

**Report of the Formative Research**  
**on the**  
**Concern and Resistance to Immunization and their Causes among Key**  
**Stakeholders in the Context of Introduction of Rotavirus Vaccine in Georgia**

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## EXECUTIVE SUMMARY

Rotavirus gastroenteritis is a significant public health problem in Georgia. In accordance to WHO estimate for 2006 there were more than 100 deaths in young children due to rotavirus diarrhea. According to sentinel surveillance data significant proportion of severe diarrheas (40-47%) in children less than 5 years of age that required hospitalization was associated with rotavirus infection.

Considering the high burden of diseases, availability of safe and effective vaccines, and high cost-effectiveness of new interventions the Ministry of Labour, Health and Social Affairs of Georgia (MoLHSA) made a decision to introduce rotavirus vaccine into routine immunization programme. The introduction of the new vaccine will allow prevent severe disease and death in children and contribute to achieving goal 4 (reduce child mortality) of the Millennium Development Goals.

Past local and international experiences with introduction of new vaccines indicate on importance of exiting concerns and resistances to immunization among general population as the leading factors for high refusals for vaccination and low immunization coverage in the country. Consequently, ignorance of potential barriers during the development of immunization campaign presumably can lead to low uptake of RV vaccine and exacerbation of anti-vaccine movements, leading to decrease in immunization coverage.

There is no available up-to-date scientific data providing insight on vaccine uptake barriers in Georgian population or suggesting reasons for low vaccine coverage in particular regions with adequate access to health services, neither is there data indicating on existence of particular vaccine resistant groups in population.

However trends in vaccine uptake by years, results of vaccination campaign (e.g. MMR) for recent period as well research studies carried out by UNICEF and other local and international non-governmental organizations(NGO) in different regions and groups of population in the country points to existence of major barriers for vaccine uptake among population, including inadequate use of contraindications, negative media reporting and stakeholders' concerns about safety and effectiveness of vaccination.

Considering scarce local data on existed barriers of vaccine uptake formative research was conducted in May-June 2012 using qualitative and quantitative methodologies with purpose to identify key stakeholders' perceptions and concerns on immunization and introduction of a new

vaccine in the routine immunization, And to generate related proposals from these stakeholders on potential responses from both the health system and stakeholders themselves to address concerns/refusals of immunization/introduction of RV and their causes.

The survey findings was utilized for the development of a communication strategy document to maximize effectiveness of Rotavirus vaccine implementation in the National Immunization Program, in particular by tackling concerns and resistances to vaccination and their causes.

The qualitative part of the research did not provide possibility to estimate the quantitative importance of resistant mothers compared to the other categories of mothers: those who vaccinate the children but have concerns and those who vaccinate the children because the other mothers do so or the doctor tell them to do so. However, based on their proportion in the focus group discussions conducted, resistant mothers are much less in proportion than the other groups. On the other hand quantitative part of the research provided measurable findings on the major concerns and barriers to immunization among primary health care workers involved in National Immunization Program of the country.

***The thirst important finding*** of the research is that the causes of resistance are very close to the causes of concerns. The major difference between resistant and concerned mothers is that the resistant mothers do not vaccinate their children, do not seek additional information with Health Care Workers (total distrust) or other sources of information, relying only on the advice of "famous" professionals (pediatricians, neurologists, etc.) who do not support vaccination. The concerned mothers do vaccinate their children and still consider doctors as a trusted source of information but seek additional information through internet and the social media and request clarifications on conflicting information from health workers, who can hardly do so. There is a risk that if not provided the information they need, these concerned mothers turn into resistant ones. There is also the risk that mothers who vaccinate their children without knowing why turn into concerned ones. In other words, one may risk that the Theory of Diffusion of Innovation works in the opposite direction, with myths, rumors and misinformation spreading through the society and leading to a progressive decrease in coverage.

***The second important findings*** is the need to strengthen both the technical capacity of Health Care Workers regarding immunization and their interpersonal communication skills, as most mothers still rely on them as a reliable source of information and they lack the skills to respond to mothers' concerns, are not persuaded of the need for a RV vaccine and some of these practitioners have themselves concerns or are resistant to immunization, hence persuade mothers not to immunize

their children. Specialists who are not directly involved in immunization and share the same concerns or resistances also contribute to spreading misinformation on immunization.

**The third important finding** is the role not only of the media but internet and the social media as growing alternative sources of information, which do contribute to spread myths, rumors and misinformation. Internet is considered by mothers as the most reliable source of information after family doctors.

**The fourth important finding** is the interest and willingness of religious leaders and insurance companies to know more about immunization and support Government efforts in promoting vaccination, religious leaders "out of charity" ("pro-life" approach), and insurance companies, "out of duty" to participate in the State Immunization Programme, as they have become State providers for primary health care hence immunization programme.

**The fifth important finding** is that despite the fact that Diarrhea is considered by primary health care workers involved in National Immunization Program as serious and common health problem in children less than 2 years, Rotavirus is not perceived as the most common cause of infectious diarrhea in children <2 y old in Georgia and respectively vaccine introduction of Rotavirus vaccine NOT important for the country.

**The sixth important finding** is that HCWs' awareness about RV vaccine and willingness to recommend inclusion of the vaccine in the National Schedule of Immunization was considerably lower in low vaccine coverage areas.

## Table of Content

<b>I. INTRODUCTION</b> .....	10
<b>II. FORMATIVE RESEARCH</b> .....	15
<b>III. QUALITATIVE RESEARCH</b> .....	17
<b>3.1. Qualitative Research Methodology</b> .....	<b>17</b>
3.1.1. Data Collection Procedures.....	18
3.1.2. Data Collection Instruments .....	19
3.1.3. Data Management and Statistical Analysis.....	20
<b>3.2. Qualitative Research Findings</b> .....	<b>22</b>
<b>3.2.1. Participant Characteristics</b> .....	<b>22</b>
<b>3.2.2. Main Findings</b> .....	<b>26</b>
<b>3.2.3. Descriptive Part</b> .....	<b>29</b>
(1) UPTAKE AND PERCEPTION ABOUT HEALTH CARE SERVICES .....	29
(2) KNOWLEDGE AND AWARENESS ABOUT IMMUNIZATION .....	31
(3) PERCEPTIONS AND CONCERNS ABOUT IMMUNIZATION .....	37
(4) PERCEPTIONS AND CONCERNS ABOUT ROTAVIRUS VACCINE .....	46
(5) IMMUNIZATION RELATED DECISION-MAKING AND SOURCE OF INFLUENCE .....	49
(6) INFORMATION SOURCES ABOUT IMMUNIZATION .....	55
(7) STAKEHOLDERS RECOMMENDATIONS AND PROPOSALS.....	59
<b>4.1. Quantitative Research Methodology</b> .....	<b>63</b>
4.1.1. Data Collection Procedures.....	63
4.1.2. Data Collection Tools .....	64
4.1.3. Data Management and Statistical Analysis.....	65
<b>4.2. Quantitative Research Findings</b> .....	<b>65</b>
4.2.1. Demographic and professional characteristics.....	65
4.2.2. Perception about Burden of Rotavirus Disease and the Need for a Vaccine .....	67
4.2.3. Perceived Barriers to Implementation of New Rotavirus Vaccine.....	69

4.2.4. Suggestions on the Support of RV Vaccine Implementation in Georgia.....	70
4.2.5. Factors Associated with Diarrhoea, RV Infection and Vaccine Awareness and Perceptions .....	71
4.2.5. RV Immunization Related Perceptions and Regional Peculiarity.....	79
4.2.6. Factors Associated With Rotavirus Vaccine Recommendation .....	85
<b>V. CONCLUSIONS .....</b>	<b>88</b>
<b>Appendix A. Qualitative Data Matreces .....</b>	<b>90</b>
<b>Appendix B Research Instruments .....</b>	<b>126</b>

### List of Tables and Figures

Table 1. Districts with reported <80% DPT3 coverage by 1 year and DPT 1-3 dropout (%). 2010 .....	10
Table 2. Focus Groups by participant categories and regions .....	17
Table 3. Social Demographic Characteristics of Mothers .....	22
Table 4. Social Demographic characteristics of Physicians .....	24
Table 5. Social Demographic Characteristics of Media Representatives.....	25
Table 6. Perceived Burden of Rotavirus Infection and Diarrheal Diseases.....	68
Table 7. Perceived Barriers to Implementation of Rotavirus Vaccine .....	69
Table 8. Recommendation for Rotavirus Vaccine inclusion in the National Schedule of Immunization by Rotavirus Infection and Vaccine Perception Factor .....	86
Table 9. Negative recommendation for Rotavirus Vaccine inclusion in the National Schedule of Immunization by Perceived Vaccine Implantation Barrier Factor .....	87
Figure 1. An ecological framework for guiding formative research about vaccine introduction. ....	16
Figure 2 Focus Group Discussion graphical scheme. ....	17
Figure 3. Selected Research Sites Diagram with Immunization Coverage Estimates. ....	64
Figure 4. Number of Participants by Study Regions .....	65
Figure 5. Number HCWs by Work Experience in Percentages.....	65
Figure 6. Numeber of Children Vaccinated per Month in Percentages.....	66

Figure 7. The most common health related problems in children less than 2 years.....	67
Figure 8. Recommendation to Include Rotavirus Vaccine in the National Schedule of Immunization	69
Figure 9. Correlation between Diarrhoeal disease epidemiology awareness and physicians' speciality .....	72
Figure 10. Correlation between perception about RV diarrhoea and physicians' speciality .....	73
Figure 11. Correlation between perception about RV diarrhoea and number of children vaccinated per month .....	74
Figure 12. Correlation between perception about RV diarrhoea and Period of the Latest Training in the Field .....	75
Figure 13. Correlation between RV Vaccine Awareness and Speciality .....	76
Figure 14. Correlation between RV Vaccine Awareness and Employment Region .....	77
Figure 15 . Correlation between RV Vaccine Necessity Awareness and Employment Region.....	78
Figure 16. Correlation between RV Vaccine Awareness and Period of the Latest Training in the Field .....	79
Figure 17. Awareness about RV Vaccine by Employment Location.....	80
Figure 18. Recommendation to include Rotavirus Vaccine in the National Schedule of Immunization by Employment Location .....	80
Figure 19. Perception that Diarrhea is Common in Children under 2 years by Employment Location	81
Figure 20. Perception that Diarrhea is a Serious Health Problem in Children under 2 years by Employment Location .....	81
Figure 21. Perception that RV is the Most Common Reasons for Diarrhea in Children Less than 2 Years by Employment Location.....	82
Figure 22. Perception that Parental Refusal is Barrier to Implementation of Rotavirus Vaccine by Employment Location .....	83
Figure 23. Perception that Physicians not Provided Remuneration for Each Immunization Visit is Barrier to Implementation of Rotavirus Vaccine by Employment Location .....	83
Figure 24. Perception that Parental Belief that Infectious Diarrhoeas is not a Risk for Their Children is a Barrier to Implementation of RV Vaccine by Employment Location .....	84
Figure 25. Perception that Parental Belief that Rotavirus is not a Severe Disease is a Barrier to Implementation of RV Vaccine by Employment Location .....	84
Figure 26. Perception that Parental Concerns about the Vaccine Safety in GENERAL is a Barrier to Implementation of RV Vaccine by Employment Location .....	85

Figure 27. Perception that Parental Concerns about of RV Vaccine Safety is a Barrier to Implementation of RV Vaccine by Employment Location .....85

## **Acronyms**

BCG	Bacille Calmette-Guérin
DPT	Diphtheria, Pertussis, Tetanus
AEFI	Adverse Event Following Immunization
EPI	Expanded Program of immunization
FG	Focus Group
GEL	Georgian Lari
HCW	Health Care Workers
HepB	Hepatitis B
Hib	Hemophilus influenza type B
IDP	Internally Displaced Person
MMR	Measles, Mumps, Rubella
MoLHSA	Ministry of Labour, Health and Social Affairs of Georgia
NCDC	According to National Center for Disease Control and Public Health
OPV	Oral Polio Vaccine
UNICEF	United Nations Children's Fund
RV	Rotavirus
WHO	World Health Organization
SD	Standard Deviation

## I. INTRODUCTION

Rotavirus gastroenteritis is a significant public health problem in Georgia. In accordance to World Health Organization (WHO) estimate for 2006 there were more than 100 deaths in young children due to rotavirus diarrhea. The rotavirus sentinel surveillance was established in the Republic of Georgia in 2006 with WHO support. The surveillance data showed that significant proportion of severe diarrheas (40-47%) in children less than 5 years of age that required hospitalization was due to rotavirus.

Given the high burden of diseases, availability of safe and effective vaccines, and high cost-effectiveness of new interventions the Ministry of Labour, Health and Social Affairs of Georgia (MoLHSA) made a decision to introduce rotavirus vaccine into routine immunization programme. The introduction of the new vaccine will allow prevent sever disease and death in children and contribute to achieving goal 4 (reduce child mortality) of the Millennium Development Goals.

This year, the Ministry of Labour, Health and Social Affairs of Georgia introduces of rotavirus vaccine to scale up and extend implementation of other existing interventions aimed to prevent and control diarrheal diseases. Immunization implements integrated package with maternal, neonatal and child health programmes. Coordinating with other effective interventions and treatment for diarrheas will lead to maximum impact in saving lives.

According to National Center for Disease Control and Public Health (NCDC) statistical data the national reported coverage for the last five years by one year of age shows overall an upward trend for all antigens since 2005 (for instance: BCG coverage level maintains over 90% ; HepB3 from 63.7% in 2004 increased to 89.0% in 2010; DTP3 from 78.8% in 2004 increased to 98.4% in 2008, however reduction to 86.0% in 2010 was noticed. In 2010 drop of OPV3 was demonstrated as well) though, this conceals varying performance at region and district levels: In 2010. 11 out of the 65 districts from 7 regions reported less than 80% DTP3 coverage and more than 30% dropout among children under one year of age. **(Table 1)**

**Table 1. Districts with reported <80% DTP3 coverage by 1 year and DPT 1-3 dropout (%). 2010**

No.	District Name	Region Name	DTP3 Coverage (%)	Dropout DPT1-3 (%)
1	Keda	Adjara	76.8%	17.8%

No.	District Name	Region Name	DPT3 Coverage (%)	Dropout DPT1-3 (%)
2	Khulo	Adjara	69.7%	17.1%
3	Samtredia	Imereti	77.3%	23.0%
4	Khoni	Imereti	79.1%	19.2%
5	Dedoplistskaro	Kakheti	78.9%	6.6%
6	Bolnisi	Kvemo Kartli	71.3%	30.8%
7	Marneuli	Kvemo Kartli	60.0%	33.5%
8	Tsalka	Kvemo Kartli	77.0%	8.2%
9	Akhalgori*	Mtskheta-Mtianeti	30.5%	0
10	Oni	Racha-Lechkhumi	73.8%	13.9%
11	Mestia	Samegrelo	77.4%	6.4%

*\*Occupide territory since 2008 from where IDPs were replaced in Shida Kartli Region.*

*Source: 2007-2010 GeoVac. NCDC (data excludes Abkhazia)*

There is no available up-to-date scientific data providing insight on vaccine uptake barriers in Georgian population or suggesting reasons for low vaccine coverage in particular regions with adequate access to health services, neither is there data indicating on existence of particular vaccine resistant groups in population. However trends in vaccine uptake by years and results of vaccination campaign (e.g. MMR) for recent years points to importance of media in development of public attitude toward vaccination.

Small scale research studies on Health Care Workers (HCWs) carried out in 2007 revealed that one of the common barriers for hepatitis B vaccine uptake by HCW was their concerns about safety and adverse event following the vaccination. The same study provided negative media report as the main suggested explanation for such concerns among HCWs: “The elevated concern about HBV

vaccine safety in Georgia is widely thought to be related to a highly publicized adverse event in 2002; an abrupt onset of encephalomyelitis in a 12-year-old boy after vaccination. The short time interval between HBV vaccination and onset of symptoms led some Health Care Workers to believe this was a vaccine-related adverse event.”<sup>1</sup> Another study carried out by National Center for Disease Control and Public Health With the assistance of UNICEF and the in 2010 revealed HCW and parents mistrust toward vaccination and particularly toward multi-component Hib vaccine<sup>2</sup>. According to the study as many as 54% of parents and 60% of HCWs consider Hib vaccines totally or partially safe which makes clear that the work done on this issue so far has not gone far enough and there is a need for planning and establishment of effective approaches/ interventions/activities. Provided data does not differ significantly from the results of vaccine base-line survey – “COMBI-Immunization Plan for Georgia” carried out by UNICEF in 2006, where only 60.9% of parents think, the vaccination of children against contagious diseases is absolutely safe.<sup>3</sup> Despite noticeable shift of mothers' attitudes toward vaccine safety from 2006 to 2008 (trust has increased by 21.6% compared with past years and is 82.5%) it seems to be still an issue in the country.<sup>4</sup>

According to national immunization reports and research carried out by UNICEF inadequate use of contraindications also represent important barrier for vaccine uptake.<sup>3,5,6</sup> As noted in the document, proportion of false (long term) contraindications for the 3 doses of DPT have been reduced from 6.2% in 2004 to 0.3% in 2010 at national level and were arranged in recommended scope. However in some regional levels it was found to be still high. In the document it was also indicated that neurologists represent an important group preferring to give negative recommendation about vaccination in certain conditions which were proved not to be in accordance with the nationally adopted contraindications list.

From past local and international experiences with introduction of new vaccines it could be assumed that concerns and resistances to immunization can lead to refusal of RV vaccine and the introduction

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1. Topuridze M, ButsaShvili M, Kamkamidze G et al. Hepatitis B Vaccine Coverage among Health Care Workers: Barriers to Coverage. *Infect Control Hosp Epidemiology*. 2010 Feb; 31(2):158-64.

2. Evaluation of Health Promotion and Communication system Georgia, Report 2010. Available at: [http://www.ncdc.ge/uploads/publications/Evaluation\\_of\\_Health\\_Promotion\\_and\\_Communication\\_system\\_2010.pdf](http://www.ncdc.ge/uploads/publications/Evaluation_of_Health_Promotion_and_Communication_system_2010.pdf) Accessed on: 1 May 2012

3. Base-line Survey, COMBI-Immunization Plan for Georgia, REPORT, 2006. Available at: [http://www.unicef.org/georgia/Unicef\\_Immunization\\_Report\\_2007\\_Eng\\_Final\\_ed.pdf](http://www.unicef.org/georgia/Unicef_Immunization_Report_2007_Eng_Final_ed.pdf) Accessed on: 1 May 2012

4. Evaluation of the Impact of the Communication Campaign on Immunization - Communication for Behavioral Impact (COMBI) in Georgia, Available at: <http://www.comminit.com/polio/content/evaluation-impact-communication-campaign-immunization-communication-behavioral-impact-co> Accessed on: 1 May 1, 2012

5. Comprehensive Multi-Year Plan of the National Immunization Program of Georgia, Report 2012-2016

6. Immunization Programme Management Review, Georgia 17–27 July 2006 Available at: [http://www.healthcarewaste.org/fileadmin/user\\_upload/resources/Immunization-Programme-Management-Review-Georgia-2006.pdf](http://www.healthcarewaste.org/fileadmin/user_upload/resources/Immunization-Programme-Management-Review-Georgia-2006.pdf) Accessed on: 1 May 1, 2012

of RV vaccine can exacerbate anti-vaccine movements, leading to decrease in immunization coverage.

Considering the lack of local up-dated information on existing barriers of vaccine uptake in general population, a qualitative formative assessment was identified as an initial stage of the introduction of the Rotavirus Vaccine among key stakeholders. The formative research was conducted in May-June 2012 using qualitative and quantitative methodologies with purpose to identify key stakeholders' perceptions and concerns on immunization and introduction of a new vaccine in the routine immunization, And to generate related proposals from these stakeholders on potential responses from both the health system and stakeholders themselves to address concerns/refusals of immunization/introduction of RV and their causes. The survey findings was utilized for the development of a communication strategy document to maximize effectiveness of Rotavirus vaccine implementation in the National Immunization Program, in particular by tackling concerns and resistances to vaccination and their causes.

### **Purpose**

The purpose of the research was to identify key stakeholders' perceptions on immunization in general and introduction of a new vaccine in the routine immunization, in particular, (i) their concerns and resistance to immunization, (ii) the causes of these concerns and resistances, (iii) their views on overcoming possible resistance/refusal to immunization/new vaccine, (iv) the role some of these stakeholders could play in promoting, hence also preventing/responding to resistance/refusal to immunization/new vaccine.

### **Objectives**

In order to address concerns i.e., reasons for (possible) refusal of the RV vaccine and their causes the objectives of the study included:

- Identifying concerns among key stakeholders related to immunization and introduction of a new vaccine in the routine immunization program;
- Identifying the extent to which health professionals, community leaders and parents are willing to accept or not the introduction of a new vaccine that will partially prevent diarrhea and why ;

- Identifying the sources of information that individuals who are pro- and con-vaccination use and trust in relation to immunization and the adoption of new vaccines;
- Generating related proposals from these stakeholders on potential responses from both the health system and stakeholders themselves to address concerns/refusals of immunization/introduction of RV and their causes.

## II. FORMATIVE RESEARCH

### 2.1. Research Overall Design

Qualitative as well as Quantitative research methods were utilized to identify and evaluate key stakeholders' concerns, beliefs, practices and information gaps related to immunization, diarrhea and the rotavirus vaccine, decision-making patterns related to the infection and vaccination, information channels and trustworthiness of information sources at the community level.

### 2.2. Principles for Recruiting the Respondents

The research was targeted on main stake holders of immunization, such as: (1) mothers of children under 2 years of age particularly those who refuse to vaccinate children and those from low coverage region with good access to primary health care represented by diverse ethnical, religious groups and IDPs; (2) primary health care providers involved in EPI and those known recommending against (e.g. neurologists) (3) media representatives. Also considering increased role of Christian orthodox church in formation of public opinion in the country for recent years (major religion with more than 80% of population know to be Christian orthodox), study included representatives of religious groups (e.g. religious leaders). As a result of major reforms in health care sector, the role of private health insurance companies as the providers of preventive and primary health care services has increased. Taking into consideration insurance companies' new role, as managers of vaccination service provision in the country, it was also very important to include representatives of those insurance companies in the proposed list of stakeholders.

Study population included residents of capital city, Tbilisi as representatives of major part of Georgian population (more than 1/3) and two major problematic regions with lowest vaccine coverage indicators or/and ethnicity including Kvemo Kartli and Shida Kartli (also with high IDP population density).

Considering lack of data on existing vaccination resistant groups in the country selection criteria of study population in these geographical areas was based on ecological conceptual framework, commonly used in health planning formative studies<sup>7,8</sup> (**Fig.1**). The framework distinguishes levels or

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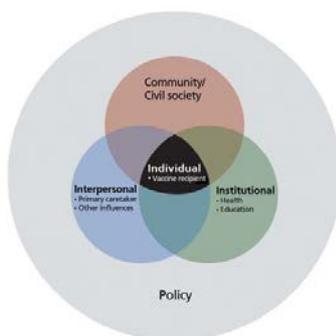
7 Green LW, Kreuter MW: Health Program Planning: An Educational and Ecological Approach New York: McGraw-Hill; 2005. Bingham A, Janmohamed A, Bartolini R, Creed-Kanashiro HM, Katahoire AR,

8 Khan I, Lyazi I, Menezes L, Murokora D, Quy NN, Tsu V: An approach to formative research in HPV vaccine introduction planning in low-resource settings. *Open Vaccine J* 2009, 2:1-16.

categories of people involved in decision-making process concerning child immunization. These levels represent important target audiences for developing a health communications strategy aimed at engaging communities in new vaccine introduction activities, including:

- 1. The individual level:** Parents and other caregivers (e.g. mothers, grandparents) of children.
- 2. The interpersonal level:** Secondary influencers such as Health Care Workers and other communicators such as associates of parents (e.g. friend and peers).
- 3. The community level:** Community and religious leaders, local administrators, local government officials and media representatives.
- 4. The institutional level:** Health Care Workers and administrators, Insurance company managers, NGOs and social media.

**Figure 1. An ecological framework for guiding formative research about vaccine introduction.**



### III. QUALITATIVE RESEARCH

#### 3.1. Qualitative Research Methodology

Qualitative research included Focus Group (FG) discussions to collect the data from mothers of children under 2 years; Health Care Workers involved in EPI, neurologist, journalists (broadcasting media representatives) AND In-Depth interviews with religious leaders and insurance company representatives.

In total of 9 focus group discussions and four in-depth interviews were conducted in three regions of Georgia, including: Tbilisi, Kvemo Kartli (rural region with high ethnical diverse population) and Shida Kartli region (one of the regions with lowest vaccine coverage), more specifically 4 FG of mothers, 4FG of Health Care Workers , 1 FG of media representatives, 2 interviews with religious leaders and 2 interviews with insurance company managers. **(Fig. 2) (Table 2)**

Figure 2 Focus Group Discussion graphical scheme.

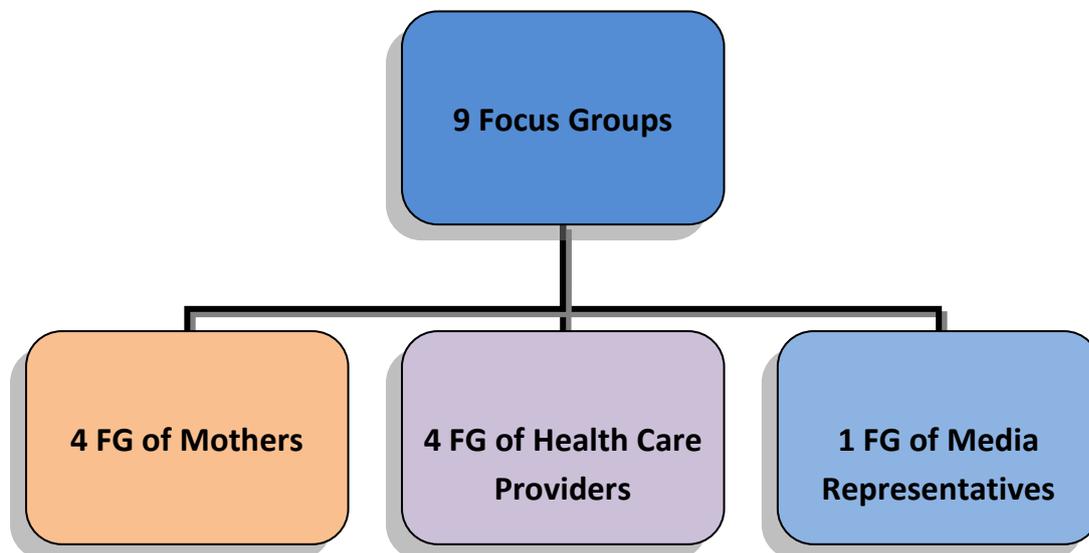


Table 2. Focus Groups by participant categories and regions

#	Category of focus group participants
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<b>1FG</b>	Mothers of children under 2 years old, who agrees vaccination, Tbilisi
<b>2FG</b>	Mothers of children under 2 years old, who refuse vaccination, Tbilisi
<b>3FG</b>	Mothers of children under 2 years old, Kvemo Kartli
<b>4FG</b>	Mothers of children under 2 years old, Shida Kartli
<b>5FG</b>	Primary Health Care Workers , Tbilisi
<b>6FG</b>	Neurologist, Tbilisi
<b>7FG</b>	Primary Health Care Workers , Kvemo Kartli
<b>8FG</b>	Primary Health Care Workers , Shida Kartli
<b>9FG</b>	Representatives of mass-media

### **3.1.1. Data Collection Procedures**

Purposeful sampling method was utilized to recruit and screen participants for parents FGs from the communities and surrounding areas based on the information about vaccine uptake records provided in primary health care units. Recruitment of participants for physician and media FGs occurred through the list of full-time employees obtained from the administration.

Participants were selected according to predefined screening criteria to increase representativeness of viewpoints and generalizability of obtained results.

#### ***General Criteria:***

1. The selected persons for the participation in the focus group do not have to know each other and they cannot participate at the same group discussions the persons from the same locality (only if there are specific requirements);
2. An operator does not have to recruit more than 14 person for each group discussion;
3. The persons invited at the FG are not allowed to be previously involved in other FG discussions;

#### ***Specific Criteria:***

##### Parents' FG:

1. mothers of children under 2 years;

2. young mothers with negative attitude towards immunisation (mothers of children who did NOT complete the immunization schedule);
3. Due to the themes discussed for all the group discussions the participants WERE NOT ALLOWED TO BE HEALTH CARE WORKERS and their family members not work in the medical services.

#### Health Care Workers' FG:

1. physicians with active clinical practice;
2. full-time employees of health care units;
3. paediatricians and family medicine physicians involved in the EPI;
4. neurologists

#### Media Representative's FG:

1. National printed and broadcast media representatives (TV, Radio)
2. work experience > 5 years;

### **3.1.2. Data Collection Instruments**

#### ***(1) Focus group discussion guides for each FG***

Focus group questions were open-ended, non-sensitive, and designed to maintain participant privacy and covered following topics: a) Preventive Health practice, b) Perception about medical care providers and services, c) Vaccination decision-making process, d) Perceptions about vaccination, e) Knowledge about diarrhea, concerns on rotavirus disease, and, f) Perceptions about introduction of a new vaccine g) identification of trusted and untrusted sources of information on vaccination. h) in case of negative perceptions, further exploration of the reasons, and underlying issues/causes for the negative perceptions.

#### ***(2) In-depth semi-structured interview guides***

In-depth interview guides contained open-ended questions to collect the data among:

1. *Religious leaders on:* Position of Georgian Church about immunization; personal attitude and concerns regarding this topic; their role in decision-making. Also to identify trusted and untrusted sources of information on vaccination.

2. *Insurance Company Representatives on:* policy and program issues on immunization, vaccine handling and safety at national and lower levels; If any negative perceptions are found, then suggest that these are explored further to understand the reasons, and underlying issues/causes for the negative perceptions. Also obtain participants perspectives on their colleagues, parents and other caretakers' concerns/fears on immunization and vaccine safety.

*\*note: All data collection materials were available both in Georgian and Russian languages.*

### **3.1.3. Data Management and Statistical Analysis**

FG sessions and in-depth interviews was audiotaped and professionally transcribed verbatim. A research assistant took notes during the focus group discussions. At the end of each FG sessions and in-depth interviews interviewer/moderator and research assistant reviewed their notes and verbatim reports to make sure that they made sense in relation to the study questions. Comments or any observations made during the interview was also added and clarified. Study coordinator interviewed the interviewers/moderator to find out their experiences in the field. This de-briefing covered any problems encountered in administering the guide as well as any new themes or findings from the field.

Transcripts, audiotapes and notes from the focus groups and in-depth interviews were reviewed independently by two investigators. All surnames and other specific identifying information that was inadvertently mentioned were deleted from the transcripts. Russian-language focus groups were transcribed in Russian and then translated into Georgian language for data analysis.

Content analysis techniques were utilized to develop coding categories and themes. Themes pertinent to immunization were identified using a combined deductive/inductive approach and an iterative process of consensus coding. Codes developed independently by two researchers were compared and discussed, and differences were reconciled.<sup>9,10</sup> Through this iterative process a single

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9 Miles MB, Huberman AM: Qualitative data analysis: an expanded sourcebook. 2 edition. Thousand Oaks: Sage Publications, Strauss; 1994.

coding system was developed, for phrases, sentences or paragraphs. To ensure the consistency of coding processes the coding manual was developed, consisting of category names, definitions or rules for assigning codes, and examples.<sup>11</sup> Additionally a matrix was developed with themes organized within four broad areas: focus group specific and common perceptions and concerns about vaccination, source of information and influence. Data from the transcripts were summarized in a matrix with rows for groups and columns for themes. This facilitates examination of all the data within one theme and also allows relationships between themes to be explored by looking along the rows of the matrix. The iterative coding process resulted in a coding scheme with 6 main categories. The final coding scheme was tested for inter-coder reliability with a first-time coder based on simple percent agreement.

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10 Corbin AJ: Basics of qualitative research: Techniques and procedures for developing grounded theory. 2 edition. Thousand Oaks, CA: SagePublications, Inc; 1998.

11 Weber, R.P. (1990). *Basic Content Analysis*. Newbury Park, CA: Sage Publications.

## 3.2. Qualitative Research Findings

### 3.2.1. Participant Characteristics

In total 89 participants were recruited for focus group discussions (40 mothers, 39 physicians and 10 media representatives) and 4 participants for four in-depth interviews (2 religious leaders and 2 insurance company representatives).

Mother's Focus Group was represented by women of mean age 32.4 (SD- 9.0), majority were married in monogamous relationship (85.0%) and had university education (57.5%). Less than half were employed (42.5%) with mean monthly income 297.6GEL. Participant mothers had a mean of two children (range 1-8), of mean age 10.8 months (range 1 month -2years).

Physicians' Focus Group was mainly represented by pediatricians (35.5%), big majority were women (91.3%) and had ten or more work experience in the field (91.6%). 78.8% of physicians were employed at health care facilities located in Tbilisi (capital city of Georgia) and 35.3% reported to have received continuing medical education training during last year.

Media representatives' Focus Group was represented by female TV journalists of mean age 25.0 (SD- 3.7), with mean 15.8 years of education and 5.8 work experience in the field. Majority reported to have prepared materials on health topic (75.0%), less than half about immunization related issues (37.5%) and only 25.0% ever received training on health and 25.0% immunization related issues.

In-depth interview respondents included two male Christian Orthodox Church representatives, one with family and practicing in rural region and another single practicing in urban region, and two major insurance company managers from health department serving in study regions (Tbilisi, Kvemo Kartli and Shida Kartli).

Below is presented detailed characteristic data stratified according to the 3 main groups of study participants. **(Table 3,4,5)**

**Table 3. Social Demographic Characteristics of Mothers**

	Focus Group 1 (n=10)	Focus Group 2 (n=6)	Focus Group 3 (n=14)	Focus Group 4 (n=10)	Total
Age (mean, range)	32.2 22-58	38.0 28-47	31.9 18-53	30.0 25-39	32.4 18-58
Education					

High school	2	1	6	1	10
Technical	4	1	1	1	7
University	4	4	7	8	23
<b>Employment Status</b>					
Yes	1	3	8	5	17
no	9	3	6	5	23
<b>Employment Area</b>					
State Agency	1	2	4	4	11
Private sectore	--	1	4	1	6
<b>Monthly income In GEL</b>	150.0	366.7	287.5	301.8	297.6
<b>(mean, range)</b>	150	300-500	80-550	129-560	80-560
<b>Religion</b>					
Orthodox Christian	10	6	6	10	32.0
Catholic Christian	--	--	1	--	1
Muslime	--	--	7	--	7
<b>Marital status</b>					
Single/ Single never married	--	--	1	--	1
Married polygamous	--	--	3	--	3
Married monogamous	8	6	10	10	34
Divorced	2	--	--	--	2
<b>Number of Children</b>					
0-1	2	1	8	4	15
2-3	7	3	5	5	20
4+	1	2	1	1	5
<b>Age of the Youngest Child in months (mean, range)</b>	10.9 3-24	15.83 3-36	9.29 1-20	9.60 1-21	10.75 1-36

<b>Commonly Used Media</b>					
TV	6	4	12	7	29
Radio	1	--	--	--	1
Press	--	--	--	2	1
Internet	1	--	1	--	2
all	2	2	1	1	7
<b>Time Required to Reach Primary Health Care Center</b>					
<b>In minutes</b>	22.0	22.5	28.9	22.3	24.6
<b>(mean, range)</b>	5-60	10-40	5-90	3-90	3-90

**Table 4. Social Demographic characteristics of Physicians**

	<b>Focus Group 5 (n= 10)</b>	<b>Focus Group 6 (n=10 )</b>	<b>Focus Group 7 (n=9)</b>	<b>Focus Group 8 (n= 10)</b>	<b>Total</b>
<b>Speciality</b>					
Pediatrist	<b>8</b>	--	<b>3</b>	--	<b>11</b>
Family Doctor	<b>1</b>	--	<b>5</b>	<b>4</b>	<b>10</b>
Neuropatologist	--	<b>10</b>	--	--	<b>10</b>
Both (Pediatrist, Family Doctor)	<b>1</b>	--	<b>1</b>	<b>6</b>	<b>8</b>
<b>Work Experienc In Years</b>					
0-1	--	--	--	--	--
1-5	--	--	--	<b>2</b>	<b>2</b>
5-10	--	<b>1</b>	--	<b>1</b>	<b>2</b>
10+	<b>10</b>	<b>9</b>	<b>9</b>	<b>7</b>	<b>35</b>
<b>Gender</b>					

Female	10	10	7	9	36
Male	--	--	2	1	3
<b>Employment Region</b>					
Capital city	10	10	--	--	20
Region/District Cenrtal	--	--	3	4	7
Village	--	--	6	6	12
<b>Continuing education courses for recent perion</b>					
Last 6 month	1	3	1	3	8
Last 1 year	4	5	3	4	16
Last 3 year	2	1	3	1	7
Last 5 year	1	--	2	2	5
More than 5 years	2	1	--	--	3

**Table 5.Social Demographic Characteristics of Media Representatives**

	<b>Focus Group 7 (n=8)</b>
<b>Age (mean, range)</b>	<b>25.0 20-32</b>
<b>Sex</b>	
Female	<b>8</b>
Male	--
<b>Education (mean, range)</b>	<b>15.8 15-17</b>
<b>Work Experience (mean, range)</b>	<b>5.8 4-10</b>
<b>Media Type</b>	
Television	<b>8</b>
<b>Has ever received professional training on health related topic</b>	

Yes	<b>2</b>
No	<b>6</b>
<b>Has ever prepared materials about Health related topic</b>	
Yes	<b>6</b>
No	--
<b>Has ever received professional training on immunization related topic</b>	
Yes	<b>2</b>
No	--
<b>Has ever prepared materials about immunization related topic</b>	
Yes	<b>3</b>
No	<b>5</b>

### **3.2.2. Main Findings**

#### **Perceptions on immunization in general**

1. Lack of accurate information needed to reassure parents (and some health workers) on necessity, safety, efficiency of vaccination, including new vaccine
2. Weak face-to-face communication between health workers and parents who are the only source of information on immunization ; they are not sufficiently equipped with inter-personal communication skills, proper information, tools and time to provide individual counseling and address concerns and resisting attitude of parents and caregivers (among their peers, should the need arise).
3. Negative unchecked reporting from the media raising concerns/resistances of parents to immunization (and some health workers) as well as fear among Health Care Workers as they could be blamed for these so called medical errors associated to lack of professionalism by both parents and the media (media looking for sensational reporting - low qualification, unethical behavior and no willingness to conduct adequate analysis by journalists).
4. Self-seeking information behavior of parents because of lack of readily available information on immunization for these population; lack of scientifically-proven readily available information on immunization in Georgian and Russian for Health Care Workers

contributing to the dissemination of inaccurate information, myths, misconceptions with regard to immunization.

5. Concerns about the safety of vaccination among both parents, health care workers and the media: fear for potential negative even minor consequences; fear of adverse reactions, question of quality hence safety of vaccine; continued relevance for administering vaccines for diseases which are not visible anymore and could cause harm instead
6. Use of pseudo-alternatives to immunization (homeopathy, etc.)
7. Shift in the perceived susceptibility of the disease towards association of risk with vaccines rather than their benefits among parents (and some health practitioner)
8. Some parents (and some health practitioners) believe that there is no point of putting their children at risk (possible AEFI) for the sake of collective immunity
9. Some neurologists, cardio-rheumatologists and neurologists recommend postponing for reasons of false contraindications
10. Some hospital physicians systematically blame vaccination in emerging health issues
11. Some pediatricians guarantee effectiveness and less side effects of paid vaccines
12. In general, parents require more information from doctors as they trust less the doctors, and want to have access to information through internet and the social media, based on negative information provided by the media.
13. Some parents with medical background are resistant for their child's vaccination
14. Lack of knowledge from Health Officials and professionals on how to effectively communicate with media people
15. Health care workers who are required by parents to provide additional information adopt themselves a self-seeking information behavior which is not a guarantee of quality of this information
16. Some neurologists advise to postpone vaccination with no considerations of officially approved guidelines which provide no protection for HCWs and though some conditions are not contraindications to vaccination they still may provoke complication. The same is true for cardio-rheumatologists (according to family doctors)
17. Nurses, due to low qualification and knowledge, provide parents with inaccurate information on vaccines and discourage them to get their children vaccinated
18. Religious leaders share the same concerns with mothers and health professionals and although not resistant, request accurate information as well;
19. Insurance companies are interested in coverage in vaccination with paid vaccine and advertise them as being of better quality than free vaccine, with no concerns for those who

cannot afford paid vaccines and rely on free vaccine which they therefore consider as of less quality than the paid ones.

### **Key challenges of Rotavirus Vaccine introduction**

1. Low knowledge among Health Care Workers about Rotavirus and RV vaccine
2. Low knowledge about the burden of RV disease in the country
3. Low knowledge about safety and efficacy of the RV vaccine
4. Costs related to introduction of the vaccine and sustainability of the RV vaccine in future
5. Relevance of the introduction of the RV vaccine as a public health priority.
6. Diarrhea is perceived as a risky disease by mothers although doctors are not aware that they know/think so and themselves do not consider it as a serious problem
7. Diarrhea has multiple causing agents. It is rarely identified due to high expenses of laboratory research in Georgia. Thus HCWs are concerned about cost-effectiveness of RV vaccine introduction in the country. so how cost-effective is the introduction of the RV
8. Resistances and concerns about immunization in general would impact on acceptance of new vaccines.
9. Some parents (and some health workers) holding the opinion that new vaccines are being experimented in Georgia;

### 3.2.3. Descriptive Part

#### (1) UPTAKE AND PERCEPTION ABOUT HEALTH CARE SERVICES

Almost all mothers who reside in Tbilisi confirmed to possess health insurance packages obtained at work (paid out of pocket) or provided by state agencies. Despite overall positive attitude toward pediatric services provided at state funded primary healthcare facilities, satisfaction with quality and convenience of given medical services (such as home visits and transportation to the medical facilities), high attentiveness of medical personnel and their willingness to provide support even out of working hours (particularly concerning immunization issues) AND

*"It is better, when child is sick we mostly call the ambulatory pediatrician (state funded medical personnel) for home visits, it does not pose any problem" /Positive mother, Tbilisi/*

*"Very, very satisfied, even if they have a notice that doctor works only until 2 o'clock and let's say could not receive us by that time, our ambulatory pediatrician will stay longer to receive us" /Positive mother, Tbilisi/*

on the other hand delays in receiving services at insurance provided private clinics due to high workload, mothers still gave preference to a second (private clinics) when there was requirement for more than a regular medical examination for their children.

*"She (private clinic medical personnel) is so good, that we stand in a queue, I prefer to wait for 1 hour, 2 hours..." /Positive mother, Tbilisi/*

*"I can say that Dr. N (private clinic medical personnel) is a second father for my children, if one can say so. For example my child is raised by him. Although I trust the ambulatory pediatrician, I love and appreciate her very much, but for example if child is very ill, I feel myself calmer if we go to that kind of doctor; somehow he can do everything, for example he gave the medicine for inhalation, which my pediatrician have not heard of." /Positive mother, Tbilisi/*

As mentioned by mother from urban area one of the explanation for parents' higher trust toward private clinics is the fact that health care worker employed in private sector often have good communication skills and provide patients with more in-depth information about their health condition, as well as proposed intervention, including both benefit and possible risks to their health, than medical personnel from state funded primary health care clinic.

*"I will explain, Let's say I have taken my 5 children to many different doctors, from very popular to somewhat popular and so on in Tbilisi, I am not going to name them. I have been to that very popular doctor (from private clinic) and then left the consultation so very satisfied, since the doctor explains your problem in such details. For example, explains all the negative effects, what can happen, all the positive points that you have got at the moment, what kind of complications to expect or theoretically how worst the condition could be in other cases, how lucky I am to be able avoid that problem. It is psychological issue. The doctor may be brilliant but have a problem of communication and you leave him/her without a feeling of satisfaction." /Positive mother, Tbilisi/*

Difference of medical service uptake and attitudes regarding quality and convenience of public health care services was identified among mothers with private and state funded health insurance. Those with state provided health insurance complained about low access to medical services due to high workload at provider clinics. Respectively they gave preference to public health care facilities and expressed satisfaction with consultation provided there.

*"There was a queue every time I went there, and when the working hours ended I was told- "bring child tomorrow", that is why I prefer to go to ambulatory pediatrician" /Positive mother, Tbilisi/*

However when it came to immunization none of the respondents notified to have their children vaccinated at private clinics. That can be explained by the fact that paid vaccines are available there which can only be purchased by out-of-pocket funds since immunization usually is not covered by health insurance packages due to their high price.

Participants from rural areas were found to have higher trust toward Health Care Workers at public clinics than those from urban areas.

*"I think we are served by doctors assigned to our districts, but I trust this doctor anyway. I really trust her very much, with my eyes shut. Since I am bit far from medicine and so far situation goes well at our place." /Positive mother, Shida Kartli/*

Preference of private clinic and high trust to health professional with particular specialty (such as neurologist or dietologist) among mothers of unvaccinated children was mainly associated with health status of their children (e.g. major health related issues requiring interventions at intensive care unit) and past experience of medical personnel's mistakes and misconduct. Overall this group of

mothers differed from others with rear referral to pediatricians and family doctors from state primary health care facilities due to mistrust toward medical personnel, state health system, medication as a cure in general and preference of other less harmful alternatives of strengthening the immune system, such as healthy lifestyle, diet, exposure to viruses etc.

Irrational treatment proposed by health care worker was named as one of the source of mothers' concerns and reason for distrust toward health care system in general. As indicated by one of the vaccine resistant mother she had been prescribed too many medications for her newborn baby who deceased afterword in hospital.

*"I don't want it to sound like an advertisement, I just want to say one thing, why I do not trust pediatricians, they prescribed 30 types of medicines, and when I left the maternity house, I spent one month there, and when I came home and found this box full of medications that were given or not given to my child ( I am not sure about it either); to this small baby, that has its own problem, and those 30 different medicines, I don't know, even a healthy person could not tolerate if given this amount of medications, kidney or any other organs, but pediatricians have this kind of approach to give medications for any type of health problem, this is what I oppose." /Resistant mother, Tbilisi/*

## **(2) KNOWLEDGE AND AWARENESS ABOUT IMMUNIZATION**

### **General Knowledge and Perception about Immunization**

Majority of Physicians involved in state Expanded Program of Immunization (EPI) and media representatives perceived that overall awareness and education level about immunization in general population is very low particularly in rural areas, though believed that it has increased considerably compared to previous years.

*"Majority of population had no information about what this immunization is and why it is needed. It has improved now, but still there are plenty who know nothing about this issue." /Physician, Kvemo Kartli/*

*"I asked her (physician) to compare parents' perception during soviet time and nowadays and she responded that «It is quite opposite, parents nowadays, particularly young parents are more informed and more keen to bring children to clinic as they know that it is very important for hild from birt<sup>h</sup> till 14 years»." /Media representative, Tbilisi/*

Provision of “Parent-Baby books” at maternity hospitals was frequently named reason for increased awareness of parents about immunization topic. Though physicians complained that “Parent-Baby Book” increased their paper work, majority of them agreed that it played significant role in increasing education level about children’s health and uptake of primary health services by general population.

*“there is big difference (immunization awareness) compared to past years... I don’t know what is happening lately, maybe those books that were given to them. Now parent comes when a child is 2 months old, prepared to get vaccine shot.” /Physician, Tbilisi/*

*“One thing was also very helpful... a child development book which is given to every parent at the maternity home, where the neonatology records are made and also it indicates when and for which vaccine should child be brought to us.” /Physician, Kvemo Kartli/*

*“ workload has increased (due to “baby books”), I mean writing, but that is not a problem, it is very good for parent” /Physician, Tbilisi/*

- **Awareness issues among Physicians**

Problem of low awareness and inadequate qualification was recognized even among Physicians, particularly among those working in hospitals and maternity clinics. Both mothers and physicians from EPI mentioned cases when children were +---provided with two injections of BCG vaccine at maternity hospitals.

*“I think everyone will agree with me that pediatricians at hospitals does not know anything about immunization” /Physician, Tbilisi/*

*“It is quite common event after BCG vaccine injection. Though there was case when new nurse provided two injections what cause development of infiltration” /Physician, Kvemo Kartli/*

*“They persuaded her (sister-in-law) and secretly vaccinated child at age of two months, because of that incident with two injections of BCG vaccine. She was so angry that we could hardly stop her from going to maternity hospital X. We were lied that it is such a bad needles that need to be injected twice” /Resistant mother, Tbilisi/*

Physicians were concerned that due to lack of qualified knowledge and up-to-date information about immunization medical personnel serving in hospital sector and those with particular specialty

as neurologist and cardiologist-rheumatologist often support development of negative attitude toward immunization among general population and respectively increase population resistance toward vaccine. As pointed by majority of Physicians, medical personnel of hospital often relate recent vaccination to different health issues for which pediatric patients are referred to hospitals.

*“ I had such case, when child developed seizures after vaccination. When parents took him/her to the hospital, doctor asked why they vaccinated the child, that there was no need for vaccination. And it is very bad when our colleagues talk to parents against us (immunization). After such cases they officially declare that they do not want vaccination. ”/Physician, Kvemo Kartli/*

- **Awareness issues among mothers**

Discussions with mothers showed that despite lack of in-depth knowledge about immunization, majority of them acknowledged the role of vaccines in protection against diseases and recognized the benefits of the immunization program leading to improved health for themselves and the population.

*“ if vaccination that helped to combat Tuberculosis, malaria no longer bothers us and thousands of other things, why should we start it over again, I think why do we have to fight with this problem when solution already exists and, at last we can do such a simple thing to protect ourselves, to say that I did what I could and that is all I could do, I don't know, that's my opinion.” /Positive mother, Tbilisi/*

Though mothers could list the names of vaccine preventable diseases few of them were aware of risks associated with the diseases and respectively did not perceive them as serious health problem except for some disease such as Tetanus, Hepatitis and Poliomyelitis.

*“ Tetanus, yes, in this case because you have a contact with soil , or for example with rust or something, this is what I am bit afraid of and I would agree for this. Anyway, it is a little bit different virus and yes, but for the rest – no.” /Negative mother, Tbilisi/*

*“I frighten with tetanus and hepatitis... and sometimes it helps. Other diseases like diphtheria and the rest they do not understand. ”/Physician, Kvemo Kartli/*

## Misconceptions and Myths around immunization

Discussions with participants from different focus groups revealed common misconceptions around immunization topic.

- ***Children with poor health should not be vaccinated since immunity negatively affects immune system***

Mothers mainly from vaccine resistant group were identified to have misunderstanding of the immunization mechanism and misleadingly believed that general health status of the child is the criteria for either vaccinating child or refraining from it. Major part of them believed that only healthy children should be vaccinated since vaccination could exacerbate the severity of the disease the child is already suffering from.

*“my friend also had this, for example, child had some kind of problem, protrusion ,on the eye, and should not be vaccinated. They vaccinated him/her and this eye has enlarged and posed problems, and operation was needed, well this child was still to be operated but the vaccination has hastened the process “/Positive mother, Tbilisi/*

*“it is possible that course of the disease is less severe and child recovers easier and this vaccine, this foreign bacillus, when it enters it could exacerbate “/Negative mother, Tbilisi/*

*“ neurologist generally says that child should be absolutely healthy to be vaccinated, because very small, even the slightest deviation can... “/Negative mother, Tbilisi/*

One of the neurologists from focus group believed that vaccination severely damages immune system of the child and thus its usage could be justified only during the high risk of epidemics in the country.

*“It depends, when child gets ill often, when he catches flue every other time, it could be a direct indication for him/her, because of frequent illness, because it also ruins immunity and in other cases, when child is considered to have normal pediatric status with his immunity and immunological characteristics, and if no horrific infection is coming (anticipated) If you would like to know my personal opinion, I try to refrain...”/Negative mother, Tbilisi/*

- ***Healthy children do not need immunization***

Some of mothers were ensured that children with no health related problems do not need vaccination. As frequently noted by mothers both from resistant and nonresistant (positive) groups of their experiences, unvaccinated children are as healthy as vaccinated and it is better if child develops immunity from diseases “naturally” without external intervention.

*“ ...and I prefer to watch, how he/she tolerates it. I prefer, whatever it is, either measles or rubella, my children get acquired with all of them in a very light forms, it is better, and they are girls, I prefer they go through these infectious diseases in their childhood and have “stable immunity” - /Negative mother, Tbilisi/*

- ***Immunization does not guarantee long protection from infection diseases***

Some mothers questioned the effectiveness of vaccines and believed that discomfort and suffering of the child due to vaccination cannot be justified since immunization does not guarantee long term protection from the diseases.

*“It (immunity) still leaves organism after a certain period of time, it does not stay there. They say 5 years, 10 years... so silly why to torture that kid in vain. “/Negative mother, Tbilisi/*

- ***Immunization is an experimental treatment***

“Vaccines as experimental treatment” – was named as the most common myth concerning immunization widely spread in population. Participants from different focus groups believed that vaccines provided to developing countries are experimental medical interventions and Georgian population is exploited as experimental research subjects to evaluate new vaccines’ safety and efficacy.

*“ there also was vaccination on shoulders few years ago and they said that it is kind of experiment in Georgia and none of the health personnel has vaccinated their children, neither other family members. “/Positive mother, Shida Kartli/*

*“this is experiment, let’s say how certain medicines can effect different children, in different situation or in certain age, I constantly have such inner feelings. To be honest, no one ever told me something like that, neither I heard about certain propaganda, but internally I have a feeling that ... some experiments are made on children with this...and I officially wrote a statement at the polyclinic and signed it and took responsibility on myself that child will not be vaccinated... “/Negative mother, Tbilisi/*

As noted by one of the religious leaders the main source for such attitudes is the mistrust toward medical system and medical society in general than to a particular physician. Unethical dangerous experimental studies carried out on human subjects during years starting from famous cases during world war second negatively affected image of doctors and researchers and raised concern about no protection of population, particularly from developing countries to be used as experimental subjects.

*“It is not only about physicians, it is about world health care system in general. Even among in very developed countries people are afraid of medicine... Number of experiments is carried out starting from 50-ies, till nowadays” /Religious Leader, Urban/*

- ***Vaccines in Georgia contain secret “codes”***

Another myth about immunization spread in population according to Physicians was the belief that vaccines produced and imported from western countries contain secret “codes” (not specified what the term stands for) used to manipulate with people.

*“ I remember vaccinating 85 children one day and then everyone turned against saying there is a chip in it and etc. It seems like religious leaders generated this idea. That was during mass immunization campaign. ”/Physician, Tbilisi/*

As noted by one of the religious leaders concern related to vaccines and “secret codes” was raised among his parish as well, though he addressed it with suggestion that production of such high technology tools (microchips for mind control reasons) is very expensive and thus less likely to be used for such mass production and free provision.

- ***Modern vaccines have more reactions and health complications***

Some mothers indicated that from their personal and older family member’s experience vaccines used in previous years had less reactions and health complications compared to those used nowadays.

*“ well, as I mentioned before, the last vaccination, was more painful for child. I am not the only one saying that, another friend, I have friends who have 5 children, 4 children, just like me, they also mentioned that something has changed... I don’t know what, but what I have noticed is that child was more irritated and had, let’s say more reactions toward new vaccines then he used to when administered older ones.”/Positive mother, Tbilisi/*

*“by the way, my mother sometimes says... well she has three daughters and she assumes that when we were young vaccines were of the higher quality than nowadays since she does not remember that anyone got problem due to vaccines.”/Resistant mother, Tbilisi/*

- **Papillomavirus vaccine recommended when woman has multiple partners**

According to one PHYSICIAN there is an opinion that vaccine introduced against papillomavirus infection is recommended only for girls who are expected to have multiple partners.

*“I have heard that in theUS they tell and explain girls, that they need to be vaccinated if they plan to have multiple partners.”/Physucian, Shida Kartli/*

### **(3) PERCEPTIONS AND CONCERNS ABOUT IMMUNIZATION**

#### **Free vs. Paid Vaccines**

Existence of commercial (paid) vaccines at the same time with state purchased (free) vaccines at primary health care setting raised major concerns both in mothers and physicians.

- **Physicians promote paid vaccines though fail to provide clear arguments**

According to mothers when offered paid vaccine they become suspicious about quality of free vaccines particularly considering the fact that even Physicians involved in EPI recommend paid vaccines especially in children with certain health problems.

*“...child had a moment of stupor, just few seconds, even less than a minute, some 5 seconds. And now when pediatrician knows this, he/she says that “I cannot vaccinate with free vaccine, I don’t know – I have to make a paid one; otherwise you take the responsibility for the free vaccines, I can only be responsible for paid.” /Resistant mother, Tbilisi/*

Additionally, as commonly noted by mothers, media representatives and physicians, there is no adequate information provided about difference among free and paid vaccines by health care personnel. Physicians admitted that provision of comparative description of free and paid vaccines is one of the most difficult and time consuming tasks in their practice.

*“When I asked about paid and free vaccines, they could not explain the difference.” /Positive mother, Tbilisi/*

*“I had similar problem with my grandchild and could not decide which vaccine to use ... can you tell us which one is better?”/PHC physician, Shida Kartli/*

*“I think information about the difference among paid and free vaccines is more or less provided, but not well realized by parents themselves”/Media representative, Tbilisi/*

- **Free vaccines made paid**

Some mothers from resistant group perceived that pediatric clinics often purposefully provide misleading information about vaccine quality and vaccinate children with free vaccines while ensure parents that child was provided paid vaccine and correspondingly make that pay for this service. According to one of the mothers from resistant group information about this misconduct was provided by HCWs from state funded health care facilities. She also insisted that while comparing the serial codes of the vaccines the one known to be state purchased (free) and another offered as commercial (paid) vaccine she found out no difference.

*“Both our pediatrician and nurse begged us not to vaccinate with it (paid vaccine) since believed that both were the same medicine. They would say – “why should you waist money on vaccine that is free at our place. Go and ask the code.” Afterword I found my friend at that place (private clinic) and asked to dictate the code. Then I called ambulance (state funded medical facility) and they appeared to be absolutely the same”. /Resistant mother, Tbilisi/*

- **Conflict of interests**

Physicians on the other hand complained that often there appears conflict of interests while providing information about paid and free vaccines working at private and state funded medical facilities where they work are expected to consider politics and economic interest of the given facility. Physicians were concerned that often they do not know what to say to parents concerned with this issue as they do not want to jeopardize the free system.

*“The problem is, that there are two vaccines; at the moment I work at two positions, at two clinics, one is state and another is private. This is a problem, when you are on the state job and they ask “is*

*free vaccine good or bad?" you are a doctor, you are responsible to explain, as far as we know there is a difference between vaccines."/Physician, Tbilisi/*

- **Quality of free vaccines**

Quality of state purchased (free) vaccines was one of the leading concerns identified among participants of all focus groups particularly evident among media representatives and religious leaders. Considering the low social-economic status of the country participants there is a perception that like any other products imported into the country, free vaccines are also of lower quality than those used in western world.

*"If other products imported to Georgia is not the same quality, as it might be in developed countries, how I can be ensured that my child or niece or my relatives are provided with the medication of the same quality as it is in Europe?" /Media representative, Tbilisi/*

*"How can I know that vaccines are of high quality, when I know what garbage is imported in the country. Let's take for instance second hand cloths..." /Religious leader, Rural/*

*"Does not matter what the pharmaceutical companies of the developing countries tell us that their vaccines are wonderful, only fool can believe in this. Since we know well how much is required to produce high quality medication. It is a fact that medication is very expensive in our country, though it does not mean that they are of an adequate quality" /Religious leader, Urban/*

Majority of mothers shared opinion that paid vaccines since they are produced in European countries are of higher quality and accordingly more effective and safe compare to its "free" alternative.

*"Yes it is related to something, that one is better, it was French (common talk) " /Positive mother, Tbilisi/*

*"Children have fewer reactions (adverse effects) and ... effective and more..." /Positive mother, Tbilisi/*

On the contrary, majority of physicians from state funded health care facilities and insurance company representatives expressed higher trust toward vaccines provided by government compared to one provided by private distribution companies due to following reasons:

(1) Government responsibility toward population for quality assurance

- (2) Involvement of different international organizations in national vaccination programs with their strict guidelines, procedures and regulations.
- (3) WHO certificate.

Though majority of Physicians disagreed that paid vaccines are more effective they shared concerns with mothers about safety and indicated that from their experience paid vaccines are rarely followed by reactions among children.

*“Personally I feel calm when vaccinating with paid ones and the phone will not ring that night. I have never observed reaction with paid vaccines.” /Physician, Tbilisi/*

- **Insurance companies as new stakeholders**

Both insurance company representatives in their interviews acknowledged that immunization was important for prevention of number of diseases. They also noted that immunization itself was in interest of the insurance companies as decreases disease burden in insured population, though added that at the same time vaccines should be cost effective both for governmental and private organizations.

*“Our company provides medical services in 15 districts of 5 main regions in the country. Our strategic goal is care about population. ... Care about health starts from the birth of the child and considering this immunization is very important, it will decrease health care costs related with certain health conditions developed if immunization is not provided both in insured or uninsured part of the population. It (immunization) is very important way to reach high cost-effectiveness and clinical effectiveness” /Insurance company representative, Tbilisi/*

Overall Interests of insurance companies to participate in national immunization program was found to be low since their main interest was not the welfare of population. However as indicated by insurance company representatives insurance sector is ready for intensive collaboration and putting in practice recommendations developed by NCDC and other leading health care organizations. Example of such collaboration had already been evident for recent time, especially when some companies signed the contracts with epidemiologist from NCDC to conduct epidemiological analysis of the diseases for their financial strategy development purposes.

*“Managers from our company are in contact with center (NCDC), as head of quality insurance and improvement division I need high qualified epidemiologists to conduct infection control and surveillance. Thus I referred to the center and they recommended several epidemiologists.”*  
**/Insurance company representative, Tbilisi/**

### **False Contraindications and Reasons for Postponing Vaccination**

Discussion with mothers and Health care worker about possible reasons for rescheduling/postponement of immunization revealed that both pediatricians and neurologists often give negative recommendations even when child’s condition is not listed in the officially approved guidelines of contraindications.

Physicians from rural areas stated that higher rate of delayed immunization schedules is linked to social-economic situation and high morbidity rates in their regions. As noted by one of the physicians from Marneuli (Kvemo Kartli) children from socially and financially disadvantaged families in the rural regions often have problems following the immunization schedule (postponing vaccination) due to higher incidence of different health related problems (infectious diseases mostly).

*“I consider social factor as one of the important issues hampering vaccination. Children who do not have good living conditions are prone to illnesses, they catch cold more often and we have to postpone vaccination. I am asking mother if she is making child sick, no I don’t – she says. But they live in such conditions that they really easily get sick. The delays are common and as a result our plans are not met (Schedule).”*  
**/Physician, Kvemo Kartli/**

According to mothers list of conditions for which they have received recommendations to postpone their children immunization varied from mild conditions as fever, diarrhea, flu, ear infection, and jaundice to neurological issues as seizures and other symptoms of increased intracranial pressure.

*“Because of that, since we had this much fainting episodes, they told me to refrain until one years of age. At first they said until 6 months, now until 1 year and they still may refrain, because even one fainting...”*  
**/Resistant mother, Tbilisi/**

*“...the vaccination due at one year of age was delayed because my child had frequent flus, fevers, diarrheas. And pediatricians advised not to vaccinate.”*  
**/Positive mother, Shida Kartli/**

*"it is not only about catching the cold, my older for example had an intracranial pressure and I wrote a letter, stating that because of this problem neurologist told me not to vaccinate child yet; /Positive mother, Tbilisi/*

Discussion of immunization and false contraindication topic with physicians from different regions and specialties revealed common underlining reasons for their resistant behavior, including:

- **Physicians under pressure**

Physicians despite their age and work experience expressed high concern that nowadays health care worker have to work under constant pressure due to workplace instability, inadequate protection from law, increased distrust from population and constant discrimination by media.

*" the workload was not heavy, we were not concerned about our positions at job because during Soviet time if you had a job it was yours for the rest of your life, no one would bothered you. Now you have to consider a lot of thing, you have to care for you job, care for this and care for that....*

*"/Physician, Tbilisi/*

*" There are certain situations we just have to recommend to postpone immunization. It happens because risks for certain conditions exist and these conditions may provoke something after vaccination. In this case, doctor is unprotected. Maybe doctors are protected by law but when you are left face to face with patients...what you are going to do then? ... There are cases when parents wait for the doctors near the facility and try to offend them. This is when doctors are unprotected...*

*"/Neurologist, Tbilisi/*

- **Low uptake and trust toward guidelines**

Majority of physicians stated to be well educated about contraindications provided in Georgian guidelines, though some of them disagreed with provided list of contraindications and criticized the document for being inadequate to address their questions and concerns. Low quality and inadequacy of current guidelines to address minor adverse reaction was named as the main cause of lack in homogeneity in vaccine recommendation practice and fear of even minor complications if following the guidelines.

*"... There is no order or something else, or maybe I have not seen it yet, where such contraindications are clearly stated. I only have found something at "med portal" (internet webpage), but how reliable it is – I don't know. Or let's take hepatitis vaccine – to know for sure what the contraindications are. Or BCG, shall we vaccinate or no if there is a confirmed case. /Physician, Kvemo Kartli/*

*" I would like to add, I always wanted to say that, just as the schedule is provided, I think it is very important to be provided with exact number of days for the delay, the so-called limits for delay. How long. /Neurologist, Tbilisi/*

Interestingly, young physicians expressed higher trust and reliance on guidelines and evidence based medicine compared to their older colleagues. However almost all of them agreed that physicians threatened by being accused of misconduct often do not follow immunization guideline and recommend restraining from immunization when there is no real contraindication for this.

*" They tell us to vaccinate child when there is fever and temperature 37C, but we still avoid do it."*  
*/Physician, Kvemo Kartli/*

Neurological contraindications raised harsh debate between physicians from neurologist focus group. Similarly to other groups of physicians, their attitude toward guidelines differed among representatives of different age. Older neurologists were more prone to believe that vaccines worsen a number of neurological pathologies and represent high risk for development of central nervous system demyelinating diseases in population.

*" that is why, no matter doctor is experienced or inexperienced, those highly qualified raise the questions where does the demyelinating disease come from, this is why I cannot take this responsibility, to state weather the papillomavirus vaccine is allowed or not, or flu vaccine, whether it is justified or not. "/Neurologist, Tbilisi/*

Neurologists also argued that available guidelines are developed based on international documents and approaches proposed, that are inadequate for Georgian context considering specific mentality of Georgian parents. For instance, though foreign parents care no less about their child, if they hear that there is no treatment available or required, they usually follows HCWs advice. On the contrary in Georgia because of parents requests, HCWs are left with no other choice than to carry out treatment despite extremely low or no chance of positive outcome. In other words HCWs in Georgia find it difficult to follow guidelines in their everyday clinical practice due to different social context unlike to their foreign colleagues.

*"Georgian society is characterized with ethnical specificity, particularly high demand for guaranties. For instance there is different approach toward mental disorders in the US and Europe. In case of Georgian children, does not matter ethnicity, situation is different. Parents often have more claims,*

*they insist on you telling them why it is that way or why there is no treatment, etc... ”/Neurologist, Tbilisi/*

- **Physicians low self-Efficacy**

Discussions with participants from different focus groups revealed that physicians at primary health settings often lack face-to-face communication skills and confidence in their ability to convince parents to vaccinate children and effectively engage as well as empower various participant groups.

*“ very well, but we could not communicate with parents, they asked if I have used such vaccine in practice and how could I lie, I have not, it was newly introduced in Georgia. ”/Physician, Tbilisi/*

*“ yes I reassure that there is no difference between these and those vaccines, but I am not sure whether I am giving a correct information or incorrect. ”/PHC physician, Shida Kartli/*

On the question about what measures do they take when parents hesitate or refuse to vaccinate their children, physicians brought personal examples of most effective hooks used in their practice, including:

*(1) Make resistant mothers to take responsibility for negative outcomes of their choice and officially declare their position by signing refusal consent document;*

*(2) Remind parents about importance of preparedness to possible epidemics pointing on increased risk of spread of infection due to open borders;*

*(3) Bring their family members for vaccination and use this argument as the sign that they personally trust proposed vaccine;*

*(4) Prepare counter arguments for “Google Consumer” mothers;*

The following 3 arguments were mostly used by physicians from rural area:

*(5) Persuade parents that free vaccine have “double guaranty” of safety and efficacy, from Georgian government and on the other side from producing pharmaceutical company;*

*(6) Fever and other minor reactions after vaccination is the guarantee that vaccine is effective;*

*(7) Persuade parents that child will not be admitted to school if he/she is not vaccinated.*

## **Vaccine related health complications**

When asked about experience of vaccine related reactions and complications in their children and patients, mothers and physicians from all focus groups noted that they personally have never been witnessed of any serious health complications due to immunization except local reaction shortly following vaccine injections (e.g. swelling, redness and pain at the injection site), fever and mild anxiety.

However majority of mothers expressed similar concerned about potential severe vaccine related health complications and brought for example the stories they had heard from their relatives, friends and other accountancies. Most of the stories told during focus group discussions were about development of neurological issues in children after immunization.

*"the child was born normal, than she was taken to the village pediatrician who made injection directly (without making any health check-ups) and child got sick, since then, the girl is 25 years old and she develops seizures 5 times a day and this started after vaccination. She would be healthy if not vaccinated..."* **/Resistant mother, Tbilisi/**

In another story mothers and media representatives told about the case when after immunization their child stopped normal physical development.

*"My sister in law vaccinated child at the age of 6 months. This child was developing well, normally. Since that everything got worse and worse, after vaccination, they hardly saved child and now feels bad all the time. Now child is in a second grade; ...though brain is intact, body is not developing normally and child is very small. He/she weights less than other children, even those who are 1 year younger"* **/Resistant mother, Tbilisi/**

Physicians indicated that often parents lack adequate skills for management of vaccine related reactions (e.g. temperature, anxiety, etc.) and discussed the case of adverse events (e.g. Hypothermia) following vaccination caused by inaccurate provision (overdosing) of prevention medication for post vaccination reaction.

*"...It is the syrup, the parent told us that when they provided it, the child vomited, afterwards they gave another dose, the child again vomited and they gave medicine for second and third time. When temperature went down, we asked in details and father admitted provision of medicine for three times."* **/Physician, Tbilisi/**

Physicians from rural area also indicated that frequent cases of vaccine related health complications is often associated with contact of infected patients with others coming on vaccination visits due to problem of space shortage in clinic. In other words, children's visit in the clinic for vaccination purposes put child under the risk to acquire infection from other children in the waiting room.

*"... now children both coming on immunization and those on medical examination for certain health issues are put in the same room. Two days after immunization parent is calling me: „fever after two days of vaccination is a normal reaction? » No, it is not the vaccination reaction of course. Child acquired infection when came on vaccination and developed rash. There was no such cases during soviet time"/PHC physician, Shida Kartli/*

#### **(4) PERCEPTIONS AND CONCERNS ABOUT ROTAVIRUS VACCINE**

##### **Diarrhea and Rotavirus infection**

None of participant mothers were aware about Rotavirus infection and few were familiar with the term diarrhea, though while explained, the majority of them indicated that they consider diarrhea as important and worrisome health issue particularly if it is accompanied with other symptoms such as fever and vomiting. Some mothers shared experience of dealing with complicated foodborne infections in their children.

*" My child had it two weeks ago, vomiting started right away, he could not even take water, nothing at all, then suddenly, after 1,5 hours diarrhea was started and we took him to hospital, they could not make transfusion, they could not find veins, so after stomach pumping (Gastric lavage) transfusion solutions were given per orally. Then he got better. Got better but it took too long, he was sick for about one week "/Positive mother, Shida Kartli/*

Participants from Media focus group shared opinion with mothers and considered diarrhea as a serious problem in the country. One of the media representatives mentioned that for recent years there have been identified major shift in epidemic of diarrheal diseases and if in the past it usually occurred in summer (due to problems of conservation of products in high temperature), now peak of the epidemic was identified in fall (October-November).

*“The highest peak of diarrheal diseases was identified during fall season, when it should not be identified. As we know well usually diarrheal disease reach the peak in summer, than there is available a lot of easily spoiled food and many other external factors.”/Media representative, Tbilisi/*

On the contrary, majority of primary health care physicians and neurologists did not consider diarrhea as serious health problem and were ensured that diarrhea is not perceived as a problem by the mothers either.

*“ you should name the most painful, frightening, diarrhea is scaring. As a doctor I can understand, parents – I do not think so. “/Physician, Tbilisi/*

*“diarrhea is ok, but if there is also vomiting – they are scared, they do not consider it a s threat. “./Physician, Tbilisi/*

*“ meningitis is considered (as dangerous disease), but diarrhea – no. “/Physician, Tbilisi/*

### **Rotavirus vaccine**

When asked whether they would vaccinate their children to prevent rotavirus infection and associated diarrhea, majority agreed with condition that they would be insured that vaccine is safe and effective.

*“ Yes , I have heard of it (diarrhea is a problem in children less than 2 years), in addition my friends have young children and I can see it is common and I think I would vaccinate, because ... if it is effective, it will be guaranteed and I would vaccinate. “/Positive mother, Tbilisi/*

However majority of mothers shared the opinion that new vaccines raise more concerns compared to old since new vaccines are associated with experiments and accordingly with higher risks of vaccine related health complications.

*“ I agree on those vaccines that have been tested by years, and we all trust, but these new ones, they are an experiment yet, it is risk factor, they cause fear “/Positive mother, Tbilisi/*

One of the mothers questioned dependability on international experience of vaccine validity (safety and efficacy) since perceived that like other medications their effectiveness may vary country by country.

*“ it is not the same, what I really want to know is that lets take medicine, are all of them equally effective in different countries? ”/Positive mother, Tbilisi/*

Respectively, like some other mothers from the same focus group expressed willingness to wait until vaccine is widely used in Georgia by others before giving it to their child.

Interestingly, most mothers from rural areas gave preference to injecting vaccine to those administered orally since it was considered first more effective and rarely followed with vaccine related reactions.

*“ children tolerate injecting (pricks) very easily, they never cry ”/Positive mother, Shida Kartli/*

Physicians indicated that by belonging to a primary health care setting personnel, they rarely deal with complicated forms of diarrhea and in majority of cases their patients are provided medication without identification of main cause of the disease due to inability of the patients to cover the cost of laboratory investigations.

Respectively they questioned the fact that Rotavirus infection is the leading cause of diarrheal disease in the country and did not perceive importance to including Rotavirus vaccine in Immunization Schedule of Georgia.

*“ I do not consider necessary to introduce the rotavirus vaccine unless the epidemics occur (the incidence rises dramatically). And this is not the case yet. I consider that new vaccines should be introduced against frequent and severe diseases. For example, there was a salmonellosis outbreak and hospitals were overloaded and physicians could not leave their departments, I think in that case it is possible. ”/Positive mother, Shida Kartli/*

*“ diarrhea is not well diagnosed, what is the cause, is it infectious or not, or if it is bacterial or viral. In addition it causes sensibilization of the body, and why do we need it for? It also poses additional problems to us.” /Positive mother, Shida Kartli/*

**Requested information and most effective ways of provision**

On the question – “what information would ensure you that vaccine is safe and effective?” mothers and physicians named following:

- (1) general information about Rotavirus infection and health risks associated with the disease;
- (2) Technical information about vaccine schedule, target age group and specific contraindications;
- (3) International experience and official statistics of vaccine efficacy and safety;
- (4) Local experience and statistics about already available vaccine;
- (5) Local expert’s and different medical field specialists’ opinion about vaccine;

In order to be ensured about safety and efficacy of Rotavirus Vaccine, Physicians underlined importance of existing evidence based information about the proposed vaccine, while media representatives and religious leaders made accent on information concerning country of origin of the vaccine.

## **(5) IMMUNIZATION RELATED DECISION-MAKING AND SOURCE OF INFLUENCE**

### **Family members’ role in decision-making**

According to mothers from urban regions decisions about child’s immunization as other child and family health care issues is mostly a woman’s domain where leading role is played by mothers.

*“Me and my husband we live alone, he is mostly out, and I just tell him when I am taking child for vaccination, nothing else; he never refuses, we never had this, I am making decisions concerning children.”/Positive mother, Tbilisi/*

However there are exceptions when fathers are actively involved in health related decision-making and sometimes go against vaccination.

*“My husband is always there at vaccination session, or if child gets sick, he knows what to do and how to do. He even participates in history recording, he tells physician this and that...”/Positive mother, Shida Kartli/*

According to mothers from rural areas and those mothers who refuse to vaccinate their children, responsibility for child health care is evenly distributed among parents and usually decision is made by joint participation of both of them.

*“We of course ask each other, why should I take all the responsibility, I am just a human and ... if he also supports me, then...” /Resistant mother, Tbilisi/*

According to physicians from Marneuli (Kvemo Kartli Region) older members of the family, namely grandparents represent the leading decision makers who were often found to have negative attitude toward immunization.

*“ we had some cases when parents do not vaccinate. The main reason for this is that “older ones” in the family are against... they do not allow to vaccinate children... because of some old considerations that vaccine will certainly harm the child and etc.”/Physician, Kvemo Kartli/*

*“Mostly grandfathers and grandmothers (make child health related decisions). Recently, grandfather brought a child and said he will not vaccinate, because his neighbor’s child was vaccinated and he/she has high fever for one month and feels sick. I did explain that it was not caused by vaccine, but he did not believe. He signed the refusal form and left.”/Physician, Kvemo Kartli/*

### **Health care worker image and role in decision-making**

Despite complains toward unethical and unprofessional behavior of health care worker and concerns about increased number of published cases when patients were put under the risk due to low qualification of Physicians, they still are named by mothers as the most influential persons in vaccine related decision-making process.

*“ I completely trust my physician, when she tells me, in case of my younger child we twice postponed the vaccination, when child had some problem; I absolutely trust her – when she said not to do, I trust and did not make...” /Positive mother, Tbilisi/*

*“Pediatrician has to persuade us and in this case we are ready to get immunization “/Positive mother, Tbilisi/*

From their side, health care workers, particularly those with big work experience at immunization units also acknowledged their role in this process.

*“Parents’ relationship with doctor is very important. Most of my current patients are children of my ex-patients, thus their parents after remainder call by my nurse often call me telling “Aunt N, if you tell me to bring my child I will do it” /PHC physician, Tbilisi/*

Physicians also indicated that role of pediatrician and a family doctor working at primary health care facilities in remote rural areas is particularly crucial considering low awareness of local population about immunization related issue and high trust toward Physicians in general.

*“The issue of trust toward physician matters a lot. Physicians have to work harder, especially in the remote villages, with relatively less civilization as they only trust physicians. The role of physician is critical there.” /PHC physician, Kvemo Kartli/*

During discussions mothers expressed concerns that some health care worker refuse to vaccinate their family members and bring this fact as one of the reason for their suspicions about safety and efficacy of introduced vaccines. In other words, by refusing to vaccinate their own family member health care worker trigger concerns among general population and give “bad example” to mothers while immunization decision-making.

*“There was time when children were provided with vaccines usually injected in shoulders or back. It was several years ago. It was told that vaccine was an experiment and none of doctors vaccinated their children and family members. Back then I worked at school and... I did not get vaccine either”./PHC physician, Shida Kartli/*

### **Spirituality and religious leaders’ role in decision-making**

Discussions with participants from different focus groups about health related decision making process indicated an important role of religious leaders in modern society as the new trusted source of information and advices. While looking for trusted opinion (particularly person who would not lie to them) religious leaders are often approached by population with questions concerning quality, safety and efficacy of vaccine what is not in their competence.

*“Priests are well informed on everything, ask whatever you want and he will answer”/Positive mother, Tbilisi/*

*“I usually go for this issue, I tell our priest that we are going to that doctor and to bless us, or called him or something like that...” /Positive mother, Tbilisi/*

According to religious leaders both from rural and urban area, the main questions and concerns they hear about immunization is the quality of vaccine and its association with health complication.

*“they are interested how safe it (vaccine) is and how acceptable it is. Usually the first question is about quality. They want to know whether it will cause the damage to their health... they know that damage caused to their health could not be improved so easily”/Religious leader, Tbilisi/*

Jehovah Witness was named by mothers and physicians as the only denomination which prohibits vaccination in the country. However physicians from rural regions indicate a difference in vaccine uptake behavior among these religion group representatives residing in Kvemo Kartli and Shida Kartli region. Specifically, according to physicians Jehovah Witness families in Kateli (Shida Kartli) are reluctant to vaccinate while residents of Marneuli (Kvemo Kartli) on the contrary vaccinate all their children.

*“I face resistance from the Jehovah witnesses, I have several families who refuse to vaccinate (there are 6-7 children in all)” /PHC physician, Shida Kartli/*

*“I have three or four Jehovah witness families, I have never had problems with vaccination, on the contrary they are calling and disturbing me...” / PHC physician, Kvemo Kartli/*

According to mothers and Physicians mainly represented by Orthodox Christians official Christian church in Georgia is not against immunization and majority of religious leaders when asked about different health topics refer people to health professionals.

*“ I did not have a problem neither from priests (religious leader?) nor anyone else. I personally talked with 4 priests and none of them were against. On the contrary they said it is a protection and it is essential. One of them has wife and three children and he said he vaccinated them.” /PHC physician, Shida Kartli/*

*“For example, our priest says “do whatever the physician says” /Positive mother, Tbilisi/*

However, according to participants of all focus groups there were several cases when some religious leaders in Christian Orthodox church gave negative recommendations and spread myths about vaccination in population. Important to mention, Physicians reported that source of resistance

among religious leaders is the same concerns regarding safety and efficacy of vaccine often identified among general population and some health professionals.

As affirmed by one of the religious leader immunization represents a problem for the church not in terms of religious viewpoint but because of population's perceptions and concerns around these issues.

Despite all, one of the mothers from vaccine resistant group stated that their faith in God is the best protection of her children from different health related problems, including vaccine preventable diseases.

*"I am religious person myself, and I more believe in god and saint Mary; and I read mothers prayer every morning, it is very soothing; I believe in god very much and thanks God everything is well so far."/Resistant mother, Tbilisi/*

She also indicated that while making decision not to vaccinate her children she asked opinion of the religious leader about vaccination in general and disclosed her decision on which she received positive response.

*"I did not vaccinate younger daughters, none of them and I am not going to; I asked priests – two of them. I have asked two priests instead of one and both had points of view that if you believe in god and pray, no vaccination is needed..."/Resistant mother, Tbilisi/*

In their interviews religious leaders noted that they often hear such misleading opinion particularly from people that just started going to church and usually have to explain that treatment and doctor is not something prohibited by religion. According to religious leaders in the book by "Zirak" it is said that doctor is the person sent by God as well as for recovery from the disease.

### **Negative media and its role in decision-making**

According both by mother and physician's focus groups information provided by media (particularly broadcasting media) is often inadequate and mostly present only negative facts associated with vaccination. Most of mothers and physicians agreed that negative media reporting played important role in failure of past vaccination campaigns and admitted to be influenced by reporting while making decisions on immunization.

*“this happened because television spreads misleading information, it practically was an anti-advertisement. Vaccines have annotations stating adverse events and it is clear that some adverse events would be observed, but they should not be spreading such information on television, it ruined everything.” /PHC Physician, Kvemo Kartli/*

Communication problem of media representatives and health care personnel was named as one of the important reason for spread of inadequate information about vaccines and creation negative attitude among general population.

Physicians expressed low trust toward media representatives due to high rate of negative media reporting about medical personnel misconduct. They believed that media was in charge of creation of dishonest HCWs image and distrust of the patients toward medical system in general. Physicians also indicated that journalists generally lack competence in health topics and in chase for “scoops” (an exclusive news story) often behave unethically. It was commonly believed that low quality and reliability of media materials (anecdotal data from untrusted sources), as well as sentences from their interviews with HCWs taken out of the context often damage instead of promote immunization.

From their side, media representatives argued that media channels are not the main source of negative information about vaccines, that often such information is spread in the community through accountancies. Moreover, according to them media reporting about importance of the problem related to vaccine preventable diseases or other health issues is the leading psychological trigger for Georgian population to refer to appropriate medical services.

*“It is human psychology, until they are put in front of the problem, they do not go to doctor for a visit.” /Media representative, Tbilisi/*

Media representatives also noted that unwillingness and inadequate skills to communicate with media representatives were the major reason for development of negative attitudes toward health care professionals.

*“They are so much confused and give so absurd response, it is very difficult for us, even if we want this, to support their position” /Media representative, Tbilisi/*

Media representatives and religious leaders highlighted importance of information transparency in health care system and argued that hiding of information about quality of medication services and

other health related issues, such as vaccine related complications would lead to escalation rather than to solution of the problem concerning resistant mothers.

*“All information does not matter how worrisome it may be for the organization should be transparent. When you hide some information both journalists and population feels this and have more questions and concerns...”/Media representative, Tbilisi/*

*“If Access toward information about vaccines, including: country of its origin, technologies used for its production, is inadequate, than I cannot be sure that I was provided with right one...”/Religious leader, rural/*

## **(6) INFORMATION SOURCES ABOUT IMMUNIZATION**

### **Popular sources of information**

Mothers, Physicians, Media representatives and religious leaders cited the number of sources they utilized in everyday life for personal and professional purposes to receive health related information, including: health care worker, internet, accountancies, broadcasting and printed media.

The most popular source of information according to majority of participants was internet, namely Google, different Georgian and Russian language Webpages.

*“ ... these web pages (Georgian) give you information for first period (trimester) of pregnancy, then information about child, about diseases”/Positive mother, Tbilisi/*

*“I Google for disease or symptom and then check all the information, sometimes it returns book and I read it” /Positive mother, Shida Kartli/*

Mothers and media representatives complained that often consultation with health care worker does not cover all interesting topics and is not always correct. They believed that internet was the most appropriate sources to fill information gap about subject of their personal or professional interest.

*“First of all I receive this information from internet and only after that when I have a text from the doctor I write an article. I always recheck information since I had the cases when the doctor provided incomplete list, or did not tell me how she should do, or how I have heard from other three doctors. I*

*try not to be depended only doctor's opinion since there was case when there were mistakes even in the information provided by the doctor."/Media representative, Tbilisi/*

As noted by one of the mother internet is more convenient way to receive information on interesting health topic compared to consultations which does not last long enough to receive answer on all questions.

*"You cannot sit with physician for hours to ask about everything in details, since there are other people waiting in a queue; doctor may provide you with brief information at the moment, very basic one, but detailed information one can search internet or read literature"/Positive mother, Shida Kartli/*

According to another mother internet is more trusted source than broadcasting media (e.g. TV shows, News, etc.) since it provides space for interactions and exchange of information with other mothers on the topic of their interest.

*"You cannot trust television nowadays, it is better to use internet – you can get answer on any kind of question. And then I observe those comments"/Resistant mother, Tbilisi/*

Though mothers considered health care worker as the most trusted source of information, they still use other sources to recheck validity and get insured that they are provided with most accurate information.

Mothers from rural areas representing ethnic minority groups gave preference to health care worker and local broadcasting media from which they could receive information in their native language. However physician working in the same region insisted that local population rarely use this type of media to receive health related information considering limited information on local media channels and low knowledge of Georgian language to obtain information from other media sources. According to physicians health related information is disseminated in the community through accountancies.

*"I think that nothing has changed during the past two years. As soon as adverse event occurs, they inform each other and do not come for vaccination. /Physician, Kvemo Kartli/*

## **Attitudes and Concerns about Health Related Information Sources**

Discussions about sources of health related information revealed a significant variance in attitudes and concerns among participants from different focus groups.

- ***Information self-seeking behavior***

Analysis of mothers and Physicians focus group discussions about trusted sources of health related information revealed that in the modern Georgian society people demonstrate more concerns regarding their health status and willingness to use various sources to fill their information gaps. In soviet era physicians represented leading figures in patient's health related decision-making process and almost the only source of health information, nowadays due to increased distrust toward health care system and high access to information patients express more interest in being involved in their own health care and often refer to different information sources to be ensured that their interests and rights are protected.

*"I became mother in my 19, I was a student of medical university then and I knew that baby needed to be vaccinated against Diphtheria, and never asked what was the country of origin of that vaccine. Mrs. \_N\_ would call and I would go. This generation is different, they have information and they demand that physicians are well prepared and up to date."/PHC Physician, Tbilisi/*

There was identified dissimilarity of health information seeking behavior among mothers from different focus groups. Specifically, mothers who refused to vaccinate their children, like majority of participants, demonstrated distrust toward vaccines and health care system in general, though unlike others they were satisfied with their current knowledge in health issues, they did not use any sources to receive health related information and expressed unwillingness to be educated about immunization.

*"You know what, my attitude is so negative, that I do not search for additional information and details, I am not interested. My overall perceptions are enough to refuse."/Resistant mother, Tbilisi/*

- ***High burden of unreliable information on internet***

Majority of Physicians were concerned regarding negative information about vaccination (e.g. possible post vaccination complications) and other health topics prevailing on internet considering the high consumption of this source by majority of population. Physicians also indicated that often information is inadequately interpreted by patients what usually leads to changes in their attitude toward vaccine and increases the risk of turning vaccine supporting parents into resistant ones. For instance, according to the physician from Tbilisi, one of her patient's parents hesitated to vaccinate her child bringing the argument that the vaccine is not recommended by World Health Organization. As noted by physician, information presumably was obtained from the websites belonging to the country where there was no need for particular vaccine due to low burden of the vaccine targeted infection.

Considering such precedence, majority of Physicians concluded that information provided to parents on internet webpages should be censured and preferably provided in the language understandable to general population.

Media representative gave preference to Georgia internet sources to uptake information on health topics for their reporting. One of the media representatives expressed willingness to receive information from NCDC website as one of the reliable source from their practice.

*"If there is some webpage, for instant like yours, we will commonly use it if we are looking for some information and not scoop of course. For instant information about vaccination, if we know that such information is available on your webpage we will not look for it on other Georgian webpages or Google it. I would visit first your website instead."/Media representatives, Tbilisi/*

- **Lack of health related information in local language**

Mothers from different focus groups and media representatives were concerned that there is huge deficit of health related information on Georgian language and they often had to visit Russian internet sources to get interesting information.

*"Russian, since there is not much information in Georgian... it is so well developed, you can get information on any disease, when you search it in Russian, there are descriptions, then comments of people who were diagnosed or were treated on certain disease."/Resistant mother, Tbilisi/*

## **(7) STAKEHOLDERS RECOMMENDATIONS AND PROPOSALS**

- **Proposals on content and format of campaign**

On the questions related to introduction of a new vaccine in the country participants provided their viewpoint about the most effective measures to be undertaken for support of RV vaccine introduction as well as immunization in general.

Majority of participants from different focus groups named adequate immunization campaign as the key factor for high vaccine uptake by population.

As frequently noted by mothers and HCWs previous immunization campaigns carried out in the country failed to address issues related to low awareness and education about immunization topics in general population. According to a mother from Tbilisi recent MMR vaccine campaign was more concentrated on increasing public awareness through various entertainment activities (Open air concerts, shows, etc.) and failed to provide the most essential information related to immunization.

*“There was no information about why we should be vaccinated. They just made a show, with no other announcement, just musical concert, PR campaign”/Positive mother, Tbilisi/*

Other participants criticized not only content but also choice of images and visual effects for such promotion activities. They insisted that inaccurately planned promotion not only have zero effect on public perception but on the contrary increases population concerns and resistance toward vaccination.

*“They just ran out and started painting dots on our faces. Would this make you want to get vaccinated? Everything was so not serious that nobody went to get vaccine shot.”/Positive mother, Tbilisi/*

*“Personally I like social advertisements if they are well developed. There were some of such advertisements released for recent years, but few of them, no more than 5, which provided population with adequate information. Most of them (social advertisements) nowadays have content understandable only for their creators. Have you heard a joke about Marlboro advertisement? After watching advertisement Svani (citizen of Svaneti region, North-Western Georgia) went and bought a horse.” /Religious leader, urban/*

According to one of the religious leaders black color image of monster used during MMR immunization campaigns distracted people to have their children vaccinated.

*“Once there was case with one vaccine campaign... I told them that if they make such advertisement I would not take my child for vaccination either. They draw infection in form of dark men, or some monster, on the wall of the polyclinics, it was MMR as I remember”/Religious leader, rural/*

- **Proposals on information sources**

Big majority of mother both from urban and rural areas (with exception for those from vaccine resistant FG) preferred to receive information during direct communication with HCWs.

*“I think it would be better if doctor provided it (information about RV vaccine) since I have blind trust in my doctor and if doctor offers it (RV vaccine information) to get acquired and well articulates why it is beneficial for my child I will approach it blindly.”/Positive mother, Shida Kartli/*

*“I prefer I was told about this (information about RV vaccine) by my doctor who is popular and experienced.”/Positive mother, Tbilisi/*

*“It should be pediatrician who will persuade us and we are ready to get it (RV vaccine).” /Positive mother, Tbilisi/*

Whereas broadcasting media was named by participants as the second most favorable and at the same time effective tool for information delivery to the general population (though not always adequately used in Georgia). As frequently noted in the different FG discussions inadequate information and inappropriate choice of the speakers on different TV shows often resulted in development of negative attitude toward immunization in the country.

*“This (failure of MMR vaccine campaign) happened because it was inappropriately broadcasted in media. Actually, it was Anti-advertisement. Adverse events are provided in vaccine annotation and it was clear that vaccination would be followed with some side effects. However such discussions should not be made on television. This massed up everything.”/PHC Physician , Kvemo Kartli/*

*“It left more an unserious impression since broadcaster was Mr.“N” (popular musical band soloist), absolutely inappropriate person. What musical band has to do with vaccination?”/Positive mother, Tbilisi/*

Despite overall decreased trust toward Health care system and personnel, both mothers and HCWs insisted on invitation of health professionals on broadcasting media channels to discuss immunization related issues. Participants were assured that information prepared and provided by

HCWs on TV shows would have stronger effect on public opinion than those delivered by any other professionals.

*"I read about the case with big media publicity and afterwards watched "day show" where were invited physicians and they discussed the issue so professionally that I was more on vaccine (supporters) side." /Positive mother, Shida Kartli/*

*"It is essential to prepare show similar to one we made. You should first of all invite primary health care pediatrician, neurologist..." /Neurologist, Tbilisi/*

Some HCWs proposed to prepare TV shows on the children TV channels, though media representatives considered that such information should be available on multiple TV channels during different time of the day to reach broader audience.

*"You know what?! Different shows are prepared for different people. At noon they are for housewives, who are at home and are interested in it and you should at least give them an information. What I am telling is that, you should correctly provide such information. Provision of the information on "news" only on half past twelve is not in your interests. You should consider providing information on other channels at nine o'clock, I mean on different time." /Media representative, Tbilisi/*

Both HCWs and media representatives underlined importance of NCDC collaboration with media and indicated that information broadcasted on television should be developed with active participation of public health professionals employed at the center. As noted by some media representatives due to low access to reliable health related information on local language, shortness of time and inadequate qualification, it was extremely hard for them to prepare high quality materials with correct messages. Respectively, she considered involvement of NCDC in this process crucial for successful media campaign and expressed preparedness for intensive collaboration.

*"There was a case when I had to prepare reporting in very short time. It was reporting on one of the disease and I needed information very soon and MS.N (NCDC employee) gave me the document with detailed messages. It was more than just press release, in other words paper with information, which has at least twelve pages. Instead it had messages just like I wanted and I peeked them out." /Media Representative, Tbilisi/*

- **Proposals on education activities and materials**

HCWs acknowledged their lack of knowledge about RV infection and vaccine and underlined importance of trainings for health personnel. Though opinion about the location of education activities varied among HCWs from the same FGs, all agreed that training should be provided by professionals in the field and education materials should be based on up-to-date evidence based information.

Both mothers and HCWs residing and employed at Shida Kartli region unlike majority of other participants considered printed education materials such as booklets and leaflets as the most favorable and effective measure to increase public immunization awareness. Overall perception regarding content of the education materials did not differed among various FGs. Requested information were proposed to be short and easily understandable, though comprehensive and covering the following topics: RV infection, disease epidemiology and complication, RV vaccine safety and efficacy, adverse events and contraindications.

Religious leaders from their side offered their support in provision of such education materials and expressed willingness to receive training on health related topics. According to one of the church representatives education materials about health topics could be provided in church particularly for recently engaged couples.

*“Personally I have participated in such education activities provided in our eparchy. Physicians came from Tbilisi and gave lectures in residency (regional center) about diseases and gave us booklets. It was very nice of them. Diseases like Tuberculosis for instance are very problematic not only for our parish but also for church representatives residing in remote regions.” /Religious leader, rural/*

*“Of Couse it is possible (trainings on immunization related topics), we think about this seriously. We wanted but could not manage to do it (training) on Tuberculosis for instants... I would like there were developed booklets with such information for those who is engaging since they have no idea about these issues. We know how uneducated we are, so it is very important to provide such information there (church).” /Religious leader, urban/*

## IV. QUANTITATIVE RESEARCH

### 4.1. Quantitative Research Methodology

The survey of 462 Health Care Workers (physicians/pediatricians involved in EPI) at primary health care units (e.g. immunization, health promotion and antenatal care) were conducted using self-administered anonymous questionnaire to assess knowledge, beliefs, and attitudes regarding rotavirus infection diarrhea and rotavirus vaccine and immunization in general.

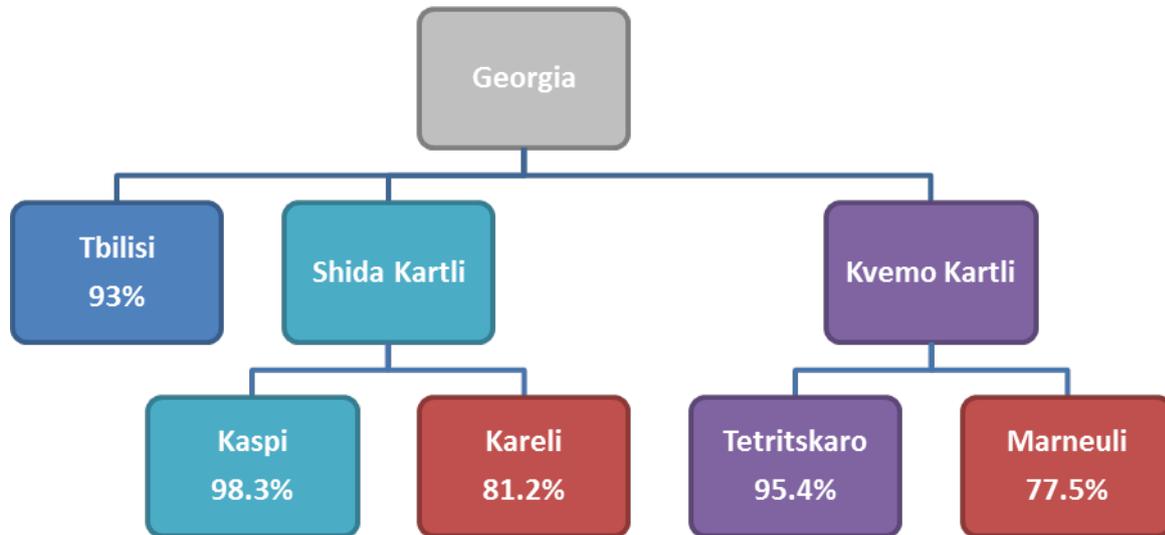
The questionnaires were developed in collaboration with local experts in pediatrics, infection disease, preventive medicine and public health and address multiple domains. To ensure clarity and ease of administration the questionnaire were pilot-tested on a convenience sample of primary health care from Tbilisi.

#### 4.1.1. Data Collection Procedures

Selection of research sites were based on the rational to include regions with high population density and diverse vaccine coverage statistics according to official Immunization coverage estimates (Indicator – Penta3 [BCG+Hib+HepB]). Accordingly three regions were selected, including Tbilisi (93%), Shida and kvemo Kartli (88% and 86% accordingly). Each regions of Shida Kartli and Kvemo Kartli were represented by two districts one with highest and one with lowest coverage statistics, including: Marneuli, Kareli, Kaspi and Tetrtskaro. **(Fig.3)**

Health Care Workers that meet the eligibility criteria were invited to participate in the cross-sectional survey until we had selected the designated sample number from each primary health care unit. The response rate for each institution was calculated. Questionnaires were delivered by hand during working hours and collected after completion. Brief oral and written description of the purpose and objectives of the study were provided and verbal consents were obtained from prospective participants before administration of self-administered standardized questionnaire to complete at pre-arranged times.

**Figure 3. Selected Research Sites Diagram with Immunization Coverage Estimates.**



#### ***Sample size calculation***

The sample size was calculated using a formula for finite population (578 total number of the physicians involved in immunization in selected regions) using standard parameters of  $\alpha=0.5$  and  $\text{power}=0.80$ . Assuming that 50% of the Health Care Workers have sufficient knowledge of Rotavirus infection, a minimum sample of 420 participants was needed for the proposed survey.

#### ***List of Inclusion Criteria***

- (1) full-time employees of primary health care units participating in EPI
- (2) physicians

#### **4.1.2. Data Collection Tools**

Self-administered anonymous questionnaire consisted of questions in domains theoretically affecting vaccine adoption:

- Demographic and professional characteristics, including gender, age, position/specialty, year of working practice
- Awareness of Rotavirus infection; including knowledge of the prevalence of the virus among Georgian population under 2, risk factors of transmission and prevention; availability of vaccine and/or treatment for this infection and the effectiveness of these measures;
- Awareness of complications of persistent Rotavirus infection and diagnostic methods of the disease;
- Attitude towards immunization; how they address the cases if parents refuse vaccination; Reasons for any negative attitude;
- Perceived deficits in knowledge where training would be welcomed

#### 4.1.3. Data Management and Statistical Analysis

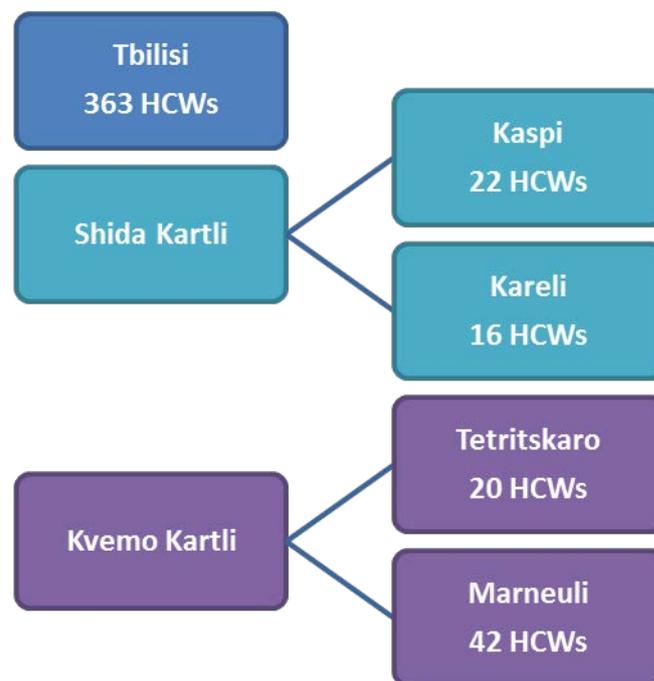
Data were double entered and verified in SPSS. Data management and quantitative statistical analysis were conducted using SPSS version 16 at NCDC. Data quality assessments were conducted before analysis was performed. Bivariate analyses were performed to estimate the prevalence ratios with 95% confidence intervals between predictive factors for willingness to give recommendation for Rotavirus Vaccine inclusion in the National Schedule of Immunization.

#### 4.2. Quantitative Research Findings

##### 4.2.1. Demographic and professional characteristics

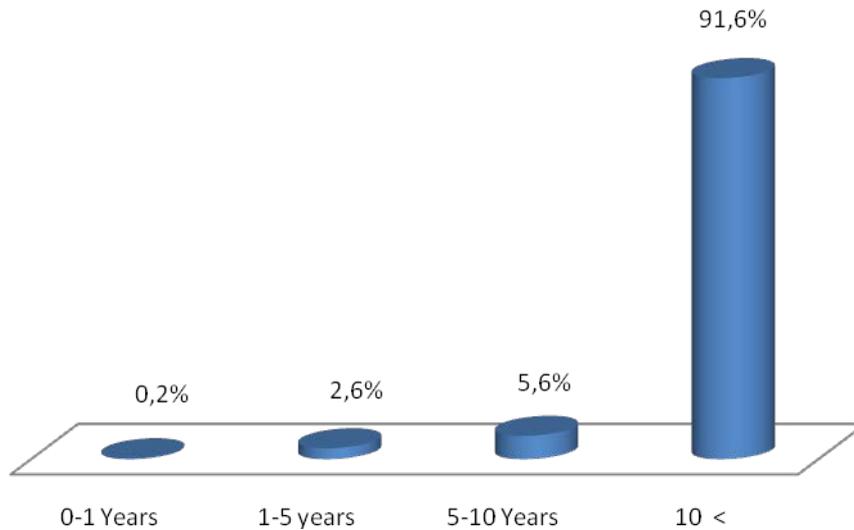
In May of 2012 in total 475 health care workers (HCWs) were invited to participate in the study, from which 462 HCWs agreed to be involved in it the research (Response Rate 97.3%). 363 HCWs were employed in the primary health care facilities located in Tbilisi, 38 from Shida Kartli region (Kaspi -22 and Kareli-16) and 61 from Kvemo Kartli region (Tetrtskaro 20 and Marneuli 41). **(Fig. 4)**

**Figure 4. Number of Participants by Study Regions**



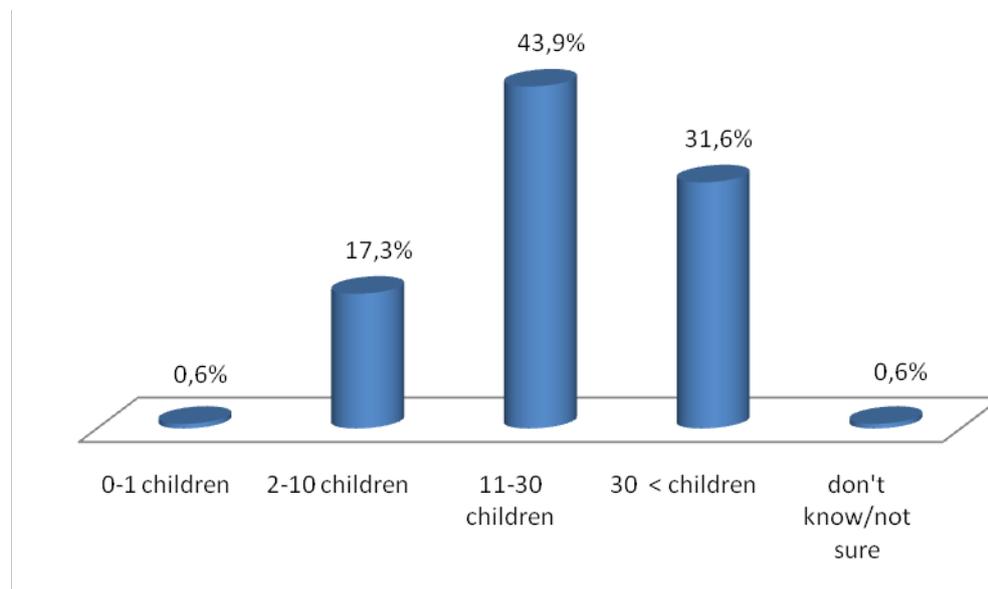
Study participants were represented by pediatricians 164 (35.5%), family doctors 137 (29.7%), HCWs with joint specialty (pediatricians with family doctors license) 155 (33.5%) and other specialists in the field 6 (1.3%) (including Immunologist, infection diseases and internal medicine specialist). Majority (91.3%) of HCWs recruited in the study was women; 91.6% had 10 and more years of work experience, and worked in the primary health care facilities located in Tbilisi (78.8%). **(Fig. 5)**

**Figure 5. Number HCWs by Work Experience in Percentages**



Majority (94.2%) of participants were involved in National Immunization Program and reported to have approximately from 11 to 30 children vaccinated per month (43.9%). **(Fig.6)**

**Figure 6. Number of Children Vaccinated per Month in Percentages**



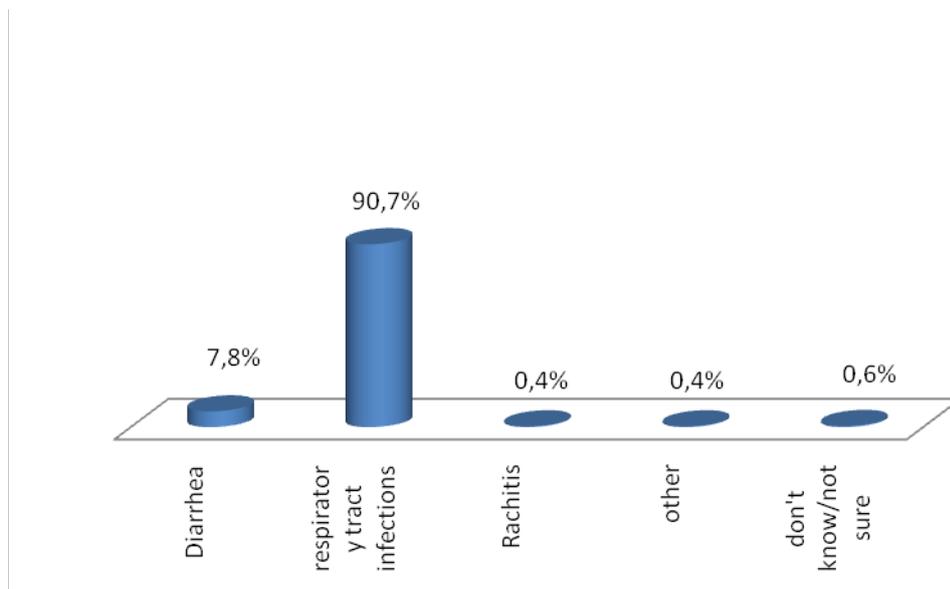
On the question related to uptake of continuing medical education courses, only 0.4% of respondents reported NOT to be provided with any training for past 5 years. 21.8% of participants reported to be provided such training during last 6 months, 35.3% during the last years, 31.0% during the last 3 years, 12.5% during the last 5 and more years.

#### 4.2.2. Perception about Burden of Rotavirus Disease and the Need for a Vaccine

Most physicians were aware of the rotavirus infection (79.7%) and more than half of them (67.9%) considered that diarrhea as common problem in children less than 2 years. However when asked about the most common underlying reasons for diarrheal problems in children less than 2 years only 28.4% of respondents recognized Rotavirus infection as the leading cause of the disease, 4.1% believed that it was various bacterial infections and 26.0 % noted that causative infectious agents of diarrhea are not confirmed by laboratory investigations. Recent part of respondents considered that diarrhea is associated with other factors, including: dysbacteriosis, (19.3%), unhealthy diet (10.0%), lack of hygiene and sanitary norms (6.9%), not sure (3.7%), other factors not listed in the questionnaire (1.7%) (e.g. viral infections, nutrition, etc.).

On the question about the most common health related problems in children less than 2 years they observed in their clinical practice 90.7% of respondents named upper respiratory infections and only 7.8% named Diarrhea. Other pathologies (e.g. Rachitis) were named by less than 1% of participants. **(Fig. 7)**

**Figure 7. The most common health related problems in children less than 2 years**



Additionally, participants were asked to provide their likelihood of agreeing with 8 statements concerning diarrhea and Rotavirus infection burden in Georgia on a scale of one to four, with one being “absolutely agree” and four “disagree”.

Majority of physicians were aware of high burden of diarrheal disease in children under 2 years though only 38.1% strongly agreed that it represents a serious health issue for the child. Physicians questioned the fact that the RV is the most common cause of the diarrheal disease (with only 15.6% participants who strongly agree on this statement) and majority partially disagreed that it represents the most frequent cause of severe forms of the disease in children of this age group (42.2% Somewhat Disagree). **(Table 6)**

Generally participants recognized the need for a safe and effective rotavirus vaccine in Georgia and 36.4% absolutely agreed that the high burden of rotavirus disease in developing countries was sufficient to justify the need for a rotavirus vaccine in Georgia. Less than 10 percent strongly disagreed with this statement and did not see any need for a rotavirus vaccine in the country.

More than half of physicians supported opinion that decreasing number of diarrheal cases in the country is a good idea and expressed willingness to learn more about vaccine against rotavirus (62.1% and 62.3 absolutely agreed, respectively).

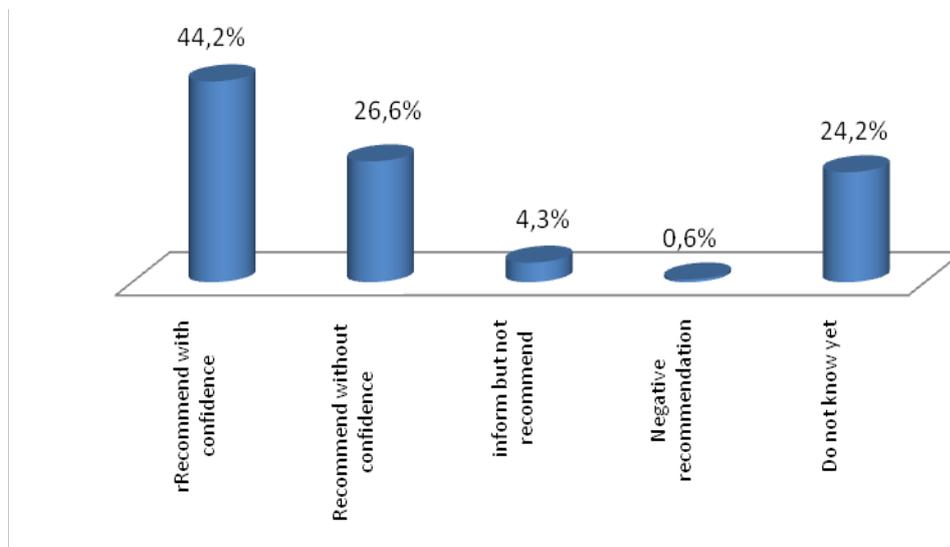
**Table 6. Perceived Burden of Rotavirus Infection and Diarrheal Diseases**

<b>Statement</b>	<b>Absolutely Agree (%)</b>	<b>Somewhat Agree (%)</b>	<b>Somewhat Disagree (%)</b>	<b>Disagree (%)</b>
Diarrhea is common in children under 2 years.	22.7	46.8	20.8	9.7
Diarrhea is a serious health problem in children under 2 years.	38.1	23.8	34.0	4.1
Rotavirus is the most common cause of infectious diarrhea in children <2 y old in Georgia	15.6	20.6	53.9	10.0
Rotavirus infection is the most frequent cause of severe diarrheal disease in <2-y-olds in Georgia	26.0	27.5	42.2	4.3
There is need for a safe and effective rotavirus vaccine in Georgia	30.7	26.6	36.4	6.3
Because rotavirus infections are common and potentially severe in developing countries, there is a need for a safe and effective rotavirus vaccine in Georgia.	36.4	26.4	31.2	6.1
Decreasing number of diarrhea cases in the children <1 y old is a good idea	62.1	28.1	8.7	1.1

I would love to learn more about vaccine against rotavirus	62.3	34.0	2.6	1.1
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On the question whether they would give recommendation to include Rotavirus Vaccine in the National Schedule of Immunization, majority reported to recommend vaccine with or without confidence (respectively 44.2% and 26.6%). (Fig. 8)

Figure 8. Recommendation to Include Rotavirus Vaccine in the National Schedule of Immunization



#### 4.2.3. Perceived Barriers to Implementation of New Rotavirus Vaccine

The similar 4-point Likert scales was utilized to obtain information about potential barriers to the vaccine introduction in the country.

The top three “definite” barriers for Rotavirus vaccine implementation in Georgia perceived according to physician comprised such factors as their perception about scarcity of state financial resources to cover all costs related to immunization, expectancy of parent’s refusal, and their concern about safety of rotavirus vaccine.

As shown in **Table 7**, the most commonly perceived barriers to implementation were associated mainly with parent’s concerns and reluctance to immunization, including parents’ general concerns about the vaccine safety (definitely or somewhat of a barrier for 83%), Parents not thinking that a rotavirus vaccine is necessary (definitely or somewhat of a barrier for 90%) and belief that rotavirus is not a severe disease that requires vaccination (definitely or somewhat of a barrier for 68%).

Table 7. Perceived Barriers to Implementation of Rotavirus Vaccine

Barrier	Definitely a Barrier	Somewhat a Barrier (%)	Minor/Not a Barrier at All
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	(%)		(%)
Lack of state financial resources for immunization	46.3	42.9	10.8
Parents' Refusal	39.0	50.6	10.4
Parents' concerns about the safety of rotavirus vaccine	31.6	53	15.4
Physicians' concerns about the safety of rotavirus vaccine	17.1	39.8	43.1
Parents' concerns about the vaccine safety in GENERAL	24.7	58.0	17.3
Parents not thinking that a rotavirus vaccine is necessary	27.1	51.7	21.2
Physician's concern about adding another vaccine to an already overloaded vaccine schedule	10.6	29.0	60.4
Physician's belief that rotavirus is not a severe disease that requires vaccination	12.8	34.6	53.7
The time it will take for a physicians to discuss rotavirus vaccine safety with parents	11.7	34.6	53.7
Parents not thinking that a infectious diarrheas is risk for their children	21.6	45.7	32.7
Parents' belief that rotavirus is not a severe disease that requires vaccination	20.1	48.3	31.6
Physicians not provided remuneration for each immunization visit	26.4	20.3	53.0

#### 4.2.4. Suggestions on the Support of RV Vaccine Implementation in Georgia

On the open ended question in the self-administered questionnaire HCWs provided their opinion about most effective measures to support rotavirus immunization in the country.

The most common comments were made regarding financial constraint. HCWs believed that vaccine should be provided free of charge. Primary HCWs' additional remuneration was also named as good motivator for the health personnel to support RV immunization.

HCWs frequently pointed on importance of well-planned public information and education campaign and underlined role of broadcasting media in support of RV vaccine implementation in the country. HCWs noted that the key success factor for the proposed campaign was choice of appropriate time for its initiation. Printed education materials (e.g. booklet, flyer, etc.) for parents on their local

language (Georgian, Azeri and Russian) were also named as one of the important tool to support immunization. One of the participants suggested providing training for parents in the “parent school” – health education antenatal services available in some maternity houses for pregnant women and their partners.

Majority of HCWs identified their lack of awareness about RV vaccine and respectively high need for training on related topics. Some HCWs from Kvemo Kartli requested that such trainings were carried out in Russian language. Others believed that involvement of low medical personnel (such as nurses) and HCWs of other specialties (e.g. those not involved in primary health care system) in trainings would improve collaboration and support RV vaccine implementation in the country. On the other hand choice of topics for trainings did not varied among participants from different regions and comprised following themes: (1) evidenced based data on RV infection, (2) RV diarrheal disease statistics in Georgia (particularly spread of severe forms requiring hospitalization), (3) RV vaccine safety, (4) efficacy and (5) experience of other countries.

HCWs acknowledged importance of effective interpersonal communication and indicated that statistical information about burden of the RV infection diarrheal diseases would be very helpful for them to persuade parents to vaccinate their children. Most of them questioned RV role in increased number of diarrhea cases in the country. They stated that in current situation with low quality and inadequate access to laboratory diagnostic services the cause of the diarrheal diseases was often not detected.

#### **4.2.5. Factors Associated with Diarrhea, RV Infection and Vaccine Awareness and Perceptions**

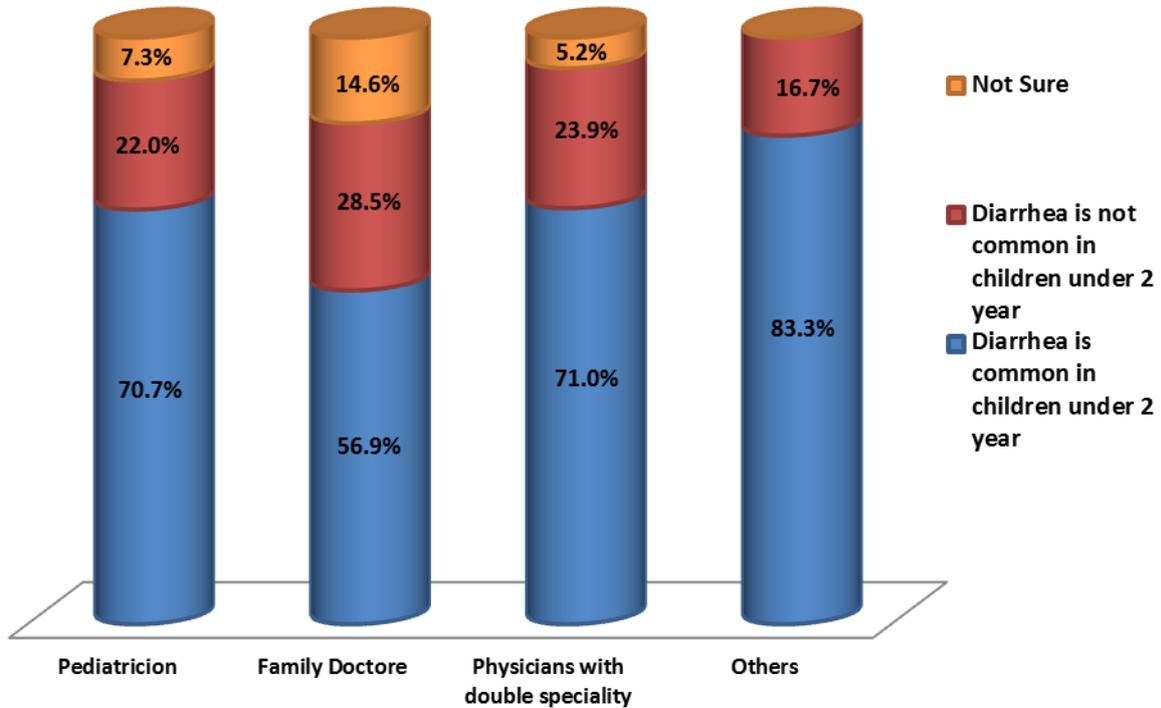
- **Diarrheal disease awareness and perception**

Bivariate analyses carried out on diarrheal diseases awareness and participants’ professional characteristic data revealed statistically reliable correlations (Pearson Chi-Square  $\leq 0.05$ ) between participants’ awareness about burden of the disease in children under 2 years and HCWs’ specialty.

Correlation between the HCWs’ specialty and diarrheal disease awareness variables indicates that the disease awareness is considerably lower in the group represented by family doctors and relatively similar in two other groups represented by pediatricians and physicians with double specialty (pediatrician with family doctor certificate). This phenomenon can be explained by the fact that physicians with family doctors specialty have less or almost no previous experience in provided pediatric services since most probably were internal medicine specialist (or other specialist involved

in prevention and treatment of adult diseases) who received short term training in family medicine and were recently involved in primary healthcare system. (Fig.9)

Figure 9. Correlation between Diarrheal disease epidemiology awareness and physicians' specialty



\* Correlation is statistically reliable – Pearson Chi-Square =0.041

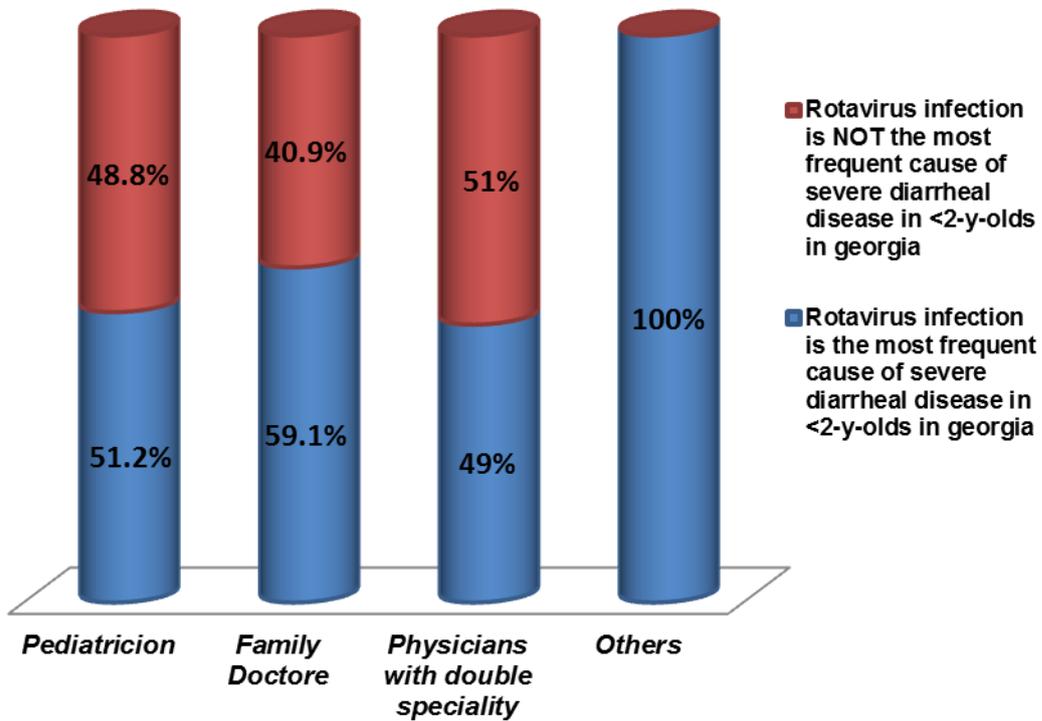
\*\*Group "Others" sample size=3

- **RV infection awareness and perception**

According to statistical analyses of RV infection awareness and physicians' characteristics, there were identified statistically reliable correlations with following characteristic variables: (1) HCWs' specialty; (2) period of the recent qualification advancement training and (3) number of children vaccinated per month.

Interestingly correlations between perception about RV infection and physician specialty revealed that pediatricians and HCWs with double speciality were less likely to consider RV as the most frequent cause of severe diarrheal disease in children less than 2 years of age in Georgia, than family doctors. (Fig.10)

Figure 10. Correlation between perception about RV diarrhea and physicians' speciality

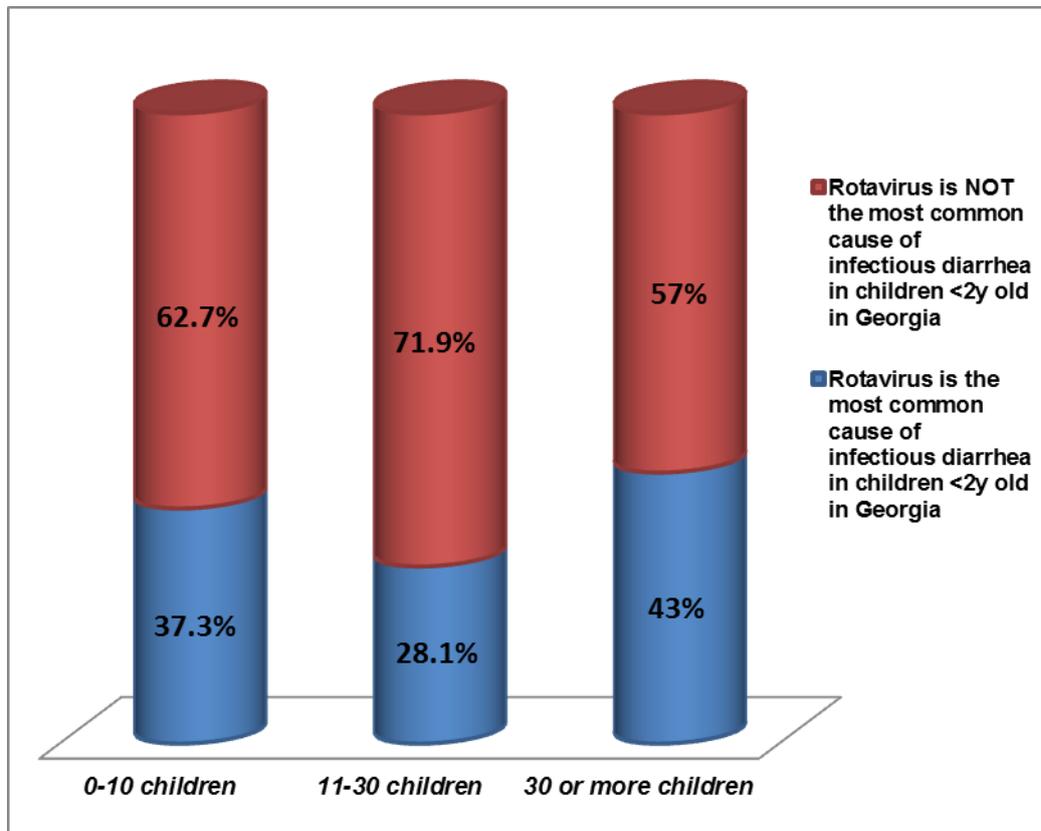


\* Correlation is statistically reliable – Pearson Chi-Square =0.036

\*\*Group "Others" sample size=3

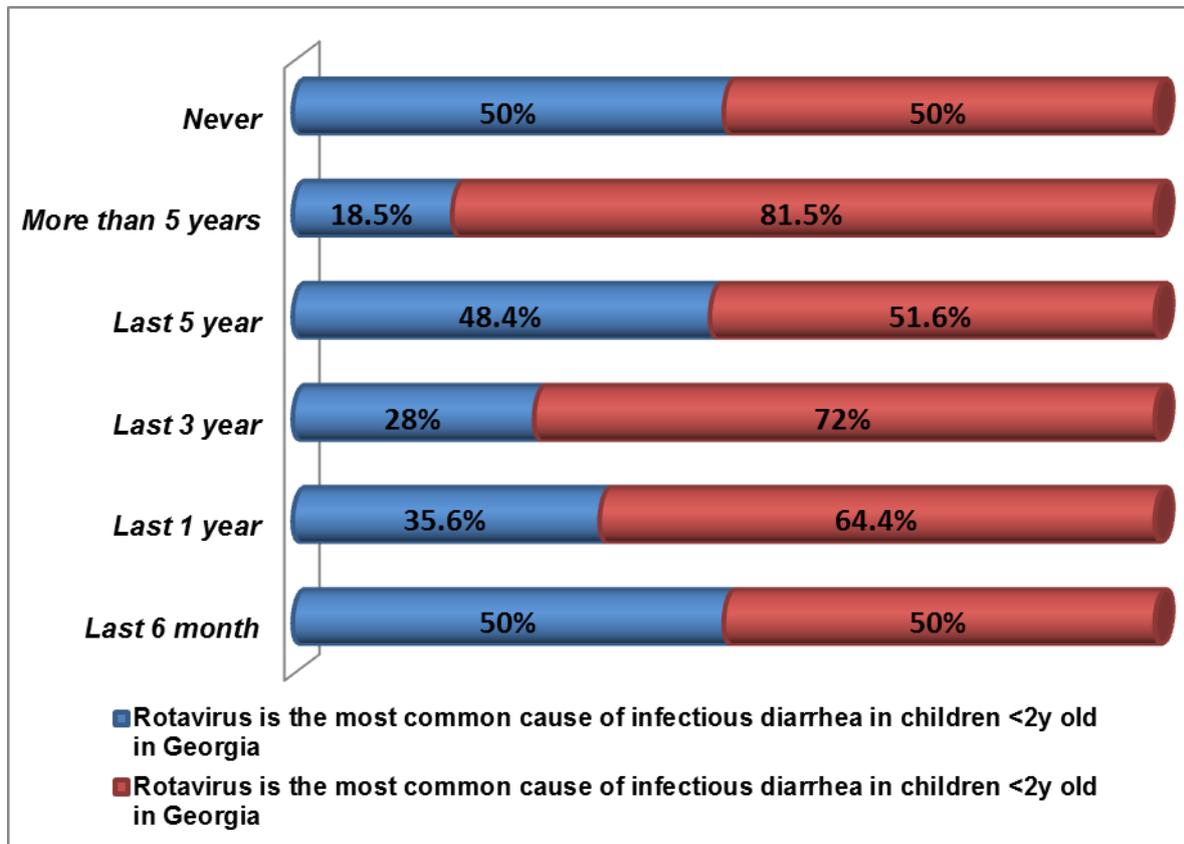
The period of the recent qualification advancement training and number of children vaccinated per month were the only characteristic variables associated with perception that RV is the most common cause of infectious diarrhea in children under 2 years of age. As shown in the Figures 11 and 12, those who received training for recent years (less than 3 years period) and who had highest immunization related workload (more than 30 vaccinated patients per month) were more likely to consider RV as the most common cause of infectious diarrhea in this age group.

Figure 11. Correlation between perception about RV diarrhea and number of children vaccinated per month



\* Correlation is statistically reliable – Pearson Chi-Square =0.013

**Figure 12. Correlation between perception about RV diarrhea and Period of the Latest Training in the Field**



\* Correlation is statistically reliable – Pearson Chi-Square =0.013

\*\*Group "Never" sample size=2

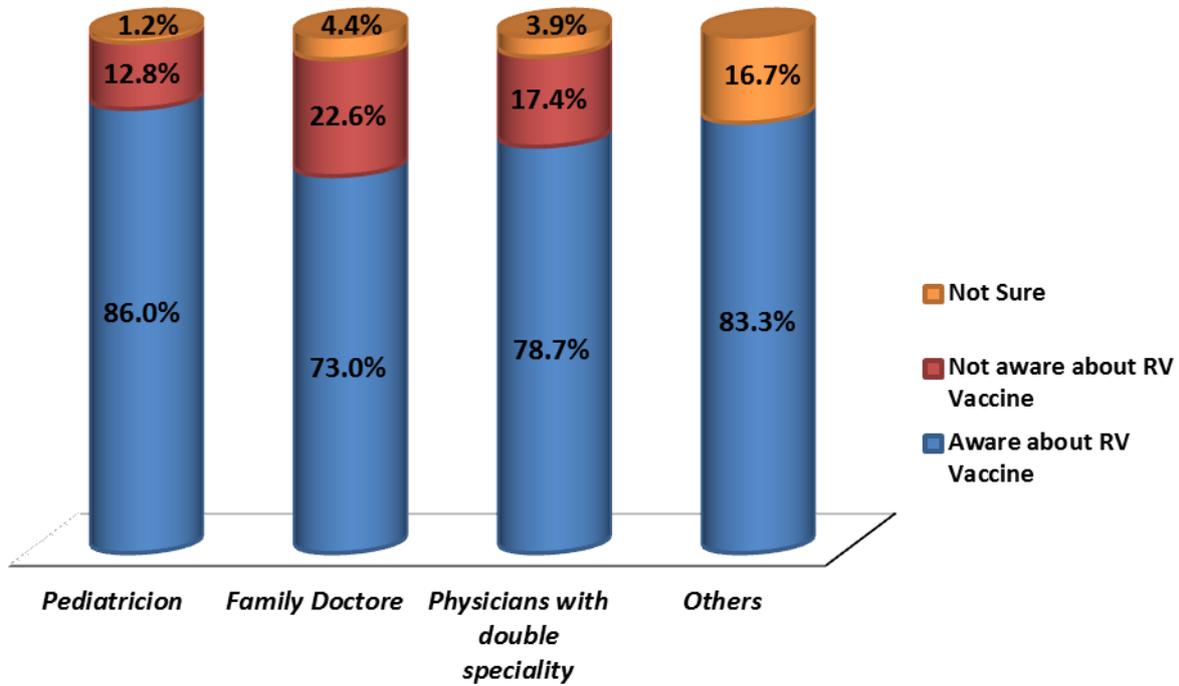
- **RV vaccine awareness and perception**

RV vaccine general awareness and participants' professional characteristic data analysis revealed statistically reliable correlation between the vaccine awareness and following characteristic variables: (1) HCWs' specialty, (2) work region (e.g. rural/urban) and (3) period of the recent qualification advancement training. However when analysing RV vaccine necessity awareness and other characteristics variables, employment region of the participants was the only variable correlated (reliable correlation Pearson Chi-Square  $\leq 0.05$ ) with necessity awareness.

Correlation between RV vaccine general awareness and participants' speciality did not reveal significant difference among study groups, though pediatricians and physicians with double speciality were more aware about the vaccine than family medicine physicians, what can presumably

be explained by low experience of the last group in pediatrics (since most probably are represented by internal medicine specialists) and the fact that they have recently been involved in expanded program of immunization. (Fig.13)

Figure 13. Correlation between RV Vaccine Awareness and Specialty

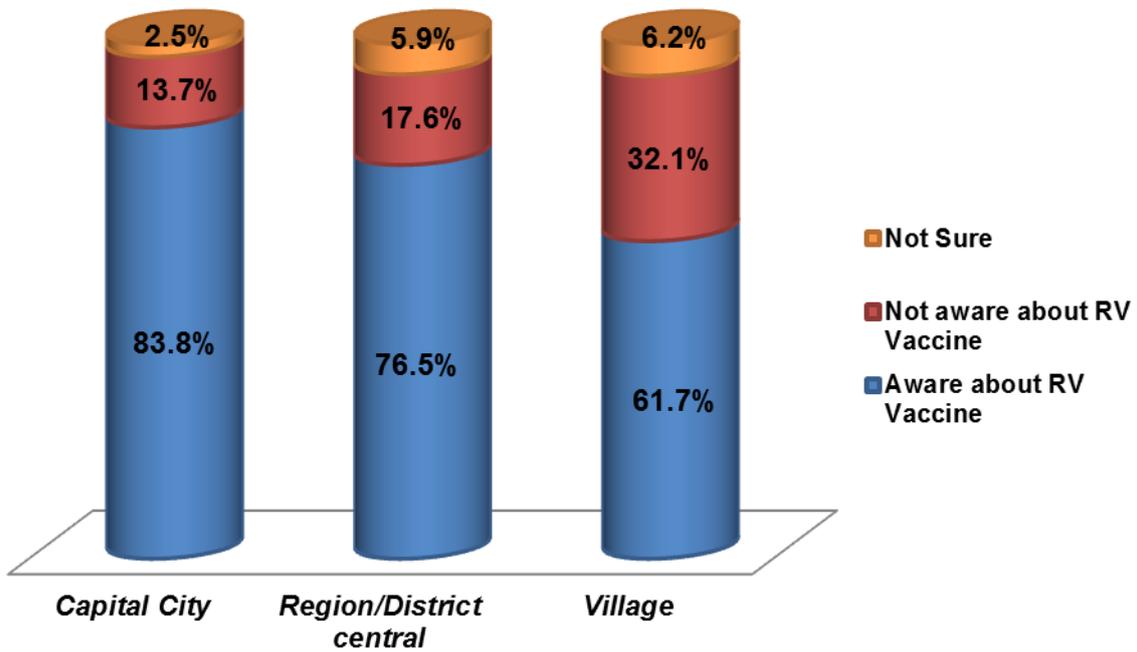


\* Correlation is statistically reliable – Pearson Chi-Square =0.043

\*\*Group "Others" sample size=3

According to correlation analysis, awareness about RV vaccine was also associated with employment region of the participants. More precisely, physicians employed in urban areas were less aware about RV vaccine than others working in the urban regions. (Fig.14)

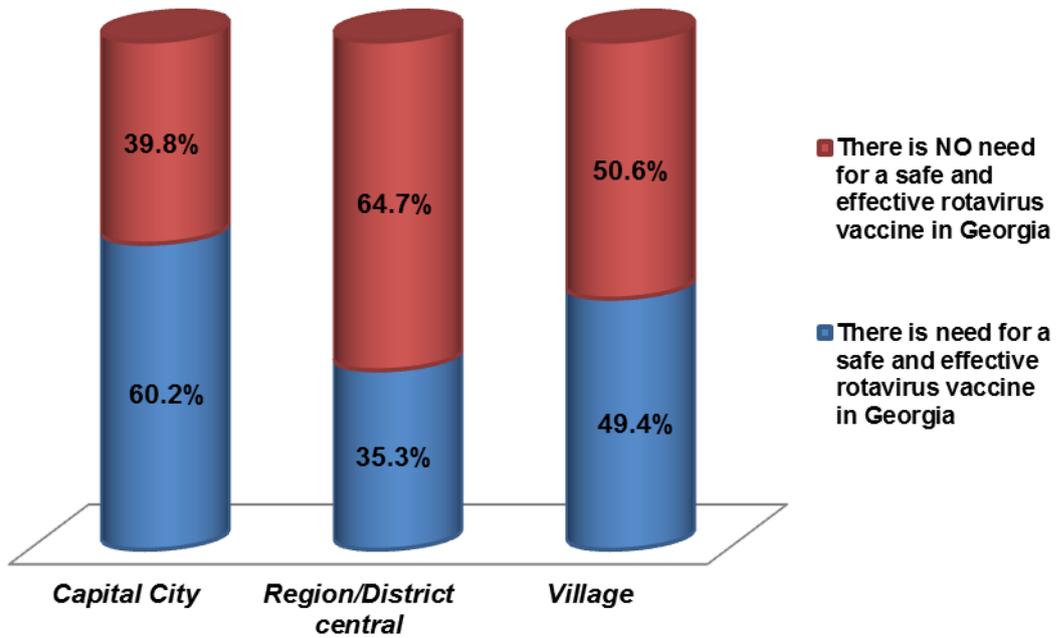
Figure 14. Correlation between RV Vaccine Awareness and Employment Region



\* Correlation is statistically reliable – Pearson Chi-Square =0.000

As indicated in the figure 15 RV vaccine necessity awareness is considerably high in the participants employed at the primary health care facilities located in the capital city, compared to those located in regional centers and villages.

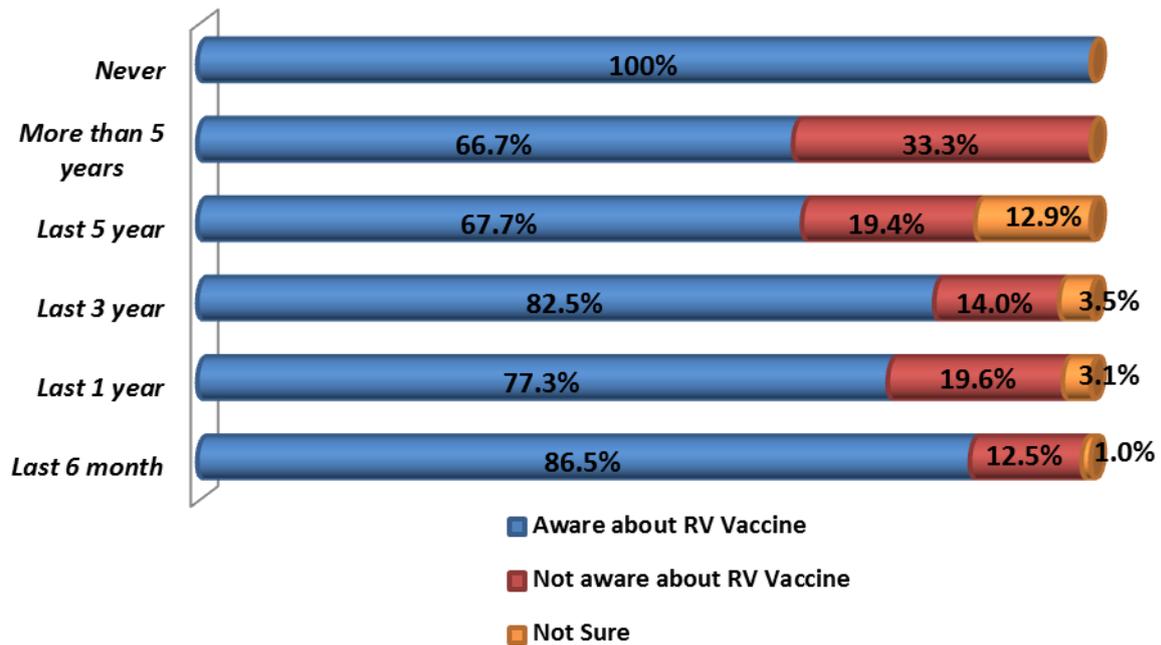
Figure 15 . Correlation between RV Vaccine Necessity Awareness and Employment Region



\* Correlation is statistically reliable – Pearson Chi-Square =0.036

Time of the last professional training in the field of medicine was also associated with vaccine awareness status. Participants who had received training less than 3 years before participation in the study were more aware about the vaccine than others. (Fig. 16)

Figure 16. Correlation between RV Vaccine Awareness and Period of the Latest Training in the Field



\* Correlation is statistically reliable – Pearson Chi-Square =0.024

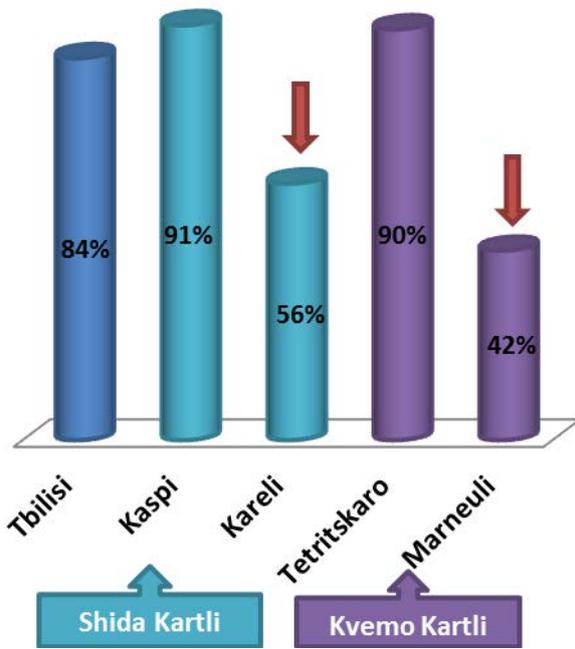
\*\*Group "Never" sample size=2

#### 4.2.5. RV Immunization Related Perceptions and Regional Peculiarity

Bivariate analyses of perceptions about vaccine related topics (e.g. RV vaccine knowledge, necessity awareness and main barriers, burden and severity of diarrheal diseases in the country, etc.) and the work location revealed important difference among HCWs' from capital city and high and low vaccine coverage settlements (Indicator – Penta3 [BCG+Hib+HepB]) of two other rural regions (Shida Kartli and Kvemo Kartli).

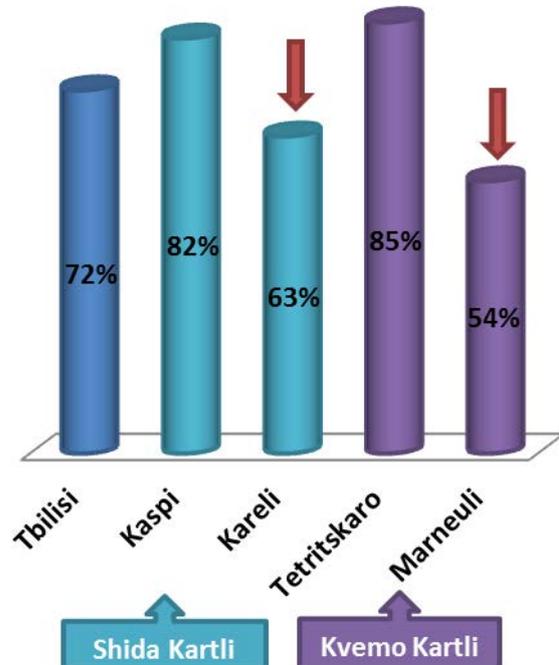
Important to indicate that RV vaccine awareness and willingness to recommend inclusion of the vaccine in the National Schedule of Immunization was considerably lower in both low vaccine coverage rural settlements represented by Kareli, Shida Kartli region (56% vs. 91%) and Marneuli, Kvemo Kartli region (54% vs. 85%) . (Fig.17,18)

Figure 17. Awareness about RV Vaccine by Employment Location



\* Correlation is statistically reliable – Pearson Chi-Square =0.000

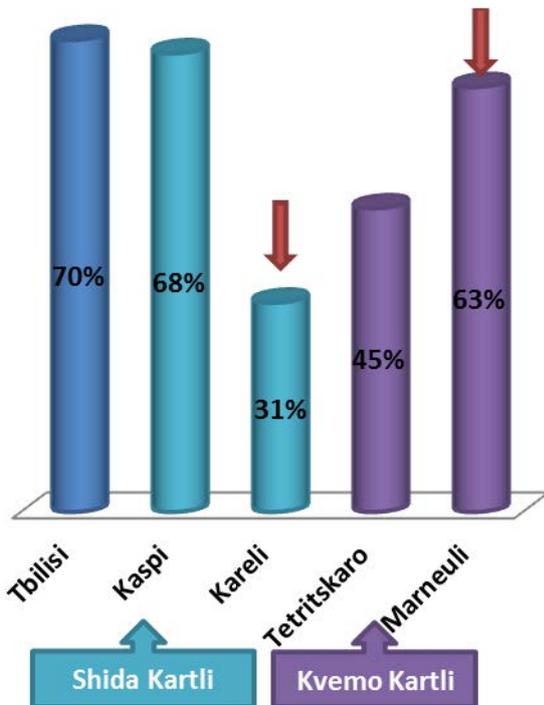
Figure 18. Recommendation to include Rotavirus Vaccine in the National Schedule of Immunization by Employment Location



\* Correlation is statistically reliable – Pearson Chi-Square =0.047

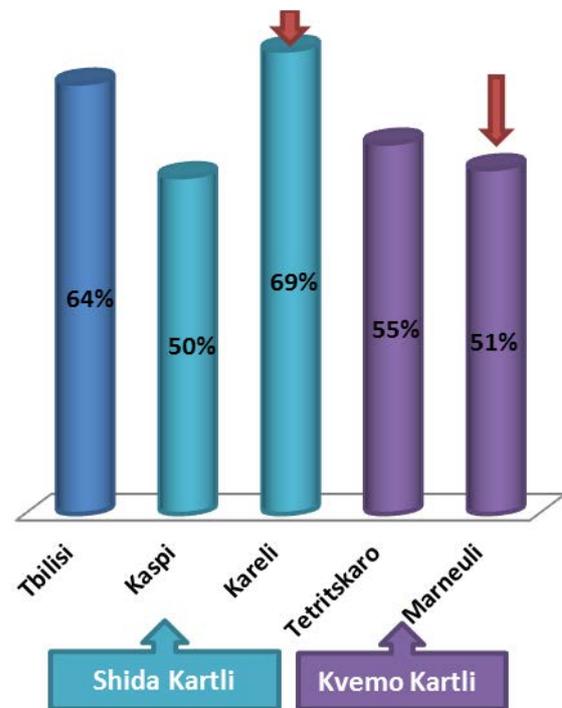
Perceptions about high burden of Diarrheal diseases in the country varied by HCWs' employment location, though attitude about severity of the problem did not differ significantly. There was identified difference in HCWs' perceptions in two low vaccine coverage settlements. Specifically, If HCWs from Kareli consider Diarrhea as a rare (31%) though very severe disease (69%), HCWs from Marneuli on the contrary consider Diarrhea as a very common (63%) though mild disease (51%). (Fig. 19, 20)

Figure 19. Perception that Diarrhea is Common in Children under 2 years by Employment Location



\* Correlation is statistically reliable – Pearson Chi-Square =0.048

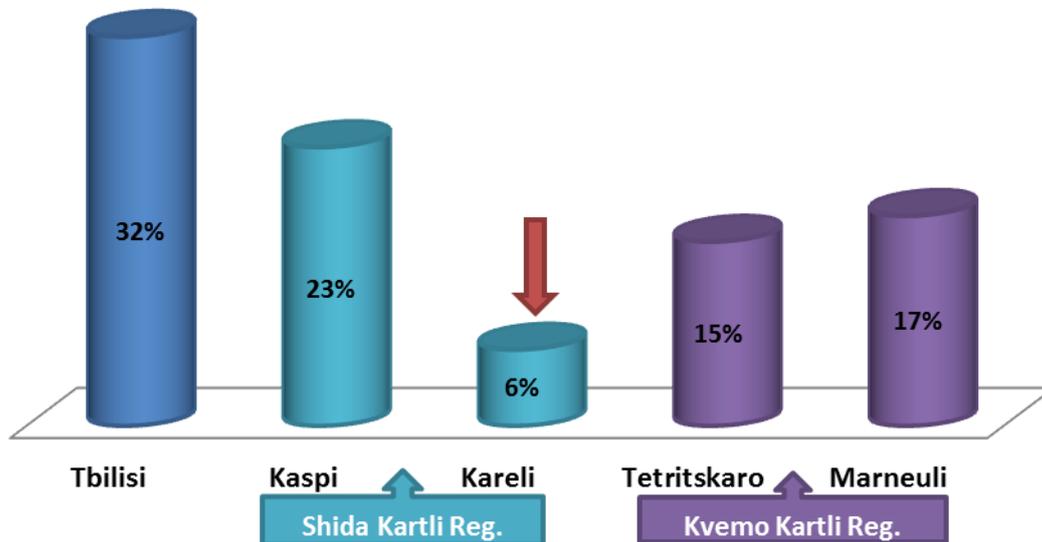
Figure 20. Perception that Diarrhea is a Serious Health Problem in Children under 2 years by Employment Location



\* Correlation is statistically reliable – Pearson Chi-Square =0.044

Statistically reliable correlation was also identified between HCWs' employment location and perceptions related to causative agents of diarrheal diseases in the country. As indicated in the figure 21 HCWs from Tbilisi compared to others were more prone to consider RV infection as the main underlying reason for diarrheal disease in the country (32%), followed by HCWs from Kaspi (23%). Comparing high and low vaccine coverage settlements within the region, there could be identified significant difference among two rural regions. Unlike Kvemo Kartli region where perception did not differ among two settlements (Tetrtskaro - 15% and Marneuli - 17%), in Shida Kartli region perception that child diarrhea cases in Georgia were mostly associated with RV was considerably less common in low vaccine coverage settlement (Kareli 6% and Kaspi 23%).

**Figure 21. Perception that RV is the Most Common Reasons for Diarrhea in Children Less than 2 Years by Employment Location**

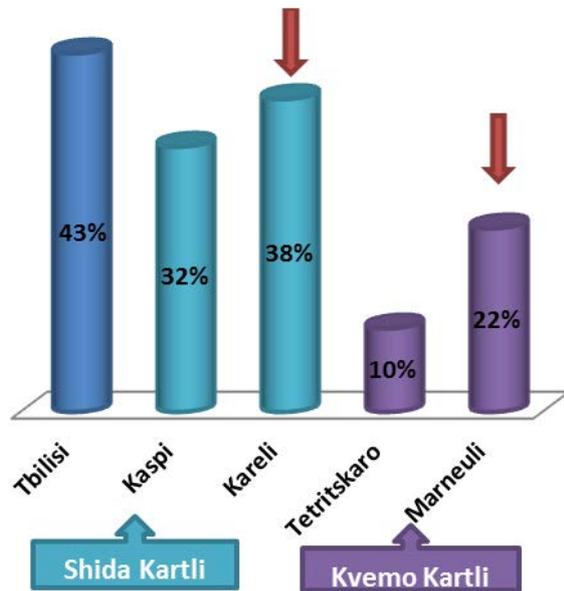


\* Correlation is statistically reliable – Pearson Chi-Square =0.048

Analysis of associations between perceived barriers to implementation of RV vaccine and employment location revealed important difference among HCWs from five study locations and provide some insight on the underlying reasons of low vaccine coverage in particular settlements.

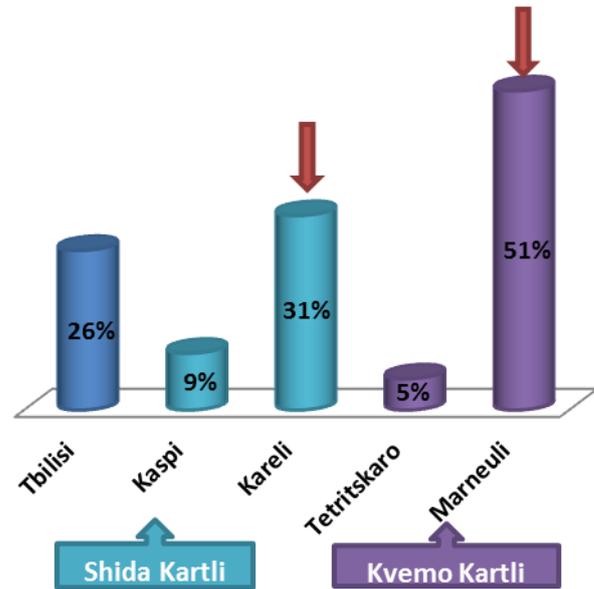
As provided in figure 22 the perception that parents' refusal is the main barrier for RV vaccine implementation in the country, was more commonly named in low vaccine coverage settlement (38% vs. 32% in Shida kartli Reg. and 22% vs. 10% in Kvemo Kartli). Similarly, those settlements were more prone to consider lack of remuneration of HCWs for each immunization visit as an important barrier.(Fig.23) However, it is important to notice that despite visible variation of perceptions related to public RV vaccine acceptance, financial motivation was still the main factor making HCWs from low coverage settlements distinct from their high coverage neighbourhoods (31% vs. 9% in Shida kartli Reg. and 51% vs. 5% in Kvemo Kartli).

**Figure 22. Perception that Parental Refusal is Barrier to Implementation of Rotavirus Vaccine by Employment Location**



\* Correlation is statistically reliable – Pearson Chi-Square =0.002

**Figure 23. Perception that Physicians not Provided Remuneration for Each Immunization Visit is Barrier to Implementation of Rotavirus Vaccine by Employment Location**



\* Correlation is statistically reliable – Pearson Chi-Square =0.000

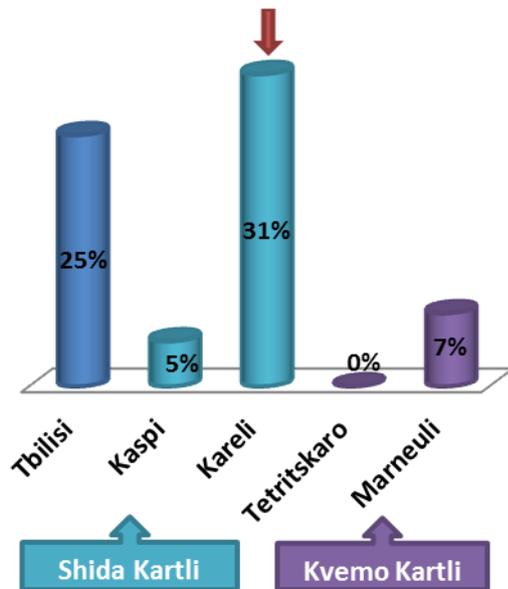
Comparison of HCWs' perceptions about other barriers related to parental attitude toward diarrheal disease susceptibility and severity for their children revealed important difference in all five employment locations.

Generally HCWs from Kvemo Kartly were less concerned about perceptions of parents related to RV infection and diarrheal diseases compared to HCWs from other regions. Within the region the minority group which named parental concerns related to the disease low susceptibility as a barrier was represented by HWS from Marneuli (7%), while the group naming parental perception about disease low severity as a barrier were represented by HWS from Tetrtskaro (5%).

Interestingly, HCWs from Kareli (low vaccine coverage settlement in Shida Kartli Reg.) compared to HCWs from four other study locations more commonly identified population perceptions as a barrier for RV vaccine implementation in the country. It is important to indicate that HCWs more commonly named the parental perceptions which they personally consider as the main barrier for RV vaccine acceptance in population. Specifically, HCWs from Kareli were assured that Diarrhea is more severe than common disease in the children less than 2 years. Respectively, they more commonly named parental belief that "infectious diarrheas are not risk for their children" as the barrier than the belief that "rotavirus is not a severe disease that requires vaccination" (31% vs. 19%).

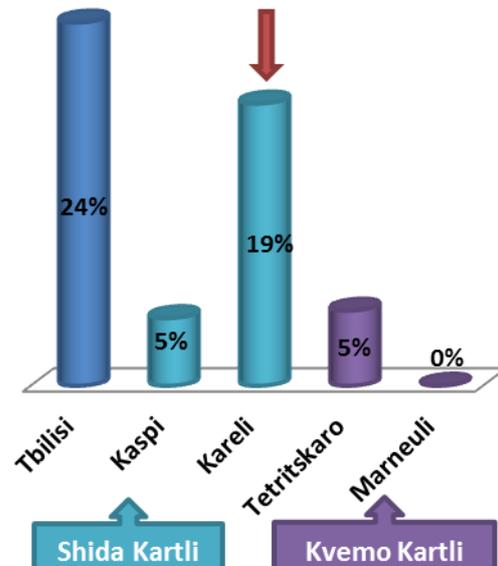
HCWs from Tbilisi more worried about population perceptions and attitudes compared to their colleagues from rural regions, though their concern were almost equally distributed on different potential barriers. (Fig. 24, 25)

**Figure 24. Perception that Parental Belief that Infectious Diarrhoeas is not a Risk for Their Children is a Barrier to Implementation of RV Vaccine by Employment Location**



\* Correlation is statistically reliable – Pearson Chi-Square =0.000

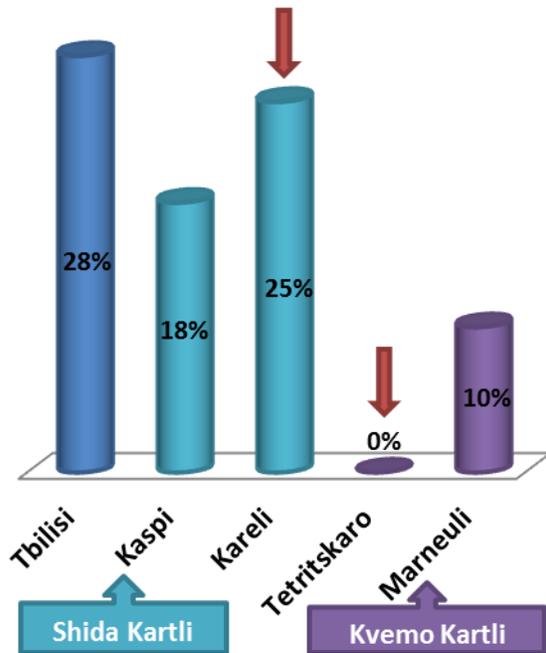
**Figure 25. Perception that Parental Belief that Rotavirus is not a Severe Disease is a Barrier to Implementation of RV Vaccine by Employment Location**



\* Correlation is statistically reliable – Pearson Chi-Square =0.000

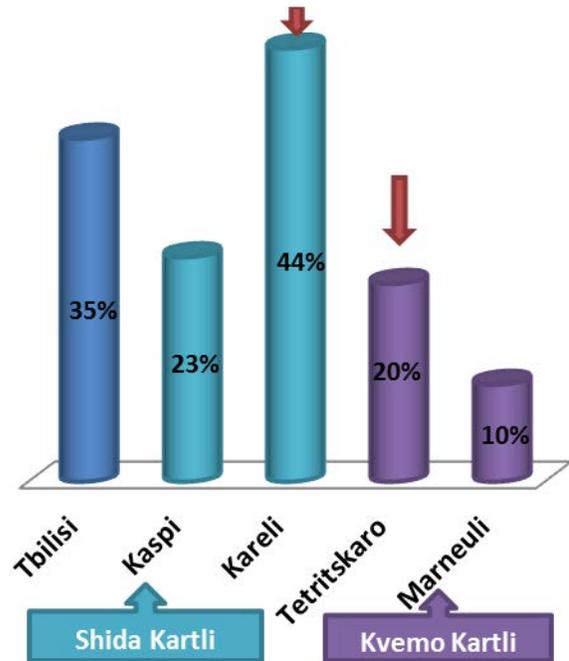
HCWs perception related to other barriers Parents' concerns about vaccine safety in general and toward specifically RV vaccine also differed among five study location. Overall, HCWs' perceptions about parents' vaccine safety concerns were more commonly named as barrier in case of RV vaccine and not vaccination in general. The mentioned disparity of perceptions was particularly evident in HCWs from Kareli (25% vs. 44%) and Tetrtskaro (0% vs. 20%). HCWs from Kareli were also more concerned about population attitude related to vaccine safety compared to HCWs from other rural locations. (Fig. 26,27)

Figure 26. Perception that Parental Concerns about the Vaccine Safety in GENERAL is a Barrier to Implementation of RV Vaccine by Employment Location



\* Correlation is statistically reliable – Pearson Chi-Square =0.000

Figure 27. Perception that Parental Concerns about of RV Vaccine Safety is a Barrier to Implementation of RV Vaccine by Employment Location



\* Correlation is statistically reliable – Pearson Chi-Square =0.003

#### 4.2.6. Factors Associated With Rotavirus Vaccine Recommendation

Bivariate analysis was performed to reveal association of physicians' intention to recommend Rotavirus vaccine inclusion in the National Schedule of Immunization with their perception related to diarrheal disease, Rotavirus infection and vaccine. According to results significant ( $P < .05$ ) factors positively associated with our major outcome included their awareness about existence of Rotavirus vaccine and there is a need for the safe and effective Rotavirus vaccine in the country in general and due to the fact that Rotavirus infections are common and potentially severe in developing countries. (Table 8).

**Table 8. Recommendation for Rotavirus Vaccine inclusion in the National Schedule of Immunization by Rotavirus Infection and Vaccine Perception Factor**

Characteristic	Total No.	Recommend RV vaccine (n=462)			
		No.	(%)	PR	(95%CI)
<b>Have ever Heard about Rotavirus Vaccine</b>					
Yes	368	273	74.2	1.29	1.07 - 1.55
No	94	54	57.4	1.00	0.45 - 0.81
<b>There is need for a safe and effective rotavirus vaccine in Georgia</b>					
Yes	265	224	84.5	1.62	1.40 - 1.87
No	197	103	52.3	1.00	0.24 - 0.45
<b>Because rotavirus infections are common and potentially severe in developing countries, there is a need for a safe and effective rotavirus vaccine in Georgia.</b>					
Yes	290	242	83.4	1.69	1.44 - 1.98
No	172	85	49.4	1.00	0.24 - 0.44

Additional analysis was conducted to identify associations between intention to recommend Rotavirus vaccine and perceived barriers for the vaccine implementation in the country. Analysis results revealed factors that were negatively associated with willingness of participants to provide recommendations, including: Physicians ‘concerns about the safety of rotavirus vaccine and adding another vaccine to an already overloaded vaccine schedule, as well as their perception that parents do not consider rotavirus as a severe disease that requires vaccination, parents are concerned about safety of the rotavirus vaccine and will refuse if offered such vaccine in the nearest future. **(Table 9)**

**Table 9. Negative recommendation for Rotavirus Vaccine inclusion in the National Schedule of Immunization by Perceived Vaccine Implantation Barrier Factor**

Barriers	Total No.	Not Recommend RV vaccine (n=462)			
		No.	(%)	PR	(95%CI)
<b>Physicians 'concerns about the safety of rotavirus vaccine</b>					
Yes	79	30	(38.0)	1.39	(1.00-1.98)
No	383	105	(27.4)	1.00	(0.71-1.03)
<b>Physician's concern about adding another vaccine to an already overloaded vaccine schedule</b>					
Yes	49	20	(40.8)	1.47	(1.01-2.12)
No	413	115	(27.8)	1.00	(0.65-1.04)
<b>Parents' Refusal</b>					
Yes	180	63	(35.0)	1.37	(1.03-1.82)
No	282	72	(25.5)	1.00	(0.77-0.99)
<b>Parents' concerns about the safety of rotavirus vaccine</b>					
Yes	146	56	(38.4)	1.53	(1.16-2.03)
No	316	79	(25.0)	1.00	(0.71-0.95)
<b>Parents' belief that rotavirus is not a severe disease that requires vaccination</b>					
Yes	93	31	(33.3)	1.18	(0.85-1.65)
No	369	104	(28.2)	1.00	(0.79-1.09)

## V. CONCLUSIONS

This formative research carried out on the different immunization stakeholders with utilization both qualitative and quantitative methodologies provided several valuable insights about potential barriers to RV vaccine and immunization in general and identified issues that need to be better assessed through adequate communication campaign to guaranty successful implementation of RV vaccine in Georgia.

Despite overall low awareness about burden of RV diarrheal disease in the country and diverse ideas about severity of the disease among vaccine consumers and providers, majority of stakeholders expressed high likelihood of adopting RV vaccine if were reassured by the safety and efficacy profile of the new vaccine.

Focus group discussions with mothers of children under 2 years of age revealed that though decreased trust and low uptake of pediatric services provided by HCWs particularly at state funded medical facilities, majority of caregivers due to high price of commercial vaccines still go to those facilities for child immunization purposes. Consequently, HCWs employed at state funded primary health care facilities were identified as one of the main group expected to address caregivers' concerns related to immunization.

Increased demand on immunization related information by caregivers and growing uptake of new alternative sources of health information in forms of internet and the social media underlined importance of utilization of such broader channels to disseminate health information to reach target audience and raise awareness about rotavirus disease and vaccine in Georgian population.

Considering increased distrust toward HCWs and self-seeking information behavior of caregivers (often contributing to the dissemination of inaccurate information, myths and misconceptions due to lack of scientifically-proven readily available information on immunization in Georgian and Russian) HCWs in the focus group discussions recognized lack of their technical capacity and interpersonal communication skills related to immunization and consequently named various interventions required for their strengthening (e.g. professional trainings, printed and electronic education materials, etc.).

According to study participant, different efforts (such as development of “Parent-Baby Book” - Child’s personal record on health and development from birth to the age of six used as informational and educational tool for caregivers on young children’s health, development and protection) carried out by the government with collaboration of international donor organizations has significantly increased public awareness about immunization topics for recent years. However there are still important gaps in knowledge about immunization both in general population and HCWs not involved in EPI. Therefore, there is a risk that existing lack of information and concerns related to immunization will lead to increase number of vaccine resistant groups if not addressed timely and adequately through effective communication campaign.

As expected, the formative research finding confirmed that RV infection is relatively unknown disease both for vaccine providers and consumers. Low knowledge about disease burden and severity RV diarrheal diseases were identified as one of the main barrier to the prioritization of the disease and recognition the need for implementation of RV vaccine in the country. According to qualitative and quantitative study results PHC personnel involved in EPI do not consider RV as serious public health issue and RV infection as the main reason for diarrheal disease in the country, presumably due to; (1) lack of information about RV infection statistics in the country, (2) inadequate diagnosis of the disease (low quality and inadequate access to laboratory diagnostic services) and (3) low number of complicated diarrheal cases in their clinical practice (hospital HCWs’ prerogative).

Analysis of the factors influencing on RV vaccine awareness and perception highlighted role of HCWs in increase of immunization coverage and successful introduction of RV vaccine in the country. According to bivariate analysis HCWs from low vaccine coverage rural settlements were less aware about RV vaccine and respectively more resistant to implementation of the vaccine in the National Schedule of Immunization. It is important to notice that despite visible variation of perceptions related to public RV vaccine acceptance and barriers; financial motivation was still the main factor making HCWs from low coverage settlements distinct from their high coverage neighborhoods.

Appendix A. Qualitative Data Matrices

HCWs Matrix – concerns – influence/information – actions

Sub-type of stakeholder	What are their perceptions and concerns?	Common concerns	Sources of		What is needed to respond to concerns?	Messages
			influence	information		
<p><b>HP from Tbilisi (have more access to information and provide services to a more educated population)</b></p>	<p>1. Fear of vaccine related even minor complications and reaction of parents' and media representatives on these adverse events.</p> <p>2. Doctors being concerned about their reputation – there is no defense mechanisms for doctors' in case of adverse event</p> <p>3. Doctors postpone vaccination even if guideline says there is no problem to avoid even minor risk of post-vaccination complication.</p> <p>- Doctors in fear of being accused in vaccine related complications are overcarefull and do not</p>	<p><b>- Fear of vaccine related even minor complications</b></p> <p><b>-Nowadays parents require more information from doctors (reasons : 1. lower trust toward doctors, 2. access to more information on internet, 3. negative information provided on local media)</b></p> <p><b>-parents with medical background resistant for their child vaccination</b></p> <p><b>-questions related difference between free and paid vaccines</b></p>	<p>- Health care workers reputation matters</p> <p>- Negative attitude of older members in the family</p> <p>- Information spread in the particular community (neighborhood) regarding adverse events increase vaccine refusal in whole community</p> <p>- opinion of religious leaders matter</p> <p>- <b>Access to primary health care matters</b></p>	<p>- <b>Broadcasting media</b></p> <p>- <b>Internet /Google</b></p> <p>-</p>	<p><b>- provision of counseling and education materials for parents right in maternity hospitals</b></p> <p>Revise guidelines if needed and updated and train in their use</p> <p>- <b>show that guidelines are evidence based</b></p> <p><b>Mecanism for protection of doctor if following guidelines</b></p> <p>- <b>refresher training : for HCWs and low medical personnel both for those involve in immunization and those who are not</b></p>	<p><b>-vaccine is not medication for choice it is something absolutely required</b></p> <p><b>-quality of the free vaccines is guaranteed by government /WHO</b></p> <p><b>Post vaccination complications or not</b></p> <p><b>IPC is a necessity Counterarguments to concerns and resistances to provide to parents (and to some of themselves)</b></p> <p><b>Indications on</b></p>

	<p>follow guidelines while postponing vaccination</p> <p>4. Doctors have increased risk to loose job compared to soviet time (when they had almost lifelong guarantee of having job)</p> <p>5. Parents now „trust doctors but check them anyway”</p> <p>6. Nowadays parents are more informed and require doctors to be „modern” and ready to answer all their questions</p> <p>7. Some doctors think that current guidelines has low quality and inadequacy to address minor adverse reaction leading to fear of complications</p> <p>8. Doctors realize they should speak more with better informed parents but have no time/skills or do not know what to respond to</p>	<p><b>-incompetence of HCWs in immunization related issues and blaming vaccine in development of different health problems (e.g. collapse, squint-eye, pneumonia, mental disorders, )</b></p> <p><b>- immunization is like “bomb” never know when it is going to explode</b></p> <p><b>- Reasons for failure of previous vaccine campaigns: 1. sanitary norms not followed, 2. availability of vaccine only in Tbilisi, 3. negative media, 4. no or inadequate response form NCDC on negative media 5. inclusion in immunization process HCWs with no previous</b></p>	<p>-</p>		<p><b>and spread misinformation</b></p> <ul style="list-style-type: none"> <li>- IPC and counseling component in refresher training, including what/how to respond to parents with different approach toward the parents with different education level (more information needed for educated parents)</li> <li>- Gvt to make parents aware that it is their responsibility for their children’s health related issues developed due to Not immunization of their children (immunization is not mandatory and they should be willing to do)</li> <li>- Providing example (vaccinating own</li> </ul>	<p><b>where parents /media can check Cost-effectiveness of RV vaccine</b></p> <p><b>What parents think and how to respond to them</b></p>
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	<p>concerns/resistances</p> <p>9. some doctors do not know if paid ones are better than others hence do not know what to say to parents concerned with this issue</p> <p>10. Negative information about vaccine on media was not addressed by NCDC (on the same channel where negative information was provided)</p> <p>11. Media is not competent to discuss issues related to vaccine, they should invite specialist to be briefed on the matter</p> <p>12. Doctors have low trust toward representatives of media due to their unethical behavior (sentence taken out of the context to damage instead of promote immunization)</p>	<p><b>experience in immunization (internal medicine, family doctors with no pediatrician background) 6. negative attitude of some religious leaders</b></p> <p>- Diarrhea not a serious problem</p> <p>- Causes of diarrhea is rarely identified due to high expenses of laboratory research</p> <p>-no reliable internet resources/website where HCWs and parents would receive information on vaccine related issues</p> <p>-young specialists of neurology are more prone to use guidelines in their clinical practice than their older</p>			<p>family members)</p> <ul style="list-style-type: none"> <li>- Evidence based information is as important for doctors as parents</li> <li>- TV show with participation of religious leaders of Christian orthodox church, pediatrician, neurologist</li> <li>- While conducting immunization campaigns ministry of education should be involved (in managerial issues)</li> <li>- Provide information regarding vaccine related issues on Georgian and Russian languages for one for HCWs and one for general population</li> <li>- messages pronounced using</li> </ul>	
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	<p>13. Doctors do not know how to communicate with media representatives</p> <p>14. Intensive promotion of paid vaccines by some HCWs at private clinics although some clinics are using free vaccines that they make the people pay</p> <p>15. Majority of hospitals' HCWs often relate child's health issues to recent vaccination (they have lack of professionalism - not knowing the cause, they accuse immunization)</p> <p>16. Low education level about immunization among HCWs not involved in immunization: infectionists, etc.</p> <p>17. Low qualification of medical personnel at maternity hospital (cases of provision of two injections of BCG vaccine)</p>	<p><b>colleagues.</b></p> <p><b>-media is in charge of creation of dishonest HCWs image and trust of the patients toward medical personnel</b></p> <p><b>-pressure on HCWs comes from media, patients and the head of institutions they are employed.</b></p> <p><b>-low quality of prepared media materials due low qualification, unethical behavior and no willingness to conduct adequate analysis by journalists and media itself.</b></p> <p><b>- all medical personnel should provide parents the same information (same position).</b></p>			<p><b>media should be designed with collaboration of qualified specialists in the field of health care</b></p> <p><b>- parents should be reminded about complications of vaccine preventable infections (measles causes panencepalitis )</b></p>	
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	<p>18. Inadequate information provision of parents at maternity hospitals (there are not trained to counsel parents on postnatal care)</p> <p>19. Neurologists and cardio-rheumatologists are not recommending vaccine when there are even minor health issues</p> <p>20. Negative information about vaccine spread via print media (Kronika)</p> <p>21. Some “famous” (korife) infection disease specialist and gynecologists recommend to wait until there will be enough evidence that new vaccine is safe</p> <p>22. HCWs are afraid to recommend Rota virus vaccine with no evidence that it protects from diarrhea</p> <p>23. They do not know anything</p>	<p><b>- neurologists must be involved in immunization</b></p> <p><b>-HCWs should cover each other and discuss issues between each other instead of criticizing and blaming colleague in mistakes.</b></p> <p><b>- Georgian parents increased expectations for receiving guaranties (that vaccination will be effective and there will be no complications )</b></p> <p><b>- responsibility for patients wellbeing should be distributed evenly among HCWs with different specialty.</b></p> <p><b>-diarrhea has multiple causing agents, how should we know that</b></p>				
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	<p>about the vaccine)</p> <p>24. Diarrhea not seems for parents as dangerous as meningitis for instance</p> <p>25. Inadequate skills of parents for management of vaccine related reactions (e.g. temperature, anxiety, etc).</p> <p>26. while providing medication for prevention of minor complications as tempriture parents often overdo and mix dosing</p> <p>27. Children of the doctors are often not vaccinated on particular vaccines (flue for instance) so they give “bad” example to others</p> <p>27. High reputation and trust toward NCDC plays important role in doctors’ self-confidence</p> <p>28. Some doctors think that</p>	<p><b>rotavirus is the leading, what its burden?</b></p>				
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	<p>Patients may do not realize how diarrhea can be serious problem</p> <p>29. Some doctors believe that children’s visit in the clinic for vaccination put them under the risk to acquire infection from other children in the waiting room (problem of space shortage in clinic)</p>					
<p><b>Kareli More trust in doctor in regions (less exposition to negative information leading to concerns/resistance) but risk as people are educated and may</b></p>	<ol style="list-style-type: none"> <li>1. No agreement on “neurological” contraindications of vaccination to conduct vaccination</li> <li>2. Parents afraid of vaccine related complications are concerned with severity and outcome of vaccination</li> <li>3. Some doctors are concerned with rumor that some religious leaders are against of vaccine since</li> </ol>					

<p><b>follow Tbilisi example if not provided to their emerging concerns</b></p>	<p>they may contain electronic chips for tracing people</p> <ol style="list-style-type: none"> <li>4. Doctors often postpone vaccination of children from socially and financially disadvantaged families due to higher incidence of health problems (infectious diseases mostly)</li> <li>5. HCWs in the clinics located in Tbilisi often gave recommendation not to vaccinate our patients since do not have adequate and sufficient information about patients' health unlike us.</li> <li>6. Lack of knowledge of parents about vaccines (parents asked HCW to return money for paid vaccine when child was diagnosed with pneumonia shortly after vaccination with DT )</li> <li>7. Multidoze vaccines are problem due to difficulty in gathering enough number of children to vaccinate them at the</li> </ol>					
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	<p>same time (especially in peripheral and rural areas)</p> <p>8. Being in fear of possible complication HCWs do not vaccinate children with diabetes, leukemia, epilepsy unless they have special permission for it.</p> <p>9. Anecdotal data about new vaccines</p> <p>- before providing HPV vaccine girls are asked if they plan to have a multiple partners.</p> <p><b>10. New vaccines need time to be accepted</b></p> <p>-“Innovations” are good follow in fashion industry not in medicine.</p> <p><b>11. Diarrhea is not highly spread and dangerous disease requiring vaccination.</b></p> <p><b>12. Diarrheal diseases are often treated without identification of main cause due to inability of the patients to cover the cost of laboratory investigations.</b></p>					
<p><b>Marneuli</b> <b>Where Azeri</b></p>	<p><b>1. Less questions about vaccine, more reliance on</b></p>					

<p>people live in majority</p>	<p>HCWs reputation particularly in remote villages.</p> <ol style="list-style-type: none"> <li>2. Government as a guarantor of the quality is a good argument for provision of free vaccines.</li> <li>3. Low knowledge about vaccine preventable diseases and their severe outcomes</li> <li>4. High education level of parents is not the guaranty for vaccine provision compliance as they will look for additional information and have concerns doctor cannot answer</li> <li>5. Vaccine related decision-making process often is involved older members of the family (grand mother).</li> <li>6. Often used hooks to persuade parents : 1. without vaccination children will not be admitted to school, 2.</li> </ol>					
<p>Neurologist And, according to</p>	<p>. Reasons for recommendation for postponing vaccination with</p>					

<p><b>doctors cardio rheumatolo gists)</b></p>	<p><b>no considerations of officially approved guidelines:</b></p> <ul style="list-style-type: none"> <li>-Guidelines provide no protection for HCWs.</li> <li>- Though some conditions are not contraindications to vaccination they still may still provoke complication.</li> </ul> <p><b>2. Low medical personnel (sources) due to low qualification and knowledge provide parents with inaccurate information on vaccines and discourage them to get their children vaccinated.</b></p> <p><b>3. Vaccine related complications include such problems as development of encephalitis and hepatitis B.</b></p> <p><b>4. In the children born with neurological problems such as encephalopathy often West symptom development coincides with vaccination periods.</b></p> <p><b>5. No guidelines about the upper limit of postponement of vaccination.</b></p> <p><b>6. Available guidelines are developed based on international documents and</b></p>					
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<p><b>approach proposed there could not apply to Georgian context considering specific mentality of Georgian parents.</b></p> <p>- Though abroad parents care no less about their child they while explained that there is no treatment available or required usually follow HCWs advice, while here because of parents request HCWs have no other choice but to conduct treatment despite extremely low chance of positive outcome.</p> <p><b>7. Immunologists are more competent and know better about real effect of vaccine on human health</b></p> <p>-during one of the conference conducted by Russian scientists in Georgia chief immunologists of Russia made a statement that he never vaccinated his children on new vaccines such as flu vaccine for instance.</p> <p>8. Now information about long-term effect of vaccines on</p>					
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	human health.					
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**Mothers' Matrix – concerns – influence/information - actions**

Sub-type of stakeholder	What are their perceptions and concerns?	Common concerns	Sources of		What is needed to respond to concerns?	Messages
			influence	Information		

Sub-type of stakeholder	What are their perceptions and concerns?	Common concerns	Sources of		What is needed to respond to concerns?	Messages
			influence	Information		
<p>Resistant mothers (Tbilisi)</p> <p>Less numerous than concerned or pro when investigated and based on feedback from these other groups</p>	<p><b>Lack of /inadequate/inaccurate information</b></p> <p>Ads on TV do not explain why to vaccinate (information not supported by IPC by doctor let to propaganda)</p> <p><b>Misunderstanding of vaccination mechanism - 1. Who should be immunized, 2. Why, etc.</b></p> <p>Some mothers believe that healthy children should not be immunized;</p> <p>Some believes that only unhealthy children need to be vaccinated</p> <p>Neurologists recommend postponing vaccination because of absence seizures until they disappear</p> <p><b>2. Efficiency of vaccine</b></p> <p>Short term effectiveness</p> <p>Vaccines are not necessary, as it does not guarantee it will provide protection;</p> <p>There is treatment available, so no need for a vaccine:</p>	<p>Fear for potential negative even minor consequences;</p> <p>Fear of adverse reactions</p> <p>Inadequate / insufficient information about the side effects; adverse consequences</p> <p>New vaccines being experimented;</p> <p>Neurologists recommend postponing (what is told to</p>	<p>famous doctors (general pediatricians and neurologist are a powerful source of influence/information;</p> <p>rely on religious leaders who are against immunization (orthodox Christian who are con-</p> <p>some do not seek information, relying only on rumors, myths misinformation from acquaintance and media;</p> <p>some of them have a self-seeking information behavior : acquaintances; internet;</p>	<p>post accurate information (links) of social media / Face Book groups;</p> <p>Create a sub-page dedicated to vaccination on the site of the NCDC (responses to rumors / myths; list of trusted / untrusted sites in Georgian, English, Russian) with Q&amp;As; in NCDC website (for public, NB. ref; list provided to UNICEF by WHO Copenhagen</p> <p>Telephone info-line under MOH with referral to NCDC to ask questions (hotline to be promoted)</p> <p>Info materials (brochures to be distributed in health facilities including web addresses for detailed</p>	<p>Accurate information through TV programs, social media, official sites, doctors interaction, radio, print media on :</p> <p>How work the immune system : Vaccines do not weaken the immune system, they strengthen it;</p> <ul style="list-style-type: none"> <li>• Childhood disease can cause serious consequences - which ones.</li> <li>• Good health does not provide absolute protection/only immunity can provide strong protection -why</li> <li>• Who should be vaccinated or not and why</li> <li>• Child with poor health needs to be protected better -why</li> <li>• why postponement of vaccination for some children and which ones</li> <li>• efficiency of vaccine : "free" ones who are not versus paid ones, why it is effective, why it is better than curative services.</li> </ul>	

<p>Mothers from ethnical minority who do not know anything about immunization (azeri mothers)</p>	<p><b>Insufficient information on vaccination</b> Protection against diseases is acknowledged. Which one they do not know;</p> <p>Not aware why vaccines are needed (potential easy target for con-);</p> <p><b>Rely on doctor advise most trusted source of information</b></p> <p>The doctor knows better;</p> <p>Vaccination is practice directed by doctors;</p> <p><b>Diarrhea + RVV</b></p> <p>Diarrhea is a serious issue.</p> <p>Will trust doctor if s/he advise to vaccinate RV</p>		<p>Doctors are the most trusted source of influence/info</p> <p>TV, Internet info is not that a powerful tool to communicate with them</p> <p>They do not read printed form (illiterate for the majority).</p>	<p>Same as resistant mother (to prevent concerns/resistances + right to information)</p>	<p>Same as resistant mother (to prevent concerns/resistances + right to information).</p> <p>Here the most important channel will be the doctor</p>
<p>=neutral mothers (generally rural</p>	<p><b>Insufficient information on vaccination</b> Protection against diseases is acknowledged.</p> <p>The doctor knows better; but they</p>		<p>Doctors but in addition self-seeking behavior : internet in case difference in information, they trust</p>	<p>Same as resistant mother (to prevent concerns/resistances + right to information)</p>	<p>Same as resistant mother (to prevent concerns/resistances + right to information)</p> <p>Here the most important channel will</p>

women)	<p>will check</p> <p>Vaccination is practice directed by doctors;</p> <p><b>Diarrhea + RVV</b></p> <p>Diarrhea is a serious issue.</p> <p>Need of RVV if they are informed about how disease is spread of disease, hence risky and if it is on national immunization calendar;</p>		doctor better	Useful links to check more detailed information on these links	be the doctor plus internet and media
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<p>Pro vaccination mothers</p>	<p>Those having older vaccinated children who had no problem support immunization;</p> <p>Protection against diseases is acknowledged.</p> <p>Enhancement of immunity;</p> <p>If all parents vaccinated their children, some diseases would disappear;</p> <p>think that there is no difference in the quality of paid and free vaccines;</p>		<p>Family Doctors from state PHCs;</p> <p>Self-seeking information: Internet;</p> <p>Magazines and Journals, Web-sites,</p> <p>TV</p>		<p>Same as above : It is good to have them exposed to the information targeting all types of mothers as everyone is always seeking for additional information and they might that way be able to respond to question from other mothers</p>
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<p>Concerned mothers (can turn into resistant as causes of concerns are close to identical to causes of resistances</p>	<p><b>Demand for more information</b></p> <p>Better informed compared to others + asking for more information</p> <p><b>Concerns</b></p> <p>Vaccine country of origin, expiry date, difference between paid and free vaccines, statistics of disease, etc.);</p> <p>Those who know cases of people/children getting sick from a vaccine preventable disease;</p> <p><b>Lack of accurate information on contraindications</b></p> <p>Mothers postpone on their own as they believe the child is too sick / weak to get it; and/or based on contradictory messages from health professionals;</p> <p><b>Vaccine efficiency</b></p> <p>They have heard from others that paid vaccines have less side effects, contain more agents, has</p>	<p>Most powerful source of influence are : Family Doctors/pediatricians from PHCs; Neurologists and Cardio-rheumatologists</p> <p>acquaintances that already have an experience of vaccines at private clinics;</p> <p>Need to know opinion of various famous doctors, better to see and hear from certain TV broadcasting, internet, printed media, easy understandable brochure, covering all question related to vaccines and VPDs, easy understandable brochure covering all question related to vaccines and VPDs</p>	<p>Same as resistant mother (to prevent concerns/resistances + right to information)</p> <p>Useful links to check more detailed information on these links</p>	<p><i>Same as above : causes of concerns and resistances are close to identical and channels of information are the same for all mothers but ethic minority</i></p> <p><b>For mother postponing vaccine :</b></p> <p>The child must receive on time all doses of the vaccine to be fully protected.</p> <p>It is safe to receive more than one vaccine on the same visit.</p> <p>A new vaccine means that the child will receive more protection;</p>
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<p>more effectiveness;</p> <p>Vaccines produced in different countries have different quality (for instance - a better quality of vaccines from France compared to India);</p> <p>Majority of them does not understand difference in the quality of paid and free vaccines; wanted more information on that</p> <p><b>Fear of side effects/complications</b></p> <p>They are afraid of vaccine preventable disease rather than vaccine against it</p> <p><b>Distrust in doctor capacity</b></p> <p>Some family doctors are not sufficiently trained to confidently explain the importance of information, including contraindication, side effects, etc.</p> <p><b>Diarrhea and RVV</b></p> <p>Diarrhea is a serious issue which</p>		<p>Most parents usually does not refer to Religious leaders on vaccination; some do but RL usually tell them to refer their doctors for advice</p> <p>Self-seeking information:</p> <p>Internet;, Web-sites, Social media , TV</p> <p>Magazines and Journals</p> <p>Acquaintances;</p>		
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<p>might need a vaccine;</p> <p>To make a decision they want more information about the new rotavirus vaccine – statistics, effects, complications, experience in other countries, effectiveness, etc.</p> <p><b>Attitude and practice</b></p> <p>Some mothers experiences neglecting attitude of doctors from the state clinics (having no time for answering her questions);</p> <p>Majority prefers to have insurance FDs because they are more caring but some mothers are not happy with insurance doctors for lack of time for providing enough information</p> <p>Specialists usually use a sophisticated language;</p> <p>would be concerned if asked to choose between vaccinating or not while not provided with info</p>
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	(American freedom)			
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<p>Media concerned</p>	<p>Protection against diseases is acknowledged.</p> <p>Enhancement of immunity;</p> <p>Better informed compared to others + asking for more information</p> <p><b>Concerns due to lack of accurate, transparent and understandable information</b></p> <p>Specialists usually use a sophisticated language;</p> <p>Need open information about vaccination even if it is painful (on adverse reactions, side effects, etc);</p> <p><b>safety of vaccine</b></p> <p>Some of them are wondering to know whether many vaccines affect physical development of children?</p> <p><b>Concerns</b></p> <p>Media people who are women are</p>		<p>Most powerful source of influence = Mothers of children who had adverse reactions</p> <p>Most powerful source of information = source of influence + Georgian or Russian web sites; Social media (!)</p>	<p>Mobilization of media to promote immunization</p> <p>Identify and train a spokesperson to discuss "events" with the media negative</p> <p>Trainings on ethical reporting + vaccination "content" = how to provide counter-arguments, myths rumors reflection on how media can support;</p> <p>Field visits – storage and transportation of vaccines; vaccination cabinets; discussions with doctors and nurses;</p> <p>Testimonies / positive</p>	<p><i>Same as above</i> : It is good to have them exposed to the information targeting all types of mothers as everyone is always seeking for additional information</p>
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	<p>mothers first of all, so anything relevant to their children is important</p> <p>Vaccine country of origin, expiry date, difference between paid and free vaccines,</p> <p>Those who know cases of people/children getting sick from a vaccine preventable disease</p> <p>Family doctors promote unofficially the immunization at clinics with paid vaccine (hence understood as better than unpaid ones);</p> <p><b>Need for vaccine</b></p> <p>Statistics of disease, etc.);</p>			<p>stories in the media about immunizing children vs. potential side effects;</p> <p>Create a sub-page dedicated to vaccination on the site of the NCDC (responses to rumors / myths; list of trusted / untrusted sites in Georgian, English, Russian) with Q&amp;As; in NCDC website (for media),</p> <p>NB. ref; list provided to UNICEF by WHO Copenhagen</p> <p>Media package (for journalists) printed/distributed to journalists</p> <p>Peer-based award for best</p>	
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				<p>coverage of immunization related issue;</p> <p>Media monitoring;</p> <p>Provide journalists with a list of experts, doctors, that would be available for offering information about immunization; (trained expert, doctors)</p> <p>A more efficient collaboration with NCDC various resources available (immunologists, etc.) for common public statements through media</p>	
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**System related constraints / sources of miss-information and distrust:**

<p>Limited time to inform parents</p>	<p>Diversify sources of information : strengthen partnerships with private sector, media and professional associations to disseminate / post information on immunization;</p> <p>Training to communicate key needed messages in a simple language or at least indicate where to find trusted sources of information (official sites, etc.)</p>
<p>Information given for a "special case" is spread among mothers as relevant for all children giving rise to misinformation, concerns</p>	<p>Training to communicate key needed messages or at least indicate where to find trusted sources of information (official sites, etc.)</p> <p><b>Explain to relevant mother why case is special versus what is normal</b></p>
<p>No homogeneous practices (places of injection; preparing the child);</p>	<p>Refresher training</p>
<p>Medical errors reported by media;</p>	<p>Training of media in ethical reporting, list of specialists to consult prior to coverage of "medical error"</p> <p>High officials to be more present in the field, especially in case of incidents;</p> <p>spokesperson to take immediate action with the media</p> <p>training of spokesperson to speak to media</p>
<p>Some family doctors are not sufficiently trained to confidently explain the</p>	<p>Training to communicate key needed messages or at least indicate where to find</p>

importance of information, including contraindication, side effects, etc.

trusted sources of information (official sites, etc.)

**Explain to relevant mother why case is special versus what is normal**

**Religious leaders and Insurance Companies Matrix – concerns – influence/information – actions**

Sub-type of stake holder	What are their perceptions and concerns?	Common concerns	Sources of		What is needed to respond to concerns?	Messages
			influence	information		
Insurance Company representatives	<p>1. immunization is important for prevention of number of diseases though it should be cost effective both for governmental and private organizations.</p> <p>2. immunization itself is in interest of the insurance companies as decreases disease burden in insured population</p> <p>3. Trust toward vaccines provided by government is higher than due to one provided by private distribution companies.</p> <p>- their responsibility toward population for quality insurance</p>		<p>Internet Web-sites, Magazines and Journals TV Guidelines (for insurance companies)</p>	<p><b>-NCDC and foreign public health organizations working in Georgia</b></p> <p><b>-Internet</b></p>	<p><b>- Fight with misleading information:</b></p> <p>1. that vaccine contain dangerous proteins, genes or electronic chips <i>(contra arguments would be – it is very expensive technologies to provide such big number of subjects )</i></p> <p>2. Blonds are more prone to develop allergic reactions toward vaccination</p> <p>3. vaccination causes</p>	

<p>- involvement of different international organizations in national vaccination programs with their strict guidelines, procedures and regulations.</p> <p>- WHO certificate.</p> <p><b>4. Though national programs in primary care including vaccination will be carried out in clinics of insurance companies it will be better if government purchased the vaccines.</b></p> <p><b>5. Interests of insurance companies in participation in national vaccination program are very low since main interest of insurance companies is not the welfare of population.</b></p> <p><b>6. HCWs often misinform patients about low quality of free vaccines because of private or their employee company's financial interests.</b></p>				<p>infertility</p> <p><b>- Avoiding governmental officials to make Hippocratic statement on TV like: "Indian vaccines are better than one produced in France".</b></p> <p><b>- Avoid presenting negative or ugly emerges while developing printing materials for immunization support purposes.</b></p> <p><b>- While introducing new vaccine we should be provided with information that it was tested in other countries as well and we are not the subjects of</b></p>	
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	<p><b>7. Collaboration with NCDC is very important for insurance companies</b></p> <p>- some companies signed the contracts epidemiologist of NCDC to conduct epidemiological analysis of the diseases for their financial strategy development purposes</p> <p><b>8. Insurance sector is ready for intensive collaboration and putting in practice recommendations developed by with NCDC and other leading health care organizations</b></p>				<p><b>experiments.</b></p> <p><b>-education materials and small session about vaccination could be helpful for church representatives as well</b></p> <p><b>-content of social advertisement should be very clear and relevant (not like in case of Marlboro when people could not figure out it was commercial of horses or cigarette).</b></p>	
<p><b>Religious leaders</b></p>	<p><b>1. Looking for trusted opinion (particularly person who would not lie to them) parents approach religious leaders with questions concerning quality, safety and efficacy what is not in their competence.</b></p> <p><b>2. People are very suspicious and</b></p>					

<p>careful since are well aware about possible complication of vaccination</p> <p><b>3. Health related decisions are very important since</b></p> <p>- any other mistakes can be improved, but not one related to health</p> <p>- once there is injected the agent it is going to stay in organism for whole life</p> <p><b>4. Parents have right and reasons not to trust medical society, considering tones of lies circulating in the world general and particularly in health care.</b></p> <p><b>5. Unethical dangerous experiments carried out on human subjects during years starting from famous case during world war second negatively affected image of doctors and researchers.</b></p> <p><b>6. Religious representatives and bioethicists approach toward</b></p>					
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<p><b>adverse reactions is different:</b></p> <ul style="list-style-type: none"> <li>- statistics is lower importance since lost of even single human life cannot be compensated.</li> <li>- if there is even a single precedence of such adverse events it means that there is a problem</li> </ul> <p><b>7. Vaccines produced in different countries differ in quality.</b></p> <p><b>8. Low trust toward free vaccines is based on the fact that there is almost no transparency of work carried out by governmental health care organizations.</b></p> <ul style="list-style-type: none"> <li>- Vaccines and medications developed in undeveloped or developing countries cannot be of high quality considering known expenses of developing high quality products.</li> <li>- Cases when policlinics purposely did not provided vaccine to increase number of cases one of the vaccine preventable diseases.</li> </ul>					
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<p><b>9. Population should be provided with objective information about quality of the vaccines.</b></p> <p><b>10. It is good that vaccines are not available to be purchased by parents and self-administered (like other medication available without HCWs prescription) since it would increase cases of complications and resistance of parents.</b></p> <p><b>11. Different vaccines need different approach for instance poliomyelitis and HPV vaccines</b></p> <p><b>12. Existence of paid and free vaccines raises suspicion that free vaccines are of lower quality.</b></p> <p><b>13. Vaccines purchased by Georgian government must be of the highest quality and equally distributed among Georgian population</b></p> <p>- Considering the expenses related to</p>					
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	<p>treatment of vaccine preventable disease and availability of finance even at local level</p> <p><b>14. Population believes that diseases for which vaccine is provided was defeated long ago and does not exists nowadays like TB (tuberculosis).</b></p> <p><b>15. Country of the vaccine origin matters for parents (France is the most trusted country in this terms), particularly when there are available of paid vaccine produced in European countries.</b></p> <p><b>16. Vaccination campaign are not developed carefully</b></p> <p>- Black color image of monster used during MMR immunization campaigns more districted people to have their children vaccinated.</p>					
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	<p><b>17. Parents often use Russian websites and sources of information about vaccines what indirect descendants of “soviet medicine” with underlying reasons to purposefully publish negative information about vaccines.</b></p> <p><b>18. Vaccination is a problem for our church not in terms of religious viewpoint but in because of population’s perceptions and concerns around this issues.</b></p> <p><b>19. Religious approach toward these issues is not complicated as it seems to people, simply saying “church is prolife”.</b></p> <p><b>20. Medical/technical terms are difficult for general population to understand and often develop</b></p>					
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<p><b>misleading conclusions. (like in joke “kofe sa slivkami” = kava qliavebit)</b></p> <p><b>21. A lot of international funding is wasted by NGOs in the country since all they do is to criticize existing system instead of providing support and implementation of findings in the system.</b></p> <p><b>22. One should not blame church representatives in being purposefully decreasing vaccination rates since it’s the problem of low awareness of those persons in particular subject.</b></p> <p><b>23. Treatment and doctor is not something prohibited by religion. In the book by “Zirak” is said that doctor is the person sends by God as well as the recovery from the disease.</b></p>					
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## Appendix B Research Instruments

### PARENTS FOCUS GROUP

#### DISCUSSION GUIDE

(Timing: 90min)

N°	Question	Response
1.	Time at the beginning of the discussion	_ _  h  _ _  mn
2.	Region	<ol style="list-style-type: none"> <li>1. Tbilisi</li> <li>2. Shida Kartli</li> <li>3. Kvemo Kartli</li> </ol>
3.	Participants	<ol style="list-style-type: none"> <li>1. Parents (Immunised children)</li> <li>2. Parents (Not immunised children)</li> </ol>
4.	Number of Participants	_ _
5.	Date	_ _  /  _ _  /  _ _ _ _
6.	Moderator	.....
7.	Assistant(s)	.....

#### **Introduction**

**Purpose:** Today we will be focusing our discussion on the existed attitudes and perceptions about immunization. All your views, concerns, perspectives and what are also very important, your suggestions for solutions of the issues concerning immunization in Georgia will play important role in national planning and strategizing. We will ask the question to better understand what you think and do about certain kinds of behaviours related to your child's health and also about immunization.

**Procedures:** Our discussion will take about 90 minutes. Please remember that there are not right or wrong answers and you are free to ask for clarification if you do not understand the question. We want this to be a group discussion, so feel free to respond to me and to other members in the group without waiting to be called on. However, we would appreciate it if only one person did talk at a time. Be ensured that all of you will have equal opportunity to express your opinions and please be respectful to divergent attitudes expressed by other participant. There is a lot we want to discuss, so at times I may move us along a bit.

**Confidentiality:** The session will be recorded and a transcript of the discussion will be made so that we do not miss anything you have to say. Please be assured that at no time will I record any names or other identifying information. We will protect the information you give us as best we can and all records as well as transcripts will be destroyed after completion of the research.

Questions I'm going to ask some of you could find difficult or uncomfortable to answer. You can refuse to answer any question and leave discussion group at any time. You will not be penalized in any way if you decide not to participate.

May I continue? Let's start with each of you telling us your name, number of children, child/children's age(s)?

## **I. Preventive Health practice and perceptions about medical care services and health care providers**

1. Does your child 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? Private practitioners? Health centre? Reason for the choice (or change in choice)?

**For probing:** why a private practitioners instead of the health center? Same for all children? pro- and cons of the health centers? Why? Pro and con of health centers versus private practitioners and vice versa? How close is the medical facility? Financial implications when accessing health services?

2. Where do you take your child for immunization? Private practitioners or public polyclinic? Reason for the choice (or change in choice)? In case you can afford financially to go to a private clinic, would you prefer to do the vaccination there or at a public polyclinic? WHY? What do you think about vaccinator clinic? Health care workers (HCWs)? What do you think about services provided by HCWs at those clinics? What about attitude of HCW toward you?

**For probing:** perceived advantages of private clinics? Image of health workers? Trust related issues? Are they nice? Do they provide all the information they need? Is there another person they would trust more? Which one?

## **II. Practice and perceptions about vaccination**

1. Can you share with some of your experiences with vaccination of your children? Have you immunized your children? When was last time your last child got an immunization? Which vaccine was he/she provided? How did it go? Are all your children immunized? How did they respond to vaccines?

2. Are you acquainted with parents who decided not having their children vaccinated? What arguments have they brought in? Which one of the latter made you contemplate about? How did you manage to overcome this status?

**For probing:** if they hear things against vaccination? If all those negative aspects influence on them, make them have concerns, doubting immunization? Do they have questions they would like to be answered, etc?

3. Would you recommend vaccination to your friends/relatives? How would you convince them that child vaccination is important? What would you tell a Parent who has got doubts about to have her child vaccinated or not? What do you think you could do you need in order to do so?

**For probing:** What would pro recommend for overcoming others resistance: what to say, what to do? What do the con think they could do in case they change their mind to persuade others who are con (who are those others)? what would they need in order to do so?



4. **▶ (For those parents who did not vaccinate children)** What reasons did you have? What was the strongest impetus to renounce to have the child vaccinated? What about the other children (upon case), did you have them vaccinated? How did they respond to vaccines? Did you drop out in the series of immunization for a child or more than one child? WHY? Time when you stopped doing it? Were you reluctant at a time? What have helped you to overcome reluctances? Who was instrumental in doing so?

**For probing:** Identify arguments of different groups: (i.) postpone; (ii) drop out, (iii) renounce, (iv) had concerns but overcome them, (v)refuse?

Which profile group they belong to: **#1:** The Government Distruster; **#2** The Science Distruster; **#3:** The Big Pharma Distruster; **#4:** The Doctor Distruster; **#5:** Paging Dr. Google; **#6:** The alternative medicine believer; **#7:** Me, too!

Are sources and reasons for renouncement and refusal the same or not?

### III. Knowledge and perceptions about vaccination

1. What do you know or heard about vaccines? What vaccines have you heard about or are you familiar with? What do you know about how vaccines work or what vaccines do?

**For probing:** What are the 6 dangerous diseases that children may have if you won't immunize children (Diphtheria, Polio, Measles, Tetanus, Tuberculosis Whooping , cough)?

2. Tell me please at what ages are the children vaccinated? Have you complied with this timeframe? If No, why? Who advised you to postpone/refuse vaccination? Have you consulted with other people as well? With whom, namely?
3. Did you consult with other people as well prior to having your children vaccinated? Who namely? What questions did you ask? Did you take the decision to have your children vaccinated by yourself or did you discuss the issue with other Family Members? How much did you rely on their opinion?

**For probing:** Are they the one who decide or their husband/father of the child or both together? Do you involve other family members in the decision? Others (friends, colleagues, religious leaders, etc)?

4. Is immunization necessary for children? Why yes/no? What are the vaccine advantages? What are your major threats with respect to vaccines? if any?



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

**For probing:** Could they change their mind if they are con? What could change their mind/who should speak to them and what should they say?

#### **IV. Source of information**

1. How did you learned about vaccines?
2. When you take your child to the doctor, do they talk with you about immunizations? What do they usually say? Who initiates conversations about immunizations (you or doctor)? In general, to what extend do you think the Doctor provided you with useful information on child vaccination? What attitude did he/she have while talking to you?
3. Did you search for additional information? What information are you usually looking for immunization? Where or whoever provided you with such information? Do you have any questions or unclear situations relating to vaccines that you can think of off the top of your head? If Yes, what was the reason for not putting them to the Family Doctor?
4. Where would you look or who would you ask first to get an answer to your immunization-related questions? Which sources do you trust for information on immunizations? WHY? Are there some sources of information you do not listen to because you do not trust them? How do you know the information is accurate/correct? Which of these sources most influences your decision to vaccinate your child? WHY?

**For probing:** which media they give preference: printed or broadcasting? HP (health professional), social media, others .?

5. How do you prefer to learn about health care topics, especially with regard to immunizations? Which of the following would be your preferred source? Which information would help you understand if vaccine is safe?

#### **V. Knowledge about diarrhea**

1. What do you know about diarrhea? How you would recognize that your child is suffering from Diarrhea? Have your child ever experienced extreme forms of diarrhea?

**For probing:** means of transmission, symptoms, etc.

2. What measures are to be taken if child suffers from diarrhea? How did you manage to have it treated? What home remedies do you try for diarrhea? What food items should be given to diarrhea patient?

**For probing:** preventive and treatment measures? Costs / resources / efforts allocated to respond to diarrhea?

#### **VI. Perceptions about introduction of a new vaccine**

1. In case a new compulsory vaccine is introduced, what information would you like to get about it? Who is supposed to provide it? In what format?
2. Have you heard about Rotavirus vaccine? What is it administered against? How is it administered?
3. To what extent would you agree to have your child vaccinated to prevent diarrhea? If new vaccine can help prevent not all but some diarrhea: will you have the child immunized, if yes, why, if no, why? What do you think, in general, about oral vaccines, i.e. those taken by mouth?

**For probing:** How concerned are they about their child becoming infected with RV and diarrhea? How important do they think vaccine against diarrhea is for their child? Why do you think they are important/why not?

4. If your child's doctor recommended an immunization for your child, how likely would you be to immunize your child on a scale of 1-3 (1 = not likely, 3 = very likely). Why?

**For probing:** would you accept it without questions? if so, why?, if not why? what would they want to know, from whom?

5. What issues would you think about when deciding whether or not to vaccinate your child on RV vaccine? In what situations would you be sure about the need to administer this vaccine? Under

what circumstances would you renounce to this vaccine? What would you like to know about RV vaccine to make decision?

6. What do you think you could do to promote immunization/introduction of new vaccine? to whom? what would do you need in order to do so?

**Closure of the Focus Group Discussion**

Though there were many different opinions about RV immunization, it appears unanimous that it is/NOT important for your child. Does anyone see it differently? It seems most of you agree/disagree to vaccinate your child on RV, but some think that they will/NOT vaccinate their child on RV. Does anyone want to add or clarify an opinion on this?

Is there any other information regarding your experience with or following the workshops that you think would be useful for me to know?

We have finished with the discussions today. Thank you very much for coming. Your time is very much appreciated and your comments have been very helpful. You have the paper with the name of the people who manage the research, their phone number, if you have any questions or concerns, at any time you can contact us.

<b>Time at the end of the discussion</b>	__ __  h  __ __  mn
<b>Comments:</b> Attitudes of the participants during the interview: ..... ..... ..... ..... Interruptions during the discussion: no/yes (frequency).....	

**HEALTH CARE PROVIDERS**

**FOCUS GROUP**

**DISCUSSION GUIDE**

**(Timing: 90min)**

N°	Question	Response
8.	Time at the beginning of the interview	_ _  h  _ _  mn
9.	Region	4. Tbilisi 5. Shida Kartli 6. Shua Kartli
10.	Number of Participants	_ _
11.	Date	_ _  /  _ _  /  _ _ _ _
12.	Moderator	.....
13.	Assistant(s)	.....

***Introduction***

**Purpose:** Today we will be focusing our discussion on the existed attitudes and perceptions about immunization. All your views, concerns, perspectives and what are also very important, your suggestions for solutions of the issues concerning immunization in Georgia will play important role in national planning and strategizing.

You have already completed a questionnaire a few minutes ago. We would like to ask you a few more questions to better understand what you think and do about certain kinds of behaviours related to your medical practice and immunization. You might feel that some questions are repetitive between the questionnaire and our discussion; we hope this will not be too annoying or boring for you and we really thank you for making the time and effort to respond to our questions.

**Procedures:** Our discussion will take about 90 minutes. Please remember that there are not right or wrong answers and you are free to ask for clarification if you do not understand the question. We want this to be a group discussion, so feel free to respond to me and to other members in the group without

waiting to be called on. However, we would appreciate it if only one person did talk at a time. Be ensured that all of you will have equal opportunity to express your opinions and please be respectful to divergent attitudes expressed by other participant. There is a lot we want to discuss, so at times I may move us along a bit.

**Confidentiality:** The session will be recorded and a transcript of the discussion will be made so that we do not miss anything you have to say. Please be assured that at no time will I record any names or other identifying information. We will protect the information you give us as best we can and all records as well as transcripts will be destroyed after completion of the research.

Questions I'm going to ask some of you could find difficult or uncomfortable to answer. You can refuse to answer any question and leave discussion group at any time. You will not be penalized in any way if you decide not to participate.

May I continue? Let's start with each of you telling your specialty, years of medical practice and length of service in current position?

## I. General trends of vaccine uptake and parents awareness about vaccination

1. Approximately, how many children aged up to two years do you have within your Sector? What is the share of immunized children? Any change in the trends observed?

**For probing:** more or less than before - if so since when? Reasons behind, according to him/her?

2. Could you share with your experience with vaccine recommendation to parents? Generally, what information on vaccines do you offer to parents? When? How? In your opinion, what shall parents know about vaccines?
3. What questions do parents usually ask you related to vaccine? What issues related to vaccine is they concerned about? Who is more actively involved from parents/family members in designating process regarding vaccination of the child?

**For probing:** their perception / understanding / insight into community perceptions? Is “power relations” an issue? any difficulties in responding to parents? Which ones?

## II. Characteristics of parents renounce/refuse vaccination, underlying reasons for resistance and strategies used to influence on their decision

1. Do you have in your practice case when parents refused to vaccinate their children? Was it related to particular vaccine (if yes, than which one)? Could you describe those parents who refuse vaccination?

**For probing:** what particular groups they belong to, what are their education level, standard of living? Are there known resistant groups and/ or areas (geographical pockets)? if so, which ones?

2. What arguments are brought in by those parents who refuse vaccination? What are the threats they mention? Usually, who influences them?

**For probing:** are considered the most important and common barriers for vaccination: (1) Perceptual constrains: fear of side effects, religious beliefs, distrust of Health Care Providers, etc (the psychology and thinking that leads individual parents to refuse vaccination) (2) Managerial constrains: access, logistics, supply constraints? Other factors that may influence vaccine acceptance e.g. their own working conditions, work load, access to communities, confusion on priorities etc? Any difference of opinion among various groups on above issues?

3. Do you have such parents who have their older children vaccinated or accepted their child to get several vaccines and now have renounced to? To your mind, what caused such a change in attitude and behaviour?
4. When was the last time someone to refuse/renounce vaccination? Reasons? Please, describe the case.
5. What do you do if parents refuse/renounce vaccination (if they do nothing then why)? What strategies do you use to influence on parents decision? Would you tell parents who have doubts to have their child vaccinated or not? How would you persuade them that child vaccination is important?

**For probing:** Their skills and awareness about different technique used for promotion of vaccine?

6. There are health professionals, including the well-known ones, who oppose vaccination; what is your opinion concerning them? The use of what leverages would be appropriate to persuade them concerning the need to vaccinate the children?
7. Please describe a recent case when you managed to convince the parents to have their child vaccinated?
8. Have you ever thought of not having your children (grandchildren, where appropriate) vaccinated? If Yes, why? What made you change your mind? If no, do you know of any colleague who thought that and why?

### III. Knowledge and Practices about Immunizations

1. Tell me please, to what extent are you confident when vaccinating a child? What are the circumstances that make you feel nervous? What could you tell me about other pediatricians?
2. Are you confident in your skills and knowledge to identify the counter-indications? While in doubt what do you do: vaccinate or not vaccinate the child? What about other pediatricians?
3. From your practice what were the most frequent reasons to postpone children' vaccination? What are your major threats relative to immunizations? How frequently do you have side-effects to vaccines? Which ones were the most severe? What about other pediatricians?

4. Currently, do you have any questions, unclear situations relating to vaccines? If Yes, what kind of information would you need? What about other pediatricians?
5. To what extent do you think you are prepared to respond in case of side-effects to vaccines? How would you distinguish between the side-effects caused by the vaccine and the body reaction to other factors/causes? Is it a problem for other pediatricians?
6. In case of tensional situations with the parents related to vaccine side-effects how would you act? Have you had such situations? How did you manage to overcome them? What about other paediatricians?
7. Some parents opt to have their children vaccinated in private clinics. What is the reason for them to do that? To what extent do you agree with such explanations? WHY?
8. What kind of support would you need to ensure greater compliance to vaccination? What about other pediatricians?

#### **IV. Attitude toward introduction of new vaccine**

1. What do you think about introduction of a new vaccine? Generally speaking, what information shall you, as a primary care physician, need to know about a new vaccine?

**For probing:** Their perception about requirement for introduction of new vaccine? What criteria they consider important? Any worries about new vaccine?

2. In case a new compulsory vaccine is introduced, how should the physicians be prepared, from your perspective? Who is supposed to provide it? In what format? WHY?
3. Based on your work experience, how do health providers respond to the introduction of new vaccines? WHY? What approach should be followed to advertise/promote such vaccines to diminish the share of renouncing cases? WHY?

#### **V. their perception of community acceptance or resistance**

4. Based on your work experience, how do the Parents respond to the introduction of new vaccines? WHY? What approach should be followed to advertise/promote such vaccines to diminish the share of renouncing cases? WHY?

**For probing:** Their past experience with new vaccines, or special vaccination campaigns?

5. Out of your Community (patients from serving districts), who would the most strongly resist immunization with new vaccines? WHY? How could these groups be persuaded on vaccination utility? By whom?

## **VI. Knowledge and attitudes about rotavirus infection and vaccination**

1. What is your experience with diarrhea? How frequent are the cases of severe diarrhea in children? What are some of the challenges you face in helping parents prevent diarrheal disease? What are challenges related to treating diarrheal diseases? In your opinion how serious a public health problem is diarrheal disease in Georgia? Relative to other health problems?

**For probing:** frequency of hospitalized cases? diagnostics and treatment guidelines? technical, financial and other possible challenges associated with it?

6. To what extent would you agree that the introduction of a vaccine to prevent diarrhea is necessary? Let us suppose you are the policy-maker to decide whether to introduce these vaccines or not, what would you decide? What would you recommend the Ministry of Health to do regarding the introduction of these vaccines, from the primary physician's perspective?
7. Have you heard about or seen a vaccine against rotavirus? If yes, than what do you think about it?
8. What do you think, about oral vaccines, i.e. those taken by mouth?
9. Will you have your child vaccinated against RV? Why yes/no? Why? What would you need to feel more confident in recommending and administering RV vaccines?

**For probing:** Their own opinion and comfort level with new - RV vaccinations? What concerns do they have about RV vaccine?

10. Why do you think some Georgian parents would refuse to get their child vaccinated against RV? What measures would help you to (i) overcome resistance (ii) promote RV vaccination? What information about RV vaccinations would you find useful? what training and materials would you need to facilitate your work?

**For probing:** What do you think are the most important barriers for introduction of new RV vaccine in the community? which community? Other factors that influence new vaccine acceptance e.g. their own

working conditions, work load, access to communities, confusion on priorities etc? Capacities / resources to effectively perform if a new vaccine is being introduced? what competences should be strengthened?

**Closure of the Focus Group Discussion**

Though there were many different opinions about RV immunization, it appears unanimous that it is/NOT important for your patients. Does anyone see it differently? It seems most of you agree/disagree to recommend RV vaccine to your patients, but some think that they will/NOT recommend RV vaccine to their patients. Does anyone want to add or clarify an opinion on this?

What do you think should be done to change their views? by whom?

Is there any other information regarding your experience with or following the workshops that you think would be useful for me to know?

We have finished with the discussions today. Thank you very much for coming. Your time is very much appreciated and your comments have been very helpful. You have the paper with the name of the people who manage the research, their phone number, if you have any questions or concerns, at any time you can contact us.

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<b>Comments:</b>	
Attitudes of the participants during the interview: .....	
.....	
.....	
.....	
Interruptions during the discussion: no/yes (frequency).....	

**FOCUS GROUP**

**DISCUSSION GUIDE**

**(Timing: 90min)**

N°	Question	Response
14.	Time at the beginning of the interview	_ _  h  _ _  mn
15.	Region	7. Tbilisi 8. Shida Kartli 9. Shua Kartli
16.	Number of Participants	_ _
17.	Date	_ _  /  _ _  /  _ _ _ _
18.	Moderator	.....
19.	Assistant(s)	.....

***Introduction***

**Purpose:** Today we will be focusing our discussion on the existed attitudes and perceptions about immunization. All your views, concerns, perspectives and what are also very important, your suggestions for solutions of the issues concerning immunization in Georgia will play important role in national planning and strategizing.

**Procedures:** Our discussion will take about 90 minutes. Please remember that there are not right or wrong answers and you are free to ask for clarification if you do not understand the question. We want this to be a group discussion, so feel free to respond to me and to other members in the group without waiting to be called on. However, we would appreciate it if only one person did talk at a time. Be ensured that all of you will have equal opportunity to express your opinions and please be respectful to divergent attitudes expressed by other participant. There is a lot we want to discuss, so at times I may move us along a bit.

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identifying information. We will protect the information you give us as best we can and all records as well as transcripts will be destroyed after completion of the research.

Questions I'm going to ask some of you could find difficult or uncomfortable to answer. You can refuse to answer any question and leave discussion group at any time. You will not be penalised in any way if you decide not to participate.

May I continue? Let's start with each of you telling your specialty, years of medical practice and length of service in current position?

## **VII. General practice of vaccine recommendation to parents**

4. Approximately, how many children aged up to two years do you have within your Sector? How many children have you examined for last month? What were the main reasons for their visits?

**For probing:** common diseases, for which they give consultation?

5. Could you share with your experience with vaccine recommendation to parents? Could you tell us approximate percentage of cases for last year when you gave recommendations against vaccine? From your practice what was the main disease or condition because of which you often had to recommend postponing or stopping vaccination of children? Was it related to particular vaccine?

**For probing:** common disease or condition considered as contraindication for vaccination in children? Vaccines they are most concerned about?

6. Generally, what information on vaccines do you offer to parents? When? How? In your opinion, what shall parents know about vaccines? What questions do parents usually ask you related to vaccine? What issues related to vaccine is they concerned about? Who is more actively involved from parents/family members in designating process regarding vaccination of the child?

**For probing:** their perception / understanding / insight into community perceptions? Is "power relations" an issue? any difficulties in responding to parents? which ones?

## **VIII. Knowledge and attitude toward immunization and counter-indications**

9. Tell me please, to what extent are you confident when recommending for or against vaccination to a child? What are the circumstances that make you feel nervous? What could you tell me about other neurologist?

10. Are you confident in your skills and knowledge to identify the counter-indications? Could you bring the major counter-indications for which you hesitate to recommend against vaccination? While in doubt what do you do: recommend or not recommend vaccination of the child? What could you tell me about other neurologist?
11. While making decision on vaccine recommendations what document or other sources do you use? Please name the source? What do you think about counter-indications provided in national guidelines? Do you agree with the list of genuine and false counter-indications? WHY? What about other neurologists?

**For probing:** Do they use guidelines regarding counter-indications? Which one? Do they trust national guidelines? Their comments and recommendations regarding national guidelines?

12. Have you heard about the cases of
13. What are your major threats relative to immunizations? How frequently do you have side-effects to vaccines? Which ones were the most severe? What about other neurologists?
14. Currently, do you have any questions, unclear situations relating to vaccines? If Yes, what kind of information would you need? What about other neurologists?
15. To what extent do you think you are prepared to respond in case of side-effects to vaccines? How would you distinguish between the side-effects caused by the vaccine and the body reaction to other factors/causes? Is it a problem for other neurologists?
16. In case of tensional situations with the parents related to vaccine side-effects how would you act? Have you had such situations? How did you manage to overcome them? What about other neurologists?
17. What kind of support would you need to ensure greater compliance to vaccination? What about other neurologists?

#### **IX. Attitude toward introduction of new vaccine**

11. What do you think about introduction of a new vaccine? Generally speaking, what information shall you, as a neurologist, need to know about a new vaccine?

**For probing:** Their perception about requirement for introduction of new vaccine? What criteria they consider important? Any worries about new vaccine?

12. In case a new compulsory vaccine is introduced, how should the neurologist be prepared, from your perspective? Who is supposed to provide it? In what format? WHY?
13. Based on your work experience, how do neurologists respond to the introduction of new vaccines? WHY? What approach should be followed to advertise/promote such vaccines to diminish the share of renouncing cases? WHY?

#### **X. Knowledge and attitudes about rotavirus infection and vaccination**

1. To what extent would you agree that the introduction of a vaccine to prevent diarrhea is necessary? Let us suppose you are the policy-maker to decide whether to introduce these vaccines or not, what would you decide? What would you recommend the Ministry of Health to do regarding the introduction of these vaccines, from the primary physician's perspective?
2. Have you heard about or seen a vaccine against rotavirus? If yes, than what do you think about it?
3. What do you think, about oral vaccines, i.e. those taken by mouth?
4. Will you have your child vaccinated against RV? Why yes/no? Why? What would you need to feel more confident in recommending and administering RV vaccines?

**For probing:** Their own opinion and comfort level with new - RV vaccinations? What concerns do they have about RV vaccine?

5. Why do you think some Georgian parents would refuse to get their child vaccinated against RV? What measures would help you to (i) overcome resistance (ii) promote RV vaccination? What information about RV vaccinations would you find useful? what training and materials would you need to facilitate your work?

**For probing:** What do you think are the most important barriers for introduction of new RV vaccine in the community? which community? Other factors that influence new vaccine acceptance e.g. their own working conditions, work load, access to communities, confusion on priorities etc? Capacities / resources to effectively perform if a new vaccine is being introduced? what competences should be strengthened?

**Closure of the Focus Group Discussion**

Though there were many different opinions about RV immunization, it appears unanimous that it is/NOT important for your patients. Does anyone see it differently? It seems most of you agree/disagree to recommend RV vaccine to your patients, but some think that they will/NOT recommend RV vaccine to their patients. Does anyone want to add or clarify an opinion on this?

What do you think should be done to change their views? by whom?

Is there any other information regarding your experience with or following the workshops that you think would be useful for me to know?

We have finished with the discussions today. Thank you very much for coming. Your time is very much appreciated and your comments have been very helpful. You have the paper with the name of the people who manage the research, their phone number, if you have any questions or concerns, at any time you can contact us.

<b>Time at the end of the discussion</b>	_ _  h  _ _  mn
<b>Comments:</b>  Attitudes of the participants during the interview: ..... ..... ..... .....  Interruptions during the discussion: no/yes (frequency).....	

**MEDIA REPRESENTATIVE**

**FOCUS GROUP**

**DISCUSSION GUIDE**

**(Timing: 90min)**

N°	Question	Response
20.	Time at the beginning of the interview	_ _  h  _ _  mn
21.	Number of Participants	_ _
22.	Date	_ _  /  _ _  /  _ _ _ _
23.	Moderator	.....
24.	Assistant(s)	..... .....

***Introduction***

**Purpose:** Today we will be focusing our discussion on the types of information you want and need about immunization. We will ask the question to better understand what you think and do about certain kinds of behaviours related to immunization. Remember that there are not right or wrong answers and you are free to ask for clarification if you do not understand the question.

**Procedures:** Our discussion will take about 90 minutes. We will have 10 minutes break during which you will be provided with refreshments. We want this to be a group discussion, so feel free to respond to me and to other members in the group without waiting to be called on. However, we would appreciate it if only one person did talk at a time. Be ensured that all of you will have equal opportunity to express your opinions and please be respectful to divergent attitudes expressed by other participant. There is a lot we want to discuss, so at times I may move us along a bit.

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identifying information. We will protect the information you give us as best we can. Questions I'm going to ask some of you could find difficult or uncomfortable to answer. You can refuse to answer any question and leave discussion group at any time. You will not be penalised in any way if you decide not to participate.

May I continue? Let's start with each of you telling your specialty and years of work in media?

**XI. Attitude toward immunization and role of media in promotion of vaccine in public?**

- a. Have you ever been involved in preparation of printed/video material about immunization? Could you tell us about the details of that experience?

**For probing:** Which vaccine, what aspects of vaccine, positive or negative?

- b. What is your personal opinion regarding importance of immunization? Can you bring reasons for your position?

**For probing:** Which profile group they belong to: **#1:** The Government Distruster; **#2** The Science Distruster; **#3:** The Big Pharma Distruster; **#4:** The Doctor Distruster; **#5:** Paging Dr. Google; **#6:** The alternative medicine believer; **#7:** Me, too!

- c. How imports do you consider issues related to immunization nowadays? why? What role in your opinion nowadays media plays in formation of public opinion regarding health issues (particularly prevention health practice)? What role SHOULD media play in promotion of vaccination?
- d. Are you interested in covering health issues/immunization on a regular basis? Why/not at what conditions?

**For probing:** what would be interesting for them to reflect issues related to immunization?

- e. While preparing materials on immunization (other health related) topic what materials / resources do you use? In order to present immunization issues in a positive way which materials / resources would you seek/need?

**For probing:** Do they give preference to local sources (MOLSHA/NCDC) or international? Which international source do they usually use (name of organizations, websites, etc )?

- f. What is definition/meaning of "scoop" (scandal case published in press) concerning medical field? Could you bring any examples of "scoop" about immunization you have heard in Georgia or other countries? What is your attitude about ethics in reporting such "scoops"? Could you bring examples when the ethics concerning "scoop" was violated?

**For probing:** Examples of "scoops" and their consequences? Are there regulation of ethics concerning reporting "scoop" nowadays in the country? what to do to avoid these scoop? what can they do to avoid, counter these scoop at what condition?

## **XII. Media and Health Care System partnership in promotion of new vaccination?**

- a. What is your attitude toward current relations of media with MoLHSA and NCDC? What you like/dislike about it most? Could you bring your opinion how to improve and strengthen partnerships between media and MoLHSA/NCDC?

**For probing:** How they see effective partnership between media and MoLHSA/NCDC? What is their opinion about importance of partnership in promotion of vaccination?

- b. How promote vaccination? Do you have any suggestions regarding effective ways of mobilization of media groups to help promote vaccination?

**For probing:** What measures should MoLHSA and NCDC take to promote vaccine? Media forms (printed or broadcasting/ local or central) to prevent and treat "negative" Information?

- c. How to deal with "negative" information and its consequences?

### **Closure of the Focus Group Discussion**

Though there were many different opinions about RV immunization, it appears unanimous that it is/NOT - ----- . Does anyone see it differently? It seems most of you agree ----- , but some think that ----- . Does anyone want to add or clarify an opinion on this?

Is there any other information regarding your experience with or following the workshops that you think would be useful for me to know?

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<b>Time at the end of the discussion</b>	__ __  h  __ __  mn
<b>Comments:</b>	
Attitudes of the participants during the discussion: .....	
.....	
.....	
.....	
Interruptions during the discussion: no/yes (frequency).....	

**NEUROLOGISTS**

**FOCUS GROUP**

**DISCUSSION GUIDE**

**(Timing: 90min)**

N°	Question	Response
25.	Time at the beginning of the interview	__ __  h  __ __  mn

26.	Region	10. Tbilisi 11. Shida Kartli 12. Shua Kartli
27.	Number of Participants	_ _
28.	Date	_ _  /  _ _  /  _ _ _ _
29.	Moderator	.....
30.	Assistant(s)	.....

**Introduction**

**Purpose:** Today we will be focusing our discussion on the existed attitudes and perceptions about immunization. All your views, concerns, perspectives and what are also very important, your suggestions for solutions of the issues concerning immunization in Georgia will play important role in national planning and strategizing.

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May I continue? Let's start with each of you telling your specialty, years of medical practice and length of service in current position?

**XIII. General practice of vaccine recommendation to parents**

7. Approximately, how many children aged up to two years do you have within your Sector? How many children have you examined for last month? What were the main reasons for their visits?

**For probing:** common diseases, for which they give consultation?

8. Could you share with your experience with vaccine recommendation to parents? Could you tell us approximate percentage of cases for last year when you gave recommendations against vaccine? From your practice what was the main disease or condition because of which you often had to recommend postponing or stopping vaccination of children? Was it related to particular vaccine?

**For probing:** common disease or condition considered as contraindication for vaccination in children? Vaccines they are most concerned about?

9. Generally, what information on vaccines do you offer to parents? When? How? In your opinion, what shall parents know about vaccines? What questions do parents usually ask you related to vaccine? What issues related to vaccine are they concerned about? Who is more actively involved from parents/family members in designating process regarding vaccination of the child?

**For probing:** their perception / understanding / insight into community perceptions? Is “power relations” an issue? any difficulties in responding to parents? which ones?

**XIV. Knowledge and attitude toward immunization and counter-indications**

18. Tell me please, to what extent are you confident when recommending for or against vaccination to a child? What are the circumstances that make you feel nervous? What could you tell me about other neurologist?
19. Are you confident in your skills and knowledge to identify the counter-indications? Could you bring the major counter-indications for which you hesitate to recommend against vaccination? While in doubt what do you do: recommend or not recommend vaccination of the child? What could you tell me about other neurologist?
20. While making decision on vaccine recommendations what document or other sources do you use? Please name the source? What do you think about counter-indications provided in national guidelines? Do you agree with the list of genuine and false counter-indications? WHY? What about other neurologists?

**For probing:** Do they use guidelines regarding counter-indications? Which one? Do they trust national guidelines? Their comments and recommendations regarding national guidelines?

21. Have you heard about the cases of
22. What are your major threats relative to immunizations? How frequently do you have side-effects to vaccines? Which ones were the most severe? What about other neurologists?
23. Currently, do you have any questions, unclear situations relating to vaccines? If Yes, what kind of information would you need? What about other neurologists?
24. To what extent do you think you are prepared to respond in case of side-effects to vaccines? How would you distinguish between the side-effects caused by the vaccine and the body reaction to other factors/causes? Is it a problem for other neurologists?
25. In case of tensional situations with the parents related to vaccine side-effects how would you act? Have you had such situations? How did you manage to overcome them? What about other neurologists?
26. What kind of support would you need to ensure greater compliance to vaccination? What about other neurologists?

#### **XV. Attitude toward introduction of new vaccine**

14. What do you think about introduction of a new vaccine? Generally speaking, what information shall you, as a neurologist, need to know about a new vaccine?

**For probing:** Their perception about requirement for introduction of new vaccine? What criteria they consider important? Any worries about new vaccine?

15. In case a new compulsory vaccine is introduced, how should the neurologist be prepared, from your perspective? Who is supposed to provide it? In what format? WHY?

16. Based on your work experience, how do neurologists respond to the introduction of new vaccines? WHY? What approach should be followed to advertise/promote such vaccines to diminish the share of renouncing cases? WHY?

**XVI. Knowledge and attitudes about rotavirus infection and vaccination**

1. To what extent would you agree that the introduction of a vaccine to prevent diarrhea is necessary? Let us suppose you are the policy-maker to decide whether to introduce these vaccines or not, what would you decide? What would you recommend the Ministry of Health to do regarding the introduction of these vaccines, from the primary physician's perspective?
2. Have you heard about or seen a vaccine against rotavirus? If yes, than what do you think about it?
3. What do you think, about oral vaccines, i.e. those taken by mouth?
4. Will you have your child vaccinated against RV? Why yes/no? Why? What would you need to feel more confident in recommending and administering RV vaccines?

**For probing:** Their own opinion and comfort level with new - RV vaccinations? What concerns do they have about RV vaccine?

5. Why do you think some Georgian parents would refuse to get their child vaccinated against RV? What measures would help you to (i) overcome resistance (ii) promote RV vaccination? What information about RV vaccinations would you find useful? what training and materials would you need to facilitate your work?

**For probing:** What do you think are the most important barriers for introduction of new RV vaccine in the community? which community? Other factors that influence new vaccine acceptance e.g. their own working conditions, work load, access to communities, confusion on priorities etc? Capacities / resources to effectively perform if a new vaccine is being introduced? what competences should be strengthened?

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We have finished with the discussions today. Thank you very much for coming. Your time is very much appreciated and your comments have been very helpful. You have the paper with the name of the people who manage the research, their phone number, if you have any questions or concerns, at any time you can contact us.

<b>Time at the end of the discussion</b>	__ __  h  __ __  mn
<p><b>Comments:</b></p> <p>Attitudes of the participants during the interview: .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Interruptions during the discussion: no/yes (frequency).....</p>	

**RELIGIOUSE LEADER**

**IN-DEPTH INTERVIEW GUIDE**

**(Timing: 30 min)**

<b>Participant identification</b>	N°  __ __ __
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N°	Question	Response
31.	Time at the beginning of the interview	__ __  h  __ __  mn
32.	Region	1. Tbilisi 2. Shida Kartli 3. Kvemo Kartli
33.	Participant	1. Official church representative 2. Priest
34.	Date	__ __  /  __ __  /  __ __ __ __
35.	Interviewer	.....

**Introduction**

Today I would like to ask you few questions about your opinion about public health related issues. We would like to better understand what you think and do about certain kinds of behaviours related to immunization.

Our discussion will take about 30 minutes. The session will be recorded and a transcript of the discussion will be made. Please be assured that at no time will I record any names or other identifying information. We will protect the information you give us as best we can.

As for the questionnaire, please let me know if question seems uncomfortable or inappropriate for you. Please be aware that you are free to refuse to answer any question and stop the interview at any time and I will oblige. May I continue?

Yes. No → Stop

**XVII. Attitude toward immunization and role of church in promotion of public health behavior/vaccination in public?**

- a. Have you ever been asked to provide your opinion about health related issue? What about vaccination?

**For probing:** their involvement health (vaccine) related decision-making process?

- b. What do you know or heard about vaccination? What is your main/trusted source of information regarding health related issues?

**For probing:**

- c. What is your personal attitude toward vaccination? What is official church position regarding immunization? What are the bases for such attitude? Have you heard about other representatives of church having different opinion regarding immunization?

**For probing:** why / what are the sources of resistance? Arguments on strengthening the immune system without being immunized vs. resources used by religious leaders/parents?

- d. How would you define role of health care worker and role of church in promotion of public health (particularly prevention practice)?

**For probing:** image of health workers / trust related issues?

- e. What do you think regarding introduction of a new vaccine?

**For probing:** perceptions about an orally administered vaccine? perceptions on not-immunized children – source of danger?

We have finished with the discussions today. Thank you very much for coming. Your time is very much appreciated and your comments have been very helpful. You have the paper with the name of the people who manage the research, their phone number, if you have any questions or concerns, at any time you can contact us.

<b>Time at the end of the interview</b>	__ __  h  __ __  mn
<b>Comments:</b>  Attitudes of the participant during the interview: ..... ..... .....	

.....  
 Interruptions during the interview: no/yes (frequency).....

**INSURANCE COMPANY REPRESENTATIVES**

**IN-DEPTH INTERVIEW GUIDE**

**(Timing: 30 min)**

**Participant identification** N° |\_\_|\_\_|\_\_|

N°	Question	Response
36.	Time at the beginning of the interview	__ __  h  __ __  mn
37.	Region	4. Tbilisi 5. Shida Kartli 6. Kvemo Kartli
38.	Participant	3. Official church representative 4. Priest
39.	Date	__ __  /  __ __  /  __ __ __ __
40.	Interviewer	.....

**Introduction**

Today I would like to ask you few questions about your opinion about public health related issues. We would like to better understand your company’s new role in the immunization programs and perceived problems and challenges associated with this new responsibility.

Our discussion will take about 30 minutes. The session will be recorded and a transcript of the discussion will be made. Please be assured that at no time will I record any names or other identifying information. We will protect the information you give us as best we can.

As for the questionnaire, please let me know if question seems uncomfortable or inappropriate for you. Please be aware that you are free to refuse to answer any question and stop the interview at any time and I will oblige. May I continue?

Yes. No → Stop

**XVIII. Attitude toward immunization and role of insurance companies in promotion of vaccination in public?**

- a. What is your personal opinion regarding importance of immunization? Can you bring reasons for your position?

**For probing:** Which profile group they belong to: **#1:** The Government Distruster; **#2** The Science Distruster; **#3:** The Big Pharma Distruster; **#4:** The Doctor Distruster; **#5:** Paging Dr. Google; **#6:** The alternative medicine believer; **#7:** Me, too!

1. What do you think about free (governmentally funded) vaccines? Can you bring reasons for your position?

**For probing:** What do they really know about it? Their perception about quality and difference between free and non-free vaccines?

2. Could you briefly describe your insurance company's new role in such governmental programs as immunization (included as the main topic among eight millennium goals)?

**For probing:** What exactly will be their responsibilities related to this program? Which regions will be covered? What is their perception about challenges associated with it?

3. In your opinion what role should play your company in promotion of vaccination? In what case would you be interested in active promotion of vaccination?

**For probing:** Do they see it as wholly as NCDC and MOLSHA responsibility? Interest in increasing coverage and promotion of new vaccines?

**XIX. Vaccine Provision Management and Logistics and Vaccine Related Information Reporting**

- a. Could you describe the scheme of vaccine provision in their primary health care centers?
- b. What do you think about existing paper-based vaccine reporting system? Have you heard about new electronic reporting system being under development? What potential problems do you see in inclusion of immunization as one of the module in this system?
4. What is your opinion regarding reporting of immunization coverage related to non-free vaccines? Can you bring reasons for your position?

**XX. Insurance and governmental sector partnership in promotion of new vaccination?**

- a. What is your attitude toward current relations of THEIR COMPANY with MoLHSA and NCDC? What you like/dislike about it most? Could you bring your opinion how to improve and strengthen partnerships between YOUR COMPANY and MoLHSA/NCDC?

**For probing:** How they see effective partnership between INSURANCE COMPANY and MoLHSA/NCDC? What is their opinion about importance of partnership in promotion of vaccination?