

Joint Appraisal report 2018

Country	TAJIKISTAN
Full JA or JA update	<input checked="" type="checkbox"/> Full JA <input type="checkbox"/> JA update
Date and location of Joint Appraisal meeting	2-6 July 2018, Dushanbe, Tajikistan
Participants / affiliation¹	Ministry of Health and Social Protection of the Population (MOHSPP), State Institution Republican Centre of Immunoprophylaxis (SI RCIP), GAVI, WHO, UNICEF, UNDP, One23, Dalberg, World Bank
Reporting period	2017
Fiscal period²	1 January - 31 December
Comprehensive Multi Year Plan (cMYP) duration	2016-2020
Gavi transition and co-financing group	<i>Preparatory Transition</i>

¹ If taking too much space, the list of participants may also be provided as an annex.

² If the country's reporting period deviates from the fiscal period, please provide a short explanation.

1. RENEWAL AND EXTENSION REQUESTS

Renewal requests were submitted on the country portal

Vaccine (NVS) renewal request (by 15 May)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
HSS renewal request	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
CCEOP renewal request	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>

Observations on vaccine requests

Target population	Children				
Birth cohort	273,400				
Vaccine	Penta	Rotavirus	IPV
Population in the target age cohort	273,400	273,400	273,400		
Target population to be vaccinated (first dose)	270,064	270,064	270,064		
Target population to be vaccinated (last dose)	264,231	264,563	N/A		
Implied coverage rate	98%	98%	95%		
Last available WUENIC coverage rate		97%	N/A		
Last available admin coverage rate	98%	98%	N/A		
Wastage rate	5%	5%	20%		
Buffer	0	0	0		
Stock reported	257,259	172,762	100,000		

Indicative interest to introduce new vaccines or request Health System Strengthening support from Gavi	Programme	Expected application year	Expected introduction year
	Pneumococcal vaccine	2020	2021

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Planning Process

Sources of denominator

In accordance with the data of Tajikistan's comprehensive Multi-Year plan for 2016-2020, there are two key sources in the country for obtaining data on the target population:

- Agency on Statistics under the President and the Republic's Center for Medical Statistics;
- Ministry of Health and Social Protection of the Population uses the information obtained from the annual census of children's population. The estimations are based on the data obtained from health care facilities on the number of children among the total population at each catchment area. This is the process used by Republican Centre of Immunoprophylaxis.

Management, planning and policy

Immunization planning is carried out vertically; preliminary plans are sent to centers for immunoprophylaxis, PHC facilities and/or central district hospitals. General practitioners are responsible for regional planning. Deputy head of a PHC facility is responsible for the integration of all the data on individual facilities and the development of the common immunization plan of the city/district health care center. The final version for a district/region is prepared by the district immunization center and then the regional office of the Republic's Center for Immunoprophylaxis. The vaccine planning process uses the birth and children under 1 cohort for the vaccine projections, as the coverage rate remains high.

Tajikistan is a country with a high fertility rate. According to the administrative data, in the period up to 2016, the country saw a trend of increasing birth rates. The average annual birth rate growth was 10,000-15,000 children, which in percentage terms was 4-5%. By contrast, in 2016, the birth rate began to decrease, and it contributed to the difference between the expected number of newborns and the actual number of newborns. The decreasing birth rate trend was also registered in 2017. To forecast the need for vaccines, it was decided to use the increased children cohort because it is not clear at the moment whether the decreasing birth rate trend was a one-time phenomenon, or whether the birth rate will continue to decrease. For this reason, the increasing birth rate trend is used, which in 2019 is 273 400 children, and is used to forecast the need for vaccines. To forecast the need for vaccines and immunization related materials, the group of children under the age of 1 is primarily used, because this number includes the children born at the end of the previous year, which may contribute to the fact that the number of children in this cohort differs from the number of children in the cohort of children born in the current year.

On the other hand the child mortality rate has been decreasing among children under 5: from 43 deaths per 1000 live births to 33 deaths per 1000 live births in the last 5 years. In the same period the Infant mortality rate also decreased from 34 deaths per 1000 live births to 27 deaths per 1000 live births.

Internal and external migration definitely influences the process of forecasting the need for vaccines and immunization materials. There is a group of the population that has dual (Russian and Tajik) citizenship. Follow-up on this group of the population is difficult, in particular, pertaining to the registration of such children at their place of residence. Another group of the population is migrant workers, whose migration with their families is seasonal in nature, which leads to disruptions in vaccination schedule and difficulties in planning target groups.

Vaccine Stock

Current vaccine planning process works well, and no vaccine stock outs have been reported by any of the regions or districts in the last two years, which has also been confirmed by CCEOP assessment (WHO, 2017).

2. RECENT CHANGES IN COUNTRY CONTEXT AND POTENTIAL RISKS FOR NEXT YEAR

Health/NIP Financing

The National Immunization Program (NIP) is one of the priority programs in the health sector. According to the data on the gross national income (GNI) published by the World Bank in July 2015, and in accordance with the Gavi policy, starting in January 2016 Tajikistan transitioned from initial self-financing to preparatory transition. For the country, it means that starting in 2017 the proportion of self-financing in the purchase of Gavi supported vaccines will annually increase by 15%.

It should be noted that in the structure of the state health budget, a large share is constituted by the payroll fund (over 80%), which limits the reallocation of funds within the budget. The state purchase of vaccines is carried out under the Medications category of the State Institution Republican Center for Immunoprophylaxis budget, which covers only one-third of the country's vaccine needs. Despite the Government's commitment to provide free basic health services to the population, including immunization services; financial investments in the implementation of the National Immunization Program (NIP) are inadequate, which leads to a funding gap and the need to seek donor support. This situation is further exacerbated by the economic crisis and the recent inflation of the national currency, which affects the level of the resources available for vaccine procurement and aspects of the immunization services delivery. In the last 3 years the country has increased its spending for the purchase of vaccines by 6 million somoni, still the level of vaccine procurement financing remains low. Since the procurement is carried out in foreign currency, the allocated amount was only sufficient to cover the level of the devaluation of the national currency compared to the foreign currency.

Currently, the devaluation of the national currency compared to the foreign currency continues to increase.

This means that:

1. It is necessary to take into account that the share of the country' co-financing within the framework of Gavi vaccine support will be increasing annually. The Government of the Republic of Tajikistan will consider the possibility of covering this gap with the funds available, but this may not be enough to fully cover the gap.
2. This financing gap remains the key barrier in the decision-making regarding the integration of new vaccines in the national immunization schedule.
3. There is a gap in the financing of the immunization programme, which does not allow the National Immunization Programme to fully provide routine immunization for the country's population.

In the period of 2006-2015, the lack of financing for routine immunizations was covered by the Japanese International Cooperation Agency (JICA), and support continued for another four years (2016-2019) by the Government of Japan. However, 2019 is the last year of support for vaccine procurement (Bacillus Calmette–Guérin vaccine (BCG), hepatitis B, oral polio vaccine (OPV), measles and rubella vaccine), which gives cause for concern regarding the sustainability of the immunisation programme financing after 2019.

The Ministry of Finance controls the budget and is responsible for allocating funds to the health sector. The RCIP has a separate budget allocated from the centralized budget of the Ministry of Health. The funds allocated for the National Immunization Program are not sufficient, with the allocated amount being 6-7% of the total state budget (the lowest rate in the region). This funding is then disbursed to the regional Branches of Immunoprophylaxis Centres.

Regions and districts receive a separate budget and are responsible for financing the primary health care sector and PHC facilities. This leads to some regions/districts/health facilities having more funds than others and potentially causing inequalities in the access and quality of healthcare.

Health sector reforms

Recently piloted health reform in 10 districts has included immunization as one of the performance based indicators for the health professionals. Upon reaching the set immunization targets the health professionals receive a financial bonus. This initiative is limited to those districts that have the lowest

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health indicators.

Current Strategic Plan of Rationalization of Medical Facilities of the Republic of Tajikistan 2011-2020 proposes an integration and restructure of vertical health programs by 2020, where immunization centres will be integrated into Primary Health Care, which potentially could impact on the monitoring activities of the completeness and quality of immunization at the district level.

The limited finances also affect the speed and fullness of Health Reform Implementation, which leads to changes being incremental.

Human Resources

Tajikistan has much lower ratios of health workers to population than most other countries in the EURO region. In 2015 The following numbers of healthcare workers per 10,000 population were registered: physicians 2,1/10,000, paediatricians 1,5/10,000, midwives 5,5/10,000, and nurses 41,4/10,000. Since the introduction of the Family Doctors program the number of is family doctors 2,9/10,000. Since 2010 the ratio of health professional has remained even (Government Agency Republican Centre of Medical Statistics and Information, Annual Statistics, 2016). In addition, the infrastructure to build a base of physicians and nurses is challenged. The system of continuous medical education is underfunded and health worker salaries are low, resulting in high staff turn-over. A number of incentives have been initiated by the government to retain and attract the health workers, such as non-monetary - land ownership for building own houses, land for farming purposes.

Internal and external migration

Job search and other factors (such as environmental/climate changes) cause the rural population to increasingly migrate to urban areas. Internal migration sometimes has an informal and seasonal character, when the population does not register at the place of temporary residence and often changes it. Considering that internal migrants consist mainly of young and able-bodied population with children, the registration of these children becomes especially important for the national immunization program. It should be noted that the migration rate in Tajikistan remains high.

Both internal and external migration in Tajikistan are complex and consist of numerous different forms and features which impact immunization where children are not being immunized due to temporary living arrangements as not wanting to let authorities know of the temporary relocation. This then leads children being brought for vaccination at an older age that have had some or none of the age appropriate vaccinations.

Potential opposition to immunization

There are no groups openly opposed to immunization of children in Tajikistan, but there are observations when individuals coming from the Russian Federation expressed their anti-vaccination attitudes, which points to previously received anti-vaccination propaganda. Therefore, it is necessary to closely monitor social networks and actively respond to individual cases of refusals.

3. PERFORMANCE OF THE IMMUNIZATION PROGRAMME

3.1. COVERAGE AND EQUITY OF IMMUNISATION

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Reports traditionally show high routine vaccination rates in Tajikistan. According to the official data, Tajikistan has achieved and maintains a high level of national coverage for all antigens (in addition to the recently introduced rotavirus vaccine in 2015) over the past five years. However, the demographic and health survey conducted in 2012 and in 2017 in Tajikistan shed some light on the existing inequalities and variations in coverage, depending on the region, level of education, and parents' socioeconomic status. Fluctuations in immunization coverage are reported in different sources. From the experience of responding to outbreaks in the last ten years, outbreaks mainly occur in cities and areas with high population density, where there is a high internal and external migration.

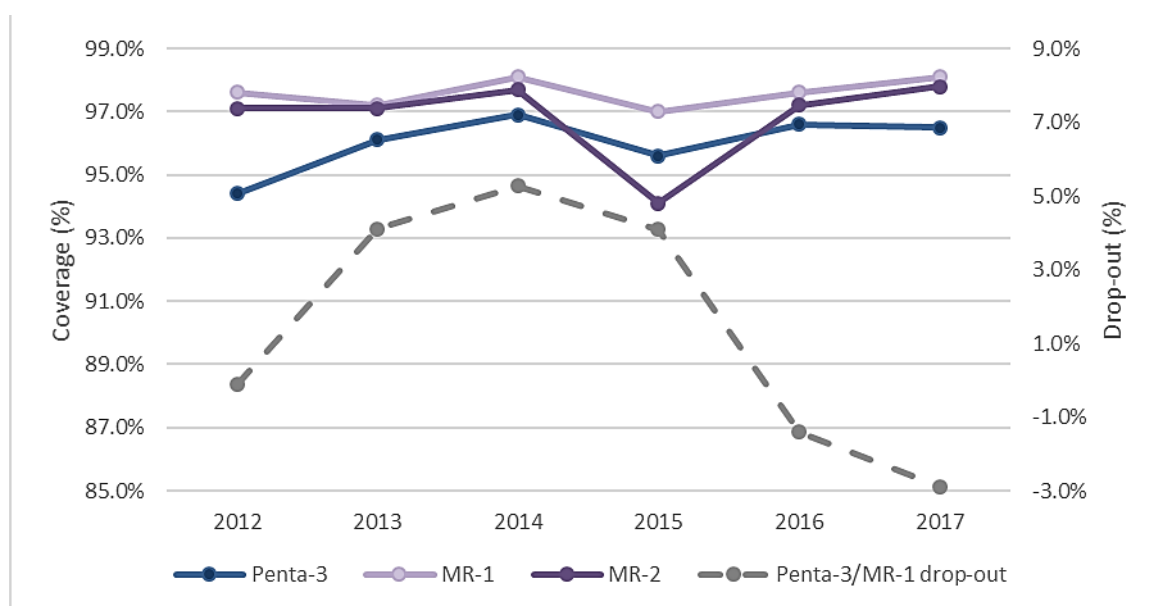
Historical coverage data

As per the comprehensive multi-year plan for 2016-2020 developed in 2015, the data demonstrates that over the past five years at the national level, Tajikistan has achieved and maintains a high level of immunization coverage for all antigens. A review of historical data on immunization coverage of children under the age of 1 includes:

- Immunization coverage rates of children against tuberculosis, diphtheria, tetanus, pertussis, and measles in 2010 are all above 90% (1)
- Official WHO/UNICEF data for 2014: OPV3 – 94%; MCV2 – 98%; DTP3 – 97%.
- 2014 (WUENIC estimation): BCG = 98%; OPV3 = 94%; DTP3 = 97%, drop-out rate for DTP1-3 = 5% (10)
- 2017 (WUENIC estimation): BCG = 98%; OPV3 = 97%; DTP3 = 96%; drop-out rate for DTP1-3 = 3%

Tajikistan has achieved a high level of coverage (over 90%) of the delivery of immunization services in the country over the past five years.

Diagram 1. Immunisation coverage and the drop-out rate for measles vaccine and Penta 3 in Tajikistan at the national level, (Ministry of Health/Republican Centre for Immunoprophylaxis 2012-2017, Administrative immunization data)

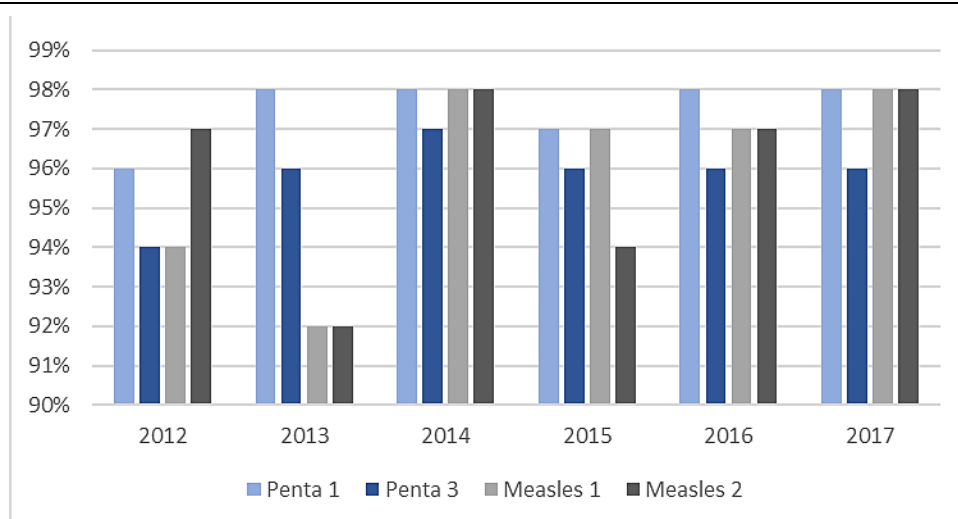


98.5% cities and regions of the country have achieved >90% coverage with the pentavalent-3 and OPV3 vaccines, compared to 96% in 2014. All cities and regions of the country have reached >90% coverage with the first dose of measles vaccine; wastage rate of the pentavalent vaccine-3 has decreased from 5% in 2012 to 3% in 2017 (Administrative data).

The official WHO/UNICEF estimates 2017 also confirm high vaccination coverage of children under the age of 1, where the BCG coverage was 98.5% and it was 96.8% for OPV3. The pentavalent-3 vaccine coverage was 96.5%. The dropout rate between the first and third doses of the pentavalent vaccine is less than 2%. Coverage with the second dose of the rotavirus vaccine was 96.9%.

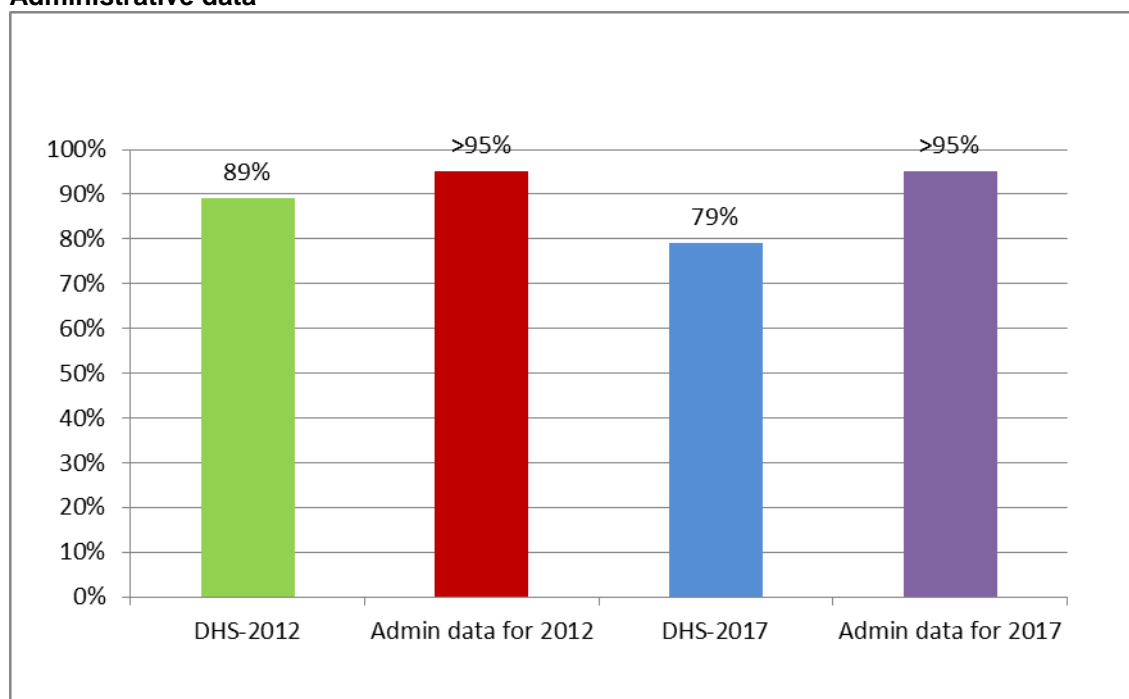
Diagram 2. WHO/UNICEF estimation data for Tajikistan, 2012-2017

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The demographic health survey carried out in 2017 showed a lower coverage with 79% of children aged 12-23 months received immunization with all age-appropriate vaccines*. Coverage in Dushanbe, Gorno-Badakhshan Autonomous Region, and Regions of Republican Subordination was lower than the country's average. The lower coverage in RRP and GBAO correspond to the administrative data, however the cohort of children for Dushanbe and GBAO in the DHS 2017 was much smaller than in other regions, therefore more information is needed to confirm the low coverage in Dushanbe.

Diagram 3. Coverage rates for all age-appropriate vaccines among children, according to DHS 2012 and DHS 2017 compared with the Ministry of Health/Republican Centre for Immunoprophylaxis Administrative data



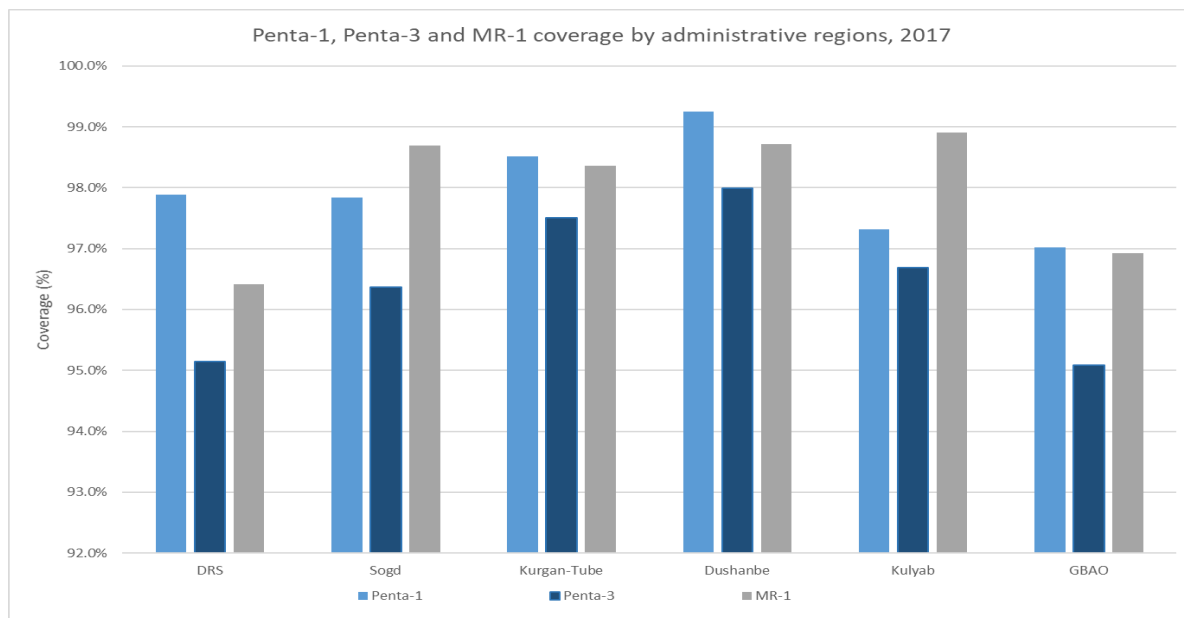
*DHS Age-appropriate vaccinations for age 12-23 months: BCG, Hep B (birth dose), three doses of DPT-HepB-Hib, four doses of tOPV (inc. dose at birth), and two doses of Rotavirus vaccine.
 DHS Age-appropriate vaccinations for age 24-35 months: BCG, Hep B (birth dose), three doses of DPT-HepB-Hib, a fourth dose of DPT vaccine, five doses of tOPV (inc. dose at birth and polio4 dose), and one dose of measles and rubella (MR) vaccine. The rotavirus vaccination is excluded because it was introduced in the routine immunizations for children in Tajikistan in January 2015.)

The existing difference between study results and administrative data can be explained by incomplete registration of children, data quality, as well as internal and external migration of the population. The migration impacts the target group identification, as most of the time these families do not tell the authorities of their move, so the health facility is not aware of additional children being located in that vicinity, especially in the cities where people live in apartments.

Coverage by geographical location

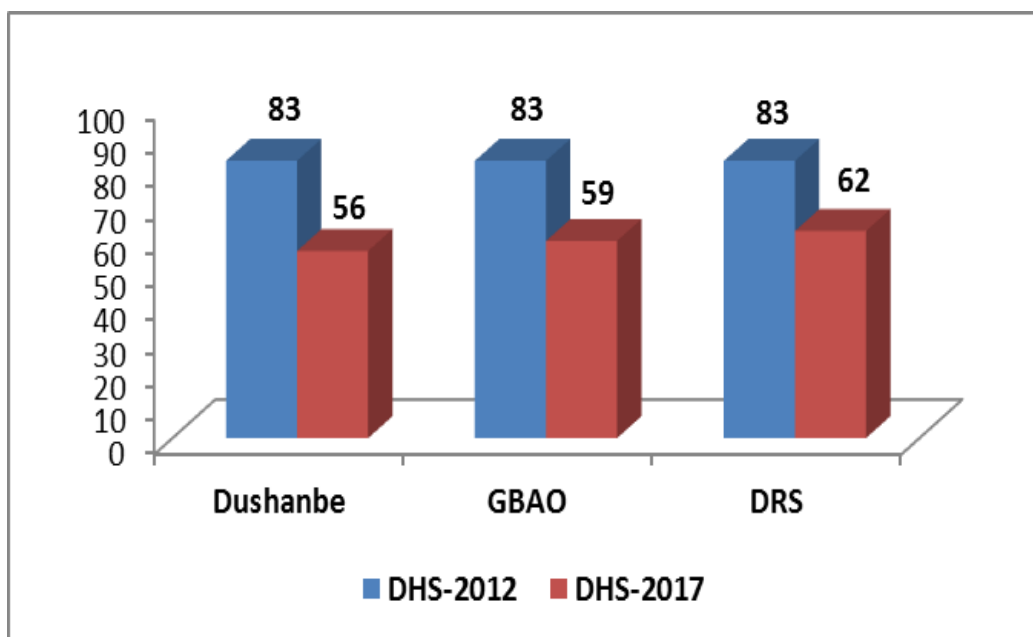
Most of the regions have achieved high coverage rates >95% in 2017. Districts of the Republican Subordination (DRS) (especially Rasht) and Gorno-Badakhshan Autonomous Region (GBAO) had coverage rates below 95%, while the regions with the highest coverages were Sugd and Khatlon (Kulob and Kurgan-tuube) regions.

Diagram 4. Immunization coverage by region in Tajikistan, Ministry of Health/Republican Centre for Immunoprophylaxis (Administrative data 2017)



Triangulation of the data reports shows that DRS and GBAO are the regions with the lowest coverage, where DRS has the higher population density and possibly migration from other regions. GBAO being the hard to reach geographical location which poses difficulty in reaching the target population. The low coverage in Dushanbe is currently supported only by the DHS report, and has been included in the coverage and KAPB study to further identify coverage rate and potential barriers.

Diagram 5. Coverage rates for all age-appropriate vaccines among children in the City of Dushanbe, Gorno-Badakhshan Autonomous Region, and DRS (Districts of Republican Subordination), according to DHS 2012 and DHS 2017 and Ministry of Health/Republican Centre for Immunoprophylaxis (Administrative data 2012 and 2017).



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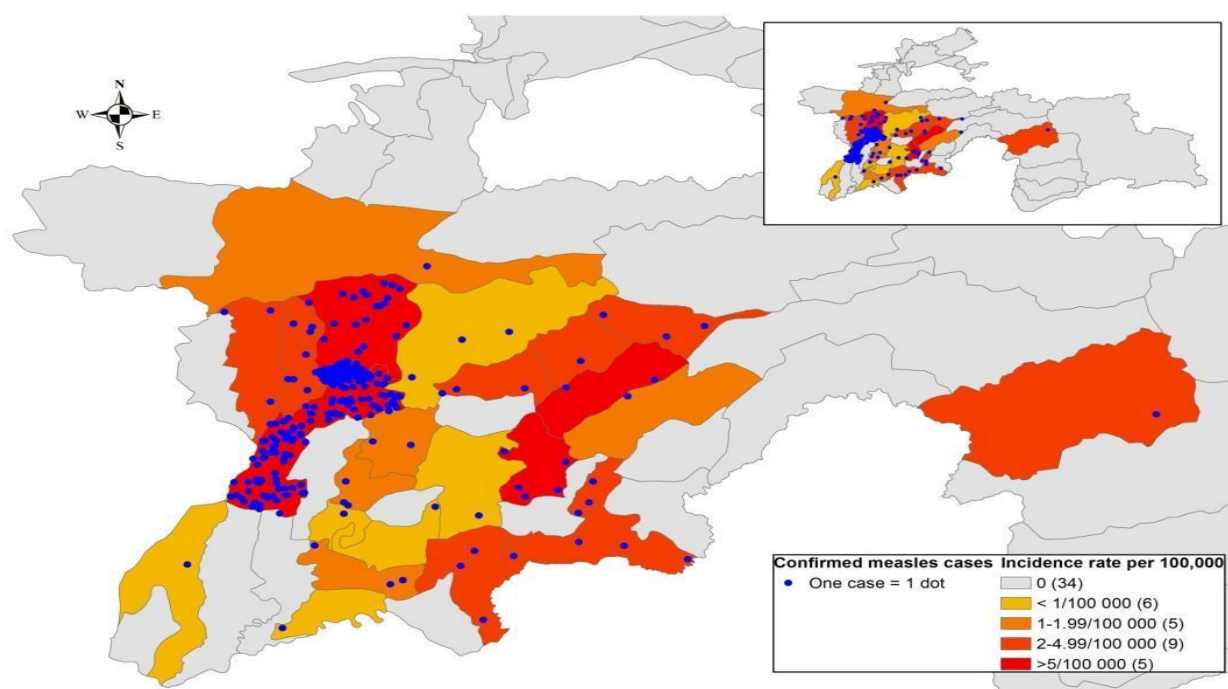
According to the DHS 2012 outcomes, the coverage with all the key vaccines in the City of Dushanbe, Gorno-Badakhshan Autonomous Region, and RRS (Regions of Republican Subordination) was below 90%. The DHS 2017 outcomes showed that the coverage rate has significantly decreased compared to the results of DHS 2012 and amounted to approximately 60%. The coverage rate in the Khatlon Region, according to DHS 2012, was above 90%, however in DHS 2017 this indicator also decreased to 84%.

It should be noted that comparison of the results of the two DHS data 2012 and 2017 should be done with discretion, as there were different cohorts, in 2017 having two groups: 12-23 months and 24-35 months, while 2012 had one cohort 18-29 months. The DHS 2012 data for all key vaccinations were presented for children aged 18-29 months, since measles vaccination is given to children at 12 months of age. The 18-29 months age cohort is no longer recommended for countries where the measles containing vaccine is given to children aged 12 months, and it has been replaced by the 24-35 months age cohort.

Vaccine preventable diseases

The analysis of the reported cases of measles shows that the highest incidence is observed in the City of Dushanbe and the Rudaki District, which does confirm the above findings of RRP having low coverage. During the outbreak additional efforts of the immunization program were required, RCIP's quick response led to conducting SIAs where 1,938,190 children 1–9 years of age were vaccinated during the campaign.

Figure 1. Confirmed cases of measles by geographic location(Ministry of Health/Republican Centre for Immunoprophylaxis Administrative data 2017)



Given the low DHS 2017 coverage, as well as the high incidence of measles and polio outbreaks in the past, it is decided to include the City of Dushanbe and the Rudaki District in the scheduled HSS coverage survey and the KAPB study. It is expected that the results of the survey will provide qualitative data that will help in further analysis of immunization coverage in urban areas.

From the coverage assessment the following can be summarized:

- DRS have the lowest coverage rates and the highest absolute number of children with drop-out rates for Penta 1/3.
- Sogd has high coverage rates and the 2nd biggest absolute number of children with drop-out rates

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for Penta 1/3, as the number of children under 1 year old is the second highest in this region.

- Khatlon (Kurgan-tuube and Kulyab) has high coverage rates, and the second highest absolute numbers of children with drop-out rates for Penta 1/3, the highest number of children under 1 year old. This can explain the spread of measles outbreak in this region, especially due to its close proximity.
- Dushanbe's low coverage has been identified in the DHS 2017 and therefore further analysis and survey is needed to clarify the current coverage situation, which has already been designated.
- GBAO remains the region with the lowest coverage due to the hard to reach geography, but at the same time has the lowest birth rate and the lowest absolute numbers of drop out children.

Equity in access to immunization:

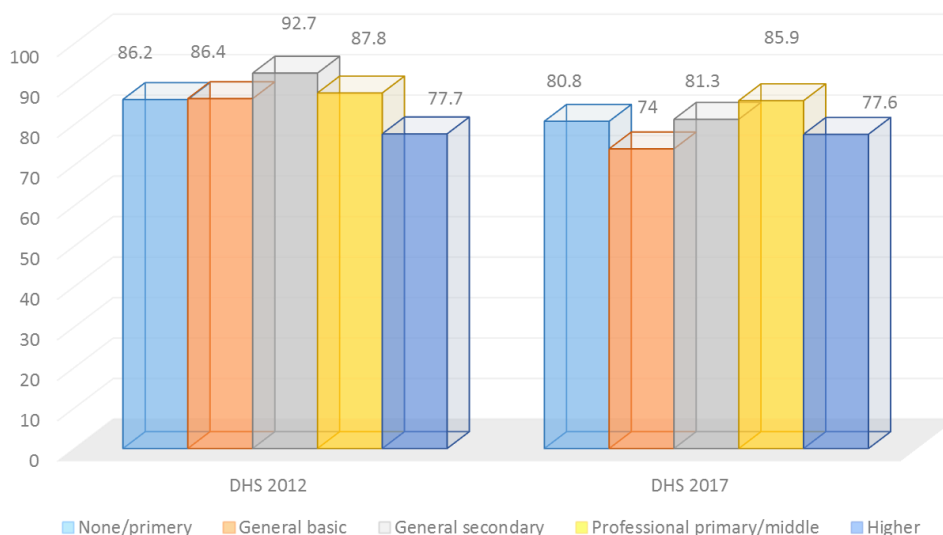
A number of studies, surveys and analysis have evaluated equity in access to immunization through assessment of various indicators:

1. Urban vs remote coverage

According to DHS 2017, the proportion of children vaccinated with all the age-appropriate vaccines is lower for children living in urban areas compared to children living in rural areas (68% vs. 81%), which was also noted in DHS 2012. Upcoming surveys will provide more clarity on this indicator.

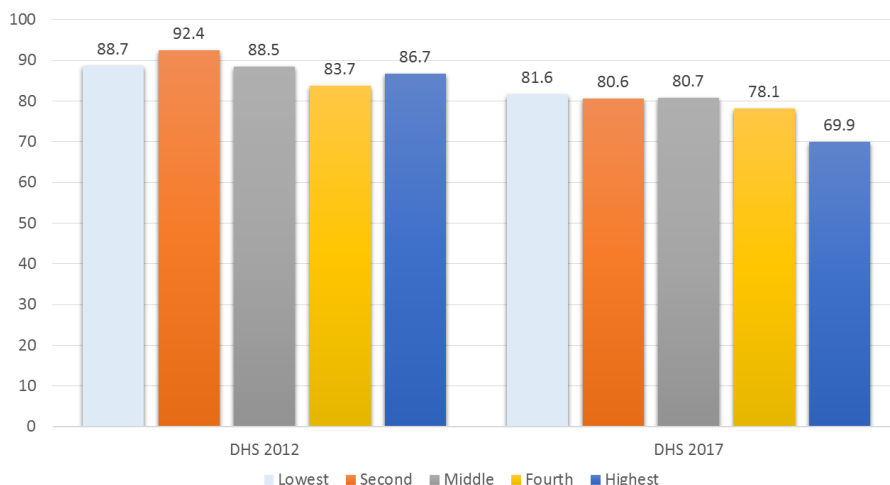
2. **Mother's education:** DHS 2017 data shows: Vaccination rates by mothers with different levels of education, where the mothers with General basic and Higher education are more reluctant to vaccinate their children. What should be noted here is that the cohort for 2017 data, the number of mothers with General basic education was 470 while with Higher education was 90, and a notable drops in vaccination by mothers with lower educational levels, which then indicates that more emphasis should be placed on targeting communications and education of mothers with lower levels of education.

Diagram 6. Percentage of mothers agreeing to vaccinate their children based on the level of education, (DHS 2012 and 2017)



3. **Socioeconomic status:** While the wealth has minimal impact on equity, in fact the wealthiest group is most resistant to vaccinate their children. (Cohort distribution by wealth in each group is very similar). There is a notable decrease across all wealth quintiles.

Diagram 7. Percentage of mothers vaccinating their children based on the level income, DHS 2012 and 2017



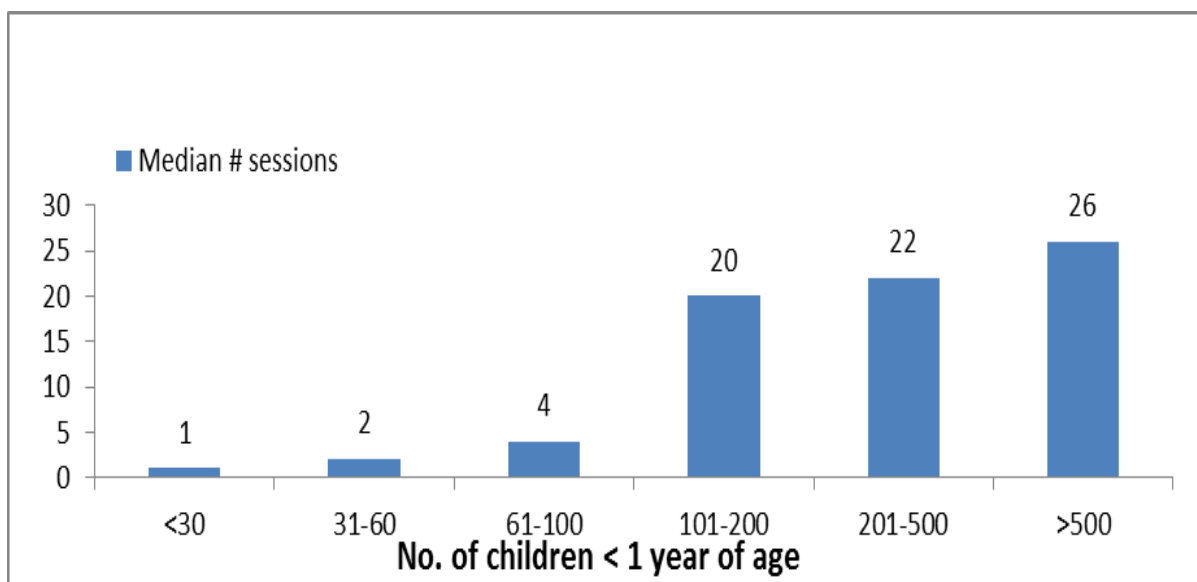
4. Limited access to permanent immunization services.

The CCEOP inventory (WHO, 2017) has shown that the frequency of immunization sessions provided by a health facility and therefore impacting access to immunization by families is influenced by the following parameters:

a. Health facilities' target group

Facilities with a smaller target group provide limited number of immunization sessions per month compared to facilities with a larger newborn group having more frequent immunization sessions. Only facilities serving target groups of over 500 children provide immunization on daily basis, taking into account the fact that official working days in Tajikistan are from Monday to Saturday. Therefore the size of the target population has a direct impact on the observed frequency of immunization sessions. The diagram below represents the distribution of immunization sessions frequency by the size of facilities' target population, which is defined as the number of children under the age of 1.

Diagram 8. Facility target population and frequency of immunization sessions (Cold Chain Assessment WHO 2017)



b. The Type of the facility

The frequency of immunization sessions also varies between the different types of facilities and within each type of facility. Most immunization sessions are conducted by the following facilities:

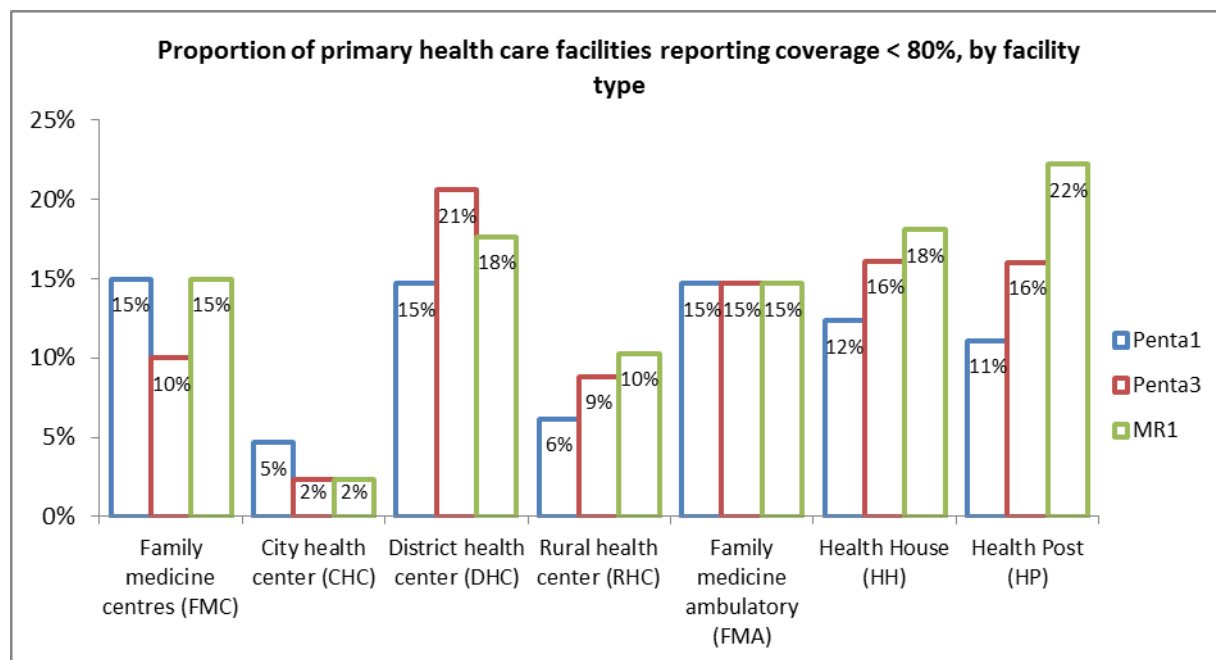
- State maternity facilities, CHC, DHC and FMC – with a median of 22 to 26 immunization sessions per month. FMOP and RHC demonstrate a median of 18 and 8 immunization sessions per month, providing immunization services at least once a week.

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- For HH and HP, the median is equal to 2 immunization sessions per month, with the provision of immunization services only once every two weeks.

It was recorded that in Tajikistan there are 636 (22 percent) facilities serving less than 30 children under the age of 1. And approximately 24 percent of all facilities that provide immunization service reported having one immunization session per month or less, meaning that children living in remote areas or a small catchment area have a decreased frequency of immunization sessions, most likely leading to a variation in the timeliness of immunizations.

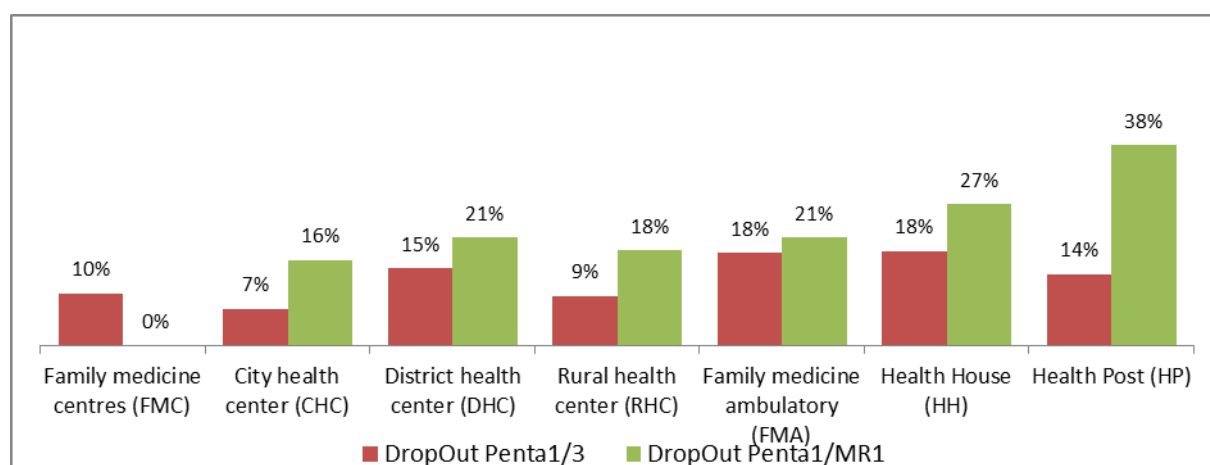
Diagram 9. Percentage share of primary health care facilities with coverage < 80%, by facility type (CCEOP inventory, 2017)



Low immunization coverage (below 80%) and a high drop-out rate (above 10%) were noted during the inventory of the cold chain equipment at 10-24% of facilities providing immunization services in Tajikistan (based on Penta-1, Penta-3, MR1 antigens), however the overall performance by all regions remained high.

The following graph clearly represents the proportion of primary health care facilities in Tajikistan with a reported drop-out rate > 10%

Diagram 10. Proportion of primary health care facilities reporting Drop-out rates > 10%, by facility type (Cold Chain Assessment WHO 2017)



A higher drop-out rate was observed for doses of penta-1—MR-1 in comparison with doses of penta-1—penta-3, and a generally higher percentage of Health houses and Health posts reported the drop-out rate of > 10%. These are the facilities generally with the smaller target group size and few immunisation sessions per month, meaning that the families don't have ready access to vaccination. The DHC, FMOPC and FMC

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show high percentage of facilities with coverage <80% and dropout rates >10%, in absolute numbers, these facilities have larger target groups and conduct more frequent immunisation sessions per month.

Immunization should be carried out every time a patient visits a health facility in order to reduce missed opportunities and increase immunization coverage. Below table provides data on the frequency of immunization sessions, which is expressed as the number of days per month when various facilities conduct immunization.

Table 1. Distribution of the frequency of immunization sessions per month by facility type

Facility type	Minimum	25%	Median	75%	maximum	Number of facilities
State maternity facilities	0	26	30	30	1	199
Family medicine centers (FMC)	1	15	26	26	26	20
City health center (CHC)	1	22	24	26	26	44
District health center (DHC)	1	20	22	26	30	34
Rural health centers (RHC)	1	2	8	24	26	830
Family medicine out-patient clinic (FMOPC)	1	1	18	26	26	34
Home of health (HH)	1	1	2	10	26	1634
Health post (HP)	1	1	2	4	30	83

Use of 10-dose vials

In addition to the size of the target group and type of the facility, other determinants may also influence the method and frequency of immunization, for example, compliance with the open-vial policy for multi-dose vials and vaccine availability in smaller vial presentation. Health workers can postpone and delay immunization by reducing the number of sessions to increase the number of patients served in a single session and reduce losses associated with open vials. The observed pattern of low coverage among facilities conducting 1 immunization session per month supports the above assumption.

It is necessary to consider the possibility of procurement of vials with less number of doses (i. e. 5 dose vial instead of 10 dose vial) of measles-rubella vaccine for facilities with a target population of less than 50 children under the age of 1. This will make it possible to provide the opportunity to receive this vaccine at least once a month and reduce the MR vaccine drop-out rate.

Geographical location

Difficult geographical access: about 10 percent of healthcare facilities are remote (located more than 50 km from district centers), and health workers need to travel long distances to pick up vaccines from their district warehouses.

Seasonality and geographical location affects vaccine transportation, making regions such as Sogd and GBAO more difficult to reach with the vaccine and related supplies. It also affects travel within the regions themselves, impacting health workers and their travel between the districts, therefore decreasing amounts of immunization sessions.

Identifying barriers and demand for immunization services

An analytical report on "Identification of Barriers to Vaccination of Children under 5" (WHO/EU/MoH, 2014) assessed the following indicators:

- **Geographical accessibility**, i. e. the location of the health care facility that conducts immunization

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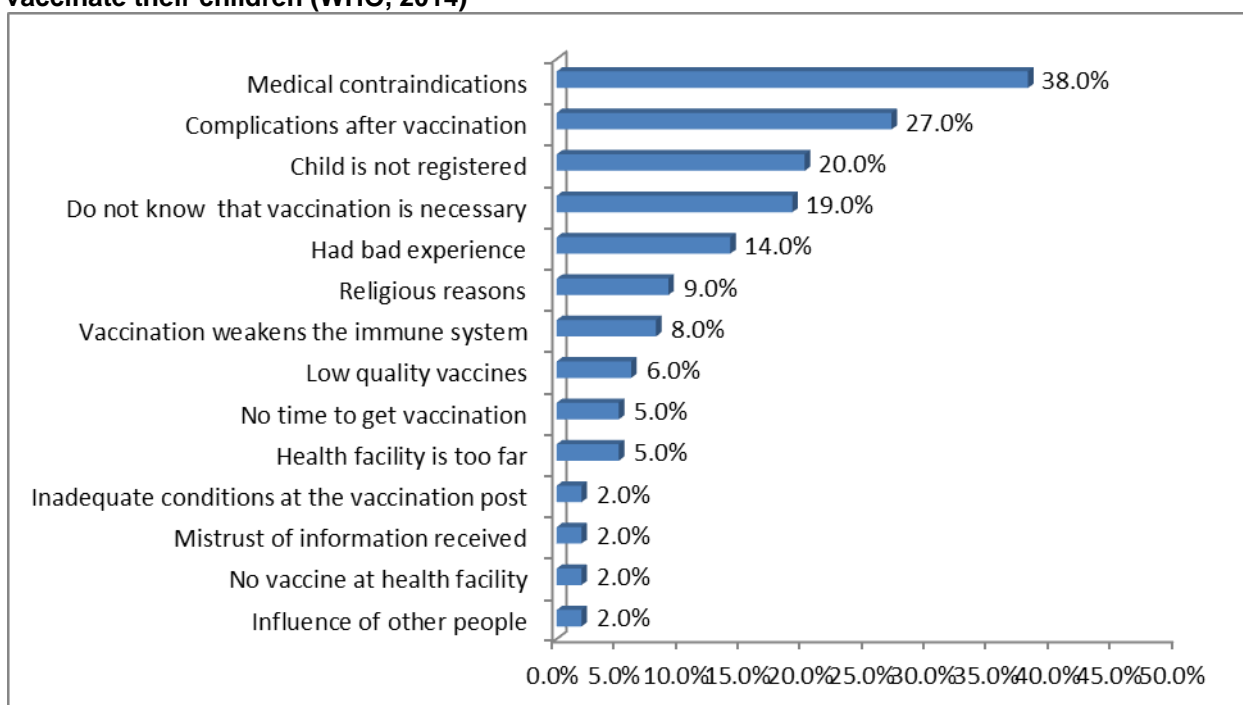
and accessibility by foot or transport – overall not a very significant factor countrywide, as most of the respondents indicated accessibility to the health facility was not an issue, except for the hard to reach areas.

- **Financial affordability;** officially the immunization services are free of charge in Tajikistan, however there are instances when various amounts of out-of-pocket payments (1-25somon) as indicated by 16% of the respondents were made.

Other barriers identified by the survey among the population and health care personnel for not receiving vaccinations:

- 38% of the respondents (parents) stated that medical exemptions were the reason for not receiving immunization;
- 27% of respondents indicated fear of post immunization complications;
- 20% indicated that the child was not registered;
- 19% stated that they did not know that it was necessary to vaccinate a child;

Diagram 11. Reasons for refusing immunization of children under 5 among those who did not vaccinate their children (WHO, 2014)



In addition, the analytical report showed the primary communication channels which influence immunisation awareness and uptake:

Table 2. According to the results of the survey, it was found that the population's main channels for obtaining information on the importance of immunization are health workers and television:

	Sughd	Khatlon	Gorno-Badakhshan Autonomous Region	RRS (Regions of Republican Subordination)	City of Dushanbe	Total
Conversation with a health worker	75%	83%	91%	61%	73%	74%
Health worker called on the phone	41%	24%	58%	41%	35%	35%
Television	19%	33%	9%	40%	31%	30%

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Information materials	28%	34%	24%	13%	5%	21%
Radio	2%	2%	0%	2%	2%	3%
Newspapers	6%	1%	0%	2%	2%	3%
Internet	1%	0%	0%	0%	1%	0%

Rotavirus vaccination coverage

With Gavi support the rotavirus vaccine was introduced throughout the country in January 2015. The rotavirus vaccine was the first new vaccine introduced in Tajikistan. Currently, the oral live attenuated monovalent vaccine Rotarix (GlaxoSmithKline) is used. Initially, the Ministry of Health and Social Protection of the Population decided to adhere to the age restrictions for rotavirus immunization, but in April 2015 the NIP recommended that all infants should be vaccinated between the ages of 2 and 12 months. Age restrictions were abolished in accordance with WHO recommendations in order to ensure high immunization coverage. Age restrictions introduced in the first months after vaccine introduction affected the coverage rate in the first year of vaccine introduction. Post-implementation evaluation conducted with WHO technical support in 2016 showed that there is a high level of political support in the country, and staff are committed and motivated at all levels. Moreover, important preparatory activities were carried out in time prior to the introduction of the vaccine, comprehensive documentation on the introduction of a new vaccine was available at all levels; also, there were no problems observed during the introduction of rotavirus vaccine, according to the opinions of interviewed health workers and immunization program specialists.

3.2 Key drivers of sustainable coverage and equity

As noted in the above section, the data shows that the low coverage is more in the urban areas rather than hard to reach areas, though these districts remain with lower coverage rates, the absolute numbers compared to urban areas are small.

There are several programmatic risks influencing the coverage and equity.

The data of the cold chain equipment inventory carried out by WHO in 2017, from a total of 2,494 health care facilities involved in the provision of immunization services, which accounted for 94.7% of the total number of health centres provides the NIP with important information on the current situation with the cold chain in Tajikistan. Cold chain inventory was very detailed and provided with information not only about the cold chain system, but also about the coverage and equity issues.

Vaccine Stock

In Tajikistan, there is an expected *increase in the need for vaccine storage* per fully immunized child (FIC) - from 200 cm³ to 425 cm³, which more than doubles the required volume at all levels.

The existing volumes of cold storage and transport of the national, subnational and district warehouses are not sufficient to provide a future need for vaccine storage volumes. Lack of storage capacity prevents the country from implementing an appropriate system for the distribution and management of vaccine stocks, including vaccine stockpile and materials;

The vaccine stockpile policy and practice are aimed at fluctuating supply and demand in the field of immunization and ensures continuous procurement of vaccines. The level of stockpile is determined depending on the reliability of supply and distribution parameters, as well as taking into account potential fluctuations in the demand for vaccines. Inventory of the cold chain equipment revealed that there is no stockpile policy at all levels of the supply system in Tajikistan, and the distribution of vaccines to lower-level facilities is not guided by an appropriate needs assessment strategy.

The National warehouse distributes vaccines on a quarterly or monthly basis based on the distribution and delivery system. However, the existing capacity of storage facilities does not allow creating and maintaining vaccine stockpile at the national level. Therefore, after the distribution of the shipment received at the warehouse, there may remain no vaccines in stock.

Lack of stockpile leads to risks of stock shortage at facilities at all levels of the immunization supply system due to potential fluctuations in the supply and the needs for vaccines and injection materials.

There is a need to review and improve vaccine stockpile management policies: to adopt a national stockpile policy for each level of the immunization supply system and allocate funding to create stockpiles to avoid vaccine shortage. However, it should be mentioned that there has not been vaccine stock out at any of the levels for the past few years. Recent work by UNICEF consultant has seen development of a stock management tool, which will be deployed at the regional and national level together with the training sessions for the managers and ToT courses to disseminate the tool as there is a need to train regional and district managers and encourage them to monitor stock levels in order to avoid vaccine deficit and improve the effectiveness of vaccine use, ensuring the quality and safety of vaccines in storage.

Warehouses

To maintain a high level of coverage and equal access to life-saving vaccines, it is necessary to ensure adequate storage conditions for vaccines and immunization related materials. The capacity of vaccine warehouses used to be one of strong aspects in vaccine supply chain in Tajikistan, receiving vaccine shipments twice a year. However, the situation will change at the central level in particular, if new vaccines are introduced. As the volume of vaccine storage capacities expected to substantially increase in the future, new cold rooms should be purchased.

At the regional level, in particular in the Bokhtar zone of Khatlon region, Gorno-Badakhshan Autonomous Region, Sogd Region and Dushanbe city, there are no standards-compliant warehouses, which expose vaccines and immunization materials to continuous risks. It is necessary to build warehouses for the above-mentioned regions, as well as expand the national warehouse through the installation of additional cold equipment. It is also necessary to build a warehouse in Rudaki and Vahdat districts, which are the largest districts in terms of catchment area and population size. Weak infrastructure for the storage of vaccines and other immunization materials at the national and regional levels poses a risk compromising vaccine quality

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and effectiveness: expansion of storage facilities at the national level and development of appropriate infrastructure at the regional level are required.

Vaccine transportation

The existing vaccine distribution system exposes vaccines to uncontrolled risks: unreliable and inadequate transport for the delivery of vaccines to district warehouses and lack of facility transport of vaccines for district warehouses and facilities providing immunization services:

National: The national vaccine warehouse uses a refrigerated truck to pick up vaccines from the airport, and also to transport them to some regional warehouses.

Regional: Approximately 81 percent of regional warehouses have their own vehicles (cargo is either delivered by a refrigerated truck from the national warehouse or they are picked up using the facility's own transport). The remaining regional warehouses rely on other solutions using public or private transport.

Districts: Approximately 10 percent of district warehouses use transport of their facilities, while others use less reliable means of transportation, including public and private transport, which may expose the vaccine to increased risks during transportation.

Health Facility: The transportation of vaccines by hand is practiced at 12% of CHC, 18% of FMOPC; 28% of FMC and 32% of DHC, only 1.5% of all facilities use the facility's own transport

This means that there is approximately 19 percent of regional warehouses, 90 percent of district warehouses and 98 percent of immunization services posts do not have access to reliable vehicles and depend on public or private transport leading to uncertainty in terms of timely availability of vaccines and their integrity.

With an increase in vaccine volumes, quality cold chain transportation of vaccines becomes even more paramount, especially where such transportation to a health facility is done by hand or using public transport making it more difficult task and exposing vaccines to risk during transportation. This will require the use of larger and heavier vaccine carriers and cold boxes during transportation. Therefore, Tajikistan's NIP should consider the possibility of institutionalized options for transporting vaccines so that each vaccine delivery is provided promptly and safely to immunization services posts. The method of transportation should be carefully examined taking into account the volume and weight of the vaccine and containers (cold boxes or vaccine carriers, and ice packs) for vaccine packaging necessary for their transportation, and also taking into account the fact that different manufacturers package vaccines into different cold chain containers - from small packages to large boxes.

According to the approved Working Plan UNDP is planning to procure and deliver 26 vehicles and spare parts, which includes 7 refrigerators, 3 small trucks and 16 off-road vehicles for the mobile teams. Specifications have been agreed with and approved by the MoHSPP. International tender has been announced in July and bid opening conducted in 30 August. The bid evaluation is in process and it is expected that the contract to be signed by the end of September.

Health Work Force

Capacity building requires adequate wages and appropriate working conditions. Currently, due to low wages, qualified specialists are not willing to work at the centers for immunoprophylaxis. To maintain qualified staff immunization service delivery provision it is necessary to motivate them. Immunization programme has its own specific nature and requires continuous training efforts, thus in order to increase the level of knowledge and practical skills of responsible health workers thorough approach should be taken in training activities.

Cold Chain inventory (2017)

Absence and/or unreliable active cold chain equipment: 28% (840) of facilities do not have active cold chain equipment; domestic refrigerators account for 72% of the equipment used; the service life of 68% of PQS vaccine freezers and 46% of ILR is over 10 years or unknown;

A high percentage of facilities are not equipped with active cold chain equipment was registered in Gorno-Badakhshan Autonomous Region (72%), followed by the Rasht zone (44%), Kurgan-tube zone and Sogd regions (29 percent and 26 percent, respectively). None of the regional and district warehouses reported lack

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of active cold chain equipment.

All types of facilities providing immunization services reported a shortage of refrigeration equipment – from 4 percent at the CHC level to 60% of HP. Moreover, 59.4% of these facilities without refrigerators are located more than 10 km from the vaccine procurement source.

Large-scale facilities with cohorts of over 100 newborns per year that do not have refrigerators are most often found in the regions of Kurgan-Tyube, Sughd and RRS.

Approximately 91.6% of the vaccine refrigerators and freezers found were in satisfactory working condition, while 2.1% of those in working condition require repair. Only 6.2 percent of all registered equipment was out of order.

The service life of 70% of the equipment was 10 years, and the remaining 30 percent - 15 years old or unknown. The share of equipment older than 15 years, approaching the end of its service life, is relatively low (5.9 percent). Only for 4.4 percent of the equipment the service life duration was not registered.

- *Maintenance of the cold chain equipment is a constant problem:* approximately 8% of refrigerators and freezers were out of order or required maintenance (including 13% of ILR); 6% of all equipment was out of order due to lack of spare parts or tools; 2 cold rooms had only one refrigeration unit; contracts for maintenance services were available only at 3% of facilities; 38 percent of facilities did not have any maintenance services contracts. This is also noted in the EVM evaluations.

- *Significant limitations in temperature monitoring:* lack of any temperature monitoring device is found at 3.3% of vaccine refrigerators, and lack of continuous temperature monitoring - at almost all facilities; no monitoring of exposure to freezing during transportation of vaccines.

After the WHO inventory report received, UNICEF received official request from RCIP with the list of equipment to be procured under the HSS project. Based on this request, UNICEF promptly initiated the process of procurement of Cold Chain equipment in June 2018. The first part of the equipment is expected to arrive in the country in October 2018. As was mentioned during JA meeting, UNICEF has hired a local institute that is currently working closely with WHO and RCIP colleagues on distribution of the equipment. The distribution will be done based on the WHO inventory report recommendations. The UNICEF hired institution is also in the process of conducting an assessment of the vaccine cold rooms at national and district levels and has identified that most of the cold rooms require additional space. This urgently requires constructions at national and district level to prevent the cold rooms arriving and no space to house them.

Based on the results of the Cold Chain Inventory, a list of the cold chain items for both HSS and CCEOP grants were identified and agreed with the RCIP. Priority items, including cold room, centralized temperature monitoring system, freezers, and refrigerators, etc. were ordered. The expected date of arrival is the end of the year.

Geographical access

For the hard to reach areas, UNICEF is conducting a study on mobile teams through the engagement of an international consultancy to support MOHSP in the assessment of mobile teams and patronage nurses.

Electricity

Access to the electric grid is defined as the percentage of facilities with access to electricity supply for more than 8 hours per day and encountering power outages for less than 48 hours.

In general, approximately 97% of health care facilities in Tajikistan have access to the electric grid for more than 8 hours a day. A total of 394 (13.4%) facilities reported access to electricity supply for 8-16 hours a day, 99 facilities (3.4%) reported that electricity was supplied for less than 8 hours, mainly in Gorno-Badakhshan Autonomous Region (20% facilities in Gorno-Badakhshan Autonomous Region), Sughd (4% facilities in Sughd) and Kurgan-Tyube (3% facilities in Kurgan-Tyube).

However, access to reliable and uninterrupted electric power supply is a problem that particularly affects remote facilities providing immunization services, such as Health House and Health Point.

There is no significant relationship between limited power supply and lack of refrigerators at facilities.

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Primarily, there is a link with the area remoteness, small-size cohorts and type of facilities (HP type) that conduct one immunization session per month and bring vaccines for the vaccination session in cold boxes.

In this category of facilities, appropriate immunization strategies should be implemented, supported by distribution and storage technologies and procedures, in order to ensure the quality and safety of vaccines. In the absence of appropriate equipment, facilities with unreliable electric power supply (in particular, immunization services posts) should adapt their work to providing vaccine supply in cold boxes for each immunization session.

The implementation of equipment based on alternative energy technologies is a difficult task. It requires knowledge to perform installation, maintenance and repair. Therefore, alternative options should be carefully weighed against other possibilities, for example, increasing access to the electric grid (getting support from the local authorities, establishing partnerships with the private sector, allocating the appropriate budget) and re-planning of service delivery schemes (i. e. conducting field immunization sessions).

Cold chain inventory provided with detailed information on distribution of low performing facilities (i.e. facilities reporting coverage less than 80% for Penta1, Penta3 and MR vaccines and drop-outs higher than 10% for Pent1-Penta3 and Penta1-MR1 doses) by various background characteristics in order to document potential drivers for vaccination coverage inequalities. The proportion of low performing facilities is higher among several sub-groups of facilities, i.e. facilities that:

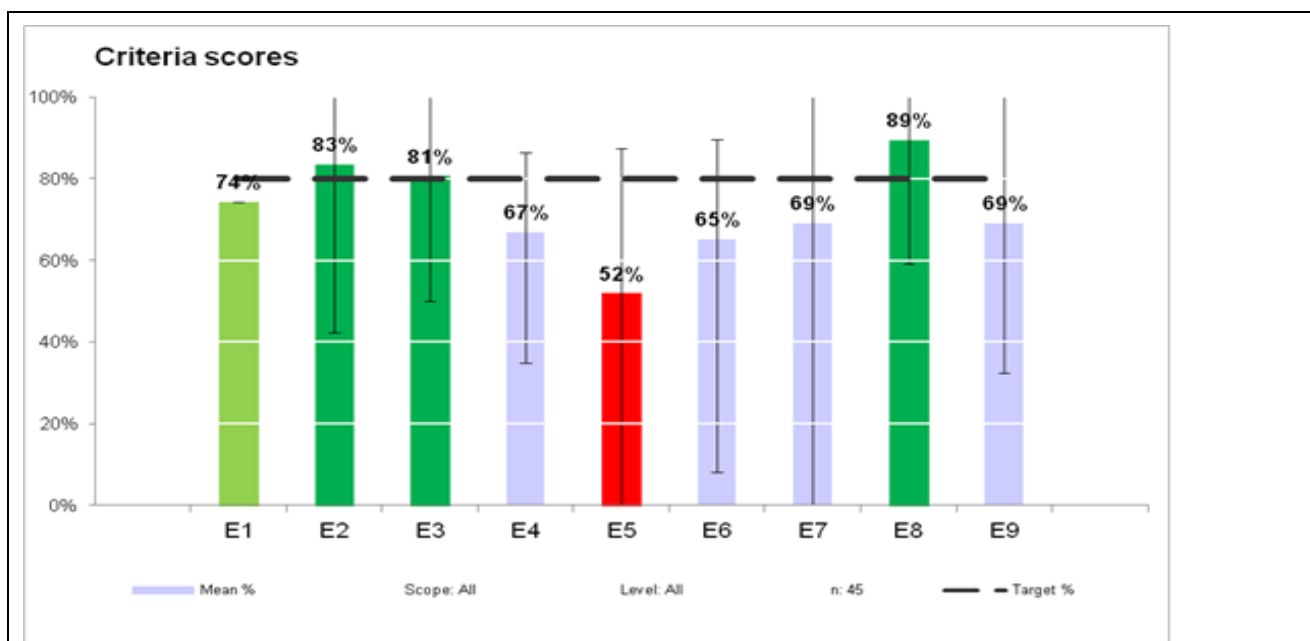
- provide only 1 immunization session per month;
- do not have a refrigerator;
- have access to grid electricity less than 8 hours a day;
- are located remotely, i.e. more than 50km from supply source;
- do not store vaccine for the entire supply period.

Assessment of effective vaccine management (EVM)

In 2015, with WHO technical support, an assessment of effective vaccine management was conducted. Based on that an EVM improvement plan for the period of 2016-2017 was developed. The EVM improvement plan was adapted and approved, however, some activities were not fully implemented, due to lack of funding. But those activities which don't require financial expenses have been accomplished: such as training and outreach activities for customs representatives at local airport. Also, the installation of 4 walk-in cold rooms at the national level was partially fulfilled as with the support of the Government of Japan, one walk-in cold room was purchased and installed in 2016. EVM improvement plan was discussed at the ICC meeting, as well as repeatedly was discussed during working meetings with partners. In January 2018, the EVM improvement plan was reviewed and analyzed again. Based on the review, a new EVM improvement plan was developed and approved for the period of 2018-2019. It is expected that many activities under this plan will be implemented within the framework of the HSS grant, as well as within the framework of the grant being prepared for the cold chain equipment optimization platform (CCEOP).

At the central and national level, six criteria have scores below 80% - Vaccine arrival E1, buildings and equipment E4, maintenance E5, inventory management E6, distribution E7 and IMS and supporting management functions E9, which requires close attention and investments at this level, while temperature E2, Storage capacity E3 and Vaccine Management E9 above 80%. The situation has not changed significantly since the first EVM assessment in 2012.

Figure 3. EVM evaluation scores for each of the nine criteria for the four vaccine delivery system levels in Tajikistan (2015)



Exchange of best practices

One of the regions with good immunization indicators is the Sogd Region, which was not affected both during the outbreak of poliomyelitis in 2010 and during the measles outbreak in 2017. It is worth studying the experience of the Sughd Region during the planned EPI review, documenting lessons learnt and possibly disseminating it to other regions of the country.

Medical contraindications

Unreasonable medical contraindications for immunization are considered to be one of the key factors affecting the coverage rate, by missing the possibility to vaccinate a child. There is a tendency among neurologists, particularly among paediatric neurologists, to give verbal recommendations not to vaccinate a child. These recommendations are not registered in children's medical records, and they do not have a specific timeframe. The recommendation is given not to vaccinate the child, but the time when it will be possible to conduct immunization is not specified. Because of this, parents have to make several visits to a neurologist. This trend significantly affects the coverage rate, so it is necessary to develop clear instructions/criteria for immunization indications and contraindications, as well as conduct training seminars for neurologists. Thus, it is necessary to refresh knowledge of neurologists on medical contraindications for immunization.

Monitoring and Supervision

Many facilities need to conduct trainings to update knowledge and improve skills of their employees. Long-term capacity building is time-consuming process and requires careful planning; it should include needs assessment, postgraduate education based on assessment results, supervision, and use of principles of continuous learning. Supportive supervision visits are an excellent opportunity to provide additional information and coaching, improve the quality of work, and address other systemic problems that result in low immunization coverage.

Supportive supervision requires time of the staff, funds to pay per diem expenses, and also involves visits/transportation to remote facilities. The health sector budget does not provide sufficient funds or personnel to carry out supportive supervision. In this regard, there are difficulties in financing and coordinating regular supervisory visits. In addition, supervisors need support and authority given from the central or district level supervisors to supervise and/or correct shortfalls, if any.

To carry out monitoring, it is necessary to have a vehicle, financial means for purchasing fuel, per diem expenses for the specialists sent on this mission. An important element of monitoring is the knowledge and skills of RCIP specialists. Timely information on the implementation and elimination of shortcomings from the heads of PHC facilities to the SI RCIP will enable RCIP to take a leadership role. Uncertainty in the status of immunoprophylaxis centers at the level of some districts leads to the fact that, due to lack of financial support, monitoring at remote PHC facilities is not carried out.

The existing epidemiologic surveillance system is a key factor in the control of vaccine-preventable infections. In recent years, progress has been made in the field of epidemiologic surveillance of vaccine-preventable infection, especially rotavirus surveillance. Continuous efforts are being applied to improve VPD surveillance system.

3.3 Data

Data quality assessment (DQA) for immunization data was carried out in Tajikistan in March of 2017. The DQA goals were to identify the key problems and strengths of the immunization data collection system, make recommendations for improving data quality and prioritize them, and prepare a data quality improvement plan. The result of the assessment revealed gaps regarding data quality in the immunization service. After the completion of the assessment, a plan of action to improve immunization data quality in Tajikistan was developed. The plan includes the organization of the key activities necessary to generate data collection and provide an accurate assessment of vaccine coverage comparable at the national level. The plan defines short-term activities (1-2 years) and long-term activities (3-5 years) that focus primarily on the following:

- Improving the quality, accuracy and effectiveness of data recording and reporting.
- Improving the practice of analyzing immunization data and its use at all administrative levels.
- Standardizing the use of electronic databases on immunization data management, analysis and reporting at all administrative levels
- Standardizing and/or improving the census process by households and defining the target group.
- Improving personnel's knowledge and skills in managing immunization data, analyzing and using its results

Data quality assessment has been funded from the TCA funds. However, since development of Data Quality Improvement Plan (DQIP) funding has been combined from both HSS and TCA.

Barriers to implementation

To fully implement the data quality improvement plan, it is necessary to provide external technical support to create an immunization database and develop manuals. However, to ensure creation and use of the database, as well as information transfer, there is a need to provide computers and printers for all centers for immunoprophylaxis, carry out training on the use of the appropriate software programs, review the record and reporting forms, and strengthen supportive supervision. In some regions where computers are available, they are either outdated or non-functional. The evaluation of the primary health care system conducted in 2014 also underscored the need to improve the use of computers, but it was noted that the main barrier was lack of financial resources.

Electronic data collection and analytical tool would greatly improve data quality and analysis, as well as provide quick and detailed drill downs of the information which will lead to optimized solution making. Such a project can be piloted in identified districts with lower coverage and high numbers of drop-out rates.

Rotavirus Surveillance

Tajikistan has conducted sentinel surveillance for rotavirus gastroenteritis as part of the Global Rotavirus Surveillance Network (GRSN) with WHO support using standardized WHO protocols since December 2006. Data from rotavirus surveillance were used to support the introduction of rotavirus vaccine in the national immunisation program in January 2015; it is given at 2 and 3 months of age. During the immediate pre-vaccine years of 2013-2014, among children less than 5 years of age hospitalized for the treatment of diarrhoea, 42% tested positive for rotavirus disease indicating a substantial burden of disease.

A total of 1339 children were enrolled in GRSN in 2017 with 374 (28%) testing rotavirus positive. The two most common genotype strain in 2017 was G4P[8]. The national rotavirus laboratory at the Tajik Research Institute of Preventive Medicine passed the external quality assurance (EQA) program coordinated by the Global Reference Laboratory in Atlanta, GA, and the external quality control (EQC) program coordinated by the Regional Reference Laboratory in Minsk, Belarus. Rotavirus disease occurs in a seasonal cycle in Tajikistan with the peak in the number and proportion of cases being in June through September.

The existing rotavirus surveillance platform is being leveraged to provide evidence on rotavirus vaccine effectiveness and information on the hierarchy of the causes of paediatric diarrhoea requiring hospitalization. First, the rotavirus surveillance platform is being used to conduct a case-control study to estimate rotavirus vaccine effectiveness (VE); enrolment in the study began in 2017. Second, Tajikistan began participation in the WHO-coordinated Global Paediatric Diarrheal Surveillance Network (GPDS) in 2017. The country leveraged the existing rotavirus surveillance platform to begin monitoring more than twenty enteric pathogens in children hospitalized with diarrhoea. Results will facilitate decision making in Tajikistan regarding future introduction of enteric vaccines currently in development for *Shigella*, enterotoxigenic *Escherichia coli* (ETEC), and norovirus.

AEFI surveillance

AEFI surveillance is carried out by the RCIP staff and is limited to receiving notifications and investigating cases. However, no cases have been reported over the past two years, according to which the quality of the AEFI reporting system is assessed. Within the framework of WHO technical assistance, a number of activities are scheduled, including assessment of the AEFI surveillance, the establishment of a committee to review manuals and train responsible staff.

Despite the progress made, there is still much work to do in order to strengthen epidemiologic surveillance in Tajikistan. Challenges include quality of data collection and reporting from the PHC to the higher level, limited training of PHC staff on VPD surveillance, limited knowledge of the standard case definitions by medical staff, etc.

3.4 Immunization financing

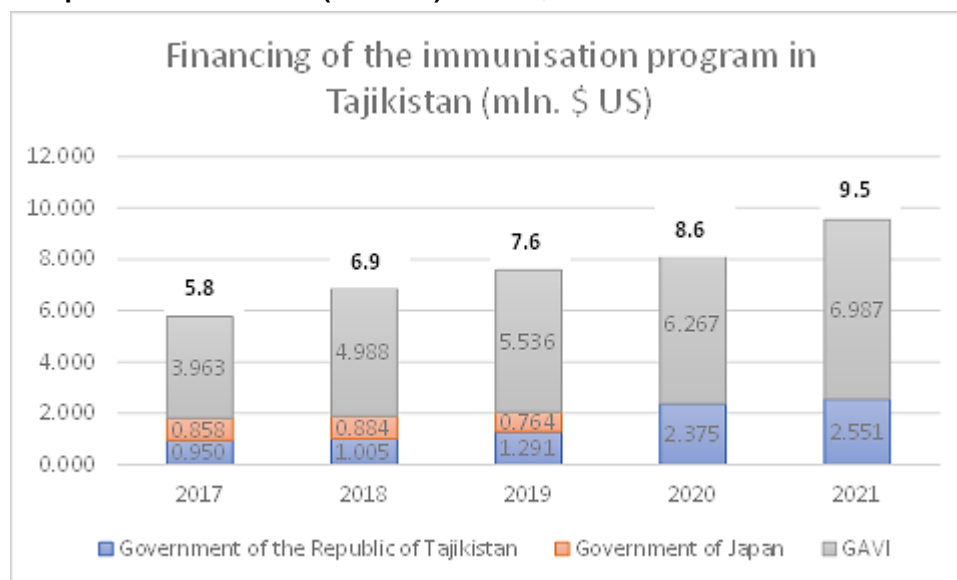
Funding of the National Immunization Program

There are primarily two sources of NIP funding: the state budget and donor support. In 2016, the cost of vaccine purchases was USD 4.7 million, including all sources. Of this amount, the contribution of the Government of the Republic of Tajikistan was USD 816,000, the contribution of the Government of Japan was USD 955,000, and the contribution of Gavi was approximately USD 3 million. According to preliminary calculations, in 2021 the NIP cost will be approximately USD 9.5 million, of which the government contribution will be USD 2.6 million.

To forecast the need for vaccines and injection materials, the following assumptions were used:

- The coverage rates were established in accordance with the objectives and targets of the national immunization program until 2020 (>= 95% by 2020).
- The estimated wastage factor is 50% for the BCG vaccine and 20% for the measles and rubella vaccine (MR). For DTP4 and DT, the estimated wastage factor was set at 10%, and for the remaining routine immunization vaccines the wastage factors was set at 5%.

Diagram 12. Funding of the National Immunization Program for purchasing vaccines from various sources for the period of 2016-2021 (forecast) in mln \$ US.



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The current forecasts are based on the estimated value of vaccines provided by the UNICEF Supply Division, local taxes and overhead charges collected under the law of Tajikistan. Unlike other countries in the WHO European Region, Tajikistan imposes 5% VAT and customs duty on all types of vaccines purchased from public budget allocations, including the state's share in co-financing the purchase of vaccines through the Gavi support scheme for new and underused vaccines (NVS). Thus, for an accurate assessment of vaccine prices for the forecast period, two different costs for co-funded vaccines were established: cost for Gavi and cost to the country:

- The cost of vaccines supported by Gavi includes a 4.5% UNICEF service charge and a 10% fee for transportation, insurance and inspection; and
- The cost of vaccines purchased by the country includes a UNICEF 4.5% service charge and a 10% fee for transportation, insurance and inspection, as well as a 5% customs duty paid for the customs clearance of vaccines that arrive in the country.

Forecasts of vaccine resource requirements (baseline scenario) include the cost of the following vaccines:

- Traditional vaccines: BCG, OPV, DT, and DTP4;
- Underused vaccines: HepB (included in the routine immunization schedule in 2002), pentavalent vaccine (included in the routine immunization schedule in 2008), and measles-rubella vaccine;
- New vaccines: rotavirus vaccine (included in the routine immunization schedule in 2015), IPV (introduced in 2018), introduction of pneumococcal vaccine is being planned for 2021).

The pneumococcal vaccine was not introduced as planned, due to the financial difficulties. The introduction of IPV was postponed from 2016 to 2018 due to high global demand and shortage of vaccines.

Lack of funding analysis and sustainability. The consequences of lack of funds affecting the effectiveness and sustainability of program activities

Gavi has been one of the key donors of NIP since its inception. All financial support from Gavi was not reflected in the national health sector budget, and the funds were transferred through a special account up to 2015. As of 2017 the funds have been disbursed through the implementing partners (WHO, UNICEF and UNDP). Gavi support to Tajikistan since 2001 amounts to USD 22,835,033 (until June 2015) and includes:

- Immunization system support (ISS from 2001-2005, 2008, 2010, 2012-2013)
 - Health system strengthening (HSS – 2010, 2012, 2014)
 - New vaccine support (NVS):
 - Hepatitis B (2001, 2004 – 2009)
 - Pentavalent (2008 – 2015)
 - Rotavirus (2014 – 2015)
- IPV (which was scheduled to be introduced in 2016, but due to delivery related reasons, vaccine introduction was postponed until 2018), accompanied by the Vaccine introduction grant (VIG) (2014)
- Injection safety support (2004 – 2007)

One of Gavi's key is the Health System Strengthening Project for five years (USD 9,659,748), which aims to improve coverage in areas with low immunization coverage rates, including the population in some urban areas. Other key components of this project are the improvement of the cold chain and logistics, as well as the strengthening of PHC-level services.

Currently, the country is still eligible to participate in the Gavi application process and receive all types of support. However, since Tajikistan's GNI per capita for the year 2014 is higher than the Gavi threshold for low-income countries, from January 1, 2016 it will be considered as part of the co-financing transition group. This will require improving work in areas requiring improvement, such as planning, budgeting and budget implementation. In this regard, efforts should be intensified to close the existing gaps/deficits in the funding of the national immunization program, in particular, for the procurement of vaccines.

Gavi finances the purchase of the pentavalent vaccine, rotavirus vaccine and IPV, as well as injection materials.

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NPI's second largest donor is the Government of Japan. The Government of Japan finances primarily the purchase of such vaccines as OPV, hepatitis 1, measles and rubella, as well as injection materials. In 2016-2019, the Government of Japan provided funds for this purpose.

The Government of Japan will end its support of vaccine purchase in 2019. This means that the Government of Tajikistan will need to cover the deficit that will have been created. Also, according to the approved Gavi application, beginning in 2019, the Government of Tajikistan needs to co-finance the purchase of IPV from 2021.

As shown in the Table 6 below, for the years of 2019-2021, according to the preliminary calculations, the amount of financing for the Republic of Tajikistan will increase from \$1.3mln to \$2.4mln in 2020. If however, this increase in financing cannot be met, it will affect all the critical components of the immunization system and the NIP goals cannot be achieved (see Table 6).

Table 3. National Immunization Program funding by sources and vaccine types (in US \$)

Vaccine type expenses	2017	2018	2019	2020	2021
BCG-20	\$ 62,000	\$ 38,007	\$ 39,157	\$ 40,464	\$ 41,684
Penta	\$ 1,627,500	\$ 1,889,590	\$ 2,193,918	\$ 2,547,296	\$ 2,957,634
DTP-10	\$ 86,230	\$ 70,979	\$ 72,669	\$ 74,398	\$ 76,169
DT-10	\$ 41,052	\$ 33,826	\$ 34,631	\$ 35,455	\$ 36,299
DTM/adults	\$ 43,808	\$ 54,578	\$ 70,405	\$ 77,502	\$ 97,789
Rota	\$ 1,342,500	\$ 1,467,875	\$ 1,605,521	\$ 1,756,715	\$ 1,922,879
bOPV-20	\$ 250,551	\$ 258,068	\$ 265,810	\$303,816	\$ -
HepB-1	\$ 105,836	\$ 109,012	\$ 112,282	\$ 135,336	\$ 139,416
MR	\$ 373,691	\$ 384,902	\$ 396,449	\$ 360,215	\$ 370,189
IPV-5	\$ 197,179	\$ 646,286	\$ 616,601	\$ 792,142	\$ 830,022
Vaccine transportation expenses	\$ 419,682	\$ 516,147	\$ 549,140	\$ 627,757	\$ 588,958
Vaccine taxes/customs expenses (5%)	\$ 34,784	\$ 35,852	\$ 47,654	\$ 97,199	\$ 88,599
Syringes (including transportation expenses)	\$ 1,142,728	\$ 1,321,399	\$ 1,528,667	\$ 1,727,023	\$ 2,311,830
Syringe taxes/customs expenses (25%)	\$ 43,892	\$ 50,475	\$ 58,047	\$ 66,754	\$ 76,767
Total Expenses	\$ 5,771,433	\$ 6,876,996	\$ 7,590,951	\$ 8,642,072	\$ 9,538,235
Republic of Tajikistan Government Financing	\$ 949,931	\$ 1,005,274	\$ 1,290,969	\$ 2,374,939	\$ 2,551,486
Government of Japan Financing	\$ 858,125	\$ 883,871	\$ 764,191	\$ -	\$ -
GAVI Financing	\$ 3,963,376	\$ 4,987,850	\$ 5,535,790	\$ 6,267,133	\$ 6,986,749
Total Financing	\$ 5,771,432	\$ 6,876,995	\$ 7,590,950	\$ 8,642,072	\$ 9,538,235

Analysis based on the WHO-UNICEF joint reporting form shows that the contribution of the Government of the Republic of Tajikistan is one of the lowest among the countries of Central Asia and accounts for approximately 17% of the total share of vaccines purchased.

4. PERFORMANCE OF GAVI SUPPORT

4.1 Performance of vaccine support

In January 2015, with the support of the Global Alliance for Vaccines and Immunization, rotavirus vaccine was introduced into the national immunization calendar of the Republic of Tajikistan. The results of the evaluation conducted after the introduction of the rotavirus vaccine showed that the rotavirus vaccine was successfully introduced. Health care staff verbally reported a decrease in the number of patients with complaints of diarrhea. In the last 3 years, the rotavirus vaccine coverage rate has been at a high level and exceeds 95%.

Diagram 13. Estimated vaccination coverage with rotavirus vaccine 1-2 in the Republic of Tajikistan for period of 2015-2017

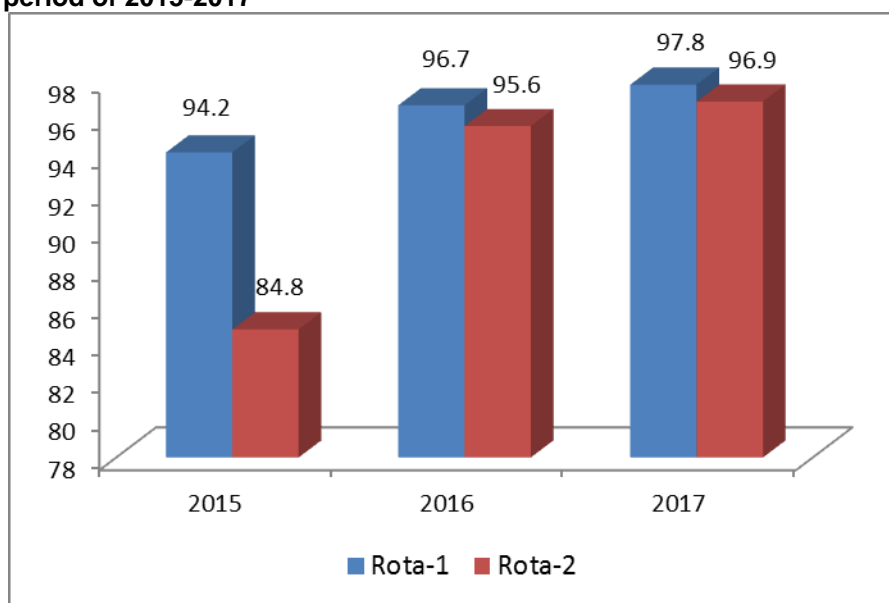
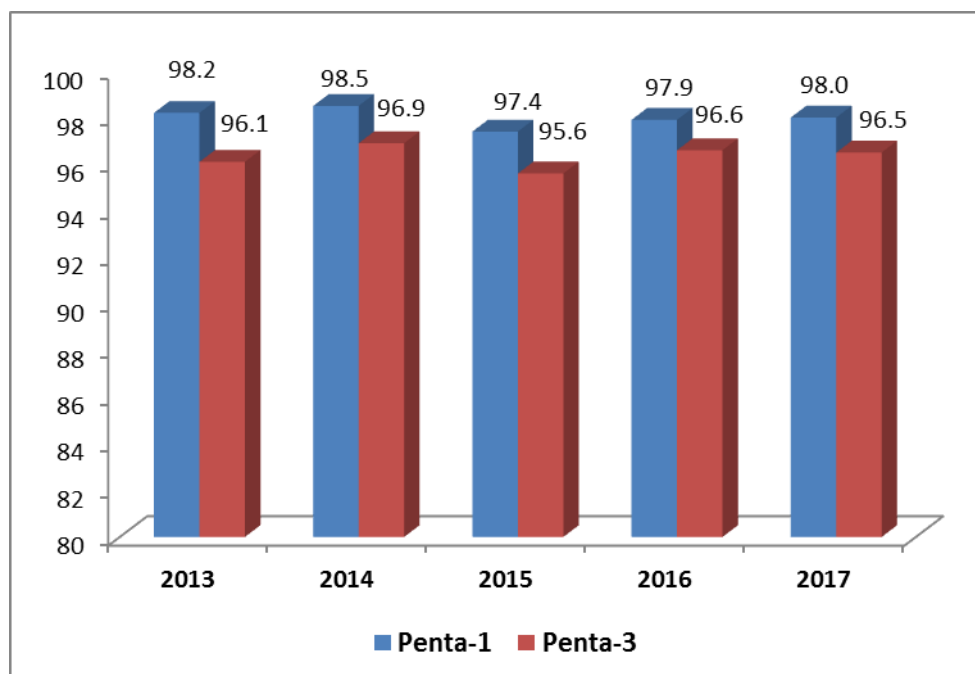


Diagram 14. Pentavalent vaccine coverage rate in the Republic of Tajikistan for the period of 2015-2017



In 2008, with Gavi support, a new vaccine against five antigens (diphtheria, pertussis, tetanus, hemophilic type B infection and hepatitis B) was introduced into the national immunization calendar, replacing the DTP vaccine. The coverage rate for the first and third doses of pentavalent vaccine in the last five years remains at a high level.

Since June 2018, the country has begun using the IPV vaccine for immunization of children in accordance

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with the national immunization schedule. It should be noted that the IPV vaccine was supposed to be introduced in the country's national immunization schedule in 2014; however, due to global restrictions in the IPV vaccine production, vaccine supply to the country was postponed until 2018. Due to a three-year delay in the delivery of IPV to the country, there was an urgent need for provision of refresher training for vaccinators and general practitioners prior to the introduction and use of the vaccine. Gavi provided additional country support at the amount of USD 126,818 to conduct the training activities among health workers providing immunization services.

Since April 2016, Tajikistan, along with other countries worldwide, switched from the trivalent oral polio vaccine to the bivalent oral polio vaccine, in the period of transition from the trivalent oral polio vaccine to the bivalent oral polio vaccine and the implementation of IPV there accumulated a certain cohort of children that were not vaccinated against the poliovirus of the second type (545,450 children). The target group includes children that were born from 01.01. 2016 to 31.01.2018 (according to the plan, children born from 1.02.2018 are included in the target group of children that began receiving a routine dose of IPV starting June 2018). In 2019, the Ministry of Health and Social Protection of the Population is planning to cover this cohort of children with the IPV vaccine as clean up immunization against poliomyelitis.

It is also necessary to consider replacing the measles-rubella (MR) vaccine with the measles-mumps-rubella (MMR) vaccine. The country intends to draw Gavi's attention to the replacement of the measles-rubella vaccine with the measles-mumps-rubella vaccine in the country and provide support.

Also, if the country's financial and economic conditions improve, it is planned to introduce the pneumococcal vaccine in the national immunization schedule.

Performance of Gavi HSS support

Tajikistan was awarded the GAVI Health System Strengthening (HSS) grant in 2017 of a total amount of US\$ 9.660.000 to be implemented over a period of five years. This funding support of the GAVI to the Ministry of Health and Social Protection of the Population (MoHSPP) is currently channeled through WHO, UNICEF and UNDP while the country is strengthening its financial and programme management systems. The three agencies together with the MoHSPP are jointly working on various components of the GAVI supported Health Systems Strengthening project for the purpose of achieving and maintaining high immunization coverage hard-to-reach areas. The project is designed to help maintain a high level of immunization coverage, including in areas with low population, as well as focusing on eliminating existing potential problems, such as poor access to PHC services, shortages in providing a cold chain, supply and routine data management, inadequate injection safety and waste management practices.

The MoHSPP, together with the development partners identified the main bottlenecks of achieving immunization outcomes and proposed interventions to address them through the HSS project as follows: (i) lack of geographical access to basic maternal and child health services (MCH) at the PHC level, including immunization; (ii) obsolete and inadequate (in the light of the introduction of new vaccines) supply chain management systems that lead to stock-outs and contribute to missed opportunities; (iii) low demand for timely immunization in communities with a high level of home birth; (iv) social and economic inequity in immunization outcomes due to the relatively low demand for timely immunization among some categories of population; (v) gender inequity in immunization outcomes due to cultural factors; (vi) missed opportunities for vaccination due to inadequate microplanning and inappropriate medical practices; (vii) injection safety and waste management disadvantages at the PHC level; (viii) lack of reliability and quality of immunization, as well immunization coverage data and integration of evidence in decision-making at the PHC/MCH levels.

The GAVI HSS support aims to address these potential bottlenecks by achieving the following objectives:

1. Strengthening PHC capacity, with focus on the quality and safety of immunization services;
2. Improving equity in vaccination by increasing immunization coverage in low performing and hard-to-reach areas;
3. Improving the implementation of the National Health Strategy "Population Health of Tajikistan 2010-2020", with focus on immunization;
4. Improving the population's commitment to immunization and other MCH services.

According to the Partnership Framework Agreement, the first level of coordination mechanism - the Technical Working Group (TWG) has been established and regular meeting conducting with the purpose of coordination of the day to day management of HSS Programme. The TWG consists of technical and

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programmatic staff of the implementing partners – MoHSPP, RCIP, UNICEF, WHO, UNDP, and is open to the Gavi Secretariat. The TWG is chaired by the Deputy Minister of Health and Social Protection of Population and secretariat is running by the WHO Country Office. The TWG carries out periodic review and progress assessment of the project activity and contributes to establishing mechanisms for the project sustainability in Tajikistan.

The HSS work plan development and the target districts selection process have been facilitated by the TWG, followed by the MoHSPP approval of both documents including the 10 districts selected for HSS Program: Dusti, Baljuvon, Khovaling, Sh. Shohin (Khatlon Region); K. Mastchoh, Panjakent (Sughd Region); Lakhsh, Tojikobod, Sangvor (RRS) and Vanj (GBAO). In January 2018, the Implementation Review and Planning Meeting for GAVI HSS support in the Republic of Tajikistan have been conducted with participation of national and international counterparts and presentations made on the GAVI support program for HSS in Tajikistan, the work plan, selected HSS-targeted districts and partners' grant implementation modalities.

The implementation of measures on health care waste management (HCWM) at the PHC level contributed to the implementation of Objective 1 of the GAVI HSS Support to Tajikistan "Capacity strengthening of PHC with focus on immunization service quality and safety". To address this initiative, WHO supported MoHSPP on the update/development of regulatory mechanisms for healthcare waste management at the PHC level and determining specifications of the equipment to be purchased/installed. 227 designated specialists of PHC, RCI, and SSEC at the district and oblast levels (Dushanbe, RRS, Sughd, Khatlon, and GBAO) have been trained in healthcare waste management. The WG for the Review of National Regulatory Mechanisms and the Proposed Action Plan for the HCWM in Tajikistan was established by MoHSPP Order; SanPin on HCWM is under WG review in order to align it with WHO requirements.

WHO CO in Tajikistan is supporting the MoHSPP in the sustainability of immunization programme. In the framework of this cooperation, attention is paid to building the capacity of regional managers of Expanded Programme on Immunization (EPI) in managing safe vaccination with a focus on immunization service quality and safety. It is planned to have training courses on MLM, IIP, and a ToT conducted by the WHO Collaborating Center for Immunization Training from Ankara (Aka International Children's Center) in August 2018. The national trainings will be followed in September by the regional trainings for immunization service providers on Effective Vaccine Management, Safe injection methods, Vaccine-preventable diseases, Adverse Effect Followed Immunization, and training of Mid-level Managers for Immunization. In total above 220 specialists of PHC/RCI/SES and Medical Academia will be covered by these trainings in 2018.

In 2018, UNICEF CO embarked on the implementation of interventions aimed at accelerating the strengthening of the cold chain, increasing immunization coverage with a particular attention to low performing and hard to reach areas, and immunization awareness raising to increase demand for immunization.

UNICEF had made progress in the procurement of the Cold Chain Equipment (CCE). A local consultancy to provided technical support to MoHSPP in development and operationalization of cold chain equipment deployment plan which informed an engagement of a local institution to support the MoHSPP in developing an equipment procurement, installation, repair/maintenance plan and capacity building for repairs and maintenance of the CCE. A Cold chain inventory exercise conducted for Cold Chain Equipment Optimization Platform (CCEOP) by WHO in 2017 informed the finalization of the list of cold chain equipment that is in the process of procurement. The procurement of CCE however commenced late due to delays in receiving the final inventory report. This delay resulted in a deviation from the initial plan and in slow pace of expenditure in the first five months of the project year. UNICEF received the draft report at the beginning of June 2018 and immediately commenced the process of procurement in consultation with the MoHSPP. The equipment is planned to be in the country by October 2018.

Within the second objective of GAVI HSS on Improving equity in vaccination by increasing immunization coverage in low performing and hard-to-reach areas. According to the initial MoHSPP project proposal, these activities were envisaged as a very light touch exercise. The allocated budget for the first year for assessing the need for patronage/home-visiting services and mobile clinics component was found to be inadequate. Considering the scope of work and capacity required for the assessment, it was decided that the services of an international consultant was required. It was also decided that for greater efficiency, the two assessments be combined into one and should not only focus on vaccination services but using the GAVI HSS funds to conduct more comprehensive review of home visiting and mobile clinic services

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through assessment of the current services; definition of service package; identification of required skill set to deliver the defined service package; revision of job description of the home visiting nurses and mobile clinic teams; capacity building/supportive supervision of home visiting nurses and mobile clinic team as per the new JD. The international consultant to provide support in conducting the needs assessment will assume the work starting from 20 July, 2018. Data collection is planned for August once the tool/methodology is submitted and approved.

To strengthen capacity of PHC with focus on immunization service quality and safety, UNDP CO facilitated selection of the specific health facilities in 10 target districts for new construction and rehabilitation in 2018, as follows: 10 facilities for new construction and 9 facilities for rehabilitation selected and the list approved by the MoHSPP. The tender announced to select the design company for connection of the existing construction designs to the specific locations of the PHC facilities. It is expected to construct and rehabilitate 19 health facilities. According to the rapid assessment of the selected 9 rehabilitation facilities in all 9 target districts the physical state of all facilities is very poor and investing in rehabilitation of such facilities is not realistic and reasonable. The allocated resources per rehabilitation facility (\$9 200) will not be enough to ensure appropriate quality of the rehabilitation works. Therefore the budget allocation for rehabilitation needs to be reviewed.

Specifications for procurement of vehicles – refrigerators, trucks, off-road vehicles and spare parts – developed by UNDP CO and submitted for the MoHSPP approval in order to improve equity in vaccination by increasing immunization coverage in low performing and hard-to-reach areas, including procurement and delivery of vehicles to support the mobile group's revitalization. However, mobile groups have to be established/ revitalized by the MoHSPP, and the UNICEF CO will support reviewing the existing regulations on mobile clinics, development of regulations if none exist or update the existent, as well as develop the job description and provide training for the mobile team along with the patronage team.

The activities to support the implementation of the Immunization Coverage Evaluation Survey in Tajikistan were initiated to ensure regular measurement of the immunization system performance. The WHO CO will support conduction of surveys to establish baseline and project finalization coverage and immunization programme performance in 10 selected HSS project targeted districts. The priority districts were selected based on the agreed 20 key selection indicators, including registered cases of poliomyelitis in 2010; reported measles cases in 2016-2017; percentage of home deliveries in 2016; service radius of the Center for Immunoprophylaxis (CIP); number of remote PHC facilities; number of mobile teams required; exclusion of other international projects pilot districts; hard-to-reach districts; presence of a vulnerable population (ethnic minorities, migrants), etc. The international consultant has been attracted to provide technical expertise and support in study design and protocol development and to enable national stakeholders to implement the Immunization coverage evaluation survey. In addition to measuring coverage, the surveys also include information to assist in developing activities to improve coverage and programme performance. Such additional information includes measures of: card availability and retention, campaign participation, reasons for un/under-vaccination, and impairment-related access to services. During the process of the survey planning, it was decided to propose the modifications of the draft survey protocol: (i) to expand study cohort of children 12-23 months of age to parents or caretakers of children 12-35 months of age; (ii) to include 2 extra districts (Dushanbe and Rudaki) in addition to previously selected and budgeted 10 districts. The baseline survey is started and being implemented during the June-September 2018. Thus, the survey objectives are (i) to ascertain vaccination coverage for children 12 through 35 months of age in each GAVI project districts and for all project districts collectively for all recommended vaccines/doses; (ii) to measure dropout between vaccine/doses; (iii) compliance with the age of vaccine administration; (iv) reasons for un/under vaccinations in routine services; (v) vaccination card availability and reasons for non-availability; (vi) coverage by equity dimensions.

The process of conducting of a KAP survey and formative research on immunization to inform the development of a long and medium-term communication and social mobilization strategy has been initiated. A TOR developed in consultation with UNICEF Regional Office resulted in the selection of 2 consultants who were interviewed but were found to be unsuitable for the KAP tasks. An international consultant will be needed to provide technical oversight for the study, which is also expected to investigate the recent measles outbreak (2016-2017), UNICEF Tajikistan in consultation with UNICEF RO and HQ is in on-going discussions to involve an institution on providing the required technical support to the Republican Healthy Lifestyle Center for the conduct of the study.

To address the GPF intermediate results/output tailored indicators, and in line with the activities outlined in the Data Quality Improvement Plan, the WHO supported conduction of in-depth review of the existing immunization reporting forms and recording practices, determining the issues related to their use in the field, the need for any revision, the issues in the existing immunization program reporting channel in the

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country. The field activity was looking into (i) the other existing data flow channels at the district and provincial levels within the wide information system of HIS (Health Information System) in Tajikistan; and (ii) the target population estimates at national and subnational levels. The specific recommendations made to the responsible agencies on ways to strengthen immunization data reporting and recording at all administrative levels; an action plan with defined timeframe was developed in consultation with the national surveillance team and other concerned units of the MoHSPP.

To increase visibility of MCH/PHC issues including immunization among decision makers and improve the practice of evidence-based decision making, an independent expert has been attracted to analyze the empirical evidence and produce policy analysis products with alternative views on the achievements, system problems and future prospects of the MCH/Immunization services.

Objective 1	
Objective of the HSS Grant (as per the HSS proposals or PSR)	Strengthening capacity of PHC with focus on immunization service quality and safety
Priority geographies / population groups or constraints to C&E addressed by the objective	Nationwide, and in the selected districts for some activities
% activities conducted or budget utilization	85% UNICEF, 50% WHO
Major activities implemented and review of implementation progress including key successes and outcomes, activities not implemented or delayed, financial absorption	<ul style="list-style-type: none"> Update of the regulatory mechanisms for healthcare waste management at the PHC level. Training was carried out for 227 specialists from PHC/RCIP/SES at the district and regional levels The CCE procurement process was delayed, UNICEF received the preliminary inventory report in June 2018 The equipment is scheduled to arrive in the country in October 2018.
Major activities planned for upcoming period (describe significant changes or budget reallocations and associated needs for technical assistance 11)	<ul style="list-style-type: none"> Three courses on MLM / IIP / TOT will be conducted in August 2018 followed by the regional trainings in September 2018 for over 220 health specialists.
Objective 2	
Objective of the HSS Grant (as per the HSS proposals or PSR)	Improving equity in vaccination by increasing immunization coverage in low performing and hard-to-reach areas
Priority geographies / population groups or constraints to C&E addressed by the objective	Nationwide, and in the selected districts for some activities
% activities conducted or budget utilisation	48% UNICEF
Major activities implemented and review of implementation progress including key successes and outcomes, activities not	<ul style="list-style-type: none"> Carry out the evaluation of the need for visiting and mobile team services and the evaluation of the effectiveness of these services' activities. The international consultant engaged for implementing this task began the work on June 20th. Data collection is scheduled for August after submitting for review and approval of the data collection tool / methodology. The

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<p>implemented or delayed, financial absorption</p>	<p>implementation of this component was delayed due to problems with finding a suitable consultant.</p> <ul style="list-style-type: none"> • For the purpose of building the PHC capacity with emphasis on the quality and safety of immunization services, the UNDP country office has provided assistance in the selection of health care facilities in 10 target districts to carry out construction and restoration work in 2018: 10 facilities for new construction and 9 facilities for renovation. The list of recommended facilities has been approved by the MoHSPP. A tender has been announced to select an engineering company to tie the existing projects to the specific PHC facilities layout. • - Specifications for the procurement of transportation vehicles - refrigerated vehicles, trucks, off-road vehicles, and spare parts, have been developed by the UNDP country office and submitted for approval by the MoHSPP.
<p>Major activities planned for upcoming period (describe significant changes or budget reallocations and associated needs for technical assistance 11</p>	<ul style="list-style-type: none"> - The budget funds allocated for the purpose of renovations should be revised due to poor condition of all the selected facilities. The funds allocated for renovations (USD 9,200) are not sufficient to ensure adequate quality of renovation work. - Using TA to establish MOHSPP mobile teams in collaboration with agencies.
<p>Objective 3</p>	
<p>Objective of the HSS Grant (as per the HSS proposals or PSR)</p>	<p>Improving implementation of the National Health Strategy “Population Health of Tajikistan 2010-2020” with focus on immunization</p>
<p>Priority geographies / population groups or constraints to C&E addressed by the objective</p>	<p>Nationwide, and in the selected districts for some activities</p>
<p>% activities conducted or budget utilization</p>	<p>0% UNICEF, 43% WHO</p>
<p>Major activities implemented and review of implementation progress including key successes and outcomes, activities not implemented or delayed, financial absorption</p>	<ul style="list-style-type: none"> • Implementation of the Immunization Coverage Evaluation Survey is initiated to ensure regular measurement of the immunization system performance. WHO supports MoHSPP in the conduction of the baseline survey in 12 priority districts in Tajikistan. • KAP survey initiated by UNICEF aims at assessing awareness among population on the importance of the timely immunization for children and their readiness for vaccination as well as identifying the existing barriers and factors contributing to vaccine hesitancy in Tajikistan. The research finding will help define further interventions at different levels, including development of a long- and medium-term communications and social mobilization strategy. • To support the Data Quality Improvement Plan implementation, the WHO provides support for conduction of in-depth review of the existing immunization reporting forms and recording practices, to identify the issues in the existing immunization program reporting channel in the country. • WHO engaged the independent expert to analyze the empirical evidence and produce policy analysis products with alternative views on the achievements, system problems and future prospects of the MCH/Immunization services.

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Major activities planned for upcoming period (describe significant changes or budget reallocations and associated needs for technical assistance)	- Select an institution and start collecting the data as part of KAP study (UNICEF)
Objective 4:	
Objective of the HSS grant (as per the HSS proposals or PSR)	Increase the population's commitment to immunization and other preventive MCH services
Priority geographies / population groups or constraints to C&E addressed by the objective	Nationwide, and in the selected districts for some activities
% activities conducted or budget utilization	0% UNICEF
Major activities implemented and review of implementation progress, including key successes and outcomes, activities not implemented or delayed, financial absorption	
Major activities planned for upcoming period (describe significant changes or budget reallocations and associated needs for technical assistance)	Development of a long- and medium-term communications and social mobilization strategy

4.2 Performance of Gavi CCEOP support (if country is receiving Gavi CCEOP support)

WHO EURO has been providing technical assistance to the Ministry of Health of Social Protection of Population in preparation of application for Cold Chain Equipment Optimization Platform (CCEOP). Thorough cold chain equipment inventory was conducted in 2017. The results of cold chain inventory have laid the basis for the preparation of CCEOP application. HSS/cold chain component budget had been revised and aligned with CCEOP. In cooperation with UNICEF the CCEOP ODP and cold chain equipment maintenance plan are in finalization stage. MOHSPP/RCIP is planning to submit CCEOP application in September 2018. Technical assistance will be required to follow up on CCEOP grant implementation.

4.3 Financial management performance

Table 4. Overall Planned HSS Grant for Tajikistan

Lead agency	Sub total	2017	2018	2019	2020	2021
UNDP	3,627,666	269,003	1,162,527	368,472	1,109,864	717,800
UNICEF	3,483,753	1,449,711	398,824	614,961	466,379	553,879
WHO	2,548,581	581,286	278,649	856,567	263,758	568,321
Total	9,660,000	2,300,000	1,840,000	1,840,000	1,840,000	1,840,000

Table 5. WHO funds utilization until July 2018

Expenditure Category	Encumbrance	Expenditure	Utilization
Work plan funding (July 2017-July 2018)			554,096
Staff and Other Personnel Costs	0	66,162	66,162
Activities	80,118	108,552	188,670
7% PSC	0	10,838	10,838
Total	80,118	185,551	265,670

Table 6. UNICEF funds utilization until July 2018

Expenditure Category	Commitments	Expenditure	Utilization
Work plan funding (July 2017-July 2018)			1,451.019
Staff and Other Personnel Costs	0	10,518.03	10,518.03
Activities	745,958.61	118,906.06	864,864.67
8% PSC	0	10,353.93	10,353.93
Total	745,958.61	139,778.02	885,736.63

Table 7. UNDP funds utilization until July 2018

Expenditure Category	Commitments	Expenditure	Utilization
Work plan funding (July 2017-July 2018)			267,695
Staff and Other Personnel Costs	0	93,640.663	93,640.663
Activities	10,358.84	5,450.47	15,809.31
8% PSC	0	7,884.53	7,884.53
Total	10,358.8	106,975.66	117,334.50

4.4 Transition planning (if applicable, e.g. country is in accelerated transition phase)

This is not applicable to the country. Tajikistan entered the preparatory transitional phase in 2016 and changes in the country's status in the nearest future are not expected.

4.5 Technical Assistance (TA)

UNICEF

- UNICEF continued to voice its support for the financial sustainability of immunization delivery. As a result, in 2017 the government signed a Memorandum of Understanding with UNICEF on Vaccine Independence Initiative (VII) to help solve the problem of delays in disbursement of funds allocated for vaccine procurement. As a result, all scheduled vaccine supplies arrived in a timely manner, and in 2017 and the first six months of 2018, there have been no vaccine shortages.

- Because access to VII is intended to be temporary and it is only provided to help Tajikistan transition to full financing self-sufficiency, UNICEF has begun working with the MOHSPP and the Ministry of Finance to simplify the process of review and approval of the vaccine budget. With the support of the Supply Division, UNICEF has engaged an international expert to provide support to the Ministry of Health and the Ministry of Finance in developing vaccine budgets. The Methodology for Vaccine Needs Evaluation and Budget Development has been developed and submitted to the MOHSPP and MF for review and comments. Training of the key national experts regarding this methodology and discussions at the political level to identify possibilities for its integration in the national vaccine budget development process is scheduled for late June.

- UNICEF has provided support to the MOHSPP in strengthening the capacity of the national and regional health care managers in the areas of vaccine forecasting and microplanning. It has expanded the capacity of the health care managers and PHC workers in the areas of vaccine micro-planning and forecasting; 22 national trainers have been trained; multi-stage seminars followed, covering 489 PHC workers in 11 selected districts (Rasht, Lahsh, Gissar, Rudaki, Baljuvon, Shamsidin Shokhin, Dasti, Shahritus, Darvoz, Kuhistoni Mastchoh, Devashtich). Also, further support will be provided to cover the country's remaining districts and regions.

- UNICEF provided support to the MOHSPP in the evaluation, quality improvement and use of data on the immunization supply chain. Based on the evaluation results, Standard Operating Procedures (SOPs) were developed to manage vaccine supply chains, as well as supply chain indicators at various levels, including a dashboard for regional and national managers to improve analysis and visualization. Educational modules have been completed, and preparation to conduct the multi-stage training of national trainers at the regional and district levels is scheduled for August 2018. Further support will be provided to prepare PHC workers and deploy the SOPs with a mechanism for internal monitoring at the district, regional and national levels.

WHO:

Strengthening the capacity of the National Immunization Technical Advisory Group (NITAG)

- In October 2017, the Chairman of the National Immunization Technical Advisory Group (NITAG) took part in the Regional Meeting of the Managers of National Immunization Programmes of the WHO European Region, as well as in the 17th meeting of the European Technical Advisory Group of Experts on Immunization (ETAGE). The NITAG Chairman's participation in these meetings provided him with an opportunity to discuss the progress made and the challenges facing the countries in the implementation of the five strategic tasks of the European Vaccine Plan of Action 2015-2020. (EVAP), exchange experiences, best practices and countries' practical work examples, as well as identify the priority areas within each task that require strengthening of activities.

- In May 2018, the Chairman, Secretary and two members of the National Immunization Technical Advisory Group (NITAG) participated in a regional educational seminar on strengthening the process of making evidence-based immunization-related decisions. The purpose of this meeting is to prepare NITAG members to develop evidence-based recommendations on issues of policy and practices in the field of immunization. The seminar gave the participants the opportunity to discuss NITAG composition and functioning, present the concept and consider procedures for developing evidence-based recommendations on new vaccine introduction, identify potential sources of proven data and opportunities for international cooperation.

Technical assistance for rotavirus surveillance and rotavirus vaccine effectiveness (VE) evaluation

The WHO Regional Office for Europe (WHO EURO) continued to provide overall technical assistance for rotavirus surveillance and the newly implemented paediatric diarrhoea surveillance, procured the WHO recommended enzyme immunoassay (EIA) kits to detect the rotavirus antigen, and provided logistics assistance for the external quality assurance (EQA) and external quality control (EQC) programs.

Technical assistance was provided by WHO EURO on "Rotavirus hospitalizations among children < 5 years of age—Tajikistan, 2013–2014", a manuscript published in *Vaccine*, which summarises rotavirus

surveillance data from the pre-rotavirus vaccine introduction period.

WHO EURO provided technical assistance for the planning and implementation of a case-control study to estimate rotavirus vaccine effectiveness (VE); data collection is anticipated to last at least 2 years to obtain the required number of cases for the study to have sufficient power. Technical assistance consisted of determining the criteria for inclusion in the study, determining the optimal study design, creating standard operating procedures and protocols, and training of surveillance staff to collect additional clinical variables and vaccination status. Monthly monitoring calls are made to resolve vaccination status coding questions.

In 2017, Tajikistan began participation in the Global Paediatric Diarrheal Surveillance (GPDS) network which will provide information on the hierarchy of the causes of paediatric diarrhoea requiring hospitalization. WHO EURO trained surveillance staff on the expanded case definition and case report form; refresher training was conducted mid-year.

Technical assistance in preparing the application for cold chain equipment optimization platform (CCEOP)

In 2016, the Ministry of Health and Social Protection of the Population decided to prepare an application for assistance through the Gavi CCEOP optimization platform. Based on this decision, since the beginning of 2017, continued technical assistance has been provided in the preparation of the Cold Chain Equipment Optimization Platform (CCEOP) application. Together with national experts and partner organizations, the country has initiated the consideration of funding possibilities, as well as the determination of the amount of support required to prepare the application for support through the Gavi Cold Chain Equipment Optimization Platform (CCEOP); at the meeting of the Inter-Agency Coordination Committee, a package of documents was discussed for the application to obtain access to the Gavi Cold Chain Equipment Optimization Platform (CCEOP). Preparatory work was carried out to perform comprehensive cold chain inventory and requirements evaluation, with the use of a software product for cold chain equipment management – Cold Chain Equipment Manager (CCEM). The CCEM assessment covered all the facilities in the country involved in the distribution of vaccines and delivery of immunization services and provided an evidence base for further planning of cold chain strengthening and expansion. To ensure the quality of data collection, a two-stage monitoring system has been developed and used – technical and internal monitoring has been conducted in the selected regions; also, supervisors responsible for each region have been appointed. The WHO and UNICEF staff were involved in the monitoring process. In the course of the comprehensive cold chain inventory and needs evaluation, a data quality control system was established. The data obtained in the course of the comprehensive inventory was presented to the key MOHSPP specialists and partner organizations in the country. The data obtained during the evaluation was collected by a group of trained national experts, which contributed to the strengthening of local capacity. It is also expected that the obtained information gathered during the comprehensive inventory will serve as the evidence base for subsequent preparation of the proposal for financing the cold chain improvement plans through the Gavi support program for cold chain equipment optimization platform (CCEOP).

Technical assistance on vaccine safety/AEFI surveillance

The AEFI mission is scheduled for August and aims to carry out the assessment of the national systems of epidemiologic surveillance of adverse events following immunization, identify areas requiring further improvement; and establish a steering committee for the development of the relevant national manuals; In September 2018, a follow-up mission is scheduled with the aim of finalizing the national guidelines for AEFI epidemiologic surveillance based on the WHO AEFI epidemiologic surveillance policy. Since trainer training depends on the development of the national guidelines for AEFI epidemiologic surveillance, this activity is postponed until the first or second quarter of 2019. The final timeframe will be determined in the course of the two initial missions.

World Bank:

This is the first time that the World Bank has been involved in providing TA under Gavi PEF. It is anticipated that this will involve a multi-year engagement with the goal of enhancing sustainable financing for the health sector, and more specifically, the immunization program. The first year's activity will focus on landscaping analysis so that the results can be used as a basis for dialogue and advocacy with government leadership, other country stakeholders, and donors, on sustainable financing. The immunization financing assessment will explore issues that pose a threat to sustainable financing of immunization in Tajikistan and how these issues might be addressed. The work will be carried out in close collaboration with partners, some of whom are engaged in related work, including WHO (technical

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efficiency and high-level advocacy related to financial sustainability), UNICEF (developing budgeting tool, with related capacity building) and Dahlberg (embedded support for PFM). During the JA, partners highlighted the importance of looking at a number of specific issues as part of the immunization financing assessment, including: implications of the recent re-classification of Tajikistan from lower-middle income (LMIC) to low income (LIC) status; the process of allocating resources across programs and interventions, within the Ministry of Health; and identifying measures of the efficiency of the immunization program that can be monitored over time.

Dalberg:

Gavi's initiative to strengthen Leadership, Management and Cooperation of the NIP has established "Gavi Management Partner" program to provide RCIP teams with long-term and in-person managerial support and coaching. The "Management Partner" is embedded in the RCIP until June 2020 and will work with the RCIP and regional teams to strengthen the capacity of the immunisation and related health sector programmes. The main focus is to assist the teams in managing specific projects (e.g., strengthen strategic and operational planning of the RCIP, reinforce the role of the ICC as a key forum for oversight and coordination, strengthen planning of grant implementation, performance management and follow up on implementation progress, strengthen financial and procurement management practices, review of team/programme organisation, implement performance management framework), and provide day-to-day coaching on key management capabilities. The projects will be identified after conducting a three months assessment, the results of which will be presented to RCIP and work priorities will be agreed jointly. Each work-stream supported by the Management Partner will have a primary owner from the RCIP/regional teams. And this role would complement the technical responsibilities of in-country partners, to avoid a conflict in roles. Open communication and feedback channels will be established with other partners - WHO, UNICEF, UNDP, One23, World Bank, and others as required.

One23:

One23 will provide technical assistance and continue training ICC members and ICC Secretariat to make sure ICC has sufficient capacity to perform its role, especially in relation to data review and use of data for decision-making. To enhance ICC oversight and monitoring ability, especially at the regional level, one23 will work with the ICC to develop a plan for routine off-site ICC meetings that would include site-visits by ICC members to vaccination sites. One23 will also continue to work with ICC Secretariat/RCIP to further improve their capacity to routinely use the appropriate tools to support coordination efforts, follow-up to all ICC recommendations and drive progress. In addition, one23 will work with the ICC and the MOH to ensure effective information sharing and exchange with an objective to make the ICC process and information about the national vaccination program more transparent and accessible for the wider audience. Also, considering the existing interest of the Ministry of Health to improve the overall health sector coordination by strengthening the existing TWG on Health, one23 will also work to establish a functional HSCC based on the DCC's TWG for Health. The type of support will be similar to the one provided to strengthen the ICC, but the content will be focus around health system strengthening coordination and support.

5. UPDATE OF FINDINGS FROM PREVIOUS JOINT APPRAISAL

Prioritised actions from previous Joint Appraisal	Current status
1. Advocacy for resource mobilization/Immunization financing	On-going
2. Program management: EPI Review	Planned for Q1/2019
3. Support to operationalization of CCEOP grant	On-going
4. Effective Vaccine Management including development of SOPs for vaccine management;	Planned for Q4/2018-Q1/2019
5. Data quality;	On-going
6. Strengthening NITAG capacity;	On-going
7. Surveillance of newly introduced vaccines;	On-going
Additional significant IRC / HLRP recommendations (if applicable)	Current status

6. ACTION PLAN: SUMMARY OF FINDINGS, ACTIONS AND NEEDS OF RESOURCES OR SUPPORT IDENTIFIED AND AGREED DURING THE JOINT APPRAISAL

Key finding / Action 1	Improving financial sustainability through resource mobilization efforts
Current response	Holding round table discussions with the involvement of decision-makers and stakeholders, as well as mass media on advocacy and resource mobilization for immunization
Agreed country actions	<ol style="list-style-type: none"> 1. Mobilization of additional donor aid; 2. Intensify internal and external advocacy efforts to increase the government's input in immunization funding
Expected outputs and results	Seeking new donor support for the purchase of vaccines. Increasing the share of the Government of Tajikistan in immunization funding
Associated timeline	2019
Required resources and support	Support of activities aimed at advocacy and resource mobilization for immunization funding
Key finding / Action 2	Cold chain improvement
Current response	Conducting in-depth inventory of the cold chain equipment at the level of each health facility that provides immunization services
Agreed country actions	<ol style="list-style-type: none"> 1. Improve the quality of the existing equipment and its maintenance; 2. Purchase additional equipment; 3. Continuous capacity development, including the development of staff capacity; 4. Continuous monitoring and support. Need for TA to establish a monitoring system; 5. TA for the operational deployment of cold chain (local and external TA) 6. Assess the effectiveness of vaccine management and storage; 7. Consider the issues of delivery and transportation of vaccines; 8. Review the plan for EVM improvement and determine what has not yet been implemented; 9. Conduct a new EVM evaluation in the second half of 2019; 10. Develop a comprehensive training package. WHO and UNICEF need to coordinate their efforts to avoid duplication and fragmentation 11. Purchase of light-duty refrigerated trucks for vaccine transportation. 12. Strengthen infrastructure; expand the national warehouse and build 5 of them at the regional level. 13. Submit CCEOP plan
Expected outputs	Supply of cold chain equipment (CCE) prequalified by WHO to the country for health facilities:

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and results	- where there is CCE - where worn-out cold chain equipment is used - where household refrigerators are used Ensuring appropriate vaccine storage Training personnel for CC maintenance at all levels
Associated timeline	Quarter 1, quarter 2 of 2019
Required resources and support	Financial and technical assistance
Key finding / Action 3	Improving data quality
Current response	Conducting an assessment of the immunization data quality
Agreed country actions	<ol style="list-style-type: none"> 1. Define the quality of the denominator for all reporting systems; 2. Develop methodology, tool and manual on data analysis and reporting 3. Improvement of the monitoring system, including the necessary training on data monitoring and evaluation; 4. TA for micro-planning (part of the training package for middle level management; 5. Improvement, updating and integration of the existing training packages; 6. 5. Exchange of experience with other countries on the integration of tools for data collection, analysis and monitoring. 7. 6. Conduct regular supervisory visits to lower level facilities to provide supervisory support.
Expected outputs and results	Increasing the level of knowledge on improving the quality of immunization data
Associated timeline	Quarter 1, quarter 2 and quarter 3 of 2019
Required resources and support	Financial and technical assistance
Key finding / Action 4	Vaccine safety
Current response	Training workshops on vaccine safety
Agreed country actions	<ol style="list-style-type: none"> 1. Manual on vaccine safety (WHO); 2. Training on the side effects of vaccines, adverse reactions and instructions for injection safety;
Expected outputs and results	Increase the level of knowledge on vaccine safety and immunization. Ensure safe immunization for every child.
Associated timeline	Quarter 1, quarter 2 and quarter 3 of 2019
Required resources and support	Financial and technical assistance
Key finding / Action 5	Solving immunization problems among urban migrants
Current response	Attempts to track migrant groups at the level of each district
Agreed country actions	<ol style="list-style-type: none"> 1. Establish a definition of a migrant – internal and external; 2. Work with migrant parents to increase their awareness of immunization; 3. Consider working with the local authorities at the place of residence; 4. Establish collaboration with other line Ministries; 5. Targeted communication on immunization;
Expected outputs and results	Timely detection, registration and immunization of each migrant child. Prevention of the occurrence and spread of vaccine-preventable infection.
Associated timeline	Quarter 1, quarter 2, quarter 3 and quarter 4 of 2019
Required resources and support	Financial and technical assistance

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Key finding, action 6	Service delivery/ access to services
Current response	
Agreed country actions	<ol style="list-style-type: none"> 1. Use mobile teams specifically for the hard to reach and migrant population; 2. Increase the frequency of immunization sessions; 3. Switch to 5-dose vials of measles and rubella vaccine to improve access to immunization; 5. Strengthen communication; 6. Ensure safe injections by training and certification of vaccinators.
Expected outputs and results	Improve access to immunization services, ensuring timely immunization, raising public awareness of the importance of immunization in preventing vaccine-preventable infections.
Associated timeline	Quarter 1, quarter 2, quarter 3 and quarter 4 of 2019
Required resources and support	Financial and technical assistance
Key finding, action 7	Decision making on introduction of new vaccines
Current response	
Agreed country actions	<ol style="list-style-type: none"> 1. Support to NITAG in making evidence-based recommendations on introduction of PCV; 2. Advocacy to MoH for making informed decision on introduction of PCV 3. Preparing a proposal to GAVI for the support with introduction of PCV (Application, Introduction Plan, Timelines, and Budget a prepared) 4. Assessing burden of typhoid fever and establish surveillance for typhoid fever 5. Evidence on the burden and epidemiology of typhoid fever will be obtained to support decision making on introduction of typhoid vaccine
Expected outputs and results	MoH make an informed decision on introduction of PCV with GAVI support
Associated timeline	2019
Required resources and support	Technical assistance; advocacy support; financial support
Key finding, action 8	Maintain rotavirus surveillance and assess rotavirus vaccine effectiveness (VE)
Current response	Rotavirus surveillance in place with data collection for rotavirus vaccine effectiveness (VE) evaluation
Agreed country actions	Continued established surveillance of rotavirus disease Continued enhanced data collection for evaluation of rotavirus vaccine effectiveness evaluation
Expected outputs and results	Evidence on the impact of rotavirus vaccine introduction and vaccine effectiveness in Tajikistan to inform policy and decision makers for program planning and monitoring.
Associated timeline	2019
Required resources and support	Technical and financial support

7. JOINT APPRAISAL PROCESS, ENDORSEMENT BY THE NATIONAL COORDINATION FORUM (ICC, HSCC OR EQUIVALENT) AND ADDITIONAL COMMENTS

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In 2017, one23 Consulting was contracted by the Gavi Secretariat to conduct the initial baseline assessment of the ICC operations in Tajikistan and provide follow-up technical assistance to close any existing gaps. The baseline ICC assessment was conducted during the initial visit to Tajikistan on September 18-23, 2017. The overall score based on the assessment results was 2.4 (Poor) demonstrating that the ICC work in the country required significant improvements, including the development of clear Guidelines for ICC and the SOPs for the ICC Secretariat, update of the existing list of ICC members, as well as training of ICC Secretariat staff on optimization of ICC support functions and key operation principles.

From January to July 2018, one23 worked with the Republican Centre for Immunoprophylaxis (RCIP), the Ministry of Health and Social Protection of Population (MoHSPP), WHO and UNICEF to update the list of ICC members and revise the existing ICC Guidelines and the Terms of References (ToR). Based on the materials developed by One23, in March 2018 the RCIP drafted a Ministerial order regulating ICC operations that was submitted to the MoHSPP for approval. On April 4, 2018, the MoHSP issued an order #316 from 4.4.2018, approving new ICC ToR, and the updated list of ICC members with justification for their membership, roles, and responsibilities. On April 12, 2018, following the MOHSPP approval of the new ICC, one23 conducted an introductory training for all members of the ICC. Training topics included information about Gavi and activities supported by Gavi in the Republic of Tajikistan, detailed discussion of the updated ToR, roles and responsibilities of ICC members, meeting rules and expectations from the ICC Secretariat. Following the training, one23 Consulting worked with the ICC to develop an annual work plan that was formally approved by the ICC Chair, Deputy Minister and shared with all ICC members. To support the ICC coordination function, one23 also worked closely with the RCIP to introduce standards templates for ICC meeting agendas and meeting protocols, ICC Coordination forum self-evaluation tool, and a dashboard that could be used by ICC to track status of recommendations made during ICC meetings. These tools were translated into Russian and adapted to ICC operational rules in Tajikistan.

In July 2018, One23 conducted a follow-up assessment to assess and track progress made over time by the Interagency Coordination Committee for Immunoprophylaxis (ICC) in Tajikistan in improving its key operation principles and support functions since the baseline assessment conducted in September 2017. The overall score of ICC assessment improved from 2.4 at baseline to 3.5, which confirms commitment of ICC leadership RCIP to improve ICC. Most of the progress was achieved in making sure all ICC regulations and procedures, including availability of the detailed ICC TOR, updated list of ICC members and description of their roles and responsibilities, and ICC meeting rules were promptly developed and endorsed by the MOHSPP.

This report has been translated into Russian and returned to the country for ICC endorsement. The review and endorsement is expected to take place in the last week of September.

8.ANNEX Compliance with Gavi reporting requirements

	Yes	No	Not applicable
Grant Performance Framework (GPF) * Reporting against all due indicators	X		
Financial reports*			
Periodic financial reporting	X		
Annual financial statement	X		
Annual financial audit report			X
End of year stock level report (which is normally provided by 15 May as part of the vaccine renewal request) *	X		
Campaign reports*			
Supplementary immunisation activity technical report			X

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Campaign coverage survey report			X
Immunisation financing and expenditure information	X		
Data quality and survey reporting			
Annual data quality desk review			
Data improvement plan (DIP)	X		
Progress report on data improvement plan implementation	X		
In-depth data assessment (conducted in the last five years)	X		
Nationally representative coverage study (conducted in the last five years)	X		
Annual progress update on the Effective Vaccine Management (EVM) improvement plan			
CCEOP: updated CCE inventory			X
Post Introduction Evaluation (PIE)			X
Measles and rubella situation analysis and 5 year plan			
Operational plan for the immunisation programme			
HSS end of grant evaluation report			X
HPV specific reports			X
Reporting by partners on TCA and PEF functions	X		

Reporting on PEF Functions and TCA complete and submitted on time.

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