

MCHIP Ukraine End-of-Project Report

June 2011–June 2014



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The Maternal and Child Health Integrated Program (MCHIP) is the USAID Bureau for Global Health's flagship maternal, neonatal and child health (MNCH) program. MCHIP supports programming in maternal, newborn and child health, immunization, family planning, malaria, nutrition, and HIV/AIDS, and strongly encourages opportunities for integration. Cross-cutting technical areas include water, sanitation, hygiene, urban health and health systems strengthening.

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Country Summary



Selected Health and Demographic Data for Ukraine, 2012		
Total population (2012)	45,530,000	
Life expectancy at birth m/f (years, 2011)	65/76	
Gross national income per capita (purchasing power parity [PPP] international \$, 2012)	7,180	
Probability of dying under five (per 1,000 live births, 2012)	11	
Probability of dying between 15 and 60 years m/f (per 1,000 population, 2011)	310/120	
Total expenditure on health per capita (international \$, 2011)	528	
Total expenditure on health as % of GDP (2011)	7.2	
Antigen	Official Government Data (%) (2011)	WHO/UNICEF Estimates (%) (2011)
BCG	95	95
DTP1	42	76
DTP3	76	76
HepB birth dose	51	-
HepB3	46	46
Hib3	83	83
Measles-containing vaccine	79	79
Polio3	74	74

Major Activities by Program

- Participate in a multi-agency, comprehensive external review of the national immunization program
- Provide technical support to prepare learning materials and job aids for frontline health workers
- Provide technical support to prepare standardized pre-service and in-service training materials

Program Dates	June 2011–June 2014
Total Funding	\$90,000 Immunization Field Support \$10,000 Polio
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Acknowledgments

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Acronyms and Abbreviations

BASICS	Basic Support for Institutionalizing Child Survival
BCG	Bacille Calmette-Guerin
DTP	Diphtheria, Tetanus, and Pertussis Baccine
EPI	Expanded Program on Immunization
FG	Focus Group
FIP	Charitable Foundation “Intelektualna Perspektyva”
IPV	Inactivated Poliovirus Vaccine
JSI	John Snow, Inc.
MCHIP	Maternal and Child Health Integrated Program
MNCH	Maternal, Newborn, and Child health
MOH	Ministry of Health
MR	Measles and Rubella
OPV	Oral Poliovirus Vaccine
PPP	Purchasing Power Parity
REACH	Resources for Child Health
SES	State Epidemiological Service
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WHO/EUR	World Health Organization-European Region

Executive Summary

Ukraine is at high risk for vaccine-preventable disease outbreaks due to low vaccination coverage caused by fear of vaccines and vaccination, as well as intermittent and inadequate vaccine supplies for routine operations. This situation is of concern both regionally and globally because Ukraine is a large country with nearly half a million babies born each year and a total population of almost 46 million. Ukraine's immunization program has confronted serious issues of public distrust since 2008. At that time, widespread publicity over the death of a recently vaccinated adolescent in Donetsk—at the start of a nationwide measles and rubella (MR) vaccination campaign—ignited a highly active anti-immunization lobby, exacerbated public fears, and raised doubts about the value and safety of vaccination.



In 2011, the U.S. Agency for International Development (USAID)/Ukraine provided funding through the Maternal and Child Health Integrated Program (MCHIP) to contribute to restoring trust in childhood vaccinations. After a visit to Ukraine in July 2011, MCHIP developed a plan of action that included participation in a national immunization review and development of communication and training materials.

The program began with participation in an Expanded Program on Immunization (EPI) review, organized by the World Health Organization (WHO) with the Ministry of Health (MOH), to gain a better understanding of the Ukrainian context and the national immunization program, and specific issues related to lack of trust in vaccination among both health care providers and the public. To address vaccine hesitancy and improve communication between health workers and caregivers, MCHIP, in collaboration with the MOH, UNICEF, and WHO, developed 19 communication materials. These materials included simple, practical tools and job aids to enhance health workers' knowledge and attitudes regarding immunization. They also were designed to improve the ability of health workers to deal with parental concerns more effectively, a very difficult task for many health professionals.

Ukrainian and Russian versions of these materials were thoroughly pretested with health professionals and parents, and reviewed by technical experts. The materials were provided to the MOH, WHO, and UNICEF in January 2014, and are awaiting final approval for dissemination. A local MCHIP consultant also began to develop immunization materials that could be used in health professionals' pre-service and in-service training, but it is unclear at the time of this report if these materials will be completed.

An unanticipated but complementary activity was participation in a multi-partner polio outbreak simulation exercise in Ukraine in May 2013. The aim was to increase the level of preparedness for a possible importation of wild poliovirus and to improve the government's capacity to respond rapidly to the detection of circulating polio viruses. MCHIP's consultant contributed to the follow-up report, which is intended to lay the foundation for the national strategy for epidemic control.

The task of restoring trust is a challenge due to the country's traditional Soviet perceptions of immunology and immunization. Immunization in Ukraine is perceived as a risky medical intervention, appropriate only for completely healthy children. A physician must authorize each vaccination after the child has undergone a physical examination and blood test. At this point,

many children are referred to specialists if anything slightly abnormal is present. The national contraindications policy and consent process encourage fear of vaccination. Health staff feels unprotected against punishment if a child they immunize develops a serious side effect, so most are extremely cautious. Vaccine procurement is very inefficient and apparently corrupt, which has resulted in low trust in the vaccines offered and in severe vaccine stock-outs since 2010.

The main challenges faced in Ukraine include MCHIP's extremely limited budget; lack of in-country staff; lack of technical guidance from the MOH on some key areas, such as proper vaccination administration; as well as many existing policies that do not follow globally recommended ones. The current political crisis has also delayed the completion of MCHIP's work.

Introduction

BACKGROUND



Ukraine is at high risk for vaccine-preventable disease outbreaks due to low vaccination coverage caused by fear of vaccines and vaccination, as well as intermittent and inadequate vaccine supplies for routine operations. This situation is of concern both regionally and globally because Ukraine is a large country with nearly half a million babies born each year and a total population of almost 46 million.

Ukraine's immunization program has confronted serious issues of public distrust since 2008. At that time, widespread publicity over the death of a recently vaccinated adolescent in Donetsk—at the start of a nationwide measles and rubella (MR) vaccination campaign—ignited a highly active anti-immunization lobby, exacerbated public fears, and raised doubts about the value and safety of vaccination.

Ukraine's national DTP3 and polio3 immunization coverage declined to around 50% from 2009–2011 but recovered somewhat in 2012 to around 75%, according to estimates from the World Health Organization (WHO) and UNICEF. These low coverage levels are in contrast to earlier national coverage rates of above 90%.

After a U.S. Agency for International Development (USAID)-funded project enabled UNICEF to implement activities aimed at restoring trust in childhood vaccinations closed (Restoring public trust in immunization through public information and health communication capacity building in Ukraine, 2010–2011), USAID/Ukraine provided funding to MCHIP to continue work in this area.



Although MCHIP did not previously have a presence in Ukraine, the technical team has experience working in neighboring countries through the USAID-funded Resources for Child Health (REACH) and Basic Support for Institutionalizing Child Survival (BASICS) projects. After the collapse of the Soviet Union until 1998, REACH and BASICS provided extensive technical assistance to the newly independent states to help them modernize their nationwide immunization programs. Immunization technical support was provided in the areas of policy reform, cold chain and logistics, health education, vaccine-preventable disease control (particularly against polio and diphtheria) and outbreak response, information systems, and active program monitoring. Long-term technical support was provided to Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan, Kazakhstan, Moldova, and Russia; and short-term support was provided to Armenia, Georgia, Azerbaijan, and Ukraine.

The head of MCHIP's immunization team visited Ukraine briefly in June/July 2011 and, after meeting with key partners, proposed three main activities. MCHIP's first step was to participate in an Expanded Program on Immunization (EPI) review, organized by WHO with the Ministry of Health (MOH), to gain a better understanding of the Ukrainian context, national immunization program, and specific issues related to lack of trust in vaccination

among both health care providers and the public. To address vaccine hesitancy and improve communication between health workers and caregivers, MCHIP planned to work with partners to develop simple, practical tools and job aids to improve health workers' knowledge and attitudes regarding immunization and their ability to deal with parental concerns more effectively. MCHIP also planned to prepare some materials for parents.

In addition, MCHIP planned to identify opportunities to prepare appropriate learning materials customized to on immunization for doctors and nurses in pre-service and in-service courses. These materials would focus on the immunological and epidemiological basis of vaccines, how vaccines are manufactured, how safety is tested and assured at each point from manufacture to use, true and false contraindications, risk-benefit, and adverse events following immunization. The table below summarizes MCHIP's planned activities in Ukraine.

Activities
Activity 1: Participate in a multi-agency, comprehensive external review of the national immunization program
<ol style="list-style-type: none">1. Collaborate with the MOH and partners to prepare for the external EPI review planning and implementation2. In collaboration with the national immunization program and other partners, participate in the EPI review implementation3. Contribute to the findings and recommendations for the national EPI review report and for the report on the Lviv region4. Use findings from the EPI review to inform development of MCHIP communication materials
Activity 2: Provide technical support to prepare learning materials and job aids for frontline health workers
<ol style="list-style-type: none">1. Review existing practices, skills, and approaches of frontline health workers—as well as materials available to them—used to counsel parents who bring children for health services2. Develop simple, practical informational briefs, tools, and job aids to inform health workers about vaccination, improve their attitudes toward vaccination, and help them inform parents and respond to parents' questions
Activity 3: Provide technical support to prepare standardized pre-service and in-service training materials
<ol style="list-style-type: none">1. In consultation with local experts, review UNICEF studies, focus group reports, and other qualitative research related to vaccination of children under five and also others2. Review the content, duration, and format of existing pre-service medical and nursing curricula and learning materials3. Develop training content and methods, adapting or updating existing methods, and disseminate through new or existing channels

Major Accomplishments

For the multi-agency EPI review in February–March 2012, an MCHIP Technical Officer helped revise the study instruments, contributed to the communication section of the final report, and wrote portions of the Lviv regional report (Annex 2). Led by WHO/EURO’s immunization advisor, the exercise consisted of a document review followed by interviews and observations (using guides with both close-ended and qualitative questions) at the national, oblast, and health facility levels. Sub-teams visited different levels of health facilities in four oblasts. Participation in the review provided an essential opportunity for MCHIP to gain an understanding of the current situation regarding trust in immunization and its underlying causes (see challenges below). MCHIP represented USAID on the review team, which included participants from WHO, UNICEF, the U.S. Centers for Disease Control and Prevention (CDC), and the Bill & Melinda Gates Foundation.

Major Findings from the EPI Review

Supply

- Vaccine shortages and insufficient budget for vaccines
- Limited vaccine market, inefficiencies in vaccine procurement
- Declining coverage and increased number of susceptibles

Public trust

- Public trust in immunization being challenged with misconceptions among general public and health professionals
- Current communication approach does not address required social and behavioral change

Strategic guidance

- Fragmented and uncoordinated program management
- No comprehensive mid-term strategic planning
- Lack of standing technical advisory mechanism

Capacity building

- Weak program management capacity at sub-national level
- Data not being effectively used in program planning and monitoring

The MOH, UNICEF, and WHO supported MCHIP’s proposal to lead the development of communication materials for both health staff and parents. UNICEF and WHO agreed to facilitate the initiative, given that MCHIP had no on-the-ground presence. By the end of April 2012, based on U.S. materials from the CDC and other sources, MCHIP had drafted and shared with partners for comment 20 communication, reference, and reminder materials for health staff and parents. In July 2012, MCHIP contracted a highly qualified Ukrainian expert to:

- Review and edit the draft materials for health workers and parents (in English) and make necessary adaptations so they were consistent with Ukrainian policies and guidelines;
- Review existing pre-service and in-service curricula and supplemental materials on immunization (for doctors and nurses) and draft supplementary materials, particularly ones that addressed vaccine safety and the benefits and risks of vaccination; and
- Following translation of the materials for health workers and parents and their technical review and pretesting with target audiences, address comments and suggestions and finalize the materials for dissemination.

The materials and their intended audiences are shown in the following table.

MATERIALS	INTENDED AUDIENCE
Vaccine information sheets (DTP/Dtap, influenza, hep B, Hib IPV, OPV, MMR, Td, BCG)	Medical professionals and parents
How to Answer Parents' Tough Questions about Vaccination	Booklet for medical professionals to use with parents
Self-assessment form	Doctors (medical professionals)
Self-assessment form	Nurses (medical professionals)
Talking with parents...	Medical professionals
If you choose not to vaccinate...	Parents
Ukraine immunization schedule	Medical professionals and parents
Vaccine-preventable diseases	Parents
Thimerosal and Autism	Medical professionals and parents
Understanding Vaccines (2008 ed.)	Medical professionals
Common False Beliefs about Immunization	Booklet for medical professionals
Chiropractors and vaccination...	Medical professionals

Although many of the products were adapted from existing materials, several were created from scratch for Ukraine, including the two self-assessment forms (to remind health professionals of appropriate actions related to vaccination), the booklet on answering parents' questions on vaccination (a very difficult task for many health professionals), and the booklet on common false beliefs (aimed mainly at doctors). All of the draft materials were translated to both Ukrainian and Russian by mid-July 2013 (see table).

The company *Intelektualna Perspektyva* (FIP) was hired to manage a technical review of the materials and to pretest the materials with providers and parents, completed in September 2013. FIP's report provided very useful information on health providers' and parents' knowledge, perceptions, attitudes, and practices regarding immunization, as well as essential feedback on the materials (please see the table below and Annex 1).

Highlights from the Pretesting Report

Main findings from medical professionals

Medical professionals are very concerned about the high risk of infectious diseases, mainly due to low vaccination rates. Most have positive attitudes toward vaccination, with only one doctor showing an extremely negative attitude. Medical professionals and the public are concerned about the origin, safety, and effectiveness of some or all vaccines, their importation into Ukraine, and expiration dates. Medical professionals noted much distrust among the public regarding vaccination.

Almost all doctors were vaccinated and most had gotten their children vaccinated. Only about half agreed however with the vaccination schedule; many expressed concerns about the vaccinations scheduled for the first days of life, particularly hepatitis B. Some preferred to follow a vaccination schedule adjusted for each child based on an examination of the child.

Most doctors consider their knowledge of vaccination to be inadequate and suggested numerous topics and channels through which the MOH or others could keep them updated. They also want support in the form of brochures and lectures for parents, educational films in hospitals, and online consultations with immunologists.

Main findings from parents

Parents generally showed an adequate understanding of infection, immunity, vaccination, and diseases in Ukraine. They nonetheless desired more information, particularly about side effects. They said that doctors provide general information, but not the detailed understanding that they want.

Most parents have a positive attitude toward immunization and most bring their children to be vaccinated. However, many still have doubts about the immunization schedule and quality of vaccines, leading some to refuse or delay some vaccinations, particularly the early ones.

Parents' main sources of information regarding vaccination are: doctors, friends/relatives/ acquaintances, media, and the Internet. Doctors are most trusted and the Internet the least trusted. They would like additional information and educational materials on vaccination from information boards in clinics, lectures for parents, brochures, booklets, flyers, and so on. They want more information on diseases in Ukraine, their effects, the risks of getting ill, methods of treatment, and most of all on side effects from vaccines, their licensing and the government's process for ensuring their safety.

Opinions on the draft materials

The materials generally scored well, with the exception of the one on thimerosal and autism, and scored slightly better in the Ukrainian-speaking oblast than in the Russian-speaking one. There were various specific suggestions for improving the drafts.

Most doctors would like to have more statistics on vaccination to support their communication with parents. They also emphasized the negative impact of the media. Almost all doctors said that, unfortunately, the information in the media has an anti-vaccination slant, which causes particular difficulties in doctors' communication with parents. Doctors suggested working with the media and developing materials for the media.

Almost all doctors emphasized the importance of the materials and expressed a desire to receive them as soon as possible to support their working with parents. Many doctors noted the lack of information on vaccination available to parents.

MCHIP consultants and the research company incorporated changes based on the technical review and pretesting. In mid-January 2014, MCHIP shared the materials, both in Ukrainian and Russian, with the key partners to review and decide if they were willing to have their logos on the materials.

There were major political disruptions in the country in beginning in late 2013. Access to the MOH was not possible at times, and an MCHIP consultant was injured. Nonetheless, the MOH

had agreed to have its logo on the materials, post them on its websites, and distribute them to oblasts and *rayons* throughout the country. MCHIP's local consultant had been working on the materials for training health professionals, but had not completed them. UNICEF agreed to print copies of at least some of the materials for several oblasts where it is working and to facilitate dissemination via MOH channels.

Although not directly part of MCHIP's core activities in Ukraine, in May 2013, USAID/MCHIP supported USAID's polio eradication efforts by providing a consultant to participate in a multi-partner polio outbreak simulation exercise. The results of the exercise (see box below) and continued concern about the risk of importation and spread of polio in Ukraine, stimulated meetings and conference calls among USAID (Mission and Global Polio Coordinator), WHO (Ukraine and EURO), and UNICEF. The partners planned high-level advocacy activities on immunization and collaboration to address the many problematic issues identified in the 2012 EPI review.

Polio Communication Workshop/Simulation Exercise Summary

Daniel Baker represented USAID/MCHIP in a polio communication workshop and then in a polio outbreak simulation exercise for Georgia, Armenia, Azerbaijan, and Russia, held in Kiev, in May 2013. The objectives of the simulation exercise were: 1) to increase the level of preparedness for a possible event of importation of wild poliovirus, and (2) to improve the government's capacity to respond rapidly to the detection of circulating polio viruses.

The workshop advanced the situational awareness of participating country teams, particularly on critical components of a good national plan and on effective cross-border collaboration. However, beyond sharing country-specific responses and findings with other attending countries, the workshop unfortunately appeared to do little to advance government-to-government coordination.

Former Soviet Bloc countries tend to be autocratic and hierarchical in their decision making rather than use "creative problem solving" on issues such as communication and cross-border collaboration. Although national plans of participating countries appeared to be well-developed, under an autocratic decision model, it appeared that Ministers or Deputy Ministers would effectively bypass the MOH and epidemiologist/infectious disease experts in the decision process, given that requesting input would be seen as demeaning. Such attitudes could easily harm an outbreak response.

Recommendations and the Way Forward

The main challenges in Ukraine have been: 1) MCHIP's limited budget; 2) lack of in-country staff; 3) lack of technical guidance from the MOH on some key areas, such as proper vaccination administration, as well as many existing policies that do not follow globally recommended ones. In 2014, the political crisis has had an impact on MCHIP's work, and at the moment it is unclear when the activities will be completed.

The task of restoring trust is a challenge due to the country's traditional Soviet perceptions of immunology and immunization. Immunization in Ukraine is perceived as a risky medical intervention, appropriate only for completely healthy children. A physician must authorize each vaccination after the child has undergone a physical examination and blood test. Many children are then referred to specialists if anything slightly abnormal is present. The national contraindications policy and consent process encourages fear of vaccination. Health staff feel unprotected against punishment if a child they immunize develops a serious side effect, so most providers are extremely cautious. Vaccine procurement is very inefficient and apparently corrupt, resulting in low trust in the vaccines offered and in severe vaccine stock-outs since 2010. MCHIP's communication activities alone cannot restore trust in immunization unless the government effectively addresses these other key factors.

One can only hope that the recent change in government in Ukraine will lead to the government and MOH becoming more open to global technical guidance and collaboration with bilateral and international technical and donor organizations.

Annex 1: Lviv Communication Component

GENERAL FINDINGS

The general concept, among both health workers and the public, seems to be that vaccination is something for healthy children only. There is great fear of immunization among both health staff and parents, leading to a high level of refusals. At the Lviv maternity hospital, the refusal rate for Hep B was 50 percent, and it was 33% in one of the clinics visited. State Epidemiological Service (SES) data indicated an approximate refusal rate of 12% for the entire oblast.

There is an overly cautious official contraindication policy, and many medical staff go beyond the official contraindications to find reasons not to vaccinate. Many medical workers refuse to vaccinate against influenza during influenza season, and some may not immunize against any vaccine-preventable diseases during influenza season. Many medical workers will not give two vaccinations on the same day; one said “[It’s] not what we do, but could be done.” Many ob-gyns and neurologists advise against the birth dose of Hep B (feeling that it will harm the child’s undeveloped immune system), and homeopaths are against all vaccinations. Medical workers bring additional concern to parents by advising unneeded precautions following vaccination.

Health staff felt that demand for immunization has improved slightly due to a combination of vaccine shortages, measles outbreaks, use of combined vaccines and UNICEF activities, but it is unclear if this is a long-term trend.

Vaccine supply has recently improved but still there are significant stock-outs of some antigens. This has serious consequences for current coverage, the risk of epidemics, and the public’s confidence in the system (which is already poor).

The population has a lot of knowledge (not necessarily correct knowledge) and a strong interest in immunization (because it is a controversial issue). Parents’ main concerns are contraindications, side effects, and the quality and origin of vaccines. Doctors are not prepared to answer difficult questions (e.g., “can you guarantee that my child will have no reaction?”). Doctors and nurses find convincing parents a difficult task (in part because of the predominance of negative information on mass media) and they need support.

There is some communication support from national MOH or SES. Some polyclinics and some health administrations produce their own communication materials with the help of sponsors. Leaflets and posters are everywhere, including remote rural areas. However, many available print materials are not appropriate for the audience (the language is medical), and many are subliminal marketing materials. Use of package inserts and annexes of MOH orders as communication materials for the parents is a very poor practice that confuses and scares parents.

Staff from the “health promotion center” are well-motivated but they recognize that they need training in strategic communication. The health promotion center also runs a health hotline and website, which posts questions from the public and answers. Staff provide a weekly media analysis. In general, staff lack the ability to analyze barriers to desired practices and to address them through strategic communication.

“Immunization schools” (weekly educational sessions for interested parents) are a good initiative, although they could be promoted better so more people would participate. Pediatricians in rural areas go to kindergartens and primary schools to provide education on immunization. Health officials sometimes speak on local radio and television. Health staff felt

that people trust television more than their own doctors, and that this attitude is a remnant of the situation under the Soviet Union.

WEAKNESSES

There is no special budget line for the communication at any level. The oblast “health center” (for public health communication) is financed by the oblast Health Department, but its budget goes mostly for the salaries, so little is available for training and other needed operational expenses. There is a lack of understanding and skills of strategic communication: communication essentially means public relations and information dissemination. There is a lack of trained people in modern communication approaches at national and regional levels.

Most information materials are not research-based (based on an understanding of audience needs, motivations, obstacles, etc.) nor appropriate for their audiences. Health staff lack counseling skills and materials specifically designed to support counseling.

The media environment is so negative that it affects both parents and medical workers, who have become afraid to promote immunization enthusiastically. There is mistrust in government and low trust in vaccines. Health workers are very concerned about possible consequences to them in case of serious side effects.

Immunization has become over-medicalized (almost like surgery in other places), with multiple exams and questions before and many warnings after. National policies and procedures discourage immunization: a doctor has to authorize each vaccination and some (particularly ob-gyns and neurologists) are likely to discourage it.

Doctors’ and nurses’ knowledge is insufficient on issues related to quality, management, and safety of vaccines. The unreliable vaccine supply complicates the communication task: it is difficult to promote a product that may not be available (and that may be dangerous).

Medical workers perceive that they are not as respected and protected as in other countries, a perception partially resulting from their low salaries, lack of performance rewards, and threat of fines or dismissal.

Overall communication on immunization is ineffective. There is a particular missed opportunity to provide full information on the importance of vaccination and on the vaccine schedule by obstetricians and neonatologists in maternity wards. Communication and other responses to crises in immunization have been particularly weak.

STRENGTHS

There is excellent access to health facilities and sufficient professional health staff (although some isolated, rural facilities are said to be un-staffed or under-staffed). Facilities keep good track of their populations, so targeting communication is very feasible. There is already active follow-up on home visits and phone calls to families of children who need their next dose.

Channels exist for quick national and oblast dissemination for materials. Health workers are eager to study and receptive to learn. Many people have access to TV and Internet (now a liability, but potentially a strength).

There are several useful communication activities by individual facilities, including immunization schools. Pediatricians in rural areas go to kindergartens and primary schools to provide education on immunization.

Some polyclinics and some health administrations produce their own communication materials with the help of sponsors.

RECOMMENDATIONS

- Through training, supportive supervision, and job aids, encourage health staff to follow the official contraindications policy and to cease giving unnecessary exams and tests before vaccination and unneeded advice after the vaccination (e.g., monitor for a rash, don't bathe the child, let the child walk, or feed the child eggs for three days). All of these unneeded actions contribute to the environment in which both health workers and parents are unduly scared of immunizations.
- The MOH should guarantee no punishment to health staff in case of adverse events following immunization, as long as health staff follow the official contraindications policy and other recommended practices.
- Put well-designed programs and information on national television and in newspapers that support the importance and safety of immunization. Aim to modify the concept that vaccination is only for healthy children.
- Develop and disseminate well-designed materials for health staff to talk more effectively to parents about immunization, as well as simple job aids and easy to use reference materials. These should aim to convey (1) the clear distinction between common, mild side effects and very rare serious ones; (2) the concept of serious vaccination in comparison with other serious risks to children (e.g., auto accidents, lightning strikes); and (3) use of practical examples to teach the difference between cause and association.
- A simple, well-designed reference booklet for MDs who "approve" vaccinations and vaccinators, e.g., one page showing the correct vaccination sites and administration technique for each vaccine; another page showing the correct steps for use and safe disposal of needles and syringes. There could also be a job aid showing the earliest and latest age of safe administration of each antigen, as well as minimal intervals. This could aid correct decisions on children who are behind schedule (which many are due to vaccine shortages).
- Provide refresher training for medical workers to improve their understanding of immunology, current MOH guidance, and counseling skills. Medical workers need better understanding on immunology, as well as quality and safety of vaccines, in order to give better explanations to parents.
- Develop well-designed PPTs and handouts on key immunization issues (contraindications, concepts of risk, etc.) for use in health professionals' refresher training.
- Create a national-level health communication unit staffed by a core of professionals in strategic communication; send some staff for international SBCC training; begin to develop working/contractual relationships with ad firms, market research firms, organizations or departments that conduct social science research.
- At national and oblast levels, allocate a communication budget that includes formative research material preparation, evaluation, trainings, etc.
- Develop a comprehensive behavior change strategy (training, communication, policy changes, etc.) that includes consistent messages through multiple channels.

Annex 2: Analytical Report Based on the Results of Technical Review and Pretesting Immunization Materials

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PROJECT METHODOLOGY

The purpose of the activity was to pretest information materials and prepare a technical report.

TASKS

1. Technical review of the materials. Five technical reviewers were involved in this review.
2. Eight focus groups (FGs). FGs were conducted in one predominantly Russian-speaking oblast and one predominantly Ukrainian-speaking oblast (both outside of Kiev and containing both rural and urban areas). Kharkivska and Lvivska oblasts have been selected with this purpose.

Some materials were tested with medical professionals only and others with both medical professionals and parents. The medical professionals were selected in health facilities, but the parents have been identified randomly in communities, so that some parents who avoid vaccination also were included. The medical professionals (doctors and nurses) and parents (mostly mothers) were selected in approximately equal numbers from health facilities at all levels – oblast, rayon, and local. Approximately 75% of the parents were mothers and the remainder fathers.

3. Forty-seven in-depth interviews were conducted. Thirty-five experts were surveyed for the following information materials:
 - Q&A booklet
 - Common false beliefs
 - Self-assessment: Doctors
 - Self-assessment: Nurses
 - Talking with parents
 - Chiropractors article

And 12 experts were interviewed only to pretest the book *Understanding Vaccines*. The target groups of the research were medical professionals (family doctors, pediatricians, immunologists, obstetricians, neonatologists, nurses) and parents.

METHODS

The research was carried out using some of the qualitative methods that provided more in-depth information - the method of focus group interviews and in-depth interviews.

GEOGRAPHY

Focus groups were conducted in two regions of Ukraine: Kharkivska (Russian-speaking oblast) and Lvivska (Ukrainian-speaking oblast). The in-depth interviews were conducted in Kyiv.

PART I. GENERAL ATTITUDES AND AWARENESS OF VACCINATION AMONG MEDICAL PROFESSIONALS

In order to identify the gaps in professional knowledge of health professionals, we paid special attention during the focus groups to study the general awareness of medical professionals regarding vaccination and their attitude toward it.

Assessment of the risk of infectious diseases in Ukraine

One of the objectives of the focus group interviews with medical professionals was to investigate how they assess the present situation in Ukraine with infectious diseases, and whether they consider it dangerous, and accordingly, whether they understand risk that may cause the overall epidemiological situation in the country and what outbreaks of infectious diseases are possible in Ukraine.

According to the results of focus groups with doctors, all participants believed that the risk of spread of infectious diseases is high and it is caused by that fact that a large segment of population is not vaccinated. The medical professionals are very concerned by this fact: *“I am concerned about reducing the immune segment of the population, including adults due to interruptions in the supply of vaccines, and many people are not covered by it, out of 60%.”*

Doctors cited explanation for this phenomenon:

“Today there is a risk of spread of diseases that are included in the calendar of vaccinations, due to the fact that the level of children vaccination is decreased up to 60–70%. And this is due to the lack of supplies and vaccines that are not produced in the country, and also anti-vaccination program in mass media, and the parents who avoid vaccination. Therefore, when the vaccination rate is about 95%, it does not allow diseases’ circulating in our environment, and when the vaccination rate is decreased, there is always a danger that we can lose the children who become infected with diphtheria and tetanus. We have pertussis in the country and the number of those who suffered from this disease has increased.”

The participants of focus groups indicated that, in general, the authority of a doctor in the eyes of modern Ukrainian representative is undermined, which has influence on the level of distrust to the medical professionals in the area of vaccination:

“All infections can be transformed into an epidemic, as the tendency is to avoid vaccination, reducing the authority of the physicians due to anti-vaccination campaign in mass media. Policies are often not always adequate and grounded, and parents, increasingly avoiding vaccination, do not listen to medical professionals, pediatricians, and of course it can cause epidemic outbreak.”

Among the infections, the risk of which exists in Ukraine, the doctors mostly mentioned influenza, hepatitis B and tuberculosis:

“The immunity of population is not adequate. Very many people have tendency to tuberculosis.”
“Viral hepatitis, influenza and TB.”

Also, quite often, the doctors named the diseases such as measles, rubella, and diphtheria:

“In my opinion there is a risk of rubella outbreak.”
“Last year we have mostly measles and rubella for children of the first year of life.”
“There are also rare cases of diphtheria in our country.”

Attitude toward vaccination

Despite the fact that the surveyed physicians were divided into three (not equal in quantity) groups with different attitudes towards vaccination: positive, neutral, and negative, the majority of FG participants have positive attitudes towards vaccination:

“Positively because the prevention is always better than to cure the disease, and cheaper.”

Only one doctor showed an extremely negative attitude toward vaccination:

“My attitude is extremely negative. They have never helped anyone. I’ll explain why, when a woman cooks borsch, before adding salt, she always tastes it first. Who among pediatricians do immunoassay to the child before vaccination? Nobody ever does! How could you know the individual child’s immune system’s reaction to a foreign protein, brought in unnatural way? Certainly not! And you get a negative reaction - anaphylactic shock. And then we get the death of children in physical education classes, and so on. Moreover, how can the doctor explain the need or irrelevance of vaccinations, if he isn’t examined himself? How many doctors that are sitting here at the moment have made at least 10 analyzes within the last few years? 1 person. Who checks his body on a regular basis? Complete blood analysis and urinalysis will tell you nothing. Who made a detailed analysis of their blood? Who knows about the real state of his body? Nobody does. Who makes at least something in time to prevent their own illness? Nobody does. There are only two substances that kill any virus, do you need to know about the condition of the body? Can you, doctors after the medical school, can you name them? No ...”

Participants who identified their attitudes to vaccination as neutral explains this in the following:

“When I hear the word “vaccination,” arise two issues - safety and effectiveness, and therefore we look at the vaccination from these positions. But today there is no doubt that it is necessary.”

Strange thoughts among doctors, as well as among the general population, exist about false stereotypes about vaccines, their import to Ukraine, and expiration date:

“My attitude towards vaccination is positive and I think that they should be carried out. But vaccines are of a low-quality, the preparation itself, people say that it is brought from India, and here on the factory it is poured into new packing with new expiration dates, despite the fact that it is already past due, and then it is injected [in] the children, so the quality of the vaccine should be checked.”

As you can see, even the experts in their attitudes tend to be guided by rumors and gossip, not by the professional opinion.

Own experience of vaccination and vaccination of children

Almost all participants of focus group of doctors were vaccinated in their childhood; some of them still provide vaccination against flu. An exception is a lady who stated the following:

“I am not vaccinated. In Soviet time, the vaccination of children was not compulsory, and very few people knew about it.”

As for the vaccination of children, most doctors provide all vaccinations to their children. One of the participants stated the following:

“According to the statistics of my patients, all doctors vaccinate their children.”

And, usually, doctors try to follow the immunization schedule, and vaccinate their children in time:

“I have three children, and all of them were vaccinated under the calendar.”

Yet one of the focus group participants for doctors, who actively opposes the vaccination, said that he had not vaccinated his children, and presented the following arguments:
“I have been vaccinated being a child, and then got ill. I have not vaccinated children, and then I was summoned to all instances, and was told that I do not understand anything. Yes! I do not understand! What do you want to get from this vaccination, what is the purpose? To increase immunity? Stop! Then, how do you want to increase it? Officials do not know. I have defended my opinion and did not vaccinate children. And when I was told that my child will not be accepted in kindergarten without the immunizations, I’ll go forward, I will write to all authorities. Child was taken to a kindergarten with a statement that he is not vaccinated. And what is the danger of unvaccinated child? If children are vaccinated, and they are not susceptible to infection, they do not get sick, and if my child will get sick - I’ll treat him. Where is the logic?!”

The most suitable age for vaccination

We also were interested and asked doctors what they think about the immunization schedule, and the age at which vaccination should be made for the first time.

According to the results of the focus group, only half of doctors support the vaccination calendar, and find that the vaccination should start from the first days of life, arguing that the experts worked on the development of the calendar, and they know when and which vaccinations should start:

“I think that the calendar is designed for some reason. A lot of experts worked on it in order to develop it and each state has its own calendar of vaccinations and used vaccines, respectively. The smaller the child, the better he or she bears the vaccination. And the better is the protection from disease.”

But other doctors have doubts about compulsory and strict adherence to the immunization schedule and think that an individual vaccination schedule for each individual child, which is based on the analysis and examination of the child, is needed:

“Keep in mind that there are also premature babies, which are born with a small weight, so first of all the general condition of the child should be taken into the consideration.”

“If everything is fine with the baby, there are no allergic reactions, it is better to do everything in accordance with the calendar. Of course, if there are any changes, it is better to wait, to make an examination, and even delay a little the vaccinations.”

The greatest criticism in the vaccination calendar was related to vaccination against hepatitis B:
“Judging from my own experience, the first vaccine against hepatitis B is still made in the hospital. I think it’s too much, it can be made in a month when a child will get into the society, will get outside. Just some of vaccinations should be delayed.”

“This vaccination is hard one for the organism and mothers with newborns are often discharged from the hospital without vaccination against hepatitis. I have not seen the effects of the hepatitis B vaccine, but majority of people refuse to make the vaccination at the hospital, and postpone it.”

“And I’m scared to hear that babies are immediately vaccinated against hepatitis. It hurts me to see them suffering afterwards. I used to work in North Africa, and our colleagues have also been vaccinated against hepatitis B, but I was so scared that I did not make the vaccination. I’m not scared to get sick - I was scared with the vaccine. At a temperature of +58, I was afraid of the consequences.”

Thus, if the Immunization schedule in general is normally perceived by doctors, then it is obvious that there is a problem with vaccination against hepatitis B, which is made in the first days of life in the hospital. The attitude to this vaccination, of both doctors and parents, is doubtful, that is why a lot of parents are discharged from the hospital, without vaccination against hepatitis B.

Assessing the level of their awareness of vaccination

We asked doctors, the participants of the focus group interviews to assess their own knowledge about vaccination, and as a result, almost all doctors evaluated their knowledge as inadequate, arguing it with the fact that doctors should always develop and get new knowledge:

“No, the doctor can never have enough knowledge.”

Interviewed physicians indicated the following reasons for their lack of knowledge about the vaccination:

“There is no uniqueness in the media.”

“The topic still has not been studied in detail; there is some knowledge, but there are also a lot of controversial issues.”

“The problem is that the teaching system in all medical schools is very wrong.”

Their need for knowledge about vaccination they described as follows:

“Within the work, my knowledge is enough. But there are a lot of things, especially technical, about which I would like to know more.”

“I feel a lack of knowledge, not only on vaccination, but also on other spheres.”

“I’ll need to know the mechanism of [the] vaccine’s action, how it works getting into the body. I cannot find this information.”

Only one of the focus group participants said that his knowledge on vaccination is quite sufficient, as for the expert:

“I have a great experience, I have studied the immune system, human physiology, and wrote a book - a deadly medicine, or how to survive ...”

So obvious is the fact that doctors have a very significant need of obtaining specific professional knowledge on vaccination.

Sources of knowledge and the benefits of vaccination information

One of the objectives of the focus groups with doctors was to find out the sources from which they obtain knowledge regarding vaccination and how they evaluate the benefits of information obtained from these sources.

It should be noted that the list of sources of knowledge about vaccination is quite large, it includes:

- Refresher courses
- Medical conferences
- Medical representatives
- Instructions and orders of the Ministry of Health
- Acquaintance pediatricians
- Booklet of vaccination calendar
- Experts of cabinet vaccination
- Special academic medical publication
- Expert opinion of Dr. Komorowskij, broadcasted in various sources
- The Internet, and forums and specialized sites

The most common sources of knowledge about vaccination among all of the above are medical events (courses, conferences), the experience and opinions of colleagues, as well as the Internet.

Moreover, the Internet got the lowest level of confidence among medical professionals. At the same time it acts as an “apprentice” tool, which all experts can turn to.

We also asked doctors to evaluate the benefit of general information regarding vaccinations that they receive from various sources. According to the participants’ answers, the most useful and concise, understandable information about vaccination, which does not contain “water,” doctors indicated orders, protocols, guidelines, and information received at scientific conferences. But the most controversial information that they get is from the Internet.

Need of information on vaccination and information in the form of informational materials

All focus group participants indicated that they have a need for additional information on vaccination. In this respect, they are interested in the following topics:

- Technology of vaccines’ transportation
- The storage of vaccines
- Examples of vaccines’ action, side effects
- Pros and cons of vaccines
- Complications after illnesses
- Manufacturers of vaccines and their quality depending on the manufacturer
- Types of vaccines
- Post-vaccination reactions and so on

We also asked in what form doctors want to receive such information. Since the main information on vaccinations is required to be able to hand it to parents, the most suitable informational materials that they need to have is a brochure that they could distribute among parents.

Furthermore, doctors suggested the following types of dissemination of information on vaccination:

“It would be ideal to held lectures in mothers’ schools. We carry out and work, but when mother plans a child, it is important preparation. What is the source? It is better to make short videos.”

“A film should be done and for each clinic a disc should be given. Afterwards in the clinics, this film should be shown to parents, while they are sitting in the queue.”

“Boards for example, infectious disease, its symptoms, possible complications and how to prevent written in plain, accessible language without medical terms, to make it clearly - even to put there photographs - measles, rashes, complications, photos of sick people.”

“I would like to create a site where immunologists can answer the question online, because not all situations can be described.”

Thus, according to data obtained from the focus group interviews, doctors see the need for conducting an informational campaign for vaccination using innovative methods such as lectures for parents, educational films in hospitals, and online consultation of doctors and immunologists.

CONCLUSION TO PART I

- In general, participants of focus group interviews with doctors showed quite high levels of knowledge regarding the epidemiological situation and the risks on the spread of infectious diseases on Ukrainian territory, although they assess their knowledge on vaccination as insufficient.
- At the same time, they are experiencing a significant need in obtaining additional knowledge about vaccination, which are mainly related to quite controversial and critical issues that constantly occur and are discussed in the media: quality of procurement, transportation and storage of vaccines.
- To gain knowledge about vaccination, doctors use a variety of sources, both scientific (conferences, training courses, specialized medical publications, etc.) and unscientific – Internet and other media.
- Scientific sources of information about vaccination are the most credible, and correspondingly, the Internet – the lowest. The Internet is the “fast” means of access to public information. For more complex issues and cases from practice, doctors try to discuss these with their colleagues and on scientific conferences.
- Attitude towards vaccination of the vast majority of doctors is positive, as a result they are vaccinated themselves (even against flu) and they do vaccinate their children and grandchildren.
- The attitude of some doctors to the immunization schedule and to the age at which the vaccination should be made for the first time is quite controversial. Especially when the vaccination is carried out during the first days of life, in the hospital – vaccination against hepatitis.
- Also doubtful is the attitude of some doctors to the quality of vaccines purchased by the State and directly by the Ministry of Health. Because of this, some doctors bought French vaccines to vaccinate their children, and advised it to other parents.
- The majority of doctors still adheres to the immunization schedule, and used the vaccines that have been purchased by the state and are available in the offices of vaccinations to vaccinate their children.
- Although the preferred age of vaccination for most doctors does not correspond to the existing immunization schedule, as they consider that vaccination against hepatitis B is held too early, at the same time, doctors are aware of the fact that the calendar was developed by a number of professionals who know their business, and know what vaccinations should be held at some specific time.

PART II. GENERAL ATTITUDES AND AWARENESS OF VACCINATION AMONG PARENTS

In order to assess the real needs for informational materials on immunization and infectious diseases, particular attention at the focus group interview was devoted to the study of general awareness of parents of vaccination and their attitude towards it.

Parents' definition of such concepts as infection, immunity, spasm

In order to determine the level of awareness of parents on vaccination issues, we asked them to define such terms as: infection, immunity, spasm, and say what they actually mean by the concept of creating immunity.

As a result, we have the following definition of the term “**infection**”:

- Extraneous elements in the body
- Bacteria that quickly spread in different ways (transmitted through hands, airborne)
- This kind of violation, a person is sick, she has a fever, and it is a process unusual for a person
- Something that is transmitted when communicating
- Something that causes a disease
- Quickly spread

In addition, the term “infection” causes such associations and synonyms:

- Microbes
- Bacillus
- Contagion
- Bacteria
- Violation of immunity
- Insecure
- Something contributed

Participants of the focus groups for parents determined the term “**immunity**” as:

- The natural protective reaction, the reaction in response
- The power of the body to resist disease
- Bacteria that can resist harmful bacteria
- Protective shell, which has antibodies
- Barrier from infections

As we see, the definition of immunity in the minds of almost all participants is identical and contains the following related key words such as “resistance,” “barrier,” “protection.” Also the concept of immunity is associated by the participants with:

- A healthy society
- Stable
- Hardening
- Vitamins
- Sports
- Sun, air, water

Participants claimed that the “**Creation of immunity**” is possible primarily under the assumption of a healthy lifestyle, as well as the following:

- Strengthening of health

- Daily walks
- Proper nutrition
- Good environment
- Set action
- Hardening

In addition to the above-mentioned, the participants, while discussing the theme of immunity creation noted:

“People immunize in order to get the antibodies – immune system.”

Some of the participants of the focus group interviews for parents consider that the creation of immunity is possible with the help of vaccination, and some consider that it is created mainly through fruits, vitamins, fresh air, good full meals.

The term “spasm” is determined as the most identical in all 4 groups with parents. Spasms are believed to be caused by “high temperature” or “roller coaster of temperatures.” Almost all participants gave the correct definition of the term “spasm” some more detailed, others –overall:

- Muscle spasm
- Muscle, nerve contraction
- Reduction of something that is accompanied by pain
- Reflex contraction of muscle tissue
- Spasms of maximum force

Parents discerning of terms "virus" and "bacteria"

In addition to the terms, such as “infection”, “immunity”, “spasm,” we also asked our participants to tell us whether they see any difference between a “virus” and “bacteria.”

In all four focus groups, the issue caused a lively discussion. Though for some parents there were no difference between virus and bacteria, in general, we can note a high level of awareness of most parents of the difference between viruses and bacteria.

First of all, defining the concept of virus and bacteria, parents, in their responses, were guided by transferring of both of them:

“The virus is transmitted by airborne droplets and bacteria – in another way.”

“The bacteria are on the hands, apples, and the virus –is in the body.”

“If your child is sick, for example, and she/he is going to the kindergarten, it will mean that other children should be protected, i.e., if the child is sick with a virus and you will let her/him to go to the kindergarten, it will mean that you are spreading the virus.”

Bacteria perceived by parents as something insignificant in comparison with the virus:

“In our understanding, the bacterium is something very small. You cannot see it with your eyes.”

“Viruses are probably worse, since bacteria it's just sore throat, and the virus - it's the flu.”

“The virus is stronger; it enters the body and start[s] eating healthy bacteria. If the child has a strong immune system, healthy bacteria will repel the virus.”

In addition, participants distinguish bacteria and viruses by some symptoms:

“If it is a virus, the body’s reaction is different, for example, wet eyes, rhinitis, sneeze – it is a virus. Bacteria have other symptoms. Green snot adds - it is bacteria, it is a high temperature, otitis - it is a bacteria.”

The majority of parents associate bacteria and viruses with methods of treatment:

“The bacteria are killed by antibiotics, while viruses – by antiviral drugs.”

Thus, according to the parents as “treatment is quite different, then complications and progress are also different.” Only one of the participants while speaking about viruses and bacteria mentioned vaccination:

“I also think that the virus is more dangerous, because when it is just a bacteria, it can be simply vaccinated and when it is a virus, it should be treated with medicines.”

And finally, for parents bacterium is something, from which you can protect yourself, and therefore whether it is transmitted to a person or not depends on his or her own, and to protect themselves from the virus is difficult:

“Of course, the virus is more dangerous than bacteria, as the crowd can get sick with a virus. At the level of bacteria it is impossible.”

As you can see, the target group demonstrated a high general level of awareness and understanding of the difference between viruses and bacteria, including those between the treatment that is used in both cases.

Assessment of the risk of infectious diseases in Ukraine

One of the objectives of the focus group interviews with parents was to investigate whether they understand the situation with infectious diseases today in Ukraine, and whether they consider it dangerous, and accordingly, whether they understand the risk, which may cause the overall epidemic situation in the country for each family.

In the focus groups, participants were divided into two groups according to their assessment of risk of infectious diseases in Ukraine:

One group considers that such risk exists, and it is quite high:

“Now, there is a specific risk because many parents stopped making vaccinations to their children...”

The other considers that the risk is relatively low in comparison with those risks that existed before, when there were no vaccines:

“There is a certain risk, of course, but there are no more risk for kids, because all the diseases that were in our childhood, they have already passed. There is a greater risk for adults, such as intestinal infections.”

“I think that the risk exists, but it is not as massive as before, compared to the time when there were no vaccines and people died from infections. Now, people get sick, but they can bear the disease easier, there is less danger to human life and there are almost no deaths. Medicine can handle it now.”

However, both groups agreed that infectious diseases have their seasonality, periodicity, which is likely caused by certain objective circumstances:

“I believe that the risk is always present, but now it is associated with the season, transmission of disease ... not a constant risk.”

Firstly, it is a periodic outbreak of infection, and secondly – seasonality:

“In the summer it's meningitis, and in winter – flu.”

Among the most common infectious diseases in Ukraine, participants primarily mentioned flu, including its strong mutation and drug resistance, as well as talking about the TB epidemic in Ukraine:

“Ukraine has the highest TB rates.”

Except tuberculosis, parents often mentioned hepatitis B. A little less spoke about diphtheria, measles, rubella, hepatitis C and pertussis.

The risk of infectious diseases in the minds of the parents is directly related to vaccination and treatment to it, whether it is positive or negative:

“Of course, modern vaccination is reliable that you don't need to worry that there is a risk of infection, and concerning the adults, you just have to make sure that vaccination was done.”

“I believe that the risk is always present. This is pneumonia and whatever. But above all, we do not trust the vaccination, how do I know? Who will ensure that it is verified, that it was studied? In the hospital we had the case of infection of the child after the vaccination.”

In general, we see that the target audience is quite well aware of the risks of infectious diseases today in Ukraine.

Attitudes to the vaccination

Parents' attitudes towards vaccination are quite different, but the majority of parents supports vaccination and understands why it is needed:

“I am for, because it protects children from diseases.”

“I believe that vaccination is important because it reduces the risk of many diseases, and my parents did me all vaccinations. And judging by myself, I'll say that I was not sick with such a common disease as rubella.”

“I am for. There is a risk of infection. And from early childhood children should be vaccinated to form a protection and immunity.”

The only parents' complaint concerns the quality of vaccines, and sometimes immunization schedule. Quality of vaccines is quite a doubtful thing, mainly due to negative information presented on the Internet and television, and the immunization schedule is perceived as a guide to the doctors within which the vaccinations are carried out to children. Parents point out that apart from the specific periods for vaccination, there are many “nuances” that need to be considered while making a decision on when and which vaccination to do:

“I'm for [vaccination], but with great care, because the schedule, they always prescribe not always should be withstood. Because doctors need to have a schedule, and there are lots of nuances when the vaccination needs to be done, but a bit later. Vaccinations should be done, but it is parents' responsibility. And doctors have a plan, it can be broken and there won't be any consequences.”

But there are those who actively oppose the vaccination:

“I am against the vaccination, my wife and I discussed it for a long time, I read a lot, watched on the Internet videos, where after the vaccination children became not children, but simply vegetables.”

“I believe that vaccination may be allergic agent for the child's organism.”

“I'm against because I'm afraid of low-quality vaccines. There are lots of cases when children just died from the vaccine.”

Some parents who are against vaccination also emphasize the fact that it is not as necessary now as it was before, when there were outbreaks of various diseases. They also noted that the

level of professionalism of the medical staff, who makes vaccination is not always high, so that they can treat negligently the contraindications to vaccination and disease symptoms that a child has at the time of vaccination.

“There are some doubts about the professional qualification of medical staff, because very often you learn about the facts of improper vaccination.”

Therefore, it is necessary to conduct a detailed inspection before vaccination:

“I am for vaccination, but you need to examine the child first, as we had, an auto-immune disease after the vaccination. I support vaccination, but we were not examined in a proper way, and now we have to treat our child.”

But in this regard, parents criticize the laws that limit their need for additional examination of the child before vaccination:

“Right now there is a resolution of Ministry of Health, and that the children are being made the analysis only in extreme cases. Now, if I come and say that I want to examine a child before the vaccination, the doctor tells me that is not allowed. I strived for the assignment, as I see that something is wrong with the child. And we passed the analysis, I did not like the result, so we did not make vaccination, although the baby looked healthy.”

So, in general, the attitudes to vaccination of majority of parents, the focus group participants, are positive. The immunization schedule raises some doubts and even more doubts about the quality of vaccines purchased by the state for Ukraine.

Self-experience of vaccination and vaccination of children

One of the criteria of attitudes towards vaccination is actually self-experience of vaccination and vaccination of children. The results of the focus groups showed that almost all polled parents have self-experience of vaccination, except one participant:

“I have a twin. My mother was totally against vaccination, and she has not vaccinated us at all. But I remember the year when we both got sick with pertussis. And it was example for me to understand that it is better to get vaccinated. My mother got a lot of problems with us, as we both gasped and coughed.”

This “total” vaccination of parents is associated with compulsory vaccination, which was used at the time when they were children.

As for the experience of vaccinating children, it is different. Some of them made all vaccinations, according to the immunization schedule, other vaccinated children, but didn't pay any attention to the immunization schedule, and some participants never vaccinated children, or have only done a few, the most essential, vaccinations:

“We immediately refused from the vaccination against hepatitis, as we were warned about the fact that there may be side effects.”

“At this stage I do not vaccinate my child, though in the child health clinic I have to write a rejection for each vaccine, but I heard on TV that the children, who were not vaccinated, won't be taken in any kindergarten or in the school. And it is already compulsory. But I consider that vaccines that are brought to Ukraine are quite questionable, and often of a poor quality.”

“I have done not all vaccinations, because my child is allergic, she has very weakened immune system. I even want to do vaccinations, but I have no possibility to make them.”

The most suitable age for vaccination

One of the reasons that a certain percentage of parents have not vaccinated their children, or did not do all vaccinations, is the attitudes towards immunization schedule and the actual age, which is the most suitable for the first vaccination.

Participants who are for vaccination can be divided into two groups:

Those who consider that vaccinations should be done from the first day of life, as it is done now in the hospitals:

“Child is in contact with other people from the first days of her life, and she has no protection. You hand over some things and clothing to the hospital, all these things are carriers. Therefore, it’s a mistake to think that if the child will not have the protection from the first days than he/she will be protected somehow on his/her own.”

And those who consider that vaccinations should be done after six months, because by this time the child has the mother’s immune system:

“I believe that a child must obtain first strong immunity from breast milk or from mother to become strong enough, and then we can give the minimum drop of virus to the child, to make him struggle.”

“From six months, up to six months there is the maternal immune system.”

“From 3-4 months. For example, we have made the vaccination against tetanus, pertussis and polio vaccinations. Then came the teeth, temperature, and at this time I wasn’t able to do the vaccinations. Therefore, earlier than six months, from 3-4 months, because later such things begin.”

So, participants think that the immunization schedule is quite relevant, but some of them would like to make the following changes to the calendar: to move the first immunization, and start the vaccination at the age of six months.

Assessing the level of awareness of vaccination

Almost all parents in the focus groups considered their knowledge regarding vaccination as insufficient. Assessing their knowledge, respondents indicated a different rate from 30 to 80. The highest rates of their awareness were the respondents who have doctors among family members, relatives and others.

Mostly, participants indicated that they do not have enough knowledge regarding side effects from vaccination. Also, participants are interested in first aid in case of complications after the vaccination:

“What should be done, if there are some negative signs? What is the first aid in such situations?”

Some participants emphasized the fact that feeling a lack of information about vaccination, they had to go to the doctors with their question, and they had not always received answers. Usually doctors talk about vaccination in a general way, not paying attention to those aspects that are important for the parents, and sometimes do not know the answer to such questions at all:

“I think that even pediatricians do not know everything. For example, the vaccine was brought, and they say they do not know anything about. What is it?”

In general, it should be noted that the level of confidence of parents to the doctors as a source of knowledge about vaccination is high enough. In cases where parents are not satisfied with their district doctor, they find another doctor with whom they consult and discuss vaccination.

Sources of knowledge on vaccination and the benefits of such information

In focus group interviews with parents, we tried to identify what other sources of knowledge about vaccination are popular among parents and what the sources are that they trust and believe that the information obtained from these sources is useful.

In addition to doctors, the majority of parents get their knowledge on vaccination from the Internet, sometimes from other media (explaining that by the lack of information on vaccination), as well as from the close social environment: friends and acquaintances: *“My sister has two children. They do not get sick, they are vaccinated. She tells me about all pros and cons. I get all the information from her. Not from the media, not from the doctors, but just from the stories from her own experience.”*

As for the media and the Internet sites, parents trust them less than the doctors and close social networks:

“I heard about the forums, and I do not trust them. I try to read specialized literature.”

Many parents also note that they have formed an overall opinion on the vaccination using and combining three sources, that they trust doctors, friends and the media, at the same time, first of all is listening to experts.

The need for informational materials

Most parents consider that today there is not enough information about vaccination that is provided in clinics and they would like to see more information there on boards devoted to this theme, and get flyers, brochures, booklets, and attend lectures organized at the local clinics.

The main topics that must be included in these informational materials are:

“What are the symptoms of diseases, what are its consequences, the risk of getting sick?”

“What kind of disease it is. How often it occurs in our country. Maybe it is already 100 years since the last case of this disease was registered?! Parents should also know what will happen to the child if she/he gets infected with this disease (if the vaccination won't be done). Also, what will happen if we do it – lightweight forms?”

“And also some information for the opponents of vaccination is needed. At least some actions, what to do with a disease, like a scheme. And yet, if something happens after vaccination, how to behave and how to act.”

CONCLUSION TO PART II

- General awareness of vaccination of parents who participated in the focus groups is quite high. This was proved by:
 - Adequate definition of notions such as : infection, immunity (its creation), and spasm
 - And distinction between the notions “virus” and “bacteria”
 - And the evaluation of the epidemiological situation today in Ukraine.
- But despite this fact, parents themselves have identified their level of awareness of vaccination as low. They indicated side effects of vaccination as the main neglect of their knowledge. The main reason why they have a lack of knowledge is a lack of communication between parents and doctors; experts provide only general knowledge about vaccination.
- The attitude of the vast majority of the parents of focus groups to vaccination in general is positive. Such parents vaccinate their children and give them all vaccinations. But many parents still have some doubts about the immunization schedule and quality of vaccines , which is resulting in:
 - Some of the parents refusing to do vaccinations
 - Some make "changes" to the immunization schedule for their children, refusing to do vaccinations that should be made in the first days of life
 - Others provide vaccines from six months when the child has no parent immunity

- Some parents simply refuse certain vaccines, considering the vaccine imported in Ukraine for specific immunization as defective
- The main sources of information regarding vaccinations for polled parents are: doctors, friends/relatives/acquaintances, media, and the Internet. The highest level of trust was for doctors, and the lowest – the Internet. The information they receive from all three sources is not always enough, so participants feel the need for additional information and educational materials on vaccination in such form as information boards in clinics, lectures for parents, brochures, booklets, flyers and so on. The main topic of informational and educational materials, according to the participants, should be: the list of diseases that are currently relevant for Ukraine, their effects, the risks of getting ill, as well as methods of treatment for those vaccination opponents, and the major thing that bothers our participants – side effects from vaccines, their licensing and warranty of the state.

PART III. MAIN RESULTS OF FOCUS GROUP INTERVIEWS IN KHARKIV AND LVIV WITH PARENTS AND DOCTORS ABOUT THE PRETEST OF INFORMATIONAL MATERIALS ON VACCINATION

During the testing of informational materials, by both doctors and parents, participants were asked the following questions:

- First impression of the content of the informational material;
- Credibility of the information;
- Target group;
- Main idea of informational material;
- Novelty of information;
- Benefits of informational material;
- Completeness of the material; and
- Amendments.

Also, both groups of participants were asked to evaluate informational materials with a 5-point scale, where 5 is the highest score and 1 is lowest, and the following characteristics:

- Complete – answers all questions
- Understandable
- Helpful
- May affect the decision to vaccinate
- Makes you wonder

1. “BCG vaccine. What you need to know?” This leaflet for both parents and doctors is rated very positively. According to the participants of focus group interviews, complete information is given in plain language for the average citizen. All participants indicated that the information for them is not new, but its content is interesting and very informative. It is worth noting that parents who participated in the Lviv focus group discussions, found out possible places with high concentration of disease:

“... I didn’t know that it might be in the lymph nodes. I thought that tuberculosis is a cough, lungs ... and that there are such forms as open and closed” (Parents from Lviv).

Participants noted that the major advantage of this informational material is availability of footnotes for additional information on the topic, such as sites where you can find more information. Also, participants noted such benefits of BCG leaflets as presence of statistics on Ukraine, although it is striking in its essence, but it allows to reflect the real situation. Thus this leaflet, to parents' mind, cannot be considered as a significant source of information in connection with the possibility of free access to official information.

Parents of the focus group interviews determined the main idea of informational material as providing information on BCG vaccine to parents to getting acquainted with the basic knowledge and vaccination regulations. Also they have identified some omissions, namely the absence of a list of possible vaccines and country producers. In general, parents positively evaluated this leaflet.

Doctors also appreciated the information leaflet on BCG. The advantages of this material, in their opinion, are the availability of language and concise writing and recommendations to see a doctor if parents have any questions. According to the doctors, to improve this informational material, more statistics need to be added in section 8 ("What are the risks associated with BCG vaccine") and also the authors of the material, contact information and the examples from the lives of those children whose parents refused to do vaccination (such as the duration of treatment and side effects after illness). Also doctors from Lviv would like to see statistics of the disease, depending on the region of Ukraine and more information on possible places of TB infection transmission. It should also be noted that the doctors pointed to the need for dissemination among parents of information on tuberculin diagnostics, as parents often attribute this preventive measure to vaccination and therefore refuse to do it:

"There should be a bit more information on tuberculosis diagnostics, what is it and what we do, that it has just preventive purposes ... it is not a vaccination" (Doctors, Lviv).

This leaflet was highly appreciated on a 5-point scale by both parents and doctors from both regions.

Table 1. Assessment of Informational Material: "BCG vaccine: What do you need to know?"

ESTIMATION PARAMETERS	PARENTS		DOCTORS	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.42	4.91	4.11	4.60
Understandable	4.92	5.00	5.00	4.90
Helpful	4.33	4.73	3.78	4.60
May affect the decision to vaccinate	3.83	4.73	4.22	4.10
Makes you think of its necessity	4.42	4.64	4.67	4.30

2. Vaccines: diphtheria, tetanus, and pertussis. What do you need to know? This informational material received positive feedback from parents about its fullness and clarity of information. This leaflet, according to the participants of the discussion is designed exclusively for parents to report basic information about possible child diseases and methods of its prevention. For the vast majority of participants, the information was new, especially symptoms of diseases:

"... I did not know about the tetanus, its symptoms." (Parents, Lviv).

"... I did not know before, that adults also need to do vaccinations..." (Parents, Kharkiv).

Despite the novelty of information, according to the parents, who took part in the discussion, this leaflet requires significant improvement. Firstly, there is no source of information in these materials, and this fact raises some doubts:

“And where is the source of this information? These sites? There is no source of information here, if it is the website of Ministry of Health it is the source, but not these ones.” (Parents, Kharkiv).

Also, according to the parents, there is not enough information in the leaflet about the diseases, their symptoms, and the ways of transmission.

Doctors who evaluated this informational material, highlighted the need for its distribution among parents, and named accessible language and concise presentation of information as its benefits, though, in their opinion, the presence of the acronyms complicates the perception of the material. Concerning the possibility to influence the decisions of parents regarding the vaccination of children, participants’ opinions divided, as there is a lack of statistics to compare the morbidity and mortality from these infections, while this information increasingly affects the parents’ decision. Also, according to the doctors, it would be great to emphasize the need for a timely visit with a doctor if you have any questions.

Thus, the leaflet *“Vaccines: diphtheria, tetanus and pertussis: What do you need to know?”* was highly appreciated among parents and doctors. The participants noted the need to spread this information among parents, but with amendments, namely:

- Deciphering acronyms;
- Emphasis the need to visit a doctor; and
- Add pictures.

Evaluation of the leaflet on a 5-point scale showed that this material is important for both doctors and parents from both cities, although it should be noted that according to the parents from Kharkiv, the material will not affect the decision to vaccinate children and won’t make anybody think of its necessity.

Table 2 Assessment of Informational Material: “Vaccines: diphtheria, tetanus, and pertussis: What do you need to know?”

ESTIMATION PARAMETERS	“VACCINES: DIPHTHERIA, TETANUS, AND PERTUSSIS: WHAT DO YOU NEED TO KNOW?”			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.08	4.82	4.89	4.70
Understandable	4.67	4.82	4.78	4.90
Helpful	4.17	4.82	4.44	4.60
May affect the decision to vaccinate	3.25	4.73	4.56	4.60
Makes you think of its necessity	3.67	4.55	4.56	4.40

3. Influenza vaccine (inactivated). This leaflet caused controversial reactions among groups of parents in the two cities. Parents of the focus group discussion in Kharkiv pointed at the low relevance of the material, taking into consideration the specificity of this disease. Information

didn't attract any attention and trust of the majority of participants, as influenza is perceived by most adults as a disease that is easily treated:

"... diseases that lead to death are really scary [in] childhood... and the flu just need to be controlled and I know what to do when a child is sick with the flu ..." (Parents, Kharkiv).
"... The flu – is a standard treatment ... and I do not even know what information should be to encourage to do flu vaccinations..." (Parents, Kharkiv).

Parents who were participants of focus group in Lviv, in contrast to the previous group of participants pointed to the novelty of the presented information, and the lack of structured materials for public access:

"... I have not read the information about the vaccination against flu at all, there is no such information in the public access..." (Parents, Lviv).

Participants rated this information as clear, accessible to the ordinary citizen and structured; and a major advantage in comparison with other data on vaccination against influenza is the clear presentation of vaccine side effects. The main message of this material for participants is information about the dangers of complications that can occur after influenza.

This material requires a slight revision, namely to prescribe cost-effectiveness of vaccination against influenza, i.e., to estimate the approximate cost of treatment of influenza for one person and the cost of vaccination. Such a comparative cost analysis will encourage people to choose timely vaccination against influenza, not only for children, but also for adults. Parents also identified the need for additional information about the possibility of vaccination of children; need to clearly the age of the child at which time the first vaccination against flu should be conducted.

The second group of the focus group discussions, namely doctors, rated the material in a different way. For example, doctors from Kharkiv pointed at the lack of demand among the population in this informational material and the lack of relevance of the topic.

"... the phrases are too common, there are nothing new, perhaps for parents the information is necessary, but not relevant ..." (Doctors, Kharkiv).

Unlike doctors from Kharkiv, Lviv doctors pointed out the high relevance of the material and the need for its wider dissemination among the population, especially among parents. But this material should be supplemented with the following items:

- Broader description of diseases: types, symptoms;
- Possibility of combining vaccination against influenza with vaccination calendar;
- Types of vaccines and the results of their research; and
- Comparison of vaccination side effects and complications after having an illness.

Thus, the material "Influenza vaccine (inactivated)" received positive assessment among parents and doctors from Lviv, and participants from Kharkiv evaluated it as unnecessary. In this case, taking into the consideration the specification of the cities, the above-mentioned items should be added to the material and re-testing should be held with other target groups, as the majority of participants felt the need for this material.

This informational material also received high marks among parents and doctors who were participants in the focus groups, although as it was in the previous variant, it won't influence the decision of a substantial portion of parents and doctors of Kharkiv to vaccinate their children.

Table 3. Assessment of Informational Material: “Influenza vaccine (inactivated)”

ESTIMATION PARAMETERS	INFLUENZA VACCINE (INACTIVATED)			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.25	4.91	3.44	4.60
Understandable	4.58	4.82	4.67	5.00
Helpful	3.83	4.73	3.56	4.70
May affect the decision to vaccinate	2.42	4.45	4.00	4.00
Makes you think of its necessity	2.00	4.18	4.33	4.10

4. Hepatitis B vaccine. All participants of the focus group interviews rated this informational material positively. Thus, according to the doctors from two cities, new information presented in accessible language and is comprehensive. Participants identified the adult population as the target group and the main message as the danger of the disease and the possibility of its prevention.

Despite the appreciation of the informational material, according to the doctors, it should be completed with the following items:

- Cost of hepatitis B treatment;
- Possibility of free vaccination against hepatitis B within the immunization schedule; and
- Types, composition and the vaccine producers.

According to the doctors, this informational leaflet should be disseminated among parents, starting during prenatal care, as very often parents refuse this vaccination.

Another group of parent participants have appreciated this informational material; according to them, the main characteristics are clarity, structure and completeness of the information.

New information for parents in this leaflet was the risk groups:

“... lots of information ... especially struck risk groups, which is emphasizing the high prevalence of the disease and the need for preventive measures ...” (Parents, Lviv).

Taking into the consideration positive evaluation of the leaflets by parents, only one more detail should be added – the cost of treatment and the consequences of the disease, these statistics will affect the parents’ decision to vaccinate against hepatitis B.

Thus, all participants of the focus group interviews appreciated this informational material and pointed to its importance for the general adult population.

The results of the evaluation of informational material are quite high, which indicates the interest of the focus groups in this material.

Table 4. Assessment of Informational Material: “Vaccine against hepatitis B”

ESTIMATION PARAMETERS	VACCINE AGAINST HEPATITIS B			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.67	5.00	4.78	5.00
Understandable	4.83	4.82	5.00	4.80
Helpful	4.42	4.82	4.67	4.70
May affect the decision to vaccinate	3.50	4.64	4.56	4.30
Makes you think of its necessity	3.58	4.64	4.89	4.40

5. What is Haemophilus influenza (Hib) disease? This informational material was evaluated very positively by all participants of the focus group interviews. The information presented in this article for the vast majority of parents was new and interesting. This material is mostly designed for parents and includes all basic questions about immunization. Parents paid particular attention to the presence in the materials of the detailed description of the disease, historical reference and distribution of target groups that need to be vaccinated. *“... in this material sufficiently described the history, who and at what age should be vaccinated ... special emphasis should be put on the older children and adults ...” (Parents, Lviv).*

According to parents, one of the main advantages of this material is detailed symptoms and answers to the most common questions that arise due to the novelty of infection.

Unlike parents, for the majority of doctors, information was not new, but very interesting. Participants of the focus group interviews indicated a need for dissemination of this information, as parents do not know much about it, and that is the reason for frequent rejection of vaccination. Doctors also pointed out some disadvantages of the material that need to be fixed:

- Outline the history of the disease;
- Clearly define ways of transmission;
- Detailed information on the side effects after vaccination;
- Information about vaccine research and statistics of its usage; and
- Morbidity statistics in Ukraine.

Thus, informational material **“What is Haemophilus influenza (Hib) disease?”** according to the analysis of evaluations of both target groups is highly relevant today among parents, considering also the novelty factor of infection. Nevertheless, it requires significant improvement.

Table 5. Assessment of Informational Material: “What is Haemophilus influenza (Hib) disease?”

ESTIMATION PARAMETERS	WHAT IS HAEMOPHILUS INFLUENZA (HIB) DISEASE?			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.42	4.64	4.67	4.50
Understandable	4.58	4.55	4.78	4.70
Helpful	4.67	4.82	4.67	4.60
May affect the decision to vaccinate	3.33	4.82	4.22	4.00
Makes you think of its necessity	3.92	4.73	4.11	4.00

6. Polio vaccine (inactivated) (IPV). Parents appreciated the information given in this informational leaflet, for all participants it was not new, but quite interesting and informative. The parents considered its clarity, literacy and concise presentation of information, presence of history of the disease and the frequency of infection as its positive side. Despite the fact that the symptoms of the disease and its complications cause fear among the participants, this factor mostly influences the decision to do the vaccination.

According to the parents, to improve this informational material, the list of recommended vaccines used in Ukraine and the results of their research should be added, as well as revealing statistics – i.e., assessment of the situation with the disease before vaccination and today, which will emphasize the effectiveness of vaccination.

After analyzing the material, the other group participants – doctors, also evaluated the importance of this information for both parents and for doctors. Doctors can use it in their practice to convince parents of the need and safety of vaccination against polio. In their opinion, the possibility of introducing this vaccine to pregnant women is worth emphasizing, as this information will be most influential.

According to doctors, the material is quite informative, although it needs minor additions, such as:

- Emphasis on historical inquiry that timely vaccinations during this period influenced the formation of the immunological layer and thus reduce the incidence of infection; and
- Parents focus on the fact that often a vaccine against polio is a combination that is included in other vaccines, which reduces the load on the organism of a child.

So, this informational material received very positive evaluations from the focus group participants, which is emphasizing its importance and the need of wide dissemination.

Table 6. Assessment of Informational Material: “Polio vaccine (inactivated) (IPV)”

ESTIMATION PARAMETERS	POLIO VACCINE (INACTIVATED) (IPV)			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.58	4.82	4.67	4.80
Understandable	4.92	4.91	4.89	4.90
Helpful	4.67	4.73	4.33	4.80
May affect the decision to vaccinate	4.58	4.36	4.44	4.50
Makes you think of its necessity	4.58	4.82	4.67	4.60

7. Oral polio vaccine (OPV). This informational material, according to doctors, answers all common questions from parents about vaccinations against polio and has the largest number of advantages in comparison with other materials. Thus, information was rated as interesting, well-reasoned, statistically validated, in the material safety of vaccination is evident, which greatly increases the impact on parents and their positive attitude towards vaccination.

The only addition, which should be made according to the doctors, is to indicate severe complications after the transfer of the disease:

“... it should be mentioned, that the person who suffered from this disease remains disable[d] for the whole life ...” (Doctors, Lviv).

Parents who evaluated this informational material also indicated the presence of a large number of arguments "for" vaccination. The big advantage of this material is a detailed description of why the vaccination is needed, types of polio vaccine, description of contraindications for vaccination and link to additional sources of information.

Thus, this informational material received the most positive assessments and do not require any additions or improvements.

Table 7. Assessment of Information Material: “Oral polio vaccine (OPV)”

ESTIMATION PARAMETERS	ORAL POLIO VACCINE (OPV)			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.67	4.82	4.78	3.60
Understandable	4.67	4.73	4.89	4.60
Helpful	4.25	4.73	4.67	3.90
May affect the decision to vaccinate	3.75	4.45	4.67	3.70
Makes you think of its necessity	4.08	4.55	4.44	3.50

8. Measles mumps and rubella (CCP). Taking into consideration the fact that such infectious diseases as measles, mumps and rubella are well-known among the Ukrainian population, the information presented in this material was not new for all participants of the focus group

discussions. But it is worth noting that parents were interested to read more about the side effects of the disease, periods of vaccination and vaccine risks.

According to parents, the information in this article should emphasize information on the characteristics of each of the diseases presented and the impact on future quality of life, especially among the male population.

Doctors also stressed the need for detachment of the impact of diseases on boys and consequences of transferring diseases during pregnancy:

“... concerning pregnancy –it should be noted that among the consequences there are congenital hearing loss, blindness, heart disease ... and really such incidents occurred ...” (Doctors, Lviv);

“... with regard to infant vaccination, there are different vaccines and the list of manufacturers should be provided... parents are most interested in manufacturers, vaccine composition and certificates ...” (Doctors, Kharkiv).

Thus, this informational material is quite relevant to the current situation with the spread of the disease in Ukraine, but it needs some complement, namely:

- Additional information on adults: separate women, men;
- Possible vaccination scheme;
- Maximum age at which it is necessary to carry out vaccinations;
- Emergency prevention after contact with a patient; and
- Statistical information: a comparison of morbidity and mortality.

Table 8. Assessment of Informational Material: “Measles, mumps, and rubella (CCP)”

ESTIMATION PARAMETERS	MEASLES, MUMPS, AND RUBELLA (CCP)			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	4.67	4.91	4.89	4.50
Understandable	4.83	5.00	4.89	4.60
Helpful	4.42	4.91	4.56	4.40
May affect the decision to vaccinate	4.50	4.55	4.44	4.20
Makes you think of its necessity	4.42	4.55	4.56	4.20

9. Appendix B: Vaccine-preventable diseases that are listed in Ukrainian national immunization program. This informational material caused greater interest among parents. The main advantage of this material, according to focus group participants, is the analysis of the most dangerous diseases and their concentration in a single document. For most participants, this material was interesting and informative.

According to the parents, the target group of this material is the part of the population that has not yet decided whether to get vaccinated or not:

“... information material for distribution among parents in vaccine offices ... that's why everything should be short and concise ...” (Parents, Kharkiv).

“... review of this material does not require time-consuming and pushing when necessary to search for more information ...” (Parents, Lviv).

According to the parents the material needs some revision, namely:

- Putting the diseases depending on their complexity;
- Add the link to legislation of Ukraine;
- Add illness and mortality statistics for the last 5 years in Ukraine;
- Provide more details on each infection; and
- Provide a list of vaccines and the results of their tests.

Another group of participants in focus groups – the doctors – noted the lack of novelty of this information, but at the same time, they noted the need for such material used in practice and its dissemination among parents, and their attitude to the vaccination doesn't play any role.

According to doctors, the following adjustments to the informational material should be done:

- Write about clinical cases of disease;
- Determine the most complicated reactions to vaccination;
- Clarify defined procedure after the vaccination;
- Analyze the legislation of Ukraine on the failures of vaccination and full participation of children in society;
- Add sources of information and indicate the authors of the material.

Thus, according to focus group participants, the material may affect the parents' decision regarding vaccination, but only in case of consideration of the above-mentioned comments. Despite the comments of the participants of the focus group interviews about the need to make amendments and additions, all participants appreciated the positive aspects of this appendix.

Table 9. Assessment of Informational Material: “Appendix B: Vaccine-preventable diseases that are listed in Ukrainian national immunization program”

ESTIMATION PARAMETERS	APPENDIX B: VACCINE-PREVENTABLE DISEASES THAT ARE LISTED IN UKRAINIAN NATIONAL IMMUNIZATION PROGRAM			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	3.92	3.92	3.33	4.50
Understandable	4.92	4.83	4.58	4.90
Helpful	4.25	4.75	3.33	4.30
May affect the decision to vaccinate	4.25	4.50	3.83	4.30
Makes you think of its necessity	4.17	4.42	4.17	4.40

10. Thimerosal and autism. This material has caused quite ambiguous estimates among parents who took part in the discussion. Thus, almost for all parents the information was new and caused mixed feelings. On one side, the results of studies provided in the materials prove that there is no negative impact on the development of children's vaccination, but at the same time focusing on the presence of preservatives in the vaccine makes parents to carefully weigh all “pros” and “cons” of vaccinations.

“For me, this article is unintelligible, I hear about such components for the first time and I thought that something is wrong with this vaccine and this fact confirmed my distrust of them.” (Parents, Kharkiv)

“... It is important that the lack of sufficient knowledge about vaccination will not allow to understand everything in a right way and will cause more refuses of the parents...” (Parents, Lviv).

According to the doctors, who also participated in the evaluation of these materials, there are not enough results of the research and more attention should be devoted to the disease rather than to the preservative used in the vaccine.

“This material is not credible and it won’t encourage parents to do the vaccination, as here is the only one idea of one man – the author ...” (Doctors, Lviv).

“This article, rather the part of it, should not be universally accessible for parents, as it will lead to negative impression, especially among those who haven’t decided yet, whether to do the vaccination or not...” (Doctors, Kharkiv).

Thus, this material has caused more negative ratings among the focus group participants. It requires significant development, in particular: expenditure of information about the disease of autism, its research, displays, ways of transmission, and partly description of the preservative used in vaccines. These materials should prove to everyone interested, the lack of connection between the components of the vaccine and the disease of autism.

Table 10. Assessment of Informational Material: “Thimerosal and autism”

ESTIMATION PARAMETERS	THIMEROSAL AND AUTISM			
	Parents		Doctors	
	Kharkiv	Lviv	Kharkiv	Lviv
Complete – answers all questions	1.83	1.58	3.00	3.00
Understandable	1.92	1.75	4.25	4.60
Helpful	2.08	2.25	3.25	3.60
May affect the decision to vaccinate	1.67	2.08	3.25	2.50
Makes you think of its necessity	1.83	1.92	3.92	2.50

11. If you choose not to vaccinate your child, keep in mind the risks and responsibilities. This material highlighted the neutral emotions of all participants of the focus group interviews. Its main aim, according to the participants, is to provide information about the disease and action schemes during its displays, but it can be used only for the overall development.

Also worth noting is that the participants did not specify the novelty of this information, it has to be a trial and should not be perceived either positively or negatively. It's just information, which is why participants were not able to distinguish the benefits of this information.

As far as the advantages of this material, participants mentioned the lack of advertising and encouraging parents to change their decision, it is seen more as a social project for all parents, even those who do vaccination and those who don't.

The main disadvantage of this informational material, according to the participants, is the lack of references to the legislation of Ukraine – orders, laws on compulsory vaccinations at the time of registration of a child in the kindergarten or school.

To improve the perception of information, the description of the disease, a description of symptoms and possible complications should be added. Also the photos of children who are sick should be added. According to the participants, this will increase the ability to influence parents who are strongly against vaccination.

The participants emphasized that the addition of a vaccination calendar, rules of preparation of the child for vaccination, and contraindication for various diseases to the material for better perception.

Table 11. Assessment of Informational Material: “If you choose not to vaccinate your child, keep in mind the risks and responsibilities”

ESTIMATION PARAMETERS	IF YOU DECIDE NOT TO VACCINATE YOUR CHILD, KEEP IN MIND THE RISKS AND RESPONSIBILITIES	
	Parents	
	Kharkiv	Lviv
Complete – answers all questions	4.42	4.25
Understandable	4.83	4.58
Helpful	3.58	4.67
May affect the decision to vaccinate	3.25	4.50
Makes you think of its necessity	3.58	4.67

Ranks of the evaluations of information materials.

All participants in the focus group interviews rated informational materials based on several parameters, one of which was the overall experience and the need for this informative article. The results of these estimates show that all groups have a need for the following informational materials:

For doctors, the most interesting were the following materials:

- Polio vaccine (inactivated) (IPV)
- Vaccines: diphtheria, tetanus, and pertussis
- Vaccine against hepatitis B
- Oral polio vaccine (OPV)
- Thimerosal and autism

In this case, the least interesting and important:

- Oral polio vaccine (OPV)
- Thimerosal and autism
- Appendix B

For parents, the most important was the following information:

- BCG vaccine. What do you need to know?
- Vaccine against hepatitis B
- Measles, mumps, and rubella (CCP)
- Vaccines: diphtheria, tetanus, and pertussis
- What is Haemophilus influenza (Hib) infection?
- Polio vaccine (inactivated) (IPV)
- Oral polio vaccine (OPV)
- Influenza vaccine (inactivated)

It should be noted, that there is a significant difference between the material estimates of parents from Lviv and Kharkiv. For example, parents from Kharkiv pointed at the need for only two materials: “Polio vaccine (inactivated) (IPV)” and “Measles mumps and rubella (CCP).” Other specified materials were more interesting for another city. In this case, the least interesting material for parents was the article “Thimerosal and autism” and for parents from Kharkiv – “Influenza vaccine (inactivated).” All other information received average reviews from both parents and the doctors from both cities.

Table 12. Ranks of Assessments of Information Materials

DOCTORS	LVIV
Polio vaccine (inactivated) (IPV)	4.7
Vaccines: diphtheria, tetanus and pertussis	4.6
Vaccine against hepatitis B	4.6
"BCG vaccine. What do you need to know?"	4.5
Influenza vaccine (inactivated)	4.5
Appendix B: Vaccine-preventable diseases that are listed in Ukrainian national immunization program	4.5
What is Haemophilus influenza (Hib) infection?	4.4
Measles, mumps, and rubella (CCP)	4.4
Oral polio vaccine (OPV)	3.9
Thimerosal and autism	3.2
Kharkiv	
Vaccine against hepatitis B.	4.8
Oral polio vaccine (OPV)	4.7
Measles mumps and rubella (CCP)	4.7
Vaccines: diphtheria, tetanus, and pertussis	4.6
Polio vaccine (inactivated) (IPV)	4.6
What is Haemophilus influenza (Hib) infection?	4.5
"BCG vaccine. What do you need to know? "	4.4
Influenza vaccine (inactivated)	4.0
Appendix B: Vaccine-preventable diseases that are listed in Ukrainian national immunization program	3.8
Thimerosal and autism	3.5

PARENTS	LVIV
"BCG vaccine. What do you need to know?"	4.8
Vaccine against hepatitis B	4.8
Measles, mumps, and rubella (CCP)	4.8
Vaccines: diphtheria, tetanus and pertussis	4.7
What is Haemophilus influenza (Hib) infection?	4.7
Polio vaccine (inactivated) (IPV)	4.7
Oral polio vaccine (OPV)	4.7
Influenza vaccine (inactivated)	4.6
Appendix B: Vaccine-preventable diseases that are listed in Ukrainian national immunization program	4.5
If you decide not to vaccinate your child, keep in mind the risks and responsibilities.	4.5
<i>Thimerosal and autism</i>	1.9
Kharkiv	
Polio vaccine (inactivated) (IPV)	4.7
Measles mumps and rubella (CCP)	4.6
BCG vaccine. What do you need to know?	4.4
Oral polio vaccine (OPV)	4.3
Appendix B: Vaccine-preventable diseases that are listed in Ukrainian national immunization program	4.3
Vaccine against hepatitis B	4.2
What is Haemophilus influenza (Hib) infection?	4.2
Vaccines: diphtheria, tetanus and pertussis	4.0
<i>If you decide not to vaccinate your child, keep in mind the risks and responsibilities</i>	3.9
<i>Influenza vaccine (inactivated)</i>	3.4
<i>Thimerosal and autism</i>	1.9

CONCLUSION TO PART III

- The material for vaccination against influenza was the least interesting for the participants of both groups; at the same time, cards about the vaccine against polio and Haemophilus influenza became the most actual and new.
- It should be noted that the vast majority of participants indicated the need for amendments for each category of materials.
- Often amendments concerned the following points:
 - Lack of information about each disease;
 - Historical background of the discovery of the first case in Ukraine and statistical information on the number of vaccinations carried out and the number of disease cases;
 - Types of vaccines for each disease in Ukraine, possible vaccine manufacturers and its composition; and
 - Examples of vaccines' research and their results.

- Concerning the need for other materials, including ways of distributing them, the participants noted the following:
 - The doctors would like to see informational boards in clinics with the focus on new infectious diseases, their signs and information about testing of vaccines against specific diseases.
 - According to the parents, they often lack information on all communicable diseases that currently exist in Ukraine, and the specification of the treatment of each case. Parents indicated children's hospitals as the best place to get such information.

PART IV. MAIN RESULTS OF IN-DEPTH INTERVIEWS WITH THE DOCTORS ABOUT PRETEST OF INFORMATIONAL MATERIALS ON VACCINATION

Common Questions

Unlike doctors who participated in the FG, all 47 doctors who participated in in-depth interviews unanimously supported the vaccination. All the interviewed doctors vaccinate their children and grandchildren and the vast majority of them regularly vaccinate in adulthood.

Most doctors stressed the lack of available information on vaccination for parents. Even if they find some appropriate material, then its quantity usually is too small. They also accentuated the lack of information about manufacturers and composition of vaccines, research results on the topic of vaccination, and information about the vaccine-preventable diseases with examples and statistics.

“I would like to have more visual aids to be able to demonstrate [to] parents; that the information was available to them, without any medical terms; to persuade parents during a conversation.”
“To have a possibility to tell about the diseases and complications of these diseases in case the rejection from vaccination. Because people often do not know why it is dangerous.”

Also, we should note that the vast majority of doctors would like to have statistics on vaccination, as they feel a lack of it during their communication with parents. Also, they emphasized the negative impact of the media. Almost all doctors said that, unfortunately, the information in the media has anti-vaccination character, which causes particular difficulties in communication of doctors with parents on the vaccination topic. Therefore, doctors indicated the need of working with the media and the need of developing materials for the media.
“... because now there is a great anti-vaccination program is broadcasted on television. In books, stories on television, the performance of our professionals, we need to promote the motto “say yes to vaccination.”

During the interview, the majority of doctors expressed a wish to strengthen the work with parents about vaccination during the pregnancy of women. Unfortunately, as neonatologists noted, parents often have no information on child immunization in the first days of his/her life, then refuse vaccination at the hospital.

“We need to conduct some conversations with pregnant women. As then they give birth, and then start calling all doctors that they knew, and ask them whether to do vaccination or not. And usually refuse. They are afraid. And why? Because there is no complete information.”

Concerning the location of information materials, the doctors noted the following places in order of importance:

- Pediatricians’ offices, children's clinics and hospitals
- Immunologists’ offices

- Antenatal clinics for pregnant women
- The maternity
- Kindergartens
- Internet
- In the medical literature

Testing of informational materials

It should be noted that all informational materials that were discussed during the interviews were positively evaluated by the doctors. Almost all doctors stressed the importance of these materials and expressed a desire to receive this material as soon as possible to work with parents.

During the interview, the following comments were made on the following informational materials:

1. How to Answer Parents' Tough Questions about Vaccination

Almost all the doctors said that all of them are asked such questions, which is why they praised the material almost unanimously, and appreciated its completeness and relevance.

"I have read everything and I really liked it, everything is set very briefly, clearly and understandably, sometimes there arise some issues when you cannot answer the parents' questions, and it's so well written here, I really liked it. If you could leave this material, I would even speak to the doctors in my office about it."

Majority of doctors often face such questions: *"How can I be sure in the safety of vaccines?"* and *"Can you guarantee that my child will not have side effects?"* Therefore, doctors would like to have more information on these questions.

Also, the doctors said that it would be great to add statistical information about vaccination. *"Maybe you should add some statistics on the incidence of immunized children, of non-vaccinated statistics on areas, regions where the situation is worse, where it is better, how it affects the overall picture, something like this, people's attitude to the figures is quite respectful and it might help."*

2. Chiropractors and vaccines. Historical Overview

This material wasn't perceived positively by the doctors. The majority of doctors called this material "familiarization material," which is not important for their practice. Doctors said that this material might be interesting for parents, but unfortunately doctors have no time for such "history." Therefore, the doctors considered that this material might be placed on the Internet sites for parents.

"I have read it, but I would never use this material; it is for the United States, we do not have such practice here, it's just a familiarization material for me. I do not see the need in telling it to the parents and I do not consider it necessary."

"There is a lot of information, but it is not interesting to read it, here is the information on the studies carried out and that that vaccination is a bad thing. Maybe this is necessary for the parents for the overall development, but you can reduce it, because here are a lot of things and it is difficult to understand them."

"We need this information, for both, physicians and parents, but just for the overall development."

3. Self-Assessment Checklist for medical professionals who authorize immunizations and Self-Assessment Checklist for medical professionals who administer immunizations

These materials were interesting for doctors and nurses, but as commemorative booklets. Almost all doctors and nurses noted that they do not have any time to fill it out each time, as they have to fill in a lot of other documents related to vaccination.

“I think that this table is not necessary, it's all done in the card and just another table that will complicate life with writings, maybe it is important for immunologists, but as for pediatrician – we have so many papers to be filled and it takes a lot of time. It is for short-term work, but not for permanent use.”

4. Testing of a brochure “Understanding vaccines”

This brochure has had a positive response from all 12 experts. All the doctors said that this brochure covers all questions that doctors just do not have time to explain to parents. So this brochure would be helpful for all parents who have questions about vaccines.

“Everything is written in accessible and understandable manner. Of course, this information will be useful for parents. Especially, now, when parents read a lot about vaccines and vaccination and choose some particular vaccine, people now are much more informed than ever before”

“Accessible, easy to read, easy to “digest,” parents need to read it for the overall development, to understand why children should be vaccinated.”

The majority of the doctors also said that there are no such brochures in Ukraine. Therefore, almost all doctors stressed the need to print this brochure.

“I haven't ever met such an integrated approach. I would recommend this book.”

CONCLUSION TO PART IV

- The vast majority of doctors would like to have statistics on vaccination, as they feel a lack of it during their communication with parents. Also, they emphasized the negative impact of the media. Almost all doctors said that, unfortunately, the information in the media has an anti-vaccination slant, which causes particular difficulties in communication of doctors with parents on vaccination topic. Therefore, doctors indicated the need of working with the media and the need of developing materials for the media.
- Almost all doctors emphasized the importance of these materials and expressed a desire to receive as soon as possible materials for working with parents.
- Majority of doctors emphasized the lack of information about vaccination available to parents.
- During the interview, the majority of doctors expressed a wish to strengthen the work with parents about vaccination during the pregnancy of women.