in LMICs (Figure 1). In the region, only Armenia spent more on health as a proportion of GDP, but this higher relative expenditure was due entirely to higher out-of-pocket (OOP) expenditures. Public health expenditure alone accounts for 3.8 percent of GDP, compared to 3.0 percent average among LMICs (Figure 1). Spending on health as a share of total government expenditure is often used to indicate a government’s commitment to the health sector; as per Figure 2, this figure is higher in the Kyrgyz Republic, at 9.9 percent, than in many other countries in the region and higher than the average value for LMICs, 8.2 percent.

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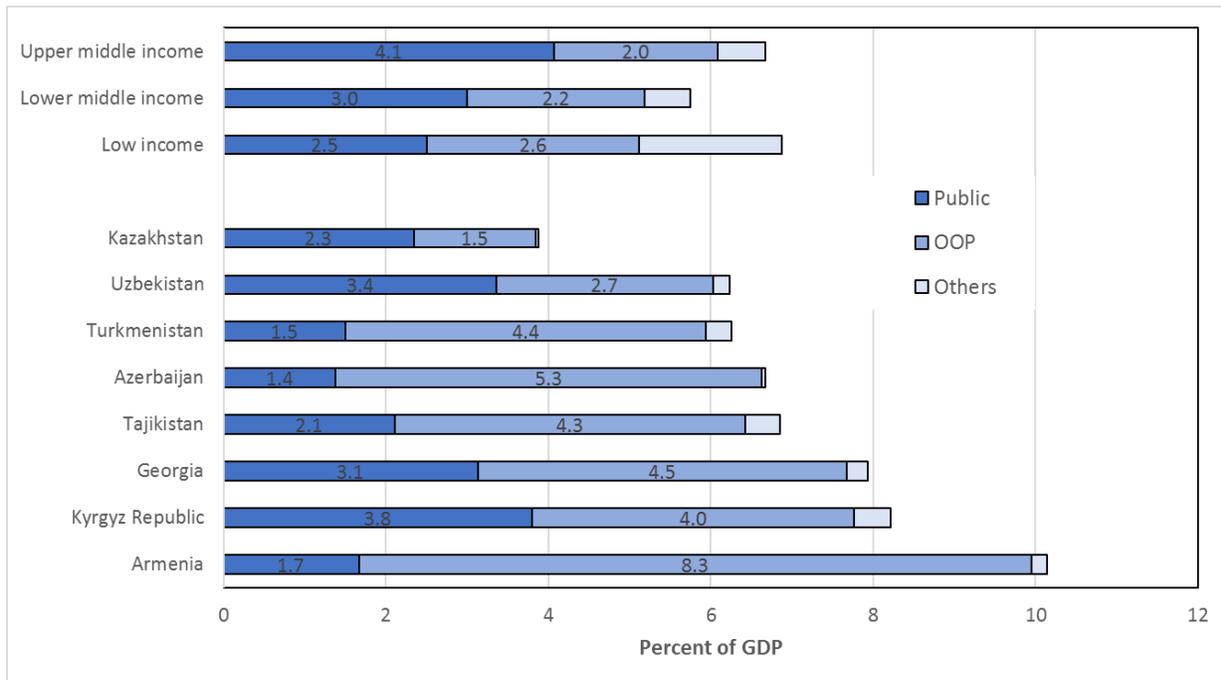
<sup>10</sup> Gavi, Joint appraisal report 2016. Available at: <http://www.gavi.org/country/kyrgyzstan/documents/>. Accessed March 24, 2018.

MoH, Kyrgyz Republic, 2016. Joint National-International Review of the National Immunization Program in the Kyrgyz Republic: July 25–August 3, 2016.

MoH, Kyrgyz Republic, 2017. cMYP, Kyrgyz Republic, 2017–2021.

<sup>11</sup> Immunization Financing Assessment Protocol, May 2017.

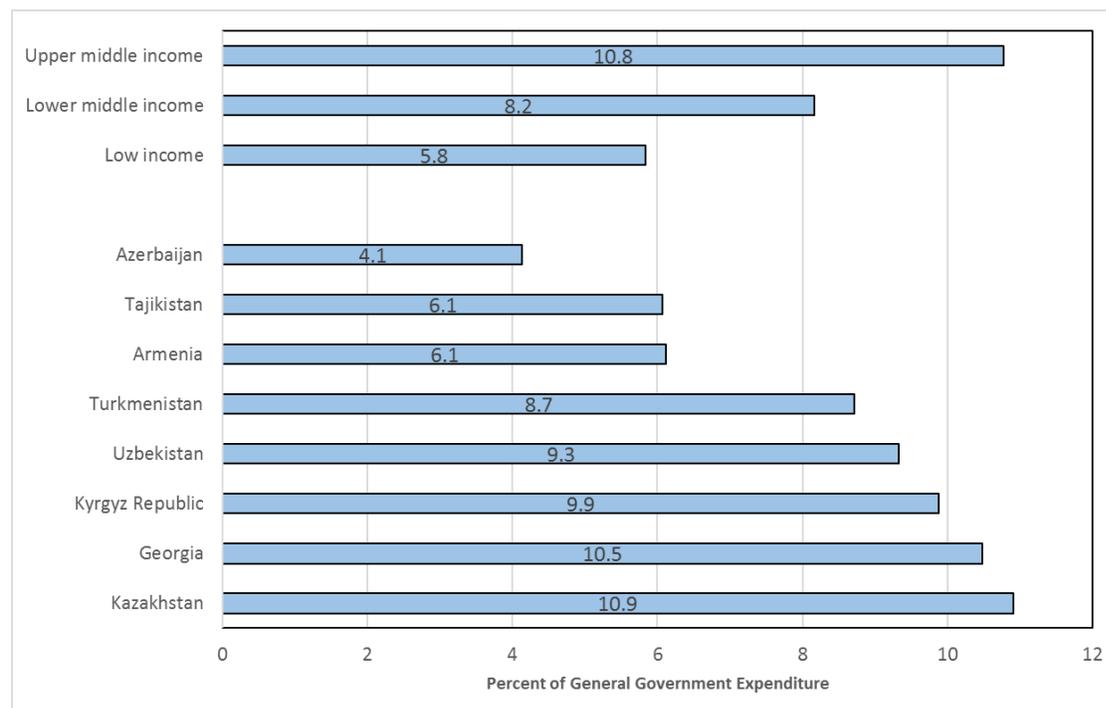
**Figure 1. Total health expenditure and expenditure share comparisons, 2015 (percentage of GDP)**



Source: WHO (Global Health Expenditure Database).

Note: For direct comparison to household OOP payments, which is categorized in the latest Systems of Health Accounts (SHA) 2011 as a health financing scheme, government schemes and compulsory contributory health care financing schemes are used to represent 'public' health expenditure. 'Others' include voluntary health payment schemes and rest of the world financing schemes.

**Figure 2. Domestic public health expenditure as share of general government expenditure, 2015 (percentage of general government expenditure)**



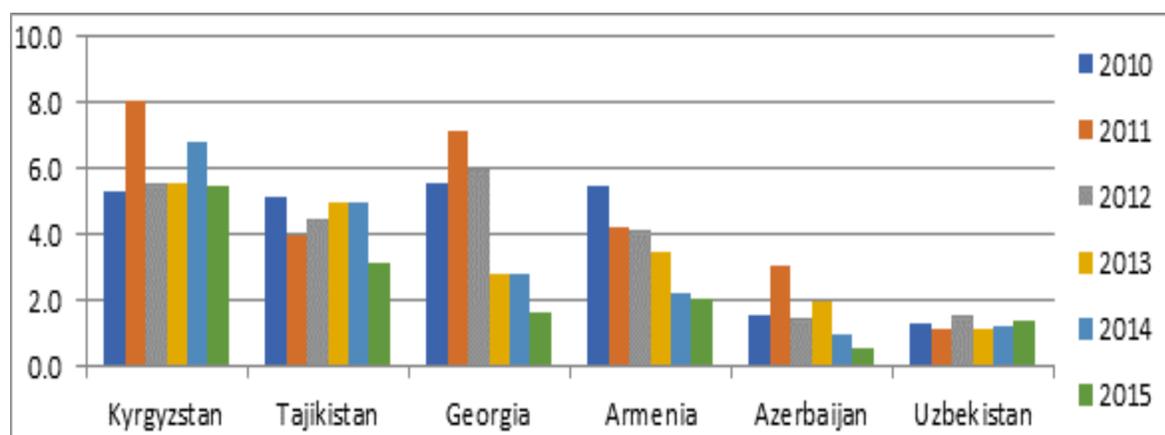
Source: WHO (Global Health Expenditure Database).

Note: Domestic public health expenditure includes not only transfers from government domestic revenue allocated to health purposes, but also funds from social insurance contributions and funds from compulsory prepayment schemes. It excludes transfers distributed by government from foreign origin (that is, development assistance for health).

7. The Kyrgyz Republic ranks top among Central Asia and Caucasus (CAC) countries as a recipient of Overseas Development Assistance (ODA) for health in percentage of GDP and in per capita terms. On average over 2010–2015, the Kyrgyz Republic received 0.5 percent of GDP (figure not shown) and US\$6 per capita (Figure 3) in ODA for health, above Tajikistan that received 0.3 percent of its GDP and US\$ 4 per capita.<sup>12</sup> The amount of ODA going to health decreased markedly in Georgia and Armenia during this period, while their GDP per capita increased toward the upper-middle-income country (UMIC) range. The biggest donors (based on 2015 disbursement, Organisation for Economic Co-operation and Development [OECD]) constitute Global Fund, the United States, Switzerland, Germany, the World Bank, and Gavi.

<sup>12</sup> OECD, Query Wizard for International Development Statistics. Available at: <http://www.gavi.org/country/kyrgyzstan/documents/>. Accessed March 25, 2018.

Figure 3. Health ODA, regional comparison (US\$ per capita)



Source: OECD Statistics, WDI (population).

Note: Countries ordered using average 2010–2015 level. Other countries in Central Asia received less than US\$1 per capita.

8. Available evidence suggests that government expenditure on routine immunization in the Kyrgyz Republic is comparable to other middle-income countries receiving Gavi support. Since 1998, WHO and the United Nations Children’s Fund (UNICEF) Joint Reporting Form mechanism has been collecting data on immunization financing indicators as part of a set of immunization indicators designed to measure system performance and trends in WHO member states.<sup>13</sup> The summary is presented in Figure 4. Government spending on routine immunization in the Kyrgyz Republic was estimated to be US\$8.42 per live birth in 2015–16.<sup>14</sup> This represented a 29 percent increase over the 2010–11 spending (US\$6.50 per live birth).

9. For a variety of reasons, the cross-country comparisons on immunization spending should be interpreted with great caution. First, countries differ significantly on the degree by which immunization services are integrated into the mainstream system and, accordingly, the ability to tease out immunization specific expenditure. Second, the methodology for allocating shared costs to immunization is weak, so there is strong variation in what is captured within immunization spending. Third, the estimates do not take into consideration variations in price across countries (that is, they are not adjusted for purchasing power parity). While vaccines purchased on the international market—for which different countries pay roughly the same price—may make up a significant percentage of routine immunization expenditures, other important expenditure items (for example, labor, petrol, and utilities) vary significantly in price

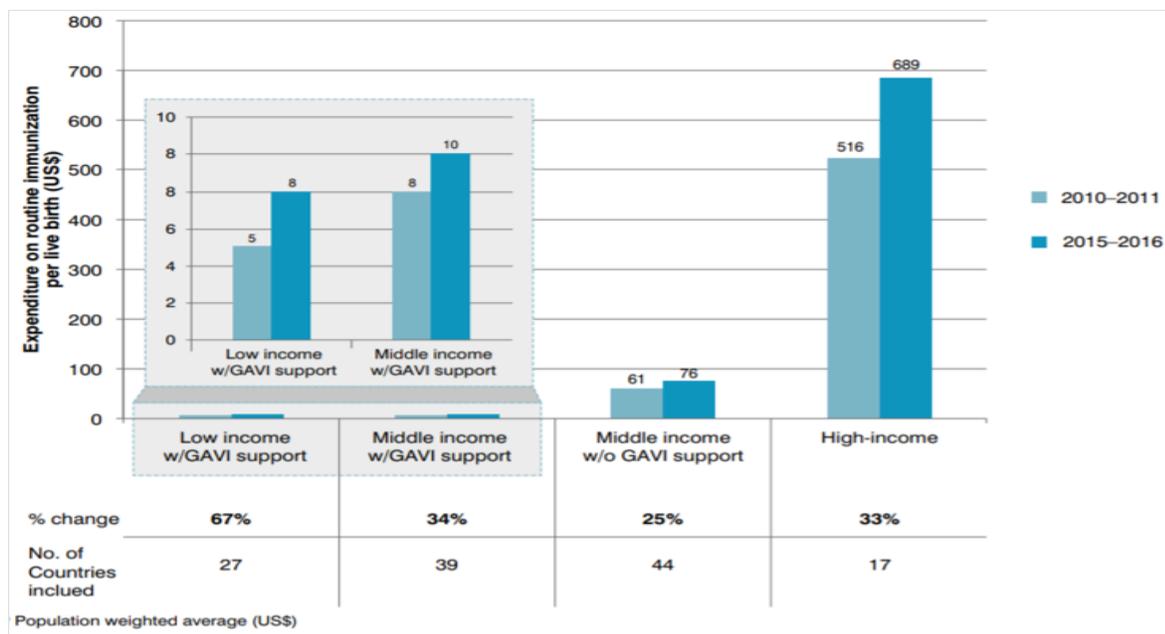
<sup>13</sup> WHO, 2016, Immunization Financing Indicators. Available at: [http://www.who.int/immunization/programmes\\_systems/financing/data\\_indicators/en/](http://www.who.int/immunization/programmes_systems/financing/data_indicators/en/). Accessed March 17, 2018].

<sup>14</sup> WHO. 2017. *Global Vaccine Action Plan: Monitoring, Evaluation and Accountability. Secretariat Annual Report 2017*. Geneva: World Health Organization.

The 2015–16 figure (and the increase relative to 2010–11) must be interpreted with caution given that there were extraordinary expenses owing to a Measles-Rubella campaign in 2015.

across countries. Fourth, a one-time, cross-sectional assessment of expenditures may be high if an outbreak, or special campaign, took place during that particular year.

**Figure 4. Government expenditure on routine immunization per live birth, by income group and Gavi’s support, 2010/11–2015/16**



Source: Reproduced from WHO, 2017, Global Vaccine Action Plan.

10. The above information thus suggests that the Government of the Kyrgyz Republic places a relatively higher importance on health compared to LMICs and to other countries in the region. This pattern likely holds even when one takes into account the fact that the Kyrgyz Republic is more successful in attracting donor funding for health and expenditure from external sources is actually counted toward public expenditure. At the same time, this pattern suggests that the Kyrgyz Republic could be more donor dependent than comparator countries for health spending. When it comes to spending on immunization specifically, limited evidence shows that the Kyrgyz Republic is within the range for LMICs which receive Gavi support.

### Overview of the NIP

11. To strengthen immunization services, the Ministry of Health (MoH) in 1994 created the Republican Centre for Immunoprophylaxis (RCI). The RCI’s functions were to shape policies and strategies on immunization, perform the Expanded Programme on Immunization (EPI) and vaccine preventable diseases surveillance monitoring, provide and procure vaccines, and ensure the overall management of the immunization system at the national level. The RCI has its own budget and reports to the MoH. Besides this leading program, there are target programs on polio eradication maintenance, measles and rubella elimination, and viral hepatitis. As is further described below, the RCI is in charge of vaccine procurement. Every year, they make an estimation of needs based on demographics, coverage, and requirements for

supplementary activities. The request for vaccines is submitted in October to UNICEF's Supply Division who is the only acceptable vaccines supplier for the country. Upon arrival of vaccines, the RCI is in charge of customs clearance and transferring vaccines from the airport to the central cold store.

12. The NIP refers to the RCI plus all elements and processes within the health system involved in delivering routine immunizations. The major functions in immunization delivery are integrated into activities of primary health care (PHC) services. Feldsher-Obstetrical Ambulatory Points (FAPs), family group practices (FGPs), and family medicine centers (FMCs) provide immunization services. They have equipped rooms for this purpose, and vaccines are administered by personnel with relevant and valid certificates. People are not charged anything for immunizations—the health care facilities are provided with vaccines and consumables, and the service delivery costs are subsumed in capitation payment by the Mandatory Health Insurance Fund (MHIF) to facilities. (Immunization services, and payment thereof, are integrated into the PHC system and carried out within the framework of the SGBP, while the procurement of vaccines and consumables is done centrally, by the RCI.) Immunization performance data and vaccine preventable disease surveillance data are reported monthly from those facilities, through the rayon and oblast/city State Sanitary-Epidemiological Surveillance (SSES), up to the RCI and the MoH.

13. The private sector plays little or no role in provision of immunization services. Provision of immunization services through private health facilities, except maternities for birth doses, is not allowed by national legislation.<sup>15</sup> However, according to the 2016 Joint National-International Review of the NIP "...wealthier parents living in urban areas tend to be more skeptical about the benefits of immunization or seek vaccines sold in the private sector of neighboring countries." It is difficult to know with certainty the frequency with which immunization services are sought from the private sector, as this has not been assessed in representative household surveys.

14. Since 2001, the vaccination schedule followed by the NIP provides the following WHO recommended routine immunizations: tuberculosis (*Bacillus Calmette–Guérin* [BCG]), diphtheria, pertussis, tetanus (DPT), polio, measles, hepatitis B, haemophilus influenzae type b, and rubella (Table 1).<sup>16</sup> Since 2009, pentavalent vaccine (Penta) has been introduced to replace DPT and hepatitis B vaccines (but first dose at birth). The immunization schedule was most recently updated in 2016. In the new schedule, the birth dose of oral polio vaccine (OPV) was removed (based on National Immunization Technical Advisory Group (NITAG) recommendations from 2014) and three doses of pneumococcal conjugate vaccine-13 (PCV-13)—at 2, 5, and 12 months—were introduced, as was one dose of IPV at 3.5 months to be co-administered with OPV3 and Penta3 (IPV is yet to be introduced in the country). There are two WHO recommended vaccines that have not yet been added to the schedule in the Kyrgyz

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<sup>15</sup> MoH, Kyrgyz Republic, 2016. Joint National-International Review of the National Immunization Program in the Kyrgyz Republic: July 25–August 3, 2016.

<sup>16</sup> National Statistical Committee of the Kyrgyz Republic and UNICEF, The Kyrgyz Republic Multiple Indicator Cluster Survey (MICS) 2014, Final Report. Bishkek, the Kyrgyz Republic: National Statistical Committee of the Kyrgyz Republic and UNICEF.

Republic: rotavirus and human papillomavirus (HPV).<sup>17</sup> Both are under consideration for introduction and new vaccines support from Gavi.<sup>18</sup>

**Table 1. National immunization schedule, Kyrgyz Republic**

Timing	Vaccine	Comment
0-24 hrs	HepB-1	1 injection
Maternity (0-3 days)	BCG, OPV-0	1 injection
2 months	DTwP-1+HepB-2+Hib-1; <b>PCV13 – 1</b> ; OPV-1	2 injections
3.5 months	DTwP-2+HepB-3+Hib-2; <b>PCV13-2</b> ; OPV-2	2 injections
5 months	DTwP-3+HepB-4+Hib-3; <b>IPV</b> ; OPV-3	2 injections
6 months	PCV13-3	1 injection
12 months	MMR	1 injection
24 months	DTwP	1 injection
6 years	DT; MR	2 injections
11, 16, 26, 36, 46 years	tD	

Source: Gavi, 2015, Joint Annual Report.

15. Provision of vaccines that are not part of the routine schedule of vaccinations—for example, anti-plague, encephalitis, seasonal influenza—are not considered part of the NIP. Instead these are the responsibility of the Republican Center of Quarantine and Dangerous Infections, also in the Department of Public Health. These vaccines are purchased and delivered through entirely different channels. These vaccines are not given further consideration in this report.

16. The Kyrgyz Republic has achieved a high level of coverage rates for immunization service provision in the country, although the estimated level of coverage varies considerably by source. The WHO-UNICEF Joint Reporting Form estimates coverage based on the reported number of doses administered to the target population. According to this ‘administrative coverage data’, immunization coverage is very high in the Kyrgyz Republic—for example, DPT3 coverage has increased from 92 percent to 96–97 percent between 2007 and 2016 (Table 2). Coverage estimates calculated using the administrative method can be biased due to inaccurate numerators or denominators, thus data from household surveys—such as the UNICEF MICS and the Demographic and Health Surveys (DHSs)—are generally thought to be more accurate. In the Kyrgyz Republic, according to DHS 2012 almost all children ages 18–29 months (96 percent or higher) have received vaccinations for BCG, measles (alone) or measles, mumps, and rubella (MMR), and the first doses of polio and Penta/DPT.<sup>19</sup> However, more detailed data reveal numerous challenges in the performance of the NIP. The percentage of children ages 18–29 months that had received all WHO-

<sup>17</sup> WHO, 2018, WHO recommendations for routine immunization - summary tables. Available at: [http://www.who.int/immunization/policy/immunization\\_tables/en/](http://www.who.int/immunization/policy/immunization_tables/en/). Accessed May 13, 2018.

<sup>18</sup> Gavi, Joint appraisal report 2016. Available at: <http://www.gavi.org/country/kyrgyzstan/documents/>. Accessed March 24, 2018.

<sup>19</sup> MoH, Kyrgyz Republic, Kyrgyz Republic DHS, 2012. National Statistical Committee of the Kyrgyz Republic, Bishkek.

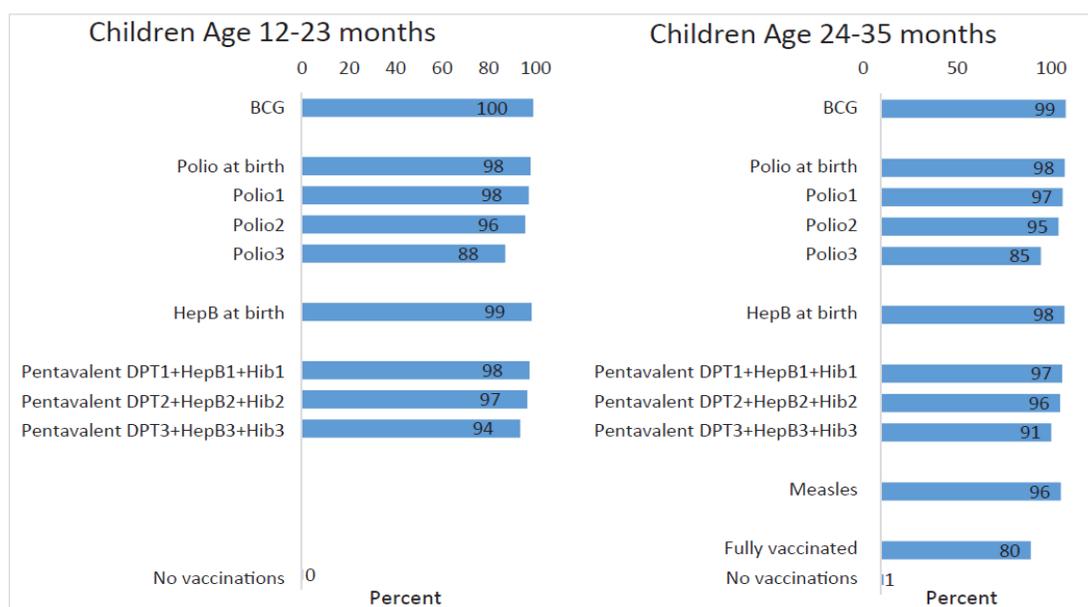
recommended vaccines was considerably lower at 74 percent in 2012, a reduction from 84 percent in 1997 (DHSs 1997, 2012) (latest figure at 80.4 percent according to MICS 2014, Figure 5). The country experienced major measles outbreak in 2014–2015, affecting thousands of children (more than 21,000 suspected cases in 2015)<sup>20</sup>. There are marked inequalities in vaccination coverage by geographic area and by socioeconomic status. The proportion of children who have received all the basic vaccinations is considerably higher in rural areas (78 percent) than in urban areas (67 percent) (DHS 2012).

**Table 2. WHO/UNICEF coverage estimates for 1992–2016, Kyrgyz Republic (as of July 15, 2017)**

Vaccine	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BCG	98	99	98	98	98	98	98	97	97	97
DTP1	98	99	98	99	97	96	98	96	99	97
DTP3	94	95	95	96	96	96	97	96	97	96
HepB_BD	98	98	98	99	73	94	96	99	97	96
HepB3	94	97	96	96	96	96	97	96	97	96
Hib3				96	96	96	97	96	97	96
MCV1	99	99	99	99	97	98	99	96	99	97
MCV2	95	97	98	98	98	98	97	97	96	98
Pol3	94	95	96	88	94	94	97	95	97	97

Source: WHO-UNICEF Joint Reporting Process, [http://apps.who.int/immunization\\_monitoring/globalsummary](http://apps.who.int/immunization_monitoring/globalsummary)

**Figure 5. Vaccinations by age 12 months (measles by 24 months), Kyrgyz Republic, 2014**



Source: Reproduced from the Kyrgyz Republic MICS 2014.

17. The cold chain is key to the success of the NIP and is one of the main expenditure items under the NIP. With the introduction of expensive vaccines, the quality and capacity of the cold chain throughout

<sup>20</sup> Gavi, Joint appraisal report 2015. Available at: <http://www.gavi.org/country/kyrgyzstan/documents/>. Accessed March 24, 2018.

the country became critical. Technical assistance was extensively provided during 2013–2016; an Effective Vaccine Management assessment was conducted in September 2015.<sup>21</sup> Remaining challenges include: in some health facilities, there are no vaccine carriers, no WHO prequalified equipment (mainly domestic refrigerators), and a lack of generators; and vaccine stock management practices are outdated at the national level and not always reflecting standard operating procedures (SOPs).<sup>22</sup> Work to improve the cold chain is ongoing, but this is predominantly donor financed. Through the Gavi Health System Strengthening (HSS) there is support to improve the cold chain. The country is also receiving Cold Chain Equipment Optimization Platform (CCEOP) support aimed at improving the cold chain at the subnational levels (see Annex 1). The Kyrgyz Republic is also receiving technical assistance (under Gavi’s Partners’ Engagement Framework [PEF]) for development of SOPs for vaccine management. Given the donor support to the cold chain, this deserves particular attention through the period of transition.

18. The brief overview thus reveals a number of positive aspects in the immunization program in the Kyrgyz Republic. Unlike some other countries also receiving Gavi support,<sup>23</sup> service delivery is fully integrated in the PHC functions. The country has set up a designated body specifically in charge of the NIP (RCI). Immunization coverage for the most part is high and support from international organizations (WHO and UNICEF) is visible. On the other hand, the NIP falls short regarding full immunization and equal coverage among population groups. The major measles outbreak in 2014–2015 reveals that the NIP is fragile, and much more concerted efforts are needed to assure a solid and stable system to preempt vaccine preventable outbreaks.

### **3. Financing arrangement and funding flows for the NIP**

19. This section provides a description of resources for the NIP, including the sources of these resources, the agents or organizations through which they flow, and the uses, that is, goods and services, that are purchased. Examining these financing flows is instrumental in assessing the key players and the potential challenges to financial sustainability. The section starts with a description of the methods used in developing these financing flows, including the sources of data, gaps in data, and challenges in assessing or combining the data. An overview of NIP financing flows is then provided, followed by a more detailed presentation and analysis of the two major categories of expenditures: vaccine and non-vaccine spending.

#### ***Estimating the NIP financing flows***

20. The analysis in this assessment relies on budgets, expenditure records, and planning documents from the government, Gavi, and other sources. In terms of public financing, the primary data sources are

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<sup>21</sup> MoH, Kyrgyz Republic, 2016. Joint National-International Review of the National Immunization Program in the Kyrgyz Republic: July 25–August 3, 2016.

<sup>22</sup> Gavi, Joint appraisal report 2016. Available at: <http://www.gavi.org/country/kyrgyzstan/documents/>. Accessed March 24, 2018.

<sup>23</sup> Examples include Nigeria.

budget and expenditure tables from the RCI and the Ministry of Finance (MoF). Data from Gavi are largely from Gavi’s website, with additional detail provided by Gavi staff. For Gavi, two measures are used which roughly equate to budgeted amounts and expenditures.<sup>24</sup> Additional detail on the sources of data are provided in Annex 2.

21. It is difficult to estimate total spending on the NIP in the Kyrgyz Republic, partly due to problems in estimating non-vaccine costs. Non-vaccine cost is a catch-all category, that should ideally include: salaries and wages; capital and maintenance expenditures on buildings, equipment (including cold chain), vehicles, and furniture; consumables (such as syringes and safety boxes); communications and advertising; office space rent; office supplies and consumables; insurance premiums; petrol costs for transportation; public utilities such as telephone service, internet connectivity, and so on. Several of these expenditures (and related sources of financing) are not captured in this analysis. Of particular importance, the staff costs (those working both full- and part-time on immunization) are only partially included in this assessment, as these costs are shared across several government departments and partner agencies (particularly the SSES and the MHIF, detailed below), and estimating them would require an in-depth exercise to estimate how staff apportion their time. Second, this analysis does not capture other service delivery costs at the level of health care facilities, as these are subsumed in capitation payment by the MHIF to facilities. Third, capital expenditures on buildings are not captured. While it would be useful to have a more complete picture of the full cost of providing immunization services, for the discussion of financial sustainability, the most important costs are captured in the current analysis.

22. The costing and financing exercise for the cMYP (2016–21) did attempt to estimate some of the NIP costs that are not captured in RCI and Gavi budgets (for baseline year 2015). Estimating the cost of all personnel involved in delivering routine immunization involved estimating (a) the number of staff, of different cadres, who spend 5 percent or more of their time on the immunization program, at all levels (national, oblast, and rayon) (a total of 3,899 staff in 2015); (b) the amount of time spent on the NIP activities; and (c) their average, gross monthly wage in U.S. dollars. The authors find that “Out of the total of 3,899 persons engaged in the national immunization program, only 898 (or 23 percent) persons dedicate full work time to immunization with a payroll of US\$1.39 million in 2015 (accounting for 23.1 percent of total immunization specific expenditures and 35 percent of the total expenditures on routine immunization). The rest of the staff are shared health system personnel, allocating from 5 percent to 30

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<sup>24</sup> According to the ‘Program Year’ definition, payments are shown by the program year to which they relate, irrespective of the calendar year in which they were made. The program year is the year in which the relevant vaccine/cash program is being implemented. For the ‘Year Paid’ definition, payments are shown in the calendar year in which the payment was made. For example, if at December 31, 2016, Gavi has made payments amounting to US\$0.5 million—US\$0.25 million for 2016 and US\$0.25 million for 2017—the payments are recorded in the disbursement table as follows:

US\$, millions	2016	2017	2018	2019	Total
Disbursements by Year Paid	0.5	—	—	—	0.5
Disbursements by Program Year	0.25	0.25	—	—	0.5

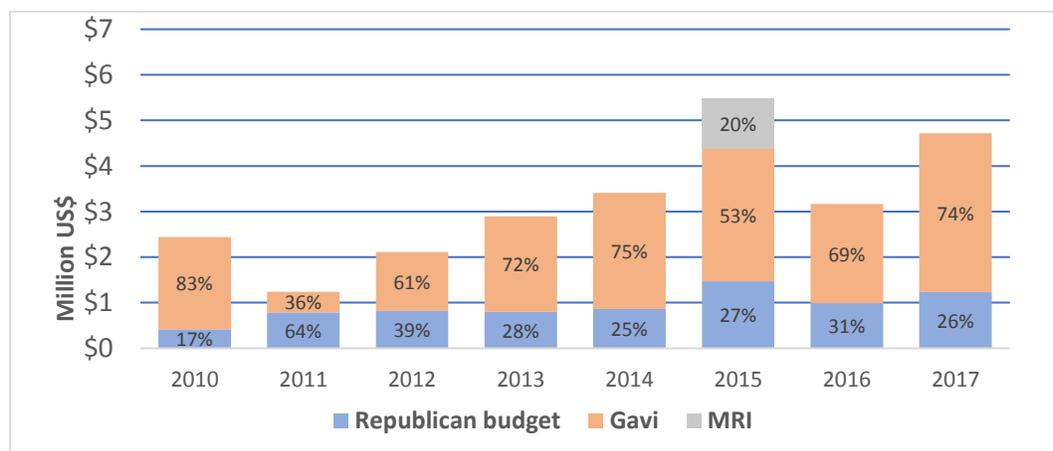
percent of their work time to the immunization program.” These shared salaries amount to an estimated US\$705,611 in 2015, and these are the bulk of what the authors call the shared health systems costs.

### Overall picture of NIP financing

23. NIP expenditures vary considerably one year to another, and these expenditures are largely driven by (a) Gavi financing and (b) vaccine spending. Over the seven-year period, 2010 to 2017, expenditures varied from US\$1.2 million per year in 2011 to US\$5.5 million per year in 2015. This represents US\$0.23 per capita in 2011 up to US\$0.92 per capita in 2015. (This compares with current health expenditure [CHE] estimated at US\$100 per capita for the years 2012 to 2017<sup>25</sup>; total spending on the NIP is less than 1 percent of CHE.) (The years 2015 and 2016 are likely non-representative in terms of the amount and nature of NIP spending, given that this was the time of the measles outbreak response). Gavi is the predominant source of the majority of NIP resources—36 percent to 83 percent of total—depending on the year (Figure 6). Vaccines are by far the predominant expenditure by the NIP (Figure 7), although as per the information above, this is a function of the fact that many delivery costs are not captured.

24. Throughout this section, it should be noted that 2015 was an extraordinary year due to the measles outbreak described above. To address this issue, the MoH and NIP involved NITAG to plan and implement the outbreak response activities, conducted the measles-rubella (MR) supplementary immunization activity (SIA) in 2014 and 2015 targeting individuals ages 1–21 years. Phased campaigns to date covered 2,045,513 individuals that represented 96.1 percent of the target group. Preliminary results show that these strategies had some success, as of July 30, 2015, the number of registered cases was 30, and in August of the same year no measles case was detected. Expenditures during 2015 are skewed by the MR SIA.

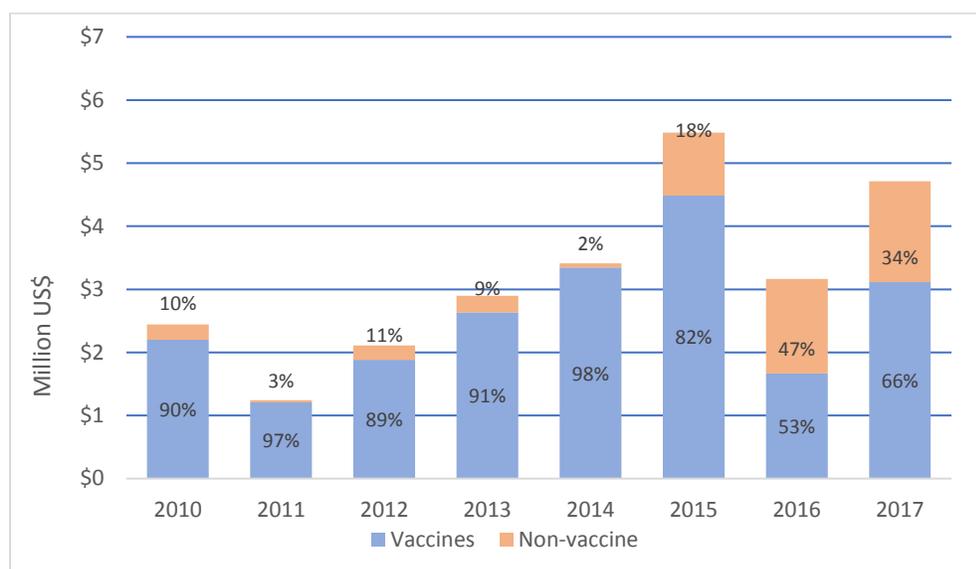
Figure 6. Kyrgyz Republic NIP financing, by source (2010–2017)



Source: Authors' calculations based on data from various sources (see Annex 2).

<sup>25</sup> WHO, Global Health Expenditure Database. Available at: <http://apps.who.int/nha/database/Select/Indicators/en>. Accessed February 14, 2018.

**Figure 7. Kyrgyz Republic NIP financing, by use (2010–2017)**



Source: Authors' calculations based on data from various sources (see Annex 2).

### **Financing flows for vaccines**

25. The flow of funds for the purchase of routine vaccines is relatively simple, with (during most years) only two main sources of funding and with all vaccines purchased from UNICEF (Supply Division, Copenhagen) (Figure 8). As mentioned above, there is an annual process for forecasting the need for vaccines based on demographics, coverage, and requirements for supplementary activities.<sup>26</sup> When it comes to the republican budget, the RCI is considered a subordinate institution under the MoH (as are about 100 other institutions). The RCI has its own treasury account, with its own budget. When government funding is approved for the RCI, it is transferred directly from the Treasury to the RCI. Within the RCI budget is budget line 2217, which is specific for vaccines and consumables; it is the amount required for traditional vaccines, plus the co-financing (in 2017, 13.1 percent of new vaccine costs) for Gavi-supported vaccines. There exists a special Memorandum of Understanding that allows the RCI to purchase vaccines directly from UNICEF, without the involvement of the procurement cell at the MoH.<sup>27</sup>

26. Gavi funding for the new vaccines flows directly from Gavi to UNICEF and does not pass through Government of the Kyrgyz Republic accounts.<sup>28</sup> The RCI negotiates with UNICEF on the mode (and cost) of delivery of vaccines to the Kyrgyz Republic and is responsible for their receipt at the point of entry. No

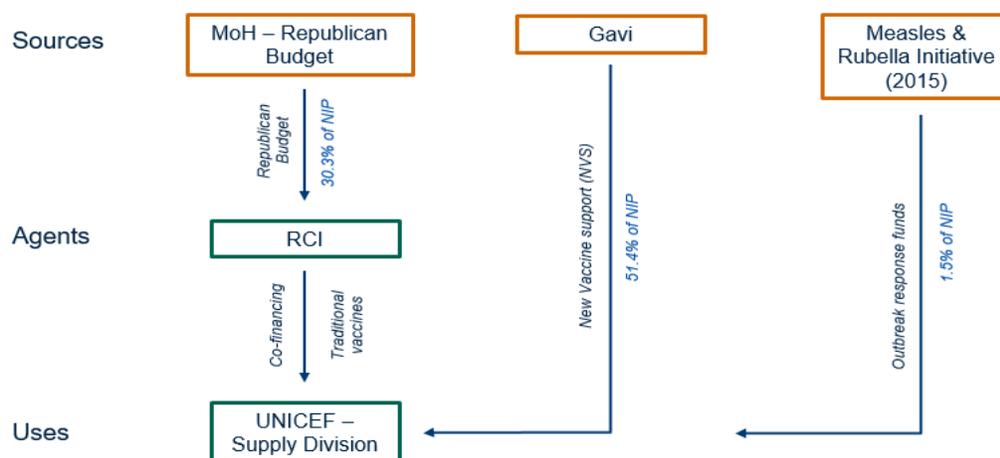
<sup>26</sup> MoH, Kyrgyz Republic, 2017. cMYP, Kyrgyz Republic, 2017–2021.

<sup>27</sup> The procurement and supply mechanism is regulated within the framework of the Memorandum of Understanding 2012–2022 between the government and UNICEF.

<sup>28</sup> This procedure is also followed in the case of emergencies, such as in 2015, when the Measles and Rubella Initiative (MRI) Outbreak Response Fund covered the purchase of campaign vaccines (to compliment MR purchases made directly by the government). According to the cMYP, MRI contributed US\$664,000 while the Government spent an additional US\$994,000 on vaccines from the budget. MRI also provided about US\$400,000 in operational resources; it is not clear if this went into the MoH treasury account or elsewhere.

expedited procedure for registration has been adopted, so importation is based on individual waivers with the government co-payment portion of Gavi-supported purchases being subject to value added tax. When the vaccines arrive (quarterly) at the airport in Bishkek, customs duties are paid using funds from the RCI immunization services support (ISS) subaccount. Despite this, there reportedly are delays at this step due to lack of readily available funds.

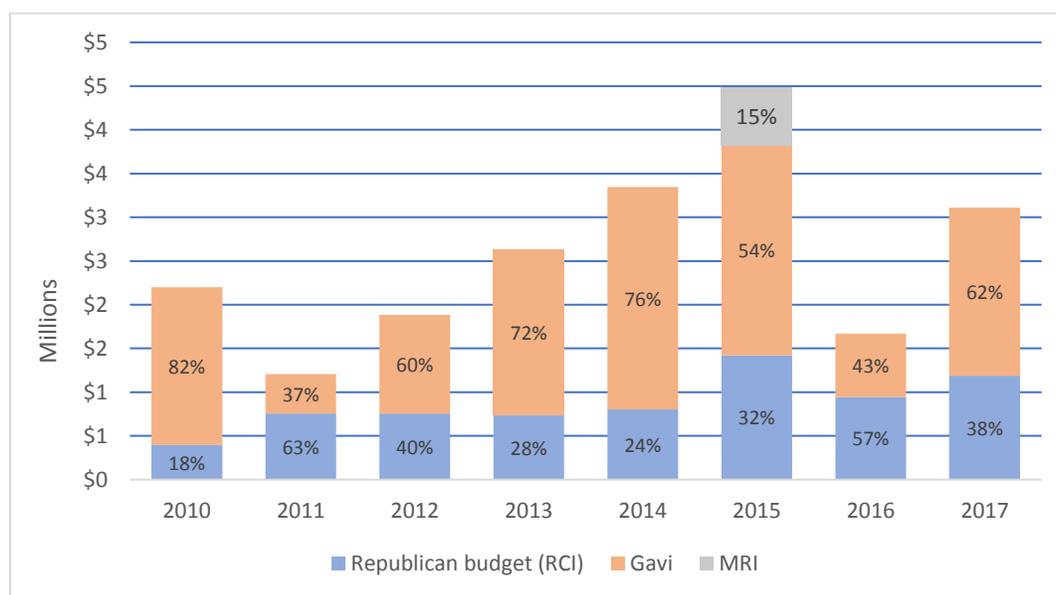
**Figure 8. Financing flows for the purchase of vaccines in the Kyrgyz Republic (indicated as percentage of NIP expenditure 2010–2016, where available)**



Source: Authors' calculations based on data from various sources (see Annex 2).

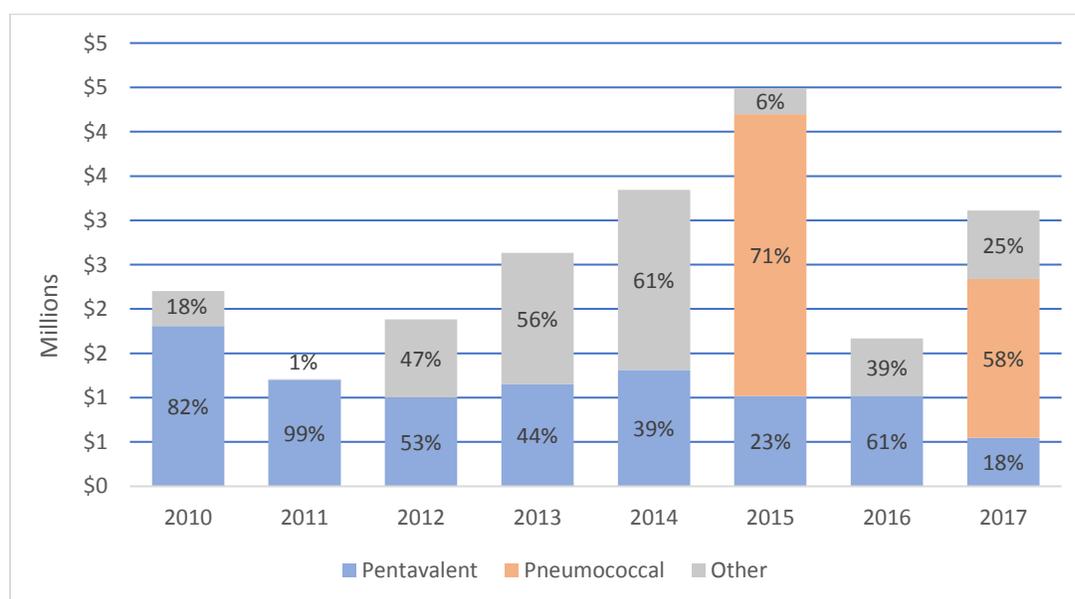
27. In an average year, the MoH-RCI-UNICEF pathway (vaccines) represents 30 percent of total NIP expenditures and the Gavi-UNICEF pathway (New Vaccine Support [NVS]) represents 51 percent of total NIP expenditures (Figures 9 and 10). It can be seen that there is considerably more variability in Gavi vaccine spending each year relative to Government of the Kyrgyz Republic vaccine spending, driven by 'new vaccine' spending in a particular year. As shown in Figure 10, the purchase of new vaccines, pneumococcal and pentavalent, is the predominant drivers of vaccine spending. It is not entirely clear why there are large variations, year-on-year, on PCV (which in turn drives much of the variation of total NIP financing flows over the three-year period, 2015–17). It is assumed that monies were budgeted by Gavi in 2015 (and transferred to the UNICEF Supply Division in 2015) for PCV that was then administered in calendar year 2016. The drop in 'other' vaccine expenditures in 2015 is presumably because the government was no longer having to purchase DPT as these three antigens were now included in the new pentavalent vaccine. It is unclear why funds were not budgeted in 2016 for PCV to be administered in 2017, nor why the funds budgeted in 2015 for PCV were considerably more than that budgeted in 2017.

**Figure 9. Kyrgyz Republic vaccine financing, by source (2010–2017)**



Source: Authors' calculations based on data from various sources (see Annex 2).

**Figure 10. Kyrgyz Republic vaccine financing, by use (2010–2017)**



Source: Authors' calculations based on data from various sources (see Annex 2).

28. Included in the vaccine cost (the amount paid to the UNICEF Supply Division) is a 10 percent contingency buffer, which, along with the total bill, must be paid in advance of shipping of the vaccines. If the contingency buffer is not used, this amount is rolled over as balance to the subsequent year. Insurance costs are paid from the RCI budget, and cover risks related to the damage of vaccines and injection equipment at the central level.

29. The flow of funds for select consumables (for example, auto-disposable (AD) syringes and safety boxes) follows the same procedure and pathway, with purchases made through the UNICEF Supply Division arriving at the same time as the vaccines. The Kyrgyz Republic received support for injection safety support (INS) under the Gavi NVS window (US\$55,000 in 2017).

### ***Financing flows for NIP non-vaccine expenditures***

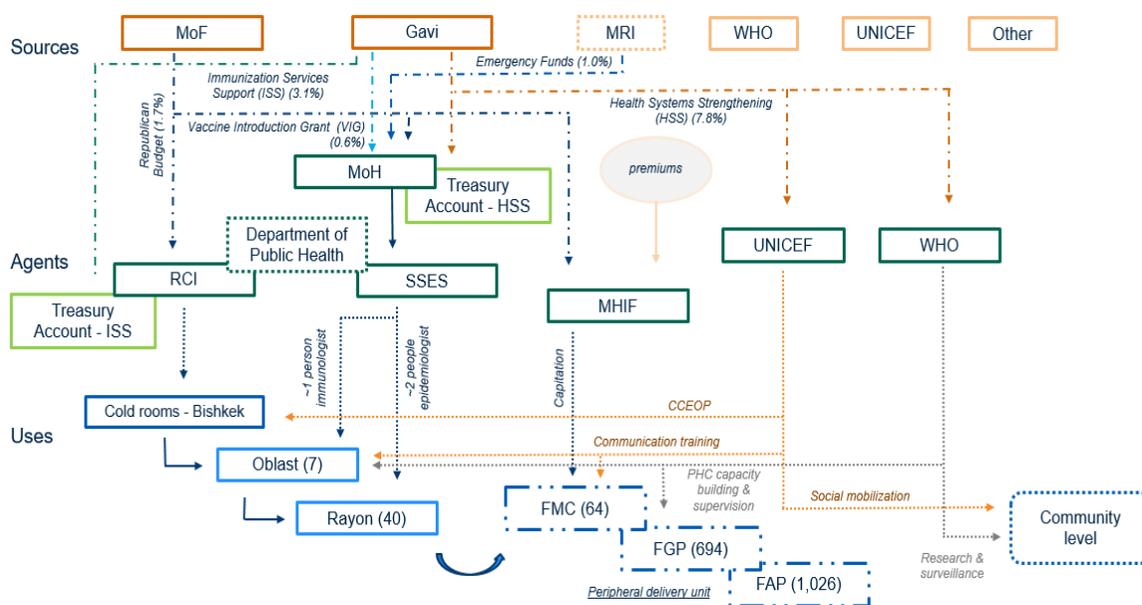
30. As was the case for vaccines, the two primary sources of funds are the MoF (republican budget) and Gavi (Figure 11). In terms of the republican budget, the current analysis captures only the republican budget that flows to the RCI. It excludes, the (likely far more significant) amounts that flow via other agents. The current analysis does not, for example, capture republican budget flows to the Department of SSES, which covers all administrative costs, utility costs, and transport costs from oblast to rayon level, and the MHIF, which acts as a 'single-payer', covering the costs of all primary care (including immunization at the level of FMC, FGP, and FAP) as part of its capitation payments. Gavi support is provided through two different streams. The ISS—which has been phased out and is set to close at the end of 2017—is held in the RCI treasury account with its uses guided by the Interagency Coordinating Mechanism (ICC). HSS 2 is a five-year US\$4.6 million grant split across five organizations, the largest share of which (US\$1.91 million) is allocated to WHO for strengthening PHC and capacity building and surveillance; US\$1.8 million goes to the MoH, largely for the purchase of cold chain equipment.<sup>29</sup> In parallel, UNICEF receives funds for communications and demand generation (US\$0.85 million).

31. Figure 11 illustrates that the RCI receives only a small percentage of total NIP resources for non-vaccine expenditures (a small republican budget, as well as the ISS and vaccine introduction grant [VIG] support from Gavi). The RCI controls budgets and resource allocation for immunization services down to the regional level, but has limited influence over resources allocated for operating costs at the rayon and facility levels where services are implemented. It is up to the local and regional governments to allocate sufficient operating resources to facilities to make them effective at providing services.

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<sup>29</sup> Of this amount, it is agreed that approximately US\$800,000 will be transferred from the MoH to the UNICEF Supply Division for implementation of the CCEOP.

**Figure 11. Financing flows for NIP non-vaccine expenditures in the Kyrgyz Republic (indicating percentage of NIP expenditure 2010–2016, where available)**



Source: Authors' calculations based on data from various sources (see Annex 2).

32. On occasion, other sources have contributed financing to the NIP. In 2013 and 2014, it appears that substantial contributions were made by Project Hope for the purchase of traditional vaccines (according to Annual Progress Reports submitted to Gavi).<sup>30</sup> (Contributions from Project Hope are not included in the above analyses of financing flows, as they could not be verified outside of this one report.) In 2015–16, additional operational resources were transferred to the government by the MRI. In 2012, the Japanese Government financed the purchase of refrigerated vehicles. And in 2016, donors to the Sector-Wide Approach (SWAp) financed the purchase of 216 refrigerators for facilities at the oblast and rayon levels. While UNICEF and WHO are directly involved in service delivery (with support from the Gavi HSS) they do not subsidize with contributions from their core budget nor from other sources—although it should be noted that this contradicts assumptions of the cMYP, which assumes that both UNICEF and WHO make some contributions from their budgets.<sup>31</sup>

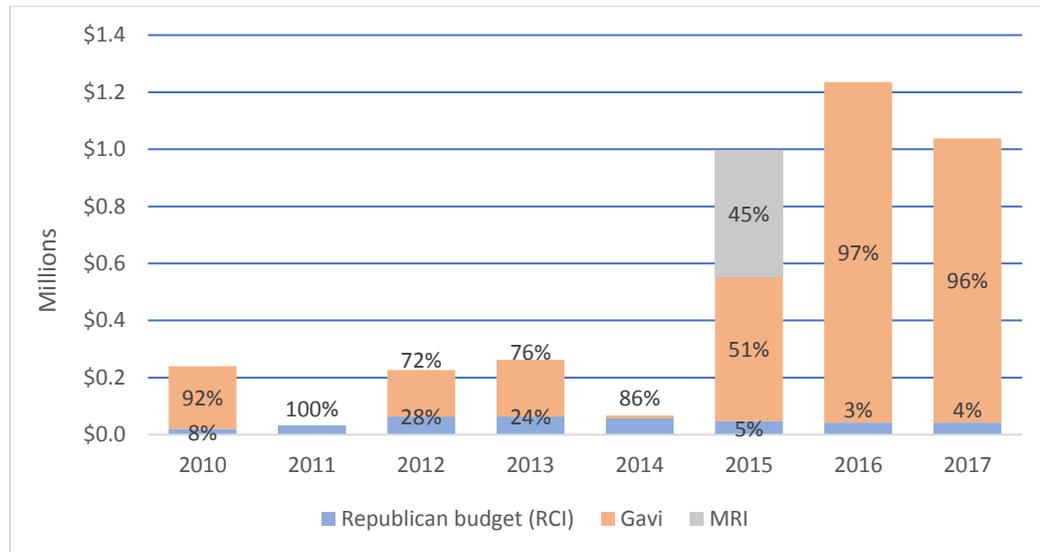
33. Figures 12, 13, and 14 illustrate the changes in NIP non-vaccine financing, by source, agent, and use, between 2010 and 2017. The variations in support from Gavi are notable (from US\$0 in 2011 or less than US\$10,000 in 2014 to almost US\$1.2 million in 2016; Figure 12). Government financing of these non-vaccine expenditures is relatively small, and almost all of the government non-vaccine spending is on salaries (these are salaries of staff at the RCI, and as above, do not include salaries of those involved in

<sup>30</sup> Gavi, 2013 and 2014, Annual Progress Reports. Available at: <http://www.gavi.org/country/kyrgyzstan/documents/>. Accessed February 14, 2018.

<sup>31</sup> Records show that UNICEF Kyrgyz Republic provided the Ministry of Emergencies with contingency supplies worth US\$124,560 in 2015 to fight the measles epidemic.

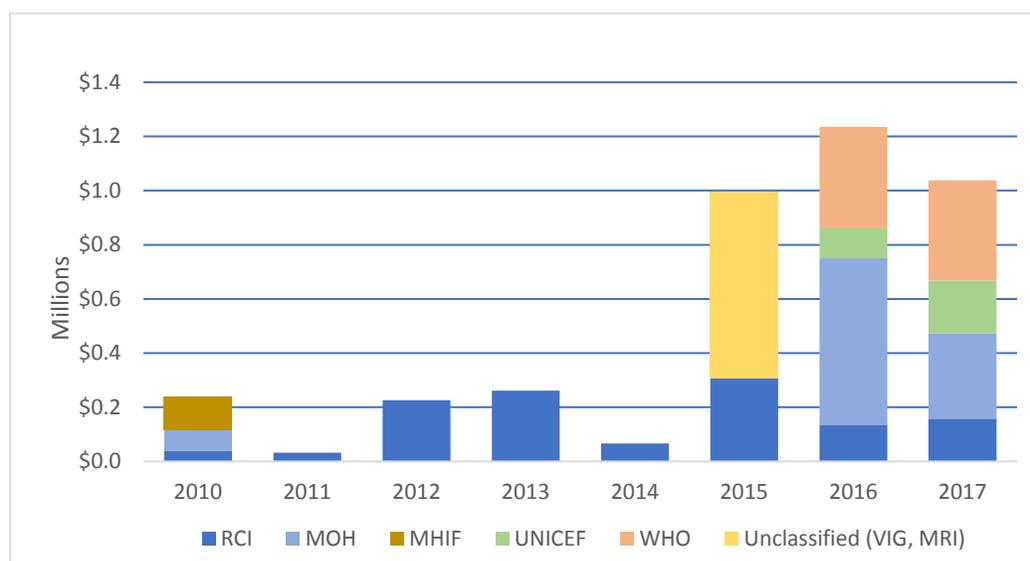
delivering immunization services at the PHC level). As above, for recent years, the non-vaccine financing is in the form of the Gavi HSS 2 grant, which flows through the MoH, WHO, and UNICEF and is used for investments in the cold chain, communications and outreach, and training. Figure 13 suggests that the MoH has become an increasing sizeable ‘agent’ in recent years. However, the MoH is only a ‘pass through’ agent rather than a real agent in the sense that it can decide what the money is for; most of the funding that first flowed to the MoH in 2016 and 2017 was then passed on to UNICEF for the cold chain. What seems to be a shift from large ‘operational’ expenditures in 2015 to large cold chain expenditures in 2016 and 17 (Figure 14) is just a reflection of having a clearer breakdown of budgeted amounts in the two most recent years. All three of these figures reflect the amounts budgeted under Gavi HSS 1 and HSS 2—the actual expenditures (and budget execution rates) are not clear. Further analysis could involve comparing Gavi funding disbursed under HSS 2 against expenditures out of the MoH-HSS sub-account.

**Figure 12. Kyrgyz Republic NIP non-vaccine financing, by source (2010–2017)**



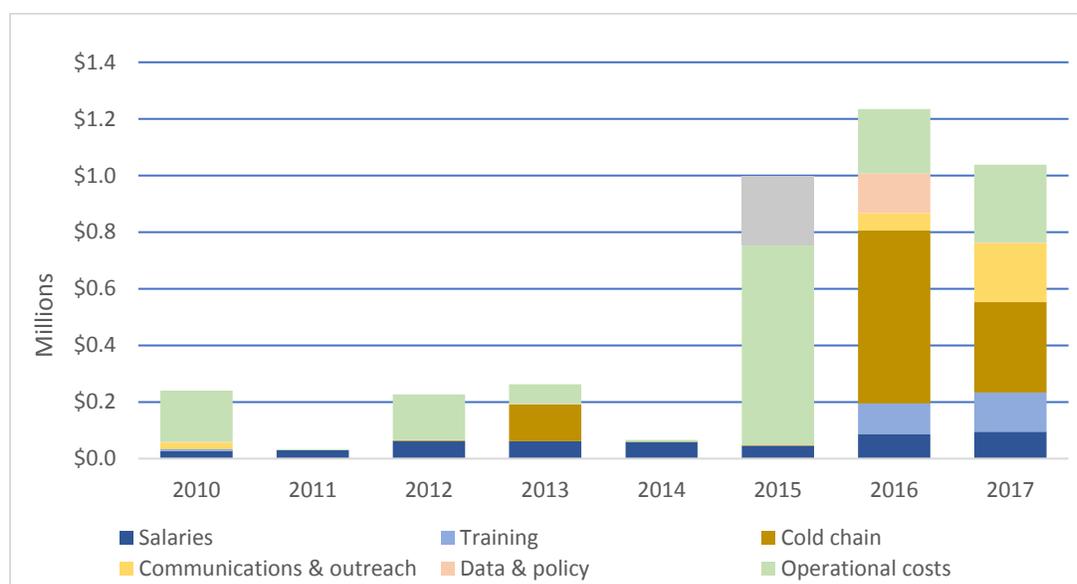
Source: Authors’ calculations based on data from various sources (see Annex 2).

**Figure 13. Kyrgyz Republic NIP non-vaccine financing, by agent (2010–2017)**



Source: Authors' calculations based on data from various sources (see Annex 2).

**Figure 14. Kyrgyz Republic NIP non-vaccine financing, by use (2010–2017)**



Source: Authors' calculations based on data from various sources (see Annex 2).

### **Financing flows for immunization technical assistance**

34. A third and relatively new stream of Gavi support—targeted country assistance (TCA)—supports technical assistance by WHO and UNICEF and funds the World Bank’s work on financial sustainability and the One23 Partnership for technical assistance to the ICC (from September 2017 to August 2018). Dalberg provides embedded, management support to the RCI team for two years (since March 2018). John Snow, Inc. is supporting urban immunization diagnostics work (from January to June 2018). The total amount of the TCA funds in 2017 is US\$0.56 million. This analysis did not attempt to capture the amounts spent on

technical assistance before calendar year 2016 (when the TCA funding from Gavi commenced) and is not analyzed in further detail here.

## **Summary**

35. In conclusion, this section represents an attempt to construct a picture of immunization financing in the Kyrgyz Republic. The picture is incomplete as it does not include a large part of the service delivery cost borne by the government incorporated in the SGBP financing and delivery. What is included—the incremental cost of financing immunization, over and above the financing of PHC (including vaccines, other consumables, the cold chain, and the direct operating cost of the NIP)—is directly relevant to the donor transitioning issue. Here we see a significant and increasing role of Gavi as a financier, especially with the introduction of the new vaccines. At the same time, with Gavi’s decision to distribute HSS 2 funding among three implementing agencies—the MoH, WHO, and UNICEF—WHO and UNICEF became significant financing agents over the last three years. The main national players—the MoH and RCI—are rather non-significant agents of Gavi’s financing, in the sense that they serve more as a ‘pass through’ agents than as agents that have a strong role in deciding the use of funds. Despite the annual need estimation exercise that serves as the basis for vaccine procurement, vaccine financing shows a significant fluctuation, a pattern that warrants better understanding. As a general picture, national government spending for the NIP, although smaller, is also more stable than financing from external sources.

## **4. Challenges to immunization financing sustainability**

36. This section focuses on the challenges to financial sustainability, categorized by the four criteria set out in the conceptual framework: adequacy of financing; predictability of financing; efficiency of spending and value for money; and preparedness for unexpected outbreaks.<sup>32</sup> While the focus here is on identifying challenges, so that these may be addressed, it is also important to recognize and highlight that there are indeed factors that favor the sustainability of ‘immunization gains’ in the Kyrgyz Republic, including (a) the Government of the Kyrgyz Republic’s long-term, and increasing, financial commitment to the NIP; (b) the dedicated budget line through which government funds for vaccines are budgeted; and (c) the inclusion of immunization services under the MHIF and their integration with other PHC functions. In these ways, the Kyrgyz Republic compares favorably to many other countries; these factors should be kept in mind (and safeguarded) when considering any future changes to immunization financing.

### ***Adequacy of immunization financing***

37. There are no clear international guidelines on the amount that should be spent (for example, as a percent of GDP, of general government expenditure, nor of general government health expenditure ) on immunization. While adequate funds are currently available to the NIP for vaccine purchases, there is some question as to whether additional funding might help address challenges in the performance of the

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<sup>32</sup> Immunization Financing Assessment Protocol, May 2017.

NIP mentioned in Section 3. However, the fact is that HSS 2 resources remain underspent by the national agencies, suggesting that the major problem really is not adequacy, rather capacity of the national agencies to absorb funding, predictability (and donor dependence), inefficiency (including the factors contributing to low budget execution), and issues around preparedness. Some of these issues are addressed more specifically below.

38. The cMYP, conducted in 2017, estimates NIP resource requirements for the period 2017–21 (see Annex 3 for more information on the cMYP and the underlying assumptions). They include an estimate of delivering services through the public health system. However, they also include a very considerable increase in spending, particularly on vaccines (and to a lesser extent on program management) (Table 3). The total resource requirements for the 2017–2021 NIP were estimated at US\$47.3 million (including shared health system costs) or at US\$43.6 million without shared health system costs. The big increase in vaccine spending, from 2015 to 2017, is driven by PCV, introduced in the routine immunization schedule in 2016. (The ‘baseline scenario’, shown in Table 3, does not include introduction of the new vaccines rotavirus and HPV.)

**Table 3. NIP Resource requirements, 2017–21**

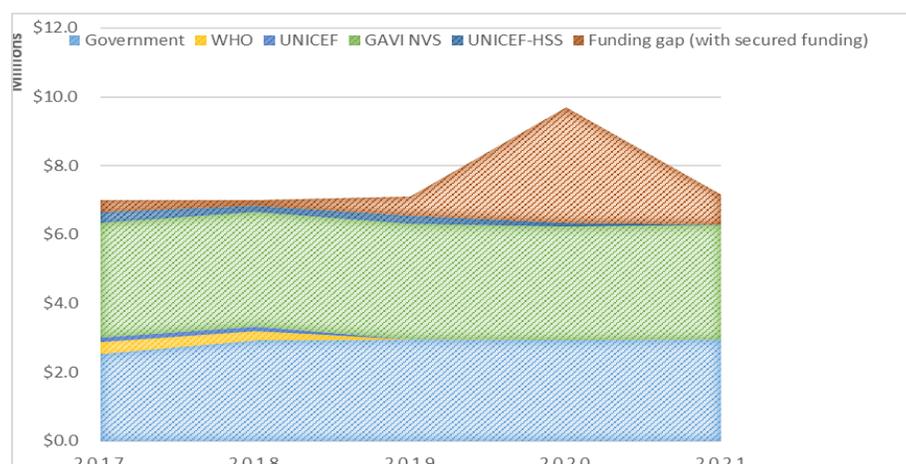
Immunization system components	Expenditures	Future resource requirements					Total 2017 - 2021
	2015	2017	2018	2019	2020	2021	
Vaccine supply and logistics (routine only)	1,608,259	5,819,939	5,786,695	5,699,159	5,774,412	5,326,881	28,407,086
Service delivery	1,346,755	1,348,768	1,349,252	1,349,755	1,348,733	1,348,793	6,745,302
Advocacy and Communication	410,000	333,348	226,997	280,000	130,000	226,997	1,197,341
Monitoring and disease surveillance	84,760	111,234	92,192	92,192	92,192	92,192	480,002
Program management	468,548	1,003,973	665,999	783,043	831,999	665,999	3,951,014
Supplemental immunization activities (SIAs)	2,104,652	0	0	0	2,730,342	0	2,730,342
<b>Total immunization costs</b>	<b>6,022,975</b>	<b>8,617,262</b>	<b>8,121,135</b>	<b>8,204,148</b>	<b>10,907,678</b>	<b>7,660,862</b>	<b>43,511,086</b>
Shared Health Systems Costs (EPI Portion)	748,501	748,525	748,549	748,574	748,600	748,626	3,742,874
<b>Total immunization resource requirements</b>	<b>6,771,475</b>	<b>9,365,786</b>	<b>8,869,685</b>	<b>8,952,723</b>	<b>11,656,278</b>	<b>8,409,488</b>	<b>47,253,960</b>

Source: Reproduced from cMYP 2017.

Note: The baseline year, 2015, was somewhat extraordinary in that a special measles (and rubella) campaign was mounted in that year. This is the ‘Supplemental immunization activity’ referred to here. A special contribution was received, from the MRI, which was the second major funding source in the baseline year. In 2015, MRI contributed US\$1.1 million (16 percent of program funding including shared health system costs or 18 percent excluding shared health system costs) to support the MR National Immunization Campaign. The cMYP analysis assumed that another MR campaign would be required in 2020, explaining the increase in resource requirements in that year.

39. The cMYP estimates a fairly modest resource gap for the period 2017–21. The total funding gap—taking into consideration financing which has already been secured, but not the financing that is probable but not yet secured—accounts for 12 percent (or US\$5.3 million) of total resource requirements as shown in Figure 15 below. More than half (51 percent or US\$2.7 million) of this funding gap is for ‘SIAs’ (the measles and rubella campaign), all of which is projected to be spent in 2020 (Table 4). The funding gap related to the ‘Activities and other recurrent costs’ constitutes 33 percent of the total funding gap and ‘logistics’ related funding gap—16 percent of the total funding gap.

**Figure 15. Projected resource needs by source and funding gap for the NIP, 2017–2021**



40. The area in red in Figure 15 can be quantified and broken down as shown in Table 4.

**Table 4. Funding gap for the NIP, 2017–2021**

	2017	2018	2019	2020	2021	Total
<b>With secure financing</b>						
Vaccines & injection supplies	0	0	0	0	0	0
Personnel	0	0	0	0	0	0
Transport	0	0	0	0	0	0
Activities and other recurrent costs	50,000	0	405,000	431,000	866,880	1,752,880
Logistics (vehicles, cold chain and other equipment)	293,423	170,347	144,802	220,551	0	829,123
Supplemental immunization activities	0	0	0	2,730,342	0	2,730,342
<b>Total funding gap</b>	<b>343,423</b>	<b>170,347</b>	<b>549,802</b>	<b>3,381,893</b>	<b>866,880</b>	<b>5,312,344</b>

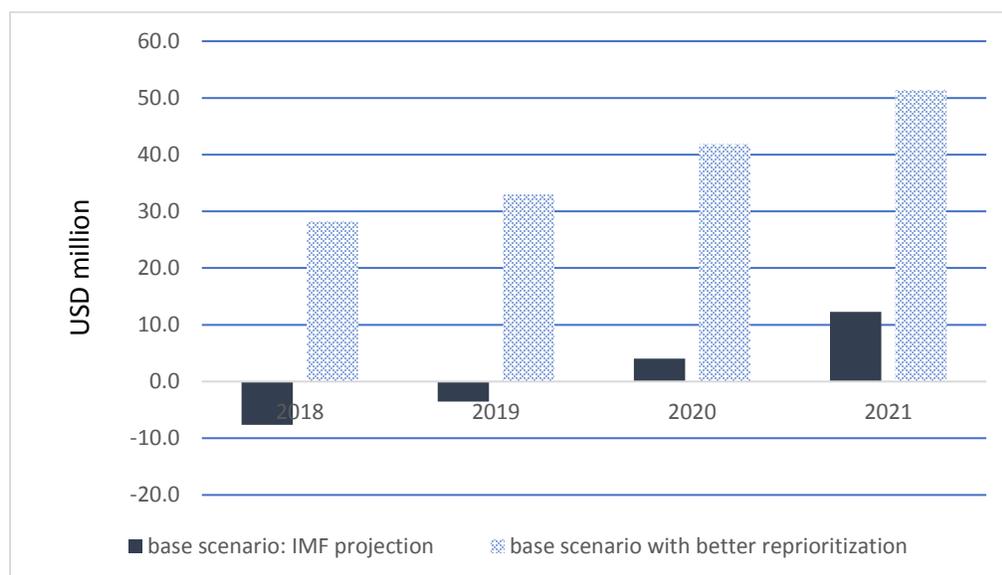
Source: Reproduced from cMYP 2017.

41. However, what that cMYP does not address is that at the end of this five-year period, the Gavi contribution to the NIP is projected to continue to outweigh government spending. By 2021, there will be an even greater urgency to replace the Gavi contribution, which by that time is expected to be devoted almost entirely to the purchase of new vaccines.

42. Can the Kyrgyz Republic shoulder the increased funding gap in the NIP as projected above? This question is best addressed within the context of a fiscal space projection for the health sector. A fiscal space analysis is being conducted by the World Bank (work in progress, 2018), that examines the possibilities of generating extra resources for health through five main pillars: (1) favorable macro-economic conditions; (2) increased prioritization to the health sector in the government general spending; (3) improved health specific means for generating revenue such as health insurance premiums and sin taxes for tobacco and alcohol, with earmarking of such revenues specifically for health; (4) improved allocative and technical efficiency, as well as financial efficiency in tax collection; and (5) improved external assistance for health. The analysis concludes that sizeable possibilities exist for generating extra fiscal resources for health in all pillars, except for external assistance for health. However, realization of such possibilities is not guaranteed unless significant political decisions are made and followed through (such as levying sin tax on tobacco or rationalizing hospital services to improve efficiency).

43. We adopted the most conservative scenario to estimate additional funding available for the health sector during the remaining period of the cMYP 2018–2021 compared to the reference year 2016. The base estimation assumes no major political decisions made to further prioritize the health sector or make improvements in its operation (base scenario, Figure 16). It uses IMF’s revenue and expenditure to GDP projection for 2017–2022, as well as the GDP growth forecast, and assumes a share of health spending in the total government expenditures of 10.6 percent for 2015 (calculated using state budget expenditure totals from the National Statistics Committee), which is rather close to WHO’s estimate of 10.7 percent for the same year. With these parameters, it projected that, compared to 2016, positive fiscal space to health will only be generated in 2020, and the extra amount in government spending in 2021 compared to 2016 is roughly US\$12.3 million (bars in solid dark blue - base scenario). Given that immunization is one of the many competing needs for domestic financing, it is clear that the Kyrgyz Government alone will not be able to shoulder the funding gap projected in the cMYP above.

**Figure 16. Estimated additional expenditure for health (2018–2021 compared to 2016), base scenario and scenario assuming increased prioritization of health (US\$, millions, 2016 constant)**



Source: Authors’ using data from fiscal space analysis (World Bank 2018).

44. However, if one factors in Pillar 2 and assumes successful reprioritization of health, raising the share of expenditure to 12.3 percent of government spending, positive fiscal space may be obtained already in 2018 and the extra amount in 2021 could be as large as US\$32.2 million (authors’ calculation using fiscal space data and estimate) (bars in dotted blue - Figure 16). The analysis serves the purpose of situating immunization financing on the background of the sector financing, rather than providing precise figures on how much can be allocated to filling out the gap.

### **Predictability of immunization financing**

45. The NIP is heavily dependent on Gavi, which supports the purchase of new vaccines (IPV, Pentavalent, and PCV) as well as program implementation and technical assistance. The heavy reliance on

donor financing means that funding is irregular and unpredictable, at least in the long term. Financing, in general, is tremendously varied one year to the next, and this is true for non-vaccine spending in particular. There were years recently when Gavi HSS support was nil (for example, 2013 and 2014) and other years where it has been upward of US\$1 million (for example, 2016). This HSS support flowed through the government and partners; needless to say it is very difficult for country systems to ramp up (and down) in response to such unpredictable financing.

46. As above, many other donors have made one-off or short-term contributions. These donors include Project Hope, the MRI, the Japanese Government, and donors to the SWAp. Some contributions are on-budget and flow through government systems (for example, Japan International Cooperation Agency (JICA) and SWAp), while others may not. It is assumed that these one-off or short-term contributions do little to help the long-term financial sustainability of the NIP.

47. The amount from the republican budget for the RCI is relatively stable year to year. However, the issue is that the actual contribution may not become clear until quite late in the calendar year. The republican budget to the MoH does include a budget line (line 2217) that is protected for vaccines and consumables—so the entire amount budgeted must be used by the RCI for these purposes. This budget line can never be used by the MoH, for use by other institutions. Because the RCI is subordinate to the MoH, on a monthly basis, the MoH submits to the MoF, a request for credit opening on behalf of the RCI. While the MoH typically requests the full budgeted amount, the MoF may not open credit in full, especially at the beginning of the year when the MoF is in a cash constrained situation. (This is a very typical situation in the country, and its effects may be felt by all ministries and institutions). Eventually, toward the second half of the year, most budgeted amounts are made available to the RCI. For example, in 2017, the RCI submitted a budget request of KGS 83 million for vaccines. By early December of 2017, only KGS 60 million had been transferred but by the end of the year, the full amount of KGS 83 million was made available. As a general budget rule, money unspent by the end of the year is supposed to be returned to the Treasury.

### ***Efficiency of immunization spending and value for money***

48. There may be inefficiencies due to fragmentation of both domestic and donor financing of non-vaccine expenses, including cold chain, training, supervision, and operational recurring expenses. This may result in unnecessary duplication of some goods or services. Over the last ten years, NIP cold chain equipment (refrigerators and refrigerated vehicles) have been purchased from MoH subaccounts (ISS and HSS), the joint SWAp platform, UNICEF (ISS), and independent donor funding. It is not clear that there has been duplication, but certainly there was the scope for it. Regardless of whether or not there were duplicate purchases, certainly there was the scope for reducing the overhead/administrative/procurement costs—not to mention the scope for availing economies of scale—had these purchases been consolidated. A related issue with the cold chain is maintenance. Although we do not have breakdown information, the lack of data itself and the poor maintenance situation in the health service system, in general, suggest that maintenance of the cold chain could be very limited, if any.

49. There is some indication that allocative efficiency could be improved. Spending on new vaccines is increasing (and is projected to increase further), significantly outpacing non-vaccine spending. Possible implications of this trend are twofold. First, there would appear to be a need to increase spending on service delivery toward increasing coverage rates. The republican budget to the RCI for non-vaccine expenses has not exceeded US\$50,000 in the last few years (2015 through 2017)—compare this to NIP total expenditures of roughly US\$5 million in 2017, a 100-fold difference. Second, it is not clear if the endorsement of new vaccines incorporates a cost-effectiveness assessment—to assure the significant increase in vaccine spending is justified in relation to other sector needs—and an assessment of affordability, both short and longer term. The recent SGBP review recommended setting up a Health Technology Assessment (HTA) process. If this recommendation is implemented, then the NITAG and HTA processes should be harmonized.

50. Since 2016, the Gavi HSS 2 grant has resulted in increased non-vaccine expenditures, particularly on the cold chain; communications and outreach; training; and data and policy. Investments in HSS should be carefully assessed so as to inform future investments in systems strengthening. Future investments in HSS should take into consideration evidence on impact. Similarly, current investments in technical assistances should be assessed to inform future financing. With GAVI funding over the last few years through the PEF—TCA, technical assistance has increased significantly and one should look into whether that corresponds to improvement in service delivery and coverage.

51. There are some perceived problems with PFM. The biggest problem related to PFM is that the republican budget to the RCI is committed at the beginning of the year, but it is unclear when the ‘credit will be opened’, making cash available to the RCI for its use (see paragraph 47 under ‘Predictability of immunization financing’, for more information). Sometimes it is not until May or June that these credits (for non-essential services) open. This is due to insufficient funds at the MoF. A second issue is the accounting capacity at the RCI; at the time of finalizing this paper, the center has only one accountant who was newly recruited. Currently, nobody else within the RCI is able to provide backup if the accountant is absent due to illness, vacation, and so on. It is recommended that a second accountant be hired or that an existing staff person at the RCI be trained to provide backup.

52. The budget execution rate (government funds) in the health sector is high, consistently above 95 percent (2014 - 96.3 percent; 2015 - 98.6 percent; and 2016 - 96.0 percent). Figures from the RCI suggest that execution of its share of the republican budget is closer to 100 percent; this is not surprising given that vaccines (traditional plus co-pay on new vaccines) and salaries consistently account for 99 percent of the total RCI budget. It is difficult to say very much regarding the execution of off-budget contributions from donors. However, there are indications that budget execution of Gavi HSS 2 funds—that is, execution of the HSS 2 subaccount at the MoH—may be low. In 2015, the Gavi Secretariat disbursed the first instalment of funds under the HSS grant, in the amount of US\$1,085,684 to kick-start implementation in February 2016. According to the Joint Annual Report 2016, slow progress was made due to a variety of ‘administrative and programmatic barriers’ and due to ‘ICC and program management capacity’ issues. The budget execution rate for the HSS 2 account is not available. However, given the importance of this

account in terms of overall non-vaccine spending, it is important to look at measures for optimizing its use.

### ***Preparedness for unexpected outbreaks***

53. While the response to the 2014–2015 measles outbreak demonstrated the ability of the Government of the Kyrgyz Republic to mobilize resources quickly and effectively, there is no contingency funding for future outbreaks of vaccine-preventable diseases. It is not clear what the level of flexibility in the budget is to meet the adaptive needs of the health sector or whether funds are set aside in the budget to meet contingencies, including health contingencies.

### ***Summary***

54. In summary, projections of the funding gap for the NIP, and of the fiscal space for health, suggest that without strong political decisions to increase or release extra resources for health, the Kyrgyz Government will not be able to cover the estimated gap in NIP funding on its own. The Kyrgyz Republic will remain in the Gavi preparatory transition phase for more years, and a clear challenge to the sustainability of the program is the unpredictable nature of funding from all sources: government, Gavi, and other donors. This lack of predictability is particularly notable for the financing of non-vaccine items, including the cold chain, training, outreach, and so on. There are indications that there is scope for improved efficiency of NIP spending, for example, by rationalizing investments and activities across different partners, allocating additional resources to non-vaccine spending (including cold chain and outreach activities), assessing and improving health systems strengthening activities, and addressing issues with PFM. The Kyrgyz Republic's financial preparedness for unexpected outbreaks requires further assessment.

## **5. Summary of main findings and recommendations**

55. The current assessment has attempted to construct a picture of immunization financing in the Kyrgyz Republic and situate it against the overall context of health sector financing and PFM. While noting the positive aspects, including the government's long-term and increasing financial commitment to the NIP, the dedicated budget line through which government funds for vaccines are budgeted, and the integration of immunization services in the SGBP, the paper also highlights a number of issues that pose a threat to sustainable financing of immunization in the Kyrgyz Republic in the context of donor transitioning. The following section provides a summary of the main findings and recommendations on what could be next steps in addressing such issues.

### ***Summary of main findings***

- Compared to other LMICs and countries in the region (CAC countries), government expenditure on health, in general, in the Kyrgyz Republic is relatively high while spending on immunization is

on the average among middle-income countries receiving Gavi support. This suggests that there is scope to improve priority to immunization within the existing resource envelope for the health sector.

- The Kyrgyz Republic relies significantly on external donors for financing health. When it comes to immunization, except for some ad hoc donors at the time of an outbreak, Gavi by far remains the primary external source and its role has been increasing significantly over the last five years.
- There is a great variation in the total spending on the NIP during the study period, 2010–2017. Taking only 2011–2017 and excluding 2015 (when additional resources were made available on an ad hoc basis to respond to the measles outbreak), government spending shows a slow but gradual increase, in line with the requirement for increasing vaccine co-pay. However, spending on the operation cost from the government budget is very limited and is hardly increasing (this figure does not include spending on service delivery which has been incorporated in the payment for PHC and related expenditures).
- Among the two main sources, Gavi accounts for a larger share of spending on vaccines and the NIP operating cost than the government. Within Gavi financing, spending for vaccines dropped significantly in 2016–2017, giving space to non-vaccine spending (system strengthening). Also, spending on vaccine fluctuates significantly across the study years despite the fact that vaccine need is estimated every year by the RCI.
- The assessment of adequacy suggests that current funding is there to cover the bare minimum with significant reliance on Gavi for the NIP operation. Likewise, over the next five years, the government alone will not be able to fill the projected annual financing gap of US\$5 million given the economic growth prospect. However, room for improving fiscal space for the immunization program exists, through (a) increasing priority for the NIP within the existing health resource envelope; (b) increasing priority for health within the government existing resource envelope; (c) implementing measures to increase fiscal space for health as outlined in the fiscal space analysis<sup>33</sup>; and (d) improving value for money in the current NIP spending and allocation, from both government and Gavi sources.
- Predictability remains a challenge given the heavy reliance on external funding and significant fluctuation in Gavi spending. For government funding, although the amount executed remains rather stable year on year, the delay in credit opening and the uncertainty in the amount allocated to vaccines and the RCI operating cost in each credit opened generate significant difficulty for the NIP implementation.
- The current study does not have adequate data to thoroughly assess the issue of efficiency. However, available evidence suggests room for improvement, in harmonizing donor support and procurement, better vaccine planning, assuring cold chain maintenance, improving PFM

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<sup>33</sup> World Bank. 2018. *Kyrgyz Republic: Fiscal Space Analysis for the Health Sector*.

processes, adhering to HTA principles in endorsing new vaccines in the overall context of the SGBP, and incentivizing frontline health workers.

### ***A note on transitioning preparation***

56. The assessment reveals two sets of national players that are instrumental to the immunization performance in the Kyrgyz Republic: the RCI and the primary care service delivery system with the MHIF being the single purchaser. We note that neither of the two stakeholders plays a central role in the immunization financing picture to date. For example, a large part of Gavi’s HSS 2 funding for communication and outreach, training, data and policy, and the cold chain is not managed by the RCI. The question on how the MHIF pays for immunization and what financing instruments can be used to improve immunization performance has largely been overlooked.

57. Preparing a country for donor transitioning goes beyond financial matters. Rather, the discussions should start with the responsibility and capacity of the key national players. In the context of the Kyrgyz Republic, the RCI is in a critical need for capacity building, in accounting, financial management, vaccine projection, and gap estimation, in addition to other program aspects. Gavi’s recent decision to provide more technical assistance and mentoring to the RCI is a welcome step toward this direction.

### ***A note on data***

58. Data on immunization financing are fragmented and incomplete. It is difficult to track government resources that do not flow through the RCI (that is, those flowing through the SSES and the MHIF) and off-budget contributions from donors (for example, Project Hope, JICA, or Gavi grants to WHO and UNICEF) and amounts spent by partners like WHO and UNICEF (beyond their Gavi-funded work). Several periodic efforts attempt to capture and synthesize these expenditures (including the Gavi Joint Annual Reviews, the cMYP, and the WHO/UNICEF Joint Reporting Process). However, the incredible variations in estimates of immunization spending across these sources highlights the need for better and more accurate tracking. Such a situation compromises a full and consistent picture of immunization financing in the Kyrgyz Republic.

### ***Recommendations on next steps to address constraints to sustainability***

59. Table 6 offers a list of possible next steps to address various challenges highlighted in the paper: challenges in data availability and comparability, in funding adequacy, predictability, efficiency and preparedness, and in the capacity of key national players.

**Table 5. Next steps to address challenges**

<b>Challenge</b>	<b>Recommendations on next steps</b>
Improving data on immunization financing	1. The RCI, with support from Gavi and other partners, should develop the capacity to routinely record and synthesize NIP financing flows, including all sources.

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	<ol style="list-style-type: none"> <li>2. The RCI should engage with the teams conducting the SHA and the cMYP to ensure that best available data on immunization financing are made available.</li> <li>3. Those collecting and analyzing financing data (including SHA and cMYP teams) should ensure that data are fed back to management for use in improved planning and minimizing wastage.</li> </ol>
Addressing the future financing gap	<ol style="list-style-type: none"> <li>1. The RCI, with support from partners, should use the cMYP process as a platform to model and explore ramping up of Government of the Kyrgyz Republic expenditures, beyond what is mandated by Gavi to meet its co-financing requirements.</li> <li>2. The RCI, with support from partners, should build the capacity of the RCI to make the case for immunization spending—within the MoH and MoF; this includes positioning immunization as a contributor to improved human capital.</li> <li>3. The RCI, with support from partners, should advocate for increase of budget allocations and timely release of funds including for new rotavirus and HPV vaccines.</li> <li>4. Gavi and other concerned partners should ensure that ICC and NITAG discussions about the adoption of new vaccines (for example, HPV, rotavirus, and others) are adequately informed regarding the long-term cost implications to the Government of the Kyrgyz Republic and are based on sound evidence from the HTA.</li> <li>5. The RCI, with support from partners, should accelerate communication and collaboration with international development partners to <ul style="list-style-type: none"> <li>• Provide strong justification for all planned activities during 2017—2021; and</li> <li>• Conduct fundraising activities to secure additional funding.</li> </ul> </li> </ol>
Improving the predictability of NIP financing	<ol style="list-style-type: none"> <li>1. The RCI and MoH should review and evaluate the process for accepting and then tracking donor contributions. A process should be developed for managing such donations to maximize programmatic and financial sustainability.</li> <li>2. The RCI, MoH, and MoF should work out a clear communication mechanism so that the RCI is better informed of the timing and amount when the republican budget credit is open for NIP activities.</li> <li>3. The RCI, with support from partners (Gavi Alliance partners) should identify financing mechanisms to ensure long-term, regular (a) investments in the cold chain; and (b) hiring and retention of necessary personnel.</li> <li>4. Gavi should consider extending HSS support beyond 2020.</li> </ol>
Improving the efficiency of NIP financing by addressing fragmentation	<ol style="list-style-type: none"> <li>1. Gavi should conduct (or support) further analysis, including documenting the cost of duplication: <ul style="list-style-type: none"> <li>• To what extent is duplication interfering with transparency? Ability to track/monitor resources? Build up capacities within government?</li> </ul> </li> <li>2. Gavi should explore mechanisms for routing HSS support through the budget of the RCI, so as to strengthen PFM systems and human resources within the RCI.</li> <li>3. The RCI, with support from the MoH and MoF, should encourage all donors to make longer-term, on-budget contributions to the NIP.</li> </ol>
Improving the efficiency of NIP financing by addressing inefficiencies in service delivery.	<ol style="list-style-type: none"> <li>1. The RCI, with support from partners, should revise the existing immunization service delivery strategy, with major emphasis of routine immunization activities for reaching and maintenance of immunization coverage targets.</li> <li>2. It is assumed that major service delivery inefficiencies (for example, related to human resources for health and the cold chain) are being addressed by Gavi partners, WHO and UNICEF. The RCI, with support from partners, should consider the need for special studies of efficiency or periodic monitoring of key service delivery inefficiencies.</li> <li>3. The RCI, with support from partners, should consider further targeted activities to reduce vaccine wastage; for example, to address high rates of wastage of BCG vaccine.</li> </ol>

	<ol style="list-style-type: none"> <li>4. The decision to adopt new vaccines should be justified based on sound economic analysis as part of the overall HTA, taking into account Kyrgyz specific constraints and trade-off rather than just global evidence. It should also be compared to investments in other medicines and technologies in the health sector.</li> <li>5. Gavi should assess the evidence for the impact of HSS investments. Future investments in HSS should take into consideration evidence on impact.</li> <li>6. Gavi, with support from partners (including the World Bank Group, with TCA-2018 support), should assess and document approaches to use 'innovative' financing instruments to boost immunization performance in the PHC service delivery system: review results-based financing pilot in PHC that has vaccination and child health as incentivized indicators and research other countries' experience using blended capitation to encourage providers' performance.</li> </ol>
<p>Improving the efficiency of NIP financing by improving PFM</p>	<ol style="list-style-type: none"> <li>1. Partners (Gavi, World Bank Group) should build PFM capacity within the RCI: <ul style="list-style-type: none"> <li>• Starting with a further assessment of needs;</li> <li>• Providing training to the accountant, including on reporting to Gavi;</li> <li>• Including training of a second accountant; and</li> <li>• Including, as needed, support for the planning and budgeting at the RCI.</li> </ul> </li> </ol>
<p>Improving preparedness for outbreaks</p>	<ol style="list-style-type: none"> <li>1. The RCI, with support from partners, should assess whether epidemic preparedness plans have included financial planning.</li> <li>2. Partners should provide support for the financial planning for outbreaks.</li> <li>3. The World Bank should link efforts at preparedness planning to the World Bank Group program for pandemic/epidemic preparedness.</li> <li>4. The RCI with support from partners, should revise the service delivery strategy to decrease the costs related to the SIA.</li> <li>5. The RCI, with support from partners, should use the cMYP process as a platform to model and explore the cost of improving current levels of coverage to a level that would prevent future (measles) outbreaks.</li> <li>6. The RCI, with support from partners, should conduct fundraising and advocacy activities to secure additional financial support for the National MR SIA.</li> </ol>

## Annexes

### Annex 1. Description of Gavi funding windows

1. All data on Gavi funding to the Kyrgyz Republic’s NIP is consistent with the figures that are publicly available on Gavi’s website (<http://www.gavi.org/country/kyrgyzstan/>).

**Figure 1.1. Gavi support for the Kyrgyz Republic**

Type of support	Approvals 2001-2022 (US\$) (28 Mar 2018)	Commitments 2001-2022 (US\$) (28 Mar 2018)	Disbursements 2000-2018 (US\$) (28 Mar 2018)	% Disbursed (28 Mar 2018)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Cold Chain Equipment Optimisation Platform (CCEOP)	\$600,534	\$600,534																						
Health system strengthening (HSS 1)	\$1,155,000	\$1,155,000	\$1,155,000	100%																				
Health system strengthening (HSS 2)	\$1,958,995	\$4,596,655	\$1,958,995	100%																				
HepB mono (NVS)	\$963,267	\$963,267	\$963,267	100%																				
Immunisation services support (ISS)	\$836,020	\$836,020	\$836,020	100%																				
Injection Safety Devices (NVS)	\$78,670	\$204,670	\$86,718	110%																				
Injection safety support (INS)	\$189,168	\$189,168	\$189,168	100%																				
IPV (NVS)	\$465,735	\$465,735	\$247,227	53%																				
Penta (NVS)	\$9,545,581	\$11,044,581	\$10,367,809	109%																				
Pneumo (NVS)	\$5,233,735	\$10,401,235	\$5,509,675	105%																				
Vaccine Introduction Grant (VIG)	\$444,500	\$444,500	\$444,500	100%																				
<b>Total</b>	<b>\$21,471,205</b>	<b>\$30,901,365</b>	<b>\$21,758,379</b>																					

Red line on table indicates duration of support based on commitments.

**Commitments:** Multi-year programme budgets endorsed in principle by the Gavi Board. These become financial commitments upon approval each year for the following calendar year.

**Approvals:** Total Approved for funding

[Download data for commitments, approvals & disbursements in XLS format](#)

2. Over this 18-year period (2001 to 2018), 78 percent of Gavi investment has gone to vaccine support (and about two-thirds of vaccine support has been for Penta). The one notable omission on the Gavi website is money for technical assistance provided under the PEF called TCA. (The TCA grant totaled: 2016 - US\$262,470; 2017 - US\$564,070). Table 1.2 briefly describes each different type of support from Gavi.

**Table 1.1. Description of Gavi support to the Kyrgyz Republic**

Type of Non-Vaccine Support	Description
CCEOP	Started in 2018. Gavi will disburse all funds directly to the UNICEF Supply Division. Cold chain equipment is meant for lower levels.
HSS 1 and 2	HSS 1: Initially, support focused on strengthening the overall health system through service delivery, training, and management.  HSS 2: Countries are required to use Gavi’s HSS funding to target ‘bottlenecks’ or barriers in the health system that stand in the way of increased access to immunization and other child and maternal health services. Countries are encouraged to use HSS support to fund

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	activities that fit within the six building blocks identified by WHO, as well as community mobilization and demand generation, as the key areas of a strengthened health system to improve immunization outcomes. This amount goes to the MoH, UNICEF, and WHO; 40 percent of the total amount goes to the MoH for strengthening physical capacity of the cold chain.
ISS	A flexible program which countries can use to improve their immunization performance. Countries have complete control over how and when to use their ISS funding on the condition that DPT3 coverage rates continue to rise. This ended in December 2018. Gavi disbursed to the special RCI account in the treasury bank.
Injection Safety Devices (part of NVS)	A continuation of the INS—it funds AD syringes, reconstitution syringes, and safety boxes.
INS	In 2002, Gavi started providing INS support to national immunization programs to introduce or increase the use of AD syringes. The support came in two forms: (a) in-kind, in the form of AD syringes and safety boxes, and (2) in cash, for those countries that already had a secure, multi-year source of AD syringes and safety boxes, but proposed to use INS support for other injection safety activities.
VIG	The aim of Gavi’s VIG is to facilitate the timely and effective implementation of critical activities in the national vaccine introduction plan in advance of a new vaccine introduction. The introduction grant policy applies to first introductions of all vaccines supported by Gavi. It includes, for example, support for health care worker trainings or printing of training materials. Gavi disburses to the special RCI account in the treasury.
TCA	TCA are resources provided to in-country partners. In most cases, this support helps fund permanent staff in partners’ country offices to support the national immunization program. The TCA plan is based on needs identified by the country.

## Annex 2. Methods: estimating the NIP financing flows

1. This analysis relies on budgets, expenditure records, and planning documents from the government, Gavi, and other sources. From the government side, the primary data sources are budget and expenditure tables from the RCI and the MoF. For Gavi, two broad measures of disbursements are used which roughly equate to budgeted amounts and expenditures.<sup>34</sup> In some cases, these are complimented by country-specific program budgets from individual grant agreements (for example, HSS grants). A summary of data sources is provided in Table 2.1.

**Table 2.1. Data sources, by budget and expenditure (original currency noted)**

	Budget	Expenditure
Government (KGS)		
RCI	RCI records (2010–17)	RCI records (2010–11, 2017) MoF (2012–17)
ISS-RCI		MoF (2012–17)
Gavi (USD)		
HSS	HSS 1 detailed budget (2007–10) HSS 2 detailed budget (2016–20)	Summary of support (web) - Year Paid (2010–17)
INS	Summary of support (web) - Program Year (2010–17)	Summary of support (web) - Year Paid (2010–17)
ISS	Summary of support (web) - Program Year (2010–17)	Summary of support (web) - Year Paid (2010–17)
NVS	Summary of support (web) - Program Year (2010–17)	Summary of support (web) - Year Paid (2010–17)
VIG	Summary of support (web) - Program Year (2010–17)	Summary of support (web) - Year Paid (2010–17)
TCA	TCA detailed budget (2016–17)	-
Other		
MRI (US\$)		cMYP (2015)
TGHE (KGS)		RCI records (2010–16)

### Methodology

2. Funding sources and uses are estimated across two main expenditure categories: vaccine and non-vaccine expenditures. In general, expenditure data is used. In some cases, budgeted figures are used

<sup>34</sup> According to the “Program Year” definition, payments are shown by the program year to which they relate, irrespective of the calendar year in which they were made. The program year is the year in which the relevant vaccine/cash program is being implemented. For the ‘Year Paid’ definition, payments are shown in the calendar year in which the payment was made. For example, if at 31 December 2016 GAVI Alliance has made payments amounting to US\$ 0.5 million: US\$ 0.25 million for 2016 and US\$ 0.25 million for 2017 the payments are recorded in the disbursement table as follows:

US\$, millions	2016	2017	2018	2019	TOTAL
Disbursements by Year Paid	0.5	—	—	—	0.5
Disbursements by Programme Year	0.25	0.25	—	—	0.5

to provide more granularity on usage and recipient of funds (particularly for Gavi HSS related expenditures). Prices are converted into U.S. dollars using World Bank exchange rates.<sup>35</sup>

### Sources

3. The three primary finding sources considered are: Gavi, the government (RCI), and the MRI (used uniquely in 2015 as emergency funds). Table 2.2 provides a description of the source type, components, and data source used into the analysis section (and charts).

**Table 2.2. Summary of funding sources, with breakdown by component and data source**

Type	Components	Data source
<b>RCI</b>		
Salaries	Salaries, contribution to Social Fund	Expenditure: <ul style="list-style-type: none"> <li>• RCI records (2010–11, 2017)</li> <li>• MoF (2012–16)</li> </ul>
Vaccines	Acquisition of medicines	
Other	Travel expenses (for personnel), communications, rental for premises, transportation (for vaccines), other goods and services	
<b>Gavi</b>		
HSS	HSS Grant (MoH, RCI, MHIF, UNICEF, WHO)	Budget: <ul style="list-style-type: none"> <li>• Gavi, HSS 1 detailed budget (2007–10)</li> <li>• Gavi, HSS 2 detailed budget (2016–20)</li> </ul>
INS	n.a.	n.a.
ISS	Salaries, contribution to Social Fund, travel expenses (for personnel), communications, rental for premises, transportation (for vaccines), other goods and services, medicines, food products, repair costs	Expenditure: <ul style="list-style-type: none"> <li>• MoF (2012–17)</li> </ul>
NVS	Hepatitis B, Hib mono, pentavalent, pneumococcal, IPV, injection safety devices	Expenditure: <ul style="list-style-type: none"> <li>• Gavi, summary of support (web) - Year Paid (2010–17)</li> </ul>
VIG	VIG	Expenditure: <ul style="list-style-type: none"> <li>• Gavi, summary of support (web) - Year Paid (2010–17)</li> </ul>
TCA	TCA Grants (UNICEF, WHO, World Bank, One23 Partnership)	Budget <ul style="list-style-type: none"> <li>• TCA detailed budget (2016–17)</li> </ul>
<b>MRI</b>		
Vaccines	Vaccine purchases	Expenditure <ul style="list-style-type: none"> <li>• cMYP</li> </ul>
Operations	Operational funds	

### Uses

4. These funding sources are analyzed according to uses across three primary categories: service delivery, vaccine procurement, and technical assistance, as demonstrated in Table 2.3.

<sup>35</sup> <https://data.worldbank.org/indicator/PA.NUS.FCRF?locations=KG>

**Table 2.3. Uses, by source**

	Service delivery	Vaccines	Technical Assistance
RCI	Salaries Other	Vaccines	
Gavi	HSS ISS VIG	NVS ISS	TCA
MRI	Operational funds	Vaccines	

5. Service delivery is further broken down by type of expenditure (for example, cold chain and training) and recipient (for example, MoH and MHIF) according to the author's categorization.

**Table 2.4. Service delivery, by sub-use**

Use	Source
Salaries	RCI, ISS, HSS 1, HSS 2
Training	HSS 1, HSS 2
Cold chain	ISS, HSS 1, HSS 2
Communications and outreach	ISS, HSS 1, HSS 2
Data and policy	HSS 1, HSS 2
Operational costs	RCI, ISS, HSS 1, HSS 2, MRI
Unclassified	VIG

**Table 2.5. Service delivery, by recipient**

	RCI	HSS	ISS	VIG	MRI	TCA
RCI	X	X	X	X		
MoH		X			X	
MHIF		X				
UNICEF		X				X
WHO		X				X
World Bank/One23						X

### **Annex 3. Comprehensive Multi-Year Plan Calculations**

1. See narrative for the 'Costing and Financing Section' for a complete description of the assumptions that underlie the cMYP calculations. The following assumptions were used for the projection of vaccine (and injection supplies) requirements:

- Coverage rates were set in line with the objective and targets of the NIP by 2020 ( $\geq 95$  percent by 2021).
- Wastage rates are estimated at 50 percent for BCG; 10 percent for OPV, MMR, DPT, diphtheria and tetanus vaccines. The wastage rate for pentavalent, HepB, IPV, and PCV vaccines are estimated at 5 percent.
- The present projections are based on vaccine price estimates provided by the UNICEF Supply Division and include 4.5 percent UNICEF handling fee, 10 percent fee for freight, insurance, and inspection, and 0.25 percent customs fee.
- The resource requirement projections for vaccines (basic scenario) envisages the costs of the following vaccines:
  - Traditional vaccines: BCG, HepB, OPV, MMR, DPT, DT, and Td vaccines
  - Underused vaccines: Pentavalent (introduced in routine immunization schedule 2008)
  - New vaccines: Rotavirus (planned for introduction in 2018 according to scenario A and in 2019 according to scenario B), PCV (introduced in the routine immunization schedule in 2016), and HPV (planned for introduction in 2019 according to scenario A and in 2021 according to scenario B) vaccines.

2. Resource requirements for the NIP per year varies between US\$7.7 million and US\$10.9 million in 2017–2021 (excluding shared health system costs). In 2019 (the fourth projection year), the resource requirement will increase markedly by 32.95 percent (or US\$2.7 million), which can be attributed to the MR SIA planned by EPI for 2020. The SIA is an effective strategy for delivering vaccination to children otherwise missed by routine services or to older susceptible individuals who are not among the age groups targeted by the EPI services. An MR SIA is a measles-rubella SIA.

#### **Additional questions and answers regarding the cMYP costing analysis**

3. For vaccines, we have to indicate vaccines consumed, not vaccines procured/supplied. The methodology asks to use accrual accounting for historic costs, but cash accounting for future projections. So, as much as half of Gavi supplied vaccines in the baseline year may remain sitting in the stock. Another question is how we come up with expenses. Of course, nobody keeps track of budget execution/consumptions. Vaccines could be the exception. We know what was coverage, and after adjusting to wastage we can estimate labor or commodity consumption (and respective costs).

**Q/** In the Costing and Financing Section, you report that: WHO contribution accounted for 7 percent (or US\$450,000) of the total financing and the funding provided by UNICEF accounted for 8 percent (or US\$560,527) in the baseline year. Does this include the Gavi HSS 2 grant amounts that flowed through these organizations, or is this an estimate of the amount that they spent out of their core budgets? Can you tell us the source of this information?

**A/** Information on WHO funding (both baseline and for projection years) was provided by the WHO EURO regional office. As for the UNICEF funding, this amount does not include HSS funding, which I believe is mentioned in the narrative part, Costing and Financing Section of the cMYP. So, no HSS 2 money was spent in the baseline year (2015).

**Q/** The personnel expenditures are (as one would expect) huge, as a percentage of total NIP expenditures. And we have found that they are very difficult to estimate, as they are not captured in RCI nor Gavi budgets. We wondered if you could just explain how you made the estimates? Was it just a matter of getting the Director of RCI to estimate number of staff, their time spent on the immunization program, and their monthly wage? Or did you do any triangulation with the SSES and the MHIF (the two main employers, I believe, of the personnel that you have costed)?

**A/** The expenditures for the immunization specific personnel (100 percent dedicated to the immunization program) and non-specific personnel (spending only part of their time on immunization program activities) were calculated exactly as you have described above: the RCI provided information on all existing positions, their salaries, and their time spent for the immunization program. We have loaded this information into the cMYP costing tool, which then generates total numbers for different types of staff (immunization specific and non-specific staff). Please check section 4, Personnel, in the costing tool, which will give you a clear idea about the logic behind personnel cost estimations.

**Q/** For the baseline year, we wondered whether you had adjusted (downwards) Gavi as a source of financing? Gavi expenditures (both vaccine and non-vaccine) are lower in your analysis than what is reported on the Gavi website. This is particularly true for NVS. For example, in 2015, the cMYP shows US\$0.956 million versus US\$2.39 million in Gavi's reported disbursements.

**A/** Again, information was provided by the local EPI, based on the procurement records, which as I was told, were double checked with the UNICEF Supply Division documentation. This reflects actual procurement and import of vaccines in that particular year (2015).

**Q/** And on the other hand, some of the RCI expenditures indicated in the cMYP are higher than estimates we have received from the RCI. For example, on page 16 of the cMYP (main document), 2014 vaccine expenditures were US\$0.94 million versus US\$0.8 million in the RCI records. Cold chain costs for 2015, as estimated in the cMYP at US\$219,000 are also much higher than reported by the RCI. I am wondering whether this reflects some Gavi HSS (or other Gavi) funding that was just channeled through the RCI?

**A/** If we are talking about page 16 in the cMYP document programmatic part, then I am afraid I cannot be helpful.

The narrative was produced by another consultant, with no consultation with us. According to the methodology we analyze the baseline year and the cMYP projection years, and do not touch other years. The only exception could be the lack of data for the baseline year (in our case 2015) or a really outstanding issue/event that significantly affected or could have affected implementation of the national immunization program. I do not really recall such an outstanding thing in the Kyrgyz Republic.

And finally, about the cold chain costs for 2015, I guess this figure also comes from the cMYP programmatic part, produced by another consultant, as according to the costing and financing analysis section, total expenditure for the cold chain equipment procurement in 2015 was US\$177,429 (see Figure 26 of the costing and financing section document). These expenditures were made for procurement of the following items in 2015:

- 37 sets of spare parts of the cold chain equipment
- 300 vaccine carriers (1.7 L)
- 626 freeze tags
- 240 refrigerators MK144

And finally, the procurement was carried out by UNICEF not the RCI and I doubt the country has used Gavi HSS funds at that time. I think the current EPI manager will be able to indicate the source of the funding.