Joint Appraisal report 2017

Country	Armenia
Full Joint Appraisal or Joint Appraisal update	Joint Appraisal Update
Date and location of Joint Appraisal meeting	6-9 June 2017, Copenhagen
Participants / affiliation[1]	The list of participants is attached
Reporting period	January – December 2016
Fiscal period[2]	January – December
Comprehensive Multi Year Plan (cMYP) duration	2016 – 2020

1. SUMMARY OF RENEWAL AND EXTENSION REQUESTS

1.1. New and Underused Vaccines Support (NVS) renewal request(s)

Type of support (routine or campaign)	Vaccine	End year of support	Year of requested support	Target (population to be vacc.)	Indicative amount to be paid by country	Indicative amount to be paid by Gavi
Routine	IPV	2018	2018	42,500	US$ 0	US$ TBD

2. CHANGES IN COUNTRY CONTEXT SINCE LAST JOINT APPRAISAL

Key changes and events since the last Joint Appraisal

- Political changes in Government; new Minister of Health appointed in September 2016, as well as new Minister of Health and new Prime Minister appointed in 2016
- Change of constitutions in 2016
- Decrease of Health Budget by 7% in 2016 and decrease in immunization budget in 2017
- Changes in national procurement law in April 2017
- Changes in weather conditions (severe winters with minus 20 degrees, some areas become inaccessible) that had a big effect on immunization coverage indicators (in 2015 – 92% coverage and in 2016 - 90%).

Potential challenges that will impact the National Immunization Program (NIP)

- Presidential election 2018. With the change in this key position, political will and commitment will have to be sustained.
- Euro Asian economic union (discussion on unified immunization schedule) not approved yet. However, if approved then Armenia will have to modify its immunization programme.

Changes in the National Immunization Program

- The Government of Armenia has adopted the National Immunization Programme for 2016-2020.
- cMYP 2016-2020 development – programmatic and financial part finalized
- Evaluation of the NITAG, developed NITAG work plan, SoP and Conflict of Interest policy (SIVAC/AAMP)
- Temperature monitoring devices (Fridge-Tag® 2) introduced in June 2016
- IPV vaccine was introduced in July 2016

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

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

- HPV Demo proposal submitted to Gavi Secretariat (WHO). HPV introduction - September 2017.
- Formative Research into Public and Professional Views on the HPV Vaccine conducted in November, 2016 and report on findings developed (WHO)
- National Communication Plan for the Introduction of HPV vaccine developed in March, 2017 (WHO)
- Evaluation of the cost-effectiveness of HPV vaccination in Armenia in November 2016 (WHO mission). Report finalization is in the process.
- Seasonal Influenza vaccine included into National Immunization Schedule and expanded among the WHO –SAGE target groups (CDC)
- Immunization Regulatory Documents were revised and printed in May, 2017

3. PERFORMANCE OF THE IMMUNISATION SYSTEM IN THE REPORTING PERIOD

3.1. Coverage and equity of immunisation

Programmatic performance

Armenian National Immunization Programme continues to be one of the best performing programs in the EURO region, with coverage against most of the antigens above 95% and continuing to increase, as confirmed by WHO/UNICEF coverage estimates, disease surveillance and epidemiology.

In 2016, Armenia continued its strong performance in the area of vaccination for 14 antigens administered within the NIP framework, including 2 vaccines supported by Gavi (IPV, PCV). Coverage rates have been consistently above 90% for both routine and new vaccines and have been gradually increasing since 2008. The only exception is the IPV vaccine with 75% coverage (as of April,2017).

The dropout and wastage rates are in accordance with the UNICEF and WHO-suggested targets (dropout rates have even been reduced slightly from 2.3% in 2015 to 2.12% in 2016). Data discrepancies recorded between the DHS survey and administrative data system amounted to only 2-3 %. Differences in immunization coverage by sex are minimal; 90 percent of girls and 89 percent of boys have received all the basic WHO recommended vaccinations. By residence, 88 percent of urban children have received all the basic vaccinations, compared with 92 percent of rural children. There is no clear association between either mother's education or household wealth quintile and vaccination status.

Table 1. Reported Vaccination Coverage, 2011-2016

Vaccine/coverage	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)
BCG	99.13	99	99	99	96	96
HepB (birth dose)	97.72	98	98	98	95	95
DTP1 (pentavalent 1)	97.14	97	97	97	98	98
DTP3 (pentavalent 3)	94.25	94	93	95	95	95
Polio3	95.97	96	95	96	96	96
MCV2	97.00	97	97	97	97	98
Rota2	93.79	93	91	33	-	-
PCV3	94.06	44				
IPV	35.00					

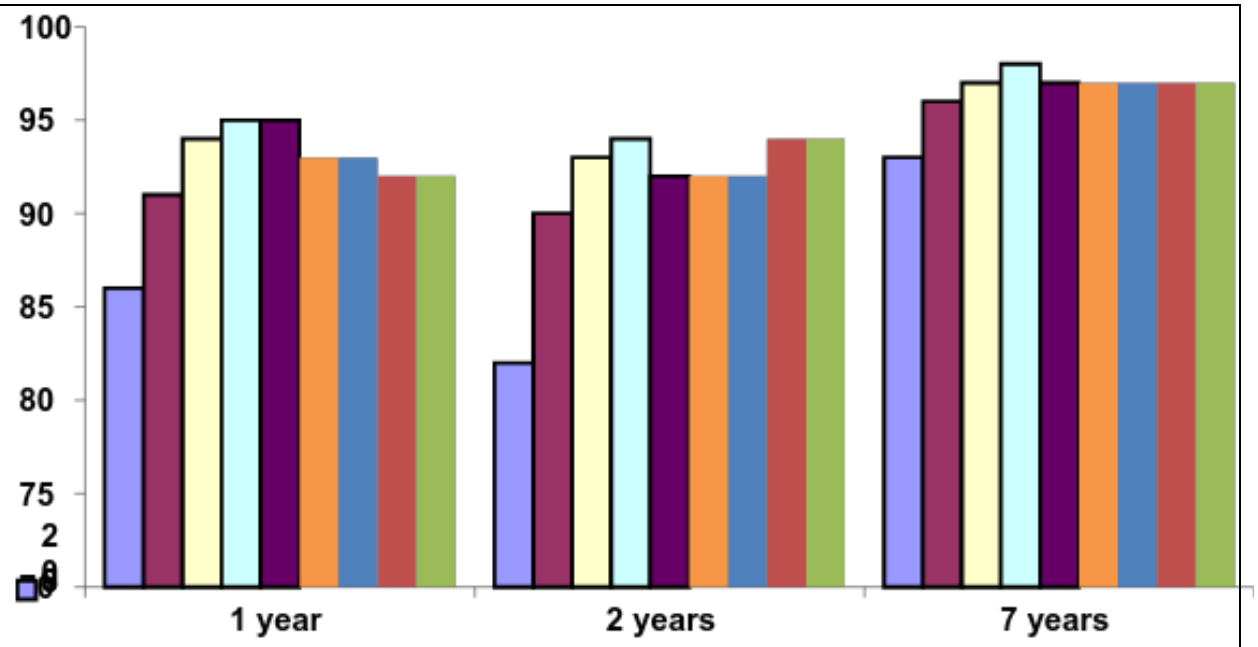


Fig 1. Fully immunization coverage 2008-2016

Over 92% of children subject to vaccination in each target age group receive the set of vaccines recommended for their age group (Fig 1.Fully immunization coverage is ≥ 90 % for all 3 target groups in Armenia). By geographical areas only capital Yerevan (88%) is behind of targeted indicators set by the National Immunization Program (Fig 2).

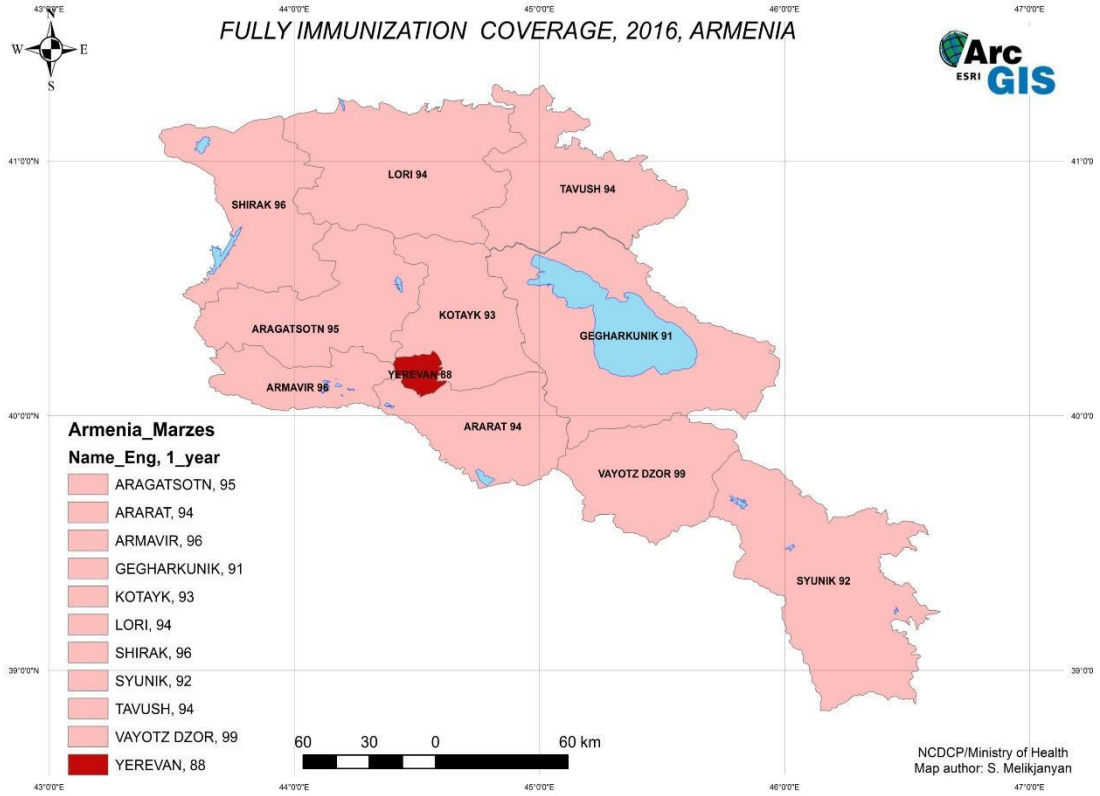


Fig 2. Fully immunization coverage of 1 year children, 2016

In regard the selected antigens coverage among the age group 1 years, almost all antigens are about 95 % or more (Fig. 3). The only exception is Rota 2 coverage due to implementation of age restriction policy in the country. However, country does not intend to change this policy because of timeliness of vaccination. After Rota vaccine introduction, due to age restriction policy timely vaccination coverage has been increased from 50% to 78%.

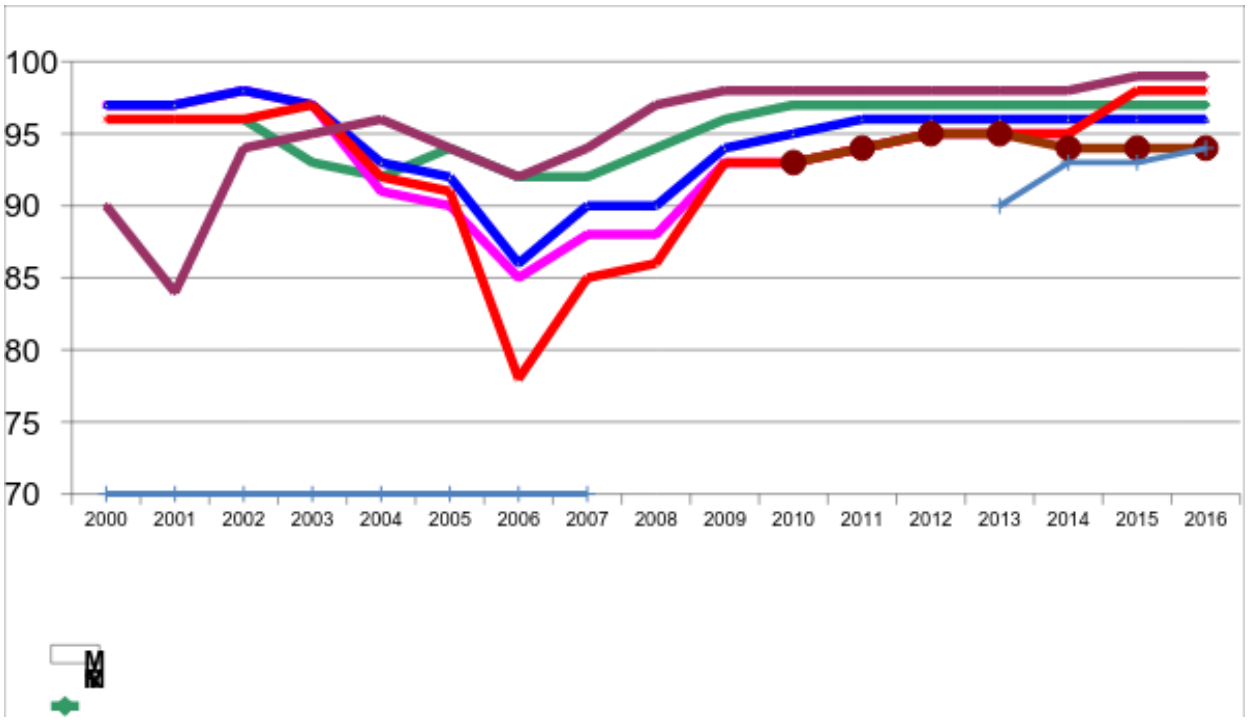


Fig 3. Vaccination coverage for selected antigens, Armenia, 2000-2016

Since 2010 Armenia has achieved very high MMR coverage in two doses - 97 % (Fig 4.). This is most significant factor towards countries disease elimination strategy, particularly Armenian National Immunization Program for 2016-2020 has set a target for measles and rubella elimination certification by 2020.

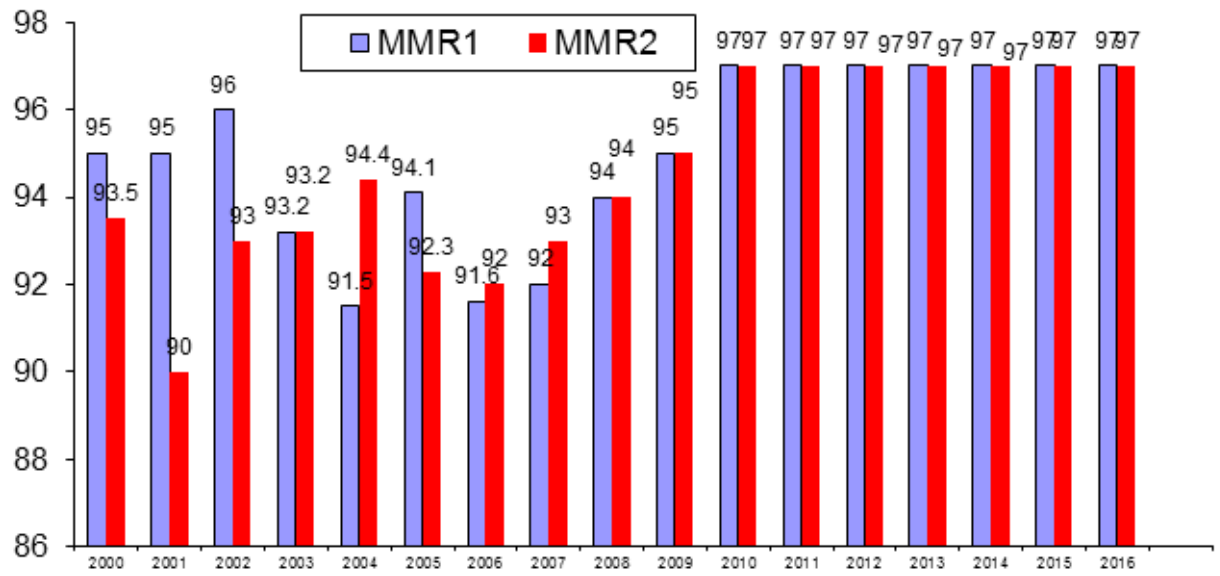


Fig. 4.

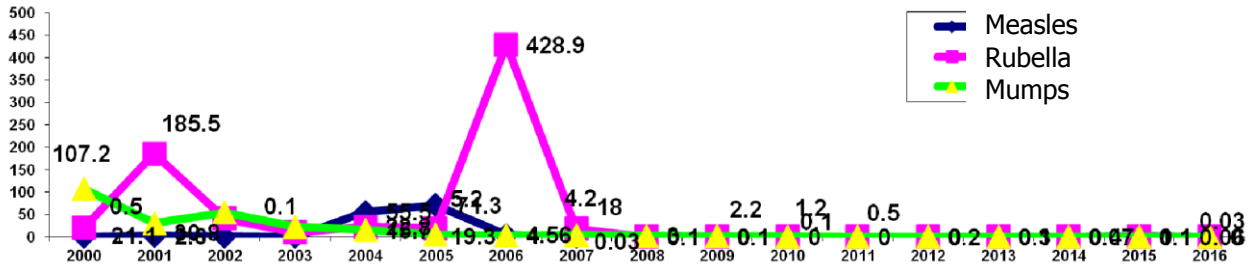


Fig 5. Since 2007 no local cases of measles and rubella and only sporadic cases of mumps registered

During 2016, no outbreaks were detected. However, measles-rubella elimination process continues to be challenged by imported cases (2 registered imported cases in 2016 among children). 64 suspected cases were reported in 2017 as of 01 June 2017 (none of them were confirmed).

Table 2. Reported Vaccine-preventable Diseases

	2016	2015	2014	2013	2012	2011	2010	2000	1990
Diphtheria	0	0	0	0	0	0	0	7	
Measles	2	33	13	10	0	0	2	15	879
Mumps	1	4	2	2	6	15	38	3,431	0
Pertussis	15	27	85	30	8	1	4	10	469
Polio	0	0	0	0	0	0	0	0	0
Rubella	0	0	0	4	1	0	0	673	0
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0
Tetanus (total)	1	0	1	0	1	0	3	1	0
Hep B (<14 years)	1	0	0	0	0	0	1	32	267

The surveillance for Measles and Rubella has been strengthened since 2010 by adopting National Guidelines and conducting nationwide trainings and consultation meetings to improve HCPs knowledge on MR case definition. Each year routinely MoH sends reminder letters to HCPs in addition to NIP local staff (regional immunization coordinators) conducting consultation meetings, active visits to HCFs to understand reasons of missed opportunities (cases with rash and temperature not reported, not vaccinated children, etc). As for pertussis country adopted regulatory normative document , according

to which each suspected case (persistent cough 7 and more days) and more should be reported during 24 hours and should be confirmed mandatory by PCR tests at the National Reference Laboratory. In addition, discussions are organized, reports are analyzed, and feedback is provided on a monthly basis. This applies to both MR and pertussis.

New introductions

Latest vaccine introduction was IPV, which was successfully introduced across the country on 1 July 2016. Currently country is facing a with stock out situation due to the global supply constraints with IPV vaccine. Armenia does not have mandatory SOP requiring to document stock outs. However, reporting forms have separate lines for IPV stock levels at different levels. To reduce wastage, Armenia expressed interest to switch from the supplied 5-dose presentation to a 1-dose presentation.

Armenia faced a significant challenge with the available packaging of IPV vaccine it received – vaccines arrived in boxes of 280 vials per package (too high a number for a country with a small birth cohort and health facility serving only a small number of children). This packaging is based on the production setup, as approved by WHO prequalification team. Unfortunately, this is not easily changeable and would require a reconfiguration of the manufacturer packaging facility.

Lack of secondary and tertiary packaging presents a significant challenge for the supply chain and distribution, and Armenia requested this issue to be raised with UNICEF SD and Gavi. Considering the Armenia birth cohort, UNICEF SD confirmed that there may be an option to change presentation to the single dose vial, as production of this presentation has now restarted, and the number of doses per box is 360 doses (instead of 1,400 with the current presentation). The request from the country to switch to a smaller vial presentation has been accommodated based on supply availability, and a Purchase Order was placed with scheduled delivery in July 2017.

Key recommended actions from the 2016 Joint Appraisal

- Building and strengthening resource mobilization capacities - During the workshops on TIP financial department of MoH was also invited to discuss the gaps in resource mobilization. Updating legislation on vaccine management practices and continuing the introduction of technologies into the supply chain- Discussions on Institutionalizing of Best Vaccine Management Practices were conducted in September, 2016 with WHO Technical Assistance, SoPs are developed need to harmonize to the country context, planned a workshop in August, 2017.

- Development of specific strategies for reaching those segments of the population who remain unreached by immunization efforts –

- Addressing vaccine hesitancy and refusal through use of qualitative research and through developing and implementing communication strategies aiming at behavior change - Planned TIP, two workshops in June 21-22, 2017 were held to understand medical workers' concerns about safety of new vaccines and immunization in general.

- Improving data quality and aligning data systems with international requirements by conducting a data quality review and implementing its recommendations – Review was not implemented, but immunization related data was checked during the supportive supervisions.

- Policy document for 2016/2017 on granting longer-term government commitment through UNICEF was approved, and the government maintain the committed levels of immunization budget. However, vaccine procurement modality is still questionable because of recent changes in Procurement Law (April, 2017). Need advocacy for the Government commitment.

Status of strengthening surveillance systems (for AEFI and disease surveillance)

Armenia conducts sentinel surveillance for rotavirus diarrhea since 2009 as part of a WHO–supported rotavirus surveillance network in the region. Rotavirus in Armenia occurs in a seasonal cycle with peak occurrence in the winter months (December–March), when it typically accounts for 40%–60% of

hospital admissions for diarrhea among children <5 years of age prior to the introduction of rotavirus vaccine.

The ongoing implementation of this surveillance provided the country with the opportunity to assess the impact that introducing rotavirus vaccine had on the disease burden and to estimate the effectiveness of the vaccine in Armenia.

A paper entitled “Impact and Effectiveness of Monovalent Rotavirus Vaccine in Armenian Children” describing the finding was published in “Clinical Infectious Diseases” journal in 2016. Also, Armenia’s uses of rotavirus surveillance data for decision making and advocacy were shared during the Global IB-VPD and Rotavirus Sentinel Surveillance meetings 15-18 November 2016.

The results of the impact assessment showed that among infants, rotavirus hospitalizations were reduced by 48% within the first year after rotavirus vaccine introduction and by ≥75% in years 2 and 3 following introduction. Reductions of ≥30% in other young children too old to have been vaccinated suggest additional benefit through indirect protection; overall in year 3, rotavirus hospitalizations were reduced by 69% among children aged <5 years of age. In 2016, rotavirus hospitalizations accounted foronly 6 % (147/2270) of diarrhoea hospitalizations in the sentinel hospitals compared to 51 % in 2012 (vaccine introduction year). G4P[8] was the most common genotype strain from 2014 through 2016.

The rotavirus national laboratory passed the external quality assurance (EQA) program coordinated by the Global Reference Laboratory at CDC-Atlanta and the external quality control (EQC) program coordinated by the Regional Reference Laboratory in Minsk, Belarus.

Sentinel surveillance for IB-VPD

As part of a WHO-supported invasive bacterial vaccine-preventable diseases (IB-VPD) surveillance network (GISN) in the region, Armenia has conducted sentinel surveillance for IB-VPD (i.e., *Streptococcus pneumoniae* (Spn), *Neisseria meningitidis* (Nm), and *Haemophilus influenzae* (Hi)) since 2012.

At the 10th International Symposium on Pneumococci and Pneumococcal Diseases in June 2016, a poster entitled “Global Pediatric Bacterial Meningitis Disease: Data from 54 Countries Who Report to the Global Sentinel Site Invasive Bacterial Vaccine-Preventable Disease (IB-VPD) Surveillance Network” was presented using pooled data for each WHO region including Europe.

One of the key findings was that the highest prevalence of Neisseria meningitides was in the European and African regions. PCV10 was added to the national immunization program in September 2014 and PCV13 was substituted for PCV10 in June 2016. In 2016, 74 children were enrolled in IB-VPD surveillance and a pathogen was detected in 9 children (Spn was detected in 5 children, Hi in one child, and Nm in 3 children). The 3 sentinel hospital laboratories passed the external quality assurance (EQA) program.

Generally, new introduced vaccines (hib containing Penta, Rota, PCV) have contributed significantly to the gradual decrease of infant mortality- in 2016 8.1‰ comparing with 10.8‰ in 2008.

3.2. Key drivers of low coverage/ equity

Key implementation bottlenecks and corrective actions

Despite the continuous strong performance of Armenia's immunization program, a number of challenges and implementation bottlenecks still remain, notably:

- Existence of vaccine hesitancy and anti-vaccine sentiment among parents
- Insufficient knowledge among health care providers, leading to false contraindications
- Lack of adequate advocacy and communication efforts to promote immunization
- Insufficient capacity of the national regulatory agency
- NITAG capacity needs to be strengthened
- Some gaps in cold chain: need for generators for rural arias, need to find additional financial resources for renovation of other 2 regional stores, lack of electronic system of vaccine management, SOPs to adapt according to countries' legislation.
- Economic challenges and Health Budget decrease create difficulties to address all NIP's needs (new vaccine introductions, initiation of new strategies, continuation development of HCPs knowledge and skills, etc).

3.3 Data

Data quality review and survey have not been done since 2006. The recent DHS survey (2015) shows no significant difference between administrative and survey data (http://dhsprogram.com/pubs/pdf/PR79/PR79.pdf)

Immunization reporting is part of the National reporting system. All reporting forms, data and information flow mechanisms are adopted by the Ministry of Justice and are applicable for all institutions irrespective whether those are private or public. Currently immunization related reporting and registration forms are paper based. Reporting forms include information on target population, full immunization coverage, by separate antigens, timely immunization, vaccination contraindications, AEFI, vaccine stocks at the different levels, received doses, wastage rates, etc. Monthly HCFs report to NCDC branches at Marz and Yerevan city. All information is collected at the NCDC central office, analyzed and feedback is provided quarterly. Besides that, supportive supervisions are conducted by NCDC. Monitoring results and challenges identified by supportive supervisions are discussed at the meetings (MoH, marz /Yerevan municipalities).

To improve data quality the National Immunization Program implements number of strategies:

1. Supportive Supervisions are implemented quarterly. Data reliability is reviewed by comparing them with different sources. If necessary, a workshop is being held in the workplace for the elimination of misconceptions and wrong practices.
2. Collected data are processed as a desk review. In the result, quarterly brief bulletins are being developed and produced on immunization indicators. These Bulletins are sent to institutions providing data or reporting as a feedback or discussed at the relevant Departments of MoH and local Governments (Yerevan city and Regional Municipalities).

3.4 Role and engagement of different stakeholders in the immunisation system

National Coordination Forum

- ✓ New ICC was established in 2016: In 2016, ICC held two meetings endorsing the Transition Grant and the HPV vaccine introduction.
- ✓ NITAG **-** The Armenian NITAG is an independent advisory committee established by the Ministerial Order in 2013 (no. 2907-A, November 1, 2013). The NITAG performance was assessed in 2016 by SIVAC initiative and as a result the following recommendations were made:

Improvement of institutional integration should be prioritized, in order to ensure that the Committee's position in immunization decision-making fits its original mandate. Decision-makers and other national stakeholders should be targeted differently, although the main objective in both cases is to enhance the Committee's visibility and connections to relevant acting parties in the immunization system.

Strengthening functional capacities should primarily focus on the development of a thorough planning of activities in order to provide better consideration of national priorities in immunization. It would also allow for a reorientation of the Committee's activities by providing some disconnection from exclusively responding to the NIP's immediate needs and in turn enhance the Committee's independence.

Further work on independence is needed, particularly through the development and implementation of a full policy on the management of Conflicts of Interest, which is a basic functioning indicator from global partner's point of view. Considering that this is an unusual practice in Armenia, this policy should be thoroughly explained and discussed within the Committee.

Other developments and changes to operating procedures should focus on increasing the Committee's responsiveness to stakeholders' needs.

Improvements to the quality of the Committee's work should include specific work on the quality of background material through structured preparation.

Polio Certification and MR Elimination Certification Committees

These committees are joined under one Committee because of limited resources. The same experts serve for both Committees.

Other donors

- As a permanent member of ICC, UNICEF has been providing information and inputs on different aspects of immunization programme, specifically on communication and vaccine procurement;

- UNICEF has been supporting different communication activities, including periodic workshops with mass media covering different aspects of vaccination and reflecting the most emerging issues appearing in the social media

- CDC granted NCDC Armenia for expanding the Seasonal Influenza vaccine among the WHO-SAGE recommended target groups. In the framework of CDC Grant the following was done:

    - Implemented Knowledge, Attitudes, Practices and Behavior (KAPB) survey to diagnose the demand- and supply-side facilitators and barriers to influenza vaccination acceptance and uptake.
    - Developed and implemented the communication strategy on Seasonal Influenza vaccination.
    - Utilized national media to generate awareness of target groups and promote acceptability and availability of the vaccine.
    - Established a National Immunization Technical Advisory Group (NITAG) working group for development of a written Vaccine Policy.

Private sector

- Private sector for Immunization is not well developed in Armenia. The only provider suggests hexavalent vaccine. However, yearly about 300 doses are utilized. Moreover other vaccines for the target population are covered by Government purchased vaccines. Reporting is the same

mechanism as it is required by public providers. Supportive supervision is unified for all country and is implemented in both cases (public and private services).

Cross-sectoral collaboration

- MoH collaborates with Ministry of Defence and Ministry of Education on vaccination of adolescent (including HPV) and military recruits. Armenia does not implement school based vaccination program. However, specific strategies are developed to enhance adolescent vaccination. Particularly, in accordance with the joint ministerial order (MOH and Minister of Education) schools nurses work out timelines of vaccination of 15-16 years adolescents. After that students are allowed to access to vaccinations in HCFs. School nurses follow up for each student's vaccination by records in the immunization cards.

4. PERFORMANCE OF GAVI GRANTS IN THE REPORTING PERIOD

4.1. Programmatic performance (PCV and IPV grants)

- PCV introduced in Oct 2014. PIE was done and lessons learned, recommendations were used during IPV introduction. PCV3 coverage in 2016 was 94%, drop-out rate 3%. In 2016, country switched from PCV 10 to PCV 13.

- Latest introduction of IPV vaccine (on 1 July 2016) was successful, with vaccine introduced across the country. Vaccine was introduced with a significant delay (initially introduction was planned for October 2015) due to issues with IPV supply availability. As of April, 2017 IPV coverage was about 75 %. Country has received 5 dose vials instead of single dose (requested in the proposal) resulting in high wastage rate in rural communities - 15% and stock out since April, 2017.

- IPV introduction grant was disbursed directly to UNICEF Supply Division for the procurement of cold chain equipment in July 2015. Refrigerators shipped to the country and distributed to health facilities.

4.2. Sustainability and transition

Immunization financing and sustainability

Gavi support will cease in 2018 following the country's transition to self-financing. Armenia has consistently complied with its co-financing obligations and has never defaulted on its co-payments despite a challenging economic situation (slowdown in GDP growth in 2015).. The 2017 co-financing obligations have already been satisfied.

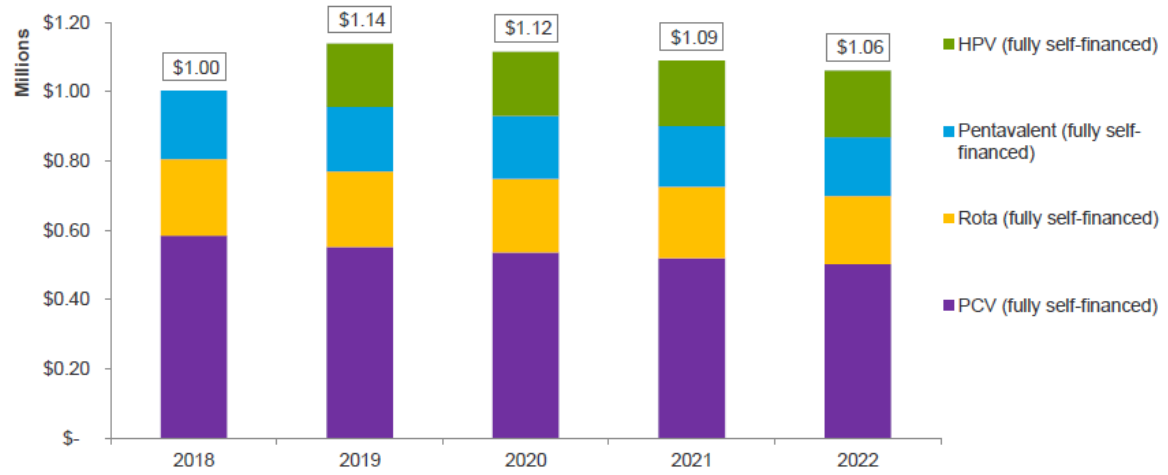
Since 2014 the MoH budget for healthcare programs had been fixed at 1,8% of GDP and specifically immunization spending had been kept at constant amount for the coming years despite the increasing share of co-financing of Gavi-supported vaccines. However, for 2018 the total health budget has been cut by 7%.In spite of this decrease in health budget, allocation to immunization was decreased only marginally – by 0.5%. A slight increase in immunization budget is expected in 2019 related to HPV vaccine introduction.

Table 3. Government expenditure on health and immunization

	Government Expenditure (AMD)	2012	2013	2014	2015	2016	2017	2018
1	Nominal GDP	4,000,700	4,276,200	4,528,900	4,720,500	4,918,400	5,292,000	5,725,400
2	GDP growth	7.2%	3.5%	3.4%	1.0%	2.0%	3.5%	4.0%
3	State budget	1,044,200	1,121,000	1,198,800	1,181,300	1,186,300	1,306,400	1,417,500

4	Budget of the Ministry of Health	65,171.2	71,978.8	80,798.9	84,227.4	88,350.9	88,350.0	83,350.0
5	MoH Budget as a % of GDP	1.6%	1.6%	1.8%	1.8%	1.8%	1.7%	1.5%
6	Budget of Health Care Programs	64,127.6	70,808.1	78,970.0	82,184.7	86,401.9	86,401.9	86,401.9
7	Budget Line on Immunization	399.6	465.0	1,386.7	1,890.4	1,890.4	1,890.4	1,825.4

The total cost of Gavi-supported programs to Armenia in the next five years is projected at approximately $1mln per year (Figure 5). Introduction of HPV vaccine will have cost implications for the vaccine budget after 2018: 14% increase from 2018 to 2019.



	2018	2019	2020	2021	2022
Pentavalent	$ 196,945	$ 187,517	$ 182,309	$ 176,576	$ 170,666
PCV	$ 585,104	$ 552,043	$ 536,718	$ 519,844	$ 502,452
Rota	$ 221,251	$ 218,135	$ 211,902	$ 205,670	$ 196,321
HPV	$ -	$ 182,808	$ 185,091	$ 188,532	$ 191,817
Total	**$ 1,003,299**	**$ 1,140,502**	**$ 1,116,021**	**$ 1,090,621**	**$ 1,061,257**

- Projections are based on Gavi's operational forecast version 14.

Fig. 5 Projection of government expenditures on previously co-financed routine vaccines 2018-2022

In terms of Armenia's transition achievements, the country has gradually build up the financial ownership of the programme, maintaining strong programmatic results reflected in high coverage and the number of new vaccines introduced with Gavi support .The key success factors have been the clear political commitment with the associated financial allocations to immunization. In order to ensure sustainability of vaccination programmes, Armenian government should continue to prioritise domestic investments in immunisation post-transition.

Some of the potential areas to strengthen the sustainability of Armenia's immunization programme are: improving vaccine procurement modality (conflict with the Euro-Asian Union Treaty) and enhancing vaccine forecasting capacity; addressing vaccine hesitancy (need for awareness campaigns); improving vaccine knowledge of health care workers and raising their communication capacities to promote vaccination.

Additionally, a systemic problem in Armenia is the high rate of out-of pocket payments which is imposing a large barrier to health care access and a financial risk especially for the most vulnerable. To address these challenges the government is currently in the process of implementing a Basic Benefit Package through private health insurance companies. However, the World Bank has advised the government to opt for SHA as a single purchaser and payer, which would pool risks more efficiently and equitably than private insurance companies, and is structurally a more effective purchaser as international experience shows.

Armenia expressed its continued need for external expertise for the next years: access to the pool of knowledge and peer-learning would enable Armenia to further scale up its capacities in advocacy and resource mobilisation for immunisation, as well as address problems with growing vaccine hesitancy which is a common global challenge. Additionally, Armenia could share lessons learnt from the transition process via peer learning networks with other countries on the trajectory to immunization sustainability.

Progress Update – Transition Grants

Transition grants in Armenia are implemented by three partners: Government, WHO and UNICEF.

Government

In September 2016, Armenia received US$60,000 cash support from Gavi for renovation of regional vaccine stores. Utilization of funds started only in February 2017 due to countries internal procedures.

According to the Government regulation (adopted in line with the financial requirements of 2010), Gavi funds are allowed to be spent only after Government decision. For this purpose draft decree of the Government on expenditures would have been developed by MoH and submitted to the Ministry of Finance for review. After MoF review, the draft decree would have been submitted to the Government for approval. Usually this process takes about 3 months. Due to time shortage Transition Grant was not utilized in 2016.

In fact the process started in February, 2017 by drafting a detailed calculation of budget for renovation of 5 regional stores. Then MoH announced a tender but no company was recognized as a winner because of very high costing proposals. As a result MoH decided to use available funds for renovation of only 3 regional vaccine stores. Meanwhile MoH mandated NCDC to find additional funds for the rest regional vaccine stores.

UNICEF

During the reporting period (January – December 2016), UNICEF implemented the following activities as per the transition grant:

- ✓ Updating and printing the national VM Policy guidelines (including MDVP)
- ✓ Procuring cold chain equipment (5 generators)

The following are the activities in the process of implementation, all to be completed by December 2017:

- ✓ Restoring immunization website (by upgraded software)
- ✓ Developing and printing key communication materials (materials are developed, printing in the process)
- ✓ Conducting communication activities (workshops with regional health authorities and providers)
- ✓ Conducting a temperature mapping study in all cold rooms

WHO

During the reporting period (January – December 2016), WHO implemented the following activities as per the transition grant:

- ✓ **Preparedness of HPV introduction** incl. supporting the National Immunization programme in conducting qualitative field work incl. focus group discussion and in-depth interviews; analyzing the qualitative data collected; drafting a communication plan based on the findings.
- ✓ Country support and technical assistance for **Rotavirus surveillance** (2016)
- ✓ Country-level laboratory training and external quality assurance (EQA) programme results
  - national laboratories passed EQA (2016)
- ✓ Country-level RV assessments or meetings
  - Met with epi for RV surveillance during IB-VPD surveillance assessment (Jan 2017)
- ✓ Use of RV surveillance platform
  - Vaccine effectiveness (VE) evaluations
    - Completed and published in Clinical Infectious Diseases (May 2016)
  - Global Paediatric Diarrhoea Surveillance
- ✓ Country support and technical assistance for **Invasive Bacterial Vaccine-Preventable Diseases (IB-VPD)** surveillance (2016)
- ✓ Country-level laboratory trainings and external quality assurance (EQA) programme results
  - PCR training for pathogen detection of *Streptococcus pneumoniae (Sp)*, *Haemophilus influenzae (Hi)* and *Neisseria meningitidis (Nm)*, for serogrouping of *Nm*, and serotyping of *Hi* (Dec 2016)
  - All participating hospital and national laboratories passed EQA (2016)
- ✓ Regional hands-on workshop on new, direct real-time polymerase chain reaction (PCR) technique for detection and molecular characterization of IB-VPD was held in GEO
- ✓ Country-level IB-VPD assessments or meetings (Jan 2017)

1. **New vaccine introduction**

- ✓ The Chair and the Secretary of Armenian NITAG participated in ETAGE meeting was held on 12-13 October 2016
- ✓ The NITAG Chair attended Strategic Advisory Group meetings were held in October 2016 and in April 2017
- ✓ Technical support was provided to NITAG in making recommendations to the MoH on introduction of HPV vaccine and applying for GAVI catalytic support
- ✓ NIP Manager and the Chair of NITAG from Armenia attended WHO regional meeting on HPV vaccine introduction was held on 16-17 March 2016
- ✓ WHO EURO provided technical support to the MoH in conducting HPV vaccine cost-effectiveness study. November 2016
- ✓ WHO EURO provided technical support to Armenia in development of proposal to GAVI for the support in implementation of HPV vaccine demonstration project. June 2016

2. **Vaccine management & Supply chain**

- ✓ In-country missions & training to support developing integrated national cold chain regulations

3. **Immunization safety**

- ✓ Sub-regional integrated training workshop on AEFI surveillance, causality assessment and communications (2016)

4.3. Financial management performance (IPV and Transition Grants)

UNICEF

As of December 2016, UNICEF expended/committed 37% of the total funding allocated to UNICEF (US$ 124,200). As at June the records show 64% absorption. It is expected that UNICEF will absorb 100% of funding by the end of the grant, i.e. December 2017.

WHO

As of December 2016, WHO expended 7% of the total funding allocated to WHO (US$ 374,500). WHO caught up with the implementation of some activities. However, the implementation of outstanding activities will be closely monitored and in September 2017, a no-cost extension may be requested.

Reporting on utilization of transition grants by partners was provided the Gavi Secretariat in compliance with financial reporting and audit requirements.

MoH

In 2016, Armenia has not received any cash support from GAVI (IPV VIG was disbursed in 2015 directly to UNICEF SD for procurement of cold chain equipment). No FMA has been conducted in Armenia during the years of Gavi support. There were also no audits of previously disbursed cash grants due to their amounts being below the established threshold.

Funds previously disbursed by Gavi for the NVS and ISS support are held in the same bank account, with US$ 36,333 available in cash balance as of 1 January 2016. The difference between the 2015 closing balance of US$ 42,015 and the opening cash balance of US$ 36,333 is attributable to exchange rate fluctuation set by the Central Bank of Armenia: in 2015 -1US$=411.21AMD, in 2016-1US$=473.40 AMD.

In 2016, Armenia used a total of US$28,957 of the remaining NVS/ISS funds as follows:

Table 4: 2016 expenditure of Gavi funds remaining in country

	Budget AMD	Budget USD	Actual AMD	Actual USD
Trainings				
Administrative expenditures (including training fees)	4,200,000	8,872	4,177,750	8,825
Per diems	3,000,000	6,337	2,970,000	6,274
Other expenditure				
Information-related expenditure (including printing)	3,500,000	7,393	975,500	2,061
Monitoring and fuel	4,500,000	9,506	4,440,000	9,379
Computers for Immunization staff	2,000,000	4,225	1,144,800	2,418
Total for 2016	17,200,000	36,333	13,708,050	28,957

US$ 28,957 was spent for IPV introduction activities: training, printing (revised immunization guidelines and posters of vaccination schedule), monitoring /fuel for supportive supervisions, and procurement of computers for immunization staff.

As a result of successful tenders, as of 1 January 2017 Armenia had US$ 7,567 of savings from the available funds. These funds were forwarded to Transition Grant of US$ 60,000 for renovation of regional vaccine stores.

4.4. Technical Assistance (TA)

Surveillance activities and results for rotavirus (RV) and invasive bacterial vaccine-preventable diseases (IB-VPD) in ARM in 2016 and 2017

Rotavirus surveillance

- WHO EURO continued to provide overall technical assistance for rotavirus surveillance. WHO EURO continued to procure the WHO recommended enzyme immunoassay (EIA) kits to detect the rotavirus antigen and logistics assistance for the external quality assurance (EQA) and external quality control (EQC) programs.
- WHO EURO invited the EPI manager to present on the country's use of rotavirus surveillance data for decision making and advocacy "Rotavirus vaccine impact in Armenia" at the Global RV and IB-VPD Sentinel Surveillance Meeting in Nov 2016
- WHO EURO provided technical assistance to reduce the cost of rotavirus surveillance in Armenia. Beginning in January 2017, eligible children are systematically sampled for enrollment in the Global Rotavirus Surveillance Network (GRSN).
- WHO EURO provided technical assistance to leverage the existing rotavirus surveillance platform to monitor over 20 enteric pathogens. Armenia began participating in the Global Pediatric Diarrhea Surveillance Network (GPDS) in January 2017.
- WHO EURO met with the epidemiology lead for rotavirus surveillance in January 2017 when in country for an assessment of IB-VPD surveillance activities. Discussed implementation of GPDS in country which included expanding the case definition for enrolment, revision of the case report form, training of hospital staff on the expanded case definition, and revision of EuroRota database to capture information on presence of blood in the stool. Sustainability of rotavirus surveillance was discussed.
- WHO EURO created practicums on analysis and presentation of rotavirus surveillance data. Standard rotavirus surveillance outputs, general data analysis tips, and data cleaning and validation rules were presented at the regional rotavirus surveillance meeting. Specific analysis topics included filtering data, creating analysis variables, and generating summaries using pivot tables. Participants practiced producing the standard outputs using case-based rotavirus surveillance data.
- WHO EURO coordinated the regional rotavirus surveillance meeting in June 2017. Country-level, regional, and global updates on Global Rotavirus Surveillance Network (GRSN) activities and updates on epidemiology and laboratory topics were presented. Countries engaged in discussions about sustainability of rotavirus surveillance and countries with relevant partners engaged in discussions about the next steps in the implementation of the Global Pediatric Diarrhea Surveillance (GPDS) Network. Participants from each country participated in the workshop on rotavirus surveillance data analysis and presentation techniques.
- Previously, WHO EURO and CDC provided technical assistance to the country to leverage the rotavirus surveillance platform to measure the impact of vaccine introduction and the effectiveness of rotavirus vaccine in Armenia. In 2016, results of the assessments were published in "Impact and effectiveness of monovalent rotavirus vaccine in Armenian children" in *Clinical Infectious Disease*, 2016; 62(S2): S1-8. (Some of the key results are summarized in section 3.1)

IB-VPD surveillance

- WHO EURO provided technical assistance for IB-VPD surveillance, procured rapid diagnostic test kits (RDT) (i.e., Latex agglutination kits and Binax kits), and provided logistics assistance for the external quality assurance (EQA). In 2016, the laboratories at the three sentinel hospitals passed the EQA program overseen by the Public Health England, London (PHE).

- WHO EURO coordinated training on conventional and real-time PCR methods to detect *Streptococcus pneumoniae* (Sp), *Haemophilus influenzae* (Hi) and *Neisseria meningitidis* (Nm) and to serotype Hi and sergroup Nm in December 2016 of National Bacteriology Reference Laboratory staff. A staff member from the Regional Reference Laboratory conducted the training.
- WHO EURO assessed IB-VPD surveillance activities at the three sentinel hospitals and national laboratory in January 2017. The use of hospital administrative data to measure the impact of pneumococcal conjugate vaccine (PCV) was discussed since current surveillance may not adequately show PCV impact. A formal proposal for using case-based national hospital admissions data to measure the impact of PCV needs to be developed jointly by NCDC and WHO staff and funding needs to be secured. Sustainability of IB-VPD surveillance was discussed.
- WHO EURO coordinated a regional hands-on training workshop to improve capacities to detect the causes of bacterial meningitis. The workshop was on the use of new, direct real-time PCR method for detection and molecular characterization of molecular agents (*Sp, Hi, Nm*); this method does not require DNA extraction. The workshop facilities were kindly provided by the R.G. Lugar Center for Public Health Research, National Center for Disease Control and Public Health of Georgia. A representation from the national laboratory in Armenia participated in the workshop conducted by staff from the Global Reference Laboratory in April 2017. This method has several advantages compared to conventional multiplex PCR, as it reduces the risk of contamination, requires a lower volume of CSF, saves processing time, and results in cost savings. (A detailed description of the workshop is provided at http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/news/news/2017/05/training-of-lab-experts-improves-capacities-to-detect-causes-of-meningitis and at http://www.who.int/immunization/gin/en/).

New Vaccine Introduction

- In collaboration with SIVAC the NITAG evaluation was conducted and the plan for improvement of NITAG performance was developed.
- NITAG members participated in WHO Regional NITAG Meeting was held on 14 October 2016.
- The Chair and the Secretary of Armenian NITAG participated in ETAGE meeting was held on 12-13 October 2016.
- The NITAG Chair attended Strategic Advisory Group meetings were held in October 2016 and in April 2017.
- Technical support was provided to NITAG in making recommendations to the MoH on introduction of HPV vaccine and applying for GAVI catalytic support.
- NIP Manager and the Chair of NITAG from Armenia attended WHO regional meeting on HPV vaccine introduction was held on 16-17 March 2016. The meeting provided an opportunity to present and discuss data necessary for making NITAG recommendations on introduction of HPV vaccine as well as discuss the country plans to apply for GAVI support.
- WHO EURO provided technical support to the MoH in conducting HPV vaccine cost-effectiveness study. The consultancy mission was conducted on 21-24 November 2016 to initiate the study and train local specialists in data collection.
- WHO EURO provided technical support to Armenia in development of proposal to GAVI for the support in implementation of HPV vaccine demonstration project. The consultancy mission was carried out on 20-24 June 2016.

Demand

- WHO EURO provided technical support to Armenia in the preparedness of HPV introduction incl. supporting the National Immunization programme in:
  - Conducting qualitative field work incl. focus group discussion and in-depth interviews (October 2016)
  - Analyzing the qualitative data collected incl. recommendation for communication (finalized in March 2017)
  - Drafting a communication plan based on the findings (handed over in March 2017, revised communication action plan ready by mid-June
  - Implementation of the HPV communication activities (Sept/Oct 2017)

Vaccine management & Supply chain

In-country missions & training to support developing:
Integrated national cold chain regulations (ARM)

Immunization safety

Sub-regional integrated training workshop on AEFI surveillance, causality assessment and communications, Montenegro, 21 to 25 November 2016
MICs

- AEFI surveillance self-assessment;
- drafting plans to strengthen national AEFI surveillance

5. UPDATE OF FINDINGS FROM PREVIOUS JOINT APPRAISAL

Prioritised actions from previous Joint Appraisal	Current status
1. Support for introduction of HPV vaccine (communication, advocacy, cost-effectiveness, KAPB study, building preparedness for vaccine safety events, demand generation, medical staff training, etc.)	**Completed.** With WHO technical assistance HPV Demo proposal was developed and submitted to Gavi Secretariat. With WHO technical support and country team Formative Research into Public and Professional Views on the HPV Vaccine was conducted in November, 2016 and report on findings was developed With WHO support National Communication Plan for the Introduction of HPV vaccine was developed in March, 2017 WHO initiated Evaluation of the cost-effectiveness of HPV vaccination in Armenia in November 2016 (WHO mission). Report is still in the process.
2. Further support for rotavirus disease surveillance including continuation of the case-control study to assess the durability of protection in older children, and expansion of IBD surveillance	**In progress.** -Surveillance for rotavirus disease is ongoing. Stool specimens are collected and demographic, clinical, and laboratory data are collected and shared with the Global Rotavirus Surveillance Network (GRSN) as requested.

	-Surveillance for IB-VPD is ongoing. Cerebrospinal fluid (CSF) specimens are collected and demographic, clinical, and laboratory data are collected and shared with the Global IB-VPD Surveillance Network (GISN) as requested.
3. Support for data quality assessment to identify data-related gaps and needs	**Not completed**. Need re-programming.
4. Trainings for medical staff across the country on vaccine contraindications and vaccine safety	**Not completed**. Postponed to 2018.
5. Strengthening of temperature monitoring	**Completed partially.** UNICEF supported the country with temperature monitoring devices (Fridge-Tag® 2) introduced in June, 2016 Generators are procured by UNICEF Temperature monitoring devices not procured due to reprogramming need (UNICEF). Country is planning to introduce on-line temperature monitoring system to make sure sustainability in the future as this devices have short shelf life. Temperature Mapping study is planned for Q3 and Q4 (UNICEF).
6. Renovation of regional stores to allow instalment of new cold rooms (suggested funding – through Transition Plan)	**In progress**. Started for 3 regional stores. (MoH)
7. Impact study for PCV vaccine	**In progress**. Hospital administrative data, a secondary data source, needs to be examined to determine if it can be used to measure the impact of pneumococcal conjugate vaccine (PCV) since current surveillance may not adequately show PCV impact. A formal proposal for using case-based national hospital admissions data to measure the impact of PCV needs to be developed jointly by NCDC and WHO staff and funding needs to be secured. NCDC and WHO will look for efficiencies in the current grants for funding.
8. EVM Assessment (last opportunity pre-transition)	**Not completed**. Postponed to Q1 2018. Vaccine Management policy guidelines are developed and printed by UNICEF
9. Continuing to address vaccine hesitancy and knowledge gaps among medical personnel	**In progress**. Started TIP activities, two workshops will be held in June 21-22, 2017 (WHO) Key communication materials developed and being printed (UNICEF) Immunization website is being restored (UNICEF) Communication activities at regional level are in the process (UNICEF)
10. Strengthening the country's self-procurement capacity	**Completed**. Participation at the Vaccine Procurement Practitioners Exchange Forum (VPPEF) - October 4-6 2016 (UNICEF)

Additional significant IRC / HLRP recommendations (if applicable)	Current status
Not applicable for Armenia	

Support for data quality assessment to identify data-related gaps and needs.

- Suggested reprogramming needs. Recent DHS has been completed incl. immunization related data quality assessment. Therefore the activities planned we suggest to reprogramming for other priorities (see section 6).

Trainings for medical staff across the country on vaccine contraindications and vaccine safety.

- Postponed until 2018 to ensure systematically approach particularly to introduce in the educational system in the country. Currently country is working on the development of normative documents to ensure smoothly introduction of the training programme.

Strengthening of temperature monitoring

- The Ministry of Health has decided to develop software on temperature monitoring instead of procurement of devices which will require reprogramming of funds (see section 6).

Impact study for PCV vaccine

- 2017 TCA funding has not been received. An assessment of whether a secondary data source in country has sufficient detail to be used to assess the impact of PCV.

EVM Assessment (last opportunity pre-transition). Postponed until Q1 2018.

6. ACTION PLAN: SUMMARY OF FINDINGS, ACTIONS AND TECHNICAL ASSISTANCE NEEDS IDENTIFIED AND AGREED DURING THE JOINT APPRAISAL

Overview of key activities planned for the next year:

Key prioritized need 1	Cold chain, monitoring and vaccine management
Agreed country actions	Development of on-line temperature monitoring software and countrywide introduction
Associated timeline	Q4, 2017 development , Q1-Q2 , 2018 introduction
Technical assistance needs	TA needed from UNICEF (suggesting reprogramming under Transition plan)
Key prioritized need 2	New Vaccine Introduction (HPV)
Agreed country actions	Implementing the HPV communication activities (2017, 2018). Continuing support in building capacity to respond to HPV vaccine events (2018) Continuing support in risk communication activities, revision of strategy, materials etc. Post Introduction Evaluation

	Coverage survey Cost assessment Assessment of adolescent health interventions Preparing of report
Associated timeline	Q3 - Q4 2017 should be covered by PEF TCA 2017 Q1-Q2, 2018 HPV PEF TCA catalytic HPV support
Technical assistance needs	TA WHO
Key prioritized need 3	Vaccine Hesitancy
Agreed country actions	Tailoring Immunizations programmes (TIP) activities ongoing (2017 – 2018)
Associated timeline	Q2 – Q4 2017 ongoing in 2018.
Technical assistance needs	Extension of support under the Transition Plan (support from WHO)
Key prioritized need 4	Increasing HR capacity and ensuring sustainability of HR resources
Agreed country actions	Development of Educational program, introduction into Educational system and Implementation (Governmental initiative)
Associated timeline	Development-Q3-Q4, 2017, Introduction –Q1-Q2, 2018, Implementation - Q3, 2018
Technical assistance needs	Need of TA
Key prioritized need 5	Policy and legislation
Agreed country actions	Capacity Building on local policy / procedures (Development of technical specifications on vaccines and endorsement)
Associated timeline	Q1-Q2, 2018
Technical assistance needs	No need
Key prioritized need 6	Vaccine electronic data management system
Agreed country actions	Development of web based vaccine management system and introduction
Associated timeline	Development Q3-Q4 , 2017 Introduction – Q1-Q2, 2018
Technical assistance needs	No need
Key prioritized need 7	Ensure continuous and sustainable disease surveillance
Agreed country actions	Rota and IBD sentinel surveillance

Associated timeline	2018
Technical assistance needs	TA needed
Key prioritized need 8	Endure evidence based decision making process
Agreed country actions	Continue NITAG capacity strengthening
Associated timeline	
Technical assistance needs	TA needed

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

The Joint Appraisal was developed by the Immunization team with collaboration of partners (WHO, UNICEF, Gavi) during the workshop held in Copenhagen in June 6-9, 2017. The JA was reviewed after the workshop and was circulated among the partners and ICC members. The JA was discussed and endorsed during the ICC meeting in July 27, 2017.

8. ANNEX

Compliance with Gavi reporting requirements

	Yes	No	Not applicable
Grant Performance Framework (GPF) reporting against all due indicators	✓		
Financial Reports			
Periodic financial reports	✓		
Annual financial statement	✓		
Annual financial audit report			✓
End of year stock level report	✓		
Campaign reports			✓
Immunisation financing and expenditure information	✓		
Data quality and survey reporting	✓		
Annual desk review	✓		
Data quality improvement plan (DQIP)			✓
If yes to DQIP, reporting on progress against it			✓

In-depth data assessment (conducted in the last five years)	✓		DHS
Nationally representative coverage survey (conducted in the last five years)	✓		DHS
Annual progress update on the Effective Vaccine Management (EVM) improvement plan	✓		
Post Introduction Evaluation (PIE)			✓
Measles-rubella 5 year plan	✓		Integrated into NIP for 2016-2020
Operational plan for the immunisation program	✓		Adopted by Government Decree N10 in March 17, 2016
HSS end of grant evaluation report			✓
HPV specific reports			✓
Transition Plan	✓		