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College of Health Sciences
Center for Health Services Research and Development

Formative Research on Perceptions, Attitudes and Practices towards Immunization and Introduction of new vaccines in Armenia: a Qualitative Study

Prepared for

United Nations Children Fund in Armenia

unicef

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ABBREVAITONS

ADHS - Armenian Demographic and Health Survey

DTP- Diphtheria, tetanus, pertussis

AEFI- Adverse events following immunization

AUA- American University of Armenia

BCG - Bacillus Calmette-Guerin (Tuberculosis vaccine)

CHSR- Center of Health Services Research and Development

FGD- Focus group discussion

GAVI- Global Alliance for Vaccines and Immunization

IDI- In-depth interview

MMR – Measles, mumps, rubella

MoH- Ministry of Health

NGO- Non-governmental organization

NIAC- National Information-Analytic Center

OPV- Oral poliomyelitis vaccine

PHC- Primary health care

RA- Republic of Armenia

RV – Rotavirus

SHAI - State Hygiene and Anti-epidemic Inspectorate

WHO- World Health Organization

EXECUTIVE SUMMARY

In recent years the immunization schedule in Armenia has followed the World Health Organization (WHO) recommendations and guidelines. The National Immunization Program for 2010-2015, approved by the Government Decision N46-N in January 2010, conducts immunization activities in Armenia. The main goal of the National Immunization Program is to reduce morbidity and mortality of vaccine-preventable infectious diseases.

Currently there are ten diseases that are covered in the vaccination schedule in Armenia, including diphtheria, pertussis (whooping cough), tetanus, measles, mumps, rubella, poliomyelitis, hepatitis B, tuberculosis, and Haemophilus influenza type B. These diseases are prevented through six vaccines provided in Armenia.

The burden of vaccine-preventable diseases is significantly low in Armenia. Since 1995, there were no reported cases of poliomyelitis and diphtheria, a few reported cases of pertussis and only one reported case of tetanus in 2010. Since 2007, there were no reported cases of measles and rubella and a few reported cases of mumps.

Overall the general coverage of vaccines has improved: from 2006 to 2011 Diphtheria, tetanus, pertussis (DPT) coverage increased from 86.8% to 94.9%. Measles, mumps, rubella (MMR) coverage improved from 91.9% to 97.3% and viral hepatitis B vaccine coverage significantly increased from 78.1% to 97.8%. The Armenian Demographic and Health Survey (ADHS) 2010 also reported a significant increase of full vaccination coverage among children 18-29 months from 2005 (87.0% in 2005 vs. 92.0% in 2010).

The Minister of Health (MoH) order N 20 of 2009 on the Norms and Criteria for Implementing Immunization activities in Armenia permits vaccinations to be administered by facilities that provide preventive medical care, regardless of public or private ownership. Immunization offices in these facilities are the primary units designated to perform vaccinations. The eligible immunization offices of the public primary health care (PHC) facilities provide vaccinations free of charge. In addition to the public PHC facilities, there are also privately owned immunization offices at the private health care facilities that provide vaccination services for a fee.

The Ministry of Health of Armenia is planning to introduce a routine infant rotavirus vaccination in November 2012, based partly on co-financing from GAVI until 2016. The aim of this new vaccine introduction is to reduce the burden of diarrhea caused by rotaviruse (RV). A study conducted in Armenia to estimate the burden of rotavirus infection found that during February 2009 – May 2011, out of the total 3,121 hospitalized acute gastroenteritis cases among children aged less than 5 years old 39.6% (1,235 cases) of diarrhea cases were caused by rotaviruse.

The Center for Health Services Research and Development (CHSR) of the American University of Armenia (AUA) in collaboration with the UNICEF Armenia conducted this study to reveal population perception and practices of immunization and introduction of new vaccines (Rotavirus vaccine) and to develop a strategy of engagement with resistant groups in promoting immunization.

The research utilized a qualitative study methodology to evaluate attitudes, practices and perception of various stakeholders towards immunization in general and introduction of new vaccines in Armenia through focus group discussions and in-depth interviews. The study took place in Yerevan (the capital city) and Shirak marz (one of the 10 provinces in Armenia) to evaluate immunization attitudes and practices at the national and regional levels. Within Shirak marz, the data collection took place in the main city Gyumri and in two villages. Overall, there were 80 study participants (75 female and 5 male participants) living in Yerevan and Shirak marz.

Seven groups of participants took part in the study 1) primary health care physicians – PHC pediatricians or family physicians (FP), 2) other specialists, including hospital pediatricians, neonatologists, infectionists, allergists, resuscitation unit specialists working in pediatric units and hospitals or engaged in private pediatric practice, 3) NGO staff, 4) media representatives, 5) policymakers/experts dealing with immunization issues in Armenia, 6) teaching staff/scientists with medical background and 7) parents of children under five years old.

The study found that the National Immunization Program of Armenia improved in the last five years including the improved coverage of vaccinations, improved quality of vaccines and improved awareness of health care providers and general population about vaccination. The majority of participants considered immunization as an important intervention; however, there is still fear and concern from about adverse events following immunization (AEFI), especially among PHC providers and some parents from Yerevan.

Mothers (and their families) from Shirak marz, some hospital doctors from Yerevan who had access to evidence-based medicine, some teaching-university staff/scientists and policy-makers/experts engaged in the vaccination program were supportive of vaccination.

Some parents from Yerevan, parents who were health care providers (mainly physicians), parents who had relatives/friends who were health care providers, parents from religious groups, parents who associated the impaired health of the child (e.g., autism) with vaccination and people supportive of homeopathic treatment were identified as the main groups resistant to vaccination. The main reported sources of negative information for these groups were: influence of AEFI in the community, hospital doctors or PHC providers or neonatologist of maternities, other physicians who were against vaccination and had high reputation in the community, internet sources and anti-vaccination TV programs and documentary movies (mostly Russian websites and TV programs).

Participants from different stakeholder groups emphasized the need for comprehensive evidence for any new vaccines to be introduced in Armenia. Most PHC providers had lack of information about RV and wanted to learn more. These providers needed comprehensive evidence and justification that RV vaccine was really necessary and important to introduce in Armenia.

Based on the study findings and recommendations provided by the study participants, the research team developed a set of recommendations including provision of regular trainings about vaccination among health care providers and teaching staff, provision of evidence-based information to all layers of population about the effectiveness of vaccination, its potential adverse effects and benefits.

To gain support for the introduction of RV vaccine in Armenia, the study team recommended providing comprehensive evidence that RV-related diarrhea was a serious public health issue in Armenia and evidence to health care providers and the general public that RV vaccination was safe and effective. Implementation of a public education campaign involving TV, other media, sending SMS messages, also involving PHC providers, hospital doctors and university staff to build the confidence that RV vaccination was important and safe was the key recommendation for developing public confidence about the importance of RV vaccine introduction in Armenia.

INTRODUCTION

1.1 National Immunization Program

The immunization schedule in Armenia has followed the World Health Organization's (WHO) recommendations and guidelines, particularly in the last several years.[1] The National Immunization Program for 2010-2015, approved by the Government Decision N46-N in January 2010, guides immunization activities in Armenia.[2] This decision defines the responsibilities of the National Immunization Program, and provides the list of Prioritized Immunization Activities, the list of the members of the National Immunization Council, the National Immunization Calendar and a sample of the International Vaccination or Prophylaxes Certificate.[1] The main goal of the National Immunization Program is to reduce morbidity and mortality from preventable infectious diseases.[2]

Currently, there are ten diseases that are covered in the vaccination schedule in Armenia – diphtheria, pertussis (whooping cough), tetanus, measles, mumps, rubella, poliomyelitis, hepatitis B, tuberculosis, and Haemophilus influenza type B. These diseases are prevented through six vaccines provided in the country – 1) Hepatitis B vaccine, 2) BCG against tuberculosis, 3) combined DPT (which protects against diphtheria, whooping cough, tetanus) and/or DT (against diphtheria and tetanus), 4) combined MMR vaccine (which protects against measles, mumps and rubella), 5) OPV- poliomyelitis and 6) combined DTP/Hep B/ HIB also called pentavalent vaccine (which protects against diphtheria, whooping cough, tetanus, Hepatitis B and Haemophilus influenza type B).[2]

According to the National Immunization Calendar, a child receives the majority of his/her vaccinations in the first year of his/her life. BCG and hepatitis B are provided in the first 24-48 hours. The pentavalent vaccine and the polio vaccine are administered at 1.5, 2.5 and 3.5 months of life and MMR at 12 months (Appendix 1).[2]

1.2 Burden of preventable infectious disease in Armenia

Table 1 illustrates the burden of vaccine-preventable diseases in Armenia in 1995 and in 2000-2011 in the population of children under 14 years of age and the overall population. Since 1995 there were no reported cases of poliomyelitis and diphtheria in the country, few reported cases of

pertussis and only one reported case of tetanus in 2010. Since 2007, there were no reported cases of measles and rubella, and few reported cases of mumps.[3]

1.3 Immunization coverage

Table 2 shows the coverage of vaccines in Armenia provided under the National Immunization program.[4] Overall, the general coverage of vaccines has improved after 2006 - from 2006 to 2011, DPT coverage increased from 86.8% to 94.9%; MMR coverage improved from 91.9% to 97.3%; and viral hepatitis B vaccine coverage increased from 78.1% to 97.8%.[3]

Full vaccination coverage has also increased during the period 2008-2011 (Figure 1). Among children of one year-of-age, full coverage increased from 86.0% to 94.5%, for two years-of-age it increased from 82.0% to 94.0% and for seven years-of-age - from 93.0% to 98.0%.[4]

The Armenian Demographic and Health Survey (ADHS) 2010 also reported a significant increase of full vaccination coverage (as WHO recommended[i]) among children 18-29 months old compared to the ADHS 2005 (92.0% vs. 87.0%).[5] According to the ADHS 2010, the coverage of the third DPT and polio vaccinations (the last boosters)[ii] and MMR increased by 10% from 2005 to 2010. Vaccination coverage was found to vary with mothers' education - the higher the education the higher the coverage of basic vaccines[iii] (Fig. 2). There was no apparent trend between coverage and households' wealth status (Fig.3).

1.4 Organization of the National Immunization Program

The Minister of Health (MoH) order N 20 of 2009 on the Norms and Criteria for Implementing Immunization Activities in Armenia permits vaccinations to be administered by facilities that provide preventive medical care, regardless of public or private ownership. Immunization cabinets in these facilities are the primary units designated to perform vaccinations.[6] The eligible immunization cabinets of the public primary health care (PHC) facilities provide vaccinations free of charge.[7] In remote rural areas the regional PHC facilities organize mobile

[i] Excluding hepatitis B vaccination
[ii] Third DPT and polio often has lower coverage than the first two doses of these vaccines (source: ADHS 2010)
[iii] Basic vaccines included BCG, measles, and three doses each of DPT and polio (source: ADHS 2010).

immunization teams that provide vaccinations to target population on site (mobile vaccination points).[6] Parents receive a Vaccination Passport when they register their child at the primary health care facility. This Passport contains information about the child's vaccination dates to remind parents.[6] In addition to the public PHC facilities, there are also privately owned immunization cabinets at private health care facilities that provide vaccination services for a fee.[6]

A child's vaccination is recorded on his/her out-patient card and the vaccination card, as well as in the vaccination journal of the PHC facility. These facilities submit monthly, quarterly and annual reports on a vaccinated population, adverse events following immunization (AEFI) and refusals of parents to have their children vaccinated to the regional (for marz facilities) and Yerevan branches (for Yerevan facilities) of the State Hygiene and Anti-epidemic Inspectorate (SHAI), which is compiled into a single report for the Central office of SHAI.[6] Monitoring teams consisting of personnel from SHAI and the Ministry of Health conduct periodic visits to assure compliance to vaccination protocols.[6]

1.5 Financing

Vaccines are purchased through the centralized MoH procurement system based on the primary health care facilities' reports and SHAI projections. Since 2009, with the introduction of HIB containing pentavalent vaccine, vaccines are purchased through funding from the Armenian Government and the Global Alliance for Vaccines and Immunization (GAVI) program (Fig. 4). In 2016, GAVI will terminate its financial support to the country for purchasing vaccines placing the full financial responsibility for purchasing vaccines on the Government of Armenia.[4]

To increase vaccination coverage, the MoH established an incentive/bonus system for PHC providers for improved performance and higher vaccination coverage among their enrolled population.[8]

1.6 Implementation of Rotavirus vaccine in Armenia.

The National Immunization Program regulates the introduction of new vaccines in Armenia. It is required that the introduction of new vaccines be based on the current evidence and be a close collaboration with stakeholders to develop a comprehensive plan for new vaccine introduction.[2]

The Ministry of Health of Armenia is planning to introduce a routine infant rotavirus vaccination in November 2012, based on co-financing from GAVI until 2016.[9] The aim of this new vaccine introduction is to reduce the burden of diarrhea caused by rotaviruses (RV). A study conducted in Armenia to estimate the burden of rotaviruses infection found that during February 2009 – May 2011, out of the total 3,121 hospitalized acute gastroenteritis cases among children aged less than 5 years, 39.6% (1,235 cases) were caused by rotavirus. In addition, out of the total 1,235 cases with rotaviral diarrhea, 38.6% were 1-2 years old, 31.0% - 2-5 years, 24.0% - less than 1 year old and only 6.3% were less than 6 months.[9]

A cost-effectiveness analysis of rotavirus infant vaccination in Armenia conducted in 2010 by Mark Jit from the Health Protection Agency of London, funded by the WHO Regional Office Europe, showed that implementation of a Rotavirus vaccine in Armenia would be rational. When coverage of Rotavirus vaccination achieves optimal levels, it is projected to prevent around 35,000 cases of diarrhea, and almost 4,000 primary care consultations, 1,200 hospitalizations, and 2 deaths.[10]

Streptococcus pneumoniae, which causes pneumonia, meningitis and febrile bacteriaemia; otitis media, sinusitis and bronchitis, is also a major public health concern worldwide. There is no data for the burden of pneumococcal infection in Armenia, however according to the WHO estimates, in 2000 there were 1,219 cases of severe illness in children under five caused by S. pneumoniae (pneumonia – 1,076 cases, meningitis – 21 cases, other, non-pneumonia/non-meningitis – 122 cases) and 62 cases of deaths related to this infection in Armenia.[9]

Because Rotaviruses and Streptococcus pneumonia are among the leading causes of morbidity and mortality among children under five in Armenia, the MoH of Armenia will be introducing both Rotaviruses and Streptococcus pneumonia vaccines, with support from GAVI.[9]

The Scientific Center for Protection of Public Health and Social Rights, with support of the Program for Appropriate Technology in Health, conducted a study in April-May 2010 to identify the attitudes of key stakeholders, including MoH experts/officials, leading specialists, health managers and heads of clinics, academic institutional staff, towards the implementation of a new Rotavirus vaccine in Armenia.[11] The majority of the stakeholders did not have a strong position on the importance of rotavirus vaccination in Armenia at the time of the study and would consider the scientific evidence prior to making their recommendations on the introduction of the

Rotavirus vaccine. Several MoH/SHAI experts, who were familiar with the scientific evidence on Rotavirus vaccination, expressed their support for introducing this vaccine in Armenia. Some academic staff of the Yerevan State Medical University, the National Institute of Health, and some health practitioners opposed to the introduction of the RV vaccine. Their objections were related to the lack of surveillance data on the prevalence of rotavirus infection in Armenia, the lack of information on the effectiveness of the vaccine and its side-effects; insufficient data on the use of the Rotavirus vaccine in high income countries, its cost-effectiveness and lack of assured financing for purchasing the Rotavirus vaccine after the end of GAVI support.[11]

In 2011, the MoH of Armenia developed a plan to introduce the Rotaviral and pneumococcal vaccines into the National Immunization Program of Armenia. According to this plan, country-wide Rotavirus vaccination will start in November of 2012 and Pneumoccocal vaccination will start in July of 2013. By the end of 2015, the MoH plans to reach 95% coverage with 2 doses of Rotavirus vaccine and 93% coverage with 3 doses of Pneumoccocal vaccine among infants at the national level.[9]

2. STUDY OBJECTIVES

The Center for Health Services Research and Development (CHSR), College of Health Sciences, American University of Armenia (AUA) in collaboration with UNICEF Armenia conducted this study to reveal population perception and practices of immunization and introduction of new vaccines (Rotavirus vaccine) and developing a strategy of engagement with resistant groups in promoting immunization. The objectives of this study were to:

1. Identify perceptions, attitudes and practices of key stakeholders towards immunization in general and introduction of new vaccines (Rotavirus vaccine) in particular
2. Identify vaccine support and vaccine resistance groups, their sources of information, motivation and those who influence them
3. Identify ways of engagement with resistant groups in promoting immunization, and influencing them in a positive way
4. Identify ways how support or would-be support groups can help in offsetting negative response/hesitance among key target groups.

3. METHODS

3.1 Study design

The study team developed and implemented a qualitative study through in-depth interviews (IDIs) and focus group discussions (FGDs). The research team applied comprehensive and rigorous assessment methodologies[12-15] to explore the perspectives of policy makers/experts, health care providers (PHC providers and other specialists including hospital pediatricians, neonatologists, resuscitation unit specialists, infectionists, and allergists), parents of children under five, media representatives, Non-Governmental Organization (NGO) members, medical university teaching staff and scientists.

3.2 Study setting

The study took place in Yerevan, the capital city, and Shirak marz, one of the 10 marzes in Armenia to understand immunization attitudes and practices at the national and regional levels. In Shirak marz the data collection took place in the main city Gyumri and two villages.

3.3 Study participants

The CHSR/AUA research team identified key informants using purposive sampling method to provide pertinent information for the assessment, based on participants' experience and expertise in vaccination issues in Armenia.

Due to the complexity of the assessment, the CHSR/AUA team used multiple purposive sampling techniques which included representativeness or comparability and sequential approaches.[7] Seven groups of participants took part in the study - 1) primary health care physicians – PHC pediatricians, 2) other physicians including hospital pediatricians, neonatologists, infectionists, allergists, and resuscitation unit specialists working in pediatric units and hospitals or engaged in private pediatric practice, 3) NGO staff, 4) media representatives, 5) policymakers/experts dealing with immunization issues in Armenia, 6) teaching staff/scientists with medical background, and 7) parents of children under five.

3.4 Research instruments

The CHSR/AUA team developed in-depth interview and focus group discussion guides based on the sample guides provided by UNICEF and reviewed by two national experts. The guides were designed to optimize the value of the data collected to meet the objectives of the qualitative study. The questions in each guide were adapted to specific participants' roles, responsibilities and professional/individual experience in the areas related to immunization activities in Armenia. The guides were progressively adapted based on the data collected in previous in-depth interviews or focus group discussions. The CHSR/AUA team developed a short demographic information form to be completed by participants after each focus group discussion. The CHSR/AUA team developed all guides in English and translated into Armenian. Appendix 2 and 3 provide samples of qualitative study guides.

3.5 Data collection and analysis

The data collection took place in July and August 2012. Each FGD had a trained moderator and a note-taker. These roles were rotated among the CHSR/AUA research team members. The in-depth interviews and FGDs were audio recorded with permission of all study participants. All FGDs and in-depth interviews were transcribed. The qualitative study followed the research methods of heterogeneity and triangulation, and terminated when saturation was achieved.[7] After data collection, the CHSR/AUA team used advanced analytical qualitative research methods to analyze in-depth interview and focus group discussion transcripts utilizing conventional inductive and directed deductive content analysis techniques.[13-15] The CHSR/AUA team used the Knowledge, Attitude, Practices (KAP) study framework to answer the research questions. In addition, specific domains that were not included in the KAP framework were included to assure comprehensive conclusions.

The research team recruited 80 study participants (75 female and 5 male participants) living in Yerevan and Shirak marz. The majority of study participants, particularly PHC providers, were enthusiastic to participate in the discussions. Data collection in summer period hindered the recruitment process due to a number of eligible study participants being in vacation. The vacation period particularly impacted the recruitment of the university teaching staff/scientists.

The study team had difficulties recruiting media representatives, NGO staff, and resistant parents. There were ten refusals among media representatives during the recruitment, since the media workers were not enthusiastic to participate in the study. Only two NGO representatives participated in a FGD, although ten had initially agreed to participate. The study team faced difficulties recruiting parents resistant to vaccination - eight parents who were resistant to vaccination refused to participate.

Overall, 73 people participated in 13 focus group discussions in Yerevan and Shirak marz. The mean duration of focus group discussions was 44 minutes.

Two of the FGDs involved primary health care practitioners, another two - hospital pediatricians. Seventeen health care providers (PHC providers and secondary level physicians-hospital pediatricians, allergists, and infectionists) were from Yerevan and 12 from Shirak marz. The mean age of health care providers was 46 years, the majority of them were women (only two men), all PHC providers were employed in public facilities, hospital physicians were employed both in private and public facilities (seven in public and four in private facilities), the mean professional experience of providers was 22 years.

Two focus group discussions were conducted with six media representatives (five of them were women). The mean age of the participants was 32 years old; they were working both in print and TV media with the mean professional experience of 12 years.

Seven university teaching staff/scientists participated in a FGD, all of them were women with the mean age of 45 years old. Six were lecturers and engaged in scientific work and one of them was mainly engaged in research; the average professional experience was 15 years.

Two NGO representatives participated in a FGD; one of the participants was a doctor, while the other was an economist; one male, one female with an average professional experience of seven years. The NGOs worked in various spheres related to children.

Five FGDs involved parents of children under five (mostly mothers, only one father from Yerevan); two FGDs took place in Yerevan, one in Gyumri[iv] and two in villages. Overall 29 parents participated in the discussions - 21 of them lived in Shirak marz and 7 in Yerevan. The mean age of parents from Shirak marz was 27, Yerevan - 36 years. Most parents from Shirak

[iv] The FGD was conducted in the hospital of Gyumri with mothers of hospitalized children, who were residents of villages of Shriak marz.

had either school or secondary-specialized education and all parents from Yerevan had university degree. Almost half of parents from Shirak (13 out of 21) reported their household monthly expenditure to be less than 100,000 AMD, five reported 101,000-300,000 AMD, and two more than 301,000 AMD; one parent did not answer this question. Four out of eight parents from Yerevan reported their household monthly expenditure to be more than 301,000 AMD, two reported between 101,000-200,000 AMD, one - 201,000-300,000 AMD; one parent did not answer this question. All parents from Shirak fully vaccinated their children; however, parents from Yerevan varied in terms of their children vaccination practices: four parents fully vaccinated their children but with some delays, three parents incompletely vaccinated their children, and one, resistant to vaccination, did not vaccinate her child at all. Overall, parents were enthusiastic to participate in the discussions, since immunization was an interesting and challenging topic for them.

The research team conducted seven in-depth interviews with five key policy makers/experts , one private health care provider/pediatrician and one scientist. Most of in-depth interview participants lived in Yerevan (6) and one in Shirak marz. The mean duration of in-depth interviews was 53 minutes.

Some of policy makers/experts were more open and specific and some were brief and general in their answers.

3.6 Categorization of study participants

Direct quotes provided in the boxes in the Results section were abstracted from both in-depth interviews and focus group discussions. The study categorized the participants into six groups: 1) PHC physicians, 2) Other physicians, 3) Parents, 4) Teaching Staff/scientists, 5) NGO members, 6) Media representatives, and 7) Policy makers/experts.

PHC physicians were physicians employed in primary health care facilities, other physicians were hospital pediatricians, allergists, infectionists, and resuscitation unit specialists employed in pediatric units or pediatric hospitals or engaged in private pediatric practice; all participating parents had children under five years old. Teaching staff/scientists were professionals engaged in health related education or research activities; NGO members - people working in various

NGOs in Armenia; media representatives - individuals employed in print or broadcasting media; and policymakers/experts - professionals employed in the field of child care and involved in development and implementation of health policies, with extensive professional experience in immunization activities in Armenia.

The individual informant identifiers (e.g., Policymaker/expert 4.1.A.1.) specify the category of participants who provided the quote (e.g., Policymaker/expert), the subhead of the report (e.g., 4.1.A.) and the sequential number of the given category of participant who provided the quote for the given box (e.g., 1.). If the same participant provided more than one quote within a single box, these quotes are provided under the same identifier. A single informant who provided quotes in more than one box has different identifiers for each box. After each identifier, it is indicated whether an individual participated in a focus group discussion or in-depth interview, and the geographic area of his/her practice or residency (Yerevan versus Shirak marz).

3.7 Ethical considerations

The Institutional Review Board of the American University of Armenia approved the study for compliance with locally and internationally accepted ethical standards. All participants were informed about their rights (their participation was voluntary, they could stop at any time and refuse to answer any question they chose, and their anonymity and confidentiality were fully respected). Audio-recording was possible only with permission of all participants; if a participant did not want to be audio-recorded, only written notes were taken. The final report does not contain respondents' names, positions, institutions, or any other details that could identify the participants.

4. RESULTS

4.1 Vaccination practices in general

4.1.A Parents' vaccination practices

Utilization of health care services

My child has a regular health care provider who is the pediatrician of our polyclinic. She is a

very experienced doctor. I am a pediatrician and I rely on her very much [for a second opinion].

Parent 4.1.A.1
FGD, Yerevan

We have a family doctor and a family nurse to whom we approach when we have complaints. We never had any difficulties in accessing health care.

Parent 4.1.A.2
FGD, Shirak marz

We have our private doctor for consultations or treatment…. Our polyclinic doctor is not a bad specialist but has limited knowledge… Our PHC pediatrician was mainly interested in simple things like weight and height measurement.

Parent 4.1.A.3
FGD, Yerevan

At the beginning I was taking my child to the polyclinic. My child developed allergy and our doctor was telling us that the problem was related to digestion and was paying more attention to that. After that experience, I am taking my child only to a private doctor [was unhappy with the public provider].

Parent 4.1.A.4
FGD, Yerevan

I have a child. I apply to the polyclinic for just weight and height measurement and so on. But other problems I try to resolve myself. Sometimes, I visited the polyclinic when we had some problems but the final decision on child care and treatment was made by me.

Parent 4.1.A.5
FGD , Yerevan

For any uncertain health conditions we go to see our doctor in the polyclinic. I have a medical education [nurse] *and do not take my child to the doctor very often. In many cases I try to treat the child myself at home.*

Parent 4.1.A.6
FGD, Yerevan

Vaccination experience of participants

My children received all the vaccines in the polyclinic. At the beginning I was inexperienced and did not know whether to go to public or private clinics. We decided to take our children to the polyclinic and we did not regret it. They had no bad reactions after vaccinations.

Parent 4.1.A.1,
FGD, Yerevan

The nurse informs us about the child's vaccination date - she either calls or visits us. Usually, we go to Arevik or Akhuryan [the nearest PHC facilities to receive vaccination].

Parent 4.1.A.7,
FGD, Shirak marz

I refused all vaccinations for my child.

Parent 4.1.A.8,
FGD, Yerevan

Our elder child got all vaccines. The next one got some of them. And the younger child also got some vaccinations.

Parent 4.1.A.1,
FGD, Yerevan

Two months ago I vaccinated my grandson with Pentavax - he developed high fever and so we refused to give him the third vaccination with Pentavax and we had him vaccinated with ADTP instead.

PHC physician 4.1.A.1,
FGD, Shirak marz

My son tolerated the first Pentavax well, but after the second vaccination he did not feel well for about 13 days. Nevertheless, I had my son vaccinated with the third vaccine.

PHC physician 4.1.A.2,
FGD, Yerevan

I have vaccinated my child against poliomyelitis and she developed severe post-vaccination reactions. So, I decided not to vaccinate her anymore.

Other physician 4.1.A.3,
FGD, Shirak marz

Most of the parents (both urban and rural) reported that their child/children had a regular health care provider to whom they visit for health problems, primarily to pediatricians in public primary health care facilities. A few parents from Yerevan had private pediatricians as the source of regular care. The reported reason for choosing private pediatricians was mainly not trusting pediatricians at public polyclinics. A few parents from Yerevan reported that they visited polyclinic pediatricians only for basic anthropometric measurements.. Parents from Shirak marz consistently reported visiting their local public PHC providers for their children's health problems.

All the participating parents who vaccinated their child/children chose public PHC facilities for vaccination. The majority of the parents had their children fully vaccinated, especially in rural families. There were a few participants from Yerevan who reported that their children were only partially vaccinated and there was only one mother-participant who refused vaccinations entirely.

Some parents, both urban and rural, noted that they had temporarily postponed the vaccination of their children due to being ill at that moment.

Among the health care providers who participated in the study there were diverse practices in vaccination of their own children and grandchildren. Some health care providers fully vaccinated their children/grandchildren, and a few of them - partially due to adverse reactions of their children (mainly high fever) following vaccination.

4.1.B Vaccination decision-making

Generally, mothers decide whether or not their child should get a vaccine. Sometimes fathers also participate in the decision [all the physicians in this group agreed].

PHC physician 4.1.B.1,
FGD, Yerevan

In general, grandmothers are very much involved in decision making [concerning vaccination of their grandchildren].

Other physician 4.1.B.1,
FGD, Shirak marz

Fathers are not very involved in decision making [on vaccination], *mainly mothers and grandmothers make the decisions.*

Other physician,4.1.B.2,
FGD, Shirak marz

My husband and I make the decision whether to vaccinate our child or not.

Parent 4.1.B.1,
FGD, Yerevan

We [wife and husband] *both decide together whether to vaccinate our children.*

Parent 4.1.B.2,
FGD, Yerevan

There is no need to discuss the issue of vaccination, because everyone in our family agrees that it is necessary.

Parent 4.1.B.3,
FGD, Shirak marz

Usually I [the mother] *make the decision about the child's vaccination along with our family members. There were no problems so far because everybody in our family agrees that vaccination is important.*

Parent 4.1.B.4,

FGD, Shirak marz

All the parents (mothers) and health providers reported that mothers made the decision about their child/children vaccination alone or with their spouse (mainly in Yerevan) or with grandmother (mainly in the marz). Parents from Shirak reported that none of their family members opposed vaccination of their children.

4.1.C Vaccination in private clinics

Those parents that have higher socio-economic status or those that have medical background also refuse to get vaccines in polyclinics and visit the private sector for their children's vaccinations.

PHC physician 4.1.C.1,
FGD, Yerevan

There are a few cases, mainly among wealthy families, that take their child to the private clinics in Yerevan to get their children vaccinated. Whenever someone asks me for advice, I do not recommend them to go to private clinics because I have no information about vaccines they are using.

Other physician 4.1.C.1,
FGD, Shrak marz

Some parents, especially those that live in the city center, take their children to private clinics because they refuse the Pentavaccine that comes from polyclinics.

PHC physician 4.1.A.2,
FGD, Yerevan

I do not think that private hospitals provide more assurance than the public ones for vaccination… I think it is more a perception that makes people feel safer in private hospitals. However, at the same time the private sector has alternative vaccines, and you can't blame people for not wanting all five vaccines combined [Pentavax] *and going to private medical centers to receive those* [alternative] *vaccines.*

Policy maker/Expert 4.1.A.1,
IDI, Yerevan

Some people have misbelieves that if it [a vaccine provided at polyclinics] *is free of charge then it's of poor quality. And vice-versa.*

PHC physician 4.1.C.3,
FGD, Yerevan

I would prefer that my child was vaccinated in public clinics, because vaccines are safer and of

higher quality. I would not rely on vaccines in a private clinic.

Parent 4.1.A.1,
FGD, Shirak marz

I do not think that vaccines in private clinics have higher quality. I have less confidence about vaccines in private clinics.

Parent 4.1.A.2
FGD, Yerevan

I had a case when a child's father was a lawyer and complained about our staff, vaccine quality and so on, and decided to take his child to a private clinic for vaccination. I asked him to bring a document that his child was vaccinated for measles. Several days later he brought me a document of the vaccination and I saw the same series, the same expiration date of the vaccine as ours – the vaccine was the same as ours in the polyclinic. Moreover, the child had fever after vaccination! It means that there are no differences between the quality of the vaccines in polyclinics and private clinics.

PHC physician 4.1.A.2
FGD, Yerevan

I think that the same vaccine is used in both private and public clinics.

Parent 4.1.A.2
FGD, Yerevan

Some participants of almost all groups claimed that some wealthier parents from Yerevan vaccinate their children in private facilities since they had a perception that these facilities provided better quality vaccines and the staff was more competent. Participants also indicated that those who chose private clinics believed that when the service was provided for a fee then it was of better quality. However, most of the parents who participated in the discussions, as well as participants in other groups, indicated that they trusted the vaccines provided at public facilities more than the vaccines in private facilities. A few health care providers and parents claimed that often vaccines provided in private clinics were the same as those in public facilities.

4.1.D Relationship between parents and health care providers

Vaccination scheduling

We inform the parent the date and time of the child's vaccination. We prefer to schedule a time when there is less burden in the polyclinic, since currently the services for adults and children in polyclinics are combined - we try to invite parents and children at a time when there are not

many adult patients in the facility.

PHC physician 4.1.D.1,
FGD, Shirak marz

We invite, for example, 5-7 parents together during our working hours [for children's vaccinations].

PHC physician 4.1.D.2,
FGD, Yerevan

We live in a village and our nurse comes to our home or calls us [the parents] *by phone a day before and invites us for immunization. We take our children to the nurse's health post and the doctor arrives from the out-patient facility to vaccinate our children.*

Parent 4.1.D.1,
FGD, Shirak marz

Pediatricians never give a specific time for the parents to bring their children. They just tell them to come on a certain day -parents come as early as they possibly can, because the waiting line becomes very long. So, if you go to the polyclinic, you will see all these parents standing there with their child in their arms waiting.

Media representative 4.1.D.1,
FGD, Yerevan

I tried to schedule their [parents'] *visits, but it doesn't matter for them; they come whenever it is convenient for them.*

PHC physician 4.1.D.3,
FGD, Yerevan

The child is called for vaccination, but the time is never mentioned and it can happen that all 10 parents come with their children at the same time. Imagine the waiting line that will form at the doctor's office, giving doctors no time to work separately with each parent and child. As a result, doctors quickly complete the forms, take the child's temperature, check for rashes and go through all the procedures quickly to send the child to the vaccination room.

Policy maker/Expert 4.1.D.1
IDI, Yerevan

Providers counseling

We talk with parents about vaccination before they go to the immunization cabinet. We check the child, explain the parent the purpose of the vaccination thoroughly; only then we send them to immunization cabinet.

PHC physician 4.1.D.4,
FGD, Shirak marz

It [the consultation] *lasts for 20 minutes when they* [parents and children] *come to get vaccinated. But we spend much more time talking to them, even as long as two hours on a different day after the vaccination.*

PHC physician 4.1.D.5,

FGD, Yerevan

We explain about the possible adverse effects of the vaccine advising parents what to do if there is a AEFI. One day after the vaccination, the nurse either makes a home visit or calls to check on the child after vaccination.

PHC physician 4.1.D.6,
FGD, Shirak marz

Polyclinic pediatricians cannot allocate appropriate time to inform parents about vaccination because they have a lot of paperwork to complete [all agreed in this group of physicians]

Other physician 4.1.D.1,
FGD, Yerevan

Sometimes there are parents who are not interested in the details about vaccination. They only bring their children to be vaccinated and want nothing more.

PHC physician 4.1.D.7,
FGD, Shirak marz

I was taking my child to the polyclinic without asking any questions [about vaccination]. She [the doctor] *did not tell me much, she only told me about what diseases would be prevented with the vaccine. I was thinking that there was no need for questions because the doctor knew what was best for my child.*

Parent 4.1.D.2,
FGD, Yerevan

The doctors do not spend much time on providing information on vaccines. They may share the name of the vaccine with parents. If parents do not ask questions they [the doctors] *will not tell you for which diseases your child is going to be vaccinated. They need to give more information on the vaccine-preventable diseases, about possible complications that may occur after vaccination, and so on.*

Parent 4.1.D.3,
FGD, Yerevan

My first experience with vaccination was very unpleasant because in the maternity hospital they vaccinated my child without informing me or asking my permission.

Parent 4.1.D.4,
FGD, Yerevan

When my child was born they [health care providers at a maternity clinic] *took my child to be vaccination – BCG and Hepatitis B without asking my opinion and permission. They didn't provide any kind of information!*

Parent 4.1.D.5,
FGD , Yerevan

Our nurse explains to us what diseases the vaccination protects our child from, even if we do not ask questions. She has a very positive attitude while talking with us. We are very satisfied.

Parent 4.1.D.6,
FGD, Shirak amrz

Our community nurse provided us additional information about vaccination. The doctor from the next village that comes to our village for immunization is also providing us information.

Parent 4.1.D.7,
FGD, Shirak marz

They explain [village nurse and physician] *why they are administering the vaccination and what might happen after that. They tell us not to shower the baby during the 3-4 days after the vaccination and that the baby may develop a high fever. If we have any questions, they answer them.*

Parent 4.1.D.1,
FGD, Shirak marz

Post-vaccination 30 minutes waiting period

There are two reasons for this [for physicians not enforcing the AEFI 30 minutes waiting period at PHC facilities]: *first, our health-care providers have not encountered anaphylactic shock and cannot imagine that it is possible immediately after vaccination… They only have a theory-based understanding of this and don't imagine that it may happen in reality. The second reason is because parents are unable to imagine this happening and refuse to wait because the child feels uncomfortable after vaccinations.*

Policy maker/Expert 4.1.D.2,
IDI, Yerevan

Again, I blame this [not enforcing 30 minutes post-vaccination waiting time at the facility] *on the dishonest work of the health care providers because all of these requirements are provided to them through norms and guidelines. They even have the explanations for why we ask parents and children to stay for 30 minutes after vaccination. One problem is poor time-management of providers with sometimes 10 parents with children showing up at the same time. A second problem is the absence of a waiting room, as parents will either have to wait in the hallway or the doctor's office. … Where the parents are supposed to sit and wait with their children?*

Policy maker/Expert 4.1.D.1,
IDI, Yerevan

Most of the PHC providers reported that they asked the parents to come with their children for vaccination during their working hours. According to them, many parents would not follow the suggested schedule and result in long waiting lines in front of physicians' offices. One of the policy makers/experts and a few of the media representatives also highlighted this problem.

All PHC providers reported that they provided counseling to parents prior to each vaccination; however, they did not have enough time to provide more information due to their workload. In addition, they believed that some parents were not interested in more information about

vaccinations. Most of the parents in Yerevan reported being dissatisfied with the counseling of PHC physicians; they also shared a particular concern about physicians in maternity hospitals who did not provide any counseling prior to their newborns' vaccination and often children were vaccinated without parental consent. In contrast, parents from Shirak were usually satisfied with their PHC physicians and nurses, and their counseling.

Two policy makers stated that post-vaccination 30 minutes waiting at PHC faculties very often was not enforced because of PHC providers' attitude to this issue and lack of accommodations for parents and their children to wait in PHC facilities.

4.2 Knowledge about vaccination in general

Parents' knowledge about vaccination

The vaccines are used to infect the body. The immune system produces immunoglobulin, which protects the child from further infection.

Parent 4.2.1,
FGD, Yerevan

The vaccine is the same as the "infection", like mumps and measles. If the child gets these diseases, he/she will suffer from the mild forms because he/she received the vaccine.

Parent 4.2.2,
FGD, Shirak marz

Because of vaccines, our children acquire immunity against certain dangerous diseases like mumps, measles, hepatitis B, poliomyelitis, and diphtheria.

Parent 4.2.3,
FGD, Shirak marz

Some years ago the new vaccine was introduced which protects from meningitis and pneumonia.

Parent 4.2.4,
FGD, Shirak marz

It is very important to vaccinate because when children get sick with the disease for which they have been vaccinated, they carry the disease easier than if they have not been vaccinated.

Parent 4.2.5,
FGD, Shirak marz

If a child is not vaccinated then he/she tolerates the disease more poorly than if he/she had been vaccinated. The consequences of the disease also can be worse than for a child that had been

vaccinated. Also, when we get some side effects from vaccination, we don't worry about it because it [AEFI] *means that the body is undergoing certain changes* [adequately responding to vaccine].

Parent 4.2.6,
FGD, Shirak marz

If the child is not vaccinated he/she will not have the immunity against certain diseases like mumps and measles and will get the severe forms of the disease, which might have severe consequences. These children may develop disabilities or some mental disorders.

Parent 4.2.7,
FGD, Shirak marz

The non-vaccinated children are suffering from the severe forms of the disease compared to the vaccinated ones.

Parent 4.2.8,
FGD, Yerevan

Sources of information for parents

The main source of the information regarding the vaccination is the community doctor and the nurse.

Parent 4.2.2,
FGD, Shirak marz

We get our primary information about the vaccines from our village doctor and the nurse and we are very satisfied. Sometimes we get the information from other sources like books provided by the nurse, the internet-but it is not widely available, the child's "health passport", other doctors and more experienced parents [all ten parents in the group agreed].

Parents 4.2.9,
FGD, Shirak marz

Besides the doctor and the nurse, we get information from TV. We don't have any other sources of information here [in a village].

Parent 4.2.10,
FGD, Shirak marz

Our doctor [PHC pediatrician] *also talks to us about vaccines… but it is not sufficient. I find more information on the internet.*

Parent 4.2.1,
FGD, Yerevan

We first received information about vaccination in the maternity hospital. Then our children were provided with their "health passport" which has information about their vaccination schedule.

Parent 4.2.11,

FGD, Shirak marz

Some of my friends are doctors and I always ask questions to them about vaccinations.

Parent 4.2.12,
FGD, Yerevan

Providers knowledge

Sometimes healthcare professionals do not have enough information about vaccines. Even if they know the disease for which the vaccine protects people, they do not have enough information to appreciate its [vaccine's] *importance and to persuade parents to vaccinate their children.*

Teaching staff/scientist 4.2.1,
IDI Yerevan

There are groups of health care providers who are against vaccination, because of their lack of information about vaccinations. There were trainings about vaccinations especially for polyclinic staff in recent years, but misinformation about vaccinations still exists among health care providers especially of other specializations [non-pediatricians].

Policy maker/Expert 4.2.1,
IDI, Yerevan

Most of the parents were informed about vaccination, its importance and the vaccine preventable diseases. Parents from both urban and rural areas (with the exception of one vaccination-resistant parent from Yerevan) indicated that vaccination immunized children against diseases and assured that if they got sick they developed only a mild form of the disease. The main reported source of information about vaccination for parents was their children's pediatrician. Other sources included other doctors, TV, the internet (more commonly for parents from Yerevan), booklets and pamphlets about vaccination and the Child Vaccination Passport. The majority of the teaching staff/scientists and policy makers/experts stated that some health care professionals lacked understanding vaccination and their importance.

4.3 Attitudes about vaccination in general

4.3.A Perceptions and beliefs towards vaccination in general

Vaccination considered a positive thing

All vaccines have some side effects, but the severity of the side effects is lower than the severity of the disease that the child may have in case of not vaccinating.

Other physician 4.3.A.1,

FGD, Yerevan

As a doctor and a person who works in the public health sector, I can say that of course vaccinations are important and necessary… Personally, I am from the group of people who actively support the use of vaccines, as they are a necessity and [vaccination] *must be done… I am pro-vaccination, because even though there are 2-3 complicated cases in 1000 children, it does not mean that the rest of the 997 children must not be vaccinated and put under risk.*

NGO member 4.3.A.1,
FGD, Yerevan

I worked in this field [pediatrics] *almost 40 years, and I can state that vaccination is a positive thing. We had many cases of diseases that have disappeared and became less prevalent due to vaccination.*

PHC physician 4.3.A.1,
FGD, Shirak marz

Fear/concern about side effects and AEFI

Doctors [PHC providers] *are not protected. If something happens with a child after the vaccination, doctors are blamed - regardless of the reason for adverse event following immunization.*

Other physician 4.3.A.2,
FGD, Shirak marz

Even though it is written in the guidelines that the child can be vaccinated when having high fever, doctors are very careful and avoid vaccinating them during this time. I don't blame them, because I believe that they have the right to make this decision, because if something goes wrong, the entire fault falls on the doctor. So, they try to avoid any problems and keep themselves protected in some way and I don't think we can blame them for that.

NGO member 4.3.A.1 #1,
FGD, Yerevan

All severe AEFIs are mistakenly attributed to doctors' carelessness and not due to the vaccines' quality or child's immune system's response.

PHC physician 4.3.A.2,
FGD, Yerevan

No one can assure that vaccine-related side effects will not occur - neither vaccine manufacturers, nor importers, and nor immunization program administrators. If anything negative happens to the child after the vaccination, all of the burden falls on the pediatrician's shoulders.

PHC physician 4.3.A.3,
FGD, Shirak marz

They [health care providers] *are not protected and they know that whatever happens after the vaccination, they will be blamed and have to answer for it.*

Policy maker/Expert 4.1.A.1,
IDI, Yerevan

Uncertainty about long-term adverse effects of vaccination

***…** I have a relative, whose child was vaccinated at about 3 years old…. The child was normal, didn't have any problems … I don't know if they had vaccinated at the wrong time or the vaccine wasn't any good, but the child developed epilepsy.*

Media representative 4.3.A.1,
FGD, Yerevan

It [vaccination] *helps regarding some diseases, but we don't know what else happens after vaccination!*

Parent 4.3.A.1,
FGD, Yerevan

Who knows what happens with a child 10 years later [after vaccination] *and why it happens? Why do we currently have lots of problems – autism, blood diseases, neurologic problems?...*

Parent 4.3.A.2,
FGD, Yerevan

To tell the truth when I call children to vaccination every time I ask myself whether or not I am doing what is right. I am not sure.

PHC physician 4.3.A.4,
FGD, Yerevan

I am not sure whether we are doing the right thing and whether a vaccine would not adversely impact the child's health to some extent.

PHC physician 4.3.A.2,
FGD, Shirak marz

We administer so many vaccines to a child at one time, and we are not sure what would happen with the child's health in the future. We are not sure whether too many vaccines given at one time would not harm the child's health. The vaccines contain different stabilizers in their content and we are not sure what harm they would have on the children's health in the future.

PHC physician 4.3.A.5,
FGD, Shirak marz

Some participants expressed positive attitudes towards vaccination in general. Most of the PHC providers and policy makers/experts mentioned that physicians were concerned about adverse reactions. Different participants, including health care providers and some parents, had concerns and fears about the possibility of long-term adverse effects of vaccination.

4.3.B Vaccines preferences

Preferred and non-preferred vaccines

…as poliomyelitis is an intestinal infection then the vaccine should definitely be administered to children in Armenia. I advise parents to have their children vaccinated for poliomyelitis. However, I advise this vaccination be given to a child after one year of age… Hepavax is uselessl… We don't need Pentavaccine. It is unnecessary.

Other physician 4.3.B.1,
IDI, Yerevan

I refused to vaccinate my children. They only received vaccine against poliomyelitis. I was afraid of post-vaccination reactions.

Other physician 4.3.b.2,
FGD, Shirak marz

My children received vaccination only against tuberculosis and poliomyelitis. I refused the others.

Other physician 4.3.B.3,
FGD, Shirak marz

… I hear different stories about post-vaccination reactions. Now I will probably refuse all vaccinations except the poliomyelitis vaccine.

Parent 4.3.B.1,
FGD, Yerevan

I know that people have some preferred vaccines. They prefer ADTP rather than Pentavax. In the past they preferred ADT to ADTP because they knew that the vaccine against whooping cough had post-vaccination reactions.

Teaching staff/Scientist 4.3.B.1,
IDI, Yerevan

People prefer to vaccinate their children against TB but they have a negative attitude towards hepatitis B vaccine.

Policy maker/Expert 4.3.B.1,
IDI, Yerevan

People are more concerned when there is an outbreak

I was working in a team of specialists when there were hundreds of cases of deaths from diphtheria in our neighboring countries. We conducted a very successful awareness campaign, and as a result after learning about the situation, parents were approaching us and demanding that we vaccinate their children.

Policy maker/Expert 4.3.B.2,
IDI, Yerevan

…when we had a chickenpox epidemic, many of them [doctors] *were wondering whether there's a vaccine against chickenpox. But I assure you that if anybody had tried to promote the chickenpox vaccination before the epidemic, it would have been met with resistance from those same doctors.*

Policy maker/Expert 4.3.B.3,
IDI, Yerevan

Generally there was a reported preference by parents and health care providers for vaccines against tuberculosis, poliomyelitis and diphtheria, and more opposition to Hepatitis B vaccine and sometimes Pentavaccine. Some policy makers/experts noted that parents were more likely to vaccinate their children when there was an outbreak of a vaccine-preventable disease.

4.3.C. Attitudes about National Immunization Program

Improvement of the National Immunization Program

There have been improvements in both the functioning and the awareness of both health care workers and the general population about vaccination over the last few years… There has undeniably been some progress [in the field of immunization].

Policy maker/Expert 4.3.C.1,
IDI, Yerevan

Without doubt, yes, there is a great deal of progress [in the Immunization Program]. *The situation was very bad before improvements were made, but now the program is very successful.*

Policy maker/Expert 4.3.C.2,
IDI, Yerevan

Currently we apply immunization procedures and protocols based on the WHO standards which are applied worldwide. All organizations engaged in vaccination in Armenia, including the Ministry of Health, the project coordinator and UNICEF, do everything possible to assure that an evidence-based approach is applied.

Policy maker/Expert 4.3.C.1,
IDI, Yerevan

Improved coverage

… There is sufficient vaccination coverage… the refusal rate is not high. It is less than 1%.

Other physician 4.3.C.1,
FGD, Shirak marz

In our polyclinic the vaccination coverage is the highest. I have 140-150 children of 0-2 years old in my catchment area, and we have almost full coverage. During the recent years the coverage has improved further.

PHC physician 4.3.C.1,
FGD, Shirak marz

According to the official data (including the DHS) the vaccination coverage is high, indicating that there has been a lot of work done in this area.

Teaching staff/Scientist 4.3.C.1,
IDI, Yerevan

Currently, the total vaccination coverage in our marz is 98.6%.. The number of refusals is very small. There might be one refusal in each polyclinic or even less.

Policy maker/Expert 4.3.C.3,
IDI, Shirak marz

Improved quality of vaccines

In the past, we had vaccines from India that had a lot of side effects… There was a time that we had a lot of side effects because the vaccines were of poor quality.

Other physician 4.3.C.2,
FGD, Shirak marz

…today we don't have any problems with the quality of vaccines. Vaccines provided at the polyclinics are effective and safe.

Other physician 4.3.C.3,
FGD, Yerevan

...Our pediatricians know that the vaccinations they perform both at the maternity hospital and later at the PHC facilities are safe and do not have major side effects. They administer them to children without any hesitation or problems.

Policy maker/Expert 4.3.C.3,
IDI, Shirak marz

Improved awareness of health care providers and population attitude about vaccination

Now mothers are more educated about vaccination than they were in the past… Many parents have positive attitudes towards immunization.

Other physician 4.3.C.4,
FGD, Shirak marz

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The population awareness about vaccination is high since the vaccination coverage is high in our marz meaning that our parents are interested very much in their children vaccination.

Policy maker/Expert 4.3.C.3
IDI, Shirak marz

In the past we [physicians] *were calling parents to convince them to bring their child for vaccination. Now the situation has changed - parents are more interested in vaccinating their children.*

PHC physician 4.3.C.1, #2
FGD, Yerevan

The policy makers/experts acknowledged and welcomed the improvements in the National Immunization Program over the last five years. They noted improvements including evidence-based international guidelines and protocols. In addition, some health care providers, policy makers/experts, teaching staff/scientists indicated that the vaccination coverage had improved, vaccines were of better quality and safer and parents and health care providers were more informed about vaccinations.

4.3.D Main concerns in conducting vaccinations

Preliminary check up prior to vaccination

We [PHC providers] *can't examine children sufficiency to be sure that they are completely healthy. We just use a stethoscope and tongue depressor… It would be good if children were consulted also by an infectionist, an allergist and a neurologist prior to vaccination.*

PHC physician 4.3.D.1,
FGD, Yerevan

*In Moscow, polyclinics providers take blood tests and conduct consultations in all cabinets for the child before vaccination. Then, if everything is ok, they vaccinate the child. In Armenia, on the day of vaccination the nurse directs the parents to give a half tablet of Taveg*il [anti-allergy drug] *to the child and then bring the child to the facility for vaccination. This is a bad practice. Maybe the child has a health problem that might be missed.*

Media representative 4.3.D.1
FGD, Yerevan

They [physicians] *don't examine a child thoroughly before administering the vaccine. They only check the temperature and if there is none, they vaccinate the child… Before vaccination they should test whether the child is healthy to tolerate the vaccine.*

Media representative 4.3.D.2,
FGD, Yerevan

I know that in Russia children are not vaccinated if they do not have a complete physical exam. At least a general blood analysis should be conducted in Armenia before vaccination, especially before administering Pentavaccine to children. Children should be totally healthy before vaccination.

Other physician 4.3.D.1,
FGD, Yerevan

Sometimes children are inadequately examined and we don't know whether or not they have some contraindications for being vaccinated.

PHC physician 4.3.D.2,
FGD, Yerevan

Narrowed list of contraindications

Currently there are fewer contraindications for vaccination; even an elevated temperature of 37ºC is not a reason to postpone vaccination, but we cannot persuade parents to bring their children for vaccination when they have a 37ºC fever [all nine physicians of a group agreed].

PHC physician 4.3.D.3,
FGD, Shirak marz

When we have a child with a 37ºC fever or a mild disease, then the vaccination is not contraindicated based on the recent guidelines, but we do not want to place more risks on ourselves and so we advise parents to bring their children when they feel better. In this situation we record the child's illness as more severe than it really was to avoid problems.

PHC physician 4.3.D.4,
FGD, Shirak marz

It would be better to revise the contraindications for vaccinations because there are some conditions, for example anemia or incubation period of infectious diseases that need more attention because these children cannot be vaccinated.

PHC physician 4.3.D.5,
FGD, Yerevan

In such cases [when the health condition is not a contraindication for vaccination] *I tell the parent that it is not a contraindication but it would be better not to vaccinate the child now. I ask the parent to sign a refusal form, and attach it to the medical record to protect myself from the SanEpi staff… I changed my own protocol myself in the place where the protocol indicated that children* [weighting] *more than 2 kilograms should also be vaccinated because based on my long work experience; I know that these children develop severe adverse reactions after vaccination.*

PHC physician 4.3.D.6,
FGD, Yerevan

Nowadays we don't have limited contraindications for vaccinations. Prior to this, thymomegaly was a contraindication, but today we should perform it [vaccination] *even if a child has high temperature or running nose.*

PHC physician 4.3.D.2,

FGD, Yerevan

Sometimes immediately after the discharge from the hospital, children without complete recovery are vaccinated by the primary health care doctors and their condition becomes even worse. The current vaccination contraindication guideline should be updated: there must be a specification on how long after hospital discharge children are eligible for vaccination.

Other physician 4.3.D.2,
FGD, Shirak marz

AEFI reporting

We [PHC providers] *cannot strictly distinguish AEFI from diseases. Formally I should send this patient for testing at the immunological laboratory in Yerevan to check for other infections, which is time-consuming both for me and for the patient as well. I should conduct a kind of epidemiological investigation. Very often we do not report AEFI to avoid the paperwork and the bureaucracy.*

PHC physician 4.3.D.3,
FGD Shriak marz

We have problems with SanEpi with vaccine-related side effects reporting. They deter us from reporting vaccine-related side effects and the reporting is also very time-consuming and requires lots of paperwork.

PHC physician 4.3.D.4,
FGD, Shirak marz

Pentavaccine really has severe AEFI which are not registered [informal deterrence] *and underreported*.

PHC physician 4.3.D.5,,
FGD Yerevan

The pediatricians [at PHC level] *are concerned about having such cases* [cases with AEFI side effects], *therefore they are not registered.*

Teaching staff/Scientist 4.3.D.1,
FGD, Yerevan

Sometimes they [PHC pediatricians] *are afraid of having cases with AEFI. These are dealt with between parents and providers privately. They need to immediately report the case to the authorities, and then an epidemiological investigation should be arranged. .*

Teaching staff/Scientist 4.3.D.2,
FGD, Yerevan

We [immunization experts] have *explained it to them* [PHC providers] *a million times that nobody would be blamed for adverse reactions* [AEFI], *but they should be recorded so that we can know how the vaccine is doing and whether there are any issues with its quality and safety. They* [PHC physicians] *don't want to be involved because there is a lot of paperwork they have to do it.*

Policy maker/Expert 4.3.D.1

FGD, Yerevan

Some participants (mostly health care providers, a few parents and media representatives) raised the issue that very often children were not thoroughly examined before vaccination. Some PHC providers noted that they did not have the capacity in polyclinics to more thoroughly examine the child, though participants suggested enhancing pre-vaccination examinations.

All PHC providers complained about the reduced list of contraindications for vaccination, which led them to not following the guidelines for some contraindications and misreport the severity of child illnesses.

The majority of PHC providers stated that reporting of AEFI required excessive paperwork and effort, leading to inadequate reporting. This was further amplified by informal pressures not to report AEFI. However, one policy maker/expert emphasized the importance of accurate reporting of AEFI to improve the safety and quality of vaccines.

4.3.E Vaccine supportive groups

I will recommend my friends/relatives to vaccinate their children because vaccination is commonly conducted all over the world and vaccine-preventable diseases are very widespread. If they [parents] *do not vaccinate their children the children may suffer from more severe disease.*

Parent 4.3.E.1,
FGD, Shirak marz

Vaccination is very important and we don't hesitate to vaccinate our children [all seven group members agreed].

Parent 4.3.E.2,
FGD, Shirak marz

Of course vaccinations are important and necessary; I am one of those people who actively supports the use of vaccines, as they are a necessity and must be done.

NGO staff 4.3.E.1,
FGD, Yerevan

I have participated in some seminars organized by the Ministry of Health, this is why my attitude towards vaccination is much more positive than negative.

Media representative 4.3.E.1,
FGD , Yerevan

We [hospital doctors from Yerevan] *bring examples from our families, from our own children to persuade parents about the importance of vaccination* [all seven group members agreed]..

Other physician 4.3.E.1,
FGD, Yerevan

Vaccination is considered to be the best, cheapest and most effective mean of disease prevention for everybody.

Policy maker/Expert 4.3.E.1,
IDI, Yerevan

All rural mothers were supportive of vaccination, indicating that it is important and necessary for the health of their children. Hospital doctors from Yerevan were very supportive of vaccination, stating that they fully vaccinate their children and share their examples to persuade other parents to get their children vaccinated. Majority of the teaching staff and scientists and all policy makers/experts (who are engaged in the vaccination program) also supported vaccination.

4.3.F Vaccine resistant groups

Generally, it is more educated parents who are interested in their children's health that refuse vaccination. They have concerns that vaccination could be harmful.

Other physician 4.3.F.1,
IDI, Yerevan

In the majority of cases those parents that refuse to have their children vaccinated are doctors. Especially SanEpi doctors, who require us to vaccinate other children but at the same time they don't vaccinate their own children.

PHC physician 4.3.F.1,
FGD, Yerevan

There are religious parents that do not allow their children to be vaccinated. There are parents whose children experienced some health problems after the vaccination that the parents associate with the vaccination, thus they refuse to vaccinate their next child.

Policy maker/Expert 4.3.F.1,
IDI, Yerevan

Those [persons that refuse their children to be vaccinated] *are parents belonging to different religious groups and parents who are physicians.*

PHC physician 4.3.F.2 ,
FGD, Yerevan

I [mother with a university education] *refused to have my son* [the only child of that mother] *vaccinated. I don't consider vaccination justified.*

Parent 4.3.F.1,
FGD, Yerevan

My child [the only child of that mother] *has received all the vaccines before the age of three. Then he was diagnosed with the autism and we did not allow any more vaccinations*.

Parent 4.3.F.1,
FGD, Yerevan

I [vaccine-resistant mother] *know many future mothers that are going to refuse their children to be vaccinated. I advise these mothers to think before and then act*. *I know a mother that has an 11 month-old child that is mentally underdeveloped. However, doctors forced her to vaccinate her child. She lives in poor living conditions and has a low socio-economic status.*

Parent 4.3.F.1,
FGD, Yerevan

I must add that, the development of traditional medicine or homeopathy is also affecting this. Homeopaths insist that the vaccine is a foreign substance, an antigen, and it would be better if a person contracted the disease and developed immunity.

NGO staff 4.3.F.1
FGD, Yerevan

All study participants from all groups noted that usually more educated urban parents (mostly from Yerevan), parents who are health care providers (mostly physicians), parents who have relatives/friends who are health providers, parents from certain religious groups, parents who associate the impaired health of the child with vaccination and people supportive of homeopathy are major groups of people identified who are opposed to vaccination.

4.3.G Sources of vaccination opposing information for resistant groups

The main group who are the biggest obstacles against children's vaccination includes health care providers, since they are the primary source of information on vaccinations for the general population.

Policy maker/Expert 4.3.G.1,
IDI, Yerevan

Usually primary health care providers and allergists or immunologists in the polyclinics are providing negative information against vaccination. If the child had some predisposition to allergies, these physicians advise vaccinating the child with a milder vaccine .

Teaching staff/Scientist 4.3.G.1
IDI, Yerevan

They [providers] *say just administer the very necessary vaccines to children, especially if it is of*

one of the vaccines that have several vaccines in one.

Parent 4.3.G.1,
FGD, Yerevan

In maternity hospitals doctors tell parents that it would be better not to vaccinate their children.

PHC physician 4.3.G.1,
FGD, Yerevan

Very often due to misinformation originating from maternity hospitals, parents want their children to be vaccinated against TB but are opposed to the hepatitis B vaccine. Neonatologist in maternity hospitals very often do not provide enough information about the importance of hepatitis B vaccine, and only asks the parent "do you want your child to be vaccinated against hepatitis B here or prefer to receive it at the polyclinic?"

Policy maker/Expert 4.3.G.1,
IDI, Yerevan

After hospital treatment, hospital doctors tell them [parents] *not to vaccinate their children because they are still weak. That is why parents are misinformed and do not vaccinate their children.*

PHC physician 4.3.G.2,
FGD, Yerevan

Hospital doctors create barriers for child vaccination.

PHC physician 4.3.G.3,
FGD, Shirak marz

There are many reputable health care providers-professors who are opposed to vaccination based on their subjective perception, which has a big impact on parents decision to have their children vaccinated.

Policy maker/Expert 4.3.G.1,
IDI, Yerevan

In our country media has a role in disseminating negative information about vaccination. When a parent associates the illness of his/her child with vaccination, the media reports this to the public as a fact immediately.

Policy maker/Expert 4.3.G.2,
IDI, Yerevan

The main reason for parents refusing to have their children vaccinated is TV programs on Russian channels. They present terrible cases of children that were disabled after the vaccination.

Other physician 4.3.G.1,
FGD, Shirak marz

I read from the internet about the harms of vaccination. When you get a lot of information you should analyze it, understand what is credible; also I consider the opinions of some doctors [who

are opposed to vaccines].

Parent 4.3.G.2,
FGD, Yerevan

Some parents bring even DVDs of AEFI to convince me….

PHC physician 4.3.G.3,
FGD, Yerevan

There are some anti-vaccination video clips circulating in the population, which of course impacts the individuals' mindsets on this topic.

Policy maker/Expert 4.3.G.3,
IDI, Yerevan

The majority of the participants stated that health care providers, especially hospital doctors and maternity neonatologists, including reputable doctors, were often the primary source of information opposing vaccination. Participants across all groups agreed that currently media and Internet, especially Russian TV programs and websites, were influential sources disseminating negative information on vaccines.

4.3.H Reasons of refusals and postponed vaccinations

Reasons of refusals

Those parents [who refused vaccination for their children] *do not provide any justification for their refusals, they just refuse without any explanation. They are very resistant and do not accept any justification or information we provide them concerning the benefits of vaccination.*

PHC physician 4.3.H.1,
FGD, Shirak marz

It is possible that a reason for refusals might be due to past negative experiences with vaccinations of their child or hearing about their neighbors' child's bad experiences.

Other physician 4.3.H.1,
FGD, Yerevan

If their child had AEFI like high temperature, continuous crying, parents may refuse to have their child vaccinated with the next vaccine. I have heard about such cases.

Other physician 4.3.H.2,
FGD, Shirak marz

For some parents that belong to certain religious groups, their religion impacts their decision not to vaccinate their child. In other cases it might be the impaired health of the child that makes the parent to refuse vaccination.

Policy maker/Expert 4.3.H.1,
IDI, Shirak marz

Our elder child received all the vaccines. The next one received some of them. And the younger child also received some vaccinations but not all, since I noticed that after each vaccination my child [younger child] *became ill- not right after the injection but some time later, she started to get sick more often than before vaccination.*

Parent 4.3.H.1,
FGD, Yerevan

Sometimes they refuse to get their children vaccinated, explaining that they weren't vaccinated in their childhood [or did not tolerate it well during the childhood] *and that their children also don't need to be vaccinated.*

PHC physician 4.3.H.2,
FGD, Shirak marz

Often doctors refuse to vaccinate their own children because they do not want to create an antigen overload for their children's bodies, which I think is absurd.

Other physician 4.3.H.3,
FGD, Yerevan

We [doctors that conduct vaccinations] *interfere with the children's immune system, injecting a foreign protein which later can harm the immune system. It's all because we do not know how the immune system functions.*

Other physician 4.3.H.4,
IDI, Yerevan

I have a friend who is a gynecologist that refused to vaccinate her own children, explaining that we destroy the immune barrier of children by vaccinating them and that is not acceptable. I agree with her in the case of Pentavaccine. There are many problems when you combine five vaccines all together. That's why the rates of nervous diseases have increased today.

PHC physician 4.3.H.3,
FGD, Yerevan

Vaccines contain some substances that activate immunity. And taking into account the short intervals between vaccinations, it means that a child's immune system is always overloaded. Like everything overloaded, a child's immune system would explode some day! This is why today we have a lot of problems with autism, blood diseases and neurologic problems!

Parent 4.3.H.2,
FGD, Yerevan

Generally, parents whose children were hospitalized under the age of one year refuse to have their children vaccinated later.

PHC physician 4.3.H.4,
FGD, Yerevan

Very often parents are concerned with vaccination-related fever, leading them to refuse their children being vaccinated with the third dose of Pentavax.

PHC physician 4.3.H.5,
FGD, Shirak marz

Sometimes we have problems with the third Pentavax vaccination, there are refusals for the third shot of Pentavax, the problem is that fever reactions occurring after the first two shots lead the parents to postpone the third one. Also they hear negative things about this vaccine from their community, which leads them to stop the third shot of Pentavax.

PHC physician 4.3.H.6,
FGD, Shirak marz

Neonatal jaundice, which occurs on the 2nd -3rd day after delivery, is associated with Hepavax, which is just coincidence.

Other physician 4.3.H. 5,
FGD, Yerevan

When we have high bilirubin, we have serious consequences later with liver and nervous system impairment. It is caused by Hepavax.

Other physician 4.3.H.4,
IDI, Yerevan

According to my investigations, the second vaccination with Hepatitis B in newborns often can lead to serious consequences such as autism, disability and even death.

Media representative 4.3.H.1,
FGD #6, Yerevan

If other children are vaccinated then my unvaccinated child will not get sick with that disease.

Parent 4.3.H.3,
FGD, Yerevan

I think 2-3 vaccinations are enough. Then the immune system will respond properly. I think that it [2-3 vaccines] is sufficient based on my intuition. …we understand the notion of herd immunity. What will happen if 99 % of children be vaccinated and my child is not vaccinated? It's herd immunity.

Parent 4.3.H.4,
FGD, Yerevan

Reasons of Postponements

The main reasons to postpone vaccinations are acute diseases and high temperature of the child.

Other physician 4.3.H.2,
FGD, Shirak marz

My child was suffering from sepsis and was in the hospital. Our doctor told us that we needed to postpone the vaccination. After 20 days she called us to come and get the vaccine.

Parent 4.3.H.5,

FGD, Shriak marz

When the mother tells that the child had an illness a week ago, I recommend they postpone the vaccination for 2-3 weeks.

Other physician 4.3.H.6,
FGD, Shirak marz

Sometimes people are busy with their housework and/or fieldwork, are out of the country, or the outdoor temperature is too extreme which leads them to postpone having their children vaccinated.

PHC physician 4.3.H.7,
FGD, Shriak marz

Postponements of vaccinations occur more often during winter- when there is a risk of acute respiratory infections increase; there are more postponements because children have fever. In addition, during winter transportation to health care facilities may be difficult especially in remote areas due to snow.

Policy maker/Expert 4.3.H.2,
IDI, Shirak marz

Study participants identified several reasons why parents refuse to have their children vaccinated. According to the majority of the participants, these reasons included AEFI among their elder children, children of their community members and, parents' negative experiences with vaccination in their childhood. In some cases, especially parents who were physicians, refused vaccinating their own children not to overload the child's immune system. Most health care providers noted that refusals more often occur for certain vaccines, such as Hepatitis B vaccine or the third dose of Pentavax. Some parents from Yerevan with higher education level indicated that herd immunity would protect their unvaccinated children. Participants across all categories identified many medical and non-medical reasons for postponing children's vaccinations.

4.4 Suggestions for gaining support for vaccination in general

First of all we all need to work more with health care providers… and we really need to have more campaigns [information/education]*, accompanied with evidence-based information. Sometimes it is more effective when you use real numbers and evidence while conveying a message. I think PHC physicians, as well as physicians from in-patient services should all have their role in it* [vaccination promotion campaign]*. Moreover, there should be a general public awareness campaign.*

Policy maker/Expert 4.4.1,
IDI, Yerevan

The MOH must organize training of trainers courses to train primary healthcare professionals. The training that uses international data will probably not be sufficient for our doctors. They always ask for local data such as burden of disease and screening results, which do not exist. There is total indifference to the science in this field. People do not recognize that there is a need for local research rather than only relying on international data. The same vaccination program may have different effects in different countries, which depends on the prevalence of the disease.

Teaching staff/scientist 4.4.1,
IDI, Yerevan

We should undergo training so that we can develop a comprehensive understanding about vaccination and know how to apply this knowledge to work. I educate medical students, so I have to know everything to respond to questions related to vaccination.

Teaching/University staff 4.4.2,
FGD, Yerevan

These things [vaccination topics] *must be included in medical education, so that physicians have some basic information on vaccination.*

Policy makers/Expert 4.4.2,
IDI, Yerevan

People who educate doctors in the medical university should be included in vaccination training and population awareness campaigns.

Teaching/University staff 4.4.3,
FGD, Yerevan

It is necessary to involve mass media to inform people adequately about vaccinations through TV advertisements…. For example, we had diphtheria cases in the past, but thanks to vaccinations we don't have any cases today - the same with Hepatitis… But people don't know about these achievements because they are not adequately informed. That is why we need a mass media campaign.

PHC physician 4.4.1,
FGD, Yerevan

It is necessary to increase parents' awareness about vaccination by health care providers, both by PHC physicians and nurses. It is necessary to involve mass media in vaccination promotion activities.

Policy maker/Expert 4.4.3,
IDI, Yerevan

Ten years after the introduction of hepatitis B vaccine it would be great to evaluate and see the prevalence of the antigen among vaccinated people. We need some money and the commitment of authorities to do this study.

Teaching/University staff 4.4.4,
IDI, Yerevan

Can you give me a case when children were examined for antibodies after vaccination? Not one. We have neither studies nor individual cases where antibodies were measured.

Other physician 4.4.1,,
IDI, Yerevan

If the message is not sensationalized and emotionally explosive in the media, then the population would not find it interesting.

Media representative 4.4.1,
FGD, Yerevan

Currently vaccination is not an interesting topic in the media. We need to sensationalize the topic to make it interesting in the media. If something bad happens due to vaccination Armenian media will pick it up right away. We need to sensationalize a positive message about vaccination. It is very easy to do.

Media representative 4.4.2,
FGD, Yerevan

It would be nice if they [MoH] *took the initiative for media messages sometimes as well. If a journalist calls, they just say that we have this problem. So, then the journalist tries to identify the specialist and speaks to them, but this person can refuse to talk....*

Media representative 4.4.3,
FGD, Yerevan

It will be better for a media initiative to come from the Ministry of Health. The journalists are not proactive; they just do their jobs reactively. I have never seen that Ministry of Health to come up with some suggestions.

Media representative 4.4.2,
FGD, Yerevan

I think that the Ministry of Health's website should be changed a little bit. It should be user-friendly and people should be able to write questions and receive answers on it. If a parent has a question, they shouldn't call our media agency for answers rather they should be able to write the questions to the Ministry of Health with assurance that they would be answered.

Media representative 4.4.3,
FGD, Yerevan

It may be reasonable to have a website where parents can share their questions, concerns, and may have access to evidence-based information regarding vaccination.

Policy maker/Expert 4.4.4,
IDI, Yerevan

The mothers should be educated about vaccination starting in the prenatal clinics so they do not face uncertainty in whether or not to vaccinate their child at a maternity hospital.

Parent 4.4.1,
FGD, Yerevan

Prenatal care clinics do not function appropriately in Armenia and do not provide any information on vaccinations to future mothers. They do not prepare women for delivery and care of the child. New mothers should be ready to make a decision about their children's vaccinations in the maternity hospital. Otherwise, given what they hear in the maternity hospital, they might refuse to have their children vaccinated.

Parent 4.4.2
FGD, Yerevan

Most of policy makers/experts and teaching staff /scientists agreed that it was essential to increase PHC and hospital providers' awareness and confidence in vaccination safety and effectiveness through regular trainings. One of the policy makers suggested including other specialists in vaccination training as well to reduce their lack of confidence in vaccinations and their importance. Most of the teaching staff /scientists and a few policy makers/experts indicated the need to involve university staff in vaccination trainings and to integrate vaccination topics into medical curricula. Some teaching staff/scientists and health care providers highlighted the need for providing not only international but also local evidence-based information derived from local studies and evaluations to professionals involved in vaccinations as well as to the general public. In addition, some participants indicated that it was important to educate mothers in prenatal care about the importance, safety and effectiveness of having their children vaccinated.

All the participants noted the important role of media in increasing population awareness about the safety and effectiveness of vaccination. Almost all media representatives indicated that the general population was more interested in sensational negative reporting and recommended developing positive promotional messages for vaccinations to counter sensational negative reporting on vaccinations. Media representatives also reported that sometimes they had difficulties obtaining credible information on health topics because there was no conduit for such information from the Ministry of Health and health care providers were not always willing to talk to media. Some media representatives and one of the policy makers/experts suggested that

the Ministry of Health could be more proactive in health education and promotion on vaccines and develop a more interactive website to answer questions from the general public.

4.5 Perception/attitudes about new vaccines

4.5.A. Resistance to new vaccines

I am opposed to any new vaccine even if it is an oral vaccine. But I would still like to know what is it for, what kind of disease does it protect against and is it justified or not… How to know that it [the new vaccine] *is not a "game" and our children are not experimental Guinea pigs.*

Parent 4.5.A.1,
FGD, Yerevan

Is there any research about the safety of the vaccine? We do not want to be the first "experimental animals" for this vaccine.

Parent 4.5.A.2,
FGD, Yerevan

It is enough! Let's stop introducing new vaccines. Our kids are poor. Let them to do their experiments in other countries - our kids are not experimental rabbits for their use.

PHC physician 4.5.A.1,
FGD, Shirak marz

Perceptions about oral or injectable new vaccines

We prefer oral vaccines because they are easier to administer and are not painful for our children as compared to painful injectable vaccines.

Parent 4.5.A.4,
FGD, Shirak marz

We prefer oral vaccines because they have the same effectiveness as injections. The vaccine goes into the stomach, is absorbed into the blood and produces the same result as injections.

Parent 4.5.A.5,
FGD, Shirak marz

Injectable vaccines are better than oral - they are more effectively absorbed in the body.

Parent 4.5.A.6,
FGD, Shirak marz

Some parents from Yerevan and health care providers were opposed to the introduction of a new vaccine into the National Vaccination Schedule, believing that Armenian children were being

used as "experimental animals" for new vaccines. Some participants preferred oral vaccines since they were less painful for children; however a few believed that injectable vaccines were more effective.

4.5.B Need for comprehensive evidence for new vaccine

We would like to know what the vaccine is, from which disease it protects and what is the benefit of this vaccine.

Parent 4.5.B.1,
FGD, Shirak marz

We should know what the new vaccine is for, are there any statistics on it, and is the prevalence of this vaccine-preventable disease sufficiently high…

Parent 4.5.B.2,
FGD, Yerevan

I would like to know about the rates of the disease [against which the vaccine protects] *in Armenia.*

Parent 4.5.B.3,
FGD, Yerevan

I would like to know why the vaccine is going to be introduced. What are the potential threats? What is the prevalence of the disease that is going to be prevented?

PHC physician 4.5.B.1,
FGD, Yerevan

I would like to know more about that particular disease for which the vaccine protects including the morbidity, mortality and disability rates.

PHC physician 4.5.B.2,
FGD, Shirak marz

I would like to know the prevalence of the disease and the safety of the new vaccine…

Other physician 4.5.B.1,
FGD, Yerevan

It is necessary to learn the prior burden of the disease that the new vaccine is supposed to protect against in our country, the consequences of that disease, how severe is it, how effective is the vaccine, its administration, side effects, etc.

PHC physician 4.5.B.3,
FGD, Shirak marz

The quality of the vaccine should be a priority. It is also important that the vaccine is tested in other countries. We need to know that it is safe and effective.

PHC physician 4.5.B.3,
FGD, Shirak marz

…Of course we must convey the message on its cost-effectiveness so that we can demonstrate substantial accomplishments with relatively small expenditures. And it is important to emphasize the limited side effects of the new vaccine.

Policy maker/Expert 4.5.B.1,
IDI, Yerevan

I would like to know if the new vaccine is well studied or not. We need to know that it is effective.

Parent 4.5.B.4,
FGD, Shirak marz

First of all there is a need for the epidemiological evaluation of the disease against which the new vaccine is going to be introduced. The final decision should be made based on the results of that study. In addition, a cost-effectiveness analysis should be conducted. The other criteria for the decision should be its safety and known AEFI. It is also important to explore in which countries it is used and how effective it is and its long-term safety. Of course the most important criterion is the evidence about the need of the vaccine in our country.

Teaching staff/Scientist 4.5.B.1,
IDI, Yerevan

I would like to know in which countries this vaccine is used. What countries have already introduced the vaccine? What are the results? How many people had the disease in the country that had introduced this vaccine before?

Parent 4.5.B.5,
FGD, Yerevan

First, we would need to know about the disease, its morbidity and mortality, the experience of other countries, whether the vaccine in question is used in other countries, the positive and negative outcomes and the opinion of experts about whether this vaccine is a necessity in our country…

NGO staff 4.5.B.1,
FGD, Yerevan

Participants from all groups, especially parents, health care providers, teaching staff/scientists and NGO staff emphasized that they would need to be confident about the importance of introduction of a new vaccine in Armenia. According to them, it was necessary to provide complete information about the disease that was going to be prevented through the new vaccine,

evidence that there was really a burden of the disease in Armenia, evidence about the safety, effectiveness and potential side effects of the new vaccine, its cost-effectiveness and credible justification that the new vaccine was really important to implement in Armenia.

4.6 Knowledge/attitudes about diarrhea, Rotavirus (RV) and RV vaccine

4.6.A Knowledge about diarrhea, its prevention and treatment

Knowledge about factors causing diarrhea

My child had diarrhea only once and that was related with teething…. Children may get diarrhea when they have contact with animals.

Parent 4.6.A.1,
FGD , Shirak marz

Diarrhea might be caused by different viruses or bacteria. The rotavirus is very widespread in kindergartens and hospitals. In most cases doctors do not think of viruses as a cause of diarrhea and treat all diarrhea cases with antibiotics [parent with medical education].

Parent 4.6.A.2,
FGD, Yerevan

Diarrhea is mainly caused by poor quality or "old" food, or unclean drinking water. It might also happen that the food is fine, but children develop diarrhea because they have a cold. Diarrhea is very dangerous and is difficult to manage.

Parent 4.6.A.3.
FGD, Shirak marz

Sometimes diarrhea is due to inappropriate diet. After controlling the diet, diarrhea can be treated.

Parent 4.6.A.4,
FGD, Yerevan

Knowledge about prevention and treatment of diarrhea

It is necessary to follow appropriate hygiene to prevent diarrhea, but not too much because being too hygienic is also a bad approach to prevent diarrhea. I know a mother that kept her children so extremely hygienic that they finally developed intestinal infections.

Parent 4.6.A.4,
FGD, Yerevan

Hygiene is very important for preventing diarrhea. We need to keep children's hands clean. They may also get diarrhea from other children.

Parent 4.6.A.5,
FGD, Shirak marz

My child never had serious diarrhea. I was able to prevent diarrhea by providing the child with appropriate diet. I do not think that there is a need for vaccination to prevent diarrhea.

Parent 4.6.A.6,
FGD, Shirak marz

Once my child had diarrhea. We took our child to the doctor and she referred us to the hospital. They told us that the diarrhea was due to the hot weather. At the beginning we tried to manage the diarrhea at home by giving fluids to our child but then decided to take our child to the doctor.

Parent 4.6.A.7,
FGD, Shirak marz

But sometimes if an individual has diarrhea it means that the body is getting rid of infection. Sometimes, I don't try to stop the diarrhea. If you stop it, it means that some toxins that cause diarrhea will not be removed from the body, and they will remain there. I give a lot of water for my child when my child has diarrhea.

Parent 4.6.A.4,
FGD, Yerevan

Usually I give herbal tea when my child has diarrhea.

Parent 4.6.A.8,
FGD, Yerevan

We give coffee with citric acid to treat diarrhea in our children.

Parent 4.6.A.9,
FGD , Shirak marz

Knowledge about RV related diarrhea

We simply know that Rotavirus leads to diarrhea and consequently to dehydration. But we are not informed enough about RV-related diarrhea… we would like to be more informed about it [all ten group members agreed].

PHC physician 4.6.A.1,
FGD , Yerevan

I know that children under five are the most vulnerable group for RV diarrhea. We cannot diagnose RV diarrhea in our daily work since we do not have the means to do that.

PHC physician 4.6.A.2,
FGD, Shirak marz

We have just recently heard about RV. We know that it may start with symptoms of influenza and then diarrhea develops. The only thing we need to do in these cases is to keep the electrolytic balance of the children. There is no need for antibiotics. We do not have a laboratory to test for viral diarrhea. We do not have experience for clinically differentiating RV diarrhea from other diarrheas.

Other physician 4.6.A.1,
FGD, Shirak marz

RV impacts children up to 2 years old worldwide and produces a high mortality rate.
Other physician 4.6.A.2,
FGD, Yerevan

Different parents provided various reasons for children's diarrhea, including poor quality of food, inappropriate diet, unclean drinking water, bacteria and viruses. Some parents stated that diarrhea could be prevented and treated through improved hygiene, appropriate diet, increased water intake and such traditional methods as herbal tea and coffee with citric acid. The majority of PHC providers, from both Yerevan and Shirak marz, requested more information on RV, where they felt their knowledge was deficient. Physicians other than PHC providers who were employed in hospitals in Yerevan were more informed about RV-related diarrhea.

4.6.B Rotavirus related diarrhea as a public health problem in Armenia

RV-related diarrhea is widespread in Armenia [all seven physicians in the group agreed].
Other physician 4.6.B.1,
FGD, Yerevan

I think RV-related diarrhea is an issue for our country. There was a pilot project implemented in Infectious and Arabkir hospitals, which provided evidence that RV diarrhea is widespread in our country. RV-related diarrhea severely impacts the child when first exposed to the virus. It may be accompanied with acute diarrhea and lead to the child's' dehydration. Thus, it is rational to introduce the RV vaccine in our country.
Policy makers/Expert 4.6.B.2,
IDI, Yerevan

I do not think that diarrhea is a serious problem in Armenia, since it is not the primary cause of mortality among infants. It causes fewer deaths than the perinatal disorders and preterm defects. Probably it is in 5th place for causes of mortality on this list. There are many well known effective methods to prevent diarrhea.
Teaching staff/Scientist 4.6.B.1 ,
IDI, Yerevan

RV-related diarrhea is not common in Armenia. During the last year I had just two identified RV diarrhea cases among the children in my catchment area.
PHC physician 4.6.B.1,
FGD, Yerevan

I noticed that the number of diarrhea cases has declined in our region due to breastfeeding….We do not have diarrhea cases and we think that diarrhea is not a problem in our region.

PHC Physician 4.6.B.2,
FGD, Shirak marz

Participants differed in opinions about the seriousness of RV-related diarrhea as a public health problem for Armenia. Some policy makers and some hospital physicians from Yerevan indicated that RV-related diarrhea was a serious problem in Armenia. In contrast, a few teaching staff/scientists and some PHC providers felt that diarrhea, including RV-related diarrhea, was not a significant problem in Armenia.

4.6.C. Attitudes towards RV vaccination

I think it is necessary to vaccinate my child against viruses that cause diarrhea.

Parent 4.6.C.1,
FGD, Shirak marz

I would like to vaccinate my child against this virus [RV] *because once vaccinated if my child develops diarrhea, then it would be mild.*

Parent 4.6.C.2,
FGD, Shirak marz

I think that diarrhea is the "disease of the century". I would like to vaccinate my child against diarrhea.

Parent 4.6.C.3 ,
FGD, Shirak marz

I was strictly against this [RV] *vaccine in the beginning, but then I heard a presentation, saw some results, heard opinions of experts, read some reports and now I support introducing this vaccine in Armenia.*

Policy maker/Expert 4.6.C.1,
IDI, Yerevan

I think that RV vaccine introduction in Armenia is rational since the hospitalization rate is high, especially if evidence-based medicine shows that in other countries the introduction of this vaccine decreases the morbidity rate of RV.

Other physician 4.6.C.1,
FGD, Yerevan

Every month some new vaccine is discovered. What should we do? It would be better to strengthen our immunity. It is meaningless to vaccinate for RV.

Parents 4.6.C.4,
FGD # 10, Yerevan

If you need our opinion - we are against RV vaccination!

PHC physician 4.6.C.1,
FGD, Yerevan

It seems that they try to integrate new antigen into the immune system of our nation and to change our best genes!

PHC physician 4.6.C.2,
FGD, Shirak marz

I do not agree with the introduction of the RV vaccine. To justify the RV vaccine, first we should have substantial numbers of cases of RV-related diarrhea. Currently we do not have many cases of diarrhea; thus, I do not think that it is rational to have an additional allergen introduced into the child's body. It is irrational!

PHC physician 4.6.C.3,
FGD , Shirak marz

I do not think that there is a need for the introduction of the RV vaccine... I do not think that the cost-effectiveness of the vaccine is sufficient justification for the introduction of the new vaccine.

Teaching staff/Scientist 4.6.C.1,
IDI , Yerevan

Hospital physicians from Yerevan and Policy makers/Experts supported the introduction of the RV vaccine to prevent RV-related diarrheas in Armenia. The majority of rural parents also supported the introduction of this vaccine and indicated that they would vaccinate their children. However, parents from Yerevan indicated that diarrhea was not a significant problem and that there was no need to introduce the RV vaccine. The majority of the PHC providers and a few teaching staff/scientists were against introduction of the RV vaccine in Armenia.

4.7 Suggestions for a new vaccine and RV vaccine promotion in Armenia

Suggestions for a new vaccine introduction

It is important to determine the burden of a disease that vaccine is supposed to protect us from in our country. What are the consequences of that disease? How severe is it? And later determine the effectiveness of the vaccine, its optimal administration, side effects, etc.

PHC physician 4.7.1,
FGD, Shirak marz

All health care providers should be informed about the new vaccine. Parents/mothers should be aware of the new vaccine. It is necessary to have health talks with parents on TV.

Policy maker/Expert 4.7.1,
IDI, Shirak marz

We need to increase parents' awareness about the new vaccine using TV programs and send SMS messages by cell phones with information/reminders about the vaccination. It is also necessary to provide parents information about the new vaccine, against which disease it protects the children, its safety.

PHC physician 4.7.2,
FGD, Shirak marz

We should undergo training, so that we will comprehensively understand things; so that we can be sure in our knowledge concerning the new vaccine.

Teaching staff/Scientists 4.7.1,
FGD. Yerevan

M*ass media can help in promoting the introduction of a new vaccine, but media is not always the best approach. A doctor providing information is the best option*.

Parent 4.7.1 ,
FGD, Shirak marz

Almost all of our population watch TV. It is necessary to involve TV and other mass media to promote the new vaccine. Information provided by doctors is also very important but might be less persuasive because it depends on reputation of the doctor.... In rural areas people trust doctors more than in urban areas.

Teaching staff/ Scientist 4.7.2,
IDI, Yerevan

… Educational materials might also help. It would be great if there were posters or leaflets in the polyclinics about the new vaccine.

Parent 4.7.2,
FGD, Yerevan

Suggestions for the RV vaccine introduction

We *need evidence on the burden of the disease* [RV-related diarrhea] *that the vaccine is intended to protect against and also we need evidence that the vaccine is effective in reducing the burden of the disease after its implementation.*

PHC physician 4.7.3,
FGD, Shirak marz

We have some information related to RV, but we are waiting for a training…

PHC physician 4.7.4,
FGD, Yerevan

I think that primary health care providers are most important in providing information on the RV vaccine. But they should be confident that the RV vaccine is safe to recommend it to parents.

Other physician 4.7.1,
FGD, Shirak marz

It is necessary to explain to people that introduction of the RV vaccine is not an experiment but a necessity. The correct information needs to be disseminated.

Media representative 4.7.1.
FGD, Yerevan

We should know whether or not it [RV vaccination] *is appropriate and rational for Armenia, the prevalence of RV-related diarrhea in Armenia and what is the mortality rate from RV-related diarrhea.*

PHC physician 4.7.4,
FGD, Yerevan

Appropriate information should be provided to parents. If a parent thinks that this vaccine protects her child from some kind of diarrhea and if it happens that that child develops diarrhea from other causes then she [parent/mother] *will say that the vaccine is ineffective. People should be informed about the RV vaccine appropriately. Otherwise, there will be greater opposition from parents.*

Other physician 4.7.2,
FGD, Yerevan

It is most important that we use evidence while conducting our [RV vaccine promotion] *campaign. We must make it clear to the public that these diseases are a huge burden on the hospitals – I'm not even talking about the cases that are treated at home – and introduce the cause of the disease, the complications, deaths, etc. We must also convey the message on its cost-effectiveness, that we can have major achievements with relatively small expenditures. And it is important to stress that there are very few complications associated with the RV vaccine.*

Policy maker/Expert 4.7.2,
IDI, Yerevan

If there are statistics to back-up the decision and the country decides that the RV vaccine is necessary then we will provide our assistance and support by adding a component to our educational materials to educate mothers and health care providers, and others.

NGO staff 4.7.1,
FGD, Yerevan

They [the decision makers] *have already decided to introduce the RV vaccine into our country, while they want us to discuss the possible introduction after they have already made the decision!*

Other physician 4.7.3,
FGD, Yerevan

Before the policy makers make decisions, we would like to be informed and be involved in the decision making about new vaccine introduction.

Other physician 4.7.4,
FGD, Yerevan

They press lots of new burden on us without any additional reimbursement. Everybody from the administration gets additional payments for the new vaccine except us. There is nobody who intends to provide us additional reimbursement for the new vaccine to increase our motivation for that.

PHC physician 4.7.5,
FGD, Yerevan

It is necessary to increase PHC providers' salaries. Instead of increasing our salaries they introduce new vaccines. We work in difficult circumstances in our facilities; however, we do not receive adequate salaries for our work. Our responsibilities increase without any increase in salary.

PHC physician 4.7.6,
FGD, Shirak marz

What about the RV vaccine supply? Will the supply be continued or will it stop just after a year? If it is not sustainable, then it is meaningless [all ten physicians in the group agreed].

PHC physician 4.7.7,
FGD, Yerevan

All participants emphasized the need to show that introduction of any new vaccine, including the RV vaccine, was important, appropriate and justified for Armenia. They stated the need for providing comprehensive evidence on the safety, effectiveness and potential adverse effects of the new vaccine. All PHC providers and the majority of the teaching staff/scientists indicated the need for training to enhance their knowledge about the new/RV vaccine and to build their confidence in the vaccine. The participants from all groups indicated the importance of organizing active public promotion campaigns involving TV, other media, cell-phone SMS and utilize PHC providers, hospital doctors and teaching staff to educate the public. Representatives from NGOs indicated their willingness to support promotional campaigns. Some health care providers emphasized the need of participatory process involving all the stakeholders before making a final decision to introduce a new vaccine in Armenia. PHC providers were concerned about their increasing responsibilities for vaccination programs without any additional reimbursement for the increased workload. Some PHC providers expressed their concern about the long-term sustainability of the RV vaccine supply.

5. CONCLUSIONS AND RECOMMENDATIONS

Based on the study findings the research team made the following conclusions:

- The study participants reported about improvements in the National Immunization Program of Armenia in the last five years including improved coverage of vaccinations, improved quality of vaccine and improved awareness of health care providers and general population about vaccination.
- The majority of the participants considered immunization as an important activity; however, there was still fear and concern about side effects and AEFI especially among the PHC providers and some parents from Yerevan. PHC providers were often blamed for any AEFI, and they were not sure about long-term adverse effects of vaccination.
- All PHC providers were dissatisfied with the narrowed list of conditions/diseases that were considered contraindications for vaccination, stating that it sometimes led them to misreporting (exaggeration of child's condition by PHC providers in the ambulatory card to justify the reason for postponing vaccination).
- All PHC providers indicated that AEFI reporting required lots of paperwork from them making them unwilling to report the adverse events accurately. Moreover, PHC providers also mentioned that there were informal restrictions on reporting AEFI .
- PHC providers mentioned about difficulties in scheduling vaccination date/time for each parent, resulting in long waiting-lines in front of their offices.
- Some parents from Yerevan were dissatisfied with the counseling skills of their PHC providers and especially complained about the counseling skills of health care providers in maternity hospitals. In contrast, rural parents were satisfied with their village nurses' and physicians' kind attitude and counseling skills.
- Mothers (and their families) from Shirak marz were mainly supportive of vaccination since they trusted their village nurse and doctor more than mothers in Yerevan. Some hospital doctors from Yerevan who had better access to evidence-based information, some

teaching-university staff/scientists and policy-makers/experts who were engaged in the vaccination program were also supportive of vaccination.

- Parents mostly from Yerevan, parents who were health care providers (mainly physicians), parents who had relatives/friends who were health care providers, parents from religious groups, parents who associated impaired health of the child with vaccination (i.e. parents of children with autism) and people supportive of homeopathic treatment were identified as the main groups resisting vaccination. More educated parents who refused to vaccinate their children were not worried that their child would develop vaccine-preventable disease and relied more on herd-immunity.
- The main reported sources of negative information for vaccination were: influence of AEFI in the community, hospital doctors or PHC providers or neonatologists of maternities, other physicians who were against vaccination and had high reputation in the community, internet sources and anti-vaccination TV programs and documentary movies (mostly Russian websites and TV programs).
- The main reported reasons for vaccination refusals included fear of vaccine-related adverse effects, AEFI of parents' elder children or children of their relatives/friends and even parents' own experience with vaccination in their childhood and fear to have additional allergen (vaccine) administered into the child's body. There were also reported refusals from specific vaccines such as hepatitis B vaccine (due to perceived increase in neonate's jaundice period and leading to neural disorders) and the third dose of Pentavax (due to high fever after the administration of the first two doses or having administered too many vaccines together).
- Child illness based on medical or non-medial indications, seasonal issues (hot summer/cold weather) or busy-time for parents were the main reported reasons for postponing the child's vaccination.
- The majority of PHC physicians and some parents from Yerevan were concerned about introduction of any new vaccines in the National Immunization Schedule of Armenia expressing distrust in those new vaccines.

- Most of the participants from different groups emphasized the need for comprehensive evidence for any new vaccine to be introduced in Armenia - evidence about the burden of the disease in Armenia against which a vaccine would be introduced, evidence about its safety, effectiveness, potential side effects and cost-effectiveness of the new vaccine and also independent evaluations that would demonstrate that the vaccination was really helpful and the burden of the disease really declined after the vaccine introduction.
- Most PHC providers had lack of information about RV and wanted to learn more. The majority of health care providers did not think diarrhea (including RV diarrhea) was a serious PH problem in Armenia and therefore, did not think there was a need to introduce a new vaccine. Majority of parents also did not think that diarrhea was a serious health issue that needed vaccination. However, some parents from Shirak mart reported their willingness to vaccinate their children against diarrhea.

Considering the study findings and the suggestions of the study participants, the research team presents the following recommendations for gaining support to vaccination in general:

- Increase PHC and hospital providers' awareness and confidence about vaccination through regular continuous trainings.
- Involve university staff in vaccination trainings; include vaccination topics in medical and nursing curricula.
- Provide evidence-based and local information to all layers of population about the burden of disease to be prevented by the given vaccination and the effectiveness of the vaccination.
- Conduct studies to assess the level of immune response of population to the given vaccination and bring local evidence to the public and health providers.
- Develop positive promotional messages for vaccination to counter sensational negative reporting on vaccinations by media.
- Develop a website for parents about child care and vaccination and provide evidence-based information and on-line interaction opportunities between parents and health care professionals.

- Increase pregnant women's awareness about child care and the importance of vaccination (provide information booklets and/or appropriate counseling during antenatal care and in maternity hospitals).
- Involve NGOs and other organizations in raising public awareness on vaccination.
- Involve health providers and other stakeholders in decision-making process before the introduction of any new vaccines in Armenia.

The research team presents the following recommendations for gaining support for introduction of RV vaccine in Armenia:

- Provide comprehensive evidence that RV related diarrhea is a serious PH issue in Armenia and evidence that RV vaccination is safe and effective. Train PHC and hospital pediatricians and university staff on the burden of RV and the impact of RV vaccine.
- Implement public education campaign involving TV, other media, sending SMS messages, involving PHC providers, hospital doctors and university staff to build a confidence that RV vaccination is important and safe, involve NGO capacities in the public education as well.
- Ensure continuity of RV vaccine supply in Armenia after the termination of GAVI support.

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TABLES

Table 1. Prevalence of vaccine-preventable diseases covered under the National Immunization Program in Armenia per 100,000 population

		1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Poliomyelitis	0-14 years pop.	0.3	0	0	0	0	0	0	0	0	0	0	0
	Overall pop..	0.8	0	0	0	0	0	0	0	0	0	0	0
Acute flaccid paralysis	0-14 years pop.	-	2.4	2.4	1.8	1.6	1.3	1.2	2.4	3.0	1.5	2.2	3.4
	Overall pop..	-	0.5	0.4	0.4	0.3	0.3	0.5	0.5	0.6	0.3	0.4	0.6
Diphtheria	0-14 years pop.	1.6	0	0	0	0	0	0	0	0	0	0	0
	Overall pop..	0.8	0	0.03	0	0	0	0	0	0	0.0.3	0	0
Tetanus	0-14 years pop.	0	0	0	0	0	0	0	0	0	0	0.17	0
	Overall pop..	0.03	0.02	0.03	0.03	0	0.06	0.06	0.03	0	0	0.09	0
Pertusis	0-14 years pop.	1.1	1.11	0.4	0.4	1.0	0.9	0.5	0.2	0.5	1.8	0.7	0.2
	Overall pop..	0.3	0.26	0.09	0.09	0.22	0.19	0.09	0.03	0.09	0.34	0.12	0.03
Measles	0-14 years pop.	15	1.56	4.1	0.14	104.9	136.4	6.9	0.6	0	0	0	0
	Overall pop..	5.0	0.4	1.2	0.12	55.5	70.9	4.3	0.22	0	0	0.06	0
Rubella	0-14 years pop.	190.8	72.0	203.3	43.91	73.4	65.3	1353.2	64.2	0.7	0.5	0	0
	Overall pop..	57.0	17.69	49.4	10.37	22.8	19.3	428.4	18.5	0.12	0.12	0	0
Parotidis	0-14 years pop.	71	322.4	203.8	352.3	52.0	19.3	16.0	18.1	13.2	9.0	5.2	1.9
	Overall pop..	21.4	90.2	54.8	109.17	15.7	5.2	4.0	4.1	3.0	2.2	1.17	0.46

Source: *Health and Health Hare of Armenia*, Annual statistical report Armenia, 2011. National Health Information Analytic Center (NIAC) of the National institute of Health of the Ministry of Health of Armenia.

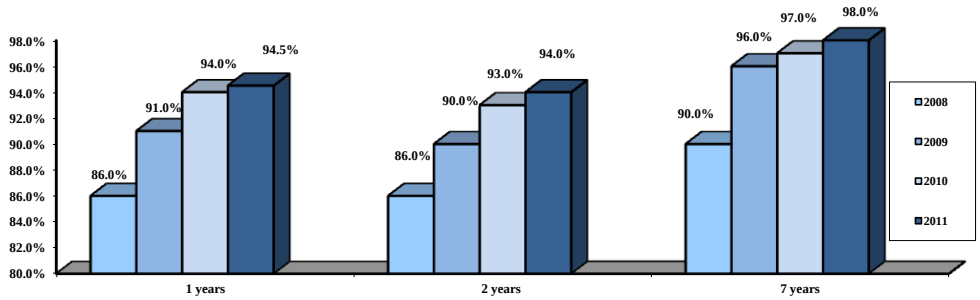
Table 2. Immunization coverage, %

Diseases	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Poliomyelitis	93.0	96.2	96.8	95.8	93.8	93.0	89.4	87.4	90.0	91.06	94.3	95.5	96.4
Diphtheria Tetanus	98.0	93.3	94.5	93.4	93.8	93.5	85.6	86.8	87.6	88.81	92.9	93.8	94.9
Pertussis	87.0	92.2	93.7	91.3	93.8	93.5	84.4	85.0	84.8	88.58	92.5	93.3	94.9
Measles	96.0	91.6	95.6	78.3	93.8	91.5	94.4	91.9	92.0	94.49	96.1	97.3	97.3
Epidemic parotidis	5.0	0	0	0	93.8	91.5	94.4	91.9	92.0	94.49	96.1	97.3	97.3
Rubella	-	-	-	-	93.8	91.5	94.4	91.9	92.0	94.49	96.1	97.3	97.3
Tuberculosis	84.0	96.8	96.4	97.1	92.1	95.8	94.8	90.4	93.6	98.01	98.8	99.1	99.3
Viral hepatitis B	-	-	-	-	93.2	90.8	89.2	78.1	84.5	88.93	92.8	94.3	97.8
DTP/VHB/HIB	-	-	-	-	-	-	-	-	-	-	-	-	94.9

Source: *Health and Health Hare of Armenia*, Annual statistical report Armenia, 2011. National Health Information Analytic Center (NIAC) of the National institute of Health of the Ministry of Health of Armenia.

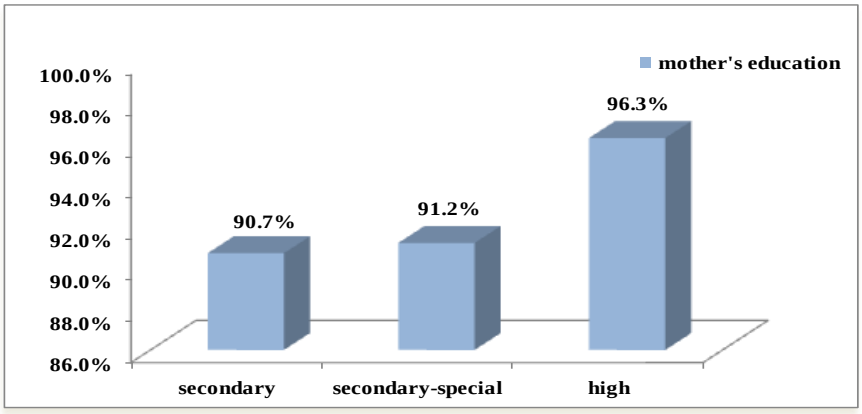
FIGURES

Figure 1. Full vaccination coverage



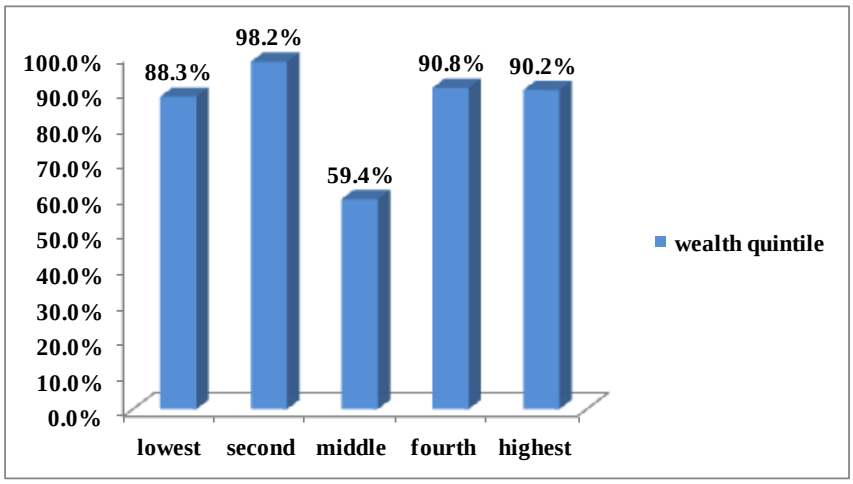
Source: Gayane Sahakyan: The Head of the National Immunization program of Armenia. *The achievements and challenges of the National Immunization program of Armenia.* Presented at the National workshop on Introduction of new vaccine against Rotavirus in the National Immunization program of Armenia. June 27, 2012.

Figure 2. Coverage with all basic vaccinations by mother's education



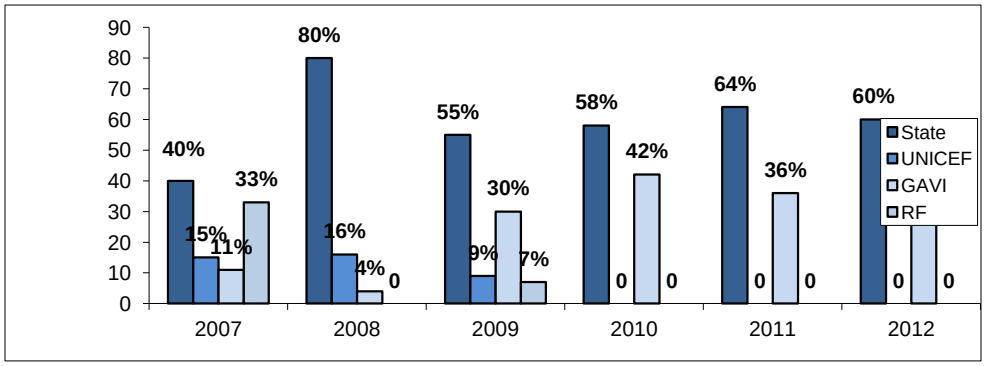
Source: Armenian Demographic and Health Survey, 2010

Figure 3. Coverage with all basic vaccinations by wealth quintiles



Source: Armenian Demographic and Health Survey, 2010

Figure 4. Vaccines' financing



Source: Gayane Sahakyan: The Head of the National Immunization program of Armenia. *The achievements and challenges of the National Immunization program of Armenia.* Presented at the National workshop on Introduction of new vaccine against Rotavirus in the National Immunization program of Armenia. June 27, 2012.

APPENDICES

Appendix 1. National Immunization Calendar

Vaccine name	**Vaccination dose**	**Vaccination age**
BCG (Bacillus Calmette-Guerin)	1	during 24-48 hours after birth
HB	1	during 24 hours after birth
DTP /HB/HIB OPV (Oral Polio Vaccine)	1	6 weeks/1.5 months old
	2	10 weeks/2.5 months old
	3	14 weeks/3.5 months old
MMR	1	12 months old
DTP, OPV (Oral Polio Vaccine)	4	18 months old
DT (Tetanus and Diphtheria Toxoids Adsorbed for pediatric use)	1	6 years old
Oral Polio Vaccine (OPV)	5	6 years old
MMR	2	6 years old
Td (Tetanus and Diphtheria Toxoids Adsorbed for adult use)	2	16 years old
	3	26 years old
	4	36 years old
	5	46 years old
	6	56 years old
Vaccine name	**Antibodies against the Diseases**	
BCG (Bacillus Calmette-Guerin)	Tuberculosis	
HB vaccine	Hepatitis B	
DTP/HB/HIB	Diphtheria, Tetanus, Pertussis, Hepatitis B, Haemophilus Influenza type b	
OPV (Oral Polio Vaccine)	Poliomyelitis	
MMR	Measles, Mumps and Rubella	
DT (Tetanus and Diphtheria Toxoids Adsorbed for adult use or Diphteria and Tetanus Toxoids Adsorbed for pediatric use)	Diphtheria, Tetanus	

Appendix 2. Focus group discussion guide for parents

Preventive health practice and perceptions about medical care services and health care providers

1. Does/Do your child/children have a regular health care provider (regular – meaning primary care physician or doctor that the child sees consistently for routine health care)? Where do you usually take your child for health check-ups? How often and for what complaints? Do you take your child to private practitioners? If yes, for what complaints? What facility and why? Do you face any difficulties in accessing health care for your child/children?

2. Where do you take your child for immunization? Private practitioners or public polyclinic? What are your reason/s for choosing private or public? If you can afford to go to a private doctor/clinic, would you prefer to have your child vaccinated there or at a public polyclinic? Why?

***For probing*:** Perceived advantages of private clinics? What is the image of health workers? Are there trust-related issues? Are the health care workers polite and friendly? Do the health care workers provide all the information you need? Is there someone else that you trust more to have your children vaccinated? Who?

Practice and perceptions about immunization

3. Can you share some of your experiences when your child/children was/were vaccinated? How did they respond to vaccines? How old was your child when s/he received his/her first vaccination? When was the last time your last child was vaccinated? Which vaccine was s/he provided? How was the experience? Do you consult with other people prior to having your child/children vaccinated? If so, who? What questions do you ask? Do you make the decision by yourself to have your child/children vaccinated or with the other parent of the child or both together? Do you discuss the issue with other family members? To what extent do you rely on family members' opinions?

4. At what ages are children usually vaccinated? Where and from whom did you obtain/seen/heard that information? Have you complied with this timeframe? If no, why? If so, did anyone advise you to postpone/refuse vaccination? If so, who?

5. Are you acquainted with parents who decided not to have their children vaccinated? What arguments did they provide for not having their children vaccinated? Which one of the arguments were persuasive, if any?

For probing: Do you hear people talking against having children vaccinated? Do these opinions influence you, give you concerns, make you doubt having your children vaccinated? Do you have questions/concerns about vaccines that would like to have answers?

6. Would you recommend vaccination for the children of your friends/relatives? If so, how would you convince them that vaccinating their children is important? What would you tell a parent who had doubts about having his/ her child vaccinated? If no, why?

► (For those parents who did not vaccinate their children)

7. What reasons did you have to postpone/refuse vaccination of your children? What was the most important reason for not having your child/children vaccinated?

For probing: Were you concerned about the quality of the vaccines, side effects of the vaccines, the preparedness of the medical staff etc? Would you ever change your mind about vaccinating your children? Who or what would convince you to change your mind?

► For those who initially vaccinated their children but later refused to continue vaccinating.

8. At what stage did you refuse having your child vaccinated? Why did you refuse having your child vaccinated? What made you changed your mind about not having your child/children vaccinated?

►For those who initially refused vaccinating their children but later changed their minds.

9. Why did you initially refuse having your child/children vaccinated? What made you changed your mind? Who convinced you to have your child/children vaccinated?

Knowledge and perceptions about vaccination

10. What do you know about vaccination? Which diseases are prevented through vaccination? What do you know about how vaccines work or what vaccines do?

For probing: What are the most dangerous diseases from which people can be protected by vaccination (*Diphtheria, Polio, Measles, Tetanus, Tuberculosis, Whooping cough*)? Do you know the consequences of those diseases (e.g. polio leads to disability, etc.). How do you perceive the risk for your child to be infected with those diseases? What do you think is the best way to go about those diseases (immunization vs treatment)?

11. What are the consequences of not vaccinating children? What are the major problems related to vaccination, if any?

Sources of information about vaccination

12. When you take your child to the doctor (PHC provider), does the doctor talk to you about immunization? What does the doctor say about child vaccination? Who initiates the conversation about vaccination (you or the doctor)? In general, to what extent do you think the doctor provides you with useful information about child vaccination? What attitude does the doctor have when talking to you? Do you trust what your doctor says or you prefer to check information with someone else? If so, with whom?

13. Outside of your child's doctor, do you seek additional information on vaccinations? If so, what information are you seeking? Where would you first seek information? Where or who provides you/you would like to be provided with such information? Which sources do you trust the most for information on vaccination? Do you have any questions or confusion relating to vaccines right now that you can mention? If so, why did you not asking your doctor?

Knowledge about diarrhea

14. What do you know about diarrhea? What are the reasons of developing diarrhea? How can a child develop diarrhea? How would you recognize that your child is suffering from diarrhea? How serious can be the consequences of diarrhea? Have your child ever experienced extreme forms of diarrhea? What should be done to prevent diarrhea in children?

Perceptions about introduction of a new vaccine

15. If a new vaccine is introduced in the National immunization program, what information would you like to know about it? How and in what format? What do you think, in general, about oral vaccines .ie. those taken by mouth vs. by injection?

16. Would you agree to have your child vaccinated to prevent diarrhea? If a new vaccine can help prevent some but not all diarrhea: would you have your child immunized with this vaccine? If yes, why? If no, why not?

***For probing**:* How concerned are you about your child becoming infected with a common virus that causes diarrhea among children (Rotavirus -RV)? How important is it having a vaccine against diarrhea for your child? Why or why not do you think it is important?

17. If your child's doctor recommended a vaccination for your child against a virus that causes diarrhea (RV), how likely would you be to vaccinate your child? Would you accept the vaccination of your child/children without any questions? Why or why not? What would you want to know about the virus or the vaccination and from whom?

18. What issues would concern you when deciding whether or not to vaccinate your child against this virus that causes diarrhea? What would convince that this vaccine is very important for your child/children? What would influence you to refuse having your child/children vaccinated against this virus?

19. What would you recommend to promote introduction of this new vaccine in Armenia to gain support? Who should be targeted and how the information should be disseminated about the new vaccine?

20. Is there anything you would like to add?

Thank you for your participation!.

Appendix 3. Focus group discussion guide for health care providers

General trends of vaccine uptake and parents awareness about vaccination

1. Approximately, how many children up to two years of age have you enrolled in your catchment area (*for PHC providers only*)? What is the vaccination coverage? How would you assess the organization of immunization in the country? According to you, what are the major challenges in implementing the National Immunization Program in Armenia? Have you observed any trends in immunization coverage over the last five years?

2. In what manner do you invite parents to have their children vaccinated? Do you call them all together or you specify the time for visits?

3. What experiences have you had recommending child vaccination to parents? *Probe:* How parents react to this? Do you have any problems with parents related to their children's vaccination or everything is ok?

4. When do you speak with parents about vaccination: before or after vaccination? Generally, what information on vaccines do you offer to parents? Is counselling part of your routine work? How much time do you devote to counselling to an individual parent?

5. What questions do parents usually ask you related to vaccines/vaccinations? What issues related to vaccines are parents concerned about? Which parent or family member is most involved in making decisions about vaccination of the child?

6. In your practice have you had parents refusing to vaccinate their children? Was the refusal related to a particular vaccine? If yes, which one? How often do you see such parents? Could you describe those parents who refuse vaccination for their children? What is their economic status/education or other characteristics? Are there particular groups that are especially resistant to having their children vaccinated? Why are they resistant?

7. What are the main concerns of parents who refuse vaccination for their children? Are they concerned about the quality of vaccines, its side effects, the appropriate storage, the competence of health care professionals etc.? What concerns do they mention? Usually, who has the greatest influence on their attitudes and decision concerning child vaccination? **Probe:** family, friends, neighborhood, health professionals?

8. Do you know such parents whose older children are vaccinated but they refused to have their younger child/children vaccinated? If so, what do you think changed their attitude towards vaccination?

9. What do you do if parents refuse vaccination for their child/children? If nothing, then why? What strategies do you use to influence the parents' decision? What would you recommend for parents who refuse to have their children vaccinated? What would you say? How would you persuade them that vaccinating their child is important?

10. Have you ever thought of not having your children (or grandchildren) vaccinated? If Yes, why? What made you change your mind? Do you know any colleagues who refused to have their children (or grandchildren) vaccinated and why?

Knowledge and Practices about Immunizations

11. To what extent are you or your colleagues confident that vaccinating children is safe, effective and has minimal side effects? Is there anything about vaccines and vaccinations that make you or your colleagues feel uncomfortable? How frequently do you have vaccination related side-effects? Which side effects do you usually face and from what vaccines? Do you have any fear that vaccination related side-effects can harm child/children? Does your facility have enough capacity to cope with vaccination related side effects? If not, which capacities should be strengthened?

12. Based on your or your colleagues' experiences, what are the most frequent reasons for postponing vaccinating children? What kind of support would you or your colleagues need to ensure higher compliance with the vaccination schedule? What are the major counter indications based on which you would recommend a parent to postpone vaccination or not vaccinate at all?

13. Currently, do you have any unanswered questions/uncertainties concerning vaccines? If yes, what kind of information would you or other pediatricians need related to vaccines and vaccination? Which sources do you usually refer to (trust) when seeking additional information on immunization?

14. Some parents opt to have their children vaccinated in private clinics. Why do they do that? Do you agree with their reasoning?

Attitude toward introduction of new vaccine

15. What do you and your colleagues think about the introduction of a new vaccine in to the National Immunization Schedule? What information do you, as a physician dealing with children's care, need to know about the new vaccine? Do you and your colleagues have any concerns about new vaccines?

16. What criteria do you consider important if a new compulsory vaccine is introduced into the National Immunization Schedule? How do you expect physicians to respond to a new vaccine introduction?

17. Based on your work experience, how do you expect parents would respond to the introduction of a new vaccine? Do they need to be prepared for a new vaccine?

18. What approach should be taken to introduce a new vaccine in Armenia? And which activities/campaigns should be conducted to gain support for a new vaccine by all population groups?

19. Could you identify groups that might be resistant to the introduction of a new vaccine? Why would they be resistant? How could these groups be persuaded to accept a new vaccine? Who should be involved in persuading them?

Knowledge and attitudes about rotavirus infection and new vaccine

20. How frequently do you see cases of severe diarrhea in children? What is your experience with diarrhea management? What are the challenges you face in diarrhea treatment? In your opinion how serious is the problem of childhood diarrhea in Armenia? How does it compare to other health problems?

21. What do you know about Rotavirus (RV)? What are the ways of transmission and symptoms? Which age group is the most affected? What are the health consequences of RV? How it can be treated? How it can be prevented?

22. To what extent would you agree that the introduction of the vaccine to prevent RV diarrhea is important? What concerns do you have about a Rotavirus (RV) vaccine? What would you need to know to be more confident in recommending and administering a RV vaccine? In general, what do you think about oral vaccines vs. injectable vaccines?

23. What would you recommend the Ministry of Health do regarding the introduction of these vaccines, from the physician's perspective?

24. Would you have your child/or grandchild vaccinated against RV? Why or why not?

25. Why do you think some Armenian parents might refuse to have their child vaccinated against RV? What could be the most important barriers for introduction of new RV vaccine in Armenia? What measures would help you to overcome resistance in the community and promote an RV vaccination? What information about RV vaccine would you find useful? What training and materials would you need for a successful introduction of RV vaccine in your work?

26. In your opinion does your facility have enough capacity and resources to effectively conduct an RV vaccination? Are there any differences between Yerevan and marzes facilities in their capacity or resources to effectively conduct such vaccination? Is there any difference between public and private facilities in their capacity or resources to effectively conduct such vaccination? What competencies need to be strengthened?

27. Is there any other information regarding this topic you would like to add?

Thank you for your participation!